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Waste Minimization/ Pollution Prevention Crosscut Plan 1994

U.S. Department of Energy
Office of the Secretary
Washington, DC 20585

The Secretary of Energy
Washington, DC 20585

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This Crosscut Plan is the principal planning document for the Department's Waste Minimization and Pollution Prevention Program. It directly supports our commitment to protecting the environment and the public health.

It includes a Department-wide goal to reduce the total releases of toxic chemicals to the environment 50 percent by December 31, 1999. In addition, it outlines specific roles and responsibilities for waste reduction within each office and lists several key activities to be undertaken to further waste minimization and pollution prevention within the Department.

Each organization within the Department that generates pollutants or manages waste is expected to develop an integrated and comprehensive waste minimization and pollution prevention program. Such programs will result in significant cost savings to the taxpayers, reduced health and safety risks to workers and the public, and improvement of the environment. It is the responsibility of each departmental and contractor employee to aggressively seek ways to reduce the amount of pollutants generated within the workplace and recycle, reuse, and conserve resources.

Hazel R. O'Leary

FOREWORD

DEPARTMENT OF ENERGY

MISSION

The Department of Energy is entrusted to contribute to the welfare of the Nation by providing the scientific foundation, technology, policy, and institutional leadership necessary to achieve efficiency in energy use, diversity in energy sources, a more productive and competitive economy, improved environmental quality, and a secure national defense.

CORE VALUE - RESPECT THE ENVIRONMENT

- We recognize our leadership role and responsibility to improve the quality of the environment for future generations.
- We recognize the importance of the environmental impacts of our operations and develop and employ processes and technologies to reduce or eliminate waste production and pollution in these operations.
- We place high priority on the protection of public health and safety and restoration of the environment through cleanup of environmental damage caused by past operations.

WASTE MINIMIZATION/POLLUTION PREVENTION CROSSCUT PLAN

The 1994 Waste Minimization/Pollution Prevention Crosscut Plan is directed toward achieving the Department of Energy's Core Value to respect the environment by reducing or eliminating the creation of pollutants or wastes at the source.

UNITED STATES DEPARTMENT OF ENERGY

OFFICE OF THE SECRETARY

EXECUTIVE SUMMARY

The 1990s are bringing new challenges to the Department of Energy (DOE). In order to adapt to the post-Cold War era, the Department must reconfigure and provide a Federal benchmarking role in environmental management and stewardship. Changes in mission, costs of compliance, and public concern over health and safety risks and preserving the environment are driving forces behind the development of a Waste Minimization/Pollution Prevention (WMin/PP) program.

Current trends in environmental policies and regulations indicate a move from pollution control to pollution prevention within the Federal government. The Pollution Prevention Act of 1990 established a national strategy for waste management and pollution control that focuses first on source reduction, followed by environmentally safe recycling, treatment, and disposal. On August 3, 1993 President Clinton issued Executive Order 12856, "Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements," which requires that Federal agencies develop voluntary goals to reduce their total releases of toxic chemicals by 50 percent by December 31, 1999.

Accordingly, this plan establishes a Department-wide goal to reduce total releases of toxic chemicals to the environment and off-site transfers of such toxic chemicals by 50 percent by December 31, 1999, in compliance with Executive Order 12856. Each site that meets the threshold quantities of toxic chemicals established in the Emergency Planning and Community Right-to-Know Act (EPCRA) will participate in this goal. In addition, each DOE site will establish site-specific goals to reduce generation of hazardous, radioactive, radioactive mixed, and sanitary wastes and pollutants, as applicable.

Implementation of this plan will represent a major step toward reducing the environmental risks and costs associated with DOE operations and increasing the Department's use of preventive environmental management practices. Investing in WMin/PP will steadily reduce hazardous and radioactive waste generation and will reduce the need for waste management and unnecessary expenditures for waste treatment, storage, and disposal. A preventive approach to waste management will help solve current environmental and regulatory issues and reduce the need for costly future corrective actions.

The purpose of this plan is to establish the strategic framework for integrating WMin/PP into all DOE internal activities. This program includes setting DOE policy and goals for reducing the generation of wastes and pollutants, increasing recycling activities, and establishing an infrastructure to achieve and measure the goals throughout the DOE complex. Waste Minimization and Pollution Prevention Awareness Plans, submitted to Headquarters by DOE field sites, will incorporate the WMin/PP activities and goals outlined in this plan. Success of the DOE WMin/PP program is dependent upon each field operation becoming accountable for resources used, wastes and pollutants generated, and wastes recycled.

To date, lack of sufficient staff and resources has limited the effectiveness of WMin/PP on Departmental operations. This Crosscut Plan describes the difficulties associated with implementing WMin/PP within the DOE system and contains activities and an implementation strategy to overcome these problems. Key Departmental roles and responsibilities call for the Executive Board to set WMin/PP priorities, the sites to develop meaningful WMin/PP goals and budgets, and the Cognizant Secretarial Offices (ie., Departmental Offices reporting to the Secretary) to provide adequate guidance and resources for the sites to achieve their goals in reducing waste generation and environmental releases.

This plan focuses specifically on wastes generated by internal DOE activities. It does not include information about external activities and partnerships between DOE and industry, which are discussed in other Departmental documents.

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WASTE MINIMIZATION/POLLUTION PREVENTION CROSSCUT PLAN

DEPARTMENT OF ENERGY
WASTE MINIMIZATION/POLLUTION PREVENTION MISSION

The Department of Energy (DOE) Waste Minimization/Pollution Prevention (WMin/PP) mission is to reduce generation and release of DOE multi-media wastes and pollutants by implementing cost-effective waste minimization and pollution prevention technologies, practices, and policies with partners in government and industry while conducting the Department's operations in a compliance with applicable environmental requirements.

1.0 INTRODUCTION

The Department's waste management strategy is moving toward one of prevention.

The Pollution Prevention Act of 1990 established source reduction as the national strategy of first choice to reduce the generation of pollution. On August 3, 1993, President Clinton signed Executive Order 12856, "Federal Compliance With Right-to-Know Laws and Pollution Prevention Requirements," (Appendix A) which mandates pollution prevention leadership within the Federal government. The Executive Order requires that all Federal agencies develop voluntary goals to reduce their total releases of toxic chemicals to the environment by 50 percent by December 31, 1999.

The Department of Energy (DOE) embraces pollution prevention as its primary strategy to reduce the generation of all waste streams in order to minimize the impact of Departmental operations on the environment, reduce operational costs, and improve energy efficiency and the safety of its operations. Preventing pollution will reduce the waste management burden while eliminating the potential for future liability and clean up. Recycling of wastes that cannot be reduced at the source is the Department's secondary strategy, to further conserve resources and reduce the need for landfill space. Waste treatment and disposal will be considered only when prevention or recycling are not possible or practical.

This plan addresses the WMin/PP activities of the Department. The focus to date has primarily been on source reduction and recycling of solid wastes to reduce the amount of waste requiring treatment, storage, and disposal. However, the Department is expanding its efforts to operate more efficiently with less risk to human health and the environment through resource conservation and to reduce environmental releases, and increase use of recycled materials. This plan incorporates multi-media source reduction and recycling activities into all DOE operations. Treatment, storage, and disposal activities are not addressed here.

1.1 Definition of Waste Minimization and Pollution Prevention

The Environmental Protection Agency (EPA) defines waste minimization as source reduction and recycling of solid wastes, and defines pollution prevention as the use of materials, processes, or practices that reduce or eliminate the creation of pollutants or wastes at the source. EPA's definition of pollution prevention includes practices that reduce the use of hazardous materials, energy, water, or other resources and practices that protect natural resources through conservation or more efficient use. Pollution prevention equates to source reduction of all wastes and pollutants.

The Department defines WMin/PP as activities that involve source reduction and recycling of all wastes and pollutants. It includes practices that reduce the use of materials, energy, water, or other resources and practices that protect natural resources through conservation or more efficient use. A more detailed definition for waste minimization and pollution prevention is provided in Appendix B.

1.2 Purpose of the 1994 Crosscut Plan

This plan establishes a Departmental vision of environmental management with preference for source reduction and recycling over waste treatment, storage, and disposal. In addition, the plan:

- defines the need for consistent DOE-wide WMin/PP planning, and provides the avenue to achieve comprehensive WMin/PP programs across the complex;
- establishes goals and goal-setting criteria to reduce the use and release of toxic chemicals, waste generation and other environmental releases;
- provides for consistent site WMin/PP planning and budgeting by establishing the elements of site-wide and generator programs and use of specific Activity Data Sheets for resource allocation; and
- provides a planning and budgeting feedback loop between field sites and Headquarters by requiring that sites submit for approval WMin/PP plans, reports, and budgets.

To take full advantage of the benefits of WMin/PP, the Department must develop and maintain a consistent and comprehensive program throughout the DOE complex. Although the existence of a waste minimization program has been a Departmental requirement since 1988 (DOE Order 5400.1), the level of program development and actual reduction in waste generation has not progressed in relation to potential benefits.

1.3 Relationship of 1994 and 1992 Crosscut Plans

The first Waste Minimization Crosscut Plan, issued in 1992, identified objectives, strategic issues, strategies, and success indicators to carry out the entire DOE waste minimization mission. Table 1.3 outlines the objectives from the original plan. The 1994 WMin/PP Crosscut Plan moves from policy to implementation and expands the scope from minimization to all pollution prevention activities. The activity-based approach of the 1994 plan will:

- clarify WMin/PP requirements and roles and responsibilities, and require clear accountability for WMin/PP implementation;
- quantify waste generation rates, waste management costs, goals for reducing waste generation, and WMin/PP progress;
- use resources more effectively and reduce releases of pollutants and contaminants to the environment;
- foster a long-term WMin/PP perspective and minimize future operational impacts on the environment.

This plan, unlike the 1992 WMin Crosscut Plan, focuses specifically on the wastes and pollutants (including contaminants and hazardous substances) generated within the Department. It does not include information on DOE programs with U.S. industry, although the Department engages in a broad range of environmental research and development programs with industry that are designed to facilitate the implementation of new WMin/PP technologies. Examples of such programs include:

- the Industrial Waste Reduction Program (Office of Energy Efficiency and Renewable Energy);
- the Economic Growth Through Clean Industry Initiative (Office of Policy, Planning, and Program Evaluation);
- and the Clean Coal Technology Program (Office of Fossil Energy).

These and other government/private sector programs are discussed in other Departmental documents.

Table 1.3 1992 Waste Minimization Crosscut Plan Strategic Objectives.

The following objectives from the 1992 Waste Minimization Crosscut Plan are developed into a specific Activity Plan described in Section 5.0 and Appendix C of this Plan.	
Culture Change	Create a DOE culture that fosters the philosophy of conserving resources and minimizing waste.
Identify Waste Minimization Options	Improve environmental compliance and reduce waste management costs and environmental impacts for DOE operations by identifying, developing, implementing, and reporting on WMin/PP options.
Goal Setting	Develop and implement specific WMin/PP goals for DOE's production, laboratory, and restoration operations.
Identify and Develop Technologies and Exchange Information	Enhance the effectiveness of WMin/PP by developing and exchanging applicable technologies and information.
Waste Minimization in Design, Development, and Production	Ensure that WMin/PP principles are applied to and included in the design, development, and production of all products.
* Increase Competitiveness of U.S. Industry	Increase competitiveness of U.S. Industry through implementation of WMin/PP to reduce energy consumption and increase operational efficiency.
Positive, Credible Image	Establish a positive, credible DOE public image with respect to WMin/PP matters.

* Note: The 1994 Crosscut Plan is focused primarily on reducing wastes and pollutants throughout the DOE complex, and does not include specific activities tied to this objective.

1.4 DOE Waste Minimization/Pollution Prevention Goals

In keeping with the Department's commitment to reduce the generation of wastes and pollutants, and in accordance with Executive Order 12856, DOE will:

1) Reduce total releases of toxic chemicals to the environment, and off-site transfers of such chemicals for treatment and disposal across the DOE complex by 50 percent by December 31, 1999. Achieve reductions through source reduction, to the maximum extent practicable.

Each DOE site which meets threshold requirements of toxic chemicals set forth in the Emergency Planning and Community Right-to-Know Act (EPCRA) is required to assist the Department in meeting the 50 percent goal. The baseline year for measuring reductions in the release and off-site transfer of toxic chemicals for each site will be the first year in which the site completed a Toxic Release Inventory Report required by EPCRA. In no event will the baseline year be later than the 1994 reporting year.

Additionally, each DOE site will:

2) Establish site-specific goals achievable by December 31, 1999, to reduce the generation of all types of wastes and pollutants, including hazardous, radioactive, radioactive mixed, and sanitary from site operations.

Quantitative goals will be set for newly generated wastes from ongoing DOE production and research and development operations. Sites will establish qualitative goals for those cleanup activities such as weapons dismantlement, decontamination and decommissioning, and environmental restoration that are not readily applicable to quantitative goal-setting.

Each site will provide goals in their Waste Minimization and Pollution Prevention Awareness Plans and report progress toward achieving those goals in their Annual Report on Waste Generation and Waste Minimization Progress. Operations Office Managers and Cognizant Secretarial Offices will review site goals and will concur with or revise goals based on site input. Overall Departmental goals will then be set and documented in future WMin/PP strategic plans.

Site-specific goals for all types of wastes and pollutants listed in 2) above will be set based upon 1993 waste generation rates. 1993 was selected to allow a common baseline year for which waste generation rates are consistently reported across the complex. However, each site will also report progress on reducing waste generation prior to 1993 in their Annual Report on Waste Generation and Waste Minimization Progress against a prior year most appropriate to their site. Sites with aggressive WMin/PP programs will then be able to demonstrate significant progress already achieved in reducing waste generation.

2.0 VISION OF THE FUTURE -- Year 2000

In the year 2000, the DOE shows a sustained, integrated commitment to WMin/PP at all levels. Acknowledged by its stakeholders as a responsible role model because of its WMin/PP practices, the DOE is recognized as a leader in:

- conserving resources and minimizing wastes and pollutants;
- incorporating WMin/PP into planning, operations, processes, and design activities;
- reducing costs of environmental compliance and program operations through WMin/PP practices;
- developing and using innovative technologies to prevent pollutants and minimize wastes from all DOE activities;
- encouraging WMin/PP through policies, procedures, and incentives;
- participating in and influencing the formulation of sound and effective environmental laws and regulations;
- engaging in partnerships with other government agencies, academic institutions, and U.S. industry to exchange WMin/PP technologies and practices; and
- proactively involving stakeholders and the public in the planning and implementation of WMin/PP activities.

3.0 WASTE MANAGEMENT COSTS AND THE BENEFITS OF WASTE MINIMIZATION AND POLLUTION PREVENTION

Costs continue to rise as the Department treats, stores, and disposes of production, laboratory, and legacy wastes and performs environmental remediation activities. The Department will generate additional wastes as weapons are dismantled, facilities are decontaminated and decommissioned, and new types of production operations are brought on-line. Through early investments in source reduction and environmentally safe recycling, the Department could significantly reduce future waste management costs and, simultaneously, minimize health risks to its workers and the public.

3.1 DOE Waste Generation

The 1993 Annual Report on Waste Generation and Waste Minimization Progress documents DOE-wide waste generated in 1991 and 1992. The Annual Report, a companion to the Crosscut Plan, strives to document DOE-wide waste generation and waste minimization progress in a single reference source.

Table 3.1 demonstrates annual waste generation rates by Cognizant Secretarial Office for 1991 and 1992, as documented in the Annual Report. Radioactive waste, reported in cubic meters, includes mixed radioactive wastes.

The Annual Report definition of annual waste generation is any waste produced during the calendar year that is transferred or manifested from the waste generator to waste management. The operational program responsible for generating the waste is considered the waste generator. Secondary waste, newly generated as a direct result of treatment, storage, or disposal activities, is waste attributed to the Environmental Restoration and Waste Management Program. Waste produced in previous years that is re-packed, treated, or disposed of in the current calendar year is excluded from the Annual Report.

Table 3.2 contains annual waste generation rates for DOE waste types for 1991 and 1992. All types of radioactive wastes are reported in cubic meters, and hazardous and sanitary wastes are reported in metric tons.

3.2 Potential Cost Savings

The Department of Energy will allocate one-third of its $19.6 billion 1994 budget for environmental restoration and waste management activities. More than $3 billion is budgeted for handling wastes in storage and newly generated wastes, with the remainder budgeted for environmental restoration and remediation activities. While this demonstrates commitment to properly treating, storing, and disposing of wastes and cleaning up from past practices, it also indicates that operational improvements must be made to reduce waste generation wherever practicable.

As the Department reduces waste generation associated with an activity, it avoids spending a proportional amount in waste management costs. The Department can save tens to hundreds of millions of dollars in waste management costs by applying WMin/PP to operational practices. A recent report, "Avoidable Waste Management Costs at DOE Facilities," Los Alamos National Laboratory (LANL), Report LA-UR-93-1154, March 29, 1993, and data obtained from a 1993 survey of avoidable waste management costs at several major DOE sites, were used to estimate potential WMin/PP cost savings.

