U.S. Department of Energy

***Annual Report
on
Waste Generation
and
Waste Minimization Progress
1991 – 1992***

February 1994

MASTER

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**Office of the Secretary
Washington, DC 20585**

Preface

The Secretary of Energy
Washington, DC 20585

February 25, 1994

This Annual Report on Waste Generation and Waste Minimization Progress chronicles ongoing departmental waste generation activities for calendar years 1991 and 1992 and discusses waste minimization activities underway at Department of Energy sites throughout the United States. The Department is committed to protecting the environment and public health while securing cost savings for the taxpayers through waste minimization programs.

Waste generation information is presented for more than 100 reporting sites, by major waste type for both radioactive and nonradioactive wastes, by each of the major organizations within the Department, and for each of the 25 States where the Department has operational sites. This information provides both program managers within the Department and the general public with a complete picture of where wastes are being produced by the Department's operations and what is being done to prevent, or at least minimize, waste generation.

The Department has made progress in establishing its waste minimization and pollution prevention program at Headquarters and at field sites. However, there is much work to be done. Our waste minimization and pollution prevention program is a source of pride for all departmental employees, and a continuous effort will be made to improve and expand this program. Pollution prevention is a shared responsibility of all employees of the Department, and I look forward to reporting further progress to you next year.

A handwritten signature in cursive script, reading "Hazel R. O'Leary", is positioned above the printed name.

Hazel R. O'Leary

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Executive Summary

This Report is DOE's first annual report on waste generation and waste minimization progress. Data presented in this Report were collected from all DOE sites which met minimum threshold criteria established for this Report. The fifty-seven site submittals contained herein represent data from over 100 reporting sites within 25 States. Radioactive, hazardous and sanitary waste quantities and the efforts to minimize these wastes are highlighted within the fifty-seven site submittals. In general, sites have made progress in moving beyond the planning phase of their waste minimization programs. This is evident by the overall 28 percent increase in the total amount of materials recycled from 1991 to 1992, as well as individual site initiatives.

This Report represents a comprehensive effort by DOE to focus on total waste generation and related waste minimization efforts. Other similar reports have dealt primarily with inventory information and future waste projections. An electronic data submittal system was developed for this Report which allowed every reporting site to submit data in a common electronic format.

During 1991 and 1992, DOE generated a total of 279,000 cubic meters of radioactive waste and 243,000 metric tons of non-radioactive waste. These waste amounts include significant portions of process wastewater required to be reported to regulatory agencies in the State of Texas and the State of Tennessee. Specifically, the Pantex Plant in Texas treats an industrial wastewater that is considered by the Texas Water Commission to be a hazardous waste. In 1992, State regulated wastewater from the Pantex Plant represented 3,620 metric tons, 10 percent of the total hazardous waste generated by DOE. Similarly, mixed low-level wastewater from the TSCA Incinerator Facility at the Oak Ridge K-25 Site in Tennessee represented 55 percent of the total radioactive waste generated by DOE in 1992.

As DOE ceases weapons production, process related waste is decreasing and waste resulting from site clean up, removal of contaminated media, and the decontamination and decommissioning of old facilities is increasing. For example, a large percentage of the polychlorinated biphenyl wastes result from the replacement of older electrical equipment which contains polychlorinated biphenyl contaminated oils. With few exceptions, environmental restoration and decontamination and decommissioning wastes are not included in this Report. In future reports the wastes related to environmental restoration and decontamination and decommissioning will be differentiated from routine process wastes generated through other DOE mission related programs.

Introduction

Purpose

The purpose of this Report is to inform the Secretary of Energy, the public, and other interested parties of the waste generation activities at DOE and the current efforts to minimize all types of waste within the DOE. This Report is intended to create comprehensive waste generation information and help effect tangible improvements in the management of DOE's wastes. This starting point, combined with subsequent annual updates, will ultimately allow DOE to measure the success of its waste minimization strategies.

While this Report establishes a starting point for understanding overall waste generation within the DOE, it is not intended to serve as a reliable baseline for future waste reduction measurements. The changing mission of the DOE in 1991 and 1992, the switch from nuclear weapons production to weapons disassembly, and the growing impact of environmental restoration actions have resulted in massive changes in DOE's activity over the past two years. Given this situation, it is extremely difficult to assign a single reason for the changes in the amount of waste generated in 1991 and 1992. Each reporting site was asked to identify which of its activities resulted in waste increases or decreases. In some instances waste increases were assigned to specific actions, such as the "clean up and clean-out" activities that preceded Tiger Team inspections by Headquarters in 1991. Unfortunately, in most cases a direct link could not be established between waste generation and specific waste minimization program activities within DOE. This is not unusual or unique to the DOE. The Environmental Protection Agency (EPA) and industry have experienced marginal success in attempts to normalize and to correctly assess the impacts of specific waste minimization actions by industry.

Scope

The scope of this Report is limited to data on waste generated in 1991 and 1992 and waste minimization progress through 1992. This Report does not provide data on specific types of process activities that generate waste. Waste tracking systems are designed to report wastes at the point of transfer from waste generation to waste management. This means that the details of the specific activities that generated the wastes are not recorded and, therefore, were not available for this Report.

Data provided within this Report are organized by major waste type, States where DOE sites are located, operational programs, operations offices, and individual reporting sites. The Report also highlights waste minimization techniques throughout the DOE complex by operational program, reporting site, and waste type.

The consolidated data presented in this Report deal with new solid and liquid wastes generated in 1991 and 1992 and, in some cases, contaminated media and debris from restoration activities for the same time frame. Legacy wastes that were generated from past operations within the DOE nuclear complex are not covered

in this Report; however wastes generated in 1991 and 1992 as a result of characterizing, treating, disposing, or otherwise managing these wastes are included.

There were 202 potential reporting sites within the DOE complex identified to be included in this Report. Because of this large number, threshold reporting criteria were established. The sites required to report data were those previously required to report under the "General Environmental Protection Program," DOE Order 5400.1; those required to report to any Federal or State agency on waste generation (e.g., hazardous waste generation greater than 100 kilograms per month); those generating mixed waste in any quantity; and/or those generating more than one curie or more than 14 cubic meters per year of radioactive waste. Based on this criterion, it is estimated that this Report captures greater than 98 percent of the radioactive waste and 99 percent of the hazardous waste generated by DOE reporting sites in 1991 and 1992. Since regulatory agencies do not require sanitary waste to be reported in all cases, many reporting sites did not track or submit sanitary waste generation amounts. Therefore, the 1991 and 1992 complex-wide totals shown for sanitary waste in this Report are incomplete. No attempt was made to estimate the percentage of the sanitary waste that was not tracked or reported.

Appendix C of this Report contains a detailed discussion of the relationship of this Report to the "Mixed Waste Inventory Report" and the "Integrated Data Base for 1991." The three reports were prepared to meet different objectives and in many cases contain information that cannot be directly compared. For example, the "Mixed Waste Inventory Report" documents the total amount of mixed waste stored at a particular site, regardless of when it was generated. It also projects the total mixed waste to be generated at a site in 1993 through 1997. This is different than the actual waste generation amounts for 1991 and 1992 that were compiled by site for this Report. The "Integrated Data Base for 1991" contains some radioactive waste generation amounts for 1991, but is again primarily used to report the total inventory of waste stored on sites, regardless of when the waste was actually generated. The differences in the three reports can be traced to differences in and the variance in the objectives of each report. Where possible, the 1991 radioactive waste generation amounts were reconciled between this Report and the "Integrated Data Base for 1991." Furthermore, the differences in the reports can be traced to the lag time in the data collection efforts. Data used to develop the "Integrated Data Base for 1991" was collected in mid-1992 while data used for this Report was collected in March 1993. Waste characterization tests on the actual waste composition take time to reach the waste tracking personnel and these results may refine earlier estimates of waste amounts that were given by the waste generator. When this happens, the waste tracking system will be periodically revised to reflect the test results. As these revised amounts are available, they are reported and documented in annual revisions to each Integrated Data Base Report. A similar process will be used for annual updates to this Report.

Methodology

To efficiently provide this first "Annual Report on Waste Generation and Waste Minimization Progress 1991-1992," an electronic reporting system was developed. This system allowed reporting sites to submit waste generation data as well as provide narrative text on a computer diskette that was submitted to the DOE Headquarters Waste Minimization Division. Fifty-seven site submittals representing 111 reporting sites were then consolidated into a single database that was used to generate this Report.

Industry standard electronic software was used and modified through a number of developmental workshops which included DOE reporting site and Headquarters personnel. The result was a system that allowed consistent reporting throughout the DOE complex in a manner that allows for flexibility to sort and report waste generation at a variety of levels.

Implementation

This Report provides information about waste generation and waste minimization progress at each reporting site. It is not intended to be a planning document. Information regarding future waste minimization planning activities can be found in the 1993 DOE "Waste Minimization/Pollution Prevention Crosscut Plan" which is the companion document to this Report.

The DOE recognizes that waste minimization programs at its sites are still in the early stages of implementation. The "Waste Minimization/Pollution Prevention Crosscut Plan," as an integral part of DOE's comprehensive planning process, contains information regarding the issues and barriers that stand in DOE's path to developing waste minimization/pollution prevention alternatives. It also provides the activities that DOE must implement to overcome such issues and barriers.

The major challenges to DOE's development of a full waste minimization program, as determined by a recent site survey in the "Waste Minimization/Pollution Prevention Crosscut Plan," include improved accountability of waste treatment, storage and disposal costs; formulation of more meaningful program objectives and guidance; much higher priority for waste minimization activities; and dedicated funding for waste minimization/pollution prevention projects.

The Administration has taken several steps in recent months to establish waste minimization/pollution prevention as part of its strategy. Implicit in this strategy is the idea that it is the responsibility of Federal agencies to be leaders in waste minimization/pollution prevention efforts throughout the nation.

The Administration has recently issued Executive Order 12856, the Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements. In addition, the EPA has issued a strong policy statement which outlines its pollution prevention goals and makes source reduction its first choice for waste minimization/pollution prevention.

Given this new emphasis, the DOE will provide leadership among Federal agencies by completing the activities contained in the "Waste Minimization/Pollution Prevention Crosscut Plan." This would signify an important step toward implementation and would help the DOE to minimize future costs, reduce risks, enhance compliance with environmental regulations, and demonstrate responsible environmental stewardship to the public. The "Waste Minimization/Pollution Prevention Crosscut Plan" and this Report together present a clear set of challenges faced by the DOE with regard to management of its wastes and the steps that must be taken to meet those challenges.

Report Structure/Users Guide

This "Annual Report on Waste Generation and Waste Minimization Progress 1991-1992" is structured into eight chapters and an Appendix. In Chapter 1.0, DOE's waste minimization commitment is featured. Chapter 2.0 presents a perspective on DOE's waste generation and waste minimization activities by waste type on a National and a complex-wide basis. Chapter 3.0 summarizes DOE waste generation information at the State level. Chapter 4.0 introduces DOE's management cluster. These include the Weapons/Waste Clean Up Programs, Energy Programs, and the Science and Technology Programs. Chapters 5.0, 6.0, and 7.0 present waste generation and waste minimization at the programmatic levels of each management cluster, while Chapter 8.0 presents the same data by addressing the Headquarters and Field Operations.

The Appendices present other pertinent information, such as a complete listing of DOE reporting sites, an index of reporting sites, this Report's history, a range in the margin-of-error for the data submitted by each reporting site, a comprehensive data summary, a list of acronyms, and a glossary of terms. Appendix G, in particular, presents information on other types and sources of waste. The waste generation data for the Naval Nuclear Propulsion Program, spent nuclear fuel and uranium mill tailings waste amounts are not included anywhere else in the data or waste totals shown in this Report. Classified wastes are included in the amounts shown in the total waste generation tables, because most classified wastes are "declassified" and are then handled as routine radioactive and non-radioactive wastes.

Within the text, text figures, and text tables of this Report, the totals have been rounded to three significant figures.¹ If the totals were less than one cubic meter or one metric ton, the totals were rounded to the nearest tenth. When rounding totals to three significant figures, the margin-of-error was less than 10 percent. This is consistent with the confidence levels in the waste generation data provided by the reporting sites. Data from each State's total waste generation table in Chapter 3.0, each reporting site's total waste generation table in Chapter 8.0, the master data bar charts in Appendix E, and the master data compilation in Appendix F were all reported to two decimal places. In Chapter 8.0, any totals in the text of a facility's description and mission or site executive summary were provided by the reporting site, and were not rounded.

¹The number of digits in the decimal form of a number, beginning with the left-most non-zero digit and extending to the right, that include all digits warranted by the accuracy of the measurement method used to obtain the data.

1.0 DOE Mission and Waste Minimization

DOE's Changing Mission: An emphasis on clean up and waste prevention.

For more than 45 years, the primary mission of the DOE and its predecessor agencies, the Atomic Energy Commission and Energy Research and Development Administration, has been to produce nuclear weapons and to promote energy security and peaceful use of nuclear power. This resulted in the generation of a wide variety of radioactive and hazardous waste. To reflect the changing priorities of our Nation, this mission has been refocused from weapons production to energy research and environmentally conscious technology development. One new and important focus of the DOE is the clean up of previously generated waste and the reduction of new waste generation at all DOE sites.

1.1 Background

The National policy for pollution prevention and waste minimization was established by the enactment of the Pollution Prevention Act of 1990. In the "General Environmental Protection Program," DOE Order 5400.1, and the "Radioactive Waste Management Program," DOE Order 5820.2A, the Secretary of Energy directed DOE to develop waste minimization plans and programs to eliminate or minimize the generation of waste. As a result, the "Waste Minimization/Pollution Prevention Crosscut Plan," published in May 1992, introduced DOE's waste minimization strategies and key objectives. This Plan was the first step toward establishing an integrated DOE program to minimize the waste generated by DOE and to exchange waste minimization technology and information in partnership with private industry, public agencies, and academic institutions.

Following completion of the "Waste Minimization/Pollution Prevention Crosscut Plan," a DOE directive was issued to implement the Plan's initiatives, which included the preparation of this Report. The same directive established a complex-wide Waste Minimization and Pollution Prevention Executive Board, comprised of principal DOE Executives and supported by a Waste Reduction Steering Committee. These interorganizational groups are responsible for the leadership, coordination, and implementation of activities required to achieve the objectives of the "Waste Minimization/Pollution Prevention Crosscut Plan."

The Waste Minimization and Pollution Prevention Executive Board is comprised of the Assistant Secretaries or their Deputies representing each of the DOE operational programs. The Board's purpose is to begin the process of implementing consistent waste minimization and pollution prevention programs throughout the DOE over the next several years.

1.2 Waste Minimization Principles

In a memorandum dated August 20, 1992, the Secretary of Energy called for a fundamental shift in DOE's waste generation and management policy from pollution control to pollution prevention. This memorandum established a hierarchy which is consistent with Congress' intent in passing the Pollution Prevention Act of 1990. This hierarchy was established to avoid or reduce the generation of hazardous substances, pollutants, wastes, and contaminants at the

source; recycle or reuse pollutants which cannot be eliminated; treat the remaining waste to reduce volume, toxicity, or mobility before storage or disposal; and dispose of residual waste in an environmentally safe manner.

In addition to the Secretary of Energy's call for a fundamental shift in DOE's pollution prevention policy, the DOE adopted the first two priorities of the Pollution Prevention Act of 1990 as its guiding principles for waste minimization and pollution prevention. The two major principles of DOE's Waste Minimization Program, source reduction and recycling, are illustrated in Figure 1.1.

Figure 1.1 *Waste Minimization Hierarchy*

1.2.1 Source Reduction Principle

The first principle, source reduction, targets those practices that reduce the amount of any hazardous substance, pollutant, or contaminant entering a waste stream. The term "source reduction" is used literally, and refers to eliminating the source of waste at its origin. Source reduction includes a wide variety of options, such as equipment or technology modifications, process or procedure modifications, reformulation or redesign of products, substitution of raw materials, and improvements in housekeeping. It can also refer to alternatives as complex as redesigning an entire process operation, or something as uncomplicated as separating different types of wastes. The substitution of a hazardous solvent with a non-hazardous cleaner is just one example of an approach to source reduction.

1.2.2 Recycling Principle

The second principle, recycling, is the preferred alternative for managing those pollutants that cannot be eliminated at the source, and refers to the use, reuse, or reclamation of a material. This principle allows a waste to be thought of as a useful commodity, with valuable components. A waste material can be used or reused as an ingredient in another process (e.g., distillation bottoms from one process used as feedstock in another process) or can be reclaimed if it is processed to recover a usable product (e.g., silver from a photo-processing solution). This approach can be accomplished either on-site where the waste is generated or off-site at another facility.

1.3 Waste Minimization Program Elements

In March 1990, the basic waste minimization program elements were outlined in the "General Environmental Protection Program," DOE Order 5400.1. DOE is currently reviewing its guidance for consistency with EPA's Interim Final guidance issued on May 28, 1993. For the purpose of this Report DOE sites were asked to provide information on process waste assessments; technology transfer; employee awareness/outreach; incentives; tracking, reporting, and planning; and training. A brief description of each is provided below.

1.3.1 Process Waste Assessments

A process waste assessment identifies processes and operations that need to be improved or replaced to ensure regulatory compliance, help minimize danger to human health and the environment, and promote waste minimization when applicable.

It is one of the more common self-evaluation methods being implemented at many DOE sites. Some process waste assessments are done on an ad hoc basis; others are commonly a component of a facility's waste minimization programs. Results of process waste assessments often appear in monthly reports, but more formal outreach programs also exist to report the outcome of these assessments.

1.3.2 Technology Transfer

DOE sites actively participate in technology transfer. The most common vehicles of technology transfer currently used by DOE sites include the publishing of technical reports, visiting other DOE sites, attending conferences, subscribing to technical journals, and maintaining professional contacts. Some sites, however, have broadened their information exchange capability by instituting other methods of technology transfer. For example, some sites have initiated a joint research and development program on biological methods for breaking down pentachlorophenol in contaminated soils while others have initiated on-site waste exchange programs.

1.3.3 Employee Awareness/Outreach

Most sites use various communication mechanisms to promote employee awareness and involvement in waste minimization/pollution prevention activities. One of the most popular methods for informing employees of waste minimization activities is through the distribution of on-site publications. Articles published in

internal newsletters publicize waste reduction techniques, new environmental regulations and programs, and new technologies for minimizing, treating, or disposing of radioactive and hazardous waste. In addition, the publicity of successful waste minimization efforts at DOE sites has peaked interest in community involvement. Figure 1.2 illustrates an on-site publication used at one of the DOE reporting sites.

Figure 1.2 On-Site Employee Awareness Publication

1.3.4 Incentives

Many sites are instituting waste minimization awards to encourage employee participation in source reduction and recycle/reuse activities. Recognition varies from site to site, but is typically in the form of cash awards, certificates of appreciation, the appearance of an employee's name in a site newsletter, or the posting of an employee's name or picture in prominent places.

1.3.5 Tracking/Reporting/Planning

To evaluate environmental compliance and success in waste minimization/pollution prevention, there must be methods to track, report, and plan efforts and analyze progress. Most sites have developed information tracking systems, predicated on the types of waste handled and the information needed to be maintained.

The widespread improvement in data management and the application of better technology have enabled DOE sites to evaluate waste generation and waste minimization information and speed the implementation of waste minimization solutions.

1.3.6 Training

The concept of "General Employee Training" has been incorporated by many sites. This effort entails supplying general environmental awareness information and training at new employee orientation. The training is designed to offer practical considerations to employees in the conduct of their day-to-day work activities. During training, an overview is presented of the site's program, goals, objectives, and expectations. This is followed with periodic lectures, instructional videos, and seminars in waste minimization policy and procedures to promote pollution prevention awareness and technical understanding.

Specialized training sessions on waste minimization/pollution prevention policy are tailored for line management and staff positions, operational personnel, and for those handling and generating hazardous and radioactive waste. These sessions cover regulations, compliance, and waste characterization.

2.0 Types of Waste Generated

DOE operations generate a variety of wastes that are regulated by numerous Federal laws, including the Atomic Energy Act.

DOE operations involve many processes and products with many waste streams. These waste streams can be categorized as either radioactive or non-radioactive. Radioactive waste is a material that periodically releases energetic particles or electromagnetic energy. The three basic types of radioactivity are alpha, beta and gamma emissions. Alpha radiation is a form of radioactivity that consists of particles periodically ejected from the nucleus during natural decay. Alpha radiation particles (radionuclides) are dangerous if inhaled or ingested, but are not an external hazard. The alpha particles will not penetrate even the outer layer of the skin and can be stopped completely by a sheet of paper. Beta radiation is more penetrating than alpha radiation and is also dangerous if inhaled or ingested. A thin sheet of aluminum can stop beta radiation. Gamma rays are the most damaging form of radiation. They go through body tissue and can cause severe damage to cells, tissues, and organs. Gamma rays are stopped by thick concrete, deep water, and lead. Radioactive waste is a solid, liquid, or gaseous material (i.e., sources, special nuclear, and by-product materials, as defined by the Atomic Energy Act of 1954, as amended) that contains radionuclides. Radioactive waste is divided into low-level waste (LLW), mixed waste (MW), transuranic (TRU) waste, and high-level waste (HLW). DOE regulates the management of radioactive waste under the Atomic Energy Act of 1954, as amended.

The non-radioactive waste types are sanitary waste and hazardous waste. For the purpose of this Report, sanitary waste includes municipal sewage and domestic waste. Hazardous waste includes Resource Conservation and Recovery Act (RCRA) regulated hazardous waste, State regulated hazardous waste, and Toxic Substances Control Act (TSCA) regulated waste.

Figure 2.1 provides waste type descriptions of the radioactive and non-radioactive waste types covered in this Report.

2.1 Complex-wide Waste Generation

The DOE complex is made up of a collection of laboratories, and installations that perform specific energy related missions and objectives. For example, facilities with *Defense Programs* functions concentrate on nuclear weapons production and disassembly, which involves metal fabrication, chemical preparation processes, and electronic assembly. The *Power Marketing Administration* is responsible for the marketing and transmission of power from hydro and other power generating sources. Accordingly, several types of waste were generated depending upon the processes conducted at each reporting site. In addition, poorly managed wastes from the past have contributed to the contamination of soils, sediments, surface water, and groundwater at many sites. All of these factors have resulted in the production of several major types of wastes. Each waste has its own specific characteristics and potential environmental risk, as well as unique treatment, storage, and disposal facilities. Waste management programs are monitored by numerous State and Federal agencies for compliance with environmental laws and regulations.

Figure 2.1 Waste Type Descriptions

Low-Level Waste (LLW)	LLW is any radioactive waste that is not HLW, spent nuclear fuel, TRU waste, or uranium mill tailings. LLW is typically contaminated with small amounts of radioactivity dispersed in large amounts of material. LLW is generated in every process involving radioactive materials in the DOE complex, including decontamination and decommissioning projects. The radioactivity in a great deal of these wastes will decay to harmless levels in a matter of years.
Mixed Waste (MW)	MW is waste that contains both radioactive and hazardous wastes. Any of the types of radioactive waste described can be a mixed waste if it contains any hazardous wastes. In fact, all DOE HLW is mixed waste because of the chemicals used to reprocess the fuel that resulted in the generation of the HLW. Most DOE TRU waste is managed as mixed TRU waste because of the presence of hazardous materials or because it is suspected to contain hazardous materials.
Transuranic (TRU) Waste	TRU waste refers to waste materials containing elements with atomic numbers greater than 92. These elements are generally alpha emitting radionuclides that decay slowly. TRU waste contains a concentration of these elements greater than 100 nCi/gm. TRU waste is not as intensely radioactive as HLW. TRU waste also decays slowly, thus requiring long term isolation.
High-Level Waste (HLW)	HLW is the material that remains following the reprocessing of spent nuclear fuel and irradiated targets from reactors. HLW is highly radioactive and generates heat on its own. Some of its elements will remain radioactive for thousands of years. Because of this, HLW must be managed very carefully and all handling must be performed from behind heavy protective shielding.
Sanitary Waste	Sanitary waste is waste that is neither hazardous or radioactive.
Hazardous Waste	<p>Hazardous waste is waste, which because of its quantity, concentration, and physical, chemical, or infectious characteristics, may cause or significantly contribute to an increase in mortality, or an increase in serious irreversible or incapacitating reversible illness; or may pose a potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.</p> <ul style="list-style-type: none">• RCRA Regulated Waste – Solid waste, not specifically excluded from regulation under 40 CFR 261.4, or delisted by petition, that is either a listed hazardous waste (40 CFR 261.30 - 261.33) or exhibits the characteristics of a hazardous waste.• State Regulated Waste – Any other hazardous waste not specifically regulated under TSCA or RCRA, which may be regulated by a State or local authority, such as used oil.• TSCA Regulated Waste – Hazardous chemical wastes, both liquid and solid, containing more than 50 parts per million of polychlorinated biphenyls.

2.1.1 Accuracy of Waste Generation Data

The completeness and quality of data presented in this Report rely extensively on data provided by DOE reporting sites, and the internal data quality assurance procedures in place at each reporting site. However, the considerable differences in each program's mission, site complexity, and waste management activities at each site account for the variability in waste data collection and reporting across the DOE complex. Each of these issues introduced opportunities for errors, uncertainties, and inconsistencies with the data received from individual sites.

To provide a level of confidence in the data collection process, and to assure that data consistency, completeness and accuracy was maintained for every site. An external data validation process was conducted prior to preparation of this Report. This external validation process served to evaluate the data collection process and to obtain formal Field Operations Office verification and approval of individual site data. Yet, the process did not independently review the data provided by each DOE reporting site or validate the specific values reported to Headquarters.

Following the initial submittal and review of waste generation data, the reporting sites were requested to confirm the validity, and estimate the margin-of-error of reported waste generation data. Over two thirds of the reporting sites indicated a high confidence level, $\pm 10\%$ uncertainty, in the waste generation data reported, with nearly all of the remaining sites reporting a $\pm 25\%$ uncertainty in the reported waste generation data.

All data from the reporting sites were reported to two decimal places, regardless of the actual data precision when the values were recorded. For the purposes of database input consistency, the same number of significant figures reported by each site were retained.

The definition and point of measurement for waste generation, as used in this Report, is any waste produced during the calendar year transferred or manifested from the operational program responsible for generating the waste. Under this scenario, the operational program responsible for generating the waste is considered the waste generator. Secondary waste, which is 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 being repacked, treated or disposed in the current calendar year is excluded from this Report. This also means that wastes previously stored from environmental restoration activities are not considered reportable for the current year.

This description assumes that most waste generation occurs outside of the *Environmental Restoration and Waste Management Program* activities, and that the point of measurement for this Report is where the waste enters the *Environmental Restoration and Waste Management Program* activities. In some limited instances, the waste generation description used to ensure consistency throughout the myriad of processes and operations within the DOE complex may result in "double counting" of some wastes as they enter the *Environmental Restoration and*

Waste Management Program. Great care has been taken during preparation of this Report to minimize the instances where this could occur. Future updates to this Report will utilize improved descriptions for waste generation and the point of measurement to further minimize reporting inconsistencies.

Depending on the waste type and physical form, the reported waste generation quantity may include containers, unfilled voids within the containers, packaging materials, or stabilization agents, and may have undergone some intermediate pretreatment to reduce the quantity of waste for disposal. Consequently, the waste generation totals in this Report may overstate the actual quantity of waste generated, but reflect the waste quantities as packaged for disposal.

2.2 Comparison of Waste Type Generation

In 1992, DOE generated approximately 141,000 cubic meters of radioactive waste and 126,000 metric tons of non-radioactive waste. This compares to 138,000 cubic meters of radioactive waste and 117,000 metric tons of non-radioactive waste in 1991. Figure 2.2 compares the adjusted radioactive and non-radioactive waste totals generated by the DOE reporting sites in 1991 and 1992. The radioactive and non-radioactive totals in Figure 2.2 do not include MLLW wastewater generated at the Oak Ridge K-25 Site or State regulated wastewater generated at the Pantex Plant. The MLLW wastewater generated at the Oak Ridge K-25 Site in 1991 and 1992 amounted to 56,900 cubic meters and 77,700 cubic meters, respectively. The State

Figure 2.2 DOE Waste Categories

† Does not include MLLW wastewater from the Oak Ridge K-25 Site or State regulated wastewater from the Pantex Plant.

* Assumes the weight of one cubic meter is equivalent to one metric ton ($\pm 10\%$).

regulated wastewater generated at the Pantex Plant in 1991 and 1992 amounted to 5,330 metric tons and 3,620 metric tons, respectively.

Assuming the weight of one cubic meter of radioactive waste to be equivalent to one metric ton, DOE reporting sites generated approximately 255,000 metric tons of radioactive and non-radioactive waste in 1991. Based on practices used by several reporting sites, this assumption is estimated to be accurate within a range of ± 10 percent. Figure 2.3 compares the radioactive and non-radioactive waste generated at DOE reporting sites in 1991 to the radioactive and non-radioactive waste generated by United States industry in that same year. The radioactive and non-radioactive totals in Figure 2.3 do not include MLLW wastewater from the Oak Ridge K-25 Site or State regulated wastewater from the Pantex Plant.

Figure 2.3 A Comparison of the "DOE" and "Non-DOE" Radioactive and Non-Radioactive Waste Generation in 1991

The following sections describe the characteristics of each waste type, the activities that generate each waste, typical hazards associated with the waste, waste management requirements, and the major DOE reporting sites that generate each waste type. Radioactive waste types are presented first and then followed by the presentation of non-radioactive waste types. Figure 2.4 provides for a breakdown of the waste categories and waste types covered in this Report.

Figure 2.4 DOE Waste Generation

2.2.1 Radioactive Waste

Overall radioactive waste generation increased two percent from 1991 to 1992. This increase is primarily attributable to the increase of mixed low-level wastewater produced at the Oak Ridge K-25 Site, which was caused by an increase in operations at the TSCA Incinerator Facility. Table 2.1 lists the **total** DOE radioactive waste types and waste amounts generated in 1991 and 1992.

Table 2.1 DOE Radioactive Waste Types and Waste Generation in 1991-1992

Waste Type	1991 (Cubic Meters)		1992 (Cubic Meters)	
	<u>Liquid</u>	<u>Solid</u>	<u>Liquid</u>	<u>Solid</u>
Low-Level Waste (LLW)	1,460	65,900	925	50,200
Mixed Waste (MW)				
Mixed LLW	63,200	3,080	83,900	3,720
Mixed TRU	—	224	—	86.0
Transuranic (TRU) Waste	—	709	0.2	741
High-Level Waste (HLW)	3,190	—	1,770	—
TOTAL*	67,900	69,900	86,600	54,700

* 1991 and 1992 totals are rounded to three significant figures.

Figure 2.5 shows the percentages of radioactive waste generated in 1991 and 1992. The amounts and percentages in Figure 2.5 do not include MLLW wastewater generated at the Oak Ridge K-25 Site in 1991 and 1992.

Figure 2.5 DOE Radioactive Waste Type Percentages

† Does not include MLLW wastewater from the Oak Ridge K-25 Site.

* 1991 and 1992 amounts are rounded to three significant figures.

- Low-Level Waste (LLW)

LLW includes a broad variety of materials and radiation sources ranging from slightly contaminated soils, clothing and equipment, paper and cloth products, and salts, to radioactive ion exchange resins. LLW is generated by uranium enrichment processes, reactor operations, isotope production, medical diagnostic procedures, medical tracer production and use, research and development projects, facility decontamination and decommissioning projects, and site restoration projects.

Typical components and associated hazards

LLW usually contains a small amount of radioactive elements, called radionuclides, in large amounts of material, and includes items such as contaminated rags, filters, and tools. Many of the radionuclides found in LLW will decay to harmless levels within a few years. However, because of its origin in nuclear reactors, some LLW, such as discarded coolant pumps, are radioactive and require shielding for safe handling.

Treatment/Storage/Disposal requirements

Treatment methods that reduce volume and solidify LLW for easier handling are presently being developed. LLW is commonly stored in drums on lined concrete pads to prevent water from reaching the waste until ready for disposal. Currently, LLW is being disposed of at six DOE sites.

Waste generation

With the exception of the *Science Education and Technical Information Program*, *Power Marketing Administration*, and *Civilian Radioactive Waste Management Program* activities, all operational programs contributed to the generation of LLW. Data provided by DOE reporting sites indicate that 51,100 cubic meters of LLW were generated in 1992. This amount reflects an overall 24 percent reduction in the amount of LLW generated in 1992 as compared to 1991. This is primarily due to the completion of remediation activities at some Formerly Utilized Sites Remedial Action Program sites; reduced production at the Oak Ridge Y-12 Plant; and the implementation of programmatic waste minimization activities such as increased employee awareness at the Savannah River Site and Los Alamos National Laboratory. Figure 2.6 compares the percentages of LLW to other radioactive waste types generated in 1991 and 1992. The reporting sites contributing the greatest percentage of LLW in each year are also provided.

Figure 2.6 LLW and the Reporting Sites Contributing the Greatest Percentages of LLW in 1991-1992

- Mixed Waste (MW)

A significant portion of DOE waste is mixed waste. This waste type is generated by commingling radioactive constituents and hazardous waste. A broad spectrum of contaminated materials, such as air purifiers, cleaning solutions, engine oils, soil, and water treatment chemicals are examples of constituents that may be found in the make up of mixed waste. The DOE mixed waste stream is composed of mixed low-level waste (MLLW) and mixed transuranic waste (MTRU). Since MLLW represents 99 percent of the total mixed waste generated, the discussion of mixed waste is primarily a discussion of MLLW. Compliance with the requirements for managing these types of wastes is one of the most important issues facing DOE. In 1991 and 1992, mixed waste accounted for 48 percent and 63 percent, respectively, of the total radioactive waste generated by DOE. The Oak Ridge K-25 Site, which reports to the State of Tennessee, produced over 86 percent of DOE's MLLW generated in 1991 and 1992. The majority of the MLLW from the Oak Ridge K-25 Site was process wastewater from the TSCA Incinerator Facility which is not included in the waste totals in Figure 2.7.

In 1991 and 1992, the *Defense Programs*, *Environmental Restoration and Waste Management Program*, *Energy Research Program*, and *Nuclear Energy Program* all contributed to the generation of MTRU waste. Although MTRU waste represents less than one percent of DOE's total mixed waste stream, its generation decreased 62 percent from 1991 to 1992. This decrease in MTRU waste is primarily attributed to *Defense Programs* activities, where a 67 percent decrease in MTRU waste generation occurred in 1992. Most of the MTRU waste was generated at the Los Alamos National Laboratory, the Rocky Flats Plant, and the Hanford Site.

Typical Components and Associated Hazards

Any type of radioactive waste can be labeled as mixed waste if a hazardous component is present. For instance, HLW can contain hazardous components from reprocessing activities, which involve the use of hazardous chemicals. While most of the MLLW can be easily handled, the radioactive levels of some MLLW streams can be high enough to require shielding for handling or treating. Also, some MLLW streams contain sufficiently high levels of transuranic alpha decay type radionuclides that require the use of special equipment to contain the release of transuranic alpha emitting particles. However, the transuranic alpha particle content of MLLW is below 100 nanocuries per gram because wastes that have more than 100 nanocuries per gram of transuranic alpha particles are considered TRU wastes. Wastes characterized primarily by alpha decay may be handled without added shielding by facility personnel. However, some MTRU wastes contain activation materials and fission products that decay by beta and gamma emission thus precluding direct handling. These wastes have radiation levels exceeding 200 millirem per hour at the surface of the storage containers. Shielding is generally used to minimize exposure.

Treatment/Storage/Disposal Requirements

The quality of the constituents and the hazards associated with mixed waste make treatment very difficult. However, DOE is currently treating certain MLLW on a limited scale. Further research and development of new MLLW treatments will

continue to be pursued. Currently, MLLW and MTRU are stored at generating sites in a manner that addresses both components. The greatest hazard associated with mixed waste, either hazardous or radioactive, dictates the level of protection adopted. For example, if the characteristics of the waste's hazardous component cause rapid migration through soil and there are only trace amounts of radioactive material present, then storage is conducted in a manner that protects against the migration of the waste's hazardous components while still providing for proper protection from its radioactive component.

Waste generation

The *Defense Programs*, *Environmental Restoration and Waste Management Program*, *Energy Research Program*, and *Nuclear Energy Program* contributed to the generation of MLLW in 1991 and 1992. Data provided by DOE reporting sites indicate that 87,600 cubic meters of MLLW was generated in 1992, compared to 66,300 cubic meters in 1991. This increase was largely due to process wastewaters

Figure 2.7 Mixed Waste and the Reporting Sites Contributing the Greatest Percentages of Mixed Waste in 1991-1992

generated at the Oak Ridge K-25 Site. These wastewaters, required to be reported to the State of Tennessee prior to treatment, do not represent an actual discharge to the environment. Furthermore, these wastewaters, which represented 86 percent of DOE's total MLLW in 1991 and 1992, are measured and reported at an intermediate step in the treatment process, rather than at the point of discharge and waste disposal. With the exclusion of the MLLW wastewater generated at the Oak Ridge K-25 Site, Figure 2.7, on the preceding page, compares mixed waste to other radioactive waste types generated in 1991 and 1992. Excluding the Oak Ridge K-25 Site, the reporting sites contributing the greatest percentage of mixed waste in each year are also provided.

- Transuranic (TRU) Waste

TRU waste consists mainly of contaminated items used every day at National defense facilities to support reactor fuel assembly, weapons fabrication, and, in the past, reprocessing operations. Examples of such items are protective clothing, rags, equipment, tools, discarded laboratory glass, and other "trash." TRU waste is generated primarily from research and development, plutonium recovery, weapons manufacturing or disassembly, and decontamination and decommissioning activities. The primary site that generated TRU waste in 1991 and 1992 was the Savannah River Site.

Typical components and associated hazards

TRU waste is radioactive waste contaminated with alpha particle emitting isotopes that have decay rates and concentrations exceeding certain specific levels. TRU waste decays very slowly and requires isolation for many thousands of years.

Treatment/Storage/Disposal requirements

The need to treat TRU waste is currently under study. Prior to disposal, TRU waste can be stored in metal drums, or in wooden or metal boxes. The containers are then placed on asphalt or concrete pads lined with clay and plastic to prevent leaks into the groundwater. Some TRU waste is also stored in earth mounded berms or concrete culverts. TRU waste disposal is expected to occur in a deep geological repository currently under evaluation in New Mexico.

Waste generation

Data provided by DOE reporting sites indicate that the amount of TRU waste generated in 1992 represented a slight increase of four percent over the amount generated in 1991. Increases in TRU waste generation were noted at *Environmental Restoration and Waste Management Program* and *Energy Research Program* activities. Although the Savannah River Site was the leading generator of TRU waste, the rise in TRU waste generation in 1992 is attributed to the replacement and disposal of contaminated hypalon gloves at the Hanford Site. The rise in TRU waste from *Energy Research Program* activities is attributed to the Oak Ridge National Laboratory, where increased levels of activity were noted in the Radiochemical Development Center and High Flux Isotope Reactor. *Defense Programs* and *Nuclear Energy Program* sites also contributed to the amount of TRU waste generated in 1991 and 1992. *Defense Programs* activities generated 92 percent and 80 percent of DOE's total TRU waste in 1991 and 1992, respectively. The reduction

of TRU waste from *Defense Programs* activities in 1992 is attributed primarily to the Savannah River Site. The Savannah River Site reports that waste reduction resulted from programmatic waste minimization activities and decreased processing activities. Figure 2.8 compares the percentages of TRU waste to other radioactive waste types generated in 1991 and 1992. The reporting sites generating the greatest percentage of TRU waste in each year are also provided.

Figure 2.8 *TRU Waste and the Reporting Sites Contributing the Greatest Percentages of TRU Waste in 1991-1992*

- High-Level Waste (HLW)

HLW includes liquid waste containing fission products in sufficient concentrations generated during the reprocessing of spent nuclear fuel as well as any solid waste that may be derived from the liquid waste. HLW is generated by *Environmental Restoration and Waste Management Program* and *Defense Programs* activities at the Savannah River Site and the Idaho Chemical Processing Plant.

Typical components and associated hazards

Some elements of HLW decay slowly and remain radioactive for thousands of years. However, many of the most dangerous elements decay in a period of 500 to 1,000 years. It is during this initial decay period that HLW poses the greatest threat to humans. These highly radioactive isotopes emit gamma rays, the most damaging form of radiation, which go through body tissue and can cause severe damage to cells, tissues, and organs. Gamma rays are stopped by thick concrete, deep water, and lead. Sufficient exposure to gamma radiation can result in radiation poisoning and eventually death. Because HLW poses such a hazard, it must be handled remotely, through the use of robotic systems and/or protective shielding.

Treatment/Storage/Disposal requirements

Due to the severe hazards associated with HLW, all waste management activities must be performed with adherence to proper procedure and requirements. The sites generating HLW treat the raw waste, transforming it into sludges, precipitated salts, and concentrated salt solutions that can then be stored at interim storage facilities. These facilities store stabilized HLW in single wall and/or double wall tanks or shielded stainless steel bins. Sites currently generating HLW expect to use the proposed vitrification process, which results in stable glass like solids, to treat HLW prior to disposal. Vitrification plants have been constructed at the West Valley Demonstration Project in New York and at the Savannah River Site in South Carolina, but are not yet operational. Regulations require that HLW be disposed of as a durable, stable solid waste form in a geological repository. DOE is currently studying the Yucca Mountain Site Characterization Project in Nevada to assess the feasibility of constructing a HLW repository at that location.

Waste generation

The *Defense Programs* and *Environmental Restoration and Waste Management Program* are the only programs generating HLW. HLW generated in 1991 and 1992 was the only waste type to be solely reported in the liquid phase. Data provided by DOE reporting sites indicate that the amount of HLW generated in 1992 represented an overall 45 percent reduction from the amount of HLW generated in 1991. This reduction is due primarily to reduced *Defense Programs* processing activities in the separations facilities and the minimization of non-essential waste flows at the Savannah River Site. However, increases in waste, specifically attributed to *Environmental Restoration and Waste Management Program* activities, resulted from the decontamination of equipment from the repair of the HLW evaporator and the ongoing work with the in-tank precipitation process, also at the Savannah River Site. Figure 2.9 compares the percentages of HLW to other radioactive waste types generated in 1991 and 1992. The reporting sites contributing the greatest percentage of HLW in each year are also provided.

Figure 2.9 *HLW and the Reporting Sites Contributing the Greatest Percentages of HLW in 1991-1992*

2.2.2 Non-Radioactive Waste

Non-radioactive waste includes sanitary waste and hazardous waste. Although all sites generated non-radioactive waste, only those sites that met this Report's threshold reporting criteria are included. DOE's total non-radioactive waste generation increased three percent from 1991 to 1992. Table 2.2 lists the *total* DOE non-radioactive waste types and waste generation amounts in 1991 and 1992.

Table 2.2 DOE Non-Radioactive Waste Types and Waste Generation in 1991-1992

Waste Type	1991	1992
Metric Tons		
Sanitary Waste	91,600	89,600
Hazardous Waste		
RCRA Regulated	5,060	4,210
State Regulated	11,900	8,210
TSCA Regulated	8,410	24,100
TOTAL*	117,000	126,000

* 1991 and 1992 totals are rounded to three significant figures.

Figure 2.10 shows the percentages of non-radioactive waste generated in 1991 and 1992. The amounts and percentages in Figure 2.10 do not include State regulated wastewater generated at the Pantex Plant in 1991 and 1992.

Figure 2.10 DOE Non-Radioactive Waste Type Percentages

† Does not include State regulated wastewater from the Pantex Plant.

* 1991 and 1992 amounts are rounded to three significant figures.

- Sanitary Waste

Sanitary waste is waste that is neither hazardous nor radioactive. It is routinely generated by housekeeping and construction activities. Sanitary waste is by far the largest non-radioactive waste stream in the DOE complex, comprising more than 74 percent of the total non-radioactive waste reported in 1991 and 1992. As mentioned in the Introduction of this Report, all reporting sites did not track or submit sanitary waste amounts for 1991 and 1992. Therefore, the 1991 and 1992 sanitary waste totals shown in this Report do not contain sanitary waste amounts from all of the reporting sites. Furthermore, no attempt was made to estimate the percentage of the sanitary waste that was not tracked or reported.

Typical components and associated hazards

Sanitary waste includes non-hazardous process waste, ordinary industrial refuse such as discarded packing materials and pallets, office waste, cafeteria waste, construction and demolition debris, and wastewater treatment plant residuals

Figure 2.11 Sanitary Waste and the Reporting Sites Contributing the Greatest Percentages of Sanitary Waste in 1991-1992

resulting from the treatment of sanitary and process wastewaters. For the purposes of this Report, sanitary waste does not contain sewage treatment plant wastewater.

Treatment/Storage/Disposal requirements

The management of solid sanitary waste is regulated under the provisions of Subtitle D of RCRA. Solid sanitary waste is disposed of in on-site sanitary landfills that are owned or operated by DOE or shipped off-site to municipal landfills for disposal.

Waste generation

Data provided by DOE reporting sites indicate that 89,600 metric tons of sanitary waste was generated in 1992, a 2,000 metric ton, two percent decrease from the 1991 total of 91,600 metric tons. Leading contributors of sanitary waste generated in 1992 included the Oak Ridge Y-12 Plant, Lawrence Livermore National Laboratory, Hanford Site, Savannah River Site, and Nevada Test Site. These five sites accounted for approximately 40,200 metric tons, 45 percent of DOE's reported sanitary waste. Figure 2.11, on the preceding page, compares the percentage of sanitary waste to other non-radioactive waste types generated in 1991 and 1992. The reporting sites contributing the greatest percentages of sanitary waste in each year are also provided.

- Hazardous Waste

Substances are designated as hazardous waste due to their risks to human health and the environment. DOE's hazardous waste includes RCRA, State and TSCA wastes. Cumulatively, DOE's RCRA, State, and TSCA regulated wastes increased 45 percent in 1992. The amounts of RCRA and State regulated wastes decreased in 1992, while the generation of TSCA regulated waste increased. DOE facilities generated 17 percent less RCRA hazardous waste, and 31 percent less State regulated hazardous waste, but generated 187 percent more TSCA regulated waste. In 1992, *Power Marketing Administration* activities were responsible for about 61 percent of the total RCRA, State and TSCA regulated wastes generated by DOE facilities. The major contributor was the Bonneville Power Administration which generated 21,200 metric tons of TSCA regulated waste. This amount was largely attributed to the removal and disposal of polychlorinated biphenyl contaminated oils from capacitors, electrical equipment, and soils.

• RCRA Regulated Waste

RCRA regulated hazardous waste is generated from various production and laboratory operations, as well as in many other activities that occur every day at DOE sites. Hazardous waste also results from nuclear research, industrial and medical activities, weapons manufacturing, and clean up activities.

Typical components and associated hazards

RCRA regulated hazardous waste consists of corrosive, toxic, reactive, or ignitable materials. Corrosives are materials that "eat" through metals and other materials; toxic materials are substances that can damage living cells or tissue; reactives are chemicals that are thermally unstable; and ignitable materials are any

solids, liquids, vapors, or gases that ignite easily and burn rapidly. Hazardous waste can come in various forms, such as liquid, solid, or sludge.

Treatment/Storage/Disposal requirements

DOE uses EPA permitted commercial hazardous waste management facilities to manage DOE generated hazardous waste. Treatment technologies applied to RCRA regulated waste can include incineration, biodegradation, solidification, and the potential for vitrification. All permitted commercial facilities must adhere to certain regulations outlined in RCRA, which mandates storage and disposal requirements. DOE must also follow these regulations through all phases of hazardous waste storage and disposal. DOE remains liable for its hazardous waste even after it has been disposed of by a commercial vendor.

Figure 2.12 RCRA Regulated Waste and the Reporting Sites Contributing the Greatest Percentages of RCRA Regulated Waste in 1991-1992

Waste generation

All of DOE's operational programs contributed to the generation of RCRA hazardous waste in 1992. Data provided by DOE reporting sites indicate that the amount of RCRA regulated hazardous waste generated in 1992 totaled 4,210 metric tons. This amount is a 17 percent decrease from 1991, in which 5,060 metric tons were generated. In 1992, decreases in RCRA regulated hazardous waste were mainly due to modifications to *Defense Programs* activities. Examples include programmatic waste minimization activities at the Los Alamos National Laboratory and recycle/reuse activities at the Savannah River Site. Slight increases in RCRA regulated hazardous waste were noted in 1992 for the *Science Education and Technical Information Program*, *Fossil Energy Program*, and *Civilian Radioactive Waste Management Program*. Even though slight increases were attributed to these operational programs, the vast majority of RCRA hazardous waste was generated by the *Defense Programs*, *Environmental Restoration and Waste Management Program*, and *Energy Research Program*. These three operational programs generated a total of 3,710 metric tons, 88 percent, of DOE's RCRA regulated hazardous waste in 1992. Figure 2.12, on the preceding page, compares the percentage of RCRA regulated waste to other non-radioactive waste types generated in 1991 and 1992. The reporting sites contributing the greatest percentage of RCRA regulated waste in each year are also provided.

• State Regulated Waste

In addition to those hazardous wastes regulated under RCRA and TSCA, certain States have determined that other wastes must be regulated to further protect the health and safety of the public and to protect the environment. These wastes are often referred to as State regulated hazardous wastes. The generation of State regulated hazardous waste from DOE process operations is generated in various stages of defense weapons activities such as nuclear research, industrial and medical activities, weapons manufacturing or disassembly, and clean up activities. The generation of such waste can include substances such as used oil that is regulated by many States as a "special" hazardous waste.

Typical components and associated hazards

Examples of State regulated hazardous wastes are adhesives, auto shredder waste, pharmaceutical waste, and wastes associated with the petroleum industry, such as waste oil, mixed oil, drilling mud, and oil/water separation sludge. State regulated hazardous waste generated at DOE reporting sites was primarily waste-water contaminated with oil.

Treatment/Storage/Disposal requirements

Treatment, storage, and disposal requirements for State regulated hazardous waste are developed by the particular State in which they are regulated. Treatment may vary from waste to waste, but storage and disposal requirements will most likely mirror those found in RCRA. Treatment, storage, and disposal requirements must be as stringent as Federal requirements under RCRA, and may be more strict.

Waste generation

Data provided by DOE reporting sites indicate that the amount of State regulated hazardous waste generated in 1992 was 8,210 metric tons. This is a decrease of 3,690 metric tons from the 11,900 metric tons of State regulated hazardous waste generated in 1991. The Pantex Plant was the main contributor of State regulated hazardous waste in both 1991 and 1992, generating 5,330 metric tons, and 3,620 metric tons, respectively, of DOE's total State regulated hazardous waste. The generation of State regulated hazardous waste at the Pantex Plant in 1991 and 1992 was attributed to the treatment of explosive contaminated wastewater, in accordance with the conditions of a 1990 RCRA Part B permit issued jointly by the Texas Water Commission and the EPA.

All of DOE's operational programs contributed to the generation of State regulated hazardous waste in 1992. The decrease in State regulated hazardous waste in 1992 is attributed to the *Defense Programs, Environmental Restoration*

Figure 2.13 State Regulated Waste and the Reporting Sites Contributing the Greatest Percentages of State Regulated Waste in 1991-1992

* Does not include State Regulated Wastewater from the Pantex Plant.

and Waste Management Program, Energy Research Program, and Nuclear Energy Program. Most of the decrease in State regulated hazardous waste occurred at the Western Area Power Administration, where a 90 percent decrease was attributed to a one time major maintenance overhaul that occurred in 1991. For individual operational programs, slight increases were contributed by *Civilian Radioactive Waste Management Program* and *Science Education and Technical Information Program* activities. One of the significant increases came from the *Fossil Energy Program*, where a one time clean out of chromium contaminated soil at the Naval Petroleum Reserve Number 1 contributed to a 303 metric ton increase in 1992. With the exception of the State regulated wastewater generated at the Pantex Plant, Figure 2.13, on the preceding page, compares the percentages of the State regulated waste to other non-radioactive waste generated in 1991 and 1992. Excluding the Pantex Plant, the reporting sites contributing the greatest percentage of State regulated waste in each year are also provided.

• **TSCA Regulated Waste**

TSCA regulated waste is generated in various stages of defense weapons production activities and in many other DOE activities, including nuclear research, industrial and medical activities, weapons manufacturing, and clean up activities. Almost all of the TSCA waste reported was generated by converting polychlorinated biphenyl contaminated capacitors to non-polychlorinated biphenyl capacitors primarily at the Power Marketing Administration reporting sites.

Typical components and associated hazards

TSCA waste includes polychlorinated biphenyls, which are the primary concern regarding TSCA regulated waste at DOE sites. By definition, TSCA regulated chemical substances and mixtures do not include "...any source material, special nuclear material, or by-product material (as such terms are defined in the Atomic Energy Act of 1954 and regulations issued under such Act)...". Although TSCA excludes nuclear material, the TSCA regulated portion of a mixed nuclear regulated waste must comply with TSCA requirements.

Treatment/Storage/Disposal requirements

Treatment, storage, and disposal of pure TSCA waste is performed by permitted, commercial companies contracted by DOE.

Waste generation

In 1991 and 1992, all operational programs generated TSCA regulated waste with the exception of the *Energy Efficiency and Renewable Energy Program* and the *Civilian Radioactive Waste Management Program*. Data provided by DOE reporting sites indicate that 24,100 metric tons of TSCA regulated waste were generated in 1992. This amount indicates an overall 187 percent increase from 1991 totals, in which 8,410 metric tons of TSCA regulated waste were generated. Increases in the amount of TSCA waste generated in 1992 were contributed by *Defense Programs, Environmental Restoration and Waste Management Program, Nuclear Energy Program, and Power Marketing Administration* activities. These were primarily attributed to non-routine environmental restoration activities in which polychlorinated biphenyl contaminated oils were removed from capacitors

and other electrical equipment. These activities occurred at the Bonneville Power Administration, Kansas City Plant, the Oak Ridge K-25 Site, and Los Alamos National Laboratory. Figure 2.14 compares the percentages of TSCA regulated waste to other non-radioactive waste generated in 1991 and 1992. The reporting sites contributing the greatest percentage of TSCA regulated waste in each year are also provided.

Figure 2.14 TSCA Regulated Waste and the Reporting Sites Contributing the Greatest Percentages of TSCA Regulated Waste in 1991-1992

2.3 Complex-wide Solid Waste Recycling Activities

Recent Federal, State, and local solid waste recycling mandates have expanded the development of recycling programs across the DOE complex. All operational programs reported solid waste recycling activities at various stages of implementation during 1991 and 1992.

DOE sites were asked to report on the recycling of six major materials. These include office paper, aluminum, glass, plastic, cardboard, and scrap metal. Of the

six materials tracked on a complex-wide basis, the largest component is scrap metal, which represents 70 percent of the total solid waste materials recycled in 1992. The next highest components recycled in 1992 were office paper and cardboard which represent 21 percent and five percent of the total solid waste materials recycled in 1992. Glass, aluminum, and plastics made up relatively small fractions of the overall recycled waste stream, approximately one percent each.

Increases in the amounts of recyclable materials collected were reported in all six categories in 1992. Glass, plastic, and cardboard recycling each increased 60 percent or more. Office paper recycling increased 54 percent; aluminum, 29 percent; and scrap metal, 19 percent. Overall, the total amount of materials recycled throughout DOE increased 28 percent from 1991 to 1992. Figure 2.15 lists the amounts of complex-wide solid waste materials recycled by DOE in 1991 and 1992.

Figure 2.15 Amounts of Material Recycled by DOE in 1991-1992

Many sites also reported recycling other materials including toner cartridges, telephone directories, wooden pallets, and tires. Several sites reported plans for expanding existing office paper and cardboard recycling programs; adding polystyrene collection; and composting leaves, grass clippings, and tree trimmings.

Programs to foster the purchase of products containing recycled materials are in various stages of development across the DOE complex. Affirmative Procurement Programs for items designated by EPA are required by Section 6002 of the

Resource Conservation and Recovery Act. Current EPA designated items include lubricating oils, cement and concrete containing fly ash, paper and paper products, building insulation, and retread tires.

3.0 Waste Generation by State

This chapter provides an overview of the total radioactive, hazardous, and sanitary wastes generated by DOE in States where DOE reporting sites are located. DOE reporting sites that met the threshold reporting criteria established for this Report are located in 25 States.

DOE reporting sites within the Formerly Utilized Sites Remedial Action Program are all located in Tennessee, Oregon, and New York. Waste quantities for each of the sites within the Formerly Utilized Sites Remedial Action Program are shown individually in the Tennessee, Oregon, and New York total waste generation tables presented in this chapter.

DOE generates radioactive and/or hazardous wastes in 25 States.

Figure 3.1 indicates States where DOE reporting sites are located that generate radioactive and hazardous waste, as well as States where DOE reporting sites generate hazardous waste only. More detailed information on waste generated by DOE reporting sites in each State is given in each State's total waste generation table provided in this chapter.

Figure 3.1 States with DOE Sites Reporting Waste Generation

3.1 Radioactive Wastes

Table 3-1 shows the 18 States where DOE reporting sites generated radioactive wastes in 1991 and 1992. A total of 141,000 cubic meters of radioactive waste were generated in 1992. This represents a two percent increase from the 138,000 cubic meters of radioactive waste generated in 1991. The combined totals of radioactive waste generated by reporting sites in Ohio, South Carolina, and Tennessee amounted to 84 percent and 88 percent of the total DOE radioactive waste in 1991 and 1992, respectively.

Table 3.1 Reporting Sites in States Generating Radioactive Waste in 1991-1992

Radioactive (Cubic Meters)						
State	1991 Liquid	1991 Solid	1991 Total*	1992 Liquid	1992 Solid	1992 Total*
Alaska	—	—	—	—	—	—
California	153	484	637	280	1,000	1,280
Colorado	0.8	2,040	2,040	0.1	1,140	1,140
Florida	—	63.0	63.0	—	61.0	61.0
Iowa	—	19.8	19.8	—	14.3	14.3
Idaho	457	3,170	3,630	246	2,880	3,130
Illinois	3.75	92.8	96.5	4.13	196	200
Kentucky	—	2,010	2,010	—	1,320	1,320
Louisiana	—	—	—	—	—	—
Missouri	0.3	16.0	16.3	0.2	22.5	22.7
Montana	—	—	—	—	—	—
Nevada	—	65.4	65.4	—	64.9	64.9
New Jersey	0.3	35.0	35.3	0.3	35.0	35.3
New Mexico	6.32	6,200	6,210	1.75	2,570	2,570
New York	13.4	791	804	20.4	990	1,010
Ohio	221	12,900	13,100	386	16,700	17,100
Oklahoma	—	—	—	—	—	—
Oregon	—	—	—	—	—	—
Pennsylvania	—	—	—	—	—	—
South Carolina	3,080	22,300	25,400	1,680	13,000	14,700
Tennessee	62,800	14,500	77,300	81,600	11,200	92,800
Texas	—	107	107	—	228	228
Washington	1,180	5,120	6,300	2,420	3,260	5,680
West Virginia	—	2.89	2.89	0.1	0.1	0.2
Wyoming	—	—	—	—	—	—
Totals*	67,900	69,900	138,000	86,600	54,700	141,000

*1991 and 1992 totals are rounded to three significant figures.

Two sites, Fernald Environmental Management Project in Ohio, and the Oak Ridge K-25 Site in Tennessee, had increases in the amount of radioactive waste of approximately 5,990 cubic meters and 22,300 cubic meters, respectively, from 1991 to 1992. The increase in the generation of radioactive waste at the Fernald Environmental Management Project was due mainly to remedial actions performed in accordance with an EPA Consent Agreement. Four major remedial actions were performed in 1992 and generated approximately 5,500 cubic meters of LLW.

At the Oak Ridge K-25 Site, approximately 98 percent of the increase in MLLW consisted of wastewater from the TSCA Incinerator Facility and blowdown from the steam plant. In addition, stormwater runoff from the coal yard and the steam plant, treated as MLLW, also increased.

DOE reporting sites in Tennessee and Ohio together accounted for a net increase of approximately 19,500 cubic meters of radioactive waste in 1992. Overall, total radioactive waste generation increased 3,000 cubic meters, which indicates that sites in other States contributed to significant reductions in the amount of radioactive waste generated in 1992. In fact, 10 of the 18 States with sites producing radioactive wastes achieved reductions in 1992, including four of the top six States.

At the Savannah River Site, the only DOE site in South Carolina, radioactive waste generation was reduced 42 percent in 1992. All radioactive waste streams generated at the site, i.e., HLW, TRU, LLW, and MLLW, were reduced. The Savannah River Site attributed its decrease in HLW to a reduction in processing activity in the separations facilities and to its minimization of non-essential waste flows.

In Washington, the Pacific Northwest Laboratory began phasing out the use of RCRA regulated solvent based materials by substituting non-regulated solvents. Site personnel report that such substitutions, combined with better operating practices in the laboratories, produced the drop in LLW and RCRA regulated hazardous waste generation.

3.2 Hazardous Wastes

Table 3.2 shows the 25 States with DOE reporting sites that generated hazardous wastes in 1991 and 1992. A total of 25,300 metric tons were generated in 1991 and 36,600 metric tons in 1992. This represents a 45 percent increase, 11,300 metric tons, in the amount of hazardous waste generated in 1992.

In 1991, DOE reporting sites in Oregon, Texas, Colorado, California, Tennessee, and New Mexico generated a combined total of 21,800 metric tons of hazardous waste. In 1992, the DOE reporting sites in these same States generated 32,700 metric tons, 89 percent of DOE's hazardous waste total. This amount represents a 53 percent increase over DOE's 1991 hazardous waste totals. Most of this increase was due to the rise in TSCA regulated waste, containing oil contaminated with polychlorinated biphenyls, produced by the Bonneville Power Administration which services 300,000 square miles in the States of Oregon, Washington, Idaho, Montana, Wyoming, Nevada, Utah, and Colorado. Waste generation totals for all transmission lines and substations have been combined and attributed to the Bonneville Power Administration Headquarters located in the State of Oregon.

Despite this overall increase, DOE reporting sites in 15 of the 25 States reduced the amount of hazardous waste generated in 1992. Reporting sites in Texas and Colorado, achieved a combined reduction of 4,140 metric tons in 1992. Other States with sites having significant reductions in hazardous waste generation were South Carolina and Illinois.

Table 3.2 Reporting Sites in States Generating Hazardous Waste in 1991-1992

Hazardous (Metric Tons)		
State	1991	1992
Alaska	0.2	0.2
California	2,770	2,400
Colorado	3,170	733
Florida	199	160
Iowa	12.2	11.9
Idaho	179	208
Illinois	462	272
Kentucky	68.5	189
Louisiana	2.29	2.26
Missouri	949	1,230
Montana	4.35	1.51
New Jersey	75.8	58.4
New Mexico	1,980	2,340
Nevada	362	324
New York	66.2	200
Ohio	362	467
Oklahoma	14.8	10.2
Oregon†	5,970	21,600
Pennsylvania	27.9	20.7
South Carolina	466	31.1
Tennessee	2,090	1,480
Texas	5,820	4,120
Washington	272	731
West Virginia	3.97	12.5
Wyoming	2.24	0.6
Totals*	25,300	36,600

* 1991 and 1992 totals are rounded to three significant figures.

† These wastes were reported primarily from the Bonneville Power Administration, which is headquartered in Oregon, but services Oregon, Washington, Idaho, Nevada, Utah, California, and parts of Montana and Wyoming.

At the Pantex Plant in Texas, the total volume of State regulated hazardous waste was reduced by the recycling of anti-freeze, freon, waste oil, and empty containers, as well as the compaction of other waste. There was also a five percent reduction in the generation of RCRA regulated hazardous waste. This was a result of product substitution and process improvement. Also, biodegradable non-hazardous solvents were substituted for naphtha based solvents and acetone.

In 1992, sites in Colorado contributed to a 77 percent reduction in the amount of hazardous waste generated. Three sites, the Grand Junction Project Office, the National Renewable Energy Laboratory, and the Rocky Flats Plant, were the main contributors to the decrease. At the Grand Junction Project Office, the substitution of non-regulated solvents for RCRA regulated solvents resulted in the reduction of

RCRA regulated hazardous wastes. At the National Renewable Energy Laboratory, increased awareness and improved operating procedures resulted in a 53 percent reduction of State regulated hazardous wastes. At the Rocky Flats Plant, material handling and inventory practices, product substitution, machine coolant and oil recycling, and chemical exchange and reuse all contributed to reducing the generation of RCRA and TSCA regulated wastes.

In South Carolina, the Savannah River Site attributed the reduction in its RCRA regulated hazardous wastes to increased employee awareness, hazardous material substitution, and materials recycle/reuse.

In Illinois, at the Fermi National Accelerator Laboratory, materials classified as State regulated hazardous wastes, which previously had been disposed of, are now being recycled.

3.3 Sanitary Wastes

Table 3.3 shows sanitary waste generation in States where DOE reporting sites are located. Sanitary waste data were available for reporting sites in 23 of the 25 States. Some of the reporting sites did not track or report sanitary waste totals. As a result, sanitary waste totals for those sites are listed as "not available" within the site's total waste generation table in Chapter 8.0 of this Report.

In 1992, 89,600 metric tons of sanitary waste were generated compared to 91,600 metric tons in 1991. This represents an overall reduction of two percent, based on the data gathered for this Report.

In 1991 and 1992, approximately 71 percent of the reported sanitary waste was generated at DOE reporting sites in California, Idaho, Illinois, Nevada, Ohio, South Carolina, and Tennessee.

Reporting sites in the State of Idaho generated the most sanitary waste in 1991. These same sites reduced their generation of sanitary waste by 41 percent in 1992.

3.4 State Summaries

State Summaries, which depict waste generation totals for reporting sites in States generating radioactive, hazardous, and sanitary waste commence on page 59.

**Table 3.3 Reporting Sites in States Generating Sanitary Waste in
1991-1992**

Sanitary Waste (Metric Tons)		
State	1991	1992
Alaska	--	--
California	6,970	13,500
Colorado	2,810	2,740
Florida	32.6	47.8
Iowa	--	--
Idaho	13,700	8,030
Illinois	7,080	5,760
Kentucky	1,240	578
Louisiana	606	586
Missouri	3,280	4,330
Montana	72.6	68.0
Nevada	10,300	11,500
New Jersey	266	235
New Mexico	6,540	4,990
New York	1,370	1,390
Ohio	7,210	7,060
Oklahoma	129	78.0
Oregon	162	174
Pennsylvania	98.9	93.4
South Carolina	8,740	9,610
Tennessee	11,400	8,380
Texas	1,700	2,230
Washington	6,890	7,260
West Virginia	265	238
Wyoming	735	735
Total*	91,600	89,600

*1991 and 1992 totals are rounded to three significant figures.

U. S. Department of Energy

State Of Alaska

Number Of Reporting Facilities: 1

Total Number Of Employees: 24

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW) *	0.00	0.00	0.00	0.00	0.00	0.00
MLLW *	0.00	0.00	0.00	0.00	0.00	0.00
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons	Solid		TOTAL	Solid		TOTAL
Sanitary Waste	Not Available		Not Available	Not Available		Not Available
Hazardous Waste						
State Regulated	0.23		0.23	0.23		0.23
RCRA Regulated *	0.00		0.00	0.00		0.00
TSCA Regulated *	0.00		0.00	0.00		0.00

† - Important, see Appendix D for Margin-of-Error Information for the site(s) in this state.

* - Indicates that no waste of this type was generated at the site(s) in this state.

DOE Sites And Number Of Employees

Site Code	Site Name	Total Number Of Employees	
		DOE	Prime Contractor
1	Alaska Power Administration	24	0

U. S. Department of Energy

State Of California

Number Of Reporting Facilities: 8

Total Number Of Employees: 16,095

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)	59.68	440.85	500.53	154.13	310.30	464.43
MLLW	93.77	25.86	119.63	125.87	673.76	799.63
MTRU	0.00	2.52	2.52	0.00	0.83	0.83
Transuranic (TRU) Waste	0.00	14.80	14.80	0.00	18.70	18.70
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons	Solid		TOTAL	Solid		TOTAL
Sanitary Waste	6,970.26		6,970.26	13,484.87		13,484.87
Hazardous Waste						
State Regulated	1,371.33		1,371.33	1,089.19		1,089.19
RCRA Regulated	1,007.59		1,007.59	1,112.71		1,112.71
TSCA Regulated	389.06		389.06	195.98		195.98

† - Important, see Appendix D for Margin-of-Error Information for the site(s) in this state.

* - Indicates that no waste of this type was generated at the site(s) in this state.

DOE Sites And Number Of Employees

Site Code	Site Name	Total Number Of Employees	
		DOE	Prime Contractor
1	Energy Technology Engineering Center	4	230
2	Laboratory for Energy-Related Health Research	2	20
3	Lawrence Berkeley Laboratory	15	3,500
4	Lawrence Livermore National Laboratory	154	8,812
5	Naval Petroleum Reserve Number 1	60	818
6	Oxnard Facility	0	74
7	Sandia National Laboratories / California	1	1,000
8	Stanford Linear Accelerator Center	5	1,400

U. S. Department of Energy

State Of Colorado

Number Of Reporting Facilities: 5
Total Number Of Employees: 10,817

Total Waste Generation †

Waste Type	1991			1992		
<u>Cubic Meters</u>	<u>Liquid</u>	<u>Solid</u>	<u>TOTAL</u>	<u>Liquid</u>	<u>Solid</u>	<u>TOTAL</u>
Low-Level Waste (LLW)	0.13	1,404.89	1,405.02	0.11	678.79	678.90
MLLW	0.64	554.27	554.91	0.02	440.39	440.41
MTRU	0.00	65.25	65.25	0.00	12.45	12.45
Transuranic (TRU) Waste	0.00	17.81	17.81	0.00	10.01	10.01
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
<u>Metric Tons</u>		<u>Solid</u>	<u>TOTAL</u>		<u>Solid</u>	<u>TOTAL</u>
Sanitary Waste		2,811.37	2,811.37		2,743.33	2,743.33
Hazardous Waste						
State Regulated		2,891.16	2,891.16		300.45	300.45
RCRA Regulated		56.67	56.67		77.94	77.94
TSCA Regulated		224.97	224.97		354.57	354.57

† - Important, see Appendix D for Margin-of-Error Information for the site(s) in this state.

* - Indicates that no waste of this type was generated at the site(s) in this state.

DOE Sites And Number Of Employees

Site Code	Site Name	Total Number Of Employees	
		DOE	Prime Contractor
1	Grand Junction Projects Office	12	805
2	National Renewable Energy Laboratory	29	758
3	Naval Oil Shale Reserve Number 3	0	1
4	Rocky Flats Plant	218	6,897
5	Western Area Power Administration	1,493	604

U. S. Department of Energy

State Of Florida

Number Of Reporting Facilities: 1

Total Number Of Employees: 1,170

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)	0.00	63.00	63.00	0.00	61.00	61.00
MLW *	0.00	0.00	0.00	0.00	0.00	0.00
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons			TOTAL			TOTAL
Sanitary Waste			32.58			47.76
Hazardous Waste						
State Regulated *			0.00			0.00
RCRA Regulated			199.18			160.01
TSCA Regulated *			0.00			0.00

† - Important, see Appendix D for Margin-of-Error Information for the site(s) in this state.

* - Indicates that no waste of this type was generated at the site(s) in this state.

DOE Sites And Number Of Employees

Site Code	Site Name	Total Number Of Employees	
		DOE	Prime Contractor
1	Pinellas Plant	33	1,137

U. S. Department of Energy

State Of Idaho

Number Of Reporting Facilities: 3

Total Number Of Employees: 9,488

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)	347.12	3,115.71	3,462.83	163.15	2,714.68	2,877.83
MLLW	0.01	54.68	54.69	0.02	163.87	163.89
MTRU	0.00	0.42	0.42	0.00	0.42	0.42
Transuranic (TRU) Waste	0.00	1.25	1.25	0.00	0.20	0.20
High-Level Waste	109.78	0.00	109.78	83.28	0.00	83.28
Metric Tons			TOTAL			TOTAL
Sanitary Waste	13,718.73		13,718.73	8,028.77		8,028.77
Hazardous Waste						
State Regulated	26.20		26.20	11.35		11.35
RCRA Regulated	142.11		142.11	170.58		170.58
TSCA Regulated	10.55		10.55	26.26		26.26

† - Important, see Appendix D for Margin-of-Error Information for the site(s) in this state.

* - Indicates that no waste of this type was generated at the site(s) in this state.

DOE Sites And Number Of Employees

Site Code	Site Name	Total Number Of Employees	
		DOE	Prime Contractor
1	Argonne National Laboratory - West	17	843
2	Idaho Chemical Processing Plant	15	1,813
3	Idaho National Engineering Laboratory	513	6,287

U. S. Department of Energy

State Of Illinois

Number Of Reporting Facilities: 2

Total Number Of Employees: 8,231

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)	3.40	90.50	93.90	3.94	188.20	192.14
MLLW	0.35	0.76	1.11	0.02	2.20	2.22
MTRU	0.00	0.00	0.00	0.00	0.29	0.29
Transuranic (TRU) Waste	0.00	1.53	1.53	0.17	5.07	5.24
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons	Solid		TOTAL	Solid		TOTAL
Sanitary Waste	7,082.39		7,082.39	5,759.72		5,759.72
Hazardous Waste						
State Regulated	146.95		146.95	72.08		72.08
RCRA Regulated	134.61		134.61	141.36		141.36
TSCA Regulated	180.51		180.51	58.36		58.36

† - Important, see Appendix D for Margin-of-Error Information for the site(s) in this state.

* - Indicates that no waste of this type was generated at the site(s) in this state.

DOE Sites And Number Of Employees

Site Code	Site Name	Total Number Of Employees	
		DOE	Prime Contractor
1	Argonne National Laboratory - East	444	5,573
2	Fermi National Accelerator Laboratory	14	2,200

U. S. Department of Energy

State Of Iowa

Number Of Reporting Facilities: 1
Total Number Of Employees: 600

Total Waste Generation †

Waste Type	1991			1992		
<u>Cubic Meters</u>	<u>Liquid</u>	<u>Solid</u>	<u>TOTAL</u>	<u>Liquid</u>	<u>Solid</u>	<u>TOTAL</u>
Low-Level Waste (LLW)	0.00	19.82	19.82	0.00	14.16	14.16
MLLW	0.00	0.00	0.00	0.01	0.14	0.15
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
<u>Metric Tons</u>	<u>Solid</u>		<u>TOTAL</u>	<u>Solid</u>		<u>TOTAL</u>
Sanitary Waste	Not Available		Not Available	Not Available		Not Available
Hazardous Waste						
State Regulated	3.11		3.11	3.08		3.08
RCRA Regulated	6.75		6.75	7.36		7.36
TSCA Regulated	2.38		2.38	1.42		1.42

† - Important, see Appendix D for Margin-of-Error Information for the site(s) in this state.

* - Indicates that no waste of this type was generated at the site(s) in this state.

DOE Sites And Number Of Employees

Site Code	Site Name	Total Number Of Employees	
		DOE	Prime Contractor
1	Ames Laboratory	0	600

U. S. Department of Energy

State Of Kentucky

Number Of Reporting Facilities: 1

Total Number Of Employees: 1,855

Total Waste Generation †

Waste Type	1991			1992		
<u>Cubic Meters</u>	<u>Liquid</u>	<u>Solid</u>	<u>TOTAL</u>	<u>Liquid</u>	<u>Solid</u>	<u>TOTAL</u>
Low-Level Waste (LLW)	0.00	1,874.58	1,874.58	0.00	499.79	499.79
MLLW	0.00	137.05	137.05	0.00	823.94	823.94
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
<u>Metric Tons</u>		<u>Solid</u>	<u>TOTAL</u>		<u>Solid</u>	<u>TOTAL</u>
Sanitary Waste		1,236.49	1,236.49		577.88	577.88
Hazardous Waste						
State Regulated *		0.00	0.00		0.00	0.00
RCRA Regulated *		0.00	0.00		0.00	0.00
TSCA Regulated		68.49	68.49		189.19	189.19

† - Important, see Appendix D for Margin-of-Error Information for the site(s) in this state.

* - Indicates that no waste of this type was generated at the site(s) in this state.

DOE Sites And Number Of Employees

Site Code	Site Name	Total Number Of Employees	
		DOE	Prime Contractor
1	Paducah Gaseous Diffusion Plant	15	1,840

U. S. Department of Energy

State Of Louisiana

Number Of Reporting Facilities: 1

Total Number Of Employees: 1,597

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW) *	0.00	0.00	0.00	0.00	0.00	0.00
MLLW *	0.00	0.00	0.00	0.00	0.00	0.00
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons			TOTAL			TOTAL
Sanitary Waste		605.82	605.82		585.82	585.82
Hazardous Waste						
State Regulated *		0.00	0.00		0.00	0.00
RCRA Regulated		2.29	2.29		2.26	2.26
TSCA Regulated *		0.00	0.00		0.00	0.00

† - Important, see Appendix D for Margin-of-Error Information for the site(s) in this state.

* - Indicates that no waste of this type was generated at the site(s) in this state.

DOE Sites And Number Of Employees

Site Code	Site Name	Total Number Of Employees	
		DOE	Prime Contractor
1	Strategic Petroleum Reserve	130	1,467

U. S. Department of Energy

State Of Missouri

Number Of Reporting Facilities: 2

Total Number Of Employees: 4,849

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)	0.00	14.44	14.44	0.00	21.75	21.75
MLLW	0.33	1.51	1.84	0.22	0.72	0.94
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons	Solid		TOTAL	Solid		TOTAL
Sanitary Waste	3,283.28		3,283.28	4,331.63		4,331.63
Hazardous Waste						
State Regulated	183.99		183.99	304.76		304.76
RCRA Regulated	685.69		685.69	396.28		396.28
TSCA Regulated	78.94		78.94	531.29		531.29

† - Important, see Appendix D for Margin-of-Error Information for the site(s) in this state.

* - Indicates that no waste of this type was generated at the site(s) in this state.

DOE Sites And Number Of Employees

Site Code	Site Name	Total Number Of Employees	
		DOE	Prime Contractor
1	Kansas City Plant	70	4,473
2	Weldon Spring Site Remedial Action Project	11	295

U. S. Department of Energy

State Of Montana

Number Of Reporting Facilities: 1

Total Number Of Employees: 211

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW) *	0.00	0.00	0.00	0.00	0.00	0.00
MLLW *	0.00	0.00	0.00	0.00	0.00	0.00
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons			TOTAL			TOTAL
Sanitary Waste	72.57		72.57	68.04		68.04
Hazardous Waste						
State Regulated	1.63		1.63	0.45		0.45
RCRA Regulated	2.72		2.72	0.79		0.79
TSCA Regulated	0.00		0.00	0.27		0.27

† - Important, see Appendix D for Margin-of-Error Information for the site(s) in this state.

* - Indicates that no waste of this type was generated at the site(s) in this state.

DOE Sites And Number Of Employees

Site Code	Site Name	Total Number Of Employees	
		DOE	Prime Contractor
1	Pitts. (PETC) Component Development & Integration Facility	1	210

U. S. Department of Energy

State Of Nevada

Number Of Reporting Facilities: 3
Total Number Of Employees: 7,960

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)	0.00	65.35	65.35	0.00	64.85	64.85
MLLW *	0.00	0.00	0.00	0.00	0.00	0.00
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons	Solid		TOTAL	Solid		TOTAL
Sanitary Waste	10,327.63		10,327.63	11,466.23		11,466.23
Hazardous Waste						
State Regulated	222.04		222.04	183.38		183.38
RCRA Regulated	129.87		129.87	137.99		137.99
TSCA Regulated	10.40		10.40	2.47		2.47

† - Important, see Appendix D for Margin-of-Error Information for the site(s) in this state.

* - Indicates that no waste of this type was generated at the site(s) in this state.

DOE Sites And Number Of Employees

Site Code	Site Name	Total Number Of Employees	
		DOE	Prime Contractor
1	Nevada Test Site	14	4,672
2	North Las Vegas Facility	0	1,874
3	Yucca Mountain Site Characterization Project	72	1,328

U. S. Department of Energy

State Of New Jersey

Number Of Reporting Facilities: 1
Total Number Of Employees: 854

Total Waste Generation †

Waste Type		1991			1992		
Cubic Meters		Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)		0.00	35.00	35.00	0.00	35.00	35.00
MLLW		0.30	0.00	0.30	0.30	0.00	0.30
MTRU *		0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *		0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *		0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons							
		Solid			Solid		
Sanitary Waste		266.35			234.56		
Hazardous Waste							
State Regulated		0.00			14.70		
RCRA Regulated		75.82			39.12		
TSCA Regulated		0.00			4.57		

† - Important, see Appendix D for Margin-of-Error Information for the site(s) in this state.

* - Indicates that no waste of this type was generated at the site(s) in this state.

DOE Sites And Number Of Employees

Site Code	Site Name	Total Number Of Employees	
		DOE	Prime Contractor
1	Princeton Plasma Physics Laboratory	17	837

U. S. Department of Energy

State Of New Mexico

Number Of Reporting Facilities: 5
Total Number Of Employees: 22,918

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)	0.71	5,895.28	5,895.99	0.41	2,431.55	2,431.96
MLLW	5.61	173.36	178.97	1.34	87.35	88.69
MTRU	0.00	133.55	133.55	0.00	50.10	50.10
Transuranic (TRU) Waste	0.00	0.45	0.45	0.00	0.45	0.45
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons	Solid		TOTAL	Solid		TOTAL
Sanitary Waste	6,539.89		6,539.89	4,987.70		4,987.70
Hazardous Waste						
State Regulated	1,186.24		1,186.24	1,631.71		1,631.71
RCRA Regulated	450.04		450.04	306.08		306.08
TSCA Regulated	345.55		345.55	405.09		405.09

† - Important, see Appendix D for Margin-of-Error Information for the site(s) in this state.

* - Indicates that no waste of this type was generated at the site(s) in this state.

DOE Sites And Number Of Employees

Site Code	Site Name	Total Number Of Employees	
		DOE	Prime Contractor
1	Inhalation Toxicology Research Institute	0	210
2	Los Alamos National Laboratory	54	12,755
3	Sandia National Laboratories / New Mexico	40	8,556
4	Uranium Mill Tailings Remedial Action Project	19	352
5	Waste Isolation Pilot Plant	28	904

U. S. Department of Energy

State Of New York

Number Of Reporting Facilities: 3

Total Number Of Employees: 4,515

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)	8.83	787.38	796.21	14.00	989.54	1,003.54
MLLW	4.56	3.47	8.03	6.37	40.11	46.48
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons	Solid		TOTAL	Solid		TOTAL
Sanitary Waste	1,366.02		1,366.02	1,394.13		1,394.13
Hazardous Waste						
State Regulated	39.52		39.52	3.33		3.33
RCRA Regulated	23.76		23.76	29.98		29.98
TSCA Regulated	3.65		3.65	166.90		166.90

† - Important, see Appendix D for Margin-of-Error Information for the site(s) in this state.

* - Indicates that no waste of this type was generated at the site(s) in this state.

DOE Sites And Number Of Employees

Site Code	Site Name	Total Number Of Employees	
		DOE	Prime Contractor
1	Brookhaven National Laboratory	34	3,523
2	FUSRAP (Colonic Interim Storage site)	4	20
3	West Valley Demonstration Project	18	940

U. S. Department of Energy

State Of Ohio

Number Of Reporting Facilities: 4

Total Number Of Employees: 6,700

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)	0.00	12,158.60	12,158.60	0.00	16,201.93	16,201.93
MLLW	220.59	729.37	949.96	386.42	494.28	880.70
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons	Solid		TOTAL	Solid		TOTAL
Sanitary Waste	7,206.24		7,206.24	7,064.07		7,064.07
Hazardous Waste						
State Regulated	36.40		36.40	33.53		33.53
RCRA Regulated	53.68		53.68	62.91		62.91
TSCA Regulated	271.87		271.87	370.30		370.30

† - Important, see Appendix D for Margin-of-Error Information for the site(s) in this state.

* - Indicates that no waste of this type was generated at the site(s) in this state.

DOE Sites And Number Of Employees

Site Code	Site Name	Total Number Of Employees	
		DOE	Prime Contractor
1	Battelle Columbus Laboratories Decommissioning Project	2	207
2	Fernald Environmental Management Project	58	2,088
3	Mound Plant	42	1,691
4	Portsmouth Gaseous Diffusion Plant	12	2,600

U. S. Department of Energy

State Of Oklahoma

Number Of Reporting Facilities: 1

Total Number Of Employees: 197

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW) *	0.00	0.00	0.00	0.00	0.00	0.00
MLLW *	0.00	0.00	0.00	0.00	0.00	0.00
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons			TOTAL			TOTAL
Sanitary Waste	128.82		128.82	78.02		78.02
Hazardous Waste						
State Regulated *	0.00		0.00	0.00		0.00
RCRA Regulated	14.77		14.77	10.20		10.20
TSCA Regulated *	0.00		0.00	0.00		0.00

† - Important, see Appendix D for Margin-of-Error Information for the site(s) in this state.

* - Indicates that no waste of this type was generated at the site(s) in this state.

DOE Sites And Number Of Employees

Site Code	Site Name	Total Number Of Employees	
		DOE	Prime Contractor
1	National Institute for Petroleum and Energy Research	17	180

U. S. Department of Energy

State Of Oregon

Number Of Reporting Facilities: 2

Total Number Of Employees: 3,666

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW) *	0.00	124.80	124.80	0.00	0.00	0.00
MLLW *	0.00	0.00	0.00	0.00	0.00	0.00
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons			Solid			Solid
Sanitary Waste			162.39			174.18
Hazardous Waste						
State Regulated			355.75			342.27
RCRA Regulated			28.31			44.22
TSCA Regulated			5,586.96			21,198.41

† - Important, see Appendix D for Margin-of-Error Information for the site(s) in this state.

* - Indicates that no waste of this type was generated at the site(s) in this state.

DOE Sites And Number Of Employees

Site Code	Site Name	Total Number Of Employees	
		DOE	Prime Contractor
1	Bonneville Power Administration	3,666	0
2	FUSRAP (Albany Research Center site)	0	0

Employee numbers and waste totals are attributed to the Bonneville Power Administration headquarters in Oregon. Services are actually provided in Oregon, Washington, Idaho, Nevada, Utah, California and parts of Montana and Wyoming.

U. S. Department of Energy

State Of Pennsylvania

Number Of Reporting Facilities: 1

Total Number Of Employees: 644

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW) *	0.00	0.00	0.00	0.00	0.00	0.00
MLLW *	0.00	0.00	0.00	0.00	0.00	0.00
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons			TOTAL			TOTAL
Sanitary Waste			98.88			93.44
Hazardous Waste						
State Regulated *			0.00			0.00
RCRA Regulated			21.98			16.86
TSCA Regulated			5.95			3.83

† - Important, see Appendix D for Margin-of-Error Information for the site(s) in this state.

* - Indicates that no waste of this type was generated at the site(s) in this state.

DOE Sites And Number Of Employees

Site Code	Site Name	Total Number Of Employees	
		DOE	Prime Contractor
1	Pittsburgh Energy Technology Center	321	323

U. S. Department of Energy

State Of South Carolina

Number Of Reporting Facilities: 1

Total Number Of Employees: 24,024

Total Waste Generation †

Waste Type	1991			1992		
<u>Cubic Meters</u>	<u>Liquid</u>	<u>Solid</u>	<u>TOTAL</u>	<u>Liquid</u>	<u>Solid</u>	<u>TOTAL</u>
Low-Level Waste (LLW)	0.00	21,631.58	21,631.58	0.00	12,442.42	12,442.42
MLLW	0.00	33.10	33.10	0.00	20.42	20.42
MTRU	0.00	17.10	17.10	0.00	6.13	6.13
Transuranic (TRU) Waste	0.00	633.00	633.00	0.00	564.39	564.39
High-Level Waste	3,077.45	0.00	3,077.45	1,683.81	0.00	1,683.81
<u>Metric Tons</u>		<u>Solid</u>	<u>TOTAL</u>		<u>Solid</u>	<u>TOTAL</u>
Sanitary Waste		8,741.63	8,741.63		9,612.53	9,612.53
Hazardous Waste						
State Regulated *		0.00	0.00		0.00	0.00
RCRA Regulated		464.09	464.09		29.40	29.40
TSCA Regulated		1.60	1.60		1.67	1.67

† - Important, see Appendix D for Margin-of-Error Information for the site(s) in this state.

* - Indicates that no waste of this type was generated at the site(s) in this state.

DOE Sites And Number Of Employees

Site Code	Site Name	Total Number Of Employees	
		DOE	Prime Contractor
1	Savannah River Site	594	23,430

U. S. Department of Energy

State Of Tennessee

Number Of Reporting Facilities: 6
Total Number Of Employees: 19,683

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)	1,043.90	8,830.78	9,874.68	589.62	10,692.45	11,282.07
MLLW	61,733.64	734.00	62,467.64	80,943.26	481.00	81,424.26
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste	0.00	19.90	19.90	0.00	15.89	15.89
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons			TOTAL			TOTAL
Sanitary Waste			11,351.06			8,380.31
Hazardous Waste						
State Regulated			47.56			64.23
RCRA Regulated			910.29			935.22
TSCA Regulated			1,135.08			444.92

† - Important, see Appendix D for Margin-of-Error Information for the site(s) in this state.

* - Indicates that no waste of this type was generated at the site(s) in this state.

DOE Sites And Number Of Employees

Site Code	Site Name	Total Number Of Employees	
		DOE	Prime Contractor
1	FUSRAP (Elza Gate site)	4	15
2	Oak Ridge Institute for Science and Education	1	750
3	Oak Ridge K-25 Site	12	3,883
4	Oak Ridge National Laboratory	50	6,916
5	Oak Ridge Y-12 Plant	51	7,701
6	Office of Scientific and Technical Information	165	135

U. S. Department of Energy

State Of Texas

Number Of Reporting Facilities: 2

Total Number Of Employees: 5,519

Total Waste Generation †

Waste Type	1991			1992		
<u>Cubic Meters</u>	<u>Liquid</u>	<u>Solid</u>	<u>TOTAL</u>	<u>Liquid</u>	<u>Solid</u>	<u>TOTAL</u>
Low-Level Waste (LLW)	0.00	67.23	67.23	0.00	178.00	178.00
MLW	0.00	39.70	39.70	0.00	50.47	50.47
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
<u>Metric Tons</u>		<u>Solid</u>	<u>TOTAL</u>		<u>Solid</u>	<u>TOTAL</u>
Sanitary Waste		1,701.67	1,701.67		2,231.67	2,231.67
Hazardous Waste						
State Regulated		5,327.95	5,327.95		3,617.67	3,617.67
RCRA Regulated		445.60	445.60		432.60	432.60
TSCA Regulated		46.05	46.05		68.47	68.47

† - Important, see Appendix D for Margin-of-Error Information for the site(s) in this state.