Based on these studies, Figure 3.2 illustrates the relationship of WMin/PP program costs to waste management cost savings. This figure shows a possible net savings through investment in source reduction. More definitive data on waste management cost savings through WMin/PP will be published by the Department once goals for reducing waste generation are set by the sites and Headquarters, and waste management costs are better understood and documented.

Table 3.1 Summary of Waste Generation rates by Cognizant Secretarial Offices. *

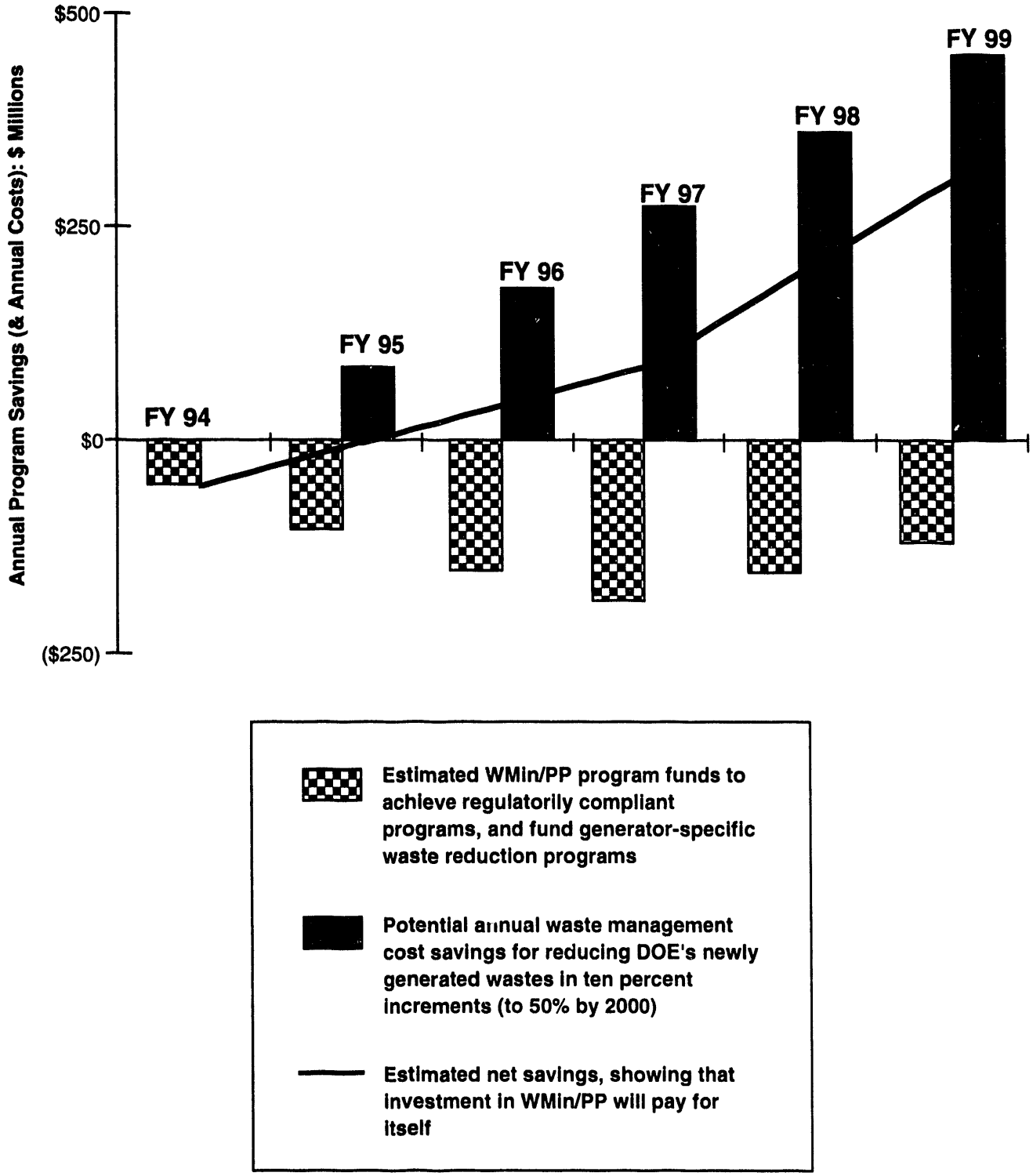
Cognizant Secretarial Office	Radioactive (Cubic Meters)		Hazardous (Metric Tons)	
	1991	1992	1991	1992
Defense Programs (DP)	31,700	21,900	9,760	8,540
Environmental Restoration & Waste Management (EM)	95,100	109,000	3,930	3,060
Energy Efficiency & Renewable Energy (EE)	0	0	31.6	80.3
Fossil Energy (FE)	2.89	0.3	97.3	460
Nuclear Energy (NE)	5,960	4,970	658	846
Power Marketing Liaison (PML)	--	--	9,080	22,200
Civilian Radioactive Waste Management (RW)	--	--	0.2	0.2
Energy Research (ER)	5,220	4,950	1,770	1,360
Science Education & Technical Information (ET)	--	--	4.07	8.07

Table 3.2 Department-wide waste generation rates for 1991 and 1992.

Waste Type	Units	1991	1992
High Level Waste (Liquid)	Cubic Meters	3,190	1,770
Low Level	Cubic Meters	67,400	51,100
Mixed Low Level	Cubic Meters	66,300	87,600
Transuranic	Cubic Meters	709	741
Mixed TRU (Solid)	Cubic Meters	224	86
Hazardous	Metric Tons	25,300	36,600
Sanitary	Metric Tons	91,600	89,600

* Waste generation amounts are rounded to three significant figures.

Figure 3.2 – Estimated Cost/Benefits Indicate a Net Savings is Possible Through Investment in Waste Minimization and Pollution Prevention



3.3 Benefits of Waste Minimization/Pollution Prevention

Avoiding waste management costs by reducing waste generation is an obvious and significant benefit to the Department and its stakeholders. However, there are many other notable benefits of a comprehensive WMin/PP program. These benefits are listed below.

- **Environmental** - resource conservation, reduced pollutant releases, increased environmental awareness, and improved stewardship of the environment.

- **Economic** - reduced raw material, energy, waste handling, and disposal costs resulting in an improved global competitive position and reduced costs to the taxpayers.

- **Production** - improved material handling, conservation of energy, increased productivity, safer working conditions, and development of improved processes and technologies.

- **Legal/Regulatory** - improved compliance with environmental regulations, reduced long-term liabilities, reduced record keeping and administrative costs.

- **Social** - reduced health and accident risks, improved employee and labor relations, and improved public image.

4.0 SITUATION ANALYSIS

The following situation analysis provides a description of the key planning assumptions used to develop this plan, including current trends in environmental regulations. Contributing factors to the lack of full implementation of a DOE WMin/PP program are identified, and an analysis of WMin/PP resource limitations is provided. Administrative actions accomplished to date to promote the WMin/PP program also are addressed.

4.1 Key Planning Assumptions

The basic assumption of this plan is that WMin/PP, as an environmental strategy, is preferable to pollution control. This assumption directly supports DOE's Mission and Core Values Statement, released September 1993, which, on respecting the environment, states in part: "We recognize the importance of the environmental impacts of our operations and develop and employ processes and technologies to reduce or eliminate waste production and pollution in these operations." Related assumptions are:

- the Department will increase its investment in long-term environmental strategies, even while it is faced with increasing short-term waste management budget demands;

- funding for WMin/PP will have a higher priority than the past, and be sufficient to meet the goals established here and in site plans;

- the costs of waste management and environmental compliance will increase as waste treatment and disposal capacity decreases;

- stakeholders will expand their influence on Departmental activities and will expect changes in operations that affect the environment; and

- DOE will work in cooperation with regulators and the public to solve waste management problems and operate its facilities in an environmentally sound manner.

4.2 Trends

New DOE policies are evolving that focus on resource conservation.

The current trend in environmental regulation is one of pollution prevention over pollution control. The use of less toxic materials has been promoted by the President, the EPA, the public sector, U.S. industry, and the general public. Regulations are being promulgated by EPA that encourage source reduction through decreased use of toxic chemicals, energy, and other raw materials. Related trends are:

- Executive Order 12856, issued August 6, 1993, requires that each Federal agency commit to pollution prevention through source reduction where practicable as the primary means of achieving and maintaining environmental compliance.

- Executive Order 12856 also states that Federal agencies must develop voluntary goals to reduce releases and off-site transfers of toxic chemicals covered under the Emergency Planning and Community Right-to-Know Act (EPCRA).

- The manufacture and use of ozone-depleting substances is being phased out through international agreements and Executive Order direction (EO 12843 issued April 21, 1993).

- Executive Order 12873, issued October 20, 1993, promotes reductions in waste generation through recycling and use of recycled and energy efficient materials.

Appendices D and E list Federal regulations, Executive and Departmental orders, and policies that promote the use of WMin/PP.

4.3 Contributing Factors to the Lack of Full DOE Waste Minimization/Pollution Prevention Implementation

Despite having an established WMin/PP program requirement since 1988, the Department has not consistently integrated WMin/PP within its Cognizant Secretarial Offices and facilities across the complex. The Office of Environmental Restoration and Waste Management (EM) Roadmap Project Office conducted a comprehensive site analysis in 1992

to assess the barriers associated with developing and implementing WMin/PP programs across the complex. Issues were identified and summarized into four contributing factors:

- methods used to prioritize DOE's missions force a low priority for WMin/PP;
- generators need to regain accountability for treatment, storage, and disposal (TSD) costs;
- WMin/PP needs to be managed as a separate program, with dedicated budgets and staff; and
- WMin/PP documentation, including DOE Orders, guidance, and contract provisions, needs to clearly establish program objectives to be more effective.

Field issues from which the major contributing factors were determined are summarized in Appendix F. The WMin/PP Activity Plan (Section 5.0 and Appendix C) was developed in part to address these issues and remove administrative barriers that impede implementation of WMin/PP policies and practices throughout the Department.

4.4 DOE Waste Minimization/Pollution Prevention Resource Limitations

A major contributing factor to the lack of full WMin/PP implementation throughout the DOE complex concerns how the program is managed and budgeted. Most DOE Cognizant Secretarial Offices provide WMin/PP funding through overhead or programmatic accounts (Table 4.1), rather than through dedicated funding that can be identified within Departmental budget submittals. Waste generators are responsible for implementing WMin/PP activities within their respective operations. The two largest waste generators, EM and DP, provide some direct funding for WMin/PP activities, but many activities must still be funded by indirect resources. Other Cognizant Secretarial Offices also generate waste, but dedicate minimal personnel or direct funding to WMin/PP.

Much of the progress in establishing and implementing WMin/PP programs DOE-wide has occurred at a grassroots level.

DOE personnel assignments, particularly in the field, also are inadequate to accomplish full WMin/PP integration. Each Operations Office has a WMin/PP coordinator, but most spend less than 50 percent of their time on WMin/PP activities (see Table 4.1). During FY 1993, there were only 5 dedicated Federal WMin/PP full-time equivalents (FTEs) in the field and 8 dedicated FTEs at DOE-HQ. These 13 dedicated FTEs and approximately 30 distributed FTEs (usually less than 25 percent time spent on WMin/PP), with contractor support, are responsible for all WMin/PP planning, reporting, program establishment, implementation, research and development, and outreach. Much of the progress in establishing and implementing WMin/PP programs has occurred at a grassroots level, not necessarily with coordinated Headquarters oversight.

Table 4.1 Summary of DOE Cognizant Secretarial Office trackable funds and staff dedicated to reducing wastes generated by DOE's internal operations.

Cognizant Secretarial Office	Dedicated[1] Federal FTEs (1993)		Trackable[2] WMin/PP Budgets ($ Millions)			Organizational Waste Generation[8] 1992	
	HQ	Field	FY93	FY94[3]	FY95[4]	Radioactive (Cubic Meters)	Hazardous (Metric Tons)
EE	0	1	0	0	0	0	80.3
DP[5]	2	3	12.90	12.00	15.00	21,900	8,540
EM[6]	5	1	24.40	26.10	46.00	109,000	3,060
ER	1	0	0	0	0	4,950	1,360
FE	0	0	0	0.20	1.90	0.3	460
NE[7]	0	0	0	0	0	4,970	846
RW	0	0	0.08	0.12	0.12	0	0.2
PM	0	1	0	0	0	0	22,200
ET	0	0	0	0	0	0	8
Total	8	6	37.38	38.42	63.02	141,000	36,600

[1] Dedicated Federal employees signify staff that spend more than 50 percent of their time on WMin/PP

[2] Trackable WMin/PP budgets were those that were directly budgeted by Activity Data Sheets or separate Budget and Reporting (B & R) codes

[3] Funds requested for FY 1994

[4] Proposed funds for FY 1995

[5] Funds primarily dedicated to WMin/PP R&D efforts; however, Laboratories may allocate these funds to other priority activities.

[6] Funds are primarily provided for DOE and site WMin/PP crosscutting activities

[7] Excludes Naval Reactor wastes

[8] Waste Generation amounts are rounded to three significant figures

Table 4.1 illustrates the WMin/PP budgets trackable through specific Activity Data Sheets or budgeting and reporting (B&R) codes. These numbers do not reflect the total Departmental budgets for WMin/PP, as many funds came out of overhead or other accounts. For instance, ER budgeted $840,000 in FY93 and $143,500 in FY94 for WMin/PP from accounts that were not dedicated to WMin/PP. A budget mechanism that distinguishes WMin/PP from other Departmental activities is required to secure and track resource allocations. Such a mechanism is discussed in Section 5.1 and Appendix C of this Plan.

4.5 Significant DOE Waste Minimization/Pollution Prevention Accomplishments

Several policy actions enhanced the Departments Commitment to WMin/PP:

- A Departmental Memorandum on Implementation of Executive Order 12780 on affirmative procurement and recycling by Federal Agencies (April 1, 1992);
- The 1992 Waste Minimization Crosscut Plan (May 13, 1992);
- A Departmental Notice establishing an Executive Board to implement the recommendations and strategies of the 1992 Waste Minimization Crosscut Plan (May 13, 1992);
- A Departmental Memorandum to line organizations on the phaseout of ozone-depleting substances (July 29, 1992);
- A Departmental Memorandum on Department of Energy Policy on Waste Minimization and Pollution Prevention (August 20, 1992); and
- A Departmental Memorandum on Department of Energy participation in the Environmental Protection Agency's 33/50 Pollution Prevention Program (September 22, 1992).

The first meeting of the Waste Minimization and Pollution Prevention Executive Board, comprised of the heads of DOE line organizations, was held in May 1992 to approve the 1992 WMin Crosscut Plan. The Board met again in September 1992 to approve the 1992 WMin Crosscut Plan. The Board met again in September 1992 to approve DOE participation in the Environmental Protection Agency's reduction program for 17 targeted toxic chemicals (33/50 Program).

Many DOE sites are progressing in their WMin/PP efforts by developing strategic plans and establishing programs to promote WMin/PP activities at their facilities. Reductions in waste generation and increases in recycling are occurring to some degree at all DOE sites, often through grassroots efforts on the part of site WMin/PP coordinators. Given the scale of Federal resources available for these programs, many of the accomplishments have focused on operational changes that are inexpensive to implement. The 1993 Annual Report on

Waste Generation and Waste Minimization Progress, summarizes information from 57 field WMin/PP reports.

5.0 WASTE MINIMIZATION/POLLUTION PREVENTION ACTIVITY PLAN

These activities are essential building blocks that create the foundation for an effective and efficient WMin/PP program.

The 1992 WMin Crosscut Plan established a broad DOE framework of strategic WMin objectives, issues, strategies, and success indicators from which DOE could begin to implement a consistent and integrated program. This year's plan provides the avenue to implement WMin/PP throughout the complex through the Activity Plan and implementation strategy. The eighteen key activities contained in the Activity Plan must be completed to sustain a comprehensive WMin/PP program that meets regulatory and Departmental requirements and achieves actual reductions in waste generation rates.

Activities are grouped into three initiatives: policy direction, infrastructure development, and program implementation. Policy direction commits the Department to WMin/PP. Infrastructure development provides the framework for effective WMin/PP programs and projects. Program implementation provides for specific changes in processes, equipment, and operations at DOE's facilities and sites that reduce waste generation and environmental releases or increase recycling. Figure 5.0 shows a work breakdown structure with specific WMin/PP activities to support each initiative.