* - Indicates that no waste of this type was generated at the site(s) in this state.

DOE Sites And Number Of Employees

Site Code	Site Name	Total Number Of Employees	
		DOE	Prime Contractor
1	Pantex Plant	77	2,930
2	Superconducting Super Collider Laboratory	76	2,436

U. S. Department of Energy

State Of Washington

Number Of Reporting Facilities: 2

Total Number Of Employees: 14,672

Total Waste Generation †

Waste Type		1991			1992		
	<u>Cubic Meters</u>	<u>Liquid</u>	<u>Solid</u>	<u>TOTAL</u>	<u>Liquid</u>	<u>Solid</u>	<u>TOTAL</u>
Low-Level Waste (LLW)		0.00	4,503.46	4,503.46	0.00	2,675.03	2,675.03
MLLW		1,177.50	592.69	1,770.19	2,415.25	444.90	2,860.15
MTRU		0.00	5.24	5.24	0.00	15.76	15.76
Transuranic (TRU) Waste		0.00	20.32	20.32	0.00	125.95	125.95
High-Level Waste *		0.00	0.00	0.00	0.00	0.00	0.00
	<u>Metric Tons</u>		<u>Solid</u>	<u>TOTAL</u>		<u>Solid</u>	<u>TOTAL</u>
Sanitary Waste			6,890.00	6,890.00		7,263.00	7,263.00
Hazardous Waste							
State Regulated			23.16	23.16		541.32	541.32
RCRA Regulated			202.67	202.67		79.02	79.02
TSCA Regulated			46.41	46.41		110.73	110.73

† - Important, see Appendix D for Margin-of-Error Information for the site(s) in this state.

* - Indicates that no waste of this type was generated at the site(s) in this state.

DOE Sites And Number Of Employees

Site Code	Site Name	Total Number Of Employees	
		DOE	Prime Contractor
1	Hanford Site	370	10,100
2	Pacific Northwest Laboratory	0	4,202

U. S. Department of Energy

State Of West Virginia

Number Of Reporting Facilities: 1
Total Number Of Employees: 677

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)	0.00	2.89	2.89	0.14	0.14	0.28
MLLW *	0.00	0.00	0.00	0.00	0.00	0.00
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons	Solid		TOTAL	Solid		TOTAL
Sanitary Waste	265.17		265.17	237.68		237.68
Hazardous Waste						
State Regulated *	0.00		0.00	0.00		0.00
RCRA Regulated	3.97		3.97	12.42		12.42
TSCA Regulated	0.00		0.00	0.05		0.05

† - Important, see Appendix D for Margin-of-Error Information for the site(s) in this state.

* - Indicates that no waste of this type was generated at the site(s) in this state.

DOE Sites And Number Of Employees

Site Code	Site Name	Total Number Of Employees	
		DOE	Prime Contractor
1	Morgantown Energy Technology Center	310	367

U. S. Department of Energy

State Of Wyoming

Number Of Reporting Facilities: 1

Total Number Of Employees: 150

Total Waste Generation †

Waste Type	1991			1992		
<u>Cubic Meters</u>	<u>Liquid</u>	<u>Solid</u>	<u>TOTAL</u>	<u>Liquid</u>	<u>Solid</u>	<u>TOTAL</u>
Low-Level Waste (LLW) *	0.00	0.00	0.00	0.00	0.00	0.00
MLLW *	0.00	0.00	0.00	0.00	0.00	0.00
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
<u>Metric Tons</u>		<u>Solid</u>	<u>TOTAL</u>		<u>Solid</u>	<u>TOTAL</u>
Sanitary Waste		734.82	734.82		734.82	734.82
Hazardous Waste						
State Regulated *		0.00	0.00		0.00	0.00
RCRA Regulated		2.24	2.24		0.43	0.43
TSCA Regulated		0.00	0.00		0.14	0.14

† - Important, see Appendix D for Margin-of-Error Information for the site(s) in this state.

* - Indicates that no waste of this type was generated at the site(s) in this state.

DOE Sites And Number Of Employees

Site Code	Site Name	Total Number Of Employees	
		DOE	Prime Contractor
1	Naval Petroleum Reserve Number 3	15	135

4.0 DOE Management Clusters

In April 1993, the Secretary of Energy redefined the mission of the DOE and realigned its organizational structure to reflect current National needs and goals. Figure 4.1 lists the missions of the new DOE organizational structure.

Figure 4.1 *Missions of the DOE Organizational Structure*

The DOE 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.

Missions of the DOE Organizational Structure

- Coordinate Energy, Environment, and Economic Policy
 - Achieve Economic Security
 - Maintain National Security
 - Clean Up Weapons Facilities
-

4.1 DOE Organizational Structure

DOE's organizational realignment grouped several distinct operational programs into three principal programmatic management clusters and supporting staff offices. These management clusters include the Energy Programs, Weapons/Waste Clean Up Programs, and Science and Technology Programs. Virtually all DOE operational programs that generate waste are included in one of these three clusters. Figure 4.2 presents an overview of the new DOE organizational structure, representative of DOE's future direction. The highlighted boxes within this figure represent the three primary management clusters and the operational programs which generated waste included in this Report.

Under this organization, the Secretary's role as Chief Executive Officer is to provide the vision, overall programmatic leadership, and management direction to DOE. The role of DOE's Chief Operating Officer within the Office of the Secretary is filled by the Deputy Secretary of Energy. The Deputy Secretary also oversees Energy Programs, while the Under Secretary oversees the Weapons/Waste Clean Up Programs and the Science and Technology Programs. An Associate Deputy Secretary provides oversight of the Field Operations Management. The overall missions of each programmatic management cluster are defined below.

4.1.1 Weapons/Waste Clean Up Programs

The Weapons/Waste Clean Up Programs cluster is responsible for safely maintaining the United States arsenal of nuclear weapons, including dismantlement and production operations, and remediation at nuclear weapons facilities. In addition, this management cluster develops non-proliferation detection and arms control verification technologies through work done at DOE weapons laboratories. The Weapons/Waste Clean Up Programs consist of the *Defense Programs (DP)*, *Environmental Restoration and Waste Management Program (EM)*, and the *Intelligence and National Security Program*. The Intelligence and National Security

Figure 4.2 DOE Organizational Structure

Program did not meet the minimum threshold criteria established for this Report; therefore, no waste generation data from this operational program are included.

4.1.2 Energy Programs

Energy Programs combines the energy supply and demand functions under one management cluster. This cluster aims at integrating the diverse DOE programmatic activities relating to energy efficiency, energy production, energy supply, power transmission, and civilian radioactive waste management. The Energy Programs cluster focuses on activities that will promote the Nation's reliance on clean, economical energy sources; strengthen the Nation's security and economic competitiveness; and reduce pollution. Six operational programs are grouped under Energy Programs. Only five of these operational programs generated waste covered by this Report. Included in this Report are the *Energy Efficiency and Renewable Energy Program (EE)*, *Nuclear Energy Program (NE)*, *Civilian Radioactive Waste Management Program (RW)*, *Fossil Energy Program (FE)*, and the *Power Marketing Administration (PM)*. Under the current organizational structure, the former Conservation and Renewable Energy Program was renamed as the *Energy Efficiency and Renewable Energy Program*. The role of this new operational program is the same as the old program with the exception of the oversight responsibility for the five regional power marketing administrations, which now report to the Office of the Deputy Secretary.

4.1.3 Science and Technology Programs

The Science and Technology Programs cluster develops innovative, clean, and efficient energy technologies; develops techniques for waste clean up, pollution prevention, and environmental protection; conducts basic research; supports technology transfer; assists in dismantling nuclear weapons and curbing nuclear proliferation; and provides advanced education and training in science, mathematics, technology, and engineering. This management cluster includes the *Energy Research Program (ER)*, the *Science Education and Technical Information Program (ET)*, and the Laboratory Management Program. This Report only addresses waste minimization activities with the *Energy Research Program* and *Science Education and Technical Information Program*.

4.2 Operations Management

Responsibility for strategic planning, management coordination, and oversight of field operations has been centralized in the Office of the Associate Deputy Secretary for Field Management, which reports to the Secretary of Energy. The responsibilities of this office include assessments of work tasks assigned to the field and the adequacy of resources for infrastructure requirements, performance of landlord functions, and facilities coordination.

DOE Headquarters Operations is responsible for program direction, including policy formulation, while day-to-day program execution and operation has been decentralized to Operations Offices in the field. In this organization, functional responsibility for the Albuquerque, Chicago, Fernald, Idaho, Nevada, Oak Ridge,

Richland, Rocky Flats, San Francisco, and Savannah River Operations Offices is delegated to the Office of the Associate Deputy Secretary for Field Management.

4.3 Other Programs

The only DOE activity that reported waste outside of the Energy Programs, Weapons/Waste Clean Up Programs, and Science and Technology Programs clusters is the New Production Reactor Program (NP). This office is no longer in existence and waste from its activities is reported separately in this chapter.

4.4 Lead and Additional Reporting Sites for DOE's Operational Programs

Waste generation totals in Chapters 5.0, 6.0, and 7.0 of this Report represent the data provided by the lead and additional reporting sites within each operational program. Each reporting site has one lead operational program toward which its primary mission is directed. At many sites, multiple operational programs could be present, fund work, and generate wastes. This Report identifies all reporting sites at which an operational program has a presence and generates wastes. It also identifies where an operational program has a primary (i.e., lead reporting site) or secondary (i.e., additional reporting site) role at the site. Lead and additional reporting sites for DOE's operational programs are listed in Sections 5.1 through Section 7.2. Data from lead reporting sites and additional reporting sites have been combined to represent the waste generation total for each operational program.

4.5 Waste Generation by Management Cluster

The Weapons/Waste Clean Up Programs cluster is responsible for the overwhelming majority of DOE's radioactive waste, generating 127,000 cubic meters in 1991 and 131,000 cubic meters in 1992. The Energy Programs cluster generated 5,960 cubic meters of radioactive waste in 1991 and 4,970 cubic meters in 1992. The generation of radioactive waste by the Science and Technology Programs cluster also decreased in 1992, declining to 4,950 cubic meters from 5,220 cubic meters in 1991. The generation of radioactive waste by the former New Production Reactor Program was relatively insignificant, representing less than 0.1 percent of DOE's total radioactive waste in 1991 and 1992.

The Energy Programs cluster became the largest generator of hazardous waste in 1992 as a result of a large increase in TSCA regulated waste generated by the Power Marketing Administration. The Energy Programs cluster generated 23,600 metric tons of hazardous waste in 1992, increasing from 9,870 metric tons in 1991. The Weapons/Waste Clean Up Programs cluster managed to reduce hazardous waste generation from 13,700 metric tons in 1991 to 11,600 metric tons in 1992.

The Science and Technology Programs cluster also achieved a reduction in hazardous waste generation from 1,770 metric tons in 1991 to 1,370 metric tons in 1992. As with radioactive waste, the generation of hazardous waste by the New Production Reactor Program was relatively insignificant, representing about 0.02 percent of DOE's total hazardous waste in 1991 and 1992.

Figure 4.3 lists the radioactive and hazardous waste generated by the three principal management clusters and the New Production Reactor Program in 1991 and 1992, and graphically compares their percentages.

Figure 4.3 Waste Generation by Management Cluster

	Management Cluster	Radioactive (Cubic Meters)		Hazardous (Metric Tons)	
		1991	1992	1991	1992
	EP	5,960	4,970	9,870	23,600
	WP	127,000	131,000	13,700	11,600
	ST	5,220	4,950	1,770	1,370
	Others	77.6	107	5.55	5.62
	TOTAL*	138,000	141,000	25,300	36,600

Acronym	Cluster
EP	Energy Programs
WP	Weapons/Waste Clean Up Programs
ST	Science and Technology Programs

* 1991 and 1992 totals are rounded to three significant figures. These totals do not include sanitary waste generated in 1991 and 1992.

Waste Generation by Management Cluster

Radioactive

Hazardous

* 1991 and 1992 totals are rounded to three significant figures.

Chapters 5.0, 6.0, and 7.0 address the waste generation and waste minimization activities performed by the three principal management clusters. Chapter 8.0 discusses waste generation and waste minimization activities by Operations Management.

5.0 Weapons/Waste Clean Up Programs

The Weapons/Waste Clean Up Program generates the overwhelming majority of DOE's radioactive wastes.

Legend
 Acronym Operational Program
 DP Defense Programs
 EM Environmental Restoration and Waste Management Program

The Weapons/Waste Clean Up Programs cluster is responsible for maintaining the U.S. nuclear weapons arsenal and remediating contaminated nuclear weapons facilities. In addition, this management cluster develops non-proliferation detection and arms control verification technologies at DOE weapons laboratories. The Weapons/Waste Clean Up Programs consist of the *Defense Programs (DP)*, the *Environmental Restoration and Waste Management Program (EM)*, and the Intelligence and National Security Program. Since the Intelligence and National Security Program did not meet the minimum threshold reporting criteria, no data from waste generation activities in this operational program are included in this Report. Table 5.1 indicates the total radioactive and hazardous waste generated by the *Defense Programs* and the *Environmental Restoration and Waste Management Program* in 1991 and 1992.

Table 5.1 Weapons/Waste Clean Up Programs Radioactive and Hazardous Waste Generation in 1991-1992

Operational Program	Radioactive (Cubic Meters)		Hazardous (Metric Tons)	
	1991	1992	1991	1992
DP	31,700	21,900	9,760	8,540
EM	95,100	109,000	3,930	3,060
TOTAL*	127,000	131,000	13,790	11,600

* 1991 and 1992 totals are rounded to three significant figures. These totals do not include sanitary waste generated in 1991 and 1992.

The Weapons/Waste Clean Up Programs cluster is responsible for the overwhelming majority of DOE's radioactive waste, generating over 92 percent of the total radioactive waste in 1991 and 1992. The Weapons/Waste Clean Up Programs cluster is also a major generator of hazardous waste responsible for 54 percent of total DOE hazardous waste in 1991 and 32 percent in 1992.

5.1 Defense Programs (DP)

The mission of the *Defense Programs*, together with the relevant elements of the Department of Defense, is to maintain the Nation's nuclear deterrent. *Defense Programs* supports the existing nuclear weapons stockpile with a focus on the safety and security of existing weapons; research, development, and testing; weapons dismantlement; environmental, safety, and health compliance; reconfiguration of the weapons complex; and effective management of nuclear materials. Within its mission, *Defense Programs* also pursues dual use technology development and facilitates technology transfer to the private sector as a means to improve our Nation's economic future.

Tables 5.2 and 5.3 provide radioactive and hazardous waste generation amounts by waste type for the lead and additional reporting sites within the *Defense Programs* in 1991 and 1992.

Table 5.2 1991-1992 Radioactive Waste Generation by DP Reporting Sites

Legend		Site	Radioactive Waste (Cubic Meters)				
Acronym	Lead Sites		LLW	MLLW	MTRU	TRU	HLW
KCP	Kansas City Plant	1991 <u>Lead Sites:</u> KCP LLNL LANL Mound NLVF NTS Y-12 Oxnard Pantex Pinellas RFP SNL/CA SNL/NM SRS <u>Additional Sites:</u> ICPP INEL K-25 ORNL					
LLNL	Lawrence Livermore National Laboratory						
LANL	Los Alamos National Laboratory						
Mound	Mound Plant						
NLVF	North Las Vegas Facility						
NTS	Nevada Test Site						
Y-12	Oak Ridge Y-12 Plant						
Oxnard	Oxnard Facility						
Pantex	Pantex Plant						
Pinellas	Pinellas Plant						
RFP	Rocky Flats Plant						
SNL/CA	Sandia National Laboratories/California						
SNL/NM	Sandia National Laboratories/New Mexico						
SRS	Savannah River Site						

*1991 and 1992 totals are rounded to three significant figures.

Table 5.3 1991-1992 Hazardous Waste Generation by DP Reporting Sites

Legend		Site	Hazardous Waste (Metric Tons)		
Acronym	Lead Sites		State	RCRA	TSCA
KCP	Kansas City Plant	1991 <u>Lead Sites:</u> KCP LLNL LANL Mound NLVF NTS Y-12 Oxnard Pantex Pinellas RFP SNL/CA SNL/NM SRS <u>Additional Sites:</u> ICPP INEL K-25 ORNL	183	596	78.5
LLNL	Lawrence Livermore National Laboratory		442	500	39.1
LANL	Los Alamos National Laboratory		531	159	74.9
Mound	Mound Plant		36.4	53.7	23.2
NLVF	North Las Vegas Facility		218	85.8	10.4
NTS	Nevada Test Site		4.32	32.5	—
Y-12	Oak Ridge Y-12 Plant		10.6	798	272
Oxnard	Oxnard Facility		—	10.8	—
Pantex	Pantex Plant		3,780	445	46.1
Pinellas	Pinellas Plant		—	199	—
RFP	Rocky Flats Plant		—	37.2	21.2
SNL/CA	Sandia National Laboratories/California		19.4	31.2	9.23
SNL/NM	Sandia National Laboratories/New Mexico		185	147	217
SRS	Savannah River Site		—	464	1.60
			—	—	—
			—	0.3	—
			—	—	—
			—	—	—
Total 1991*			5,410	3,560	793
		1992 <u>Lead Sites:</u> KCP LLNL LANL Mound NLVF NTS Y-12 Oxnard Pantex Pinellas RFP SNL/CA SNL/NM SRS <u>Additional Sites:</u> ICPP INEL K-25 ORNL	304	317	531
			228	561	26.2
			700	83.7	171
			33.5	58.9	73.8
			6.48	42.1	—
			177	73.2	2.47
			18.6	830	79.3
			—	4.57	—
			2,840	423	68.5
			—	160	—
			—	21.0	1.51
			17.3	22.4	21.9
			338	137	128
			—	24.5	1.67
			—	—	—
			3.99	0.2	—
			—	—	—
			—	—	—
Total 1992*			4,670	2,760	1,110

*1991 and 1992 totals are rounded to three significant figures.

Principle activities at *Defense Programs* includes research, development, testing, manufacturing and assembly of nuclear and non-nuclear weapons components as well as disassembly of existing weapons stockpiles. *Defense Programs* activity contributed the second largest amount of radioactive waste generated complex-wide. In 1992, the *Defense Programs* generated 21,900 cubic meters of radioactive waste, down 31 percent from the amount of waste generated in 1991. During 1991 and 1992, radioactive waste generation occurred at the majority of *Defense Programs* sites.

The Savannah River Site is the only *Defense Programs* facility that generated HLW. In 1992, the Savannah River Site reduced its HLW output by 45 percent. This change is attributed to a reduction in processing activity and minimization of non-essential waste flows, specifically by decreasing the frequency of sump flushing.

In 1992, LLW accounted for approximately 17,400 cubic meters, 80 percent of the total radioactive waste generated by *Defense Programs*. The Savannah River Site, Los Alamos National Laboratory, and the Oak Ridge Y-12 Plant all showed significant decreases in the amount of LLW generated in 1992.

A significant portion of waste generated at *Defense Programs* is MTRU and MLLW. In 1992, the amount of mixed waste generated decreased approximately 1,180 cubic meters, 35 percent. The Los Alamos National Laboratory discontinued mixed waste generation in May 1992. This occurred in compliance with the DOE moratorium memorandum on mixed waste generated. In addition, the decommissioning of its hot cell facility, where expended fuel rods were dismantled, also contributed to the reduction of MLLW in 1992. At the Oak Ridge Y-12 Plant, changes in operational status as well as technology changes led to a decrease in the amount of MLLW.

In 1992, the *Defense Programs* activity generated 8,540 metric tons of hazardous waste. This amount represented 23 percent of the total amount of hazardous waste generated on a complex-wide basis. This is a 13 percent decrease from 1991. Although RCRA and State regulated waste generation decreased by a combined 17 percent in 1992, TSCA regulated waste generation increased 39 percent.

The combined reduction in State and RCRA hazardous waste was due to treatment activities at the Pantex Plant, recycling activities at the Savannah River Site, and the decrease of non-routine restoration activities at the Kansas City Plant. The increase in TSCA regulated waste was due to the removal of transformers containing oil contaminated with polychlorinated biphenyls at the Los Alamos National Laboratory and Kansas City Plant.

Several regulatory mandates, such as the Clean Air Act, require the development of alternative technologies such as solvent substitution. Furthermore, pursuant to the chlorofluorocarbon/chlorohydrocarbon phaseout agreed to in the "Montreal Protocol," elimination of ozone depleting chemicals are required on an accelerated schedule. In accordance with DOE's pollution prevention hierarchy, *Defense Programs* uses alternative solvents and technologies at its sites.

In addition to these waste minimization/pollution prevention efforts, the *Defense Programs* supports numerous research and development activities. Examples include the use of sensors and process monitors to minimize excess reagents; recycle/reuse methodologies for equipment, reagents, and by-products; unit processes that provide for process substitution rather than material substitution; systems analysis to reduce waste generation by optimizing process parameters; and automated systems and engineering controls to reduce worker exposure and increase safety.

5.2 Environmental Restoration and Waste Management Program (EM)

The *Environmental Restoration and Waste Management Program* manages the assessment and clean up of inactive DOE waste sites and facilities in compliance with Federal, State, and local regulations. In addition, the *Environmental Restoration and Waste Management Program* is responsible for directing a program of safe and effective waste management operations, including an aggressive research and development program to provide innovative treatment and disposal solutions. In conformance with applicable laws or agreements, the *Environmental Restoration and Waste Management Program* functions include program management for DOE waste management operations, environmental restoration, and applied research and development programs and activities; oversight of waste operations; and environmental restoration activities at DOE facilities, operations, or sites; corrective actions at facilities, operations, or sites; and development and promulgation of DOE program policy and plans.

The waste minimization program is one component of the mission of the *Environmental Restoration and Waste Management Program*. As more facilities and sites are decommissioned, decontaminated, and remediated, the program has begun to fully develop, promote, and implement waste minimization technologies and practices. However, because of the nature of environmental restoration activities, applying waste minimization techniques is a difficult but challenging task. Environmental restoration activities are directed toward 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. Waste minimization is applicable to the processes and techniques used to perform these activities so as to prevent or reduce the generation of new waste and pollutants where possible.

Tables 5.4 through 5.7 provide radioactive and hazardous waste generation amounts by waste type for the lead and additional reporting sites within the *Environmental Restoration and Waste Management Program* in 1991 and 1992.

Sites reporting to the *Environmental Restoration and Waste Management Program* generate a larger portion of radioactive waste than any other operational program. In 1992, these sites generated 109,000 cubic meters of radioactive waste, representing a 15 percent increase from 1991. This was caused by an increase in the amounts of MLLW, TRU, and HLW generated in 1992. The amount of MLLW generated increased 21,800 cubic meters, 36 percent, in 1992. This was due largely

Table 5.4 1991 Radioactive Waste Generation by EM Reporting Sites

Legend		Site	Radioactive Waste (Cubic Meters)				
Acronym	Lead Sites		LLW	MLLW	MTRU	TRU	HLW
BCLDP	Battelle Columbus Laboratories Decommissioning Project	1991					
Fernald	Fernald Environmental Management Project	Lead Sites:					
FUSRAP	Formerly Utilized Sites Remedial Action Program	BCLDP	—	—	—	—	—
GJPO	Grand Junction Projects Office	Fernald	6,670	81.0	—	—	—
Hanford	Hanford Site	FUSRAP	5,060	—	—	—	—
ICPP	Idaho Chemical Processing Plant	GJPO	0.2	0.6	—	—	—
INEL	Idaho National Engineering Laboratory	Hanford	3,870	1,760	5.24	18.2	—
LEHR	Laboratory for Energy-Related Health Research	ICPP	2,360	2.79	—	—	110
K-25	Oak Ridge K-25 Site	INEL	412	11.8	—	—	—
UMTRA	Uranium Mill Tailings Remedial Action Project	LEHR	10.0	—	—	—	—
WIPP	Waste Isolation Pilot Plant	K-25	629	56,900	—	—	—
WSSRAP	Weldon Spring Site Remedial Action Project	UMTRA	—	—	—	—	—
WVDP	West Valley Demonstration Project	WIPP	—	—	—	—	—
		WSSRAP	14.2	1.00	—	—	—
		WVDP	609	0.4	—	—	—
Acronym	Additional Sites	Additional Sites:					
Ames	Ames Laboratory	Ames	—	—	—	—	—
ANL-W	Argonne National Laboratory - West	ANL-W	—	—	—	—	—
ANL-E	Argonne National Laboratory - East	ANL-E	6.29	—	—	—	—
ETEC	Energy Technology Engineering Center	ETEC	197	—	—	—	—
Fermi	Fermi National Accelerator Laboratory	Fermi	—	—	—	—	—
ITRI	Inhalation Toxicology Research Institute	ITRI	—	—	—	—	—
KCP	Kansas City Plant	KCP	—	—	—	—	—
LBL	Lawrence Berkeley Laboratory	LBL	—	—	—	—	—
LLNL	Lawrence Livermore National Laboratory	LLNL	—	—	—	—	—
LANL	Los Alamos National Laboratory	LANL	1,050	34.1	1.90	—	—
Mound	Mound Plant	Mound	2,280	—	—	—	—
NTS	Nevada Test Site	NTS	—	—	—	—	—
ORNL	Oak Ridge National Laboratory	ORNL	272	—	—	—	—
Y-12	Oak Ridge Y-12 Plant	Y-12	378	664	—	—	—
PNL	Pacific Northwest Laboratory	PNL	—	—	—	—	—
PGDP	Paducah Gaseous Diffusion Plant	PGDP	—	—	—	—	—
Pantex	Pantex Plant	Pantex	—	—	—	—	—
Pinellas	Pinellas Plant	Pinellas	—	—	—	—	—
PETC/CDIF	Pitus. (PETC) Component Development & Integration Facility	PETC/CDIF	—	—	—	—	—
PORTS	Portsmouth Gaseous Diffusion Plant	PORTS	—	591	—	—	—
PPPL	Princeton Plasma Physics Laboratory	PPPL	—	—	—	—	—
RFP	Rocky Flats Plant	RFP	723	506	12.8	6.49	—
SNL/CA	Sandia National Laboratories/California	SNL/CA	—	—	—	—	—
SNL/NM	Sandia National Laboratories/New Mexico	SNL/NM	—	—	—	—	—
SRS	Savannah River Site	SRS	9,660	—	—	1.27	37.5
SLAC	Stanford Linear Accelerator Center	SLAC	—	—	—	—	—
Total 1991*			34,300	60,600	19.9	26.0	148

*1991 totals are rounded to three significant figures.

Table 5.5 1992 Radioactive Waste Generation by EM Reporting Sites

Legend		Site	Radioactive Waste (Cubic Meters)				
Acronym	Lead Sites		LLW	MLLW	MTRU	TRU	HLW
BCIDP	Battelle Columbus Laboratories Decommissioning Project	1992					
Fernald	Fernald Environmental Management Project	<u>Lead Sites:</u>					
FUSRAP	Formerly Utilized Sites Remedial Action Program	BCIDP	—	—	—	—	—
GJPO	Grand Junction Projects Office	Fernald	12,600	141	—	—	—
Hanford	Hanford Site	FUSRAP	128	39.8	—	—	—
ICPP	Idaho Chemical Processing Plant	GJPO	0.2	—	—	—	—
INEL	Idaho National Engineering Laboratory	Hanford	2,290	2,860	15.8	122	—
LEHR	Laboratory for Energy-Related Health Research	ICPP	1,610	70.4	—	—	83.3
K-25	Oak Ridge K-25 Site	INEL	191	54.7	—	—	—
UMTRA	Uranium Mill Tailings Remedial Action Project	LEHR	16.2	—	—	—	—
WIPP	Waste Isolation Pilot Plant	K-25	2,150	77,700	—	—	—
WSSRAP	Weldon Spring Site Remedial Action Project	UMTRA	—	—	—	—	—
WVDP	West Valley Demonstration Project	WIPP	—	—	—	—	—
		WSSRAP	21.2	0.9	—	—	—
		WVDP	719	3.85	—	—	—
<u>Acronym</u>	<u>Additional Sites</u>	<u>Additional Sites:</u>					
Ames	Ames Laboratory	Ames	—	—	—	—	—
ANL-W	Argonne National Laboratory - West	ANL-W	—	—	—	—	—
ANL-E	Argonne National Laboratory - East	ANL-E	8.08	0.1	—	—	—
ETEC	Energy Technology Engineering Center	ETEC	141	645	—	—	—
Fermi	Fermi National Accelerator Laboratory	Fermi	—	—	—	—	—
ITRI	Inhalation Toxicology Research Institute	ITRI	—	—	—	—	—
KCP	Kansas City Plant	KCP	—	—	—	—	—
LBL	Lawrence Berkeley Laboratory	LBL	—	—	—	—	—
LLNL	Lawrence Livermore National Laboratory	LLNL	1.02	1.09	—	—	—
LANL	Los Alamos National Laboratory	LANL	512	19.4	0.8	—	—
Mound	Mound Plant	Mound	1,390	—	—	—	—
NTS	Nevada Test Site	NTS	—	—	—	—	—
ORNL	Oak Ridge National Laboratory	ORNL	376	—	—	—	—
Y-12	Oak Ridge Y-12 Plant	Y-12	337	402	—	—	—
PNL	Pacific Northwest Laboratory	PNL	—	—	—	—	—
PGDP	Paducah Gaseous Diffusion Plant	PGDP	—	—	—	—	—
Pantex	Pantex Plant	Pantex	—	—	—	—	—
Pinellas	Pinellas Plant	Pinellas	—	—	—	—	—
PETC/CDIF	Pitts. (PETC) Component Development & Integration Facility	PETC/CDIF	—	—	—	—	—
PORTS	Portsmouth Gaseous Diffusion Plant	PORTS	—	99.6	—	—	—
PPPL	Princeton Plasma Physics Laboratory	PPPL	—	—	—	—	—
RFP	Rocky Flats Plant	RFP	134	380	0.7	0.5	—
SNL/CA	Sandia National Laboratories/California	SNL/CA	—	—	—	—	—
SNL/NM	Sandia National Laboratories/New Mexico	SNL/NM	—	—	—	—	—
SRS	Savannah River Site	SRS	4,130	5.04	—	0.4	86.1
SLAC	Stanford Linear Accelerator Center	SLAC	—	—	—	—	—
Total 1992*			26,700	82,400	17.3	123	169

*1992 totals are rounded to three significant figures.

Table 5.6 1991 Hazardous Waste Generation by EM Reporting Sites

Legend		Hazardous Waste (Metric Tons)		
Acronym	Lead Sites	State	RCRA	TSCA
BCLDP	Battelle Columbus Laboratories Decommissioning Project			
Fernald	Fernald Environmental Management Project			
FUSRAP	Formerly Utilized Sites Remedial Action Program			
GJPO	Grand Junction Projects Office			
Hanford	Hanford Site			
ICPP	Idaho Chemical Processing Plant			
INEL	Idaho National Engineering Laboratory			
LEHR	Laboratory for Energy-Related Health Research			
K-25	Oak Ridge K-25 Site			
UMTRA	Uranium Mill Tailings Remedial Action Project			
WIPP	Waste Isolation Pilot Plant			
WSSRAP	Weldon Spring Site Remedial Action Project			
WVDP	West Valley Demonstration Project			
Acronym	Additional Sites			
Ames	Ames Laboratory			
ANL-W	Argonne National Laboratory - West			
ANL-E	Argonne National Laboratory - East			
ETEC	Energy Technology Engineering Center			
Fermi	Fermi National Accelerator Laboratory			
ITRI	Inhalation Toxicology Research Institute			
KCP	Kansas City Plant			
LBL	Lawrence Berkeley Laboratory			
LLNL	Lawrence Livermore National Laboratory			
LANL	Los Alamos National Laboratory			
Mound	Mound Plant			
NTS	Nevada Test Site			
ORNL	Oak Ridge National Laboratory			
Y-12	Oak Ridge Y-12 Plant			
PNL	Pacific Northwest Laboratory			
PGDP	Paducah Gaseous Diffusion Plant			
Pantex	Pantex Plant			
Pinellas	Pinellas Plant			
PETC/CDIF	Pitts. (PETC) Component Development & Integration Facility			
PORTS	Portsmouth Gaseous Diffusion Plant			
PPPL	Princeton Plasma Physics Laboratory			
RFP	Rocky Flats Plant			
SNL/CA	Sandia National Laboratories/California			
SNL/NM	Sandia National Laboratories/New Mexico			
SRS	Savannah River Site			
SLAC	Stanford Linear Accelerator Center			
1991				
Lead Sites:				
BCLDP		—	—	—
Fernald		—	—	0.6
FUSRAP		—	—	0.8
GJPO		—	0.8	0.2
Hanford		22.4	150	46.4
ICPP		—	13.1	4.00
INEL		16.4	9.56	5.48
LEHR		—	—	—
K-25		—	—	805
UMTRA		—	—	—
WIPP		—	3.02	—
WSSRAP		0.9	—	0.4
WVDP		—	1.46	2.64
Additional Sites:				
Ames		—	—	—
ANL-W		—	—	—
ANL-E		—	1.43	—
ETEC		—	163	9.08
Fermi		—	—	—
ITRI		—	—	—
KCP		—	—	—
LBL		—	89.5	—
LLNL		—	—	—
LANL		277	71.2	23.1
Mound		—	—	—
NTS		—	11.6	—
ORNL		5.07	13.4	—
Y-12		0.2	13.0	0.8
PNL		—	—	—
PGDP		—	—	—
Pantex		1,540	—	—
Pinellas		—	—	—
PETC/CDIF		—	—	—
PORTS		—	—	—
PPPL		—	—	—
RFP		—	1.81	—
SNL/CA		2.13	3.42	—
SNL/NM		0.6	1.90	—
SRS		—	0.1	—
SLAC		616	—	—
Total 1991*		2,480	548	899

*1991 totals are rounded to three significant figures.

Table 5.7 1992 Hazardous Waste Generation by EM Reporting Sites

Legend		Hazardous Waste (Metric Tons)			
Acronym	Lead Sites	Site	State	RCRA	TSCA
BCLDP	Battelle Columbus Laboratories Decommissioning Project	1992			
Fernald	Fernald Environmental Management Project	<u>Lead Sites:</u>			
FUSRAP	Formerly Utilized Sites Remedial Action Program	BCLDP	—	—	—
GJPO	Grand Junction Projects Office	Fernald	—	4.03	1.37
Hanford	Hanford Site	FUSRAP	—	—	47.0
ICPP	Idaho Chemical Processing Plant	GJPO	—	0.6	0.1
INEL	Idaho National Engineering Laboratory	Hanford	541	45.1	111
LEHR	Laboratory for Energy-Related Health Research	ICPP	—	8.38	17.4
K-25	Oak Ridge K-25 Site	INEL	5.05	8.49	3.40
UMTRA	Uranium Mill Tailings Remedial Action Project	LEHR	—	—	—
WIPP	Waste Isolation Pilot Plant	K-25	—	—	334
WSSRAP	Weldon Spring Site Remedial Action Project	UMTRA	—	—	—
WVDP	West Valley Demonstration Project	WIPP	—	1.04	—
		WSSRAP	0.7	—	0.2
		WVDP	0.2	11.6	—
<u>Acronym</u>	<u>Additional Sites</u>	<u>Additional Sites:</u>			
Ames	Ames Laboratory	Ames	—	—	—
ANL-W	Argonne National Laboratory - West	ANL-W	—	—	—
ANL-E	Argonne National Laboratory - East	ANL-E	—	10.6	—
ETEC	Energy Technology Engineering Center	ETEC	241	168	7.43
Fermi	Fermi National Accelerator Laboratory	Fermi	—	—	—
ITRI	Inhalation Toxicology Research Institute	ITRI	—	—	—
KCP	Kansas City Plant	KCP	—	79.1	—
LBL	Lawrence Berkeley Laboratory	LBL	—	—	—
LLNL	Lawrence Livermore National Laboratory	LLNL	4.94	15.1	1.87
LANL	Los Alamos National Laboratory	LANL	398	47.4	60.5
Mound	Mound Plant	Mound	—	—	—
NTS	Nevada Test Site	NTS	—	22.7	—
ORNL	Oak Ridge National Laboratory	ORNL	6.01	12.3	—
Y-12	Oak Ridge Y-12 Plant	Y-12	1.69	9.74	1.07
PNL	Pacific Northwest Laboratory	PNL	—	—	—
PGDP	Paducah Gaseous Diffusion Plant	PGDP	—	—	—
Pantex	Pantex Plant	Pantex	779	—	—
Pinellas	Pinellas Plant	Pinellas	—	—	—
PETC/CDIF	Pitts. (PETC) Component Development & Integration Facility	PETC/CDIF	—	—	—
PORTS	Portsmouth Gaseous Diffusion Plant	PORTS	—	—	—
PPPL	Princeton Plasma Physics Laboratory	PPPL	—	—	—
RFP	Rocky Flats Plant	RFP	—	0.8	—
SNL/CA	Sandia National Laboratories/California	SNL/CA	1.89	2.46	—
SNL/NM	Sandia National Laboratories/New Mexico	SNL/NM	1.08	1.71	—
SRS	Savannah River Site	SRS	—	4.90	—
SLAC	Stanford Linear Accelerator Center	SLAC	41.2	—	—
Total 1992*			2,020	454	585

*1992 totals are rounded to three significant figures.

to wastewaters generated by the TSCA Incinerator Facility at the Oak Ridge K-25 Site. In 1991 and 1992, 90 percent of DOE's total mixed waste was wastewater from the TSCA Incinerator Facility at the Oak Ridge K-25 Site. The amount of TRU waste increased 97 cubic meters from 1991 to 1992. This increase was due to the replacement and disposal of contaminated hypalon gloves at the Hanford Site. The generation of HLW increased by 14 percent, from 148 cubic meters in 1991 to 169 cubic meters in 1992.

Due to the changes in the operational status at many *Environmental Restoration and Waste Management Program* sites, a significant reduction and/or avoidance in the quantities of LLW were noted. Overall, the *Environmental Restoration and Waste Management Program* sites generated 22 percent less LLW in 1992 than in 1991. The largest decrease was at the Formerly Utilized Sites Remedial Action Program, where the amount of LLW generated decreased by 97 percent, from 5,060 cubic meters in 1991 to 128 cubic meters in 1992. This was due to the completion of remediation activities at both the Albany Research Center in Oregon and Elza Gate in Tennessee, where contaminated soil, building material, and equipment, as well as secondary waste, such as contaminated clothing, gloves, etc., were generated.

Increases in LLW generation were noted in some *Environmental Restoration and Waste Management Program* activities. The increase in LLW generation at the Fernald Environmental Management Project was due to removal actions being performed in accordance with its EPA Consent Agreement. Four major removal actions were performed in 1992, resulting in an additional 5,900 cubic meters, an 88 percent increase in 1992. The amount of LLW also increased significantly at the Oak Ridge K-25 Site, where increases were largely due to the clean-out of vaults containing LLW.

Significant reductions in the quantities and toxicity of RCRA, State, and TSCA hazardous wastes generated at various *Environmental Restoration and Waste Management Program* sites have been achieved through good operating practices, product substitutions, and waste avoidance. The amount of RCRA regulated hazardous waste generated by *Environmental Restoration and Waste Management Program* sites in 1992 totaled approximately 454 metric tons. This is a 94 metric ton, 17 percent, decrease from 1991, in which 548 metric tons were generated. State regulated hazardous waste, although the largest amount of hazardous waste generated by *Environmental Restoration and Waste Management Program* sites, decreased 460 cubic meters, 19 percent in 1992. TSCA regulated hazardous waste also decreased from 899 metric tons in 1991 to 585 metric tons in 1992, a 35 percent reduction.

6.0 Energy Programs

DOE's Energy Programs office promotes clean and economical energy sources.

The Energy Programs combines the energy supply and demand functions under one management cluster. The Energy Programs cluster focuses on activities that will promote the Nation's reliance on clean, economical energy sources; strengthen the Nation's security and economic competitiveness; and reduce pollution. Included in this section is information on waste generation and waste minimization accomplishments for the *Energy Efficiency and Renewable Energy Program (EE)*; *Fossil Energy Program (FE)*; *Nuclear Energy Program (NE)*; *Power Marketing Administration (PM)*; and *Civilian Radioactive Waste Management Program (RW)*. In 1992, Energy Programs activity resulted in approximately 65 percent of the total DOE hazardous waste generation as compared to 39 percent in 1991. However, the Energy Programs production of radioactive waste decreased from approximately five percent of the DOE total in 1991 to four percent in 1992. In 1991 and 1992, the *Nuclear Energy Program* was the primary generator of radioactive waste within the Energy Programs, while the *Power Marketing Administration* generated the most hazardous waste. Table 6.1 indicates radioactive and hazardous waste generated by the *Energy Efficiency and Renewable Energy Program*; *Fossil Energy Program*; *Nuclear Energy Program*; *Power Marketing Administration*; and *Civilian Radioactive Waste Management Program* in 1991 and 1992.

Table 6.1 Energy Programs Radioactive and Hazardous Waste Generation in 1991-1992

Legend	
Acronym	Operational Program
EE	Energy Efficiency and Renewable Energy Program
FE	Fossil Energy Program
NE	Nuclear Energy Program
PM	Power Marketing Administration
RW	Civilian Radioactive Waste Management Program

Operational Program	Radioactive (Cubic Meters)		Hazardous (Metric Tons)	
	1991	1992	1991	1992
EE	—	—	31.6	80.3
FE	2.89	0.3	97.3	460
NE	5,960	4,970	658	846
PM	—	—	9,080	22,200
RW	—	—	0.2	0.2
TOTAL *	5,960	4,970	9,870	23,600

* 1991 and 1992 totals are rounded to three significant figures. These totals do not include sanitary waste generated in 1991 and 1992.

6.1 Energy Efficiency and Renewable Energy Program (EE)

The *Energy Efficiency and Renewable Energy Program* formulates and directs programs designed to increase the production and use of renewable energy and improve the energy efficiency of the transportation, building, industrial, and utility sectors through support of research, development, and technology transfer activities. The *Energy Efficiency and Renewable Energy Program* functions include assessing the impacts of renewable energy use and energy efficiency on the environment and the economy; developing and implementing national energy efficiency and renewable energy strategies; providing for development and maintenance of the facilities and programs of the National Renewable Energy Laboratory; administering statutorily mandated assistance programs; bringing an outside

focus on renewable energy and energy efficiency issues; providing management and administrative support to the Office of Alcohol Fuels; and conducting a Federal Energy Management Program to promote the energy efficient construction and renovation of Federal facilities. Table 6.2 provides hazardous waste generation amounts by waste type for the lead and additional reporting sites within the *Energy Efficiency and Renewable Energy Program* in 1991 and 1992.

Table 6.2 1991-1992 Hazardous Waste Generation by EE Reporting Sites

Site	Hazardous Waste (Metric Tons)		
	State	RCRA	TSCA
1991			
<u>Lead Site:</u> NREL	0.8	4.59	—
<u>Additional Sites:</u> ANL-E	—	0.1	—
INEL	—	—	—
LBL	—	—	—
ORNL	4.71	12.4	—
SNL/NM	1.13	7.91	—
Total 1991*	6.64	25.0	—
1992			
<u>Lead Site:</u> NREL	0.4	52.4	—
<u>Additional Sites:</u> ANL-E	—	0.8	—
INEL	—	—	—
LBL	—	—	—
ORNL	5.58	11.5	—
SNL/NM	2.07	7.47	—
Total 1992*	8.05	72.2	—

*1991 and 1992 totals are rounded to three significant figures.

The National Renewable Energy Laboratory serves as the primary site for *Energy Efficiency and Renewable Energy Program* activities. Waste is generated from restoration activities, routine laboratory procedures, and research and development activities. The majority of the waste generated consisted of RCRA regulated hazardous waste from remediation activities. In 1992, 73 percent, 52 metric tons, of the total waste generated was RCRA regulated hazardous waste. Overall, the amount of hazardous waste generated by the National Renewable Energy Laboratory increased 48 metric tons in 1992. This increase was reflected in the remediation of an abandoned Colorado State Patrol pistol range that resulted in the removal of almost 49 metric tons of contaminated soil containing lead. Other sites that attributed very small portions of waste to the *Energy Efficiency and Renewable Energy Program* activities include the Oak Ridge National Laboratory, Sandia National Laboratories/New Mexico, and Argonne National Laboratory-East.

Legend	
Acronym	Lead Site
NREL	National Renewable Energy Laboratory
Acronym	Additional Sites
ANL-E	Argonne National Laboratory - East
INEL	Idaho National Engineering Laboratory
LBL	Lawrence Berkeley Laboratory
ORNL	Oak Ridge National Laboratory
SNL/NM	Sandia National Laboratories/New Mexico

6.2 Fossil Energy Program (FE)

The *Fossil Energy Program* manages domestic fossil fuel programs that focus on the production and use of coal, oil, and natural gas. These programs include activities related to research and development, production and storage of petroleum, and regulatory activities related to the Public Utility Regulatory Policies Act of 1978. Tables 6.3 and 6.4 provide radioactive and hazardous waste generation amounts by waste type for the lead and additional reporting sites within the *Fossil Energy Program* in 1991 and 1992.

Table 6.3 1991-1992 Radioactive Waste Generation by FE Reporting Sites

Site	Radioactive Waste (Cubic Meters)				
	LLW	MLLW	MTRU	TRU	HLW
1991					
<u>Lead Sites:</u>					
METC	2.89	—	—	—	—
NIPER	—	—	—	—	—
NOSR-3	—	—	—	—	—
NPR-1	—	—	—	—	—
NPR-3	—	—	—	—	—
PETC	—	—	—	—	—
PETC/CDIF	—	—	—	—	—
SPR	—	—	—	—	—
<u>Additional Sites:</u>					
INEL	—	—	—	—	—
LBL	—	—	—	—	—
ORNL	—	—	—	—	—
SNL/NM	—	—	—	—	—
Total 1991*	2.89	—	—	—	—
1992					
<u>Lead Sites:</u>					
METC	0.3	—	—	—	—
NIPER	—	—	—	—	—
NOSR-3	—	—	—	—	—
NPR-1	—	—	—	—	—
NPR-3	—	—	—	—	—
PETC	—	—	—	—	—
PETC/CDIF	—	—	—	—	—
SPR	—	—	—	—	—
<u>Additional Sites:</u>					
INEL	—	—	—	—	—
LBL	—	—	—	—	—
ORNL	—	—	—	—	—
SNL/NM	—	—	—	—	—
Total 1992*	0.3	—	—	—	—

Legend	
Acronym	Lead Sites
METC	Morgantown Energy Technology Center
NIPER	National Institute for Petroleum and Energy Research
NOSR-3	Naval Oil Shale Reserve Number 3
NPR-1	Naval Petroleum Reserve Number 1
NPR-3	Naval Petroleum Reserve Number 3
PETC	Pittsburgh Energy Technology Center
PETC/CDIF	Pitts. (PETC) Component Development & Integration Facility
SPR	Strategic Petroleum Reserve
Acronym	Additional Sites
INEL	Idaho National Engineering Laboratory
LBL	Lawrence Berkeley Laboratory
ORNL	Oak Ridge National Laboratory
SNL/NM	Sandia National Laboratories/New Mexico

*1991 and 1992 totals are rounded to three significant figures. If the total was less than one cubic meter, it was rounded to the nearest tenth.

Table 6.4 1991-1992 Hazardous Waste Generation by FE Reporting Sites

Site	Hazardous Waste (Metric Tons)		
	State	RCRA	TSCA
1991			
<u>Lead Sites:</u>			
METC	—	3.97	—
NIPER	—	14.8	—
NOSR-3	—	—	—
NPR-1	37.7	3.69	—
NPR-3	—	2.24	—
PETC	—	22.0	5.95
PETC/CDIF	1.63	2.72	—
SPR	—	2.29	—
<u>Additional Sites:</u>			
INEL	—	—	—
LBL	—	—	—
ORNL	—	—	—
SNL/NM	—	0.3	—
Total 1991*	39.3	52.0	5.95
1992			
<u>Lead Sites:</u>			
METC	—	12.4	0.1
NIPER	—	10.2	—
NOSR-3	—	—	—
NPR-1	341	70.5	—
NPR-3	—	0.4	0.1
PETC	—	16.9	3.83
PETC/CDIF	0.5	0.8	0.3
SPR	—	2.26	—
<u>Additional Sites:</u>			
INEL	—	—	—
LBL	—	—	—
ORNL	—	—	—
SNL/NM	0.1	0.4	—
Total 1992*	342	114	4.33

*1991 and 1992 totals are rounded to three significant figures.

Legend	
Acronym	Lead Sites
METC	Morgantown Energy Technology Center
NIPER	National Institute for Petroleum and Energy Research
NOSR-3	Naval Oil Shale Reserve Number 3
NPR-1	Naval Petroleum Reserve Number 1
NPR-3	Naval Petroleum Reserve Number 3
PETC	Pittsburgh Energy Technology Center
PETC/CDIF	Pitts. (PETC) Component Development & Integration Facility
SPR	Strategic Petroleum Reserve
Acronym	Additional Sites
INEL	Idaho National Engineering Laboratory
LBL	Lawrence Berkeley Laboratory
ORNL	Oak Ridge National Laboratory
SNL/NM	Sandia National Laboratories/New Mexico

Fossil Energy Program sites generally fall into one of three categories. These include research and development, oil and gas production and exploration, or petroleum storage. Waste from research facilities is typically generated by laboratory activities, while waste from the oil/gas and exploration production facilities is associated with well drilling and oil/gas production and distribution. The waste generated at petroleum storage facilities results primarily from facility maintenance. The largest waste types generated by the *Fossil Energy Program* sites in 1992 were RCRA and State regulated hazardous wastes. From 1991 to 1992, these waste types increased 62 metric tons and 303 metric tons, respectively. Increases in RCRA regulated hazardous waste at *Fossil Energy Program* facilities were primarily due to the one time disposal of large amounts of potassium hydroxide from gas processing activities at the Naval Petroleum Reserve No. 1 Site. In 1992, the 90 percent decrease in LLW was attributable to the elimination of a gasifier system that used three low-level nuclear sources at the Morgantown Energy Technology Center.

6.3 Nuclear Energy Program (NE)

The *Nuclear Energy Program* formulates and directs research and development associated with the production of atomic energy, through both civilian and naval nuclear reactor development. The *Nuclear Energy Program's* responsibilities include managing and directing nuclear energy technology within the confines of nuclear reactor development; supporting the research and development of an advanced light water reactor technology for future energy needs; maintaining an institutional knowledge of nuclear reactor and fuel cycle/actinide programs; conducting the Naval Reactors Program; and approving start up and/or re-start of assigned nuclear reactors and non-reactor nuclear facilities.

Operational activities at the four major *Nuclear Energy Program* sites produced the majority of radioactive waste generated within the Energy Programs cluster. The Paducah Gaseous Diffusion Plant and the Portsmouth Gaseous Diffusion Plant separate uranium isotopes through gaseous diffusion, producing enriched uranium for nuclear fuel. Activities at Argonne National Laboratory-West are tied to experiments supporting the Integral Fast Reactor, while the Energy Technology Engineering Center is involved in the research, testing, and development of subsystems used in nuclear power generating facilities.

The amount of waste generated at the *Nuclear Energy Program* sites during 1992 increased for all waste types except for LLW and State regulated hazardous waste, which decreased 37 percent and 36 percent, respectively. The majority of waste generated by *Nuclear Energy Program* sites in 1992 was LLW, accounting for 70 percent of all *Nuclear Energy Program* radioactive wastes in 1992. LLW declined at the Portsmouth and Paducah Gaseous Diffusion Plants due to environmental restoration activities, facility modifications, and various other process related changes.

Tables 6.5 and 6.6 provide radioactive and hazardous waste generation amounts by waste type for the lead and additional reporting sites within the *Nuclear Energy Program* in 1991 and 1992.

Table 6.5 1991-1992 Radioactive Waste Generation by NE Reporting Sites

Site	Radioactive Waste (Cubic Meters)				
	LLW	MLLW	MTRU	TRU	HLW
1991					
<u>Lead Sites:</u>					
ANL-W	210	0.4	0.4	1.25	—
ETEC	—	—	—	—	—
PGDP	1,870	137	—	—	—
PORTS	2,230	275	—	—	—
<u>Additional Sites:</u>					
ANL-E	14.9	0.2	—	0.6	—
INEL	279	36.8	—	—	—
LLNL	—	—	—	—	—
LANL	686	19.8	—	—	—
K-25	87.8	7.53	—	—	—
ORNL	97.0	—	—	—	—
SNL/NM	—	—	—	—	—
Total 1991*	5,480	477	0.4	1.85	—
1992					
<u>Lead Sites:</u>					
ANL-W	188	0.7	0.4	0.2	—
ETEC	—	—	—	—	—
PGDP	500	824	—	—	—
PORTS	1,650	640	—	—	—
<u>Additional Sites:</u>					
ANL-E	13.4	0.1	0.2	2.77	—
INEL	837	38.1	—	—	—
LLNL	6.43	2.88	—	—	—
LANL	135	4.57	—	—	—
K-25	0.5	2.76	—	—	—
ORNL	134	—	—	—	—
SNL/NM	—	—	—	—	—
Total 1992*	3,460	1,510	0.6	2.97	—

*1991 and 1992 totals are rounded to three significant figures. If the total was less than one cubic meter, it was rounded to the nearest tenth.

Legend

Acronym Lead Sites

ANL-W Argonne National Laboratory - West
ETEC Energy Technology Engineering Center
PGDP Paducah Gaseous Diffusion Plant
PORTS Portsmouth Gaseous Diffusion Plant

Acronym Additional Sites

ANL-E Argonne National Laboratory - East
INEL Idaho National Engineering Laboratory
LLNL Lawrence Livermore National Laboratory
LANL Los Alamos National Laboratory
K-25 Oak Ridge K-25 Site
ORNL Oak Ridge National Laboratory
SNL/NM Sandia National Laboratories/New Mexico

Table 6.6 1991-1992 Hazardous Waste Generation by NE Reporting Sites

Legend

Acronym Lead Sites

ANL-W Argonne National
Laboratory - West
ETEC Energy Technology
Engineering Center
PGDP Paducah Gaseous Diffusion
Plant
PORTS Portsmouth Gaseous
Diffusion Plant

Acronym Additional Sites

ANL-E Argonne National
Laboratory - East
INEL Idaho National Engineering
Laboratory
LLNL Lawrence Livermore
National Laboratory
LANL Los Alamos National
Laboratory
K-25 Oak Ridge K-25 Site
ORNL Oak Ridge National
Laboratory
SNL/NM Sandia National
Laboratories/New Mexico

Site	Hazardous Waste (Metric Tons)		
	State	RCRA	TSCA
1991			
<u>Lead Sites:</u>			
ANL-W	—	9.22	1.07
ETEC	22.9	13.6	3.85
PGDP	—	—	68.5
PORTS	—	—	248
<u>Additional Sites:</u>			
ANL-E	—	15.0	—
INEL	9.82	110	—
LLNL	—	—	—
LANL	103	31.0	14.6
K-25	—	—	—
ORNL	1.81	4.77	—
SNL/NM	—	—	—
Total 1991*	138	184	336
1992			
<u>Lead Sites:</u>			
ANL-W	—	23.0	5.45
ETEC	5.68	36.8	3.18
PGDP	—	—	189
PORTS	—	—	295
<u>Additional Sites:</u>			
ANL-E	—	23.6	—
INEL	2.32	130	—
LLNL	12.2	23.3	0.3
LANL	65.8	7.87	16.0
K-25	—	—	—
ORNL	2.15	4.40	—
SNL/NM	—	—	—
Total 1992*	88.2	249	509

*1991 and 1992 totals are rounded to three significant figures.

6.4 Power Marketing Administration (PM)

The *Power Marketing Administration* oversees the five *Power Marketing Administration* Offices, which provide energy services and maintain electrical and transmission facilities. Reporting sites within the *Power Marketing Administration* represent electrical power marketing and transmission facilities that develop and maintain the largest power transmission system in the United States. These include the Alaska Power Administration; Bonneville Power Administration; Southeastern, Southwestern, and Western Area Power Administration. The Southeastern and Southwestern Power Administrations did not exceed minimum threshold reporting amounts for waste generation in 1991 and 1992 and are not included in this Report.

Table 6.7 provides hazardous waste generation amounts by waste type for the lead reporting sites within the *Power Marketing Administration* in 1991 and 1992. The *Power Marketing Administration* sites did not generate any radioactive waste in 1991 and 1992.

Table 6.7 1991-1992 Hazardous Waste Generation by PM Reporting Sites

Legend		Hazardous Waste (Metric Tons)		
Acronym	Lead Sites	State	RCRA	TSCA
APA	Alaska Power Administration	1991		
BPA	Bonneville Power Administration			
WAPA	Western Area Power Administration			
Total 1991*				
1992				
Lead Sites:		1992		
APA				
BPA				
WAPA				
Total 1992*				

Site	State	RCRA	TSCA
1991			
<u>Lead Sites:</u>			
APA	0.2	—	—
BPA	356	28.3	5,590
WAPA	2,890	12.3	204
Total 1991*	3,250	40.6	5,790
1992			
<u>Lead Sites:</u>			
APA	0.2	—	—
BPA	342	44.2	21,200
WAPA	300	3.21	353
Total 1992*	642	47.4	21,600

*1991 and 1992 totals are rounded to three significant figures.

The major waste generating activities in the *Power Marketing Administration* are clean up, environmental restoration, maintenance, and replacement of equipment containing polychlorinated biphenyl insulator fluids. These activities result in the generation of RCRA, State, and TSCA regulated wastes. Overall, the *Power Marketing Administration* sites experienced a 13,200 metric ton, 145 percent increase in the total generation of hazardous wastes in 1992. This was caused by a large increase in TSCA regulated waste, which rose from 5,790 metric tons in 1991 to approximately 21,600 metric tons in 1992. This rise was mainly from the replacement of capacitors containing polychlorinated biphenyls at the Bonneville Power Administration. On the other hand, a significant drop in State regulated hazardous waste was attributed to the completion of a one time major maintenance overhaul that occurred at the Western Area Power Administration in 1991.

6.5 Civilian Radioactive Waste Management Program (RW)

The *Civilian Radioactive Waste Management Program* is responsible for providing a repository for the disposal of HLW and spent nuclear fuel; transporting waste to the repository; and developing interim storage capabilities in accordance with the Nuclear Waste Policy Act, Public Law 97-425, as amended. The *Civilian Radioactive Waste Management Program's* activities include the planning of a future geologic repository and a Monitored Retrievable Storage Facility; managing the development and operation of a comprehensive system to transport spent nuclear fuel and HLW from the reactor site to the Monitored Retrievable Storage Facility and the repository; managing a quality assurance program to ensure compliance with Nuclear Regulatory Commission requirements related to waste isolation and worker safety; managing utility contracts with owners and generators of spent nuclear fuel and HLW management; and managing and administering the Nuclear Waste Fund. Table 6.8 provides hazardous waste generation amounts by waste type for the lead and additional reporting sites within the *Civilian Radioactive Waste Management Program* in 1991 and 1992. The *Civilian Radioactive Waste Management Program* sites did not generate any radioactive waste in 1991 and 1992.

Table 6.8 1991-1992 Hazardous Waste Generation by RW Reporting Sites

Legend	
Acronym	Lead Site
YMP	Yucca Mountain Site Characterization Project
Acronym	Additional Sites
INEL	Idaho National Engineering Laboratory
LBL	Lawrence Berkeley Laboratory
ORNL	Oak Ridge National Laboratory
SNL/NM	Sandia National Laboratories/New Mexico
WVDP	West Valley Demonstration Project

Site	Hazardous Waste (Metric Tons)		
	State	RCRA	TSCA
1991			
<u>Lead Site:</u> YMP	—	—	—
<u>Additional Sites:</u> INEL	—	—	—
LBL	—	—	—
ORNL	—	—	—
SNL/NM	0.1	0.1	—
WVDP	—	—	—
Total 1991*	0.1	0.1	—
1992			
<u>Lead Site:</u> YMP	—	—	—
<u>Additional Sites:</u> INEL	—	—	—
LBL	—	—	—
ORNL	—	—	—
SNL/NM	0.1	0.1	—
WVDP	—	—	—
Total 1992*	0.1	0.1	—

*1991 and 1992 totals are rounded to the nearest tenth.

The Yucca Mountain Site Characterization Project serves as the primary focus for *Civilian Radioactive Waste Management* activities. The facilities used by the Yucca Mountain Site Characterization Project are located in Area 25 of the Nevada Test Site in Mercury, Nevada, and at the Bank of America Center in Las Vegas, Nevada. Although the Yucca Mountain Site Characterization Project is part of the *Civilian Radioactive Waste Management Program*, the facilities and equipment used in the field are leased from the Nevada Test Site; therefore, many wastes generated by the Yucca Mountain Site Characterization Project are handled through the Nevada Test Site system and reported in the *Defense Programs* waste totals. Other sites that list *Civilian Radioactive Waste Management Program* activities as an additional operational program include the Sandia National Laboratories/New Mexico, Idaho National Engineering Laboratory, the West Valley Demonstration Project, Oak Ridge National Laboratory, and the Lawrence Berkeley Laboratory.

7.0 Science and Technology Programs

Science and Technology Programs are key to developing innovative, clean, and efficient technologies.

The Science and Technology Programs cluster conducts basic research and supports technology transfer; develops innovative, clean, and efficient energy technologies; develops techniques for waste clean up, pollution prevention, and environmental protection; assists in dismantling nuclear weapons, and in curbing nuclear proliferation; provides advanced education and training in science, mathematics, technology and engineering; and coordinates the management and dissemination of scientific and technical information. This management cluster includes the *Energy Research Program (ER)*, the *Science Education and Technical Information Program (ET)*, and Laboratory Management Program. This Report includes information provided by the reporting sites within the *Energy Research Program* and the *Science Education and Technical Information Program*. Since the Laboratory Management Program is an administrative organization that became functional in April 1993, it has not been included in this Report.

Table 7.1 indicates radioactive and hazardous waste generated by the *Energy Research Program* and the *Science Education and Technical Information Program* in 1991 and 1992.

Table 7.1 Science and Technology Programs Radioactive and Hazardous Waste Generation in 1991-1992

Legend	
Acronym	Operational Program
ER	Energy Research Program
ET	Science Education and Technical Information Program

Operational Program	Radioactive (Cubic Meters)		Hazardous (Metric Tons)	
	1991	1992	1991	1992
ER	5,220	4,950	1,770	1,360
ET	—	—	4.07	8.07
TOTAL *	5,220	4,950	1,770	1,370

* 1991 and 1992 totals are rounded to three significant figures. These totals do not include sanitary waste generated in 1991 and 1992.

7.1 Energy Research Program (ER)

The *Energy Research Program* manages a comprehensive program of basic and applied research and development and reviews the effectiveness of all DOE programs related to energy research and development. The *Energy Research Program* functions include advising the Secretary in formulating the basic and applied research policies of DOE; monitoring the DOE's energy research and development programs; managing a comprehensive program of research and development on health, safety, and environmental effects of energy technologies and programs; managing the basic energy sciences, high energy, and nuclear physics and other supporting research and development programs; and administering DOE's Small Business Innovation Research Program mandated by the Small Business Innovation Development Act (Public Law 97-219). Tables 7.2 and 7.3 provide radioactive and hazardous waste generation amounts by waste type for the lead and additional reporting sites within the *Energy Research Program* in 1991 and 1992.

Table 7.2 1991-1992 Radioactive Waste Generation by ER Reporting Sites

Site	Radioactive Waste (Cubic Meters)				
	LLW	MLLW	MTRU	TRU	HLW
1991					
<u>Lead Sites:</u>					
Ames	19.8	—	—	—	—
ANL-E	17.2	0.1	—	0.9	—
BNL	187	7.59	—	—	—
Fermi	55.5	0.9	—	—	—
ITRI	62.1	3.91	—	0.5	—
LBL	52.1	16.1	—	8.32	—
ORISE	26.6	0.1	—	—	—
ORNL	1,490	2,050	—	19.9	—
PNL	629	11.7	—	2.08	—
PPPL	35.0	0.3	—	—	—
SLAC	—	—	—	—	—
SSC	—	—	—	—	—
<u>Additional Sites:</u>					
INEL	—	—	—	—	—
LLNL	—	—	—	—	—
LANL	506	14.6	—	—	—
SNL/CA	—	—	—	—	—
SNL/NM	—	—	—	—	—
Total 1991*	3,080	2,110	—	31.7	—
1992					
<u>Lead Sites:</u>					
Ames	14.2	0.2	—	—	—
ANL-E	25.7	0.4	0.1	2.47	—
BNL	285	2.88	—	—	—
Fermi	145	1.73	—	—	—
ITRI	61.4	1.34	—	0.5	—
LBL	39.3	4.84	—	—	—
ORISE	14.4	0.1	—	—	—
ORNL	2,070	1,520	—	15.9	—
PNL	384	4.90	—	3.95	—
PPPL	35.0	0.3	—	—	—
SLAC	55.9	2.31	—	—	—
SSC	—	—	—	—	—
<u>Additional Sites:</u>					
INEL	—	—	—	—	—
LLNL	6.11	3.76	—	—	—
LANL	248	8.35	—	—	—
SNL/CA	—	—	—	—	—
SNL/NM	—	—	—	—	—
Total 1992*	3,380	1,550	0.1	22.8	—

*1991 and 1992 totals are rounded to three significant figures. If the total was less than one cubic meter, it was rounded to the nearest tenth.

Table 7.3 1991-1992 Hazardous Waste Generation by ER Reporting Sites

Legend	
<u>Acronym</u>	<u>Lead Sites</u>
Ames	Ames Laboratory
ANL-E	Argonne National Laboratory - East
BNL	Brookhaven National Laboratory
Fermi	Fermi National Accelerator Laboratory
IRTI	Inhalation Toxicology Research Institute
LBL	Lawrence Berkeley Laboratory
ORISE	Oak Ridge Institute for Science and Education
ORNL	Oak Ridge National Laboratory
PNL	Pacific Northwest Laboratory
PPPL	Princeton Plasma Physics Laboratory
SLAC	Stanford Linear Accelerator Center
SSC	Superconducting Super Collider Laboratory
<u>Acronym</u>	<u>Additional Sites</u>
INEL	Idaho National Engineering Laboratory
LLNL	Lawrence Livermore National Laboratory
LANL	Los Alamos National Laboratory
SNL/CA	Sandia National Laboratories/California
SNL/NM	Sandia National Laboratories/New Mexico

Site	Hazardous Waste (Metric Tons)		
	State	RCRA	TSCA
1991			
<u>Lead Sites:</u>			
Ames	3.11	6.75	2.38
ANL-E	—	86.6	4.98
BNL	39.5	22.3	0.3
Fermi	147	31.5	176
IRTI	10.5	4.25	5.34
LBL	29.0	85.1	40.7
ORISE	—	0.2	—
ORNL	23.2	61.1	57.2
PNL	0.8	53.0	—
PPPL	—	75.8	—
SLAC	196	186	287
SSC	—	1.03	—
<u>Additional Sites:</u>			
INEL	—	—	—
LLNL	—	—	—
LANL	76.1	22.9	10.7
SNL/CA	6.08	9.78	—
SNL/NM	2.27	0.3	—
Total 1991*	534	647	585
1992			
<u>Lead Sites:</u>			
Ames	3.08	7.36	1.42
ANL-E	—	60.7	3.21
BNL	3.12	18.4	167
Fermi	72.1	45.6	55.2
IRTI	1.64	4.31	0.4
LBL	96.7	69.1	20.1
ORISE	—	0.1	—
ORNL	27.5	56.4	20.0
PNL	0.3	33.9	0.2
PPPL	14.7	39.1	4.57
SLAC	70.0	78.4	111
SSC	0.3	9.25	—
<u>Additional Sites:</u>			
INEL	—	—	—
LLNL	23.2	53.7	4.36
LANL	120	14.4	29.3
SNL/CA	5.41	7.02	—
SNL/NM	4.29	0.3	—
Total 1992*	442	498	417

*1991 and 1992 totals are rounded to three significant figures.

All waste types, except HLW, are generated by *Energy Research Program* activities. Waste generating activities include laboratory research and development projects; construction and operation of large experimental research devices; laboratory clean-out and/or decontamination and decommissioning activities; and support services, such as automotive maintenance, painting, or general house-keeping. In 1992, the reporting sites within *Energy Research Program* generated 4,950 cubic meters of radioactive waste. The majority of this waste, 3,380 cubic meters, was LLW which increased by 10 percent from 3,080 cubic meters in 1991. This increase in LLW is primarily due to expanded decontamination and decommissioning activities and the clean-out of spent chemicals from laboratories. For example, at the Oak Ridge National Laboratory, the 39 percent increase in LLW was due to the clean up of storage canals in Building 2018 and Building 3001; nearly half the LLW generated at the Oak Ridge National Laboratory in 1992 was from clean up activities. The Pacific Northwest Laboratory and the Los Alamos National Laboratory had significant reductions in LLW due to improved operating practices.

The most significant change in radioactive waste generation occurred in the area of MLLW. In 1992, the reporting sites within the *Energy Research Program* generated 1,550 cubic meters of MLLW, compared to 2,110 cubic meters in 1991, a 27 percent decrease.

The largest decrease in waste generation at reporting sites within the *Energy Research Program* was TSCA regulated waste. TSCA regulated waste generated in 1992 at *Energy Research Program* sites amounted to 417 metric tons, compared to 585 metric tons in 1991, a 29 percent decrease. This decrease was attributed to the phase out of polychlorinated biphenyl transformers at the Fermi National Accelerator Laboratory and the Stanford Linear Accelerator Center.

Reductions in RCRA and State regulated hazardous wastes were attributed to improved material handling, and inventory practices, source reduction, and non-hazardous substitution of products wherever possible.

7.2 Science Education and Technical Information Program (ET)

The *Science Education and Technical Information Program* is responsible for the complex-wide coordination of science education activities and, through the Office of Scientific and Technical Information, coordination of the DOE's Technical Information Management Program. The mission of the *Science Education and Technical Information Program* includes enhancing U.S. competitiveness and promoting the development of a diverse, well educated, scientifically literate workforce by assistance to a wide range of customers. The provision of scientific and technical information services requires the generation of products in various media formats, including printed copy, microfiche, and electronic. Generation of these formats can involve the utilization and subsequent disposition of hazardous substances. The Office of Scientific and Technical Information is the only office within the *Science Education and Technical Information Program* that generates hazardous wastes; therefore, all data reported apply specifically to the Office of Scientific and Technical Information. Since the Office of Scientific and Technical

Information is physically located on the Oak Ridge Reservation, its waste generation data are included as part of the Oak Ridge Operations Office for the purposes of this Report. Table 7.4 provides hazardous waste generation amounts by waste type for the lead reporting site within the *Science Education and Technical Information Program* in 1991 and 1992. No radioactive waste was generated by the *Science Education and Technical Information Program* in 1991 and 1992.

Table 7.4 1991-1992 Hazardous Waste Generation by ET Reporting Sites

Site	Hazardous Waste (Metric Tons)		
	State	RCRA	TSCA
1991			
<u>Lead Site:</u> OSTI	0.6	3.27	0.2
Total 1991*	0.6	3.27	0.2
1992			
<u>Lead Site:</u> OSTI	0.9	6.97	0.2
Total 1992*	0.9	6.97	0.2

*1991 and 1992 totals are rounded to three significant figures. If the total was less than one metric ton, it was rounded to the nearest tenth.

In 1992, the Office of Scientific and Technical Information contributed 8.07 metric tons of the total hazardous waste generated within DOE. This represents an increase from the 4.07 metric tons generated in 1991. Only RCRA, State, and TSCA regulated wastes were generated in 1991 and 1992. No radioactive waste was generated in either year by this operational program. In 1991 and 1992, the largest percentage of waste generated was RCRA regulated hazardous waste. While spent chemicals from the clean-out of laboratories and silver contaminated photographic wastes make up the largest percentage of RCRA regulated hazardous wastes, small quantities were also generated from printing and microfilm operations.

Legend	
Acronym	Lead Site
OSTI	Office of Scientific and Technical Information

8.0 Operations Management

DOE Headquarters provides program direction, while program execution is decentralized to 10 Field Operations Offices.

Within the DOE complex there is one Headquarters Operation and there are 10 Field Operations Offices. As noted in Chapter 2.0, DOE Headquarters is responsible for program direction, while the day-to-day program execution and operation is decentralized to the Field Operations Offices. Field Operations Offices are typically headed up by an Office Manager and also have their own organizational structure. In addition, funding for the Field Operations Offices comes from various operational programs. For example, in 1992 the Idaho Field Operations Office budget included funding from the *Nuclear Energy Program*, the *Environmental Restoration and Waste Management Program*, and *Defense Programs*. It is very common for the mission of an Operations Office to encompass sites from more than one operational program.

Headquarters and all 10 Field Operations Offices had sites which reported the generation of radioactive and hazardous waste in 1991 and 1992. The 10 Field Operations Offices are Albuquerque, Chicago, Fernald, Idaho, Nevada, Oak Ridge, Richland, Rocky Flats, San Francisco, and Savannah River.

A discussion on the sites reporting to the Headquarters Operations and their missions will be presented in Section 8.1 below. Section 8.2 will present brief discussions on the sites reporting to each of the 10 Field Operations Offices and their respective missions. Data from each of the sites reporting to Headquarters and each Operations Office has been sorted and ranked by combining 1991 and 1992 waste generation amounts for each waste type.

8.1 Headquarters Operations

The main mission of the Headquarters Operations includes power marketing; research and development; production; and site characterization. Figure 8.1a and 8.1b show the sites generating hazardous waste in 1991 and 1992 that reported to the Headquarters Operations.

The Bonneville Power Administration generated the majority of hazardous waste in 1991 and 1992, mainly TSCA regulated waste. This can be attributed to the removal of oil and equipment contaminated with polychlorinated biphenyls. Since the Morgantown Energy Technology Center was the only site reporting to the Headquarters Operation that generated radioactive waste in 1991 and 1992, no figure has been provided which depicts radioactive waste generated at sites managed by the Headquarters Operations.

Table 8.1 represents the amount of radioactive and hazardous waste generated by each of the sites reporting to the Headquarters Operations in 1991 and 1992.

Figures 8.1a and 8.1b show the reporting sites that generate radioactive and hazardous wastes that report to Headquarters Operations. The actual site descriptions and site executive summaries, which detail the major waste minimization and pollution prevention activities conducted by each reporting site in 1991 and 1992, are reprinted beginning on page 122.

Figure 8.1a 1992 Hazardous Waste Generation at the Reporting Sites Managed by Headquarters Operations

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure 8.1b 1991 Hazardous Waste Generation at the Reporting Sites Managed by Headquarters Operations

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

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Alaska Power Administration

Juneau, Alaska

(Headquarters Operations)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
PM										
DOE Employees:										24
Prime Contractor Employees:										0

Facility Description And Mission

The Alaska Power Administration (APA) is a DOE power production agency headquartered in Juneau, Alaska. It consists of the Eklutna Project and the Snettisham Project, each of which is about 100 acres in size. The mission of these sites is to generate electrical power and operate transmission facilities for the region.

The Eklutna and Snettisham Projects are both small quantity generators and have been determined to be conditionally exempt, i.e., no volumes of waste streams are great enough to warrant recycling or reuse. However, the sites are striving to reduce the small amount of their State regulated hazardous wastes by initiating changes in procurement procedures. The sites also participate in recycling programs for office paper, bottles, and aluminum cans.

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW) *	0.00	0.00	0.00	0.00	0.00	0.00
MLLW *	0.00	0.00	0.00	0.00	0.00	0.00
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons	Solid		TOTAL	Solid		TOTAL
Sanitary Waste	Not Available		Not Available	Not Available		Not Available
Hazardous Waste						
State Regulated	0.23		0.23	0.23		0.23
RCRA Regulated *	0.00		0.00	0.00		0.00
TSCA Regulated *	0.00		0.00	0.00		0.00

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Alaska Power Administration

(Headquarters Operations)

Site Executive Summary

The Eklutna Project and the Snettisham Project are both conditionally exempt small quantity generators. No regulated wastes were generated in the period under study. The State regulated hazardous wastes disposed of were old products. New procurement requirements will not allow these products to be purchased in volumes greater than required. Efforts are being made to purchase substitute products with less or no toxicity. There have been no changes in process lines.

Bonneville Power Administration

Portland, Oregon

(Headquarters Operations)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
PM										

DOE Employees: 3,666

Prime Contractor Employees: 0

Facility Description And Mission

The Bonneville Power Administration (BPA) headquartered in Portland, Oregon, is one of the DOE's five power marketing agencies. It markets and transmits power from 30 Federally owned hydroelectric and one nuclear power facility in the Pacific Northwest, to approximately 170 utilities and direct service industries. BPA's system includes transmission lines and substations covering the Pacific Northwest.

It is BPA's responsibility to provide low cost, reliable power, and to plan for and secure conservation measures and energy resources sufficient to meet customer needs now and in the future. BPA is committed to providing this service in the cost conscious, customer focused, and market driven manner.

Employee numbers and waste totals are attributed to the Bonneville Power Administration headquarters in Oregon. Services are actually provided in Oregon, Washington, Idaho, Nevada, Utah, California and parts of Montana and Wyoming.

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW) *	0.00	0.00	0.00	0.00	0.00	0.00
MLLW *	0.00	0.00	0.00	0.00	0.00	0.00
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons	Solid		TOTAL	Solid		TOTAL
Sanitary Waste	162.39		162.39	174.18		174.18
Hazardous Waste						
State Regulated	355.75		355.75	342.27		342.27
RCRA Regulated	28.31		28.31	44.22		44.22
TSCA Regulated	5,586.96		5,586.96	21,161.66		21,161.66

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Bonneville Power Administration

(Headquarters Operations)

Site Executive Summary

The BPA has developed and maintains one of the largest and most reliable transmission systems in the United States, servicing 300,000 square miles of Oregon, Washington, Idaho, western Montana, and small parts of Wyoming, Nevada, Utah, California and eastern Montana.

Through this system, BPA markets and transmits power from 30 Federally owned hydroelectric and one nuclear power facility in the Pacific Northwest, to approximately 170 customers, including public and private utilities, and direct service industries. The utilities then provide retail electric service to Pacific Northwest consumers. Annually, BPA provides about one-half of all the power used in the Pacific Northwest and three-fourths of the transmission capacity.

BPA uses the revenues from the sale of power and transmission services to recover the costs of operating the system, repay the Federal investment in the system, back the financing of new power generation and transmission facilities, enhance fish and wildlife as well as conservation measures.

Through maintenance, expansion, and improvement of the system a variety of wastes are generated. In recent years, BPA's reported quantities of hazardous wastes have increased as a result of environmental restoration activities, a program to exchange PCB containing capacitors with non-PCB capacitors, and more diligent reporting. In 1991 and 1992, BPA's efforts to reduce the waste generated through the execution of its responsibilities included:

- The shipment of decommissioned bushings and transformers containing < 500 ppm PCB for metal recovery.
- The use of an on-site lacquer recovery system.
- The use of off-site solvent recovery facilities.
- The restricted use of 1,1,1-trichloroethane as a result of findings from a pilot project to eliminate the use of chlorinated solvents.
- The development of posters depicting proper procedures for waste handling and segregation for field elements.

BPA also reduced solid waste generation, by recycling an average of 216 tons of office paper and 22 tons of cardboard annually. With recent improvements in the BPA recycling program, the quantities of recycled materials is expected to increase significantly in the future.

Morgantown Energy Technology Center

Morgantown, West Virginia

(Headquarters Operations)

Lead OP	Additional OP's										
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	
FE											

DOE Employees: 310

Prime Contractor Employees: 367

Facility Description And Mission

The Morgantown Energy Technology Center (METC) was established in 1946 and is located in Morgantown, West Virginia. METC is a lead DOE research center for the *Fossil Energy Program* in surface coal gasification, fluidized bed combustion, gas stream clean up, heat engines, fuel cells, components, underground coal combustion, waste management, unconventional gas recovery, oil shale, tar sands, and instrumentation and control technologies.

METC focuses and links research and development activities to develop systems that have the potential to utilize domestic fuel supplies economically and in an environmentally benign manner. The METC functions as a catalyst for commercialization by sponsoring a wide range of integrated projects with industry, universities, and other research organizations.

Total Waste Generation †

Waste Type		1991			1992		
Cubic Meters		Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)		0.00	2.89	2.89	0.14	0.14	0.28
MLLW *		0.00	0.00	0.00	0.00	0.00	0.00
MTRU *		0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *		0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *		0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons							
Sanitary Waste			Solid	TOTAL		Solid	TOTAL
			265.17	265.17		237.68	237.68
Hazardous Waste							
State Regulated *			0.00	0.00		0.00	0.00
RCRA Regulated			3.97	3.97		12.42	12.42
TSCA Regulated			0.00	0.00		0.05	0.05

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Morgantown Energy Technology Center

(Headquarters Operations)

Site Executive Summary

METC is currently a lead DOE center for fossil energy utilization, especially coal and oil. Since the burning of coal can produce large quantities of pollutants, much of METC's work is involved in projects, both on-site and off-site, which deal with the removal of these pollutants from the environment, either before, during, or after combustion. Therefore, major portions of future wastes will contain materials generated by such projects. However, for the present Report, most of the waste generation came about as a result of recent inspections, both from off-site sources and from on-site inspections, and from the remediation required to correct the problems uncovered. This will lead to a difference in the distributions between the wastes for these past two years and for years that came before them or are yet to come.

During this period of adjustment, various actions were taken that should have a major impact on waste minimization activities at METC. For example:

- The recycling of aluminum cans, both white and colored paper, batteries (AA through D), three-ring binders, etc. Most of these are office type supplies.
- An attempt to recycle newspapers, glass, and plastic; however, the recycler refused to take these items after a while due to his inability to dispose of them. This will be tried again when the economic conditions permit such recycling to occur. While waiting, a large compactor has been purchased to reduce the volume of waste sent to landfills.
- The installation of a chemical tracking system to prevent purchase of excessive amounts of chemicals, to determine location of those chemicals on site (and consequently their efficient use), and to minimize wasteful disposal of chemicals.
- The establishment of a Process Waste Assessment Program for the on-site projects to eliminate waste of chemicals and other supplies.
- The creation of a savings modification as the remediation program took place. This included items such as the air cooled water circulation system as opposed to city water cooled systems. The radioactive waste disposal that occurred during this period was essentially due to the removal of an old gasifier system to which three radiation sources were attached as part of monitoring systems. These monitoring systems were removed and disposed of in their entirety; i.e., source, shielding, and all.

**National Institute for Petroleum and Energy
Research
Bartlesville, Oklahoma
(Headquarters Operations)**

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
FE										

DOE Employees: 17

Prime Contractor Employees: 180

Facility Description And Mission

Presently the National Institute for Petroleum and Energy Research (NIPER) is operated by IIT Research Institute under a Cooperative Agreement with DOE. The Cooperative Agreement does not require compliance with DOE Orders or other DOE direction. Beginning in October, 1993 (FY1994), NIPER will be operated under a DOE Management and Operating contract.

The mission of NIPER is to conduct petroleum extraction and processing research in support of the Oil Program. NIPER is presently preparing a Waste Minimization Program Plan with the goal of ensuring full compliance with all DOE requirements.

Total Waste Generation †

Waste Type		1991			1992		
Cubic Meters		Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW) *		0.00	0.00	0.00	0.00	0.00	0.00
MLLW *		0.00	0.00	0.00	0.00	0.00	0.00
MTRU *		0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *		0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *		0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons							
		Solid			Solid		
		TOTAL			TOTAL		
Sanitary Waste			128.82	128.82		78.02	78.02
Hazardous Waste							
State Regulated *			0.00	0.00		0.00	0.00
RCRA Regulated			14.77	14.77		10.20	10.20
TSCA Regulated *			0.00	0.00		0.00	0.00

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

National Institute for Petroleum and Energy Research
(Headquarters Operations)

Site Executive Summary

NIPER is operated by IIT Research Institute (IITRI) under a Cooperative Agreement with DOE. The Cooperative Agreement does not require and does not provide funds for IITRI to comply with DOE Orders or other DOE direction not specifically mentioned in the Cooperative Agreement.

DOE is in the process of selecting a contractor to operate the facility under a Management and Operating contract. The new contract will become effective on October 1, 1993, and will require full compliance with DOE Orders and initiatives, including the DOE Waste Minimization Program and reporting requirements.

The Bartlesville Project Office (BPO) implements the *Fossil Energy Program's* (FE) Oil Program, and is also located at NIPER. BPO does not presently have oversight authority for the operation of NIPER, but will assume those duties for the Management and Operating contract.

In keeping with its commitment to environment, safety, and health excellence and in support of the Secretary's initiatives, BPO prepared this report with the cooperation of NIPER. The data contained in the report are considered accurate, but were not recorded or maintained for the purposes of this Report. As such, some of the data may be incomplete or may not fully capture the range of waste generation or waste minimization activities at the site.

In preparation for the Management and Operating activities, an overall waste minimization plan is being prepared for the site that should ensure full compliance with all DOE orders and directives. This waste minimization plan should also ensure that the data for waste minimization reporting are fully and accurately recorded in future years.

National Renewable Energy Laboratory

Golden, Colorado

(Headquarters Operations)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
EE										

DOE Employees: 29

Prime Contractor Employees: 758

Facility Description And Mission

The National Renewable Energy Laboratory (NREL), located in Golden, Colorado, was established in 1977, and was formerly called the Solar Energy Research Institute. NREL's mission is to develop competitive renewable and related energy technologies as viable for the nation's energy needs. NREL supports the DOE through the development of renewable energy and related technologies, and facilitating their commercialization, while meeting the highest standard of environment, safety, and health.

Research and development activities at NREL include photovoltaics, biofuels, solar thermal energy, building energy technologies, analytical studies, wind energy, alternative fuels, and ocean energy. The laboratory's mission includes science education at all levels and comprehensive technology transfer.

Total Waste Generation †

Waste Type		1991			1992		
Cubic Meters		Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW) *		0.00	0.00	0.00	0.00	0.00	0.00
MLLW *		0.00	0.00	0.00	0.00	0.00	0.00
MTRU *		0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *		0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *		0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons							
Sanitary Waste			Solid	TOTAL		Solid	TOTAL
			127.01	127.01		127.01	127.01
Hazardous Waste							
State Regulated			0.81	0.81		0.38	0.38
RCRA Regulated			4.59	4.59		52.38	52.38
TSCA Regulated			0.00	0.00		0.00	0.00

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

National Renewable Energy Laboratory
(Headquarters Operations)

Site Executive Summary

NREL funding increased by approximately 30 percent between 1991 and 1992. Of that increase, half was allocated to in-house research and development. Although the number of waste generating activities increased in 1992, the waste quantities generated from research projects decreased by approximately 20 percent.

During the fall of 1992, NREL remediated an abandoned pistol range formerly used by State Police during a period prior to the transfer of the South Table Mountain Site from the State of Colorado to DOE. This project resulted in the removal and disposal of 48,665 kgs of soil and lead. These totals are included in the RCRA totals reported for the site. This hazardous waste generation should be considered a one time occurrence, and should not be included in the total quantity for statistical analysis if the goal of such analysis is to determine waste minimization reduction success.

Naval Oil Shale Reserve Number 3

Rifle, Colorado

(Headquarters Operations)

Lead OP	Additional OPs									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
FE										

DOE Employees: 0 ‡

Prime Contractor Employees: 1

Facility Description And Mission

The Naval Petroleum and Oil Shale Reserves were created between 1912 and 1924 to provide an emergency source of liquid fuels for the armed forces. The 14,130 acre Naval Oil Shale Reserve Number 3 (NOSR-3), as well as Naval Oil Shale Reserve Number 1, is located about eight miles west of Rifle, Colorado. There is also a Naval Oil Shale Reserve Number 2 in Utah which is presently inactive.

The mission of NOSR-3 is to protect the natural resources found on-site, and to produce and market natural gas which would otherwise be depleted by the actions of neighboring gas producing companies. NOSR-3 also maintains the facilities remaining at the former Anvil Points Oil Shale Research Project.

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW) *	0.00	0.00	0.00	0.00	0.00	0.00
MLLW *	0.00	0.00	0.00	0.00	0.00	0.00
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons		Solid	TOTAL		Solid	TOTAL
Sanitary Waste		0.91	0.91		0.91	0.91
Hazardous Waste						
State Regulated *		0.00	0.00		0.00	0.00
RCRA Regulated *		0.00	0.00		0.00	0.00
TSCA Regulated *		0.00	0.00		0.00	0.00

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

‡ - DOE employee totals do not include part time employees.

Naval Oil Shale Reserve Number 3

(Headquarters Operations)

Site Executive Summary

The Office of Naval Petroleum and Oil Shale Reserves in Colorado, Utah, and Wyoming supervises the operation of three sites: the Naval Oil Shale Reserves Nos. 1 and 3 in Garfield County, Colorado; the Naval Oil Shale Reserve No. 2 in Uintah County, Utah; and the Naval Petroleum Reserve No. 3 in Natrona County, Wyoming.

NOSR-3 maintains a Conditionally Exempt Small Quantity Generator status under RCRA. Although the site has obtained an EPA Generator ID, it does not generate any hazardous, TSCA, or radioactive wastes. Regulated waste disposal activity to date has centered on the clean up of wastes left from the former Anvil Points Oil Shale Research Facility.

The absence of hazardous waste generation at NOSR-3 is the result of careful attention placed on materials and chemicals used to drill and produce the gas wells that are the current focus of activity on-site.

Naval Petroleum Reserve Number 1

Tupman, California

(Headquarters Operations)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
FE										
DOE Employees:										60
Prime Contractor Employees:										818

Facility Description And Mission

The Naval Petroleum Reserve Number 1 (NPR-1) occupies 47,409 acres in Tupman, California, approximately 35 miles southwest of Bakersfield. NPR-1 is a major oil and gas producing field operated for the DOE (and 22% owner Chevron USA, Inc.) by Bechtel Petroleum Operations, Inc.