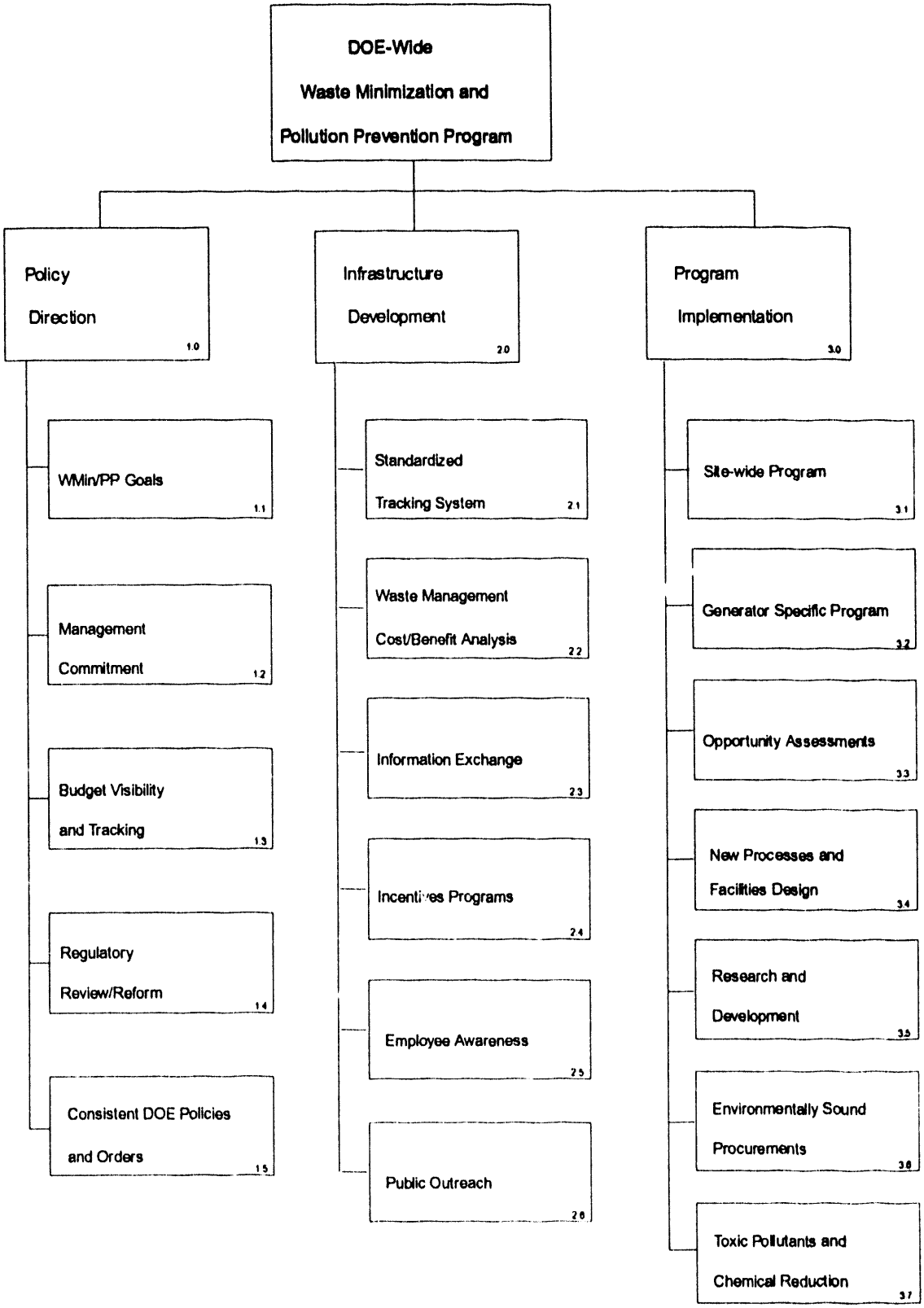
5.1 Waste Minimization/Pollution Prevention Policy Direction

Effective WMin/PP policy direction requires management commitment at all levels and development of a set of noncontradictory orders to guide Departmental operations. With proactive leadership, DOE can advance WMin/PP policies by setting DOE-wide goals and performance indicators, by tracking and evaluating program resource allocations through Activity Data Sheets specific to WMin/PP, and by removing regulatory and procedural barriers to WMin/PP. Although any additional resource requirements for establishing policy will be small and short-term (within 24 months), the impact on operations and waste management will be significant. Table 5.4.1 lists the policy direction activities. A narrative description of these activities is provided in Appendix C, Section C.1.

5.2 Waste Minimization/Pollution Prevention Infrastructure Development

WMin/PP needs to be consistently implemented across the complex. A strong WMin/PP infrastructure will facilitate site-to-site communication, increase program effectiveness, and ensure a common set of standards, tools, and techniques for integrated action. Infrastructure development is critical so that DOE senior managers can assimilate the integrated data needed to make cost-effective, complex-wide decisions on the implementation of WMin/PP programs.

Figure 5.0 Work Breakdown Structure of DOE's Waste Minimization/ Pollution Prevention Activity Plan



Due to its geographical and institutional diversity, DOE has traditionally allowed each site to develop its own methodologies for tracking wastes, determining process waste stream costs, and assessing WMin/PP benefits. This is a satisfactory approach for many site activities, but proves inadequate for a crosscutting function such as WMin/PP. Standardization is needed so DOE management can integrate site waste generation databases for DOE-wide roll up and assessment. In addition, because there are many common WMin/PP program elements that need to be present at all sites, a compatible WMin/PP communication linkage with all sites is necessary to enhance information transfer to reduce duplication of effort.

A successful WMin/PP infrastructure links sites so that DOE WMin/PP goals can be set, baselines established, and progress toward goals measured. This is an essential requirement if DOE is to meet its objectives as set forth in the new pollution prevention Executive Orders. A common link among sites enhances employee awareness of WMin/PP and options available to reduce the generation of waste and pollutants. Incentives, employee performance standards, and training will ensure employee involvement, participation, and accountability. Public outreach programs will explain the Department's approach and seek feedback on better ways of incorporating WMin/PP into Departmental activities. Standardized waste tracking systems and economic analyses will provide consistent data to identify, evaluate, and prioritize opportunities to prevent pollution, reduce environmental releases and associated environmental impacts. Establishing this infrastructure will require moderate resources assigned on a short- to mid-term (1 to 5 years) basis. Table 5.4.2 lists the infrastructure development activities. A narrative description of these activities is provided in Appendix C, Section C.2.

5.3 Waste Minimization/Pollution Prevention Program Implementation

While policy direction and infrastructure development provide a solid foundation upon which to implement WMin/PP activities, only the actual implementation of these activities will result in significant waste reduction. Ultimately, the public will measure the Department's progress in managing waste problems by what it accomplishes in reducing its waste generation rates, environmental releases, waste management costs, and overall environmental risks. To meet this challenge, the Department will need to expand its efforts beyond the policy and infrastructure activities that are the initial stepping stones to actually carrying out WMin/PP opportunities in the field.

Traditionally, field responsibilities for WMin/PP programs at each DOE site have been split between two separate and distinct organizations: (1) those organizations that generate waste, and (2) the EM organization that receives and treats that waste. The EM organization has dual responsibilities as it generates waste through handling and removal of DOE wastes and establishes site-wide WMin/PP Programs. Generator organizations are responsible for identifying, evaluating, and implementing process and equipment modifications to achieve actual reductions in waste generation. These projects range from simple product substitution to significant process changes. The EM organization at each site has assumed responsibility for managing the broader WMin/PP activities that must be performed on a collective, site-wide basis. Site-wide programs include carrying out the policy and infrastructure activities described in Sections 5.1 and 5.2, along with inventory control, such as waste tracking.

To achieve significant reductions in waste generation, DOE sites must implement both site-wide and generator-specific WMin/PP programs. Of most critical importance for DOE in FY94/95 is to accelerate the performance of opportunity assessments for all major waste streams at each site. These assessments are essential management decision making tools that will tell DOE:

- how much waste and environmental releases can be avoided;
- what process changes will achieve reductions;
- how much it will cost to implement a WMin/PP opportunity; and
- what long-term savings will be achieved in avoided waste management costs.

The Office of Defense Programs (DP) initiated the opportunity assessment approach at many of its sites and has found that the process yields valuable information on waste avoidance and potentially significant cost savings.

WMin/PP implementation projects with rapid return on investment (within a few years) should be pursued immediately to achieve quick operational improvements in waste generator facilities. This, along with the incorporation of WMin/PP into the design of new DOE products and facilities, focused research and development of WMin/PP technologies, amended procurement practices to promote the purchase of environmentally sound materials, and reduced use of toxic chemicals, will minimize future DOE liability and costs. If DOE is to achieve its goal of reducing toxic chemical releases and transfers by 50 percent, site implementation activities must be budgeted for and initiated as soon as practicable.

Establishing and maintaining WMin/PP site implementation programs will require significant resources assigned over an extended timeframe (2 to 10 years). This will require a major commitment by the responsible Cognizant Secretarial Offices and field organizations to aggressively pursue and fund the incorporation of WMin/PP techniques and technologies. Table 5.4.3 lists the program implementation activities. A narrative description of these activities is provided in Appendix C, Section C.3.

5.4 Waste Minimization/Pollution Prevention Summary Narrative Table

The 18 activities proposed for implementing WMin/PP throughout the DOE complex are described in the following Summary Narrative Table. Tables 5.4.1 - 5.4.3 identify key issues driving completion of each activity, the objectives to be achieved, and the major benefits or outcomes realized. The proposed activities specifically address barriers to, and opportunities for, WMin/PP from information received from DOE field organizations in 1991 and 1992. Eventual completion of each activity is essential to a successful, ongoing WMin/PP program.

Table 5.4.1 Summary Narrative Table - Waste Minimization Policy Direction

Activity	Issue	Objectives	Outcome
1.1 **Establish goals to minimize waste generation and reduce environmental releases**	While individual sites have made progress, there are no quantifiable Departmental goals for reducing waste generation	· Develop a baseline of waste generation and pollutant releases for each site · Reduce releases of toxic chemicals by 50 percent by the end of 1999 · Establish meaningful quantitative and qualitative goals at each site focused on source reduction, recycling, and energy and materials conservation · Assess goals and progress toward goals, and update as necessary	· Quantifiable targets for reducing wastes and pollutants for strategic planning and budgeting · Quantitative measures to evaluate WMin/PP performance · Management incentives to reduce environmental releases
1.2 **Establish senior management commitment and follow through for DOE WMin/PP activities**	Policy steps have been taken to increase WMin/PP Awareness, but WMin/PP remains a relatively low priority in DOE	· Communicate Secretarial WMin/PP policy to heads of all Headquarters, line, and staff organizations, Operations Offices, laboratories, and contractor organizations, and hold them accountable · Use the WMin and Pollution Prevention Executive Board to delineate roles and responsibilities, develop uniform programs, identify needed staff and funding, and resolve issues · Set priorities for WMin/PP within DOE's operational and environmental programs	· Clear message of the importance of WMin/PP · Management accountability for WMin/PP implementation · Sufficient resource allocation to implement WMin/PP throughout the Department

Activity	Issue	Objectives	Outcome
1.3 **Identify WMin/PP Budget Allocations through Activity Data Sheets**	WMin/PP resource allocation across the Department is difficult to identify and evaluate	· Track WMin/PP resource allocation by Headquarters Cognizant Secretarial Offices and field operations in the Environment, Safety and Health Management Plan and the EM Five-Year Plan · Integrate WMin/PP program requirements into the DOE budgeting and planning system through the use of Activity Data Sheets	· Consistent WMin/PP budget guidance across the Department · Ability to readily track WMin/PP budget allocations · WMin/PP budget accountability
1.4 **Promote Regulatory Review and Reform**	Need to identify innovative regulatory approaches to environmental management	· Assess current regulations regarding material and waste management · Form an interagency task force to resolve inadvertent barriers to WMin/PP · Actively seek practical regulatory solutions based on risk assessment	· Cooperation with regulators, industry, and the public · Public receives maximum environmental benefit for each dollar expended · Innovative approaches to waste management that conserve resources and enhance environmental quality
1.5 **Update DOE Policies, Orders, and Procedures to Integrate WMin/PP**	Existing DOE Orders, policies, and procedures do not provide consistent WMin/PP standards and guidance	· Update existing DOE Orders, policies, and procedures to remove barriers and integrate a common philosophy and approach to WMin/PP across the Department · Establish clear WMin/PP program objectives and roles and responsibilities	· Integrated operational guidelines · Clarified requirements, roles, and responsibilities · Consistent application of WMin/PP · Resolved conflict between Departmental practices such as security, procurement, and WMin/PP

Table 5.4.2 Summary Narrative Table - Waste Minimization/Pollution Prevention Infrastructure Development

Activity	Issue	Objectives	Outcome
2.1 Standardize Material and Waste Tracking Systems	While significant progress has been made on a site-by-site basis, it is difficult for the Department to document progress DOE-wide	· Establish consistent material and waste tracking standards and parameters · Coordinate material and waste tracking efforts across the complex · Ensure that each reporting site has access to an adequate tracking and reporting system · Provide needed data to assist in complex-wide decision making	· Allow DOE to establish baselines, set goals, and measure WMin/PP progress · Establish standards that permit integration of site data · Reduce duplicate efforts and expedite adoption of successful systems · Streamline environmental reporting process
2.2 Estimate Waste Management Costs for use in Decision making	The Department has had limited success in evaluating the costs and benefits of implementing WMin/PP opportunities	· Develop methods for estimating the costs of material and waste handling · Identify all long-term costs for which the government has liability · Apply cost/benefit analysis when considering costs of major projects and programs that generate waste · Prioritize opportunities that demonstrate the best potential for cost-effectively reducing waste generation and risk to health and safety	· Quantification of waste management costs and the benefits of WMin/PP · Early identification of the future costs and liabilities for long-term Departmental activities · A focus on long-term benefits instead of short-term costs · Development of a wider range of alternatives for reducing or eliminating environmental releases

Activity	Issue	Objectives	Outcome
2.3 **Facilitate WMin/PP Technology Transfer and Information Exchange**	Transfer of WMin/PP technology and information among DOE facilities has not been as extensive as is necessary	· Develop and maintain a clearinghouse of information on WMin/PP technologies, alternate processes, activities, and practices · Link all sites to the WMin/PP clearinghouse · Hold workshops/site visits on WMin/PP focus areas · Establish an effective WMin/PP transfer program in partnership with industry and other Federal, State, and local agencies · Establish a model site WMin/PP program that emphasizes source reduction, recycling, sustainable development, and state-of-the-art environmental management	· Consistent, timely application of WMin/PP solutions · Less duplication of effort · Shorter WMin/PP opportunity implementation period · Lower programmatic and operational costs · Leveraging of WMin/PP technological developments outside DOE in Federal and State agencies and the private sector
2.4 **Develop a DOE WMin/PP Incentives Program**	Generators must be given further incentives to conserve resources and reduce waste generation and environmental releases	· Reward accomplishments that result in quantifiable reductions in waste generation · Stipulate WMin/PP activities in all contractual Standard Terms and Conditions, award fees, and other mechanisms · Include WMin/PP activities in performance standards, where applicable · Encourage generators to conserve resources and reduce the generation of wastes and pollutants · Develop a DOE-sponsored award for WMin/PP	· Motivation to conserve resources, reduce wastes and pollutants, and promote recycling · Contract performance evaluation that includes WMin/PP criteria · Innovative participation by waste generators as they compete for rewards and recognition

Activity	Issue	Objectives	Outcome
2.5 **Develop and Conduct WMin/PP Employee Training and Awareness Programs**	Employees have a limited understanding of their WMin/PP role in resource conservation and environmental management	· Raise awareness of WMin/PP-related activities in DOE through training programs · Inform employees of environmental standards of their jobs and specific environmental issues · Encourage employees to participate in WMin/PP · Publicize success stories · Promote DOE-wide commitment and involvement in the WMin/PP effort	· High level of employee acceptance, participation, and commitment to the WMin/PP effort · Increased skills of employees who influence DOE material usage and waste generation · DOE credibility with the public is linked to successful WMin/PP efforts that counter past practices
2.6 **Develop a WMin/PP Outreach and Public Relations Program**	The Department is not effectively publicizing its WMin/PP efforts and achievements.	· Publicize activities that emphasize WMin/PP practices · Sponsor outreach activities with EPA and other government agencies · Encourage public participation in WMin/PP planning and implementation activities	· Increased public understanding of DOE's use of WMin/PP to reduce risk · Increased DOE participation with other agencies to reduce risk through WMin/PP · Increased Public participation in DOE's environmental management strategies

Table 5.4.3 Summary Narrative Table - Waste Minimization/Pollution Prevention Program Implementation