The site mission of NPR-1 is to produce the petroleum resources (oil and natural gas) contained within NPR-1 at the Maximum Efficient Rate as set by the Congress of the United States. Fiscal year 1991 production averaged over 74,000 barrels of oil per day and 330 million cubic feet of gas per day.

Total Waste Generation †

Waste Type	1991			1992		
<u>Cubic Meters</u>	<u>Liquid</u>	<u>Solid</u>	<u>TOTAL</u>	<u>Liquid</u>	<u>Solid</u>	<u>TOTAL</u>
Low-Level Waste (LLW) *	0.00	0.00	0.00	0.00	0.00	0.00
MLLW *	0.00	0.00	0.00	0.00	0.00	0.00
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
<u>Metric Tons</u>		<u>Solid</u>	<u>TOTAL</u>		<u>Solid</u>	<u>TOTAL</u>
Sanitary Waste		1,965.23	1,965.23		2,059.94	2,059.94
Hazardous Waste						
State Regulated		37.66	37.66		341.44	341.44
RCRA Regulated		3.69	3.69		70.46	70.46
TSCA Regulated *		0.00	0.00		0.00	0.00

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Naval Petroleum Reserve Number 1
(Headquarters Operations)

Site Executive Summary

The NPR-1 is an active oil field that is jointly owned by the DOE and Chevron USA, Inc., and operated by Bechtel Petroleum Operations, Inc. Oil and gas production activities at NPR-1 generate various categories of waste such as production wastes (i.e., drilling muds, well stimulation/treatment fluids, produced water, tank bottoms), ancillary wastes (i.e., scrap metal, spent chemicals, used oil, various filters, batteries, drums, and construction debris), and office wastes (i.e., paper, cardboard, wood, used office supplies, and sanitary wastes).

A significant percentage of wastes generated at NPR-1 are recycled. Produced wastewater and spent acids from well stimulation activities are reinjected into on-site permitted injection wells. The focus of pollution prevention at NPR-1 has been directed toward elimination or reduction of ancillary and office waste streams. Prior to 1991, waste reduction efforts minimized chemical drum disposal by implementing bulk storage and recycling policies. Used oil, lead acid batteries, and automobile tires continue to be recycled. New waste minimization activities implemented in 1991-1992 included the following:

- A Waste Minimization Engineer position was created to develop and implement a Pollution Prevention Program. This individual evaluates all waste streams to identify areas where optimum pollution prevention or reduction in waste volume can be achieved.
- The generation of spent solvents from various laboratory activities are now recycled.
- Recycling of various glycols used in gas dehydrating processes and as an engine coolant has been implemented.
- Source reduction of aerosol cans was reviewed to identify the potential non-polluting substitutes (i.e., spray bottles, bulk storage). In addition, an aerosol can crusher was purchased that renders spent aerosol cans non-hazardous. The residues from the punctured cans are collected and recycled.
- A Recycling Coordinator position was created to implement a recycling program for non-hazardous waste (i.e. white paper, newspaper, aluminum cans, and cardboard).
- The collection and recycling of phone books and white paper.

During the upcoming year, NPR-1 will continue to identify and assess waste streams and chemical usage, while targeting additional waste minimization opportunities.

Naval Petroleum Reserve Number 3

Casper, Wyoming

(Headquarters Operations)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
FE										

DOE Employees: 15

Prime Contractor Employees: 135

Facility Description And Mission

The 9,481 acre Naval Petroleum Reserve Number 3 (NPR-3) is a small oil and gas producing field located 35 miles north of Casper, Wyoming. In 1991, NPR-3 averaged 2,246 barrels of oil per day and eight million cubic feet of natural gas per day. While the crude oil is sold on the open market, the gas is injected back into the oil producing formations to help maintain reservoir pressure and enhance oil production.

The mission of NPR-3 is to produce the crude oil and natural gas at the Maximum Efficient Rate as set by the Congress of the United States and consistent with the protection of safety, health, and the environment.

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW) *	0.00	0.00	0.00	0.00	0.00	0.00
MLLW *	0.00	0.00	0.00	0.00	0.00	0.00
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons		Solid	TOTAL		Solid	TOTAL
Sanitary Waste		734.82	734.82		734.82	734.82
Hazardous Waste						
State Regulated *		0.00	0.00		0.00	0.00
RCRA Regulated		2.24	2.24		0.43	0.43
TSCA Regulated		0.00	0.00		0.14	0.14

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Naval Petroleum Reserve Number 3

(Headquarters Operations)

Site Executive Summary

The Office of Naval Petroleum and Oil Shale Reserves in Colorado, Utah, and Wyoming supervises the operation of three sites: the Naval Petroleum Reserve No. 3 in Natrona County, Wyoming; the Naval Oil Shale Reserve Nos. 1 and 3 in Garfield County, Colorado; and the Naval Oil Shale Reserve No. 2 in Uintah County, Utah.

NPR-3 maintains a Conditionally Exempt Small Quantity Generator status under RCRA, and does not use, manage, or store radioactive materials, including wastes.

Particular accomplishments in the area of waste minimization included:

- Improved identification and characterization of hazardous waste streams.
- The elimination of hazardous waste streams through product substitution and recycling.
- The implementation of a limited recycling program for aluminum, office paper, and scrap metal.
- The implementation of a policy that requires environmental review of procurements of chemical materials for substitution or source reduction.

Pittsburgh Energy Technology Center

Pittsburgh, Pennsylvania

(Headquarters Operations)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
FE										

DOE Employees: 321

Prime Contractor Employees: 323

Facility Description And Mission

The Pittsburgh Energy Technology Center (PETC) is one of the Federal Government's principal fossil energy research laboratories. PETC occupies a 59 acre site in Pittsburgh, Pennsylvania, and is responsible for the technical and administrative management of coal related research and development programs. These programs may be conducted on-site as well as off-site with contracted organizations.

The PETC mission is to develop cost effective and environmentally sound technologies that promise better use of the Nation's abundant supply of coal.

Total Waste Generation †

Waste Type		1991			1992		
	Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW) *		0.00	0.00	0.00	0.00	0.00	0.00
MLLW *		0.00	0.00	0.00	0.00	0.00	0.00
MTRU *		0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *		0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *		0.00	0.00	0.00	0.00	0.00	0.00
	Metric Tons		Solid	TOTAL		Solid	TOTAL
Sanitary Waste			98.88	98.88		93.44	93.44
Hazardous Waste							
State Regulated *			0.00	0.00		0.00	0.00
RCRA Regulated			21.98	21.98		16.86	16.86
TSCA Regulated			5.95	5.95		3.83	3.83

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Pittsburgh Energy Technology Center
(Headquarters Operations)

Site Executive Summary

As a result of its various operations, the PETC generates RCRA hazardous, TSCA, and sanitary wastes.

RCRA hazardous waste has been decreased primarily through reduced waste generated from removing excess materials kept on-site. A waste minimization plan is being implemented that will include source substitution, process modification, and recycling to reduce the amount of waste generated from process operations.

The TSCA waste that has been generated was due to the removal of asbestos during various construction projects and removal of electrical components that have reached the end of their useful lives.

A recycling program has been implemented throughout the PETC site that includes office paper, aluminum cans, corrugated paper, and leaf waste. This has reduced the amount of sanitary waste by approximately 40 percent.

**Pitts. (PETC) Component Development & Integration Facility
Butte, Montana**

(Headquarters Operations)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
FE			✓							

DOE Employees: 1

Prime Contractor Employees: 210

Facility Description And Mission

The Pittsburgh Energy Technology Center Component Development & Integration Facility (PETC/CDIF) is located on a 53 acre site in Butte, Montana. The mission of the facility is coal related research and development in such technologies as coal fired generation of electricity, magnetohydrodynamics, hazardous waste reduction, and plasma arc furnace operation.

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW) *	0.00	0.00	0.00	0.00	0.00	0.00
MLLW *	0.00	0.00	0.00	0.00	0.00	0.00
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons		Solid	TOTAL		Solid	TOTAL
Sanitary Waste		72.57	72.57		68.04	68.04
Hazardous Waste						
State Regulated		1.63	1.63		0.45	0.45
RCRA Regulated		2.72	2.72		0.79	0.79
TSCA Regulated		0.00	0.00		0.27	0.27

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Pitts. (PETC) Component Development & Integration Facility
(Headquarters Operations)

Site Executive Summary

The following waste minimization concepts were identified during 1992:

- The implementation of a process modification for recirculating coal fines back into the coal processing cycle.
- The implementation of a process modification for recirculating quench and scrub cooling water from the discharge containment pond back into the scrubber water system.
- The implementation of a waste management system.
- The installation of storage buildings to prevent contamination of non-hazardous waste from mixing with hazardous waste.
- The development of a process for recycling used oil.

Strategic Petroleum Reserve

New Orleans, Louisiana

(Headquarters Operations)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
FE										

DOE Employees: 130

Prime Contractor Employees: 1,467

Facility Description And Mission

The Strategic Petroleum Reserve (SPR) consists of five active Gulf Coast underground salt dome oil storage facilities (three in Louisiana and two in Texas), a marine terminal facility (in Louisiana), and the SPR Project Office (in New Orleans, Louisiana). As of June 30, 1992, the total permanent authorized storage capacity was approximately 750 million barrels, and the crude oil inventory was approximately 565.95 million barrels.

The mission of the SPR is to provide the United States with sufficient petroleum reserves to minimize the effects of foreign oil supply interruption.

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW) *	0.00	0.00	0.00	0.00	0.00	0.00
MLLW *	0.00	0.00	0.00	0.00	0.00	0.00
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons		Solid	TOTAL		Solid	TOTAL
Sanitary Waste		605.82	605.82		585.82	585.82
Hazardous Waste						
State Regulated *		0.00	0.00		0.00	0.00
RCRA Regulated		2.29	2.29		2.26	2.26
TSCA Regulated *		0.00	0.00		0.00	0.00

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Strategic Petroleum Reserve

(Headquarters Operations)

Site Executive Summary

The most significant SPR waste minimization accomplishments during 1992 were:

- Implementing waste minimization activities during decommissioning of sulphur mines.
- Tracking of non-hazardous waste generation.
- Initiation of the Waste Minimization Interdepartmental Team.
- Development of the Aerosol Products Handling Program.
- Expansion of the Paper Recycling Program.
- Development of the Qualified Products List.
- Inspection of recyclers and disposal sites.

The SPR generates only RCRA hazardous and sanitary wastes.

RCRA Hazardous Waste

RCRA hazardous waste is incinerated off-site. Five (of six) SPR sites generated less than 100 kgs of RCRA hazardous waste per month, thus maintaining Small Quantity Generator (Louisiana) and Conditionally Exempt Small Quantity Generator (Texas) status during 1992. The generation of chromium contaminated grout during a construction project accounted for the Weeks Island site exceeding the monthly Small Quantity Generator limit during November 1992. RCRA hazardous waste generation declined by 1.3 percent from 1991 to 1992.

Sanitary Waste

Sanitary waste (municipal, industrial, and oil field) is disposed of off-site. Tracking of non-hazardous waste generation commenced in 1992. Oil field waste was included by definition with sanitary waste totals for 1992. Overall generation of sanitary waste declined by 3.4 percent from 1991 to 1992.

Recycling

Recycling is done off-site. The amount of paper recycled increased from 1991 to 1992. The amount of used oil burned for energy recovery was not reportable prior to 1992. Reporting of scrap metal commenced in 1992. Tons of scrap metal excessed during 1992 did not include scrap valves, casing, and tubing that was excessed as secondhand products for reuse.

Superconducting Super Collider Laboratory

Dallas, Texas

(Headquarters Operations)

Lead OP ER	Additional OP's										
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	

DOE Employees: 76

Prime Contractor Employees: 2,436

Facility Description And Mission

The Superconducting Super Collider (SSC) Laboratory was established in 1989 to design, build, operate, and maintain the Superconducting Super Collider, a high energy subatomic particle accelerator that will be used in basic research to increase our understanding of the fundamental structure of matter. The SSC will create particle collisions at energies much higher than those possible at existing accelerator facilities.

The SSC is located in Ellis County, Texas, near the city of Dallas. It will occupy a site that is 10,000 acres above ground and 6,000 acres below the surface. Upon completion, it will become a world center for basic research in high energy physics.

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW) *	0.00	0.00	0.00	0.00	0.00	0.00
MLLW *	0.00	0.00	0.00	0.00	0.00	0.00
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons	Solid		TOTAL	Solid		TOTAL
Sanitary Waste	1,298.20		1,298.20	1,876.40		1,876.40
Hazardous Waste						
State Regulated	0.00		0.00	0.29		0.29
RCRA Regulated	1.03		1.03	9.25		9.25
TSCA Regulated *	0.00		0.00	0.00		0.00

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Superconducting Super Collider Laboratory

(Headquarters Operations)

Site Executive Summary

To date, a significant portion of the work performed for waste minimization involved identification, evaluation, and prioritization of the various wastes generated at the SSC. As the SSC is in a pre-operational status and will be for at least the next five years, the Pollution Prevention/Waste Minimization Program will continue to develop and evolve as the waste generation changes.

The five most significant waste minimization accomplishments for 1992 are as follows:

- Environment, safety, and health screening of chemical purchases was done to consider potential waste implications.
- Design reviews of construction engineering plans or documents associated with the planning, designing, and acquiring of the SSC property were reviewed in terms of their environmental impacts.
- An internal review was performed of the first draft of the SSC Pollution Prevention/Waste Minimization Program Plan.
- Process waste assessments were performed.
- Substitutes were pursued for ozone depleting chemicals.

Western Area Power Administration

Golden, Colorado

(Headquarters Operations)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
PM										

DOE Employees: 1,493

Prime Contractor Employees: 604

Facility Description And Mission

Western Area Power Administration (WAPA), headquartered in Golden, Colorado, annually markets and transmits approximately 10,486 megawatts of hydropower from more than 50 publicly owned power plants. WAPA also markets the United States' 547 megawatt entitlement from the coal fired Navajo Generating Station near Page, Arizona. WAPA's service area covers 3.38 million square kilometers (1.3 million square miles) from Montana to Arizona and from Iowa to California.

WAPA's primary mission is to market Federal hydroelectric resources. WAPA emphasizes maintaining an efficient and reliable power system while assuring power is marketed at rates that: repay operation, maintenance, purchase power, and transmission service expenses; ensure the Federal investment is repaid with interest; and assist in repaying the irrigation investment beyond the irrigators' ability to repay.

Total Waste Generation †

Waste Type		1991			1992		
<u>Cubic Meters</u>		<u>Liquid</u>	<u>Solid</u>	<u>TOTAL</u>	<u>Liquid</u>	<u>Solid</u>	<u>TOTAL</u>
Low-Level Waste (LLW) *		0.00	0.00	0.00	0.00	0.00	0.00
MLLW *		0.00	0.00	0.00	0.00	0.00	0.00
MITRU *		0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *		0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *		0.00	0.00	0.00	0.00	0.00	0.00
<u>Metric Tons</u>							
		<u>Solid</u>			<u>Solid</u>		
		<u>TOTAL</u>			<u>TOTAL</u>		
Sanitary Waste		80.74			88.90		
Hazardous Waste							
State Regulated		2,890.35			300.07		
RCRA Regulated		12.25			3.21		
TSCA Regulated		203.59			353.00		

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Western Area Power Administration

(Headquarters Operations)

Site Executive Summary

WAPA, headquartered in Golden, Colorado, markets and transmits 10,486 megawatts of hydropower annually from more than 50 power plants operated by the U.S. Bureau of Reclamation, the U.S. Army Corps of Engineers, and the International Boundary Water Commission. WAPA also markets the United States' 547 megawatt entitlement from the coal fired Navajo Generating Station near Page, Arizona.

WAPA's service area covers 3.38 million square kilometers (1.3 million square miles). WAPA sells power to more than 600 wholesale power customers. They, in turn, provide retail electric service to millions of consumers.

WAPA maintains staff at our headquarters and in five area offices in Billings, Montana; Loveland, Colorado; Phoenix, Arizona; Sacramento, California; and Salt Lake City, Utah. Customer service and system operations and maintenance are also supported by district office staff in Bismarck, North Dakota; Fort Peck, Montana; Huron, South Dakota; and Montrose, Colorado; and by operations office staff in Watertown, South Dakota.

Prior to 1992, WAPA activities included efforts by our area offices to reduce waste and reform operations to minimize both the volume and toxicity of wastes generated. In 1992, WAPA organized these efforts in a more formal fashion as we initiated a WAPA-wide Waste Minimization Program. The Program, chaired from the Headquarters Division of Environmental Affairs, involves employees throughout the agency, and is driven by a multi-disciplinary team representing each area and district office.

WAPA's first year has been one of organization, self-assessment, and planning, highlighted by the following waste minimization activities: 1) establishing an agency Core Team of representatives from each area office and headquarters to serve in a steering function for agency goal setting, planning, and implementation; 2) identifying realistic short and long term goals; 3) identifying resources, obstacles, and opportunities; 4) establishing multi-disciplinary area teams to evaluate local opportunities for waste minimization and to encourage employee awareness and participation; and 5) beginning evaluations of internal systems for tracking and reporting waste minimization data.

Activities for 1993 include: 1) continuing efforts to improve internal tracking and reporting systems; 2) improving employee awareness and education; 3) implementing waste minimization practices identified as reasonable short term goals; and 4) writing a formal waste minimization plan and guidance.

Yucca Mountain Site Characterization Project

Las Vegas, Nevada

(Headquarters Operations)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
RW										

DOE Employees: 72

Prime Contractor Employees: 1,328

Facility Description And Mission

The facilities used by the Yucca Mountain Site Characterization Project (YMP) are located in Area 25 (the southwest corner) of the Nevada Test Site (NTS) and at the Bank of America Center in Las Vegas, Nevada, about 65 miles south of NTS.

The mission of YMP is to perform site characterization of the 57,600 acre Yucca Mountain Site to determine whether or not Yucca Mountain is a potential repository for high-level waste and spent nuclear fuel.

Because the YMP site is located on the western margin of the NTS, interface relations are maintained with the DOE Nevada Field Operations Office and much of the waste generated by the YMP is handled and reported by the NTS system.

Total Waste Generation †

Waste Type		1991			1992		
Cubic Meters		Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW) *		0.00	0.00	0.00	0.00	0.00	0.00
MLLW *		0.00	0.00	0.00	0.00	0.00	0.00
MTRU *		0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *		0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *		0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons		Solid		TOTAL	Solid		TOTAL
Sanitary Waste		Not Available		Not Available	25.40		25.40
Hazardous Waste							
State Regulated *		0.00		0.00	0.00		0.00
RCRA Regulated		0.00		0.00	0.04		0.04
TSCA Regulated *		0.00		0.00	0.00		0.00

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Yucca Mountain Site Characterization Project

(Headquarters Operations)

Site Executive Summary

The Waste Minimization and Pollution Prevention Awareness Program for the YMP is currently in the early implementation process. A plan and implementation procedure for the Program was finalized in 1992.

The Program structure is designed: 1) to obtain accurate and current information on waste stream generation and waste management costs, providing the basis for the implementation of specific waste minimization techniques and technologies; 2) to create an organization comprised of YMP participant representatives that will develop and administer the Waste Minimization Program; 3) to define targets for waste reduction; and 4) to develop a method of tracing the performance and progress of the Program.

Because the YMP is located on the western margin of the NTS, important interface relations must be maintained with the DOE Nevada Field Operations Office. Also, due to location and NTS operations, the YMP continues to use DOE Nevada Field Operations Office contractors to perform work for the YMP. Therefore, many quantities of wastes generated by the YMP are handled through the NTS system and are reported in their contribution to the "Annual Report on Waste Generation and Waste Minimization Progress 1991-1992." In addition, a significant portion of the YMP hazardous waste disposal in 1992 mentioned in this Report has been the disposal of assorted materials brought to the YMP with drilling and support equipment from other DOE facilities.

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8.2 Field Operations

A Field Operations Office is responsible for the day-to-day operations of each of its reporting sites. Part of this responsibility includes the establishment and implementation of a Waste Minimization/Pollution Prevention Program.

The following sections contain waste generation and waste minimization activities for the sites that report to each Field Operations Office. Figures 8.2a, 8.2b, 8.3a, and 8.3b show radioactive and hazardous wastes for each Field Operations Office. Figures 8.4a through 8.19b show the waste generation amounts of each site that reports to its respective Field Operations Office. The actual site executive summaries and site descriptions, which detail the major waste minimization and pollution prevention activities conducted by each reporting site in 1991 and 1992, are reprinted following these figures.

Figure 8.2a Solid Radioactive Waste Generation by Field Operations Offices in 1991-1992

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure 8.2b Liquid Radioactive Waste Generation by Field Operations Offices in 1991-1992

† 94.8% of the 81,919.52 cubic meters is MLLW wastewater from the Oak Ridge K-25 Site.

* 90.3% of the 62,998.46 cubic meters is MLLW wastewater from the Oak Ridge K-25 Site.

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure 8.3a Hazardous Waste Generation by Field Operations Offices in 1992

† 64.5% of the 5,611.33 metric tons is State regulated **wastewater** from the Pantex Plant.

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure 8.3b Hazardous Waste Generation by Field Operations Offices in 1991

† 78.8% of the 6,761.33 metric tons is State regulated wastewater from the Pantex Plant.

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

8.2.1 Albuquerque Field Operations Office

The mission of the Albuquerque Field Operations Office is to manage the DOE sites that constitute the nuclear weapons production complex as well as oversee the long term TRU Waste Technology Program and the Transportation Base Technology Program.

Table 8.2 represents the amount of radioactive and hazardous waste generated by each of the sites reporting to the Albuquerque Field Operations Office in 1991 and 1992.

**Table 8.2 1991-1992 Waste Generation at the Reporting Sites
Managed by the Albuquerque Field Operations Office**

Albuquerque Field Operations Office

Reporting Site	Radioactive (Cubic Meters)		Hazardous (Metric Tons)	
	1991	1992	1991	1992
GJPO	0.9	0.2	1.01	0.6
ITRI	66.5	63.2	20.1	6.36
KCP	1.16	0.6	947	1,230
LANL	6,070	2,470	1,390	1,710
Mound	3,260	1,980	113	166
Pantex	107	228	5,820	4,110
Pinellas	63.0	61.0	199	160
SNL/CA	0.2	0.4	81.3	78.4
SNL/NM	69.4	40.9	564	622
UMTRA	—	—	—	—
WIPP	—	—	3.02	1.04
Total *	9,640	4,840	9,140	8,080

* 1991 and 1992 totals are rounded to three significant figures. These totals do not include sanitary waste generated in 1991 and 1992.

The large reductions in radioactive wastes at the Los Alamos National Laboratory and Mound Plant are due to the implementation of programmatic and recycling waste minimization activities, as well as a return to normal operating procedures upon the completion of Tiger Team audits conducted by representatives of DOE's Environment, Safety, and Health Program representatives. The overall decrease in the amount of hazardous wastes is primarily due to the reduction in the amount of State regulated wastewater produced and treated at the Pantex Plant.

Figures 8.4a, 8.4b, 8.5a and 8.5b show the reporting sites generating radioactive and hazardous waste that report to the Albuquerque Field Operations Office.

Site descriptions and site executive summaries, which depict major waste minimization and pollution prevention activities for each of the sites reporting to the Albuquerque Field Operations Office in 1991 and 1992 commence on page 160.

Figure 8.4a Solid Radioactive Waste Generation at the Reporting Sites Managed by the Albuquerque Field Operations Office

Figure 8.4b Liquid Radioactive Waste Generation at the Reporting Sites Managed by the Albuquerque Field Operations Office

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure 8.5a 1992 Hazardous Waste Generation at the Reporting Sites Managed by the Albuquerque Field Operations Office

* State Regulated wastewater from the Pantex Plant.

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure 8.5b 1991 Hazardous Waste Generation at the Reporting Sites Managed by the Albuquerque Field Operations Office

* State Regulated wastewater from the Pantex Plant.

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Grand Junction Projects Office

Grand Junction, Colorado

(Albuquerque Field Operations Office)

	Additional OP's										
Lead OP	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	
EM											

DOE Employees: 12

Prime Contractor Employees: 805

Facility Description And Mission

The Grand Junction Projects Office (GJPO) occupies 56.4 acres southwest of the Grand Junction city limits in Mesa County, Colorado. For approximately 30 years prior to the mid-1970's, uranium milling, analysis, and storage were conducted at the facility. The uranium tailings that resulted are distributed throughout the site and vicinity properties.

In 1987, the GJPO Remedial Action Project was accepted into the DOE Defense Decontamination and Decommissioning Program. At present, the GJPO's mission includes completing site remediation and applying its project management, engineering, and scientific expertise to support national action programs in environmental restoration, geoscience, and energy resource management.

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)	0.13	0.09	0.22	0.11	0.08	0.19
MLLW	0.64	0.00	0.64	0.02	0.00	0.02
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons		Solid	TOTAL		Solid	TOTAL
Sanitary Waste		239.50	239.50		272.16	272.16
Hazardous Waste						
State Regulated *		0.00	0.00		0.00	0.00
RCRA Regulated		0.79	0.79		0.57	0.57
TSCA Regulated		0.22	0.22		0.07	0.07

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Grand Junction Projects Office
(Albuquerque Field Operations Office)

Site Executive Summary

The GJPO maintains a Conditionally Exempt Small Quantity Generator status, which limits the amount of hazardous and mixed waste generation to 220 lbs per calendar month. These small quantities of mixed and hazardous wastes are generated in support of a variety of Research and Environmental Restoration Programs. These wastes are managed according to DOE Orders 5400.3, "Hazardous and Radioactive Waste Program"; 5820.2A, "Radioactive Waste Management Program", and the Colorado Hazardous Waste Regulations.

During the 1991 and 1992 reporting periods, hazardous wastes originated from a variety of on-site sources including Information Services, Engineering, the Boiler Plant, and various maintenance and laboratory operations. Low-level and mixed wastes, in the form of sample residue, sample extractant, and unused or unusable radiochemicals, are attributable mainly to the Analytical Laboratory.

Because of the facility's dependence on off-site treatment and disposal, a key element of the Waste Management Program has been the implementation of an aggressive Waste Minimization Program. In 1990, the GJPO formally implemented a Waste Minimization Program to eliminate wastes wherever possible and to minimize the amount of waste that was unavoidably produced. This Program resulted in a net reduction in the total amount of waste. Refined in 1991, the Program focused on hazardous material substitution, the return of unused and unopened chemicals to manufacturers and suppliers, and the recycling of used oil and spent lead/acid batteries. In addition, a Waste Minimization Committee was convened to formulate methods for the reduction of all types of on-site waste generation, including non-regulated solid waste. These management efforts resulted in improved protection of health and the environment and helped to reduce the overall costs, liabilities, and risks associated with disposal.

The present Program is consistent with DOE Order 5400.1 and fully supports the DOE Waste Reduction Policy Statement issued in July 1990. An updated Waste Minimization and Pollution Prevention Awareness Plan (Chem-Nuclear Geotech, Inc. 1992c) was issued in March 1992. Significant waste minimization accomplishments by the GJPO included:

- Issuance of the facility's Conditionally Exempt Small Quantity Generator Management Plan.
- Development of a new procedure for the analysis of radioisotopes, which permanently eliminates the use of Cyclohexane Trioctylphosphinic Oxide, a mixed waste.
- The donation of approximately 120 gallons of paint, lacquer, and sealing compound to a charitable organization.
- Development of a new procedure for the determination of lead 210, which eliminated a mixed waste stream.
- Completion of a Waste Assessment Guide.

Inhalation Toxicology Research Institute

Albuquerque, New Mexico

(Albuquerque Field Operations Office)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
ER				✓						

DOE Employees: 0 ‡

Prime Contractor Employees: 210

Facility Description And Mission

The Inhalation Toxicology Research Institute (ITRI) is located on Kirtland Air Force Base just south of Albuquerque, New Mexico. Its mission is to conduct high quality research to improve the scientific basis for understanding the impact of inhaled materials on human health. These materials might be found in industry, the environment, or the home; and could include fission products, fuel cycle actinides, insulating materials, diesel exhaust emissions, and coal combustion effluents.

To carry out its mission, ITRI facilities house research animals and generate wastes such as biomedical, sanitary, hazardous, low-level radioactive, limited transuranic, and limited mixed.

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)	0.41	61.71	62.12	0.21	61.18	61.39
MLLW	3.91	0.00	3.91	1.34	0.00	1.34
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste	0.00	0.45	0.45	0.00	0.45	0.45
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons	Solid		TOTAL	Solid		TOTAL
Sanitary Waste	530.70		530.70	530.70		530.70
Hazardous Waste						
State Regulated	10.46		10.46	1.64		1.64
RCRA Regulated	4.25		4.25	4.31		4.31
TSCA Regulated	5.34		5.34	0.41		0.41

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

‡ - DOE employee totals do not include part time employees.

Inhalation Toxicology Research Institute

(Albuquerque Field Operations Office)

Site Executive Summary

Waste minimization at ITRI is fully supported by top management. This support is demonstrated by the amount of training that employees receive on waste minimization concepts and techniques, and by the amount of time employees spend on waste minimization projects. Between 1991 and 1992, some significant highlights included:

- The decrease in waste stream volume in most cases by as much as 60 to 100 percent.
- A 66 percent reduction in mixed LLW, in large part, due to the increased emphasis on solvent substitution whenever possible.
- The recycling of several waste streams such as photo fixer for silver reclamation, xylene and alcohol for fuels blending, used oil for reclamation, aluminum cans for reclamation, and lead acid batteries for reclamation.
- The implementation of a Chemical Exchange Program whereby chemicals no longer needed were made available for use by other scientists who would otherwise buy additional volumes of chemicals.
- The identification and removal of TSCA waste as soon as practical. Between 1991 and 1992, all of the polychlorinated biphenyl (PCB) transformers and a large part of the asbestos was removed and properly disposed.

Kansas City Plant

Kansas City, Missouri

(Albuquerque Field Operations Office)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
DP			✓							

DOE Employees: 70

Prime Contractor Employees: 4,473

Facility Description And Mission

The Kansas City Plant (KCP) is located 12 miles south of downtown Kansas City, Missouri. KCP is operated for DOE by AlliedSignal, Inc., Kansas City Division. The mission of the KCP is to produce and procure non-nuclear electrical, electronic, electro-mechanical, plastic, and metal weapon components. Manufacturing operations are housed in 3.2 million square feet of building space and involve machining, plastic fabrication, and electrical and mechanical assembly. Waste operations consist primarily of waste storage, off-site shipment and disposal, and on-site wastewater pretreatment for industrial process wastewaters.

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)	0.00	0.29	0.29	0.00	0.51	0.51
MLLW	0.00	0.87	0.87	0.00	0.08	0.08
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons		Solid	TOTAL		Solid	TOTAL
Sanitary Waste		2,945.81	2,945.81		3,199.46	3,199.46
Hazardous Waste						
State Regulated		183.11	183.11		304.11	304.11
RCRA Regulated		685.69	685.69		396.28	396.28
TSCA Regulated		78.52	78.52		531.11	531.11

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Kansas City Plant
(Albuquerque Field Operations Office)

Site Executive Summary

The KCP Pollution Prevention Program was established in 1985 with the publication of a management policy statement. The Program is an organized and ongoing effort to systematically reduce pollution generation. The Program strives toward the eventual elimination of any pollutant release to any environmental media. Initially, the Program focused on solvent reductions; however, efforts were expanded to all material releases.

Program accomplishments include solvent usage, F006 waste, sulfur dioxide and particulate air emission, and spill reductions; solid waste recycling; Departmental Pollution Prevention Plan and process waste assessment (PWA) development; and increased plant-wide awareness.

The following summarizes the 1992 Pollution Prevention highlights:

- A 95% reduction (approximately 400 tons) of solvents since 1986, including chlorofluorocarbon (CFC) and chlorinated hydrocarbon (CHC). During 1992, there was a 45 percent reduction. The goal is to eliminate CFC and CHC solvents in production by July 1993.
- Through 1992, 494 PWAs out of 1,247 processes identified were completed, with a goal to complete all initial PWAs by September 1994. Performance based PWA training was given to approximately 290 associates. The KCP developed a graded approach to PWAs, placing less emphasis on the mass balance portion but maintaining the options generated portion. DOE selected KCP to lead development of this approach at laboratory sites and to provide PWA technical assistance to other DOE sites.
- The KCP Pollution Prevention Program was chosen as the EPA Region VII 1992 nominee for the EPA Administrator's Awards Program for pollution prevention. KCP associates participate on a local Voluntary Chemical Reduction Program steering committee.
- KCP diverted process development dollars to hazardous and waste minimization development projects that searched for alternate solvents, polymers, and plating chemicals; modified processes; and supported PWA methodology efforts. The KCP manages the Miscellaneous Waste Stream of the Waste Minimization Managers Group. Projects to develop environmentally conscious manufacturing products continued, as well as the presentation of numerous papers at technical and programmatic conferences. Best management practices are being taught to small area businesses. Quarterly highlights of KCP accomplishments are distributed internally and externally.
- The KCP made significant strides to increase awareness through General Management Awareness training and an all associate awareness training video. Pollution prevention articles in several publications help to stimulate awareness.

Los Alamos National Laboratory

Los Alamos, New Mexico

(Albuquerque Field Operations Office)

Lead OP	Additional OPs									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
DP			✓	✓			✓			

DOE Employees: 54

Prime Contractor Employees: 12,755

Facility Description And Mission

Los Alamos National Laboratory (LANL), located in north central New Mexico, occupies approximately 43 square miles. LANL is dedicated to the application of state of the art science and technology to the nation's security and well being. Major programs have included applied research in nuclear and conventional weapons development, nuclear fission and fusion, nuclear safeguards and security, and waste management. In the future, LANL will continue its special role in defense, particularly in nuclear weapons technology, and will increasingly use its multi-disciplinary capabilities to solve problems in the civilian sector.

Over the years, LANL operations have generated hazardous, mixed, low-level radioactive, and transuranic radioactive wastes. Corrective activities include those necessary to bring active or standby facilities into compliance with air, water, and solid waste regulations and/or agreements, and DOE requirements.

Total Waste Generation †

Waste Type		1991			1992		
Cubic Meters		Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)		0.00	5,769.57	5,769.57	0.00	2,336.07	2,336.07
MLLW		0.00	169.96	169.96	0.00	80.95	80.95
MTRU		0.00	133.55	133.55	0.00	50.10	50.10
Transuranic (TRU) Waste *		0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *		0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons							
		Solid			Solid		
Sanitary Waste		4,593.98			3,232.30		
Hazardous Waste							
State Regulated		986.98			1,283.92		
RCRA Regulated		284.50			153.34		
TSCA Regulated		123.31			276.36		

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Los Alamos National Laboratory
(Albuquerque Field Operations Office)

Site Executive Summary

LANL is committed to a pro-active and innovative Waste Minimization Program. LANL's Waste Minimization Program Office (WMPO) provides coordination and oversight for the waste minimization and pollution prevention efforts at LANL. This Report documents waste generation data for 1991 and 1992 and highlights initiatives undertaken at LANL during this period in pursuit of reducing the amount of waste generated. These initiatives include programmatic and awareness goals, process waste assessments (PWAs), programs for reducing waste generation, and efforts to track progress and measure performance. Major successes at LANL during the reporting period included:

- Development of an alternate PWA methodology, utilizing a user friendly process modeling software tool, and validation of this method through the completion of seven prototype PWAs during the reporting period.
- Establishment of a Waste Minimization Incentive Award Program that encourages employees to submit ideas or technologies for implementing waste minimization at LANL, and provides cash awards directly to employees, out of DOE morale funds, for those ideas judged to be the most promising.
- Development of waste minimization orientation training that is now provided to all new employees during the hiring process; incorporation of waste minimization in the training provided to those employees appointed as Waste Management Coordinators; and inclusion of waste minimization in the training required for all managers of DOE radioactive facilities.
- Involvement of the WMPO staff in the formal review process for LANL Environment, Safety, and Health (ES&H) Questionnaires and Standard Operating Procedures; providing a mechanism to assure that waste minimization is considered in all new process designs and in modifications to existing processes.
- Technical assistance by WMPO staff to LANL waste generators; e.g., the Solvent Substitution Committee lead by the WMPO, which published a report of substitution research it performed during fiscal year 1992.

LANL was audited by the DOE Tiger Team in 1991. It should be noted that preparations for this audit somewhat increased normal waste generation. In addition, the DOE moratorium on mixed waste generation also had an effect on the waste generation data as reflected in this Report. Explanations of waste generation variations at LANL from 1991 to 1992 are provided in this Report.

The major problem in encouraging the implementation of waste minimization projects at LANL is funding. The amount of work expected of LANL by its customers does not allow for utilizing the "technical base" operational funds that are received for "out of scope" efforts, such as implementing significant waste minimization technologies. In the future, this subject must be addressed to improve the level of funding made available for waste minimization by specifically identifying money to be utilized for waste minimization implementation as part of the budget process.

Mound Plant

Miamisburg, Ohio

(Albuquerque Field Operations Office)

Lead OP	Additional OPs									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
DP					✓					

DOE Employees: 42

Prime Contractor Employees: 1,691

Facility Description And Mission

The 306 acre Mound Plant is located 10 miles southwest of the Dayton, Ohio, metropolitan area. Operated by EG&G Mound Applied Technologies, the plant has an integrated program of research, development and production in support of the DOE weapons and energy programs. Mound Plant's mission is to meet customer needs for nuclear component production, development and recycle; stockpile testing; materials and statistical analysis; robotics development; and technology transfer.

Mound manufactures non-nuclear and tritium containing weapon components. In doing so, it generates sanitary, hazardous, radioactive, and mixed wastes. Environmental restoration includes a CERCLA clean up program along with decontamination and decommissioning activities. A Federal Facilities Agreement completed between DOE and EPA in 1990 also guides Mound activities.

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)	0.00	3,256.44	3,256.44	0.00	1,982.18	1,982.18
MLLW	0.00	2.97	2.97	0.00	0.28	0.28
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons		Solid	TOTAL		Solid	TOTAL
Sanitary Waste		2,202.64	2,202.64		3,051.95	3,051.95
Hazardous Waste						
State Regulated		36.40	36.40		33.53	33.53
RCRA Regulated		53.68	53.68		58.88	58.88
TSCA Regulated		23.24	23.24		73.83	73.83

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Mound Plant
(Albuquerque Field Operations Office)

Site Executive Summary

Waste generation data for 1992 indicates significant percentage reductions in LLW and mixed LLW for the site. Reductions in decontamination and decommissioning waste generating activities, solvent substitutions, radioactive process changes, and plant WMin awareness all contributed to the 39 percent reduction in LLW generation and the 91 percent reduction in mixed LLW generation. Other reductions (eight percent) were achieved for State regulated hazardous waste due to process changes associated with the plant toxicity reduction efforts. A 217 percent increase in TSCA waste was attributed to the 1992 aggressive Asbestos Abatement Program and the replacement of polychlorinated biphenyl (PCB) transformers. Other waste generation increases were attributed to the M Building Plating Shop decommissioning, environment, safety, and health (ES&H) improvement projects, and building clean-outs associated with space consolidation and staff reductions.

Technical initiatives included completing three pilot and five PWAs, which exceeded the commitment of four for fiscal year 1992 as documented in the PWA Goal Plan and Cost Plus Award Fee Performance Criteria. Production Capability Assurance Program initiatives included toxicity reduction and solvent substitution efforts resulting in the elimination of methylenediamines and the largest users of chlorofluorocarbons.

Plant waste minimization awareness was heightened through the publication of a periodic magazine that features waste minimization success stories and exchange of ES&H ideas, satellite video conferencing, plant distribution of usable items stressing ES&H issues including waste minimization and implementation of the Waste Minimization Communication Plan through published interviews focusing on waste minimization efforts.

Pantex Plant

Amarillo, Texas

(Albuquerque Field Operations Office)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
DP			✓							

DOE Employees: 77

Prime Contractor Employees: 2,930

Facility Description And Mission

The 16,000 acre Pantex Plant is located in the Texas panhandle 17 miles northeast of Amarillo. The Pantex Plant is operated by Mason & Hanger-Silas Mason Co. Inc. Primary missions include disassembly, assembly, quality evaluation, and maintenance of the nation's nuclear weapons stockpile. Pantex also conducts research and development in high explosives design in support of the weapons program.

Approximately 110 potential release sites have been identified for investigation at Pantex. Corrective actions and environmental restoration began in 1990 and are continuing under a RCRA Part B permit issued jointly by the Texas Water Commission and the EPA.

Total Waste Generation †

Waste Type		1991			1992		
Cubic Meters		Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)		0.00	67.23	67.23	0.00	178.00	178.00
MLLW		0.00	39.70	39.70	0.00	50.47	50.47
MTRU *		0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *		0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *		0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons							
		Solid		TOTAL	Solid		TOTAL
Sanitary Waste		403.47		403.47	355.27		355.27
Hazardous Waste							
State Regulated		5,327.95		5,327.95	3,617.39		3,617.39
RCRA Regulated		444.57		444.57	423.35		423.35
TSCA Regulated		46.05		46.05	68.47		68.47

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Pantex Plant
(Albuquerque Field Operations Office)

Site Executive Summary

In 1992, the Pantex Waste Minimization Program successfully reduced RCRA regulated hazardous waste by five percent and State regulated hazardous waste by 33 percent. Although the number of plant personnel increased by 15 percent, the quantity of sanitary waste decreased by 12 percent. Due to the significant increase in weapons dismantlement activities, the quantities of mixed LLW increased by 27 percent, and the ILW increased by 165 percent over 1991 totals. However, without the minimization efforts, the increase for LLW would have been 400 percent.

Identification of WMin Options: Pantex conducted 15 process waste assessments (PWAs) that addressed 35 waste streams generated across various divisions. The PWAs were evaluated by Technical Task Teams comprised of craft and professional staff from various divisions to determine the applicability of the PWA waste minimization proposals.

Solvent Substitution: Due to material substitution, use of naphtha based solvent was reduced by 90 percent. Also, the emission of volatile organic compounds (VOCs) was reduced in the paint shop using process change.

Pollution Awareness and Training: Employee awareness was enhanced by training approximately 1,200 employees in pollution prevention and awareness. In addition, Pantex also participated in two community events and published an article in a local newspaper on Pantex waste minimization accomplishments. Also, the employee newsletter and incentive programs, initiated in 1991, were continued in 1992.

On-site Recycling: Automotive freon, antifreeze, and used motor oil recycling was continued. Also, recycling of high explosives contaminated wastewater was initiated using activated carbon filtration.

Off-site Recycling: Reclamation of cardboard increased by 116 percent, scrap metals by 121 percent, plastic by 58 percent, and aluminum by 294 percent. Paper reclamation, however, was down by 37 percent. The land application of 140 cubic yards of empty plastic containers and 40 cubic yards of open top drums were avoided due to off-site recycling. Also, used batteries, X-ray film, and sludge from used photographic solution were delivered to an off-site facility for metal reclamation.

Pinellas Plant

Largo, Florida

(Albuquerque Field Operations Office)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
DP			✓							

DOE Employees: 33

Prime Contractor Employees: 1,137

Facility Description And Mission

The 99.2 acre Pinellas Plant is located in the Tampa/St. Petersburg area of Florida. Its mission is the production of high technology nuclear weapon components in ultra-clean environments. Martin Marietta Energy Systems presently operates the plant for the DOE. Key activities include the design, development, and production of special electronic and mechanical equipment including neutron generators, specialty capacitors, thermal batteries, crystal resonators, oscillators, and clocks.

Pinellas Plant completed environmental monitoring and remediation agreements in 1990 between the DOE and the State of Florida, and between the DOE and the EPA.

Total Waste Generation †

Waste Type		1991			1992		
Cubic Meters		Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)		0.00	63.00	63.00	0.00	61.00	61.00
MLLW *		0.00	0.00	0.00	0.00	0.00	0.00
MTRU *		0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *		0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *		0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons							
				TOTAL			TOTAL
Sanitary Waste				32.58			47.76
Hazardous Waste							
State Regulated *				0.00			0.00
RCRA Regulated				199.18			160.01
TSCA Regulated *				0.00			0.00

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Pinellas Plant
(Albuquerque Field Operations Office)

Site Executive Summary

The Pinellas Plant has a pro-active and aggressive Waste Minimization Program that has achieved significant waste volume reductions. Accomplishments in 1992 included:

- The recycling of non-hazardous waste materials (i.e., cardboard - 37 tons, scrap metal - 74.25 tons, plastic - 1 ton, glass - 0.5 tons, and wood).
- The off-site disposal of freon and methylene chloride to a vendor for treatment; as a result, approximately 80 percent of the solvent is recovered for reuse.
- The processing of 9,500 gallons of trim coolant at the wastewater flocculation system, thereby eliminating the need to dispose of this material as a hazardous waste.
- Significant efforts to resell usable virgin chemicals to outside manufacturers. These chemicals are not usable at the Pinellas Plant because of the weapons program shelf life requirements.
- Whenever possible, limiting quantities of production chemicals ordered to actual production needs (on-time buying). In addition, smaller production chemical containers are ordered to help minimize excess.

The activities the Pinellas Plant has been involved in during 1992 are as follows:

- The Pinellas Plant developed and initiated performance based training, which consists of both computer based training and lecture, to introduce employees to the fundamental principles of waste minimization and pollution prevention.
- A considerable amount of the Process Capability Assurance Program resources are being devoted to waste minimization and solvent substitution studies. To date, several large volume aqueous degreaser processes have been installed throughout manufacturing as a substitute for chlorinated solvents.