Activity	Issue	Objectives	Outcome
3.1 **Develop and Maintain Consistent Site-wide WMin/PP Programs at all Sites**	Responsibility for site WMin/PP crosscutting activities is uncertain, leading to inconsistent programs throughout the Department	· Develop consistent WMin/PP crosscutting program requirements (site wide planning, reporting, training, assessments, recycling, etc.) · Implement a WMin/PP crosscutting program at each site, consistent with the size and complexity of the waste generation activities at that site · Identify the organization(s) responsible for coordinating and funding site-wide WMin/PP crosscut programs	· Consistent implementation of crosscutting WMin/PP activities · Efficient use of resources through standardized programs · Uniform planning and management approach · Clearly defined WMin/PP crosscutting roles and responsibilities
3.2 **Develop and Maintain Consistent Generator-Specific Programs**	WMin/PP is not consistently applied by waste generating organizations at their facilities	· Develop standard program requirements for implementation by program managers · Develop specific guidance for implementing WMin/PP and measuring progress · Perform Opportunity Assessments to analyze processes and identify WMin/PP opportunities · Require waste generators to implement WMin/PP projects, including providing sufficient staff and resources	· Actual implementation occurs, rather than paper work · Real, quantifiable reductions achieved in waste generation rates and pollutant releases · DOE-wide cost savings realized through increased productivity and reduced waste management costs · Lower risks and fewer environmental impacts from DOE's operations · Consistent application of WMin/PP principles and practices across DOE

Activity	Issue	Objectives	Outcome
3.3 **Perform Opportunity Assessments and Identify WMin/PP Projects**	Cost effective techniques for reducing waste generation and pollutants must be identified and implemented	· Perform opportunity assessments at all DOE sites that generate significant wastes and pollutants · Identify WMin/PP projects that demonstrate a return on investment within a few years of implementation · Develop a standard method for determining payback on investment and for selecting candidate WMin/PP projects · Fund WMin/PP improvement projects with rapid payback · Evaluate reductions in waste generation and savings realized and publicize results	· Quantifies for DOE management the specific costs and savings of site-specific opportunities to prevent pollution · Follows private sector model to achieve greatest cost savings by treating problem, not symptom · Quick fixes allow prompt reductions in waste generation and pollutant releases · Accountability to public for saving money and lowering environmental risks
3.4 **Design WMin/PP into New Products, Processes, and Facilities**	Formal pathways into DOE facility designs and construction activities need to be established for WMin/PP	· Require WMin/PP in new project guidance documentation include WMin/PP as a key consideration in new project selection criteria including major system acquisitions · Include life-cycle cost of environmental releases into DOE methodology for quantifying the cost of new projects, processes, and facilities · Include lifecycle analysis in the development of standards for environmentally sound products and services · Include WMin/PP requirements in design contracts and provide incentives for environmentally sound designs · Include WMin/PP activities as alternatives in preparation of National Environmental Policy Act (NEPA) documentation	· Builds WMin/PP in at the start when "zero discharge" goals are still feasible · Largest cost savings and greatest achievements in reducing waste generation and environmental releases · Faster permitting process and progress toward satisfaction of NEPA requirements · WMin/PP incorporated into all aspects of program design and implementation

Activity	Issue	Objectives	Outcome
3.5 **Integrate WMin/PP into Research, Development, and Demonstration Programs**	The Department's RD&D capabilities have not been used to their fullest potential to incorporate source reduction and reduce operating costs	· Couple generator and RD&D communities to develop "market driven" approach to RD&D projects · Establish technology assessment procedures to determine benefits of new technologies · Apply RD&D solutions to critical areas identified by generators · Fund RD&D programs commensurate with the savings afforded	· Reduced waste through focused and accelerated development and implementation of new technologies · Application of major RD&D resources to critical, difficult-to-manage areas of DOE operations · Redirection of DOE resources to solve costly environmental problems through prevention rather than control
3.6 **Modify Procurement Practices to Promote WMin/PP**	The Department needs to expand its procurement of environmentally preferable materials	· Meet requirements of Executive Order (EO) 12843, "Procurement Requirements and Policies for Ozone-Depleting Substances," and EO 12873 "Federal Acquisition, Recycling, and Waste Prevention." · Establish standards to ensure the procurement of environmentally sound products or services · Institutionalize WMin/PP into the procurement process · Reduce inventory through proper inventory control practices · Work with other agencies to overcome Federal procurement barriers that restrict the procurement of recycled goods · Stimulate the national market for recycled materials through DOE purchasing power	· Reduced waste generation, emissions, and energy use through increased use of less toxic, more durable, energy efficient materials · Reduced pollution associated with raw material extraction and processing through the use of recovered materials · Stimulation of the national market for recycled materials · Increased resource conservation through use of recycled rather than virgin material

Activity	Issue	Objectives	Outcome
3.7 **Reduce Release of Toxic Chemicals**	DOE is a significant user of toxic chemicals and is required by Executive Orders to reduce toxics use and release and transfer of toxic chemicals	· Comply with Executive Order 12856, "Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements" · Achieve the 50 percent goal of reducing the release and transfer of TRI chemicals · Voluntarily report toxic releases to EPA using Toxic Chemical Release Inventory reporting Form R · Coordinate the EPA 33/50 Program with Executive Order 12856 reduction program.	· Significant environmental, health and safety, and economic benefits through reduced use and release of toxic chemicals

6.0 IMPLEMENTATION STRATEGY

Implementation must occur complex-wide to achieve the mission and vision of this Plan. Preparation of Site WMin/PP Plans is a key next step in this process.

In order to implement the Activity Plan, the Department must assign responsibilities, delegate authority, provide sufficient resources, and assess and measure DOE program performance. Implementation must occur complex-wide to achieve the mission and vision of this plan. Cooperative efforts between Headquarters, Operations Offices, and DOE contractor sites are essential to establish WMin/PP as the primary waste management strategy.

DOE has called for agency-wide reduction goals as identified in Section 1.4. DOE management at Headquarters, the field, and all DOE contractor sites must establish meaningful goals and budget to achieve those goals through development and implementation of site-specific WMin/PP program plans.

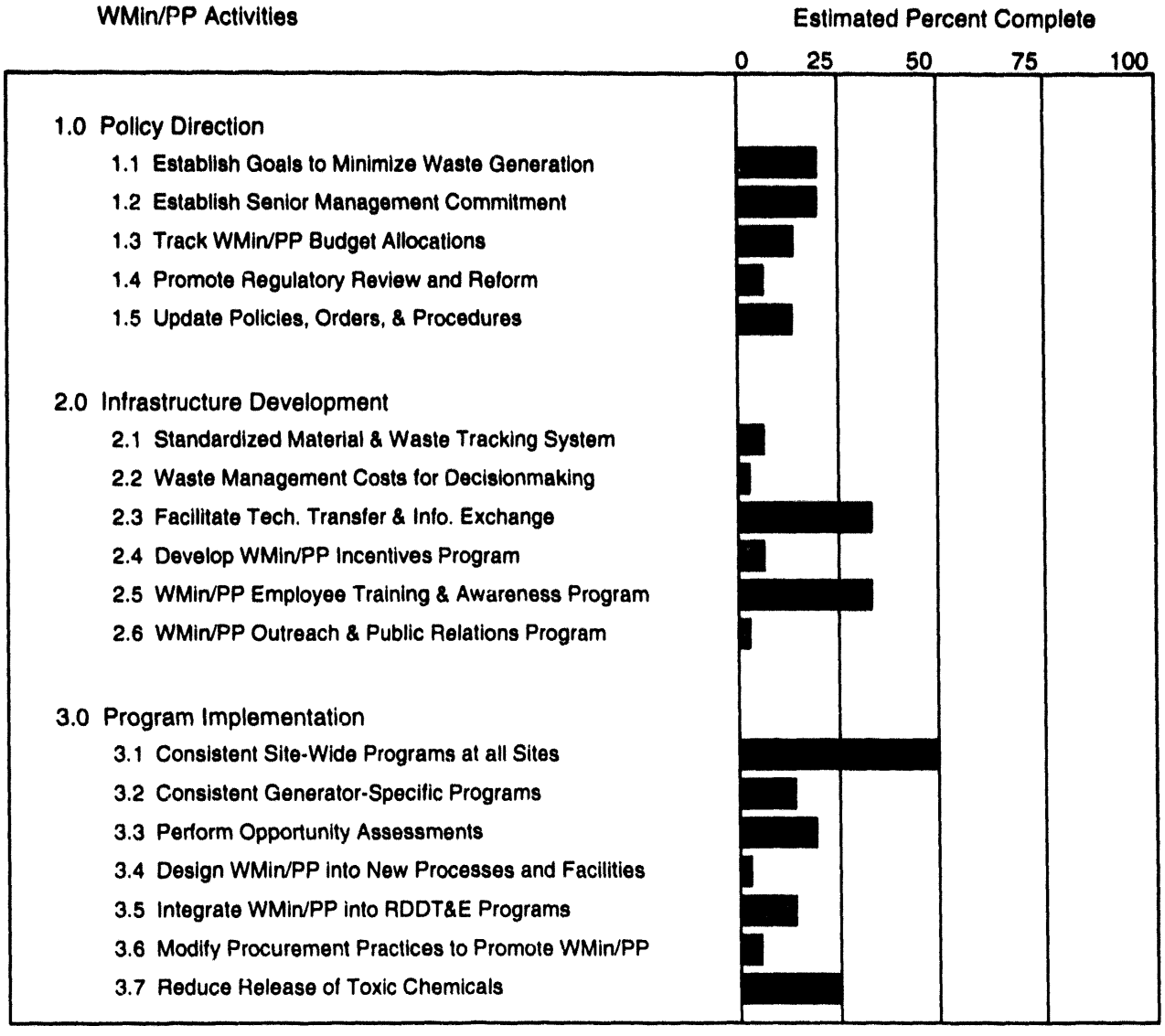
Contractor sites, when working with well-defined goals, can formulate specific plans, budgets, Activity Data Sheets, and programs for achieving those goals. Management at the field level will determine how to achieve proposed reductions and will assign specific goals to each site. Site-specific goals will be based upon prior site progress and the opportunity for cost effective reductions.

6.1 Activity Plan Implementation Status

It is difficult to assess DOE status in implementing the 18 activities discussed in this plan without a well-established assessment infrastructure that permits data collection and roll up using a common approach across the complex. For example, even though many sites have material and waste tracking systems, the systems are not standardized across the complex. Similarly, even though nearly all generator organizations and sites have WMin/PP programs, they do not all contain a consistent set of core elements desirable for a DOE-wide program. Often the activities are still in the early stages of development due to the lack of assigned leadership or the need for resources and approvals to conduct a well-organized, complex-wide implementation effort. An informal review of DOE's progress to date in implementing aspects of the Activity Plan described in Section 5 indicates that most WMin/PP activities across the complex are less than 25 percent implemented (Table 6.1). Certain sites are advanced in their WMin/PP Programs; however, the intent of this figure is to portray how well DOE as a whole is doing in a systematic context. This plan judges 14 of 18 activities to be less than 25 percent complete.

This Crosscut plan provides initial guidance and goals for constructing a complex-wide WMin/PP program. The next step is for all Headquarters and field organizations to work together to set site-specific goals and fully integrate WMin/PP activities into their operations. This will occur through the revision of site WMin/PP Awareness Plans required under DOE Order 5400.1. Headquarters guidance on revising WMin/PP Awareness Plans directs the sites to plan and budget for implementing all appropriate elements of this Crosscut Plan. Resources required for implementation will be estimated in the site plans, and budget requests will be submitted through Activity Data Sheets.

Table 6.1 – Status of DOE Implementation of WMin/PP Activities Identified in Section 5.0 of this Plan



10% Complete	Denotes a program that is fully developed as a policy concept, lead responsibilities are assigned, and implementation planning is under way.
25% Complete	Denotes a program that has completed all HQ coordination and approval requirements, has secured resources and is in initial deployment at DOE Operations Offices and/or Contractor sites.
50% Complete	Denotes an adequately funded program that has been institutionalized at all DOE Operations Offices and, with field oversight, is at the halfway point of complex-wide implementation.
100% Complete	Denotes a program that is fully institutionalized at all contractor sites across the complex, and is operating as required by the Secretary's Quality Initiative.

6.2 Activity Plan Resource Requirements

Table 6.2 identifies FY93-FY95 resource requirements to implement the WMin/PP Activities, broken out by WMin/PP program area. The first two steps:

- Establish WMin/PP Policy and Infrastructure Activities
- Conduct Site-Wide WMin/PP Programs/Activities

are shown "above the line" in the Resource Requirements Table, because EM funding has already been entered into the Department's planning, programming, and budgeting process as part of the EM FY95 internal budget submittal. It is anticipated that funding requirements beyond FY95 for these two steps will continue at a FY95 funding level of effort to maintain the program. At the proposed FY95 planning level, sufficient DOE resources will exist to initiate and develop the Policy and Infrastructure activities as well as to conduct the site-wide WMin/PP programs required under the Program Implementation activities. The major exception to this is that the resources needed to meet requirements of new Executive Orders are unknown until the EO's are analyzed and site plans are developed.

Three generator-specific implementation steps that are at the foundation of achieving actual reductions in waste generation within operating facilities are shown "below the line" in Table 6.2. Funding estimates for these activities will be determined from field input through site-specific WMin/PP Plans. The following key program areas must be fully funded and completed if DOE is to significantly reduce its wastes and pollutants:

- Perform opportunity assessments to identify process changes to achieve goals,
- Implement cost-effective process changes and equipment modifications to reduce waste generation and environmental release rates, and
- Conduct research and development on difficult-to manage-waste streams affecting multiple generator facilities and sites.

It is still too early to estimate the costs of implementing the program beyond 1995 as well as costs associated with compliance with recently-issued pollution prevention Executive Orders. Consequently, no funding estimates for program implementation have been identified in Table 6.2 beyond 1995. However, budget estimates from the site WMin/PP plans submitted in 1994 will be evaluated to determine total WMin/PP program costs for the Department.

Each field organization will prepare and submit specific Activity Data Sheets for WMin/PP to request resources required to achieve their goals and implement their site WMin/PP plans. Data from EM WMin/PP Activity Data Sheets will be included in the EM Five-Year Plans. All other Cognizant Secretarial Offices Activity Data Sheets will be included in the ES&H Management Plan to track WMin/PP resource allocation. Common definitions for WMin/PP budget categories will be contained in the guidance for ES&H Management Plan submittals, to be issued to the field in late 1993.

TABLE 6.2 Summary data table of estimated DOE-wide resource requirements for Waste Minimization/Pollution Prevention programs. FY 1995 - 1999 (budget authority in million of dollars).

Waste Minimization/Pollution Prevention Program Areas (See Figure 5.0)	FY93	FY94 Request	FY95 Plan	Out-Years FY96	FY97	FY98	FY99
1. WMin/PP Policy and Develop Programmatic Infrastructure (Activities 1.1 - 1.5 and 2.1 - 2.6)	7.6	11.1	25	See Note 1			
2. Site-Wide Programs (Activities 3.1, 3.6, and 3.7)	17.5	16.8	21				
3. Waste Stream Opportunity Assessments to Achieve Goals (Activity 3.2)	--	--	--				
4. Cost-Effective Facility Process Changes Using Operating and Capital Equipment Funds (Activities 3.2, 3.3, and 3.4)	--	See Note 2 --	--				
5. Conduct R&D on Difficult-to-Manage Waste Streams (Activity 3.5)	12.9	--	--				
TOTALS	38						

Note 1: Outyear resource requirements will be based on budget estimates provided through submission of Activity Data Sheets and 1994 site WMin/PP Plans Resources needed to meet requirements of the new Executive Orders will need to be estimated.

Note 2: Generator activity areas (items 3, 4, and 5) remain to be estimated. Task estimates will be fully developed with the submission of site WMin/PP Awareness Plans, due in 1994.

6.3 Site Waste Minimization/Pollution Prevention Plans with Reduction Goals

Department of Energy field sites review their WMin/PP Awareness Plans annually and revise as appropriate but not less than every three years. These Plans are then submitted to Headquarters providing updated information about their WMin/PP programs and activities, in accordance with DOE Order 5400.1. Each site reports WMin/PP progress annually for inclusion in the Annual Report on Waste Generation and Waste Minimization Progress. Requiring WMin/PP goals in the site plans and tracking progress in the annual reports will facilitate site implementation of the 18 activities discussed in this plan.

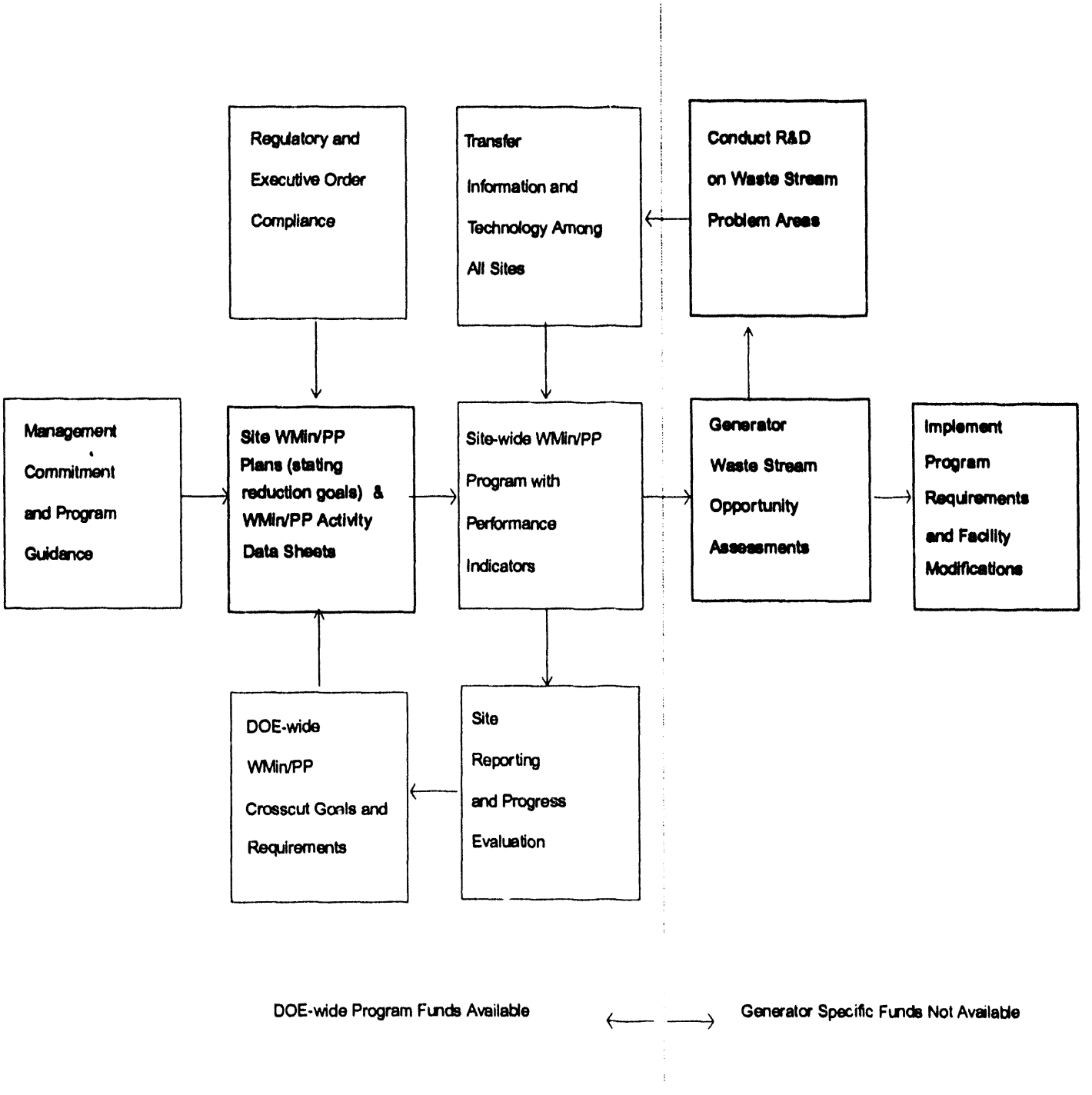
Figure 6.2 illustrates the WMin/PP program implementation steps in a flow chart diagram that emphasizes the central importance of site WMin/PP plans. Sites begin the process by developing goals for reducing waste generation that are tracked and reported against yearly. Sites prepare budgets to reflect funding needed to achieve the goals, perform needed opportunity assessments, and to implement the most cost-effective projects to reduce waste generation and environmental releases.

Once these goals are included in site plans and concurred on by the respective Operations Office Managers and Cognizant Secretarial Offices, sites shall request sufficient resources to achieve these goals. Sites will develop and submit WMin/PP Activity Data Sheets following the WMin/PP program elements described in Appendices Sections C.3.1 and C.3.2. Budgets and milestones from Headquarters approved Activity Data Sheets will then be included in the site plan for the following year (1995).

At the same time sites will perform opportunity assessments to determine methods for eliminating or curtailing wastes and environmental releases. For those waste streams that are difficult to manage, research and development programs will be necessary, along with technology transfer and information exchange with other sites that may have similar problems. When those steps are successfully completed, sites can then implement program requirements and facility modifications to ensure continued progress.

Site WMin/PP plans will identify estimated funding needs to fully perform opportunity assessments, implement process changes, conduct R&D on difficult-to-manage waste streams, and meet requirements of new WMin/PP Executive Orders. Each waste generating organization should identify funds in specific Activity Data Sheets to fully implement WMin/PP in its operations.

Figure 6.2 Development of Responsive Site WMin/PP Plans and Generator-Specific Programs is Critical to the Success of the DOE-wide Crosscut Planning Process



6.4 Waste Minimization/Pollution Prevention Roles and Responsibilities

Overall responsibility for the development and execution of WMin/PP implementation rests with the Cognizant Secretarial Offices, the WMin/PP Executive Board, and the Waste Reduction Steering Committee (WRSC). Roles and responsibilities for DOE WMin/PP are summarized in Table 6.3 and contained in full detail in Appendix G.

Table 6.3 Roles and responsibilities for implementing waste minimization and pollution prevention.

Roles	Responsibilities
Secretary of Energy	Set Departmental WMin/PP goals and provide overall direction to the Executive Board and the Cognizant Secretarial Offices.
Executive Board	Achieve Secretarial goals, set WMin/PP priorities and strategies to implement Crosscut Plan, oversee progress, and resolve issues.
DOE Environmental Executive	Oversee DOE's implementation of Executive Order 12873.
Waste Reduction Steering Committee	Coordinate implementation of Crosscut Plan, assist the Executive Board, and facilitate technical information exchange.
Heads of Cognizant Secretarial Offices	Provide leadership, resources, and guidance in the development of site-specific WMin/PP programs.
Assistant Secretary for EM	Provide overall coordination and assistance for the DOE-wide WMin/PP effort.
Assistant Secretary for EH	Ensure that DOE policies and guidance facilitate compliance with WMin/PP laws and regulations.
Operations Office Managers	Implement WMin/PP policies and develop site WMin/PP Plans that incorporate site-specific WMin/PP goals.
Heads of Contractor Organizations	Conserve resources, reduce wastes and environmental releases, and achieve site-specific goals.

7.0 CONCLUSION

DOE has taken several actions over the past two years to strengthen its commitment to WMin/PP. Examples include the development of the 1992 WMin Crosscut Plan and DOE participation in the EPA 33/50 Pollution Prevention Program. DOE's efforts will be strengthened further as it plans and organizes to implement newly-issued Executive Orders 12856, "Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements" and 12873, "Federal Acquisition, Recycling, and Waste Prevention."

While these actions are important in the overall process, much more needs to be done. DOE must move from end-of-the-pipe pollution control to serious and sustained pollution prevention. Implementation of this plan will remove barriers to WMin/PP, reduce the generation rates of multi-media wastes and pollutants, and increase recycling rates at all sites and facilities. The WMin/PP Crosscut Plan will be updated yearly to reflect current needs and progress within the Department based on input received from the field in their annual WMin/PP plans, budgets, and submittals for the Annual Report on Waste Generation and Waste Minimization Progress.

APPENDIX A Executive Order 12856

Federal Register
Vol. 58, No. 150
Friday, August 6, 1993

Presidential Documents

Title 3—

The President

Executive Order 12856 of August 3, 1993

Federal Compliance With Right-to-Know Laws and Pollution Prevention Requirements

WHEREAS, the Emergency Planning and Community Right-to-Know Act of 1986 (42 U.S.C. 11001–11050) (EPCRA) established programs to provide the public with important information on the hazardous and toxic chemicals in their communities, and established emergency planning and notification requirements to protect the public in the event of a release of extremely hazardous substances;

WHEREAS, the Federal Government should be a good neighbor to local communities by becoming a leader in providing information to the public concerning toxic and hazardous chemicals and extremely hazardous substances at Federal facilities, and in planning for and preventing harm to the public through the planned or unplanned releases of chemicals;

WHEREAS, the Pollution Prevention Act of 1990 (42 U.S.C. 13101–13109) (PPA) established that it is the national policy of the United States that, whenever feasible, pollution should be prevented or reduced at the source; that pollution that cannot be prevented should be recycled in an environmentally safe manner; that pollution that cannot be prevented or recycled should be treated in an environmentally safe manner; and that disposal or other release into the environment should be employed only as a last resort and should be conducted in an environmentally safe manner;

WHEREAS, the PPA required the Administrator of the Environmental Protection Agency (EPA) to promote source reduction practices in other agencies;

WHEREAS, the Federal Government should become a leader in the field of pollution prevention through the management of its facilities, its acquisition practices, and in supporting the development of innovative pollution prevention programs and technologies;

WHEREAS, the environmental, energy, and economic benefits of energy and water use reductions are very significant; the scope of innovative pollution prevention programs must be broad to adequately address the highest-risk environmental problems and to take full advantage of technological opportunities in sectors other than industrial manufacturing; the Energy Policy Act of 1992 (Public Law 102–486 of October 24, 1992) requires the Secretary of Energy to work with other Federal agencies to significantly reduce the use of energy and reduce the related environmental impacts by promoting use of energy efficiency and renewable energy technologies; and

WHEREAS, as the largest single consumer in the Nation, the Federal Government has the opportunity to realize significant economic as well as environmental benefits of pollution prevention;

AND IN ORDER TO:

Ensure that all Federal agencies conduct their facility management and acquisition activities so that, to the maximum extent practicable, the quantity of toxic chemicals entering any wastestream, including any releases to the environment, is reduced as expeditiously as possible through source reduction; that waste that is generated is recycled to the maximum extent practicable; and that any wastes remaining are stored, treated or disposed of in a manner protective of public health and the environment;

Require Federal agencies to report in a public manner toxic chemicals entering any wastestream from their facilities, including any releases to the environment, and to improve local emergency planning, response, and accident notification; and

Help encourage markets for clean technologies and safe alternatives to extremely hazardous substances or toxic chemicals through revisions to specifications and standards, the acquisition and procurement process, and the testing of innovative pollution prevention technologies at Federal facilities or in acquisitions;

NOW THEREFORE, by the authority vested in me as President by the Constitution and the laws of the United States of America, including the EPCRA, the PPA, and section 301 of title 5, United States Code, it is hereby ordered as follows:

Section 1. *Applicability.*

1–101. As delineated below, the head of each Federal agency is responsible for ensuring that all necessary actions are taken for the prevention of pollution with respect to that agency's activities and facilities, and for ensuring that agency's compliance with pollution prevention and emergency planning and community right-to-know provisions established pursuant to all implementing regulations issued pursuant to EPCRA and PPA.

1–102. Except as otherwise noted, this order is applicable to all Federal agencies that either own or operate a "facility" as that term is defined in section 329(4) of EPCRA, if such facility meets the threshold requirements set forth in EPCRA for compliance as modified by section 3–304(b) of this order ("covered facilities"). Except as provided in section 1–103 and section 1–104 below, each Federal agency must apply all of the provisions of this order to each of its covered facilities, including those facilities which are subject, independent of this order, to the provisions of EPCRA and PPA (*e.g.*, certain Government-owned/contractor-operated facilities (GOCO's), for chemicals meeting EPCRA thresholds). This order does not apply to Federal agency facilities outside the customs territory of the United States, such as United States diplomatic and consular missions abroad.

1–103. Nothing in this order alters the obligations which GOCO's and Government corporation facilities have under EPCRA and PPA independent of this order or subjects such facilities to EPCRA or PPA if they are otherwise excluded. However, consistent with section 1–104 below, each Federal agency shall include the releases and transfers from all such facilities when meeting all of the Federal agency's responsibilities under this order.

1–104. To facilitate compliance with this order, each Federal agency shall provide, in all future contracts between the agency and its relevant contractors, for the contractor to supply to the Federal agency all information the Federal agency deems necessary for it to comply with this order. In addition, to the extent that compliance with this order is made more difficult due to lack of information from existing contractors, Federal agencies shall take practical steps to obtain the information needed to comply with this order from such contractors.

Sec. 2–2. *Definitions.*

2–201. All definitions found in EPCRA and PPA and implementing regulations are incorporated in this order by reference, with the following exception: for the purposes of this order, the term "person", as defined in section 329(7) of EPCRA, also includes Federal agencies.

2–202. *Federal agency* means an Executive agency, as defined in 5 U.S.C. 105. For the purpose of this order, military departments, as defined in 5 U.S.C. 102, are covered under the auspices of the Department of Defense.

2–203. *Pollution Prevention* means "source reduction," as defined in the PPA, and other practices that reduce or eliminate the creation of pollutants through: (a) increased efficiency in the use of raw materials, energy, water, or other resources; or (b) protection of natural resources by conservation.

2-204. *GOCO* means a Government-owned/contractor-operated facility which is owned by the Federal Government but all or portions of which are operated by private contractors.

2-205. *Administrator* means the Administrator of the EPA.

2-206. *Toxic Chemical* means a substance on the list described in section 313(c) of EPCRA.

2-207. *Toxic Pollutants.* For the purposes of section 3-302(a) of this order, the term "toxic pollutants" shall include, but is not necessarily limited to, those chemicals at a Federal facility subject to the provisions of section 313 of EPCRA as of December 1, 1993. Federal agencies also may choose to include releases and transfers of other chemicals, such as "extremely hazardous chemicals" as defined in section 329(3) of EPCRA, hazardous wastes as defined under the Resource Conservation and Recovery Act of 1976 (42 U.S.C. 6901-6986) (RCRA), or hazardous air pollutants under the Clean Air Act Amendments (42 U.S.C. 7403-7626); however, for the purposes of establishing the agency's baseline under 3-302(c), such "other chemicals" are in addition to (not instead of) the section 313 chemicals. The term "toxic pollutants" does not include hazardous waste subject to remedial action generated prior to the date of this order.

Sec. 3-3. *Implementation.*

3-301. *Federal Agency Strategy.* Within 12 months of the date of this order, the head of each Federal agency must develop a written pollution prevention strategy to achieve the requirements specified in sections 3-302 through 3-305 of this order for that agency. A copy thereof shall be provided to the Administrator. Federal agencies are encouraged to involve the public in developing the required strategies under this order and in monitoring their subsequent progress in meeting the requirements of this order. The strategy shall include, but shall not be limited to, the following elements:

(a) A pollution prevention policy statement, developed by each Federal agency, designating principal responsibilities for development, implementation, and evaluation of the strategy. The statement shall reflect the Federal agency's commitment to incorporate pollution prevention through source reduction in facility management and acquisition, and it shall identify an individual responsible for coordinating the Federal agency's efforts in this area.

(b) A commitment to utilize pollution prevention through source reduction, where practicable, as the primary means of achieving and maintaining compliance with all applicable Federal, State, and local environmental requirements.

3-302. *Toxic Chemical Reduction Goals.* (a) The head of each Federal agency subject to this order shall ensure that the agency develops voluntary goals to reduce the agency's total releases of toxic chemicals to the environment and off-site transfers of such toxic chemicals for treatment and disposal from facilities covered by this order by 50 percent by December 31, 1999. To the maximum extent practicable, such reductions shall be achieved by implementation of source reduction practices.

(b) The baseline for measuring reductions for purposes of achieving the 50 percent reduction goal for each Federal agency shall be the first year in which releases of toxic chemicals to the environment and off-site transfers of such chemicals for treatment and disposal are publicly reported. The baseline amount as to which the 50 percent reduction goal applies shall be the aggregate amount of toxic chemicals reported in the baseline year for all of that Federal agency's facilities meeting the threshold applicability requirements set forth in section 1-102 of this order. In no event shall the baseline be later than the 1994 reporting year.

(c) Alternatively, a Federal agency may choose to achieve a 50 percent reduction goal for toxic pollutants. In such event, the Federal agency shall delineate the scope of its reduction program in the written pollution prevention strategy that is required by section 3-301 of this order. The baseline

for measuring reductions for purposes of achieving the 50 percent reduction requirement for each Federal agency shall be the first year in which releases of toxic pollutants to the environment and off-site transfers of such chemicals for treatment and disposal are publicly reported for each of that Federal agency's facilities encompassed by section 3-301. In no event shall the baseline year be later than the 1994 reporting year. The baseline amount as to which the 50 percent reduction goal applies shall be the aggregate amount of toxic pollutants reported by the agency in the baseline year. For any toxic pollutants included by the agency in determining its baseline under this section, in addition to toxic chemicals under EPCRA, the agency shall report on such toxic pollutants annually under the provisions of section 3-304 of this order, if practicable, or through an agency report that is made available to the public.

(d) The head of each Federal agency shall ensure that each of its covered facilities develops a written pollution prevention plan no later than the end of 1995, which sets forth the facility's contribution to the goal established in section 3-302(a) of this order. Federal agencies shall conduct assessments of their facilities as necessary to ensure development of such plans and of the facilities' pollution prevention programs.

3-303. *Acquisition and Procurement Goals.* (a) Each Federal agency shall establish a plan and goals for eliminating or reducing the unnecessary acquisition by that agency of products containing extremely hazardous substances or toxic chemicals. Similarly, each Federal agency shall establish a plan and goal for voluntarily reducing its own manufacturing, processing, and use of extremely hazardous substances and toxic chemicals. Priorities shall be developed by Federal agencies, in coordination with EPA, for implementing this section.