Sandia National Laboratories / California

Livermore, California

(Albuquerque Field Operations Office)

Lead OP	Additional OP's										
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	
DP			✓	✓							

DOE Employees: 1

Prime Contractor Employees: 1,000

Facility Description And Mission

The 413 acre Sandia National Laboratories/California (SNL/CA) is located in California's San Francisco Bay Area approximately 40 miles east of San Francisco and less than a mile from the city of Livermore.

SNL/CA's primary mission is national security, with principal emphasis on weapon development and engineering. In the process of carrying out this mission, SNL/CA has evolved into a multi-program laboratory pursuing broad aspects of national security issues including advanced military technologies, energy programs, arms verification and control technology, and applied research in numerous scientific fields. Research activities at SNL/CA are grouped into four leading edge efforts: materials science, combustion research, energy, and a rapidly growing effort in applied mathematical sciences.

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW) *	0.00	0.00	0.00	0.00	0.00	0.00
MLLW	0.21	0.00	0.21	0.42	0.00	0.42
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons	Solid		TOTAL	Solid		TOTAL
Sanitary Waste	1,423.46		1,423.46	1,347.47		1,347.47
Hazardous Waste						
State Regulated	27.63		27.63	24.60		24.60
RCRA Regulated	44.44		44.44	31.90		31.90
TSCA Regulated	9.23		9.23	21.99		21.99

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Sandia National Laboratories / California
(Albuquerque Field Operations Office)

Site Executive Summary

SNL/CA has supported various waste minimization activities since 1985. These efforts have evolved into a structured and organized Waste Minimization and Pollution Prevention Awareness Program. The principal objective of the Program is to maximize all opportunities for the elimination and or minimization of waste in all corporate operations. The underlying structure for the Program is compliance with the waste management regulations set forth by the DOE, the Federal Government, the State of California, and local agencies. In addition to these mandates, the increases in waste management costs and public interest in environmental issues have created additional drivers to implement an effective program. Interest in and familiarity with conservation among SNL/CA employees is generally high due to the emphasis of these State and local concerns.

During 1992, several waste minimization and pollution prevention activities were started. These efforts required both the commitment and involvement of SNL/CA's management and line personnel. SNL/CA's most significant accomplishments for 1992 included:

- A second consecutive annual reduction in the generation of RCRA, State, and sanitary waste.
- The formation of a Solvent Substitution Technical Advisory Committee to team with environment, safety, and health (ES&H) professionals in the evaluation of solvent substitution products. This team is also addressing the elimination of ozone-depleting chemicals.
- The implementation and expansion of several recycling programs. One example of these efforts is the completion of implementing the site-wide paper recycling program. Other programs were studied for their effectiveness for future implementation.
- The incorporation of Waste Minimization and Pollution Prevention Awareness training with several required ES&H training courses and SNL/CA's monthly New Hire Orientation Program.
- An employee Waste Minimization and Pollution Prevention Program recognition and appreciation breakfast was held. SNL/CA's top management individually recognized 77 employees for their contribution to the Program.
- An Earth Day event to heighten the awareness of growing environmental concerns. The event included internal programmatic activities, regulatory agencies, and commercial representatives. Approximately 300 site employees participated.

Sandia National Laboratories / New Mexico

Albuquerque, New Mexico

(Albuquerque Field Operations Office)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
DP		✓	✓	✓		✓	✓	✓		✓

DOE Employees: 40

Prime Contractor Employees: 8,556

Facility Description And Mission

Sandia National Laboratories/New Mexico (SNL/NM) is located adjacent to the city of Albuquerque, New Mexico, and operates on land owned by the DOE, Kirtland Air Force Base, the Forest Service, the State of New Mexico, or the Isleta Indian Reservation. SNL/NM is also responsible for two off-site test areas, the Tonopah Test Range in Nevada and the Kauai Test Facility in the U. S. Navy Pacific Missile Range Facility in Hawaii.

SNL/NM's primary mission, as a multi-program laboratory, is to implement the nation's nuclear weapons policies through research, development, and testing related to nuclear ordnance, arms control, and weapon surety. Additional areas of contributions include energy, the environment, and other areas of strategic importance to United States security and well being.

Total Waste Generation †

Waste Type		1991			1992		
Cubic Meters		Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)		0.30	64.00	64.30	0.20	34.30	34.50
MLLW		1.70	3.40	5.10	0.00	6.40	6.40
MITRU *		0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *		0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *		0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons		Solid		TOTAL	Solid		TOTAL
Sanitary Waste		Not Available		Not Available	Not Available		Not Available
Hazardous Waste							
State Regulated		188.80		188.80	346.15		346.15
RCRA Regulated		158.26		158.26	147.39		147.39
TSCA Regulated		216.90		216.90	128.32		128.32

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Sandia National Laboratories / New Mexico
(Albuquerque Field Operations Office)

Site Executive Summary

Waste reduction activities for wastes generated at SNL/NM are covered by the Waste Minimization and Pollution Prevention Awareness Plan, completed in 1991 and updated annually. The Plan addresses activities and methods that will be used to reduce the quantity and toxicity of wastes and materials, and to foster a cradle to grave philosophy that will conserve resources and aid in achieving strategic objectives.

A corporate Waste Minimization Steering Committee was established to plan and guide the program. The committee chair is assisted by coordinators from each SNL site. At SNL/NM, a Waste Minimization Network (MinNet) consisting of about 60 personnel is the communication link between the waste minimization organization and the waste generating organizations.

In fiscal year 1992, SNL/NM participated in a joint process waste assessment (PWA) with the EPA. The goal of the project was to determine whether the traditional EPA method for conducting PWAs was appropriate for research and development (R&D) facilities. As a result of this work and work with other DOE laboratories, an alternate approach is being investigated by SNL/NM in conjunction with other DOE research laboratories. This information will also be applicable to industrial R&D environments. Although SNL/NM participates in technology transfer and R&D activities related to waste minimization, this program does not currently track those activities.

Early in 1991, planning began on a comprehensive, continuous material tracking and data management system that will allow SNL/NM to monitor and report multimedia waste minimization activities consistent with DOE directives. The system was purchased in 1992, but due to budget constraints, is not currently fully operational. Waste minimization accomplishments in fiscal year 1992 included:

- A completed draft version of the computerized PWA module of the cradle to grave tracking system; final version is due in 1993.
- An alternate PWA method was developed, including associated PWA guidance documentation, that allows for an alternate approach to waste assessments in an R&D environment. Phase 1 PWAs will be completed at SNL/NM during 1993 using this approach.
- Off-site recycling and recovery of 25,030 kgs of hazardous waste.
- Operation of a centralized Chemical Exchange Program to avoid the disposal of usable materials. Since 1989, the Program has more than doubled in volume.

Although air emission and wastewater reductions are not represented, significant waste minimization in these areas has occurred. Some examples are: 1) 3.4 billion liters of water were saved in 1992 by installing recycle units and other water saving techniques, and 2) 514,816 liters of jet fuel were not burned in 1992 due to equipment and procedure changes at the Burn Facility.

Uranium Mill Tailings Remedial Action Project

Albuquerque, New Mexico

(Albuquerque Field Operations Office)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
EM										

DOE Employees: 19

Prime Contractor Employees: 352

Facility Description And Mission

The Uranium Mill Tailings Remedial Action Project (UMTRA) performs remedial action at 24 designated inactive uranium processing sites and associated vicinity properties that contain uranium mill tailings and other residual radioactive materials (RRM) derived from the processing. UMTRA is headquartered in Albuquerque, New Mexico.

The purpose of the remedial action is to stabilize and control such RRM in a safe and environmentally sound manner and thus minimize radiation health hazards to the public. Remedial actions are accomplished in cooperation with the affected states and Indian Tribes, and with the concurrence of the Nuclear Regulatory Commission. Remediation is performed in accordance with 40 CFR 192, and disposal sites are licensed under 10 CFR 40 upon completion.

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW) *	0.00	0.00	0.00	0.00	0.00	0.00
MLLW *	0.00	0.00	0.00	0.00	0.00	0.00
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons	Solid		TOTAL	Solid		TOTAL
Sanitary Waste	Not Available		Not Available	Not Available		Not Available
Hazardous Waste						
State Regulated *	0.00		0.00	0.00		0.00
RCRA Regulated *	0.00		0.00	0.00		0.00
TSCA Regulated *	0.00		0.00	0.00		0.00

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Uranium Mill Tailings Remedial Action Project

(Albuquerque Field Operations Office)

Site Executive Summary

The UMTRA Project is an environmental restoration project charged with cleaning up and disposing of uranium mill tailings and other RRM resulting from milling operations at 24 inactive sites around the United States. The first phase of the UMTRA Project involves clean up of surface contamination at the sites. The second phase, which is just beginning, will involve groundwater restoration at those sites with groundwater contamination. This report covers both the surface and groundwater activities on the UMTRA Project. In addition to the DOE and contractor main offices in Albuquerque, NM, the UMTRA Project had active operations at or near the following locations in 1992: Ambrosia Lake, NM; Monument Valley, AZ; Mexican Hat, UT; Rifle, CO; Gunnison, CO; Grand Junction, CO; and Falls City, TX.

The UMTRA Project cleaned up and disposed of large quantities of RRM in both 1991 and 1992. The RRM managed at UMTRA Project sites was not generated by the DOE, rather it was generated decades ago when the mills were active. The UMTRA Project only "generated" the RRM by removing the tailings from the processing sites to the disposal sites. Therefore, no radioactive waste is reported as being generated in this report for either year. While the UMTRA Project does generate some sanitary wastes, quantities are not tracked and, therefore, are not reported.

Materials that might become contaminated with RRM during remedial action are decontaminated where possible. Materials that cannot be decontaminated or that are generated as a result of the decontamination process are disposed of as RRM. This newly generated RRM comprises such a minor fraction of the total RRM being disposed that its quantity is not tracked. The UMTRA Project's efforts focus on waste avoidance rather than waste reduction.

This report covers waste minimization for both the surface and groundwater phases of the UMTRA Project. This includes activities at the UMTRA DOE and contractor project offices in Albuquerque, NM, and the surface remedial action and groundwater restoration activities at all the UMTRA processing and disposal sites.

Waste Isolation Pilot Plant

Carlsbad, New Mexico

(Albuquerque Field Operations Office)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
EM										

DOE Employees: 28

Prime Contractor Employees: 904

Facility Description And Mission

The Waste Isolation Pilot Plant (WIPP), a research and development facility, is located in southeast New Mexico about 26 miles east of the town of Carlsbad. When developed, the facility will cover 2.27 square miles in the center of a 16 square mile site. It will include rooms excavated 2,150 feet below the earth's surface in ancient bedded salt rock.

WIPP is designed and constructed to demonstrate the safe transport and handling, along with the environmentally sound disposal, of defense generated radioactive TRU waste. WIPP will provide facilities for geological studies of the disposal of nuclear waste in salt, a TRU waste transportation fleet for both contact and remote handling, and the capability for permanent disposal of TRU waste.

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW) *	0.00	0.00	0.00	0.00	0.00	0.00
MLLW *	0.00	0.00	0.00	0.00	0.00	0.00
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons	Solid		TOTAL	Solid		TOTAL
Sanitary Waste	1,415.21		1,415.21	1,224.70		1,224.70
Hazardous Waste						
State Regulated *	0.00		0.00	0.00		0.00
RCRA Regulated	3.02		3.02	1.04		1.04
TSCA Regulated *	0.00		0.00	0.00		0.00

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Waste Isolation Pilot Plant
(Albuquerque Field Operations Office)

Site Executive Summary

The WIPP Waste Minimization and Pollution Prevention Awareness Program is designed to eliminate or minimize pollutant releases to all environmental media from all aspects of site operations. These efforts also offer increased protection of public health and the environment.

The scope of the Waste Minimization Program is confined to eliminating or minimizing waste generated through source reduction, material substitution, and environmentally sound recycling.

The WIPP waste minimization policy and supporting objectives are consistent with the DOE Waste Reduction Policy Statement and the Westinghouse Electric Corporation Hazardous Waste Minimization Policy addressed in the Corporate Management Directive for Environmental Activities (Westinghouse, 1986).

During fiscal year 1991, an initial waste assessment was performed on the office waste generated at the WIPP to establish a baseline. Other non-hazardous and hazardous waste streams have been characterized through chemical analysis and using knowledge of the generating process. The waste minimization activities include the following:

- Off-site recycling of approximately 1,650 gallons of waste oil per year.
- Reuse of parts washing solvents at six user stations.
- Off-site reclamation of 6,400 lbs of lead acid batteries per year.
- Product substitution for aerosols and other hazardous materials.
- Restrictions on the use of mercury and other heavy metals.

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8.2.2 Chicago Field Operations Office

The mission of the Chicago Field Operations Office is to oversee the basic and applied research and development activities conducted in support of the nation's Integral Fast Reactor; fundamental properties of matter; physical, life, and environmental sciences; magnetic confinement fusion; and high energy physics.

Table 8.3 represents the amount of radioactive and hazardous waste generated by each of the sites reporting to the Chicago Field Operations Office in 1991 and 1992.

Table 8.3 1991-1992 Waste Generation at the Reporting Sites Managed by the Chicago Field Operations Office

		Chicago Field Operations Office				
		Reporting Site	Radioactive (Cubic Meters)		Hazardous (Metric Tons)	
			1991	1992	1991	1992
Ames	Ames Laboratory	Ames	19.8	14.3	12.2	11.9
ANL-E	Argonne National Laboratory - East	ANL-E	40.2	53.2	108	98.9
ANL-W	Argonne National Laboratory - West	ANL-W	212	189	10.3	28.5
BCLDP	Battelle Columbus Laboratories Decommissioning Project	BCLDP	—	—	—	—
BNL	Brookhaven National Laboratory	BNL	195	288	62.1	188
Fermi	Fermi National Accelerator Laboratory	Fermi	56.3	147	354	173
PPPL	Princeton Plasma Physics Laboratory	PPPL	35.3	35.3	75.8	58.4
Total *			559	727	622	559

* 1991 and 1992 totals are rounded to three significant figures. These totals do not include sanitary waste generated in 1991 and 1992.

Figures 8.6a, 8.6b, 8.7a and 8.7b show the reporting sites generating radioactive and hazardous waste that report to the Chicago Field Operations Office.

Site descriptions and site executive summaries, which depict major waste minimization and pollution prevention activities for each of the sites reporting to the Chicago Field Operations Office in 1991 and 1992, commence on page 186.

Figure 8.6a Solid Radioactive Waste Generation at the Reporting Sites Managed by the Chicago Field Operations Office

Figure 8.6b Liquid Radioactive Waste Generation at the Reporting Sites Managed by the Chicago Field Operations Office

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure 8.7a 1992 Hazardous Waste Generation at the Reporting Sites Managed by the Chicago Field Operations Office

Figure 8.7b 1991 Hazardous Waste Generation at the Reporting Sites Managed by the Chicago Field Operations Office

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Ames Laboratory

Ames, Iowa

(Chicago Field Operations Office)

Lead OP	Additional OP's										
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	
ER			✓								

DOE Employees: 0 ‡

Prime Contractor Employees: 600

Facility Description And Mission

Ames Laboratory is located on the campus of Iowa State University at Ames, Iowa. The Laboratory occupies 11 buildings owned by the DOE as well as additional space leased from the University.

The primary mission of Ames Laboratory is to conduct basic and intermediate range applied research in physical, mathematical, and engineering sciences that underlie and support energy technologies and other areas of national importance. Ames Laboratory has unique strength in materials preparation and processing, chemical sciences, and materials reliability for solving complex materials problems in energy production and utilization.

Total Waste Generation †

Waste Type		1991			1992		
Cubic Meters		Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
		0.00	19.82	19.82	0.00	14.16	14.16
Low-Level Waste (LLW)							
MLLW		0.00	0.00	0.00	0.01	0.14	0.15
MTRU *		0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *		0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *		0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons		Solid		TOTAL	Solid		TOTAL
		Not Available		Not Available	Not Available		Not Available
Sanitary Waste							
Hazardous Waste							
State Regulated		3.11		3.11	3.08		3.08
RCRA Regulated		6.75		6.75	7.36		7.36
TSCA Regulated		2.38		2.38	1.42		1.42

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

‡ - DOE employee totals do not include part time employees.

Ames Laboratory
(Chicago Field Operations Office)

Site Executive Summary

Ames Laboratory is located on the campus of Iowa State University and occupies 11 buildings owned by the DOE. A new DOE owned building, currently under construction, will provide office space for administrative and support personnel. The Laboratory also leases space in Iowa State University owned buildings, and has easements through the year 2060 for two buildings in the Applied Science Complex.

Ames Laboratory conducts basic research in materials and mathematical and chemical sciences, and related research in materials reliability and non-destructive evaluation. The Laboratory maintains capabilities for preparing high purity metals, alloys, compounds, and single crystals. The Laboratory is applying its experience in materials testing to develop innovative techniques for investigating contaminated sites. The Laboratory employs 600 persons full and part time.

The primary mission of Ames Laboratory is fundamental and applied research. The Laboratory complies with all applicable laws, regulations, and requirements aimed at protecting the public health and the environment.

Ames Laboratory continues its waste minimization efforts in all waste categories. Wastes generated are typical of a small research laboratory involved in both physical and chemical research. The Laboratory monitors incoming chemicals, maintains chemical inventories, and disposes of chemical wastes using certified disposal vendors. Ames Laboratory is one of five test sites for Idaho National Engineering Laboratory's (INEL's) Waste Tracking System. Through the use of this system, Ames Laboratory will be better able to assess the groups that generate waste that can be minimized through method modification and eventually novel methods of reduction.

The *Energy Research Program* (ER) is the lead operational program at Ames Laboratory; therefore, all wastes that have been generated can be attributed to the ER activities. An additional operational program, the *Environmental Restoration and Waste Management Program* (EM), supports waste minimization activities through direct funding of waste management operations. EM, however, does not generate waste.

Sanitary waste disposal is provided by Iowa State University. Therefore, the Laboratory does not have any data for the volume of waste that has been generated in either 1991 or 1992.

WMin Accomplishments included:

- The testing of the INEL Waste Tracking System, October 1992.
- The training of new employees in Waste Minimization Awareness.
- The recycling of 25 tons of used oil, paper, and metal.
- The reduction of TSCA waste generation by 40 percent, and LLW generation by 28 percent.

Argonne National Laboratory - East

Argonne, Illinois

(Chicago Field Operations Office)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
ER		✓	✓				✓			

DOE Employees: 444

Prime Contractor Employees: 5,573

Facility Description And Mission

Argonne National Laboratory-East (ANL-E) was established in 1946 and occupies a 1,700 acre tract located approximately 22 miles southwest of Chicago, Illinois. ANL-E is a multi-program laboratory which conducts basic and applied research in support of six key DOE mission areas: 1) development and operation of national research facilities; 2) experimental and theoretical research in physical, life, and environmental sciences; 3) design and testing of advanced fission reactors and other technologies for power applications; 4) evaluation of nationally important projects in terms of technological, environmental, cost, or other applications; 5) commercialization of technologies; and 6) the advancement of science education.

Total Waste Generation †

Waste Type		1991		1992		
Cubic Meters		Liquid	Solid	TOTAL	Liquid	Solid
Low-Level Waste (LLW)		0.84	37.60	38.44	0.13	47.00
MLLW		0.15	0.11	0.26	0.02	0.47
MTRU		0.00	0.00	0.00	0.00	0.29
Transuranic (TRU) Waste		0.00	1.53	1.53	0.17	5.07
High-Level Waste *		0.00	0.00	0.00	0.00	0.00
Metric Tons		Solid		TOTAL	Solid	
Sanitary Waste			6,069.07	6,069.07		4,746.39
Hazardous Waste						
State Regulated *			0.00	0.00		0.00
RCRA Regulated			103.14	103.14		95.72
TSCA Regulated			4.98	4.98		3.21

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Argonne National Laboratory - East
(Chicago Field Operations Office)

Site Executive Summary

ANL-E is a multi-purpose laboratory that falls under the authority of the Director of *Energy Research Program* (ER). Additionally, the *Environmental Restoration and Waste Management Program*, the *Nuclear Energy Program*, Security and Safeguards, and the *Energy Efficiency and Renewable Energy Program* are represented on-site. There are approximately 6,000 people on-site, of which 2,000 are associated with the research community.

The ANL-E research community is actively involved in developing new, environmentally friendly technologies that support DOE's commitment to developing technology, infrastructure, and industrial growth, while supporting improved environmental initiatives in support of DOE's National Energy Strategy and "Waste Minimization/Pollution Prevention Crosscut Plan." Examples of this include the Integral Fast Reactor (IFR), megalevitation programs, superconductivity, and improved industrial technology to recycle plastics, cars, and other items.

ANL-E has developed effective recycling programs for many of its low hazard wastestreams, but has also developed and demonstrated programs to recycle isotopes such as plutonium. Many of the research activities employ environmentally friendly techniques such as micro experimentation and recycling of valuable resources.

The ANL-E waste streams have grown slightly during the past several years. This is attributed to expanding programs such as the Advanced Photon Source and other programs, expanded decontamination and decommissioning programs, and a very aggressive effort to identify and eliminate orphan material and waste or material that does not have an identified purpose or use.

The ANL-E landfill was closed in fiscal year 1992. The waste is currently being disposed of commercially. Ninety-five percent of this material is being recycled as paper, plastic, glass, or refuse derived fuel.

The Waste Minimization Program at ANL-E has received insufficient external funding to achieve the results that might have been accomplished in such areas as recycling, alternative chemical use, training, and education.

Argonne National Laboratory - West

Idaho Falls, Idaho

(Chicago Field Operations Office)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
NE							✓			

DOE Employees: 17

Prime Contractor Employees: 843

Facility Description And Mission

The Argonne National Laboratory-West (ANL-W) site at the Idaho National Engineering Laboratory is dedicated to research and development on the base technology liquid metal fast breeder reactors. ANL-W operates to further nuclear technology by improving reactor and fuel safety designs.

The primary focus for ANL-W research is the Integral Fast Reactor (IFR) Project. The IFR's objectives are to increase reactor safety, reduce radioactive waste components and concentrations, and improve reactor fuel efficiency. Within the ANL-W site are a number of research support facilities that contribute to the mission of the Laboratory.

Total Waste Generation †

Waste Type	1991			1992		
<u>Cubic Meters</u>	<u>Liquid</u>	<u>Solid</u>	<u>TOTAL</u>	<u>Liquid</u>	<u>Solid</u>	<u>TOTAL</u>
Low-Level Waste (LLW)	0.00	210.14	210.14	0.00	187.54	187.54
MLLW	0.01	0.37	0.38	0.02	0.66	0.68
MTRU	0.00	0.42	0.42	0.00	0.42	0.42
Transuranic (TRU) Waste	0.00	1.25	1.25	0.00	0.20	0.20
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
<u>Metric Tons</u>		<u>Solid</u>	<u>TOTAL</u>		<u>Solid</u>	<u>TOTAL</u>
Sanitary Waste		1,923.23	1,923.23		1,522.26	1,522.26
Hazardous Waste						
State Regulated *		0.00	0.00		0.00	0.00
RCRA Regulated		9.22	9.22		23.00	23.00
TSCA Regulated		1.07	1.07		5.45	5.45

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Argonne National Laboratory - West
(Chicago Field Operations Office)

Site Executive Summary

The ANL-W site at the Idaho National Engineering Laboratory (INEL) is dedicated to research and development on the base technology liquid metal fast breeder reactors. The primary focus for ANL-W research is the Integral Fast Reactor (IFR) Project. The IFR Project objectives are to increase reactor safety, reduce radioactive waste components, and improve reactor fuel efficiency. Within the ANL-W site are a number of research and support facilities that contribute to the mission of the laboratory. Wastes generated at ANL-W are tied very closely with facility experiments and activities such as facility modifications to support the IFR Project. Total volumes of wastes generated in any given year cannot be used as a baseline due to the variety and duration of activities generating waste. While a meaningful percent reduction cannot be established, each waste stream can be considered for waste reduction. The five most significant ANL-W waste minimization activities for 1992 are summarized as follows:

- 1) Silver recovery and washwater recycling systems were installed in photoprocessors and have reduced off-site hazardous liquid waste shipments (due to silver and cadmium) by about 75 percent. Washwater required in the photoprocessors has been reduced by about 90 percent.
- 2) ANL-W participated in the INEL recycling program for hazardous materials. Recycling of RCRA regulated hazardous wastes substantially reduced ANL-W costs for hazardous waste disposal. The following materials were sent off-site for recycling in 1992:
 - Batteries (lead acid, gel-cells, Ni-Cd) - 5,476 lbs.
 - Circuit boards containing RCRA metals - 434 lbs.
 - Materials containing silver (film, paper) - 440 lbs.
 - Waste oil - 600 gal.
 - Excess lead - 1,500 lbs.
 - Recyclable Safety Kleen Solvent - 202 gal.
- 3) Two hazardous solvents used in the ANL-W Print Shop were replaced by a non-hazardous solvent and a less hazardous solvent. The substitution resulted in the elimination of a hazardous solvent contaminated rags waste stream and reduced the toxicity of the liquid waste stream by switching from a 1,1,1-trichloroethane based solvent to a petroleum naphtha based press roller cleaner.
- 4) ANL-W participated in the INEL Material Exchange Program. ANL-W accepted five exchanges of hazardous materials for use in experiments from other INEL contractors that would have been discarded as hazardous waste. In 1991, ANL-W was able to donate 120 gallons of janitorial supplies to the exchange to avoid discarding them as waste.
- 5) In 1991, ANL-W Plant Services purchased a chlorofluorocarbon (CFC) recovery system to recover, clean, and reuse CFCs from ANL-W systems. The system was placed into service in 1992.

**Battelle Columbus Laboratories
Decommissioning Project
Columbus, Ohio**

(Chicago Field Operations Office)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
EM										

DOE Employees: 2

Prime Contractor Employees: 207

Facility Description And Mission

Beginning in 1943, the Battelle Memorial Institute (BMI), a privately owned installation, performed atomic energy research and development work under contract to the DOE and its precursor agencies. BMI's Columbus Laboratories are located at the King Avenue site in Columbus, Ohio, and at the West Jefferson site in West Jefferson, Ohio.

Fifteen buildings, or portions thereof, became radioactively contaminated as a result of BMI's performance of work under it's government contract. The present mission of the Battelle Columbus Laboratories Decommissioning Project (BCLDP) is the decontamination and decommissioning of the laboratory's buildings and facilities for subsequent release to Battelle Corporate Offices control and future use without radiological constraints.

Total Waste Generation †

Waste Type	1991			1992		
<u>Cubic Meters</u>	<u>Liquid</u>	<u>Solid</u>	<u>TOTAL</u>	<u>Liquid</u>	<u>Solid</u>	<u>TOTAL</u>
Low-Level Waste (LLW) *	0.00	0.00	0.00	0.00	0.00	0.00
MLLW *	0.00	0.00	0.00	0.00	0.00	0.00
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
<u>Metric Tons</u>	<u>Solid</u>			<u>Solid</u>		
Sanitary Waste	Not Available			Not Available		
Hazardous Waste						
State Regulated *	0.00			0.00		
RCRA Regulated *	0.00			0.00		
TSCA Regulated *	0.00			0.00		

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Battelle Columbus Laboratories Decommissioning Project

(Chicago Field Operations Office)

Site Executive Summary

The Battelle Columbus Laboratories are privately owned. Since mid-1943, BMI has continuously performed contract research and development work at its Columbus Laboratories for the DOE and its predecessor agencies. The DOE no longer has a need to utilize the facilities for nuclear materials research and is obligated contractually to remove the residual radioactive contamination. The decontamination and decommissioning effort has different opportunities for waste minimization than an operating facility. The most significant waste minimization comes from the proper planning of each decontamination activity to limit the amount of waste eventually produced.

Waste generation by BCLDP was minimal for the years 1991-1992 because the project was in its planning phase. Waste generation data for 1991-1992 was not included in this waste minimization summary because the data was not recorded in a manner compatible with this tracking and reporting system.

In the future, the project will only report that waste which is processed through the Scientific Ecology Group in Oak Ridge, TN, for volume reduction services. Waste packaged and shipped directly to Hanford (or other disposal sites without processing) will not be included because there is not an opportunity for volume reduction or recycling of this material.

Brookhaven National Laboratory

Upton, New York

(Chicago Field Operations Office)

Lead OP	Additional OPs									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
ER				✓						

DOE Employees: 34

Prime Contractor Employees: 3,523

Facility Description And Mission

Brookhaven National Laboratory (BNL) is a multi-purpose research and development laboratory occupying about 8.3 square miles (2.6 square miles of which is developed) on Long Island 60 miles east of New York City.

The mission of BNL is to conceive, design, construct, and operate large, complex research facilities for fundamental scientific studies and to carry out both basic and applied research in physical, biomedical, and environmental sciences as well as selected energy technologies. In providing the use of large and complex facilities to the scientific community, BNL maintains close interaction with scientific personnel in universities and industry. In addition, cooperative research programs aid in the education of scientists and engineers.

Total Waste Generation †

Waste Type		1991			1992		
Cubic Meters		Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)		7.13	180.10	187.23	12.16	272.70	284.86
MLLW		4.15	3.44	7.59	2.69	0.19	2.88
MTRU *		0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *		0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *		0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons							
		Solid			Solid		
		TOTAL			TOTAL		
Sanitary Waste		798.32			801.29		
Hazardous Waste							
State Regulated		39.52			3.12		
RCRA Regulated		22.30			18.36		
TSCA Regulated		0.27			166.90		

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Brookhaven National Laboratory
(Chicago Field Operations Office)

Site Executive Summary

Waste minimization accomplishments at BNL are evident not only in the reduction or elimination of waste streams, but in the employee's awareness of the need to perform their work in an environmentally responsible manner.

Many significant waste minimization accomplishments at BNL are a result of efforts made by the departments on-site and their employees to investigate alternate materials and equipment that will provide a safer work environment and produce less waste. It should be noted that economic benefit is sometimes sacrificed for environmental benefit when implementing new products.

One of the most significant accomplishments, with the potential for the greatest impact on waste generation, was the formation of waste minimization working groups between hazardous waste management and department representatives. These groups provide a forum for the discussion of problems and solutions with regard to department operations and waste minimization, and work toward an end that will satisfy all involved.

Major waste minimization accomplishments for the reporting period included:

- The replacement of flammable scintillation cocktails with a non-hazardous, biodegradable cocktail called Ultima Gold, which eliminated a mixed waste stream.
- The substitution of cutting lubricants with Acculube, a vegetable oil based lubricant, which resulted in a reduction in skin problems, coolant runoff, machine clean up, fluid changes, and an annual savings of 1,040 man hours for Central Shops.
- The laundering of oily rags off-site reducing waste generation from five drums/month to 1.5 drums/month for Central Shops. This has also eliminated associated paperwork and hazardous waste management involvement.
- The development of a Waste Minimization Program Plan that specifies waste minimization policy and establishes a framework for systematic assessment of waste generating processes.
- The approval from the New York State Department of Environmental Conservation for its Hazardous Waste Reduction Plan.
- The use of an oil filter compactor to crush used oil filters. This has reduced the volume of filters to be disposed of by a factor of four while removing virtually all free liquids.

While perhaps not as significant in terms of size, there exist many more successes in waste minimization at BNL. From a lab-wide effect to impacting an individual's work, these successes reflect BNL's commitment to waste minimization.

Fermi National Accelerator Laboratory

Batavia, Illinois

(Chicago Field Operations Office)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
ER				✓						

DOE Employees: 14

Prime Contractor Employees: 2,200

Facility Description And Mission

Fermi National Accelerator Laboratory (Fermi) is located on a 6,800 acre site in the far western suburbs of Chicago, Illinois. It is a single program installation for exploring the fundamental structure of matter using high energy particle accelerators. In carrying out its mission, Fermi conducts research in high energy physics including the properties of particles and the forces that govern how the particles interact. The world's highest energy accelerator, the Tevatron, is located at Fermi. This accelerator operates in both fixed target and colliding beam modes.

A major environmental concern is the polychlorinated biphenyl (PCB) in the large transformers. Some 25 transformers will be chemically treated to reduce PCB concentration prior to disposal.

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)	2.56	52.90	55.46	3.81	141.20	145.01
MLLW	0.20	0.65	0.85	0.00	1.73	1.73
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons	Solid		TOTAL	Solid		TOTAL
Sanitary Waste	1,013.33		1,013.33	1,013.33		1,013.33
Hazardous Waste						
State Regulated	146.95		146.95	72.08		72.08
RCRA Regulated	31.47		31.47	45.64		45.64
TSCA Regulated	175.54		175.54	55.15		55.15

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Fermi National Accelerator Laboratory

(Chicago Field Operations Office)

Site Executive Summary

There were several factors that impacted the Waste Minimization Program in 1991 and 1992. The Tiger Team review, which occurred in 1992, had a negative impact because it was preceded by a major clean up that led to a large increase in waste generation.

Hazardous liquid chemical use was discontinued in radiation areas in 1991, which led to no liquid mixed waste being generated in 1992.

The Waste Minimization Pollution Prevention Awareness chapter in the "Environment, Safety, and Health (ES&H) Manual" was completed and implemented in October 1991. This resulted in building manager training and increased personnel awareness, and a reduction in waste generation.

The Waste Minimization Subcommittee was formed in February 1992 to discuss and suggest waste minimization possibilities, increase employee awareness, and implement waste minimization policy. This has had a positive impact on waste minimization.

Programs were implemented to reduce the use of ozone depleting chemicals and toxic or hazardous materials. Freon refrigerants are being recovered and reused. Halon fire protection systems are being replaced with non-hazardous water or carbon dioxide systems.

Princeton Plasma Physics Laboratory

Princeton, New Jersey

(Chicago Field Operations Office)

	Additional OP's										
Lead OP	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	
ER			✓								

DOE Employees: 17

Prime Contractor Employees: 837

Facility Description And Mission

Princeton Plasma Physics Laboratory (PPPL) is located on 72 acres of land leased from Princeton University in Princeton, New Jersey. PPPL conducts research in magnetic confinement fusion and also investigates the practical applications of plasma physics. These activities include experimental demonstration of economical fusion power through the development of the Tokamak series of fusion reactors. PPPL has two large tokamak devices, the Princeton Beta Experiment Modification and the Tokamak Fusion Test Reactor.

Total Waste Generation †

Waste Type		1991			1992		
Cubic Meters		Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)		0.00	35.00	35.00	0.00	35.00	35.00
MLLW		0.30	0.00	0.30	0.30	0.00	0.30
MTRU *		0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *		0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *		0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons				TOTAL			TOTAL
Sanitary Waste				266.35			234.56
Hazardous Waste							
State Regulated				0.00			14.70
RCRA Regulated				75.82			39.12
TSCA Regulated				0.00			4.57

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Princeton Plasma Physics Laboratory
(Chicago Field Operations Office)

Site Executive Summary

The PPPL is committed to a policy of environmental protection through waste minimization and pollution prevention. PPPL conducts its research and operations in a safe and environmentally sound manner. Management stresses to all of its employees the commitment to minimize waste generation by supporting source elimination, source reduction, and recycling activities.

Protection of the environment and the public are responsibilities of paramount concern and importance to the laboratory. PPPL's WMin accomplishments in 1991-1992 are as follows:

- In April 1992, the "Laboratory Waste Minimization and Pollution Prevention Plan" was approved by the Laboratory Director. The PPPL policy statement and commitment by upper management to provide support for waste minimization activities are well defined.
- Through source separation, a reduction of hazardous waste resulted from the careful separation of hazardous waste from non-hazardous wastes; co-mingled wastes reduced the total amount of hazardous waste that required off-site treatment, storage, or disposal.
- Product substitution for 1,1,1-trichloroethane was promoted through the trial use of less toxic or less harmful products. A follow-up study reported that substitutes were acceptable in most but not all applications. New substitute products are being sought.
- Bar coding efforts and the development of an integrated database were initiated. The goal is to create a real time database for an on-site chemical inventory and tracking system from "cradle to grave." The database would provide all the information regarding air emissions, sanitary discharges, and other waste disposal, i.e., a material balance for each chemical that is tracked via the barcode system.
- Lastly, employee awareness was stressed at monthly Environment, Safety, and Health (ES&H) Division meetings as well as in articles in the ES&H Bulletin. The process waste assessment procedure (in draft) emphasizes the importance of employee training and active participation in the solution process.

The direction of future waste minimization activities and accomplishment is to continue the efforts to find opportunities to eliminate or reduce wastes and to increase the amounts and types of materials recycled.

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8.2.3 Fernald Field Operations Office

The Fernald Field Operations Office manages only one reporting site, the Fernald Environmental Management Project which employs 2,146 people. Since production has ceased, the mission of the Fernald Field Operations Office is to complete the environmental restoration of the Fernald Environmental Management Project in the most cost effective, timely, and safe manner that is practical.

Table 8.4 represents the amount of radioactive and hazardous waste generated by the Fernald Environmental Management Project which reported to the Fernald Field Operations Office in 1991 and 1992.

**Table 8.4 1991-1992 Waste Generation at Reporting Site
Managed by the Fernald Field Operations Office**

Fernald Field Operations Office

Reporting Site	Radioactive (Cubic Meters)		Hazardous (Metric Tons)	
	1991	1992	1991	1992
FEMP	6,750	12,700	0.6	5.40
Total *	6,750	12,700	0.6	5.40

Legend	
Acronym	Reporting Site
FEMP	Fernald Environmental Management Project

* 1991 and 1992 totals are rounded to three significant figures. If the total was less than one cubic meter or one metric ton, it was rounded to the nearest tenth. These totals do not include sanitary waste generated in 1991 and 1992.

All of the radioactive and hazardous waste generated at the Fernald Environmental Management Project site was generated in the solid phase. The increase in radioactive waste at the Fernald Environmental Management Project site is primarily attributed to the generation of LLW; specifically, activities performed in accordance with an EPA Consent Agreement. These activities generated approximately 5,500 cubic meters of radioactive waste in 1992.

The Fernald Environmental Management Project's site description and site executive summary, which depict major waste minimization and pollution prevention activities in 1991 and 1992, commence on page 202.

Fernald Environmental Management Project

Cincinnati, Ohio

(Fernald Field Operations Office)

Lead OP	Additional OPs									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
EM										

DOE Employees: 58

Prime Contractor Employees: 2,088

Facility Description And Mission

The Fernald Environmental Management Project (FEMP) is a 1,050 acre site 17 miles northwest of Cincinnati, Ohio. Formerly named the Feed Materials Productions Center, FEMP had as its original mission the production of uranium metals and compounds. Production has ceased and FEMP's present mission is to complete the environmental restoration of the site in the most cost effective, timely, and safe manner that is practical.

Waste minimization plays a vital role in the remediation of the FEMP by providing cost avoidance options for waste management through reduction of the amount of waste generated. A reduction in the liabilities associated with waste may also result.

Total Waste Generation †

Waste Type		1991			1992		
Cubic Meters		Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)		0.00	6,669.80	6,669.80	0.00	12,571.00	12,571.00
MLLW		0.00	81.00	81.00	0.00	141.00	141.00
MTRU *		0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *		0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *		0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons							
		Solid			Solid		
Sanitary Waste		4,091.40		4,091.40	3,060.84		3,060.84
Hazardous Waste							
State Regulated *		0.00		0.00	0.00		0.00
RCRA Regulated		0.00		0.00	4.03		4.03
TSCA Regulated		0.64		0.64	1.37		1.37

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Fernald Environmental Management Project

(Fernald Field Operations Office)

Site Executive Summary

The mission of FEMP has changed from production to environmental restoration and waste management. Along with this change has come an expected increase in waste generation due to the removal actions performed as a result of the Consent Agreement with the EPA. Although there is an increase in the amounts of waste generated in 1992, there are positive waste minimization activities that have taken place that have reduced the potential amounts that would have been generated if these activities had not been implemented.

Five key initiatives at FEMP have highlighted the Waste Minimization Program. These included:

- Recycling/reuse of approximately 557 tons of non-contaminated metal materials and 105 tons of non-contaminated graphite materials from the safe shutdown activities.
- Issuance of the Waste Minimization and Pollution Prevention Plan Update, which sets clear, measurable waste reduction goals that were approved by Staff Managers and set forth as commitments to be met within the next year.
- Completion of a process waste assessment (PWA) on the contaminated, dry compactible waste stream, and setting a goal of 30 percent reduction of this waste stream. The assessment led to initiating a reusable container and repackaging program in Receiving, and a trash segregation policy in the contaminated area. To date, approximately 3,600 cubic feet of dry compactible waste has been diverted from becoming LLW.
- Creation of a CERCLA Waste Minimization Committee. This Committee performed qualitative waste assessments on current removal actions, and is charged with performing quantitative assessments on all future removal and remedial actions using waste life cycle cost analysis.
- Initiation of an on-site Pollution Prevention and Waste Minimization Awareness Program, which included the development of a site-specific video, publication of waste minimization articles, sponsorship of "Reuse Days," Earth Week activities, employee awards, and video conference training. The Program also included participation in numerous community outreach programs to heighten public knowledge of waste minimization concepts.

The challenge at FEMP is to prevent generating additional waste while remediation activities are underway to clean the legacy waste left from years of processing uranium. This will be done by planning and analyzing for pollution prevention and waste minimization opportunities during the developing stages of the environmental remediation process. In 1992, a step was made toward this goal by initiating waste segregation and beneficial reuse activities and promoting a conscious effort to practice waste minimization during each site activity. The awareness has enabled the Program to set goals for actual measurable reductions in waste generation that will continue in 1993.

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8.2.4 Idaho Field Operations Office

The mission of the Idaho Field Operations Office includes activities involving research and development in environmental, material, and computer sciences; oversight of the National Low-Level Waste Management Program; and a waste management program which encompasses waste minimization, treatment, storage, and other program support elements.

Table 8.5 represents the amount of radioactive and hazardous waste generated by each of the sites reporting to the Idaho Field Operations Office in 1991 and 1992.

**Table 8.5 1991-1992 Waste Generation at the Reporting Sites
Managed by the Idaho Field Operations Office**

Idaho Field Operations Office				
Reporting Site	Radioactive (Cubic Meters)		Hazardous (Metric Tons)	
	1991	1992	1991	1992
ICPP	2,470	1,770	17.1	25.8
INEL	948	1,170	152	154
WVDP	609	723	4.10	11.8
Total *	4,030	3,660	173	192

Legend	
Acronym	Reporting Site
ICPP	Idaho Chemical Processing Plant
INEL	Idaho National Engineering Laboratory
WVDP	West Valley Demonstration Project

* 1991 and 1992 totals are rounded to three significant figures. These totals do not include sanitary waste generated in 1991 and 1992.

Figures 8.8a, 8.8b, 8.9a and 8.9b show the reporting sites generating radioactive and hazardous waste that report to the Idaho Field Operations Office.

Site descriptions and site executive summaries, which depict major waste minimization and pollution prevention activities for each of the sites reporting to the Idaho Field Operations Office in 1991 and 1992, commence on page 208.

Figure 8.8a Solid Radioactive Waste Generation at the Reporting Sites Managed by the Idaho Field Operations Office

Solid Radioactive Waste Generation

Figure 8.8b Liquid Radioactive Waste Generation at the Reporting Sites Managed by the Idaho Field Operations Office

Liquid Radioactive Waste Generation

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure 8.9a 1992 Hazardous Waste Generation at the Reporting Sites Managed by the Idaho Field Operations Office

1992 Hazardous Waste Generation

Figure 8.9b 1991 Hazardous Waste Generation at the Reporting Sites Managed by the Idaho Field Operations Office

1991 Hazardous Waste Generation

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Idaho Chemical Processing Plant

Idaho Falls, Idaho

(Idaho Field Operations Office)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
EM			✓							

DOE Employees: 15

Prime Contractor Employees: 1,813

Facility Description And Mission

The Idaho Chemical Processing Plant (ICPP) is located on 177 acres in Scoville, Idaho, approximately 60 miles northwest of Idaho Falls. The ICPP mission is to receive, store, and prepare spent nuclear fuels and radioactive wastes for disposition for the DOE while operating in a manner that protects the safety of employees, the public, and the environment.

In carrying out its mission, ICPP develops and implements technologies for the disposal of spent fuel and HLW; receives, stores, and processes Navy and other DOE assigned nuclear fuels for disposition; and prepares high-level liquid and solid waste for disposal in a permanent repository. The plant also develops and applies technologies to minimize waste generation and manage radioactive and hazardous wastes, and conducts site remediation and decontamination and decommissioning activities.