(b) Within 24 months of the date of this order, the Department of Defense (DOD) and the General Services Administration (GSA), and other agencies, as appropriate, shall review their agency's standardized documents, including specifications and standards, and identify opportunities to eliminate or reduce the use by their agency of extremely hazardous substances and toxic chemicals, consistent with the safety and reliability requirements of their agency mission. The EPA shall assist agencies in meeting the requirements of this section, including identifying substitutes and setting priorities for these reviews. By 1999, DOD, GSA and other affected agencies shall make all appropriate revisions to these specifications and standards.

(c) Any revisions to the Federal Acquisition Regulation (FAR) necessary to implement this order shall be made within 24 months of the date of this order.

(d) Federal agencies are encouraged to develop and test innovative pollution prevention technologies at their facilities in order to encourage the development of strong markets for such technologies. Partnerships should be encouraged between industry, Federal agencies, Government laboratories, academia, and others to assess and deploy innovative environmental technologies for domestic use and for markets abroad.

3-304. *Toxics Release Inventory/Pollution Prevention Act Reporting.* (a) The head of each Federal agency shall comply with the provisions set forth in section 313 of EPCRA, section 6607 of PPA, all implementing regulations, and future amendments to these authorities, in light of applicable guidance as provided by EPA.

(b) The head of each Federal agency shall comply with these provisions without regard to the Standard Industrial Classification (SIC) delineations that apply to the Federal agency's facilities, and such reports shall be for all releases, transfers, and wastes at such Federal agency's facility without regard to the SIC code of the activity leading to the release, transfer, or waste. All other existing statutory or regulatory limitations or exemptions on the application of EPCRA section 313 shall apply to the reporting requirements set forth in section 3-304(a) of this order.

(c) The first year of compliance shall be no later than for the 1994 calendar year, with reports due on or before July 1, 1995.

3–305. *Emergency Planning and Community Right-to-Know Reporting Responsibilities.* The head of each Federal agency shall comply with the provisions set forth in sections 301 through 312 of EPCRA, all implementing regulations, and future amendments to these authorities, in light of any applicable guidance as provided by EPA. Effective dates for compliance shall be: (a) With respect to the provisions of section 302 of EPCRA, emergency planning notification shall be made no later than 7 months after the date of this order.

(b) With respect to the provisions of section 303 of EPCRA, all information necessary for the applicable Local Emergency Planning Committee (LEPC's) to prepare or revise local Emergency Response Plans shall be provided no later than 1 year after the date of this order.

(c) To the extent that a facility is required to maintain Material Safety Data Sheets under any provisions of law or Executive order, information required under section 311 of EPCRA shall be submitted no later than 1 year after the date of this order, and the first year of compliance with section 312 shall be no later than the 1994 calendar year, with reports due on or before March 1, 1995.

(d) The provisions of section 304 of EPCRA shall be effective beginning January 1, 1994.

(e) These compliance dates are not intended to delay implementation of earlier timetables already agreed to by Federal agencies and are inapplicable to the extent they interfere with those timetables.

Sec. 4–4. *Agency Coordination.*

4–401. By February 1, 1994, the Administrator shall convene an Interagency Task Force composed of the Administrator, the Secretaries of Commerce, Defense, and Energy, the Administrator of General Services, the Administrator of the Office of Procurement Policy in the Office of Management and Budget, and such other agency officials as deemed appropriate based upon lists of potential participants submitted to the Administrator pursuant to this section by the agency head. Each agency head may designate other senior agency officials to act in his/her stead, where appropriate. The Task Force will assist the agency heads in the implementation of the activities required under this order.

4–402. Federal agencies subject to the requirements of this order shall submit annual progress reports to the Administrator beginning on October 1, 1995. These reports shall include a description of the progress that the agency has made in complying with all aspects of this order, including the pollution reductions requirements. This reporting requirement shall expire after the report due on October 1, 2001.

4–403. *Technical Advice.* Upon request and to the extent practicable, the Administrator shall provide technical advice and assistance to Federal agencies in order to foster full compliance with this order. In addition, to the extent practicable, all Federal agencies subject to this order shall provide technical assistance, if requested, to LEPC's in their development of emergency response plans and in fulfillment of their community right-to-know and risk reduction responsibilities.

4–404. Federal agencies shall place high priority on obtaining funding and resources needed for implementing all aspects of this order, including the pollution prevention strategies, plans, and assessments required by this order, by identifying, requesting, and allocating funds through line-item or direct funding requests. Federal agencies shall make such requests as required in the Federal Agency Pollution Prevention and Abatement Planning Process and through agency budget requests as outlined in Office of Management and Budget (OMB) Circulars A–106 and A–11, respectively. Federal agencies should apply, to the maximum extent practicable, a life cycle analysis and

total cost accounting principles to all projects needed to meet the requirements of this order.

4–405. *Federal Government Environmental Challenge Program.* The Administrator shall establish a "Federal Government Environmental Challenge Program" to recognize outstanding environmental management performance in Federal agencies and facilities. The program shall consist of two components that challenge Federal agencies: (a) to agree to a code of environmental principles to be developed by EPA, in cooperation with other agencies, that emphasizes pollution prevention, sustainable development and state-of-the-art environmental management programs, and (b) to submit applications to EPA for individual Federal agency facilities for recognition as "Model Installations." The program shall also include a means for recognizing individual Federal employees who demonstrate outstanding leadership in pollution prevention.

Sec. 5–5. *Compliance.*

5–501. By December 31, 1993, the head of each Federal agency shall provide the Administrator with a preliminary list of facilities that potentially meet the requirements for reporting under the threshold provisions of EPCRA, PPA, and this order.

5–502. The head of each Federal agency is responsible for ensuring that such agency take all necessary actions to prevent pollution in accordance with this order, and for that agency's compliance with the provisions of EPCRA and PPA. Compliance with EPCRA and PPA means compliance with the same substantive, procedural, and other statutory and regulatory requirements that would apply to a private person. Nothing in this order shall be construed as making the provisions of sections 325 and 326 of EPCRA applicable to any Federal agency or facility, except to the extent that such Federal agency or facility would independently be subject to such provisions. EPA shall consult with Federal agencies, if requested, to determine the applicability of this order to particular agency facilities.

5–503. Each Federal agency subject to this order shall conduct internal reviews and audits, and take such other steps, as may be necessary to monitor compliance with sections 3–304 and 3–305 of this order.

5–504. The Administrator, in consultation with the heads of Federal agencies, may conduct such reviews and inspections as may be necessary to monitor compliance with sections 3–304 and 3–305 of this order. Except as excluded under section 6–601 of this order, all Federal agencies are encouraged to cooperate fully with the efforts of the Administrator to ensure compliance with sections 3–304 and 3–305 of this order.

5–505. Federal agencies are further encouraged to comply with all state and local right-to-know and pollution prevention requirements to the extent that compliance with such laws and requirements is not otherwise already mandated.

5–506. Whenever the Administrator notifies a Federal agency that it is not in compliance with an applicable provision of this order, the Federal agency shall achieve compliance as promptly as is practicable.

5–507. The EPA shall report annually to the President on Federal agency compliance with the provisions of section 3–304 of this order.

5–508. To the extent permitted by law and unless such documentation is withheld pursuant to section 6–601 of this order, the public shall be afforded ready access to all strategies, plans, and reports required to be prepared by Federal agencies under this order by the agency preparing the strategy, plan, or report. When the reports are submitted to EPA, EPA shall compile the strategies, plans, and reports and make them publicly available as well. Federal agencies are encouraged to provide such strategies, plans, and reports to the State and local authorities where their facilities are located for an additional point of access to the public.

Sec. 6–6. *Exemption.*

6–601. In the interest of national security, the head of a Federal agency may request from the President an exemption from complying with the provisions of any or all aspects of this order for particular Federal agency facilities, provided that the procedures set forth in section 120(j)(1) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (42 U.S.C. 9620(j)(1)), are followed. To the maximum extent practicable, and without compromising national security, all Federal agencies shall strive to comply with the purposes, goals, and implementation steps set forth in this order.

Sec. 7–7. *General Provisions.*

7–701. Nothing in this order shall create any right or benefit, substantive or procedural, enforceable by a party against the United States, its agencies or instrumentalities, its officers or employees, or any other person.

William J. Clinton

THE WHITE HOUSE,
August 3, 1993.

[FR Doc. 93–19068
Filed 8–4–93; 4:37 pm]
Billing code 3195–01–P

APPENDIX B Department of Energy Definition of Waste Minimization and Pollution Prevention

Within the Department of Energy, WMin/PP means preventing or reducing the generation of pollutants, contaminants, hazardous substances, or wastes at the source; or reducing the amount for treatment, storage, and disposal through recycling.

WMin/PP can be applied to all pollution-generating activities at DOE, including:

- manufacturing and productions operations;
- weapons dismantlement;
- maintenance;
- general operations;
- transportation;
- research, development, and demonstration;
- laboratory research;
- decontamination and decommission activities; and
- legacy waste and contaminated site cleanup.

WMin/PP can be achieved through:

1) source reduction:

   - equipment or technology selection or modification, process or procedure modification, reformulation or redesign of products, substitution of raw materials, and improvements in housekeeping, maintenance, training, or inventory control;

   - increased efficiency in the use of raw materials, energy, water or other resources, including affirmative procurement; and

   - protection of natural resources by conservation;

and 2) recycling: the use, reuse, or reclamation of waste materials.

Environmental restoration activities are directed towards removal and treatment of legacy waste and pollutants already generated from past production and manufacturing operations. In the process of conducting restoration activities, additional waste and pollutants may be generated. Other pollutants and waste will also be generated by decontamination and decommissioning of plant and equipment, and dismantlement of weapons systems. WMin/PP is applicable to the processes and techniques used to perform these activities so as to prevent or reduce the generation of new wastes and pollutants when conducting these activities.

APPENDIX C Waste Minimization/Pollution Prevention Activity Plan

Implementation of the WMin/PP activities described below are essential to meeting goals for reducing waste generation. The Narrative Summary provided in Tables 5.4.1 - 5.4.3 contains specific issues, objectives, and outcomes of these activities.

C.1 Waste Minimization/Pollution Prevention Policy Direction Activities

C.1.1 Establish Goals to Minimize Waste Generation

Goal-setting is a fundamental requirement in any performance-based management system and is essential if DOE is to achieve significant reductions in waste generation. DOE managers can more effectively plan, organize, budget, and execute programs to achieve actual reductions in waste generation when such requirements are known. Firm goals lead to better performance than "do your best within existing resources."

Goal-setting provides targets for reducing waste generation, standards for evaluating WMin/PP progress, and a framework for decision making. **Each DOE site will set quantitative WMin/PP goals and implementing plans for achieving those goals.** These goals will be compatible with the overall agency goals described in Section 1.4 of this plan.

Integral to goal-setting is establishing a DOE-wide material and waste tracking system that allows management to create baselines and measure progress. Development of such a system is described in Section 5.4.2 and C.2.1 of this plan.

C.1.2 Establish Senior Management Commitment and Follow-Through for DOE WMin/PP Activities

A successful DOE-wide WMin/PP program depends upon proactive leadership and hands-on management by DOE and contractor senior managers. All DOE Headquarters organizations, Operations Offices, DOE facilities, laboratories, and contractor organizations must exhibit management commitment. **The heads of these organizations will translate the Secretarial WMin/PP policy into policies specific to their sites or programs and be accountable for incorporating WMin/PP into routine operations.**

C.1.3 Distinguish WMin/PP Budget Allocations through Activity Data Sheets

The ability to identify WMin/PP funding is an essential aspect of managing WMin/PP programs, measuring organizational commitment, and performing cost/benefit analyses. Currently, the Department is inconsistently funding WMin/PP through overhead accounts, programmatic accounts, and special project accounts. Expenditure levels for establishing and implementing site WMin/PP programs often are not known.

The Department must be able to distinguish WMin/PP funding from other programs and operations. **Specific WMin/PP budgets will be established through preparation of separate**

Activity Data Sheets. These Activity Data Sheets will be included in and tracked by the ES&H Management Plan and the EM Five-Year Plan to evaluate WMin/PP investment across the Department.

C.1.4 Promote Regulatory Review and Reform

Federal and State environmental regulations and standards provide significant benefits to the public, but can sometimes hinder WMin/PP initiatives. For example, due to the lack of a "de minimis" criteria, DOE often classifies much of its municipal waste as radioactive and much of its hazardous waste as mixed. This results in the need for expensive treatment and disposal for wastes that could otherwise be recycled, reused, or handled by commercial treatment and disposal facilities.

Risks associated with hazardous and radioactive waste need to be evaluated considering the latest scientific evidence. **The Department will work with regulators and stakeholders to ensure that the best waste management practices are evaluated and incorporated into Federal and State regulations and laws.** The Department will seek opportunities to develop Federal and State regulations that promote cost-effective WMin/PP actions as opposed to expensive waste treatment, storage, and disposal practices.

C.1.5 Update DOE Policies, Orders, and Procedures to Integrate WMin/PP

Various DOE guidance and directive documents may have inadvertently created barriers to WMin/PP. Examples of these include security issues with recycling, the inability to substitute materials due to restrictive standard operating procedures, and a focus on pollution control versus pollution prevention. Applicable DOE orders must be updated to outline WMin/PP roles and responsibilities, develop consistent procedures, and create an environment to resolve internal conflicts over WMin/PP matters.

DOE policies, orders, procedures will be updated to reflect the Department's and the Administration's focus on integrating WMin/PP objectives into all activities.

C.2 Waste Minimization/Pollution Prevention Infrastructure Development

C.2.1 Standardized Material and Waste Tracking Systems

Quantitative measurements of DOE's WMin/PP progress are difficult because of the variety of waste generating activities, such as production, laboratory experimentation, and environmental restoration. DOE currently lacks the ability to fully track across multiple sites the amounts of waste generated and emissions released as a result of its activities. Currently, needed data are gathered manually through time consuming and expensive "data calls" to the field. Definition and interpretation issues often restrict the value of the final roll-up information. Without essential management information available in a timely manner, it is difficult to make sound environmental decisions, establish baselines, set goals, track progress, and undertake corrective actions. Measurement standards for WMin/PP must be developed and applied consistently throughout all DOE organizations for the data to be valid. **The Department will develop**

standards and criteria to measure materials and wastes and provide performance requirements for material and waste tracking systems. This will provide DOE managers with key information needed to establish meaningful goals for reducing waste generation and environmental releases, evaluate progress, and evaluate compliance with regulatory and Departmental drivers.

C.2.2 Estimate Waste Management Costs for Use In Decision Making

Currently, DOE does not know the full costs (direct plus hidden costs) of managing the Department's many individual waste streams and associated loss of efficiencies due to environmental releases. Material and waste management costs must be estimated if DOE decision makers are to properly balance the benefits of applying WMin/PP versus the costs to continue operations without process improvements. If DOE is to minimize the total cost to the taxpayers, then its decisions on how best to manage existing and future waste streams must be made with a full understanding of future cost liability.

The Department will develop standards for estimating the costs and benefits of introducing WMin/PP changes into its operations. Economic analyses will provide a more thorough picture of waste generation versus WMin/PP costs for more informed Departmental decision making.

C.2.3 Facilitate WMin/PP Technology Transfer and Information Exchange

Effective technology transfer and information exchange provides updated information to each DOE site on WMin/PP opportunities and efficient methods for implementation. This leverages Departmental resources by providing more comprehensive knowledge of WMin/PP opportunities, reduces duplication of effort, and allows sites to benefit from lessons learned at other sites. To enhance and expedite WMin/PP technology transfer and information exchange, a model site WMin/PP program will be developed to demonstrate outstanding environmental management performance within the Department.

To provide consistent application of WMin/PP opportunities, **the Department will enhance existing systems to optimize WMin/PP technology transfer and information exchange within the DOE complex.** The Department will also cooperate with other Federal, State, and local agencies, and industry to share WMin/PP technologies and information.

C.2.4 Develop a DOE WMin/PP Incentives Program

Incentives are necessary to stimulate and maintain interest in changing processes and activities. Providing budgetary incentives within the Department is difficult because waste management is funded by the EM organization as a service to all other waste generating organizations. Consequently, waste generators are not directly charged for waste management costs, nor do they financially benefit from reducing waste generation and environmental release rates. Without incentives, beneficial changes in generator facilities might not be made because there are no immediate avoided costs to the generator. To help remedy this situation, **the Department will acknowledge and reward reductions in waste generation and environmental releases** made by the responsible line organizations.

C.2.5 Develop and Conduct WMin/PP Employee Training and Awareness Programs

Employee WMin/PP training is integral to increasing awareness of waste management issues and the positive effects each employee can have on the environment. This is important, as DOE has found it particularly difficult to reach and educate all DOE and contractor employees who generate hazardous, radioactive, mixed, and or municipal waste in their day-to-day activities. Adoption of WMin/PP practices by all management levels and the work force requires effective training programs that articulate program requirements and benefits.

The goal is to make each DOE and contractor employee aware of waste generation, its impact on the site and the environment, ways resources may be conserved, and how waste generation and environmental releases can be reduced. To achieve this goal, **the Department will operate a comprehensive WMin/PP training program that considers all applicable job-specific situations.**

C.2.6 Develop and Implement a WMin/PP Outreach and Public Relations Program

The public understands that effective application of WMin/PP promotes health, safety, and environmental quality. Keeping stakeholders informed of DOE's WMin/PP progress will build public confidence and institutional credibility. **The Department will inform government agencies and local communities of WMin/PP accomplishments and invite them to participate in environmental activities and initiatives.** DOE must have a visible and active WMin/PP program if it wishes to build public trust that we will protect future generations as we clean up the waste of the past and responsibly manage new waste generating activities.

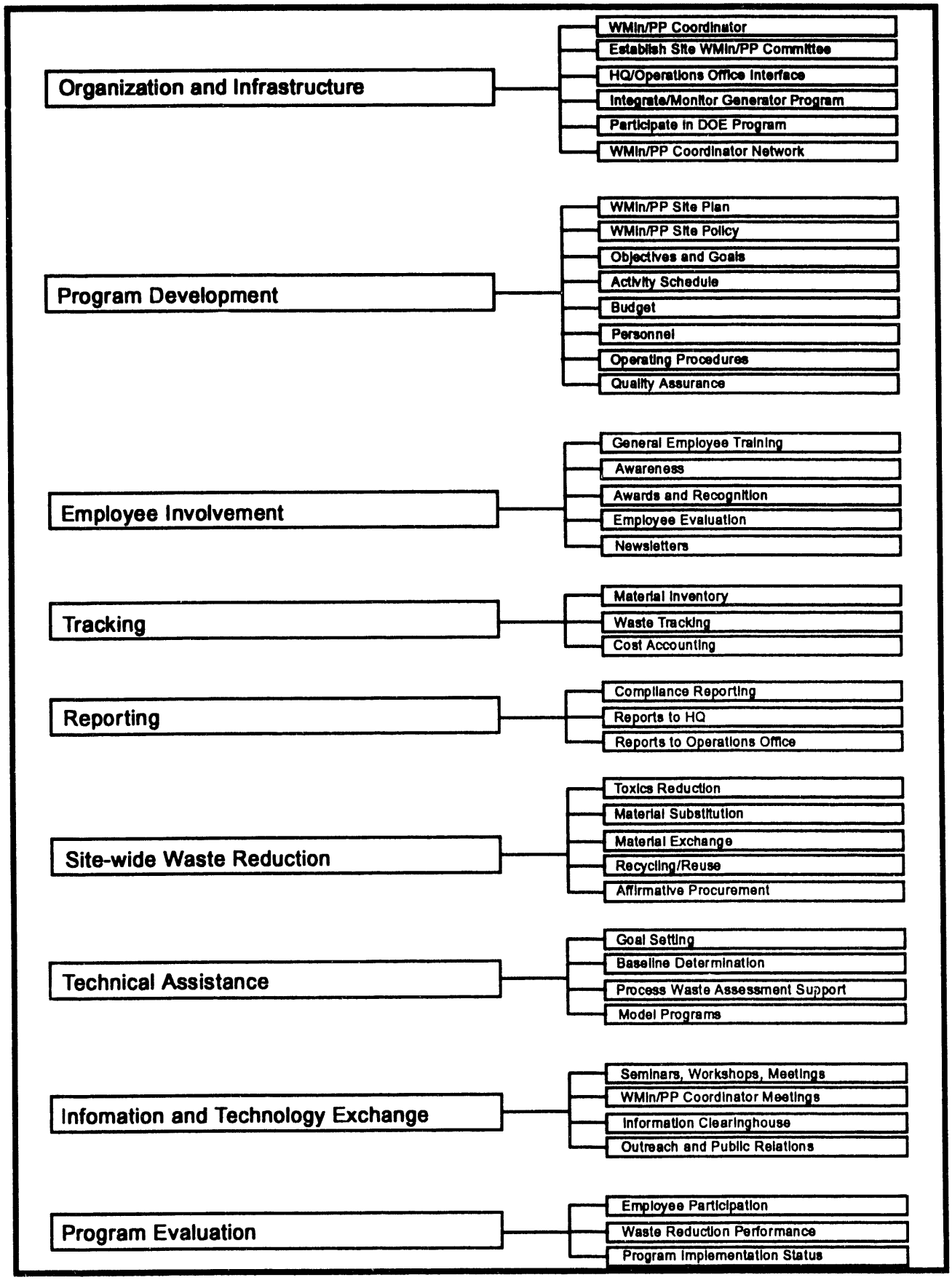
C.3 Waste Minimization/Pollution Prevention Program Implementation

C.3.1 Develop and Maintain Consistent Site-wide WMin/PP Programs at all Sites

Certain site activities are central to any WMin/PP program and must be performed to meet certain regulatory requirements and to ensure that waste generator implementation activities take place. These activities must be performed at all sites whatever the waste types generated or the number of generator organizations. Such activities include site-wide coordination, planning, reporting, training, employee awareness, assessments, incentives, maintenance of tracking systems, and recycling and affirmative procurement programs. **The Department will provide core site-wide, WMin/PP activities and services at every site.** Figure C.3.1 contains the key elements of a site-wide WMin/PP program.

Currently, DOE's site-wide WMin/PP programs are constrained due to uncertainty over which DOE line organization (EM, the landlord, waste generator) is responsible for funding and managing these activities. **DOE will clarify its organizational roles and responsibilities to ensure stable funding and consistent management of its site-wide WMin/PP programs.**

FIGURE C.3.1 - KEY ELEMENTS OF A SITE-WIDE WASTE MINIMIZATION/POLLUTION PREVENTION PROGRAM



C.3.2 Develop and Maintain Consistent Generator-Specific Programs

To achieve real and substantial reductions in DOE's waste generation rates, generating organizations must implement essential process, material, and capital equipment changes and waste avoidance techniques within operating facilities. Senior management leadership is particularly needed today to accomplish this mission within the Department. Generators must perform opportunity assessments to identify WMin/PP opportunities and plan and budget for cost-effective changes in their operations and visibly include WMin/PP programs within their multi-year program plans.

Key elements of a generator-specific WMin/PP program include program management and coordination, generator-specific planning and training, performance of WMin/PP opportunity assessments, implementation of WMin/PP techniques, goal-setting and tracking, and program progress evaluation. **The Department will require that waste generating organizations include appropriate WMin/PP concepts and techniques into their program operations and other activities such as weapons disassembly, decontamination and decommissioning, and environmental restoration.** Figure C.3.2 contains the key elements of a generator-specific WMin/PP program.

C.3.3 Perform Opportunity Assessments and Identify WMin/PP Projects

In addition to meeting its immediate environmental regulatory requirements, the Department has a responsibility to the public to reduce future pollution associated with waste generated today. The first step in identifying cost-effective techniques to reducing waste generation and pollutants is to perform opportunity assessments. Opportunity assessments provide an in-depth examination of processes, operations and procedures that generate waste and assist in identifying WMin/PP projects that will yield a quick return on investment.

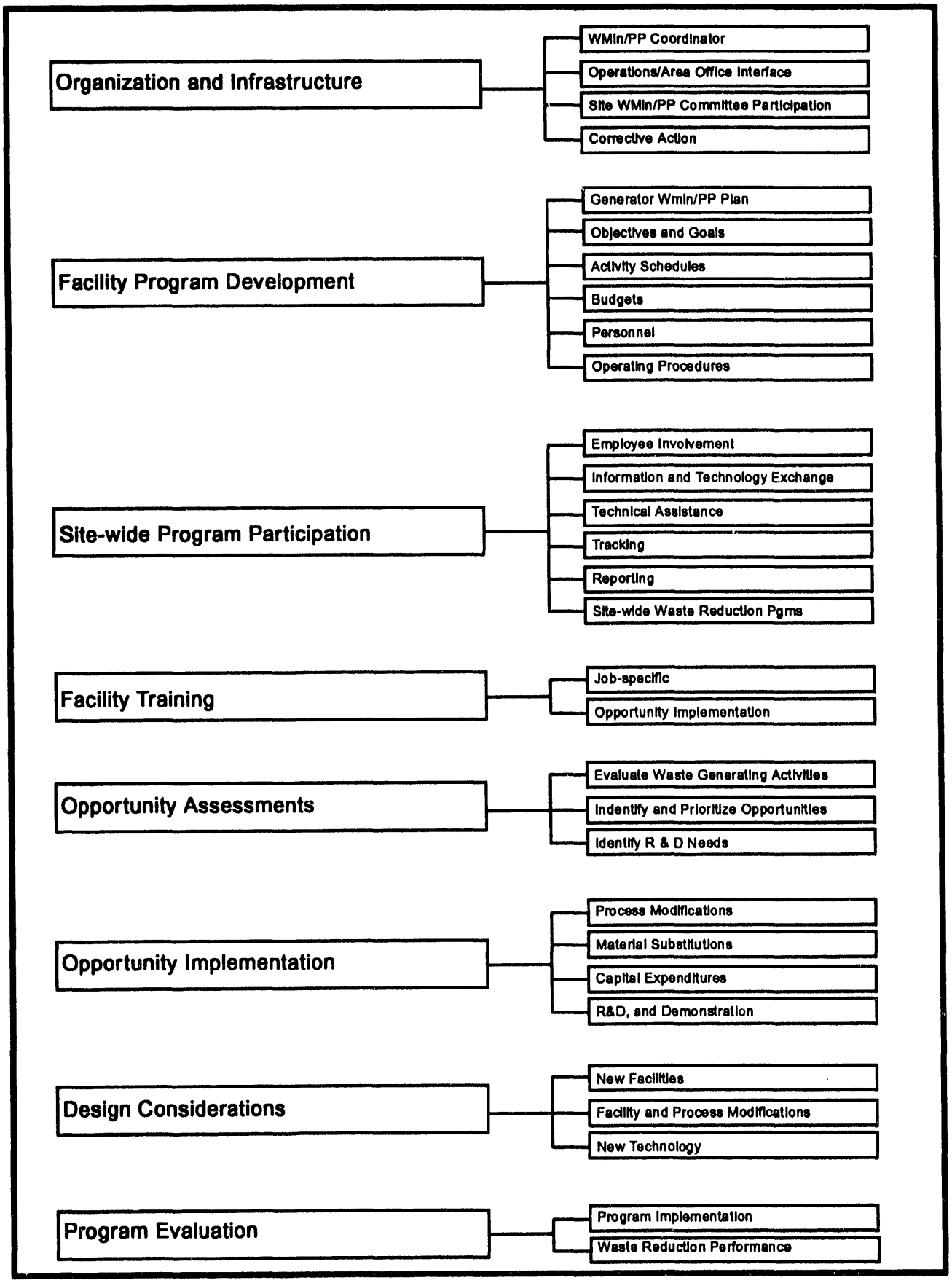
The Department, acting to minimize total costs, will perform opportunity assessments and identify and implement WMin/PP projects that show a rapid (within 36 months) return on investment. Such assessments are an investment that pays for itself by reducing the amount of waste that EM must handle in the future.

C.3.4 Design WMin/PP into New Products, Processes, and Facilities

Engineering design is a critical component of DOE's products, processes, and facilities. It is estimated that 70 percent or more of the opportunity to reduce or eliminate pollutants exists during design. Designing WMin/PP into new DOE products, processes, and facilities prevents or greatly reduces environmental releases, promotes energy efficient materials use, minimizes resource consumption via process and system efficiency, and leads to lowest agency life-cycle costs.

The Department will integrate WMin/PP into all new design criteria. Resource efficiency will be considered a priority in all new designs or redesigns for products, processes, and facilities. WMin/PP will be included as alternatives in preparation of Environmental Assessments and Environmental Impact Statements under NEPA.

FIGURE C.3.2 - KEY ELEMENTS OF A GENERATOR SPECIFIC WASTE MINIMIZATION/POLLUTION PREVENTION PROGRAM



C.3.5 Integrate WMin/PP into Research, Development, and Demonstration Programs

The Department faces significant technical hurdles, particularly for its mixed and radioactive waste streams, which will continue to impede progress and increase costs until satisfactory technical solutions are developed. Applying WMin/PP research, development, and demonstration (RD&D) solutions to critical areas of need is essential because of the size and technical challenges of the Department's waste management program. The Department will couple waste generation and RD&D communities to ensure that WMin/PP RD&D projects offering the greatest technical benefit are available to generator organizations.

C.3.6 Modify Procurement Practices to Promote WMin/PP

As a significant purchaser of materials and equipment, **the Department will promote the purchase of less toxic, more durable, more energy efficient materials,** including products composed of recovered materials for its own operations. The Department will ensure the use of environmentally sound practices in the procurement process including updating user specifications, contracts, and policies. This will ensure that DOE and its contractors act according to existing Federal, State and local regulations, and DOE Orders and policies. Special priority within this activity will be given to meeting the requirements of Executive Order 12843 "Procurement Requirements and Policies for Ozone-Depleting Substances" issued April 21, 1993 and Executive Order 12873, "Federal Acquisition, Recycling, and Waste Prevention."

C.3.7 Reduce Release of Toxic Chemicals

The Department will reduce its release and transfer of TRI chemicals by 50 percent by December 31, 1999. All sites that meet the EPCRA toxic chemical thresholds will submit to EPA TRI Form Rs on each applicable chemical. Sites that did not submit TRI Reports in the past, due to their Standard Industry Classification Code classification, will begin reporting 1993. Each site will participate in reducing TRI chemical releases to ensure Departmental compliance with Executive Order 12856, "Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements." The baseline year for measuring reductions for each site will be the first year in which the site completed a Toxic Release Inventory Report required by EPCRA. In no event will the baseline year be later than the 1994 reporting year.

APPENDIX D Waste Minimization/Pollution Prevention Drivers, Regulatory

Driver	Law	Effect
Federal Procurement Guidelines	Resource Conservation and Recovery Act (RCRA)	Encourages procurement of recovered materials by the Federal government
Generator Manifest Certification	RCRA	Requires generator to put in place a hazardous waste minimization program
Generator Biennial Report Certification	RCRA	Requires generator to put in place a hazardous waste minimization program
Part B Permit Conditions	RCRA	Requires generator to put in place a hazardous waste minimization program
Liability Insurance Requirements	RCRA	Generator and facility owners and operators reduce liability by reducing waste
Land Disposal Restrictions	RCRA	Increases the cost of waste management
Exclusion to the Toxicity Characteristic	RCRA	Minimizes chlorofluorocarbon (CFC) venting and encourages recycling
Waiver of Sovereign Immunity under RCRA	Federal Facilities Compliance Act (FFCA)	Government is subject to all RCRA requirements with a 3 year delayed effective date for mixed waste storage
Mixed Waste Minimization Reporting	FFCA	National inventory of all mixed waste including description of waste minimization actions
Toxic Release Inventory Reporting	Emergency Planning and Community Right-to-Know Act (EPCRA)	Establish reporting requirements for the use, storage, and on-site and off-site transfers of hazardous and toxic chemicals
National Policy	Pollution Prevention Act (PPA)	Declared pollution prevention as the first choice in environmental management
Toxic Release Inventory Reporting	PPA	Expands SARA 313 reporting requirements to include source reduction and recycling information
Increased Reporting Requirements	PPA	Increases public access to information, stimulating citizen enforcement and holds industry to stricter standards

APPENDIX D Waste Minimization/Pollution Prevention Drivers, Regulatory, Continued

Driver	Law	Effect
CERCLA Financial Liability	Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)	Generators reduce future liability by reducing waste
National Ambient Air Quality Standards	Clean Air Act (CAA)	Promotes cutting emissions of six hazardous air pollutants
New Source Performance Standards	CAA	New plants must conform to strict emission requirements
Phased-In Requirements	CAA	Firms must meet new, more restrictive air emission standards
Early Reductions Program	CAA	Compliance extensions for voluntary early reductions of hazardous air pollutants
Maximum Achievable Control Technology (MACT)	CAA	Directs EPA to consider pollution prevention technologies when selecting MACT
Clean Fuel Fleet Program	CAA	Requirement to meet clean-fuel fleet vehicle emissions standards
Protection of Stratospheric Ozone	CAA	Phase-out of CFCS, halons, and carbon tetrachloride by 2000; limit on emissions of ozone-depleting substances during the servicing, use and disposal of equipment containing those substances.
Minimization Certification	Clean Water Act (CWA)	Requires a plan for industrial firms to diminish the volume and toxicity of their hazardous discharges
Significant New Use Notification	Toxic Substance Control Act (TSCA)	Makes firms legally responsible to EPA for voluntary waste minimization commitment
Bans on Chemical Substances	TSCA	Eliminates feedstocks responsible for certain waste streams
Handling and Transportation Requirements	Hazardous Material Transportation Act (HMTA)	Safety requirements raise costs of transporting wastes
Handling Requirements	Occupational Safety & Health Act (OSHA)	Safety requirements raise costs of transporting wastes

Driver	Law	Effect
Environmental Taxes	Revenue Reconciliation Act (RRA)	Taxes on ozone-depleting chemicals
Research and Development Tax Credits	Tax Reform Act (TRA)	Provides for a tax credit for increasing investment in research and development of processes and products that reduce waste
Stormwater Pollution Prevention Plan	CWA	Requires that industrial stormwater discharge facilities have an on-site pollution prevention plan

APPENDIX E Waste Minimization/Pollution Prevention Drivers, Orders and Policies

Driver	Order or Policy Number	Effect
General Environmental Protection Program	DOE 5400.1	Requires WMin/PP Plans, Annual Waste Reduction Reports, and a Pollution Prevention Awareness Program.
Hazardous and Radioactive Mixed Waste Program	DOE 5400.3	Adds RCRA requirements to DOE environmental programs
Radioactive Waste Management	DOE 5820.2A	Requires Waste Management Plans including actions to minimize radioactive waste generation
Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements	Executive Order (EO) 12856 (August 3, 1993)	Requires development of a pollution prevention strategy and agency development of a 50 percent reduction goal in toxic chemicals releases by the end of 1999
Federal Acquisition, Recycling, and Waste Prevention	EO 12873 (October 21, 1993)	Promotes reductions in waste generation through recycling and the use of recycled and energy efficient materials
Procurement Requirements and Policies for Ozone-Depleting Substances	(EO) 12843 (April 21, 1993)	Requires that Federal agencies minimize and allow for phaseout of Class I and II ozone-depleting substances
Federal Use of Alternative Fueled Vehicles	EO 12844 (April 21, 1993)	Stimulates the availability, acquisition, and use of alternatively-fueled vehicles for Federal agencies
Requiring Agencies to Purchase Energy Efficient Computer Equipment	EO 12845 (April 21, 1993)	Requires that all acquisitions of microcomputers meet "EPA Energy Star" requirements for energy efficiency

APPENDIX F DOE Issue Assessment of Waste Minimization/Pollution Prevention Progress

Numerous problems in implementing WMin/PP throughout the DOE complex were identified during the FY 1992 EM roadmap activities. To investigate these problems, the Roadmap Project Office, under the direction of the EM Office of Planning, performed a contributing factors analysis.