Total Waste Generation †

Waste Type		1991			1992		
Cubic Meters		Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)		347.12	2,009.57	2,356.69	163.15	1,449.76	1,612.91
MLLW		0.00	2.79	2.79	0.00	70.42	70.42
MTRU *		0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *		0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste		109.78	0.00	109.78	83.28	0.00	83.28
Metric Tons							
		Solid			Solid		
		TOTAL			TOTAL		
Sanitary Waste		10,510.92			5,535.82		
Hazardous Waste							
State Regulated *		0.00			0.00		
RCRA Regulated		13.07			8.38		
TSCA Regulated		4.00			17.42		

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Idaho Chemical Processing Plant

(Idaho Field Operations Office)

Site Executive Summary

The first priority for Westinghouse Idaho Nuclear Company (WINCO) in 1992 was to re-energize and update its Waste Minimization (WMin) and Pollution Prevention Program. The existing WMin and Pollution Prevention Awareness Plan was revised to meet DOE guidelines and was submitted for formal review. By the end of 1993, WINCO also required each major waste generating facility to submit Facility Specific WMin Plans. Personnel resources made available to the Program include one full time WMin Coordinator and a part time WMin Committee consisting of representatives from waste generating and support organizations. In addition to each individual organization's budget, which must cover waste minimization activities in the specific areas, WINCO has established a WMin and Pollution Prevention budget of \$262,000 for fiscal year 1993. This budget provided for such items as program management, consultants, information transfer, new technologies, seminars and training, incentives and employee awareness, recycling, and product substitution. WINCO has identified and scheduled over 40 process waste assessments. Two scheduled for 1992 were completed.

Waste tracking and waste generation reporting was recently improved through the development of a database and tracking system. Prior to July 1992, waste generation was being tracked by building only. WINCO personnel identified and numbered over 600 existing waste streams. Presently, waste is being tracked by the process and the specific generating activity. WINCO is now able to determine the amount of waste generated by such activities as construction, maintenance, decontamination and decommissioning, operations, and spill clean up for each process. WINCO is in the process of developing a waste stream approval board to review new and existing waste streams. This board will provide overall approval of any waste currently being generated or anticipated in the future. The WINCO waste approval board will require waste characterizations to be submitted by the waste generator.

WINCO has set a goal of 10 percent waste reduction during 1993. This goal will use 1992 generation of low-level radioactive, hazardous, and mixed waste as baseline data. Several programmatic goals have been included in the "WMin and Pollution Prevention Awareness Plan". Specific goals are for all WINCO employees to include WMin goals as measures of job performance, attend Westinghouse GOCO Pollution Prevention Subcommittee meetings, and help develop a Westinghouse GOCO Pollution Prevention Implementation Guidelines Manual.

Several employee awareness campaigns have taken place at WINCO. These include a WMin and Pollution Prevention Slogan Contest, adopt a highway clean up campaigns, various posters and newsletters, and Earth Day promotions.

WINCO has completed extensive employee training. Several job and generation specific WMin and pollution prevention classes were given to operations personnel. These classes identified strategies that could be applied in the work place. The WINCO training organization has developed similar classes for maintenance personnel and are working on job specific classes for other personnel including engineers, technicians, analysts, and health physics technicians.

Idaho National Engineering Laboratory

Idaho Falls, Idaho

(Idaho Field Operations Office)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
EM	✓	✓		✓		✓	✓	✓		✓

DOE Employees: 513

Prime Contractor Employees: 6,287

Facility Description And Mission

Idaho National Engineering Laboratory (INEL) covers approximately 890 square miles of desert area in southern Idaho. The town of Idaho Falls is 42 miles to the southeast. Facilities located at INEL include nuclear reactors, fuel processing plants, and waste management capabilities.

The primary mission of INEL is to provide the facilities and apply the engineering and scientific expertise to support National Energy and Defense Programs. Most programmatic activities relate to development and testing of various energy technologies. These include the supervision of research and technical programs for advanced reactor designs and the management and operation of test reactors. Another prime focus of INEL's work includes environmental restoration, waste management, and associated technology development.

Total Waste Generation †

Waste Type	1991			1992		
<u>Cubic Meters</u>	<u>Liquid</u>	<u>Solid</u>	<u>TOTAL</u>	<u>Liquid</u>	<u>Solid</u>	<u>TOTAL</u>
Low-Level Waste (LLW)	0.00	896.00	896.00	0.00	1,077.38	1,077.38
MLLW	0.00	51.52	51.52	0.00	92.79	92.79
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
<u>Metric Tons</u>		<u>Solid</u>	<u>TOTAL</u>		<u>Solid</u>	<u>TOTAL</u>
Sanitary Waste		1,284.57	1,284.57		970.69	970.69
Hazardous Waste						
State Regulated		26.20	26.20		11.35	11.35
RCRA Regulated		119.83	119.83		139.21	139.21
TSCA Regulated		5.48	5.48		3.40	3.40

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Idaho National Engineering Laboratory
(Idaho Field Operations Office)

Site Executive Summary

The "Annual Report on Waste Generation and Waste Minimization Progress 1991-1992" was prepared for the DOE as required by a DOE Directive and Order. This Report addresses the 1991 and 1992 waste generation and reduction activities for DOE Idaho Field Office operations. This Report excludes waste generation data for the Naval Reactors Facilities (NRF), WINCO operations at the Idaho Chemical Processing Plant, and ANL-W. NRF and ANL-W both report to a different field office, and WINCO will supply their own report.

This Report attempts to track waste minimization activities by operational program. Where applicable, waste generation and reduction activities are listed for each operational program contributing to a waste stream.

Generators at INEL have made great strides in 1992 toward an overall reduction in waste generation. Programmatic highlights included:

- The performance of Process Waste Assessment (PWA) training for waste minimization coordinators and upper management. A PWA coordinator position was funded to oversee implementation of the PWA Program.
- The site-wide accessibility of the Hazardous Solvent Substitution Database System (HSSDS). The HSSDS was expanded to assist not only waste generators, but Industrial Hygienists, Environmental Coordinators, and Project Managers. Training sessions were given to help implement usage of the system.
- The revamping of the office Waste Recycling Program to cut costs and increase efficiency. Procedures for site and in-town locations were modified to streamline the process. Future plans call for expanded site recycling at controlled facilities and expanded metal recycling.
- The enhancement of Training and Public Outreach Programs in 1992. Pollution Prevention Awareness Training is part of new employee orientation and is required by all employees. A worldwide Pollution Prevention Conference was run by employees at INEL.
- The INEL Material Exchange Program and its continued assistance in exchanges between Federal agencies and contractors at INEL. This Program was initiated in 1991. Over 2,000 gallons of liquid chemical products and over 2,000 lbs of solid chemical products have been exchanged.

At INEL, we feel that waste minimization is OUR Program. We share its successes, and through more effective interfaces, we can maximize our chances of success without stumbling.

West Valley Demonstration Project

West Valley, New York

(Idaho Field Operations Office)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
EM										✓

DOE Employees: 18

Prime Contractor Employees: 940

Facility Description And Mission

The West Valley Demonstration Project (WVDP) is located in West Valley, New York. The WVDP's overall mission is to demonstrate solidification of liquid HLW for disposal in a safe, technically sound, and environmentally responsible manner. The following activities comprise the project: 1) solidify the liquid HLW; 2) develop containers suitable for permanent disposal of solidified HLW; 3) transport solidified waste to a Federal repository; 4) dispose of LLW and TRU wastes generated during the solidification process; and 5) decontaminate and decommission facilities used in HLW treatment.

Total Waste Generation †

Waste Type		1991			1992		
Cubic Meters		Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)		1.69	607.28	608.97	1.84	716.84	718.68
MLLW		0.41	0.03	0.44	3.68	0.17	3.85
MTRU *		0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *		0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *		0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons							
		Solid		TOTAL	Solid		TOTAL
Sanitary Waste		567.70		567.70	592.84		592.84
Hazardous Waste							
State Regulated		0.00		0.00	0.21		0.21
RCRA Regulated		1.46		1.46	11.60		11.60
TSCA Regulated		2.64		2.64	0.00		0.00

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

West Valley Demonstration Project
(Idaho Field Operations Office)

Site Executive Summary

The primary mission at WVDP is to pretreat, remove, solidify, and temporarily store HLW. One of the most significant waste minimization accomplishments at WVDP during the reporting period was to complete the pretreatment of HLW supernatant and begin the next phase of HLW pretreatment - sludge washing. Pretreatment of the HLW has already reduced the total mass of HLW by over 80 percent by separating out non-radioactive salts. These non-radioactive salts are subsequently concentrated and stabilized by adding cement.

HLW operations and decontamination activities at WVDP generate all types of radioactive waste in varying quantities, as well as small amounts of hazardous and TSCA wastes. The WVDP Waste Minimization Program addresses all types of radioactive waste as well as hazardous, industrial, and sanitary wastes. The five most significant waste minimization accomplishments during 1992 were:

- Reducing hazardous waste generation by approximately 30,000 kgs by segregation of refractory brick during inspection of the cold test ceramic melter.
- Using 385 kgs of radioactively contaminated lead shot (previously classified as mixed LLW) in fabrication of a shielded sampling container to be used for work in radiologically controlled areas.
- Initiating an office paper recycling program. The initial program recycled approximately 30 tons of paper in 1992. Employees were also encouraged to reduce distribution lists, use two sided copying, and utilize electronic mail.
- Surpassing waste generation reduction goals for LLW, mixed waste, and hazardous waste. The most noteworthy was LLW, with only slightly more than one third of the target volume limit being produced.
- Developing and implementing a shelf life program by warehouse personnel, designed to return chemicals to vendors prior to the chemical reaching its expiration date.

8.2.5 Nevada Field Operations Office

The Nevada Field Operations Office is dedicated to the testing of nuclear weapons and other weapons related activities. Secondary missions include disposal of *Defense Programs* low-level and mixed waste, and management of the Yucca Mountain Site Characterization Project.

Table 8.6 represents the amount of radioactive and hazardous waste generated by each of the sites reporting to the Nevada Field Operations Office in 1991 and 1992.

Table 8.6 1991-1992 Waste Generation at the Reporting Sites Managed by the Nevada Field Operations Office

Nevada Field Operations Office				
Reporting Site	Radioactive (Cubic Meters)		Hazardous (Metric Tons)	
	1991	1992	1991	1992
NTS	64.9	64.9	325	275
NLVF	0.5	—	36.9	48.6
Total *	65.4	64.9	362	324

* 1991 and 1992 totals are rounded to three significant figures. These totals do not include sanitary waste generated in 1991 and 1992.

Figures 8.10, 8.11a and 8.11b show the reporting sites generating radioactive and hazardous waste that report to the Nevada Field Operations Office.

Site descriptions and site executive summaries, which depict major waste minimization and pollution prevention activities for each of the sites reporting to the Nevada Field Operations Office in 1991 and 1992, commence on page 216.

Figure 8.10 Solid Radioactive Waste Generation at the Reporting Sites Managed by the Nevada Field Operations Office

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure 8.11a 1992 Hazardous Waste Generation at the Reporting Sites Managed by the Nevada Field Operations Office

1992 Hazardous Waste Generation

Figure 8.11b 1991 Hazardous Waste Generation at the Reporting Sites Managed by the Nevada Field Operations Office

1991 Hazardous Waste Generation

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Nevada Test Site

Mercury, Nevada

(Nevada Field Operations Office)

	Additional OP's										
Lead OP	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	
DP			✓								

DOE Employees: 14

Prime Contractor Employees: 4,672

Facility Description And Mission

The Nevada Test Site (NTS) occupies 1,350 square miles of restricted access, Federal land in Nye County, Nevada, approximately 65 miles northwest of Las Vegas.

The mission of NTS includes conducting nuclear and limited non-nuclear testing, and providing storage and waste disposal facilities for off-site generated TRU and mixed wastes. The NTS is currently used to conduct all United States nuclear weapons tests. To assure containment of the detonation products, these tests are only conducted underground, either in vertical holes or horizontal tunnels. Approximately 800 individual contamination sites have been identified that include the below ground and (formerly allowed) above ground testing locations, waste disposal sites associated with testing activities, and areas where surficial soils were contaminated with plutonium as a result of safety tests of nuclear devices.

Total Waste Generation †

Waste Type		1991			1992		
Cubic Meters		Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)		0.00	64.85	64.85	0.00	64.85	64.85
MLLW *		0.00	0.00	0.00	0.00	0.00	0.00
MTRU *		0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *		0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *		0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons			Solid	TOTAL		Solid	TOTAL
Sanitary Waste			8,117.49	8,117.49		9,550.84	9,550.84
Hazardous Waste							
State Regulated			217.72	217.72		176.90	176.90
RCRA Regulated			97.33	97.33		95.89	95.89
TSCA Regulated			10.40	10.40		2.47	2.47

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Nevada Test Site
(Nevada Field Operations Office)

Site Executive Summary

The NTS occupies 1,350 square miles of restricted access, Federally owned land. The NTS is located in Nye County in southern Nevada. It is located in a relatively sparsely populated area, approximately 65 miles northwest of Las Vegas, Nevada.

The NTS is currently used to conduct all U.S. nuclear weapons tests. These tests are conducted underground, either in vertical holes or horizontal tunnels, for containment of the detonation products.

The NTS was chosen in 1950 as the nation's on-continent nuclear weapons testing area due to its climate, low surrounding population density, and minimal risk to public safety and security. The Reynolds Electrical and Engineering Co., Inc., Waste Minimization Project Office has three full time employees dedicated to promoting waste minimization and pollution prevention, and executing DOE and executive orders throughout the entire NTS. All waste streams have been identified; process waste assessments and surveillances are completed on a regular basis; and notable improvements are ongoing in process modifications, product substitutions, avoidance, and the recycling of products. Reynolds Electric and Engineering Co., Inc. employees have developed a program to recycle printer and copier toner cartridges, which created a cost savings, and has generated work from other government agencies.

Closed loop effluent recycling for steam cleaning has been an aggressive approach to waste minimization by eliminating any discharge into the environment. Benefits of having these units throughout the NTS are as follows: 4.7 million gallons of water saved annually; savings in operation and permit costs; and a 90 percent reduction in hazardous waste generation. Two solvent stills recycle approximately 85 percent of all solvents and thinners used by Reynolds Electrical and Engineering Co., Inc. This has greatly reduced hazardous waste generation by recycling solvents up to four times before disposal. Five parts washers have been added to the Fleet Operations Department. The high pressure, hot soapy water washers have completely eliminated the need for parts cleaning solvents. This process modification has saved operational dollars and eliminated a hazardous waste stream. Reynolds Electrical and Engineering Co., Inc. has created a "Just-In-Time" supply system. This allows the company to reduce its product stock and control items with a shelf life, in order to reduce waste. The company now pre-approves all materials that fall under contracts, introducing product substitution, where possible, on hazardous materials, and doing the job right the first time.

The Waste Minimization Project Office is working to develop a resource library to share technology development, process modifications, best practices, and lessons learned. This aggressive approach will also aid in our extensive waste minimization, pollution prevention, recycling, and public outreach and awareness campaign, reaching all NTS employees and the surrounding communities.

North Las Vegas Facility

Las Vegas, Nevada

(Nevada Field Operations Office)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
DP										

DOE Employees: 0 ‡

Prime Contractor Employees: 1,874

Facility Description And Mission

The North Las Vegas Facility's primary mission is to provide critical instrumentation and data collection support for nuclear test experiments for national security purposes which are sponsored by the DOE, designed by the national laboratories, and conducted at the NTS. Areas of environmental interest include plating and metal finishing, solvent cleaning, photographic processing, X-ray laboratory operations, hazardous waste accumulation, pesticide and herbicide operations, and source range.

These activities are supported by a variety of EG&G Energy Measurements, Inc., facilities in Pleasanton, Goleta, and Santa Barbara, California; Woburn, Massachusetts; Los Alamos, New Mexico; and at Andrews, Kirtland, and Nellis Air Force Bases.

Total Waste Generation †

Waste Type		1991			1992		
Cubic Meters		Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)		0.00	0.50	0.50	0.00	0.00	0.00
MLLW *		0.00	0.00	0.00	0.00	0.00	0.00
MTRU *		0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *		0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *		0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons							
		Solid		TOTAL	Solid		TOTAL
Sanitary Waste		2,210.14		2,210.14	1,889.99		1,889.99
Hazardous Waste							
State Regulated		4.32		4.32	6.48		6.48
RCRA Regulated		32.54		32.54	42.06		42.06
TSCA Regulated *		0.00		0.00	0.00		0.00

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

‡ - DOE employee totals do not include part time employees.

North Las Vegas Facility
(Nevada Field Operations Office)

Site Executive Summary

The EG&G Energy Measurements, Inc. accomplishments in 1991 and 1992 included:

- An annual review of waste streams to identify areas where substitutions or process changes would be affective.
- Implementation of a chemical inventory system to reduce the diversity of toxic chemicals and the number of waste streams throughout the workplace.
- Production and presentation of waste minimization videos to selected employees.
- Initiation of a hazardous materials acquisition system at Kirtland Operations, whereby hazardous materials requests are reviewed and approved prior to being placed.
- Recognition awarded to employees for suggestions offered to minimize liquid printed circuit board labortory and liquid mercury wastes at the Special Technologies Laboratory and Santa Barbara Operations.
- Filtering of fuel sample waste streams for reuse at the Flight and Avallation Support Section of the Washington Aerial Measurements Departments.
- An overall reduction in the volume of all types of waste at Woburn Operations.
- A reduction in the amount of used batteries.
- Transferring petroleum based waste to the Air Force for recycle and reuse.

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8.2.6 Oak Ridge Field Operations Office

The mission of the Oak Ridge Field Operations Office is to produce radio isotopes; develop power reactor fuels; conduct life and physical science research; enrich uranium for commercial reactors; and manufacture components for other defense agencies.

Table 8.7 represents the amount of radioactive and hazardous waste generated by each of the sites reporting to the Oak Ridge Field Operations Office in 1991 and 1992.

Table 8.7 1991-1992 Waste Generation at the Reporting Sites Managed by the Oak Ridge Field Operations Office

Oak Ridge Field Operations Office

Legend	
Acronym	Reporting Site
FUSRAP	Formerly Utilized Sites Remedial Action Program
ORISE	Oak Ridge Institute for Science and Education
K-25	Oak Ridge K-25 Site
ORNL	Oak Ridge National Laboratory
Y-12	Oak Ridge Y-12 Plant
OSTI	Office of Scientific and Technical Information
PGDP	Paducah Gaseous Diffusion Plant
PORTS	Portsmouth Gaseous Diffusion Plant
WSSRAP	Weldon Spring Site Remedial Action Project

Reporting Site	Radioactive (Cubic Meters)		Hazardous (Metric Tons)	
	1991	1992	1991	1992
FUSRAP	5,060	168	0.8	47.1
ORISE	26.7	14.7	0.2	0.2
K-25	57,600	79,800	805	334
ORNL	4,010	4,230	189	151
Y-12	10,600	8,510	1,090	941
OSTI	—	—	4.06	8.06
PGDP	2,010	1,320	68.5	189
PORTS	3,100	2,390	248	295
WSSRAP	15.1	22.0	1.30	0.8
Total *	82,400	96,500	2,410	1,970

* 1991 and 1992 totals are rounded to three significant figures. These totals do not include sanitary waste generated in 1991 and 1992.

A large majority of the radioactive waste generated in 1991 and 1992 is directly related to the increase in MLLW from the TSCA Incinerator Facility and steam plant blowdown from the Oak Ridge K-25 Site.

Figures 8.12a, 8.12b, 8.13a and 8.13b show the reporting sites generating radioactive and hazardous waste that report to the Oak Ridge Field Operations Office.

Site descriptions and site executive summaries, which depict major waste minimization and pollution prevention activities for each of the sites reporting to the Oak Ridge Field Operations Office in 1991 and 1992, commence on page 226.

Figure 8.12a Solid Radioactive Waste Generation at the Reporting Sites Managed by the Oak Ridge Field Operations Office

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure 8.12b Liquid Radioactive Waste Generation at the Reporting Sites Managed by the Oak Ridge Field Operations Office

* MLLW wastewater from the Oak Ridge K-25 Site.

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure 8.13a 1992 Hazardous Waste Generation at the Reporting Sites Managed by the Oak Ridge Field Operations Office

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure 8.13b 1991 Hazardous Waste Generation at the Reporting Sites Managed by the Oak Ridge Field Operations Office

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Formerly Utilized Sites Remedial Action Program

Oak Ridge, Tennessee

(Oak Ridge Field Operations Office)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
EM										

DOE Employees: 4

Prime Contractor Employees: 15

Facility Description And Mission

In 1974 the Atomic Energy Commission, now the DOE, instituted the Formerly Utilized Sites Remedial Action Program (FUSRAP) to identify and remediate or otherwise control residual radioactive contamination that remains from the early years of the nation's atomic energy program or from commercial operations that Congress authorized DOE to remedy.

The mission of FUSRAP is fourfold: 1) to decontaminate and/or apply controls where needed; 2) to dispose of and/or stabilize all generated residues in a radiologically and environmentally acceptable manner; 3) to accomplish all work in accordance with landowner agreements and local and State land use requirements to the extent permitted by DOE and Federal laws and regulations; and 4) to certify that remediation is complete and the site is safe for appropriate future use.

Total Waste Generation †

Waste Type		1991			1992		
Cubic Meters		Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)		0.00	5,060.84	5,060.84	0.00	127.99	127.99
MLW		0.00	0.00	0.00	0.00	39.75	39.75
MTRU *		0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *		0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *		0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons							
		Solid			Solid		
Sanitary Waste		111.45		111.45	127.37		127.37
Hazardous Waste							
State Regulated *		0.00		0.00	0.00		0.00
RCRA Regulated		0.00		0.00	0.03		0.03
TSCA Regulated		0.75		0.75	47.03		47.03

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

FUSRAP waste generation data represent information from three FUSRAP sites: Albany Metallurgical Research Center (Albany, OR), Colonie Interim Storage Site (Colonie, NY), and Elza Gate Site (Oak Ridge, TN).

Formerly Utilized Sites Remedial Action Program

(Oak Ridge Field Operations Office)

Site Executive Summary

In 1974 the Atomic Energy Commission, a predecessor agency to the DOE, instituted FUSRAP. The objective of FUSRAP, now managed by DOE, is to identify and remediate or otherwise control residual radioactive contamination (exceeding current guidelines) that remains from the early years of the nation's atomic energy program or from commercial operations causing conditions that Congress has authorized DOE to remedy. To date, 44 sites in 14 States have been designated for clean up under FUSRAP and remediation has been completed at 11 of those sites. The project management contractor for FUSRAP is Bechtel National, Inc.

FUSRAP is an environmental restoration program; all substantive activities are associated with either field characterization or design and implementation of remedial actions. Because the quantity of new waste generated during remedial action at FUSRAP sites is small compared to the volume of existing waste being retrieved, only a few waste minimization techniques are appropriate.

Waste minimization, by strict definition, includes only activities that minimize or eliminate waste generation and recycling activities that use, reuse, or reclaim a material from a waste stream. Typical new waste generated by FUSRAP includes materials such as used personal protective equipment, support equipment and materials, and secondary waste from decontamination activities. Techniques to minimize the amount of newly generated waste include material substitution, segregation, consolidation, loss prevention, supply control, recycling, and housekeeping.

In addition to waste minimization efforts, FUSRAP is primarily concerned with reduction of existing wastes. The sites where remedial action has not been completed are contaminated with various radioactive and/or chemical wastes, primarily on building surfaces and in soil. For the reporting period, the waste minimization and reduction highlights include:

- Installation of a scrap metal shredder and compactor at the Colonie Interim Storage Site.
- Preparation and submittal for bids of subcontracts for incinerating radioactively contaminated personal protective clothing and smelting radioactively contaminated scrap metal.
- Treatment of polychlorinated biphenyl (PCB) contaminated waste oil to essentially negligible PCB concentration levels.
- Reclamation of RCRA regulated mercury waste.
- Implementation of two new recycling programs for recycling aluminum cans and procuring recycled paper products at the project management contractor's home office.

FUSRAP waste generation data represents three sites: Albany Metallurgical Research Center (Albany, OR), Colonie Interim Storage Sites (CISS), Colonie, NY and Elza Gate Site (Oak Ridge, TN). CISS wastes were generated from soils, process equipment, building surfaces, etc., that became radiologically contaminated and are being remediated and shipped off-site for disposal. DOE was assigned remediation responsibility for this site by Congress. These are not process wastes. Elza Gate Site wastes are soils that were radiologically contaminated from spillage during the Manhattan Engineer District activities which were remediated from sites and placed in permanent disposal. These are not process wastes. Work has been completed at the Elza Gate Site.

Oak Ridge Institute for Science and Education

Oak Ridge, Tennessee

(Oak Ridge Field Operations Office)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
ER										

DOE Employees: 1

Prime Contractor Employees: 750

Facility Description And Mission

The Oak Ridge Institute for Science and Education (ORISE) occupies 340 acres in Oak Ridge, Tennessee, and is managed and operated by Oak Ridge Associated Universities, Inc. ORISE works with the DOE and others to develop and provide capabilities that are critical to the nation's science and technology infrastructure, particularly in science and engineering education, training and management systems, medical sciences, and environmental and energy systems.

Total Waste Generation †

Waste Type		1991			1992		
Cubic Meters		Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)		0.00	26.59	26.59	0.00	14.44	14.44
MLW		0.12	0.00	0.12	0.11	0.00	0.11
TRU *		0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *		0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *		0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons		Solid		TOTAL	Solid		TOTAL
Sanitary Waste		Not Available		Not Available	5.62		5.62
Hazardous Waste							
State Regulated		0.03		0.03	0.02		0.02
RCRA Regulated		0.20		0.20	0.14		0.14
TSCA Regulated		0.02		0.02	0.01		0.01

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Oak Ridge Institute for Science and Education

(Oak Ridge Field Operations Office)

Site Executive Summary

The Oak Ridge Associated Universities operates the ORISE, providing both opportunities in medical and energy research and training for Federal facilities. The main accomplishments were:

- The initiation of procurement control practices that route all purchases of chemicals through the Office of Safety and Environmental Assurance before purchasing can begin. This minimizes "case buying" of hazardous materials.
- The Recycling Program - this Program, currently administrated by the Oak Ridge Associated Universities Employees' Club, includes paper recycling that will be administered by the Office of Safety and Environmental Assurance in the future. It will also be expanded to include aluminum and glass.
- The Detoxification / Neutralization process - this process of neutralizing acids, performing Toxicity Characteristic Leaching Procedure (TCLP) analyses on these wastes, has resulted in the ability to both declare these wastes non-hazardous and dispose of them in the laboratory instead of incurring excessive disposal costs.
- The compaction of LLW - amounts have been reduced by 50 percent.
- The in-house exchange system, which puts excess chemicals to use in other ORISE divisions instead of sending them for disposal, has resulted in mediocre but increasing interest among laboratory technicians and researchers. It is believed that this program will increase over the next several years as researchers realize the benefits from decreased cost of chemicals. As money becomes more readily available for waste minimization purposes, ORISE believes that, even though very little waste is generated, we can expect as much as a 100 to 200 percent increase in the recycling of paper, and an approximate decrease of 10 to 20 percent in the volume of waste chemicals being generated over the next two years.

Oak Ridge K-25 Site

Oak Ridge, Tennessee

(Oak Ridge Field Operations Office)

Lead OP	Additional OP's									
	DF	EE	EM	ER	ET	FE	NE	NP	PM	RW
EM	✓						✓			

DOE Employees: 12

Prime Contractor Employees: 3,883

Facility Description And Mission

The Oak Ridge K-25 Site is the headquarters for the *Environmental Restoration and Waste Management Programs* (EM) Organizations, responsible for activities at DOE facilities managed by Martin Marietta Energy Systems, Inc. The site is home to both the Oak Ridge Center for Environmental Technology and the Center for Waste Management. Major activities include operating the TSCA Incinerator Facility; environmental and waste management technology research, development, demonstration, testing, and evaluation; technology transfer; waste treatment, storage, and disposal; analytical laboratory services; and support for remedial actions, decontamination and decommissioning, waste management, and other EM activities.

The K-25 Site occupies 1,500 acres approximately 13 miles west of Oak Ridge, Tennessee. More than 260 acres of floor space in former gaseous diffusion facilities is devoted to waste management activities, technology demonstrations, and decontamination and decommissioning. Centrally located, the K-25 Site is easily accessible to DOE Headquarters, the Fernald Environmental Management Project (FEMP), and the Savannah River Site (SRS), as well as the DOE facilities in Portsmouth, Ohio, and Paducah, Kentucky.

Total Waste Generation †

Waste Type		1991			1992		
Cubic Meters		Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)		0.00	716.60	716.60	0.00	2,151.60	2,151.60
MLW		56,931.23	0.00	56,931.23	77,696.98	0.00	77,696.98
MTRU *		0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *		0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *		0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons							
		Solid		TOTAL	Solid		TOTAL
Sanitary Waste		1,092.25		1,092.25	774.74		774.74
Hazardous Waste							
State Regulated *		0.00		0.00	0.00		0.00
RCRA Regulated *		0.00		0.00	0.00		0.00
TSCA Regulated		805.37		805.37	334.15		334.15

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Oak Ridge K-25 Site
(Oak Ridge Field Operations Office)

Site Executive Summary

The Oak Ridge K-25 Site generates sanitary, low-level, mixed low-level, and Toxic Substances Control Act (TSCA) wastes. Approximately 98 percent of the mixed low-level waste was generated by the TSCA Incinerator Facility wastewaters and the Steam Plant hydrogen softener blow-down. However, these waste waters were treated at the Central Neutralization Facility and discharged at National Pollutant Discharge Elimination System (NPDES) points.

At the K-25 Site, the Pollution Prevention Program is designed to minimize pollutant releases from operations to all environmental media to protect public health and the environment. Intensive radiation monitoring led to segregation of various wastes for on-site recycling, disposal, or sale. The K-25 Site Pollution Prevention Council, made up of a representative from each division, plays a major role in providing awareness and a mechanism for communication of waste minimization activities. The K-25 Site implemented numerous pollution prevention activities. Some of the selected waste minimization activities in 1992 were:

- The formation of a Performance Improvement Project Team to study and make recommendations on photographic waste reduction by recovery of silver from solution. A document, "Photographic Facilities Process Waste Assessment," has been prepared and published.
- The modification of the acid digestion and other analytical procedures by the Analytical Services Division, reducing stack emissions by 90 percent and acid waste generation by 50 percent.
- The purchase of three color printers that produce high quality products by the Graphic Arts Department, thus eliminating the need for many of the projects to go through a photographic process and generating 90 percent less waste.
- The purchase and installation of a chemical evaporator to reduce the volume of photographic waste (95 percent through dehydration) in the Itex camera process.
- The decrease in the volume of waste paint thinners (18, 55-gallon drums of solvent per year) through a solvent settling process, which allows reuse of solvents.
- The development of a new method with a closed recirculating loop to reduce the waste generation 98 percent (2,570 gal/yr of mixed waste) when calibrating the liquid waste flow meters at the TSCA Incinerator.

Although waste generation increased from 1991 to 1992, the Waste Minimization Program was expanded and a number of waste minimization successes were recorded. Future waste minimization activities will reduce wastes generated by the routine activities; however, wastes on-site will increase because of the increased remedial action and D&D program activities, and K-25 Site's role as a national waste management technology center.

Oak Ridge National Laboratory

Oak Ridge, Tennessee

(Oak Ridge Field Operations Office)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
ER	✓	✓	✓			✓	✓	✓		✓

DOE Employees: 50

Prime Contractor Employees: 6,916

Facility Description And Mission

Oak Ridge National Laboratory (ORNL) is a multi-purpose research and development facility that focuses on technology development of national importance, including the identification and development of solutions to complex problems in energy based technologies such as materials development, separation techniques, chemical processes, biological screening, and biotechnology. ORNL research provides the data to make informed decisions concerning various energy technology options.

Total Waste Generation †

Waste Type		1991			1992		
	Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)		0.00	1,939.71	1,939.71	0.00	2,687.42	2,687.42
MLLW		2,045.44	0.00	2,045.44	1,521.74	0.00	1,521.74
MTRU *		0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste		0.00	19.90	19.90	0.00	15.89	15.89
High-Level Waste *		0.00	0.00	0.00	0.00	0.00	0.00
	Metric Tons	Solid		TOTAL	Solid		TOTAL
Sanitary Waste		1,206.56		1,206.56	1,002.44		1,002.44
Hazardous Waste							
State Regulated		36.21		36.21	42.94		42.94
RCRA Regulated		95.44		95.44	88.08		88.08
TSCA Regulated		57.20		57.20	20.02		20.02

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Oak Ridge National Laboratory
(Oak Ridge Field Operations Office)

Site Executive Summary

The Waste Minimization Program at ORNL has enjoyed increased financial and management support over the past few years. This support is particularly apparent with ORNL's upper management, who have continually expressed an interest in the status of waste minimization goals and provided guidance and directives for waste minimization activities. Additionally, it is apparent from the increased questions and suggestions that the ORNL staff is becoming increasingly aware of waste minimization applications in their own work activities. Among the significant accomplishments were:

- A 22 percent reduction in the disposal of sanitary waste due to the success of paper and cardboard recycling programs and the increased use of natural gas at the steam plant.
- The completion of four process waste assessments for photochemical waste, solvent degreasing operations, methylene chloride use in analytical solvent extractions, and liquid uranyl nitrate waste.
- The incorporation of waste minimization concepts in waste generator training and an overall increased employee awareness of waste minimization/pollution prevention concepts.
- The development of a comprehensive waste minimization plan, addressing the requirements of the Tennessee Hazardous Waste Reduction Act, Federal Facilities Compliance Agreement, the Tennessee Oversight Agreement, and the new DOE Radiation Control Manual. The updated plan will aid in the completion of specific program activities that will ensure the continued development of a successful program.

The Waste Minimization Program staff are actively involved in an information exchange forum with staff from K-25, Y-12, Portsmouth, and the DOE Field Office. This Pollution Prevention Task Team has been in place over a year and addresses issues that are applicable to all Martin Marietta Energy Systems' sites and strategic planning activities for the future development of the minimization programs. In addition to information exchange, the focus of this group is to reduce any duplication of effort and efficiently use limited funds and resources. The Task Team has also organized or participated in outreach activities such as the Trash Bash (clean up of the lake bordering the Oak Ridge Reservation) and the Environmental Fair, which introduced area school children to the waste minimization and clean up activities at the three facilities in Oak Ridge. Staff from the ORNL Waste Minimization Program have also participated in waste minimization working groups organized by the *Energy Research Program* (ER) and the *Environmental Restoration and Waste Management Program* (EM) in an effort to identify and overcome program wide obstacles to waste minimization. Through a coordinated effort, these working groups function much like the Pollution Prevention Task Team in ensuring the maximum benefit is achieved from finite resources. The ER workshops, in particular, address waste minimization issues appropriate to a laboratory setting. In addition, waste minimization staff have developed a working relationship with procurement staff and have been successful in incorporating into procurement practices waste minimization and recycled product awareness.

Oak Ridge Y-12 Plant

Oak Ridge, Tennessee

(Oak Ridge Field Operations Office)

Lead OP	Additional OPs									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
DP			✓							

DOE Employees: 51

Prime Contractor Employees: 7,701

Facility Description And Mission

The Oak Ridge Y-12 Plant occupies an 800 acre site about two miles south of the city of Oak Ridge, Tennessee. The plant, built in 1943 as a part of the Manhattan Project, was established to separate uranium isotopes using an electromagnetic process. When the process was discontinued after World War II, the Y-12 Plant's mission changed to production and disassembly of nuclear weapons components, development and fabrication of test hardware, and processing of special nuclear material.

Increasingly the plant's work load is shifting to the disassembly of stockpiled weapons and the storage and recycling of strategic materials. Also, a significant component of the Y-12 Plant's current mission consists of conducting investigations for identification and remediation of environmental contamination stemming from earlier operations. The official plant mission is to serve as a manufacturing technology center for maintaining the capabilities of safe, secure, reliable, and survivable nuclear weapon systems.

Total Waste Generation †

Waste Type		1991			1992		
Cubic Meters		Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)		1,043.90	6,023.00	7,066.90	589.62	5,711.00	6,300.62
MLLW		2,756.85	734.00	3,490.85	1,724.43	481.00	2,205.43
MTRU *		0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *		0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *		0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons							
		Solid		TOTAL	Solid		TOTAL
Sanitary Waste		8,638.62		8,638.62	6,187.56		6,187.56
Hazardous Waste							
State Regulated		10.76		10.76	20.33		20.33
RCRA Regulated		811.38		811.38	840.03		840.03
TSCA Regulated		272.25		272.25	80.32		80.32

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Oak Ridge Y-12 Plant
(Oak Ridge Field Operations Office)

Site Executive Summary

The Y-12 Plant Waste Minimization Program officially began in February 1991 with the appointment of a Program Manager and the establishment of a specific budget. However, efforts began several years prior, when dedicated employees responded to environmental and cost pressures.

An example of a past success is the Chlorinated Solvent Substitution Program. This Program has reduced the purchase of chlorinated solvents from 39,000 gallons (in 1988) to 3,200 gallons (in 1992). Research continues on the few difficult substitution problems that remain. Significant waste minimization accomplishments of 1992 are listed below.

- **The Waste Tracking System:** A computer database is now in place that can provide a variety of information about plant wastes. This database will provide the summary and historical information needed to do the technical and economic analyses required for waste minimization projects. Prior to the development of this database, summary information about broad usage wastes, such as oils, was hard to obtain.
- **Process Waste Assessments (PWAs):** Eight PWAs were completed that reviewed the bulk of the waste generating processes in the plant. Many recommendations have been funded, particularly low dollar expense projects. Funding for the capital projects has been limited, as has been the case for most capital projects within the plant.
- **The Recycling Program:** The Recycling Program significantly expanded operations in 1992 as seen in the table below. The amounts are in tons.

	<u>1991</u>	<u>1992</u>	<u>Percent Increase</u>
Paper, including newspaper grade	206	304	50
Aluminum beverage cans	8.6	14.3	66
Corrugated cardboard	-	119	-

A mandatory training program targeting all on-site employees in the specifics of using the Recycling Program was created and administered. Monies received from the sale of aluminum cans go to an employee run charitable contribution program. Paper and cardboard receipts return to the Y-12 General Fund.

- **The Y-12 Swap Shop:** The Swap Shop is a system of electronic communication between an owner of excess material and a group of environmentally aware employees representing all work areas of the plant. Based on their knowledge of operations, these employees inform potential users of this material. A conservative estimate of savings in 1992 was \$38,000.
- **The Plating Shop Improvements:** On a per unit work basis, plating rinse water requirements were reduced by an average of 44 percent. Cyanide bearing wastes were reduced significantly with cadmium and copper substitutes. Piping changes were made to capture potential leaks within the tanks that the pipes serve.

Office of Scientific and Technical Information

Oak Ridge, Tennessee

(Oak Ridge Field Operations Office)

	Additional OPs										
Lead OP	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	
ET											

DOE Employees: 165

Prime Contractor Employees: 135

Facility Description And Mission

The DOE, Office of Scientific and Technical Information (OSTI) is located on a four acre site in Oak Ridge, Tennessee. OSTI is the DOE Program Office responsible for providing information management support and direction for the DOE's *Science Education and Technical Information Program* (ET). This includes a centralized capability to assist in accomplishing DOE's missions related to economic growth, national security, and environmental protection.

Organizationally, OSTI is a part of the ET. OSTI is a small quantity generator of RCRA regulated hazardous wastes from its printing, photographic, and microfilm operations. No radioactive wastes are generated at the facility.

Total Waste Generation †

Waste Type		1991			1992		
Cubic Meters		Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW) *		0.00	0.00	0.00	0.00	0.00	0.00
MLLW *		0.00	0.00	0.00	0.00	0.00	0.00
MTRU *		0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *		0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *		0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons							
		Solid		TOTAL	Solid		TOTAL
Sanitary Waste		302.18		302.18	282.58		282.58
Hazardous Waste							
State Regulated		0.56		0.56	0.94		0.94
RCRA Regulated		3.27		3.27	6.97		6.97
TSCA Regulated		0.23		0.23	0.15		0.15

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Office of Scientific and Technical Information
(Oak Ridge Field Operations Office)

Site Executive Summary

OSTI is a small quantity generator of RCRA regulated hazardous wastes from its printing, photographic, and microfilm operations. Significant accomplishments highlighted below during the reporting period provided OSTI with a baseline for source reduction research and planning to obtain measurable reduction results within the next five years. Primary goals are to: 1) substitute chemicals with less hazardous materials at the source in current processes by 1994, and 2) change methods or processes that currently generate hazardous waste in management of the DOE's scientific and technical information to high-tech electronic imaging processes that do not use chemicals.

Five significant waste minimization accomplishments were noted during the reporting period:

- OSTI achieved zero discharge and 97 percent volume reduction of silver contaminated photographic wastes generated in second half of 1992. This resulted in a net savings of \$129,000 per year in commercial transport, treatment, and disposal of drummed wastes.
- OSTI identified recovery, recycling, and reuse sources for all State regulated hazardous waste from current generation and laboratory cleanouts.
- OSTI established an EPA Identification Number for RCRA reporting requirements to track waste generation reduction efforts from 1991 through 1992.
- OSTI reduced the number of RCRA regulated hazardous waste streams from 12 to three at the end of 1992.
- OSTI performed waste characterization, profiling, and segregation of waste streams to implement the most cost effective waste management program for each type of generated waste.

Finally, OSTI plans to achieve minimization progress with improved effort in areas of awareness, recycling, and generation. It is realized that waste minimization progress crosses all organizational lines and should be involved at every stage of OSTI business planning, from mission statement, through conduct of operations, to disposition of the DOE's research and development information products and services.

Paducah Gaseous Diffusion Plant

Paducah, Kentucky

(Oak Ridge Field Operations Office)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
NE				✓						

DOE Employees: 15

Prime Contractor Employees: 1,840

Facility Description And Mission

The Paducah Gaseous Diffusion Plant (PGDP) represents a major part of the world's capacity to produce enriched uranium. The Paducah and Portsmouth Facilities are the nation's two remaining operating enrichment plants. The Paducah Plant occupies 740 acres approximately 10 miles west of Paducah, Kentucky. The Plant's mission is the separation of uranium isotopes using the gaseous diffusion process, producing enriched uranium for nuclear fuel.

In addition to the enrichment operations, the Plant has the capability and facilities for technical support in all areas of gaseous diffusion technology: barrier, compressors, materials, and chemistry; instrumentation and control systems; and environment, safety, and health. A significant component of the current site mission consists of conducting investigations for identification and remediation of environmental contamination stemming from prior operations.

Total Waste Generation †

Waste Type		1991			1992		
Cubic Meters		Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)		0.00	1,874.58	1,874.58	0.00	499.79	499.79
MLLW		0.00	137.05	137.05	0.00	823.94	823.94
MTRU *		0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *		0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *		0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons							
		Solid			Solid		
Sanitary Waste		1,236.49			577.88		
Hazardous Waste							
State Regulated *		0.00			0.00		
RCRA Regulated *		0.00			0.00		
TSCA Regulated		68.49			189.19		

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Paducah Gaseous Diffusion Plant

(Oak Ridge Field Operations Office)

Site Executive Summary

The PGDP Waste Minimization Program strived to fulfill the requirements of several DOE Orders and plant environmental goals in 1992. A site "Waste Minimization Plan" was issued that provided strategies to reduce generation of all plant wastes. An implementation plan was issued that detailed divisional goals in reducing generation rates from specific high priority waste streams. These plans provide the foundation to continue improvements in segregation, substitution, and minimization of hazardous waste. The following is a list of major accomplishments for 1992:

- A full-time Waste Minimization/Pollution Prevention Program manager was appointed to develop priorities and assist waste generators in tracking and reducing waste.
- A program was instituted to begin elimination of aerosol can products. Bulk chemicals were purchased for use with pump spray containers. Aerosol can usage was reduced by more than 20 percent in 1992.
- Floor maintenance waste was reduced by 97 percent in 1992 compared to 1991.
- Radiological areas were decontaminated for reduction of contaminated clothing and materials.
- Packing material was removed in Receiving before entry into contaminated areas of the plant.
- All employees received waste generator training for proper disposal of wastes and to recognize waste minimization opportunities.
- All products containing hazardous constituents were evaluated for substitute products.
- Substitute products were identified to eliminate the use of 1,1,1-trichloroethane for general degreasing purposes. Extensive testing was performed on some products to determine if they were suitable for use on systems containing uranium hexafluoride.

Overall, plant waste generation rates continue to climb. These increases are attributed to the following:

- Reclassification of several waste streams from non-hazardous to hazardous, resulting in increased hazardous and mixed waste.
- Several engineering projects aimed at replacing equipment containing polychlorinated biphenyl, resulting in increased TSCA waste.
- Spill clean up, construction, and environmental restoration activities.

Portsmouth Gaseous Diffusion Plant

Piketon, Ohio

(Oak Ridge Field Operations Office)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
NE			✓							

DOE Employees: 12

Prime Contractor Employees: 2,600

Facility Description And Mission

The Portsmouth Gaseous Diffusion Plant (PORTS) is located in Piketon, Ohio, about 20 miles north of Portsmouth and 70 miles south of Columbus. Its principal mission is the separation of uranium isotopes through gaseous diffusion, producing enriched uranium for nuclear fuel for commercial and Department of Defense customers. PORTS represents a major part of the world's capacity to produce enriched uranium. With the Oak Ridge Gaseous Diffusion Plant shut down due to declining demand, PORTS and Paducah remain the only two uranium enrichment plants in the United States.

In addition to enrichment operations, PORTS has the capability and facilities for technical support in all areas of gaseous diffusion technology, barrier, compressors, materials, and chemistry; instrumentation and control systems; and environment, safety, and health.