In conducting the analysis, the Roadmap Project Office contacted personnel at 14 sites. It was observed that WMin/PP progress and level of effort varies markedly from site to site. Some programs are making commendable progress, while others lag behind. Hundreds of issues and barriers to WMin/PP were noted in such areas as funding, priority, contracting, education, and awareness. A hierarchical structure was created that traced the issues through a cause and effect chain to develop four key contributing factors. All four factors must be addressed to fully implement the WMin/PP program. The key contributing factors are:

F.1 Methods used to prioritize DOE's missions force a low WMin/PP priority.

- At the Headquarters level, WMin/PP competes with other "mandated," higher priorities, such as compliance and immediate threats to safety and health.
- At the functional level, emphasis on WMin/PP is not clearly communicated to all segments of the work force.
- At the personal level, incentives do not exist for personnel to change existing practices.

F.2 Generators need to regain accountability for treatment, storage, and disposal (TSD) costs.

- Current capital budgeting, tracking systems, and cost accounting cannot support WMin/PP initiatives.
- Generators are not required to account for costs of TSD.
- Currently, most wastes are generated without consideration of TSD.

F.3 WMin/PP needs to be managed as a separate program, with dedicated budgets and staff.

- WMin/PP roles and responsibilities among EM, EH, other Cognizant Secretarial Offices, and field organizations need to be clearly defined.
- An integrated business approach is needed; standard methods for budgeting, measuring, tracking, and reporting WMin/PP activities should be established.
- The WMin/PP program needs to provide a mechanism to promote R & D and information and technology transfer throughout the DOE complex and industry.

F.4 WMin/PP documentation, including DOE Orders, guidance, and contract provisions, needs to clearly establish program objectives to be more effective.

- DOE Orders and guidance, technical assistance, and incentives to foster innovative approaches to WMin/PP implementation are lacking.

- All DOE contracts need to provide a means for rewarding long-term WMin/PP activities.

- DOE Orders and guidance need to be reviewed and revised to provide for consistent WMin/PP standards in terms of Government regulations, investment decision making criteria, and conduct of operations.

APPENDIX G Roles and Responsibilities

G.1 Secretary of Energy

The Secretary of Energy sets the goals and provides the vision, programmatic leadership, and management direction for WMin/PP crosscutting activities. The Secretary appoints the chairman, approves the charter, and provides overall direction to the WMin/PP Executive Board.

G.2 Waste Minimization and Pollution Prevention Executive Board

The Executive Board provides leadership to achieve Secretarial goals and management objectives, develop and implement a Department-wide WMin/PP program as envisioned by the WMin/PP Crosscut Plan, and develop and coordinate an internal DOE-wide WMin/PP program. The Executive Board will also oversee the department's external WMin/PP efforts directed towards assisting industry. The Executive Board is responsible for:

- Establishing WMin/PP policies, priorities, goals, and key strategies for effective, coordinated WMin/PP programs;
- Providing the necessary staff resources from each organization to complete Executive Board management objectives and implementing, in a timely manner, tasks assigned by the WRSC;
- Setting priorities and providing guidance and direction to the WRSC;
- Monitoring progress on Secretarial objectives, key elements of the WMin/PP Crosscut Plan, and WRSC activities; and reporting to the Secretary on a regular basis to highlight progress; and
- Resolving issues related to WMin/PP planning, budgeting, and execution referred to the Executive Board by Board members or the WRSC.

G.3 DOE Environmental Executive

The DOE Environmental Executive, as designated by the Secretary and defined in EO 12873, is responsible for:

- coordinating the Executive Order throughout the Department;
- participating in the interagency development of a Federal plan to create internal and external awareness and outreach programs, promote new technologies, establish incentives, provide guidance and coordinate employee education programs and coordinate the development of standardized agency reports;
- reviewing agency programs and acquisitions to ensure compliance with EO 12873; and
- tracking the Departments purchases of EPA guideline items and submit required reports.

G.4 Waste Reduction Steering Committee

The WRSC is responsible for coordinating implementation of the WMin/PP Crosscut Plan and assisting the Executive Board in carrying out its mission. The WRSC has additional responsibility to:

- Oversee the development and coordination of WMin/PP crosscut planning and implementation of WMin/PP crosscutting activities as assigned by the Executive Board;
- Work toward obtaining consistency in the conduct of WMin/PP efforts within each line organization;
- Facilitate WMin/PP technical information exchange;
- Assist in the development of Headquarters WMin/PP program guidance;
- Review DOE-wide WMin/PP programs with the goal of enhancing resource efficiency and reducing duplication of effort; and
- Provide recommendations for additional WMin/PP initiatives to the Executive Board;
- Prepare reports on the status of WMin/PP programs, as necessary, for the Executive Board to relay to the Secretary.

G.5 Headquarters Cognizant Secretarial Offices:

The heads of DOE Cognizant Secretarial Offices are, for programs under their purview, responsible for:

- Conserving resources and reducing the generation of waste and environmental releases;
- Issuing policy, planning, and budget guidance that clearly establishes WMin/PP implementation as an element of their line programs;
- Providing guidance in the development of site-specific WMin/PP goals and budgets;
- Providing the necessary staff and resources to develop and maintain generator-specific WMin/PP programs for all their sites, facilities, processes, and activities as defined in this plan;
- Providing active leadership, program oversight, and measurement and reporting of WMin/PP activities;
- Conducting RD&D critical needs assessments for technologies required to solve significant waste or emissions problems within their Cogniza' ' Secretarial Offices, and developing implementation plans for critical RD&D projects;
- Including WMin/PP principles in the designs of new facilities and projects; and
- Ensuring public participation in the planning process.

G.6 Assistant Secretary for Environmental Restoration and Waste Management (EM)

In addition to his regular duties as head of a DOE line organization, the Assistant Secretary for EM is responsible for:

- Providing overall coordination for the DOE-wide waste minimization and pollution prevention effort;
- Providing support for the DOE Environmental Executive in the performance of duties as defined by EO 12873;
- Collecting, tracking, and compiling information on the progress of the Department's WMin/PP programs; and
- Providing the necessary staff and resources to implement, manage and maintain site crosscutting WMin/PP activities at each DOE site, as defined by this plan.

G.7 Assistant Secretary for Environment, Safety and Health (EH)

The Assistant Secretary for EH is responsible for:

- Ensuring that policies and guidance facilitate compliance with WMin/PP statutes and regulations through conducting independent assessments;
- Developing DOE environmental compliance policies, guidance, requirements, and procedures for DOE operations and oversee Departmental actions to comply with applicable WMin/PP laws and regulations;
- Being the central point for environmental coordination among heads of Cognizant Secretarial Offices and field organizations and EPA:
- Directing the DOE NEPA program;
- Coordinating, preparing, and submitting pollution abatement plans and progress reports to EPA in accordance with Executive Order 12088 and OMB Circular A-106; and
- Coordinating, preparing, and submitting 33/50 progress reports to EPA.

G.8 Office of the Associate Deputy Secretary for Field Management (FM)

The Office of the Associate Deputy Secretary for FM is responsible for:

- Participating in the WMin/PP Executive Board and Waste Reduction Steering Committees;
- Advocating Operations Office positions, funding, and staffing needs for WMin/PP;
- Promoting Operations Office commitment for WMin/PP;
- Facilitating consolidated issue resolution among Operations Offices and HQ organizations.

G.9 Operations Office Managers

Managers of DOE Operations Offices are responsible for:

- Conserving resources and reducing waste generation and environmental releases from their operations;
- Implementing WMin/PP policies established by the Department, this Crosscut Plan, and line program managers through issuance of site-specific guidance;
- Integrating the various requirements for site coordination, generator WMin/PP activity implementation, waste operations WMin/PP activity implementation, and technology development into a comprehensive program;
- Establishing site-specific, qualitative and quantitative WMin/PP goals;
- Supporting adequate resources for WMin/PP activities through planning, budgeting, and cost/benefit reviews;
- Ensuring that WMin/PP activities are consistent with regulatory requirements and agreements;
- Integrating WMin/PP guidelines into other site operational activities such as safety, health, design, and procurement;
- Integrating WMin/PP guidelines into contractual agreements and employee performance evaluations, as required;
- Validating measurement and reporting procedures;
- Ensuring that program reporting is timely and consistent with other data reports; and
- Reviewing and approving site waste minimization and pollution prevention awareness plans.

G.10 Heads of Contractor Organizations

The heads of contractor organizations are responsible for:

- Conserving resources, reducing waste generation and environmental releases, and increasing recycling activities within their operations;
- Achieving site-specific goals for reducing waste generation and environmental releases;
- Establishing a visible WMin/PP policy and demonstrating proactive leadership in implementing that policy;
- Developing a contractor-specific WMin/PP Plan consistent with guidance from DOE-HQ and their DOE Operations Office Managers;
- Dedicating sufficient funding and resources to ensure implementation of, and reporting on, source reduction measures and recycling activities identified in this plan;

- Reporting on implementation of the source reduction measures, recycling efforts, and the effects on waste generation and environmental release rates;
- Certifying the accuracy of reports prepared for DOE; and
- Ensuring public participation in the WMin/PP planning process.

APPENDIX H Glossary of Terms

Benchmark - A standard or point of reference used in measuring or judging quality or progress.

Cognizant Secretarial Office - An office within the Department of Energy, headed by an Assistant Secretary or organizational Director, that reports to the Secretary.

Corrective Action - Includes such activities as decontamination, decommissioning, environmental restoration, legacy waste cleanup, etc.

Decommissioning - The process of closing and securing a nuclear facility, or nuclear materials storage facility, so as to provide adequate protection from radiation exposure and to isolate radioactive contamination from the human environment.

Decontamination - The removal of unwanted material (typically radioactive material) from facilities, soils, or equipment by washing, chemical action, mechanical cleaning, or other treatment techniques.

Direct WMin/PP Funding - Funding provided exclusively for WMin/PP activities.

Disposal - Waste emplacement designed to ensure isolation of waste from the biosphere, with no intention of retrieval for the foreseeable future, and that requires deliberate action to regain access to the waste.

DOE Orders - Internal requirements that establish DOE policy and procedures for compliance with applicable laws and regulations.

Environmental Protection Agency "33/50" Pollution Prevention Program - Also known as the Industrial Toxics Program, this voluntary program is included as part of EPA's National Pollution Prevention Strategy, and is directed at achieving a reduction in releases of 17 priority chemicals over specific time frames through source reduction.

Environmental Restoration - Cleanup and restoration of sites contaminated with radioactive or hazardous substances during past production or disposal activities.

Facility - Systems, buildings, utilities, services, and related activities whose use is directed to a common purpose at a single location.

Hazardous Waste - The statutory definition found in section 1004(5) of RCRA (42 USCA 6903) is a solid waste, or combination of wastes, that because of its quantity, concentration, or physical, chemical, or infectious characteristics, may (a) cause or significantly contribute to an increase in mortality or in serious irreversible, or incapacitating reversible illness or (b) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed. Criteria for identification and listing of hazardous waste are found in Title 40 of the Code of Federal Regulations, Part 261.

Infrastructure - The basic facilities, equipment, relationships, and frameworks needed for the functioning of a system or organization.

Legacy Waste - The backlog of stored waste remaining from the development and production of U.S. nuclear weapons, about which a permanent disposal determination remains to be made; i.e., waste that is currently in storage, retrievable storage on bermed pads, or disposed of in trenches.

Life-Cycle - The stages of a product, process, or package's life, beginning with raw material acquisition, continuing through processing, materials manufacture, product fabrication, and use, and concluding with any variety of waste management options, including recycling.

Line Organization - (1) An organizational chain of command which extends from an Assistant Secretary or organizational Director down through the staff levels of a Departmental organization (see also Cognizant Secretarial Office).

Mixed Wastes - Wastes that contain both radioactive and hazardous components as defined by the Atomic Energy Act and the Resource Conservation and Recovery Act, respectively.

Opportunity Assessments - Systematic, periodic internal reviews of specific processes and operations designed to 1) identify and provide information about opportunities to reduce the use of toxic chemicals and hazardous materials and 2) reduce the generation of waste and release of environmental pollutants.

Pollution Control - Measures that are applied after waste and pollutants are generated such as: off-site recycling, waste treatment, concentrating hazardous or toxic constituents to reduce volume, diluting constituents to reduce hazard or toxicity, or transferring hazardous or toxic constituents from one environmental medium to another.

Reclamation - A material is reclaimed if it is processed to recover a usable product, or if it is regenerated (40 CFR 261.1(b)(4)). Examples are recovery of lead values from spent batteries and regeneration of spent solvents.

Recycling - A material is recycled if it is used, reused, or reclaimed (40 CFR 261.2) (7).

Sanitary Waste - Wastes such as garbage, that are generated by normal housekeeping activities and are not hazardous or radioactive.

Site - Land, installations, and/or facilities for which DOE has or shares responsibility for environmental restoration or waste management activities.

Solid Waste - The statutory definition in section 1004(27) of RCRA is summarized as any garbage, refuse, waste treatment sludge, and other discarded material. This excludes domestic sewage, irrigation return flows, certain Water Pollution Control Act permitted industrial discharges, and source, special nuclear, or byproduct material defined by the Atomic Energy Act. The regulatory definition in 40 CFR 261.2 is any discarded material that is not excluded by 261.4(a) or that is not excluded by variance granted under 40 CFR 260.30 and 260.31.

Source Reduction - Any practice which reduces the amount of any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment (including fugitive emissions) prior to recycling, treatment or disposal; and any practice that reduces the hazards to public health and the environment associated with the release of such substances, pollutants, or contaminants.

Transition - The process of planning and carrying out the transfer to EM of production plants undergoing a mission change. Transition involves safely deactivating unneeded facilities and overseeing their smooth transfer to EM, where they may be either decommissioned, or prepared for reuse.

Treatment - Any method, technique, or process designed to change the physical or chemical character of waste to render it less hazardous, safer to transport, store, or dispose of, or reduce in volume.

Waste Minimization - Waste minimization is any action that avoids or reduces the generation of waste by source reduction, improving energy usage, or by recycling. This action will be consistent with the general goal of minimizing present and future treats to human health, safety, and the environment.

Waste Minimization/Pollution Prevention (WMin/PP) - Activities that involve source reduction and recycling of all wastes and pollutants, and includes those other practices that reduce or eliminate pollutants through increased efficiency in the use of raw materials, energy, water, or other resources, or the protection of natural resources by conservation.

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