Total Waste Generation †

Waste Type		1991			1992		
Cubic Meters		Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)		0.00	2,232.36	2,232.36	0.00	1,648.75	1,648.75
MLLW		220.59	645.40	865.99	386.42	353.00	739.42
MTRU *		0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *		0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *		0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons							
Sanitary Waste			Solid	TOTAL		Solid	TOTAL
			912.19	912.19		951.27	951.27
Hazardous Waste							
State Regulated *			0.00	0.00		0.00	0.00
RCRA Regulated *			0.00	0.00		0.00	0.00
TSCA Regulated			247.99	247.99		295.10	295.10

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Portsmouth Gaseous Diffusion Plant

(Oak Ridge Field Operations Office)

Site Executive Summary

During 1992, waste minimization activities at PORTS were expanded, thus affecting all categories of waste generation. These activities included waste minimization projects that were initiated or developed in 1992, targeting individual waste streams. In mid-1992, a program was initiated to provide cohesion and uniformity to the process of developing these waste reduction projects. This was referred to as the Process Waste Assessment Program. Specific waste stream reduction projects included:

- The termination of X-616 Liquid Effluent Control Facility operations, thus eliminating the low-level chrome sludge waste stream that originated from X-616.
- The termination of the use of a saw dust and oil mixture as a dust suppressant for floor sweeping activities. This significantly reduced the generation of a mixed waste with polychlorinated biphenyl (PCB) contamination.
- A reduction in the physical size of radiological control areas in the X-720 Maintenance Building by 5,600 square feet. This was achieved through the combined efforts of the Machine Shop and the Instrument Shop.
- The initiation of a Hazardous Material Substitution Program designed to identify and eliminate those products and chemicals used at PORTS that present a hazard to workers or the environment.
- Waste minimization training as an individual training module for all employees as part of general employee training for both current employees and new hires. Over 95 percent of site employees received this training in 1992.

Even with these waste reduction projects in place, waste generation increased in several categories in 1992 as compared to 1991. Mixed waste generation rose in 1992 due to the reclassification of several waste streams from non-hazardous to hazardous. These reclassified waste streams include fluorescent light bulbs and lead acid batteries. Fluorescent light bulbs were reclassified as a result of Toxic Characteristic Leachate Procedure results for mercury.

Lead acid batteries were reclassified as a result of the off-site waste shipment moratorium, which prohibited PORTS from maintaining a 75 percent recycling rate on lead acid batteries. Both mixed waste and TSCA waste generation rates rose in 1992 due to the effort to change out PCB contaminated lube oil in the process buildings. Multiple lube oil systems are undergoing change out. Each system holds approximately 20,000 gallons of oil.

LLW generation continued to decline in 1992 due primarily to the shutdown of X-616. This shutdown was made possible by efforts in preceding years to eliminate chrome from the recirculating cooling water system. In the absence of chrome, recirculated cooling water blowdown water is discharged directly to a National Pollutant Discharge Elimination System (NPDES) permitted outfall.

Weldon Spring Site Remedial Action Project

St. Charles, Missouri

(Oak Ridge Field Operations Office)

	Additional OP's										
Lead OP	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	
EM											

DOE Employees: 11

Prime Contractor Employees: 295

Facility Description And Mission

The Weldon Spring Site Remedial Action Project (WSSRAP) is a 230 acre site located about 30 miles west of St. Louis, Missouri. In the 1940's, it was used by the Army as an ordnance works. In the 1950's and 1960's, the Atomic Energy Commission used Weldon Spring for processing uranium and thorium. Today the site is on the EPA National Priorities List, and the DOE is conducting a comprehensive remedial action program.

Consistent with the DOE mission under the *Environmental Restoration and Waste Management Program*, the WSSRAP will eliminate potential hazards to the public and the environment; and will, to the extent possible, make surplus real property available for other uses.

Total Waste Generation †

Waste Type	1991			1992		
<u>Cubic Meters</u>	<u>Liquid</u>	<u>Solid</u>	<u>TOTAL</u>	<u>Liquid</u>	<u>Solid</u>	<u>TOTAL</u>
Low-Level Waste (LLW)	0.00	14.15	14.15	0.00	21.24	21.24
MLLW	0.33	0.64	0.97	0.22	0.64	0.86
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
<u>Metric Tons</u>		<u>Solid</u>	<u>TOTAL</u>		<u>Solid</u>	<u>TOTAL</u>
Sanitary Waste		337.47	337.47		1,132.17	1,132.17
Hazardous Waste						
State Regulated		0.88	0.88		0.66	0.66
RCRA Regulated *		0.00	0.00		0.00	0.00
TSCA Regulated		0.42	0.42		0.18	0.18

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Weldon Spring Site Remedial Action Project

(Oak Ridge Field Operations Office)

Site Executive Summary

The WSSRAP Waste Minimization Program is outlined in the "Waste Minimization/Pollution Prevention Awareness Plan", and has been developed in accordance with the requirements of DOE Order 5400.1. Because long-term, volume specific comprehensive goals for waste minimization are not appropriate for non-operational facilities, more appropriate "as low as reasonably achievable" waste minimization goals have been adopted.

"Waste Minimization/Pollution Prevention Awareness Plan" policy requires that remediation at the WSSRAP be conducted in a manner that minimizes waste generation. Additionally, waste minimization principles are to be applied to all waste management and subcontractor activities, interim response actions, and general site housekeeping.

The Program is implemented by evaluating and reviewing hazardous material requisitions, waste generating work package activities, and source or volume reduction. This ensures that appropriate waste minimization techniques and methods are considered and, where technically and/or economically feasible, incorporated into activities prior to commencement. The following activities enhanced on-site waste minimization during 1992:

- The development and implementation of a pre-approved listing for hazardous materials and chemicals purchasing.
- The completion of 371 waste minimization feasibility assessment summaries for incoming material evaluation.
- The installation and operation of a compactor to reduce selected site generated waste volumes.
- The waste minimization training for 105 field personnel and water treatment plant operators.
- The revision of waste minimization requirements for subcontractor activities.

Due to the non-operational status of the WSSRAP, a qualitative rather than a quantitative evaluation of waste minimization initiatives is appropriate. For example, the WSSRAP may be effectively minimizing waste generation, but as remediation activities increase, so will generated waste volumes. Therefore, effective source and volume reduction methods are considered the primary waste minimization goals.

Most of the waste is generated as a result of personnel protection, laboratory operations, and site facilities maintenance in support of remediation objectives and activities.

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8.2.7 Richland Field Operations Office

Until recently, the Richland Field Operations Office was dedicated to supporting the production of plutonium for National defense; performing research and development for advanced reactors; developing renewable energy and waste management technologies; and maintaining waste management capabilities.

Table 8.8 represents the amount of radioactive and hazardous waste generated by each of the sites reporting to the Richland Field Operations Office in 1991 and 1992.

**Table 8.8 1991-1992 Waste Generation at the Reporting Sites
Managed by the Richland Field Operations Office**

Richland Field Operations Office

Legend	
Acronym	Reporting Site
Hanford	Hanford Site
PNL	Pacific Northwest Laboratory

Reporting Site	Radioactive (Cubic Meters)		Hazardous (Metric Tons)	
	1991	1992	1991	1992
Hanford	5,660	5,280	218	697
PNL	643	393	53.8	34.5
Total *	6,300	5,670	272	732

* 1991 and 1992 totals are rounded to three significant figures. These totals do not include sanitary waste generated in 1991 and 1992.

The increase in the amount of hazardous waste at the Hanford Site is attributed to the generation of State regulated hazardous waste from site restoration activities performed at an old treatment, storage, and disposal facility.

Figures 8.14a, 8.14b, 8.15a and 8.15b show the reporting sites generating radioactive and hazardous waste that report to the Richland Field Operations Office.

Site descriptions and site executive summaries, which depict major waste minimization and pollution prevention activities for each of the sites reporting to the Richland Field Operations Office in 1991 and 1992, commence on page 248.

Figure 8.14a Solid Radioactive Waste Generation at the Reporting Sites Managed by the Richland Field Operations Office

Figure 8.14b Liquid Radioactive Waste Generation at the Reporting Site Managed by the Richland Field Operations Office

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure 8.15a 1992 Hazardous Waste Generation at the Reporting Sites Managed by the Richland Field Operations Office

1992 Hazardous Waste Generation

Figure 8.15b 1991 Hazardous Waste Generation at the Reporting Sites Managed by the Richland Field Operations Office

1991 Hazardous Waste Generation

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Hanford Site

Richland, Washington

(Richland Field Operations Office)

	Additional OP's										
Lead OP	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	
EM											

DOE Employees: 370

Prime Contractor Employees: 10,100

Facility Description And Mission

The Hanford Site covers approximately 358,000 acres adjacent to the city of Richland in south central Washington State. In 1943, the U. S. Army Corps of Engineers selected the Hanford Site as the location for reactor, chemical separation, and related activities for the production of special nuclear material and other activities.

The primary focus of the Hanford Site mission is now environmental remediation and restoration. This is an undertaking of unprecedented size, scale, and complexity. Careful planning is essential to achieve maximum safety and cost effectiveness. Milestones for the site clean up are set in the Tri-Party Agreement among the EPA, the Washington State Department of Ecology, and the DOE, which is subject to renegotiations on an "as needed" basis.

Total Waste Generation †

Waste Type		1991			1992		
Cubic Meters		Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)		0.00	3,874.00	3,874.00	0.00	2,291.00	2,291.00
MLLW		1,177.50	581.00	1,758.50	2,415.25	440.00	2,855.25
MTRU		0.00	5.24	5.24	0.00	15.76	15.76
Transuranic (TRU) Waste		0.00	18.24	18.24	0.00	122.00	122.00
High-Level Waste *		0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons							
Sanitary Waste			Solid	TOTAL		Solid	TOTAL
			6,890.00	6,890.00		7,263.00	7,263.00
Hazardous Waste							
State Regulated			22.41	22.41		541.00	541.00
RCRA Regulated			149.63	149.63		45.10	45.10
TSCA Regulated			46.39	46.39		110.50	110.50

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Hanford Site
(Richland Field Operations Office)

Site Executive Summary

The Hanford Site is proud of its many waste minimization accomplishments during 1992. These included:

- The off-site recycling and reuse of excess bulk chemicals as product rather than returning them to the manufacturer or disposing them as waste. One facility alone accounted for more than 417,000 kgs in waste avoidance.
- The disposal of incandescent bulbs as non-hazardous waste after removal of the lead solder bead. The simple removal of the solder bead eliminated 200 kgs of hazardous waste.
- The elimination of 16 previously contaminated acres through decontamination efforts and proper management. This resulted in the reduction of over 20,000 kgs of waste contaminated materials and protective clothing that entered these zones.
- The success of product substitution, through procurement control, at the Plutonium Finishing Plant. In most instances, less or non-hazardous products were purchased, thus greatly reducing the creation of hazardous waste.

Waste minimization efforts through source reduction and recycling accounted for at least an 888,000 kgs reduction in waste disposal. The quantifiable reduction by category are:

<u>Category</u>	<u>Kilograms</u>
TRU	1,780
Mixed TRU	108,750
LLW	25,586
Mixed LLW	83,599
RCRA	653,611
State	14,923

Pacific Northwest Laboratory

Richland, Washington

(Richland Field Operations Office)

Lead OP	Additional OPs									
	DP	RE	EM	ER	ET	FE	NE	NP	PM	RW
ER				✓						

DOE Employees: 0 ‡

Prime Contractor Employees: 4,202

Facility Description And Mission

Pacific Northwest Laboratory (PNL) is a research and development laboratory located within the Hanford Site near its southern border and adjacent to Richland, Washington. Work performed at PNL and the Hanford Site is mainly applicable to waste management, clean up, and environmental restoration; basic energy science and technologies; and health and environmental effects of energy generation.

On its 100 acre site, PNL operates facilities conducting programs in materials testing, melter technology, tank core characterizations of single and double shell tanks, and other research related to radiochemistry, materials etching and metallography, fuels fabrication/research within hot cells, in-situ vitrification, animal research, groundwater monitoring and modeling, and supporting craft services.

Total Waste Generation †

Waste Type		1991			1992		
Cubic Meters		Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)		0.00	629.46	629.46	0.00	384.03	384.03
MLW		0.00	11.69	11.69	0.00	4.90	4.90
MTRU *		0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste		0.00	2.08	2.08	0.00	3.95	3.95
High-Level Waste *		0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons							
		Solid			Solid		
		TOTAL			TOTAL		
Sanitary Waste		Included In Hanford Site Data			Included In Hanford Site Data		
Hazardous Waste							
State Regulated			0.75	0.75		0.32	0.32
RCRA Regulated			53.04	53.04		33.92	33.92
TSCA Regulated			0.02	0.02		0.23	0.23

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

‡ - DOE employee totals do not include part time employees.

Pacific Northwest Laboratory
(Richland Field Operations Office)

Site Executive Summary

The Waste Minimization (WMin) Program at PNL is currently in its early adolescent stage. Process waste assessments have been completed for five waste streams, and each major organization within PNL has developed a WMin Plan that is subject to annual review. PNL also submits data for various WMin reports to Westinghouse Hanford Company (the Management and Operating contractor). PNL has several excellent database systems in place for tracking the generation of all waste types. Starting this year, these systems will be used to categorize the different waste streams and identify WMin opportunities on a waste stream specific basis. Since this effort is beginning this year, it is difficult to diagnose why certain waste streams increased or decreased between 1991 and 1992.

Coupled with this is the fact that PNL is a research and development company and, as such, is constantly involved in the shut down of some programs and the start up of others. As a result, waste generation is subject to high variability. PNL has tried to account for the variabilities in a general way. In some instances (e.g., mixed LLW), product substitution can definitely be tied to the reduction in waste generation between 1991 and 1992. In other cases, however (such as RCRA hazardous waste and State hazardous waste), no definite reasons can be pinpointed as to their effect on generation rates. In these cases, PNL has simply looked to the Waste Generator Training Program and other Employee Awareness Programs (newsletters, etc.) as having an influence on waste generation. PNL plans to increase its WMin Program significantly starting in 1993 to hopefully gain more understanding of waste generation changes that will undoubtedly lead to WMin opportunities.

Significant accomplishments during 1991 and 1992 included:

- The movement away from xylene/toluene/methanol based scintillation cocktails. Two scintillation cocktails were found that are non-regulated from a RCRA/State perspective. Most PNL mixed LLW generators have switched over to the non-regulated cocktails resulting in considerable cost savings.
- The conversion to citrus based solvents for use in cleaning mechanical parts on hot cell equipment. This area will be developed further in 1993-1994.
- The encouragement of painters and others who use paints and solvents to use less product and to look into purchasing less hazardous or non-hazardous products. This area also will be developed further in the future.
- The achievement of compaction ratios of 10:1, through the use of several on-site compactors, resulting in a significant volume reduction in LLW and also cost savings.
- The achievement of a 100:1 reduction in waste (and considerable cost savings) by switching from a liquid scintillation counter that uses 20 ml sample vials to a counter that uses plates containing sample wells of 0.2 mls each. Further uses of microscale chemistry will be evaluated in 1993 - 1994.

8.2.8 Rocky Flats Field Operations Office

The mission of the Rocky Flats Field Operations Office is to produce components for nuclear weapons. This involves the fabrication of components from plutonium, uranium, beryllium, and stainless steel. Activities include metal fabrication and assembly, chemical recovery, and purification of process related TRU radionuclides.

Table 8.9 represents the amount of radioactive and hazardous waste generated by each of the sites reporting to the Rocky Flats Field Operations Office in 1991 and 1992.

**Table 8.9 1991-1992 Waste Generation at the Reporting Sites
Managed by the Rocky Flats Field Operations Office**

Reporting Site	Radioactive (Cubic Meters)		Hazardous (Metric Tons)	
	1991	1992	1991	1992
Oxnard	—	—	10.8	4.57
RFP	2,040	1,140	60.2	23.3
Total *	2,040	1,140	71.0	27.9

* 1991 and 1992 totals are rounded to three significant figures. These totals do not include sanitary waste generated in 1991 and 1992.

The decrease in radioactive waste at the Rocky Flats Plant is attributed to a reduction in LLW resulting from the implementation of waste segregation and recycling activities during process operations.

Figures 8.16, 8.17a and 8.17b show the reporting sites generating radioactive and hazardous waste that report to the Rocky Flats Field Operations Office.

Site descriptions and site executive summaries, which depict major waste minimization and pollution prevention activities for each of the sites reporting to the Rocky Flats Field Operations Office in 1991 and 1992, commence on page 254.

Figure 8.16 Solid Radioactive Waste Generation at the Reporting Site Managed by the Rocky Flats Field Operations Office

Figure 8.17a 1992 Hazardous Waste Generation at the Reporting Sites Managed by the Rocky Flats Field Operations Office

Figure 8.17b 1991 Hazardous Waste Generation at the Reporting Sites Managed by the Rocky Flats Field Operations Office

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Oxnard Facility

Oxnard, California

(Rocky Flats Field Operations Office)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
DP										

DOE Employees: 0 ‡

Prime Contractor Employees: 74 †

Facility Description And Mission

The Oxnard Facility is located on the Pacific Coast approximately 50 miles northwest of Los Angeles, California. The facility's mission is the production of stainless steel components for the Rocky Flats Plant, using a high energy rate forging process. The Oxnard Facility also conducts on-site metallurgical testing and certification of its products.

DOE work at the Oxnard Facility has been funded by DOE *Defense Programs*. As the Rocky Flats Plant production function is phased out, production at Oxnard Facility has also been decreasing. Only hazardous RCRA wastes and sanitary wastes have been generated at the Oxnard Facility. No radioactive materials are handled there, and no radioactive wastes are generated.

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW) *	0.00	0.00	0.00	0.00	0.00	0.00
MLLW *	0.00	0.00	0.00	0.00	0.00	0.00
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons		Solid	TOTAL		Solid	TOTAL
Sanitary Waste		1,995.81	1,995.81		1,832.51	1,832.51
Hazardous Waste						
State Regulated *		0.00	0.00		0.00	0.00
RCRA Regulated		10.81	10.81		4.57	4.57
TSCA Regulated *		0.00	0.00		0.00	0.00

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

‡ - DOE employee totals do not include part time employees.

Oxnard Facility
(Rocky Flats Field Operations Office)

Site Executive Summary

Site-wide waste minimization efforts undertaken in 1991 and 1992 include process modification and employee training. The waste streams minimized are: synthetic coolant; metallurgical acid etchant; oil; and oil absorbent.

The synthetic coolant waste stream, which is a hazardous waste due to toxicity, has been drastically minimized by improved maintenance of coolant quality within the machines. In 1991, a coolant management system was initiated, complete with employee training, regular monitoring, and improved tramp oil removal. Also in 1991, the process of neutralizing the spent metallurgical acid etchant after use was discontinued. By not adding neutralizing solution, the volume of this waste has been greatly reduced.

In the past few years, disposal of waste oil has been reduced by improved management techniques and employee training. Employees are trained to keep different types of oil segregated, keep all containers labeled, and return unused oil to the original container.

In 1989-1990, a switch was made from a kitty litter type oil absorbent material to an aluminosilicate powder. This material is much more efficient at absorbing liquids than the kitty litter, so much less is required. Over the last two years, this waste stream has been gradually decreasing. Please note that in the last two years, production has been decreasing; therefore, all waste streams have been diminishing.

Rocky Flats Plant

Golden, Colorado

(Rocky Flats Field Operations Office)

Lead OP	Additional OPs									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
DP			✓							

DOE Employees: 218

Prime Contractor Employees: 6,897

Facility Description And Mission

In the early 1950's, the Atomic Energy Commission selected the Rocky Flats Plant (RFP) as one of seven production plants in what is now the DOE Nuclear Weapons Complex. RFP is located on a 6,550 acre site approximately 16 miles northwest of Denver, Colorado.

RFP's primary mission before 1992 was to manufacture weapon components from plutonium, uranium, stainless steel, and beryllium. Primary operations included metal fabrication, assembly, and testing; chemical recovery and purification; environmental remediation; and waste management. The fabrication and production processes at RFP generated radioactive and hazardous chemical wastes. The plant is currently in transition to an environmental restoration and waste management site.

Total Waste Generation †

Waste Type		1991			1992		
Cubic Meters		Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)		0.00	1,404.80	1,404.80	0.00	678.71	678.71
MLLW		0.00	554.27	554.27	0.00	440.39	440.39
MTRU		0.00	65.25	65.25	0.00	12.45	12.45
Transuranic (TRU) Waste		0.00	17.81	17.81	0.00	10.01	10.01
High-Level Waste *		0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons							
		Solid			Solid		
Sanitary Waste			2,363.22	2,363.22		2,254.35	2,254.35
Hazardous Waste							
State Regulated *			0.00	0.00		0.00	0.00
RCRA Regulated			39.04	39.04		21.79	21.79
TSCA Regulated			21.16	21.16		1.51	1.51

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Rocky Flats Plant
(Rocky Flats Field Operations Office)

Site Executive Summary

The RFP Waste Minimization Program was highly active in 1992. By the end of the year, the Program was staffed with a program manager, seven science and engineering staff, and a full time coordinator for pollution prevention awareness activities. The five most significant programmatic accomplishments during 1992 were:

- A pilot project to evaluate commercial carbon dioxide pellet cleaning systems; over 4,000 lbs of uranium contaminated scrap metal were cleaned and decontaminated, thus proving the technical and economic viability of this technology. The pilot project will lead to establishing full scale operations in support of future decontamination and decommissioning activities.
- The purchase and installation of 12 refrigerant reclamation units for plant air conditioning and refrigeration systems; work orders were initiated to install high efficiency purge valves, oil filtration systems, and spring loaded pressure relief valves.
- A detailed analysis of waste management costs, resulting in publication of the RFP Volume Basis Waste Management Cost Analysis.
- Two employee contests to select a Waste Minimization Program slogan and logo, and had the slogan and logo printed on hot/cold mugs and aluminum can recycling bins; promoted employee awareness through waste minimization briefings at department staff meetings; sponsored recycling display for employees on Earth Day; and displayed waste minimization posters at the national Waste Management conference in Tucson, Arizona.
- Conservation programs for hydraulic oils and machine coolant; oil testing was incorporated into preventive maintenance work orders; and testing of bacteria resistant coolant and coolant filtration as a method of prolonging the life of metal working fluids.

Total radioactive waste generation in 1992 was 1,142 m³, down from 2,042 m³ in 1991. Non-radioactive hazardous waste was off 44 percent, from 39,042 kgs in 1991 to 21,786 kgs in 1992. TSCA regulated waste decreased from 21,159 kgs in 1991 to 1,506 kgs in 1992, a 93 percent reduction. Paper recycling increased 67 percent in 1992 to a total of 348.5 tons. Additionally, 14.3 tons of cardboard were recycled. Primary operation rates at the site were roughly the same for 1991 and 1992.

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8.2.9 San Francisco Field Operations Office

The main mission of the San Francisco Field Operations Office is to oversee laboratory research activities.

Table 8.10 represents the amount of radioactive and hazardous waste generated by each of the sites reporting to the San Francisco Field Operations Office in 1991 and 1992.

Table 8.10 1991-1992 Waste Generation at the Reporting Sites Managed by the San Francisco Field Operations Office

San Francisco Field Operations Office				
Reporting Site	Radioactive (Cubic Meters)		Hazardous (Metric Tons)	
	1991	1992	1991	1992
ETEC	197	786	213	462
LEHR	10.0	16.2	—	—
LBL	76.6	44.1	155	186
LLNL	353	379	982	955
SLAC	—	58.2	1,290	300
Total *	637	1,280	2,640	1,900

Legend	
Acronym	Reporting Site
ETEC	Energy Technology Engineering Center
LEHR	Laboratory for Energy Related-Health Research
LBL	Lawrence Berkeley Laboratory
LLNL	Lawrence Livermore National Laboratory
SLAC	Stanford Linear Accelerator Center

* 1991 and 1992 totals are rounded to three significant figures. These totals do not include sanitary waste generated in 1991 and 1992.

The overall increase in radioactive waste primarily occurred at the Energy Technology Engineering Center where MLLW was generated during the excavation of its Former Sodium Disposal Facility. On the other hand, the overall reduction in hazardous waste, specifically State regulated hazardous waste, is attributed to the Stanford Laboratory Accelerator Center where waste minimization activities were implemented as a result of DOE Tiger Team audits in 1991.

Figures 8.18a, 8.18b, 8.19a and 8.19b show the reporting sites generating radioactive and hazardous waste that report to the San Francisco Field Operations Office.

Site descriptions and site executive summaries, which depict major waste minimization and pollution prevention activities for each of the sites reporting to the San Francisco Field Operations Office in 1991 and 1992, commence on page 262.

Figure 8.18a Solid Radioactive Waste Generation at the Reporting Sites Managed by the San Francisco Field Operations Office

Figure 8.18b Liquid Radioactive Waste Generation at the Reporting Sites Managed by the San Francisco Field Operations Office

Liquid Radioactive Waste Generation

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure 8.19a 1992 Hazardous Waste Generation at the Reporting Sites Managed by the San Francisco Field Operations Office

1992 Hazardous Waste Generation

Figure 8.19b 1991 Hazardous Waste Generation at the Reporting Sites Managed by the San Francisco Field Operations Office

1991 Hazardous Waste Generation

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Energy Technology Engineering Center

Canoga Park, California

(San Francisco Field Operations Office)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
NE							✓			

DOE Employees: 4

Prime Contractor Employees: 230

Facility Description And Mission

The Energy Technology Engineering Center (ETEC) portion of the Santa Susana Field Laboratory (SSFL) consists of government owned buildings that occupy approximately 90 acres of the 290 acre SSFL Area IV site located 30 miles northwest of Los Angeles, California.

ETEC is involved in the research, testing, and development of subsystems used in power generating facilities. Currently, the ETEC facilities are used to test non-nuclear systems and components for use in energy, power conversion, and liquid metal development programs. Decontamination and decommissioning, environmental restoration, and waste management programs have been implemented at ETEC to remediate the site.

Total Waste Generation †

Waste Type	1991			1992		
<u>Cubic Meters</u>	<u>Liquid</u>	<u>Solid</u>	<u>TOTAL</u>	<u>Liquid</u>	<u>Solid</u>	<u>TOTAL</u>
Low-Level Waste (LLW)	3.37	194.00	197.37	2.00	139.00	141.00
MLLW	0.00	0.00	0.00	0.00	645.00	645.00
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
<u>Metric Tons</u>		<u>Solid</u>	<u>TOTAL</u>		<u>Solid</u>	<u>TOTAL</u>
Sanitary Waste		540.68	540.68		64.41	64.41
Hazardous Waste						
State Regulated		22.85	22.85		246.46	246.46
RCRA Regulated		177.02	177.02		205.06	205.06
TSCA Regulated		12.98	12.98		10.61	10.61

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Energy Technology Engineering Center

(San Francisco Field Operations Office)

Site Executive Summary

The majority of ETEC's waste generation in 1991 and 1992 is attributable to *Environmental Restoration and Waste Management Program* (EM) activities related to treatment of sodium, environmental restoration, and decontamination and decommissioning. *Nuclear Energy Program* (NE) operations at ETEC have been substantially reduced, resulting in an increase of the environmental restoration and decontamination and decommissioning activities. Due to limited DOE funding for waste minimization, ETEC has fulfilled mainly State regulatory waste minimization requirements and will be initiating DOE required planning documentation and additional waste minimization implementation in the near future. Despite limited funding, ETEC has accomplished the following five waste minimization projects:

- A large amount of the RCRA hazardous waste generated on-site is linked to the permitted Sodium Treatment Facility, where sodium hydroxide and scrap metal result from the treatment of sodium metal components. The resulting sodium hydroxide is currently used as a pH neutralizer at the Canoga Main Complex Metals Treatment Plant, and the scrap metal is reused off-site. The reuse of sodium hydroxide as a pH neutralizer eliminates the disposal of a hazardous waste and decreases the purchase of a hazardous material.
- ETEC performs sampling, analysis, and filtering of motor/turbine oils prior to servicing. These procedures have greatly extended the life of these oils and saved money, particularly when synthetic oils are involved.
- ETEC has developed a comprehensive segregation and screening procedure of materials resulting in the salvage of usable (i.e., scrap metal) materials.
- A chemical/material exchange system is currently linked to the purchasing system and prevents the unnecessary purchase of hazardous materials.
- ETEC reuses all hazardous waste containers in acceptable condition and combines similar hazardous wastes during pick-up runs.

Laboratory for Energy-Related Health Research

Davis, California

(San Francisco Field Operations Office)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
EM										

DOE Employees: 2

Prime Contractor Employees: 20

Facility Description And Mission

The Laboratory for Energy-Related Health Research (LEHR) occupies a 15 acre site south of the main campus of the University of California at Davis. For 30 years, LEHR was used to research the effects of exposure to low levels of radiation. DOE funded research ceased in 1988 and the site is now undergoing environmental restoration.

The goal of the project is to remove the radioactive and hazardous materials, to evaluate, and if necessary remediate, any adjacent environmental media found to have excessive concentrations of radioactive or hazardous materials. This remediation is conducted in accordance with Federal, State, and local regulations. Once released for unrestricted use, the University of California at Davis plans to use LEHR site buildings for other research activities.

Total Waste Generation †

Waste Type		1991			1992		
Cubic Meters		Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)		0.00	10.00	10.00	0.00	16.20	16.20
MLLW *		0.00	0.00	0.00	0.00	0.00	0.00
MTRU *		0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *		0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *		0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons							
		Solid			Solid		
Sanitary Waste			127.01	127.01		16.78	16.78
Hazardous Waste							
State Regulated *			0.00	0.00		0.00	0.00
RCRA Regulated *			0.00	0.00		0.00	0.00
TSCA Regulated *			0.00	0.00		0.00	0.00

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Laboratory for Energy-Related Health Research

(San Francisco Field Operations Office)

Site Executive Summary

LEHR is not an operating facility and is currently undergoing decontamination and decommissioning (D&D) and site characterization. Waste generation is greatly dependent on the type of site restoration activities. Waste minimization techniques are incorporated in all D&D and site characterization activities.

The only waste generated in 1991 and 1992 by definition is the personal protective equipment from D&D and water from monitoring well sampling. These two waste streams represent LLW and sanitary waste, respectively.

The highlights of LEHR's waste minimization activities included the following:

- In 1992, a waste shredder and compactor were purchased for waste processing.
- The utilization of procedures to segregate the "contaminated" personal protective equipment section from the "clean" personal protective equipment section. This is the first minimization step. The second is the reduction of waste using the compactor.
- The incorporation of process waste assessments in the LEHR Waste Minimization Plan before work is initiated.
- The reduction of sanitary waste by 87 percent from 1991 to 1992.

Lawrence Berkeley Laboratory

Berkeley, California

(San Francisco Field Operations Office)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
ER		✓	✓			✓				✓

DOE Employees: 15

Prime Contractor Employees: 3,500

Facility Description And Mission

The 130 acre Lawrence Berkeley Laboratory (LBL) is adjacent to and managed by the University of California at Berkeley. LBL is a multi-program national laboratory with a four part mission: 1) to perform multi-disciplinary research in energy sciences, general sciences, and life sciences; 2) to develop and operate unique national experimental facilities for use by qualified investigators; 3) to educate future generations of scientists and engineers; and 4) to foster productive relationships between LBL research programs and industry.

Current programs encompass the natural sciences, as well as engineering, mathematics, and computer science. These programs include basic studies of the nature of the atom and the cell, research on new treatments for cancer patients, and the development of advanced materials, instruments, facilities, and energy sources.

Total Waste Generation †

Waste Type		1991			1992		
Cubic Meters		Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)		0.00	52.10	52.10	0.00	39.26	39.26
MLLW		0.00	16.13	16.13	0.00	4.84	4.84
MTRU *		0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste		0.00	8.32	8.32	0.00	0.00	0.00
High-Level Waste *		0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons		Solid		TOTAL	Solid		TOTAL
Sanitary Waste		Not Available		Not Available	Not Available		Not Available
Hazardous Waste							
State Regulated		29.02		29.02	96.74		96.74
RCRA Regulated		85.11		85.11	69.08		69.08
TSCA Regulated		40.65		40.65	20.14		20.14

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Lawrence Berkeley Laboratory
(San Francisco Field Operations Office)

Site Executive Summary

LBL is committed to an overall reduction in the generation of solid, hazardous, radioactive, and mixed waste streams through reduced generation at the source, process change, employee awareness, administrative controls, and increased recycling. The focus is implemented through the various Waste Minimization and Pollution Prevention Programs. The goal of the programs is to systematically eliminate or reduce the generation of pollution in any environmental medium. Source reduction and environmentally sound recycling are becoming integral parts of the philosophy and operations of LBL. Development of an awareness of environmental problems in all employees and encouragement of their participation in minimizing the generation of waste materials are key components to the success of waste minimization and pollution prevention.

The five most significant waste minimization and pollution prevention accomplishments for 1992 included:

- A Process Waste Assessment (PWA) Training workshop. The first day focused on guidance for management participation. The second day focused on guidance for generators on "How to Perform a PWA." Key speakers included representatives from DOE Headquarters, INEL, and WRITAR. The PWA training session was attended by representatives from GSA, EPA, DOE San Francisco, DOE Headquarters, SNL, LLNL, SLAC, LBL, and LANL.
- The development of a video to promote the separation of office recyclables and organic waste. This program is especially important as it mandates participation from every employee. A display for the cafeteria was created to help foster an awareness of the new program. The goal of a five percent increase in recyclables has been achieved.
- The bi-monthly meeting of LBL's Affirmative Procurement Group to address specific issues relating to Executive Order 12780 and other recycling or material substitution alternatives. Some of the most current topics being addressed include: toner cartridges, various paper products, retread tires, electronic information (forms, timecards, and telephone directories), rechargeable batteries, ozone depleting compounds, and material management tracking systems. As LBL is a key buyer for LLNL, efforts are being coordinated with the buyers at LLNL. This promotes the purchase of large quantities for reduced prices.
- The establishment of several blanket orders to aid the recycling efforts at LBL. The primary affected waste streams are activated carbon canisters, photo processing waste, and fluorescent light tubes. All have been successful recycling efforts.
- The preparation of a Waste Minimization Presentation for the LBL Director and his associated directors. Both the DOE and the California Waste Minimization Plans received approval by the Director in 1992. Commitment by upper management aids greatly in the progress of all efforts to substantially reduce waste generation and increase recycling at LBL.

Lawrence Livermore National Laboratory

Livermore, California

(San Francisco Field Operations Office)

Lead OP	Additional OPs									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
DP			✓	✓			✓			

DOE Employees: 154

Prime Contractor Employees: 8,812

Facility Description And Mission

The Lawrence Livermore National Laboratory (LLNL) main site is a one square mile facility adjacent to the eastern border of the city of Livermore, California, approximately 40 miles east of San Francisco. There are also non-nuclear explosive test facilities at Site 300 located 15 miles east of the main site.

The mission of the multi-program LLNL is to serve as a national resource in science and engineering focused on national security, energy, the environment, and biomedicine, with a special responsibility for nuclear weapons research and development. Over the years, the mission has been broadened to meet new national needs, enhance economic competitiveness, and nurture science education.

Total Waste Generation †

Waste Type		1991			1992		
Cubic Meters		Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)		56.32	184.75	241.07	152.13	59.91	212.04
MLLW		93.56	9.73	103.29	125.12	21.94	147.06
MTRU		0.00	2.52	2.52	0.00	0.83	0.83
Transuranic (TRU) Waste		0.00	6.48	6.48	0.00	18.70	18.70
High-Level Waste *		0.00	0.00	0.00	0.00	0.00	0.00
Metric Tons							
		Solid		TOTAL	Solid		TOTAL
Sanitary Waste		Not Available		Not Available	7,570.46		7,570.46
Hazardous Waste							
State Regulated		442.23		442.23	268.80		268.80
RCRA Regulated		500.45		500.45	653.24		653.24
TSCA Regulated		39.09		39.09	32.68		32.68

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Lawrence Livermore National Laboratory
(San Francisco Field Operations Office)

Site Executive Summary

LLNL has continued to reduce overall waste generation. TRU waste increased because of a one time inventory reduction at the plutonium facility. Mixed waste generation increased primarily because residues in old retention tank systems contaminated a large amount of wastewater. One system, which accounted for more than 25 percent of the total mixed waste, was replaced in 1992. Some significant achievements were:

- The plating shop water recycling system processed 264,000 kgs of hazardous wastewater, reducing this waste by 99.7 percent and saving about \$200,000 in disposal costs during its first full year of operation.
- A Transportable Treatment Unit has treated 84,000 kgs of metal contaminated wastewater from the electronics fabrication shops on-site since mid-1992. Treated wastewater can be discharged to the sewer, instead of being hauled off-site for disposal, saving over \$66,000 in disposal costs.
- The reduction of LLW (i.e., gravel and debris) by 42,500 kgs, or 37 percent.
- The implementation of an alternative cleaner testing program that is expected to greatly reduce the use of hazardous solvents. Several shops have already changed cleaning processes based on these test results.

Stanford Linear Accelerator Center

Stanford, California

(San Francisco Field Operations Office)

Lead OP	Additional OP's									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
ER				✓						

DOE Employees: 5

Prime Contractor Employees: 1,400

Facility Description And Mission

The Stanford Linear Accelerator Center (SLAC) is operated by Stanford University under contract to the DOE. The 426 acre site is located on the San Francisco Peninsula between San Francisco and San Jose, California.

SLAC's major mission is research in high energy particle physics and high energy accelerators. A key activity during 1991 and 1992 was the first physics run of the SLAC Large Detector at SLAC's Linear Collider facility using polarized and unpolarized beams. In 1992, SLAC's resulting studies of electron-positron collisions achieved a peak luminosity of 25 Z-particles per hour. The highly reliably polarized electron source operated at greater than 90 percent, producing more than 10,000 Z-particle events.

Total Waste Generation †

Waste Type	1991			1992		
<u>Cubic Meters</u>	<u>Liquid</u>	<u>Solid</u>	<u>TOTAL</u>	<u>Liquid</u>	<u>Solid</u>	<u>TOTAL</u>
Low-Level Waste (LLW)	0.00	0.00	0.00	0.00	55.93	55.93
MLLW	0.00	0.00	0.00	0.33	1.98	2.31
MTRU *	0.00	0.00	0.00	0.00	0.00	0.00
Transuranic (TRU) Waste *	0.00	0.00	0.00	0.00	0.00	0.00
High-Level Waste *	0.00	0.00	0.00	0.00	0.00	0.00
<u>Metric Tons</u>		<u>Solid</u>	<u>TOTAL</u>		<u>Solid</u>	<u>TOTAL</u>
Sanitary Waste		918.07	918.07		593.30	593.30
Hazardous Waste						
State Regulated		811.94	811.94		111.15	111.15
RCRA Regulated		186.08	186.08		78.41	78.41
TSCA Regulated		287.10	287.10		110.66	110.66

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Stanford Linear Accelerator Center
(San Francisco Field Operations Office)

Site Executive Summary

SLAC's Waste Minimization and Pollution Prevention Program includes the following highlights:

- The publishing of four articles on waste minimization and pollution prevention in SLAC's monthly newsletter, "The Interaction Point".
- Classroom training for over 400 employees in hazardous material management, waste minimization, and pollution prevention.
- The production of guidance documents on the technical and economic feasibility of four waste minimization opportunities that were identified based on process waste assessments (performed in April 1991 and January 1992).
- Elimination of three cold solvent clean baths (approximately 60 gallons of hazardous waste per year) and a series of small plating baths (approximately 300 gallons) used for metal finishing of printed circuit boards.
- A fair on the purchase and use of office products made from recycled materials.

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8.2.10 Savannah River Field Operations Office

The mission of the Savannah River Field Operations Office is to serve the U.S. national security interest by safely producing nuclear materials while protecting the public health and the environment. In addition, research and development activities focus on the utilization of existing technology and development of new technologies with a goal of reducing cost and maintaining state-of-the art approaches for waste management and environmental protection.

The Savannah River Field Operations Office manages one reporting site, the Savannah River Site which employs 24,024 people.

Table 8.11 represents the amount of radioactive and hazardous waste generated by the Savannah River Site which reported to the Savannah River Field Operations Office.

**Table 8.11 1991-1992 Waste Generation at the Reporting Site
Managed by the Savannah River Field Operations
Office**

Savannah River Field Operations Office

Legend	
Acronym	Reporting Site
SRS	Savannah River Site

Reporting Site	Radioactive (Cubic Meters)		Hazardous (Metric Tons)	
	1991	1992	1991	1992
SRS	25,400	14,700	466	31.1
Total *	25,400	14,700	466	31.1

* 1991 and 1992 totals are rounded to three significant figures. These totals do not include sanitary waste generated in 1991 and 1992.

The large reduction in radioactive waste at the Savannah River Site is due to decreases in HLW and LLW. The decreases in HLW occurred due to the implementation of changes in the processing activities in the separations facilities, while the decreases in LLW were attributed to better employee awareness of proper waste minimization alternatives.

The Savannah River Site's description and executive summary, which depicts major waste minimization and pollution prevention activities in 1991 and 1992, commence on page 274.

Savannah River Site

Aiken, South Carolina

(Savannah River Field Operations Office)

Lead OP	Additional OPs									
	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW
DP										✓

DOE Employees: 594

Prime Contractor Employees: 23,430

Facility Description And Mission

The mission of the Savannah River Site (SRS) is to serve the national security interest of the United States by producing nuclear materials, primarily tritium and plutonium. The 198,000 acre site is located in south central South Carolina near the city of Aiken. Most of the land is used for a lumber and forestry research center, with less than five percent used for production facilities.

The site has production reactors, chemical separations facilities, a reactor fuel manufacturing facility, and other administrative support facilities. Waste management operation areas include the Saltstone Facility which turns liquid LLW into stable concrete and the Defense Waste Processing Facility which turns liquid HLW waste into durable glass.

Total Waste Generation †

Waste Type	1991			1992		
Cubic Meters	Liquid	Solid	TOTAL	Liquid	Solid	TOTAL
Low-Level Waste (LLW)	0.00	21,631.58	21,631.58	0.00	12,442.42	12,442.42
MLW	0.00	33.10	33.10	0.00	20.42	20.42
MTRU	0.00	17.10	17.10	0.00	6.13	6.13
Transuranic (TRU) Waste	0.00	633.00	633.00	0.00	564.39	564.39
High-Level Waste	3,077.45	0.00	3,077.45	1,683.81	0.00	1,683.81
Metric Tons			TOTAL			TOTAL
Sanitary Waste			8,741.63			9,612.53
Hazardous Waste						
State Regulated *			0.00			0.00
RCRA Regulated			464.09			29.40
TSCA Regulated			1.60			1.67

† - Important, see Appendix D for Margin-of-Error Information for this site.

* - Indicates that no waste of this type was generated at this site.

Savannah River Site
(Savannah River Field Operations Office)

Site Executive Summary

In 1992, the SRS continued to promote waste minimization through policies, plans, procedures, training, and awareness activities. Overall waste generation for 1992 was significantly below 1991 levels, with reductions in all waste categories except for sanitary waste generation, which is based on the number and size of vehicles that transport waste to the landfill.

Waste reduction resulted in a cost avoidance of \$36.5M in 1992 from 1991, based on the variable life cycle waste cost of waste volumes received at the Waste Management operated treatment, storage, and disposal facilities. This occurred while the overall SRS population, budget, and activity level remained essentially constant, except for a reduction in HLW generating activities in separations facilities. The following were significant accomplishments for SRS:

- The Saltstone mixing and transfer system process piping and computer software was modified to permit flushing with salt solution versus process water. This technique results in a reduction of 1.5 million gallons of grout annually and has a projected cost avoidance of approximately \$1 million per year in operating costs, including cost of replacement vault space.
- SRS exceeded a DOE milestone, which required a 15 percent reduction in containerized LLW, by achieving a 17 percent reduction in fiscal year 1992 versus fiscal year 1991. This resulted from a concerted effort to increase awareness of waste reduction practices and goals.
- The expansion of the SRS recycling effort during 1992. Over 135,000 lbs of non-repairable furniture was recycled as opposed to being disposed as industrial waste. In addition, the following list contains some of the other materials recycled in 1992: 10,700 printer toner cartridges, 5,959 truck and car tires, 2,804 gallons of antifreeze, and 2,269 tons of ferrous and other heavy metals, etc.
- The establishment of an excess chemical classification area to manage construction type chemicals (paints, glues, solvents, concrete admixtures, coatings, etc.) that are no longer needed. This program is in its beginning stages, but realized a \$547K savings based on disposal cost avoidance and reduction in new product purchase through on-site reuse of these products.
- An SRS increase in awareness training that offered two waste minimization courses for the SRS Waste Action Team and sponsored three opportunities for DOE and contractor management to attend the DOE Pollution Prevention Workshop.

Appendices

Appendix A: DOE Site Listing

This appendix consists of the reporting sites that surpassed the minimum threshold reporting criteria established for this Report. It also contains the remaining DOE sites which did not meet the minimum threshold reporting criteria. For the purposes of this Report, these sites are referred to as non-reporting sites. In addition, this appendix presents the reporting sites and non-reporting sites in alphabetical order and indicates the operational program, management cluster, and operations office of each reporting and non-reporting site.

Appendix A: DOE Site Listing

Operational Program		Reporting Sites	Operational Program	Management Cluster	Operations Office
Acronym					
AD	Administration	Alaska Power Administration - Juneau, AK	PM	EP	HQ
DP	Defense Programs	Ames Laboratory - Ames, IA	ER	ST	CH
EE	Energy Efficiency and Renewable Energy Program	Argonne National Laboratory-East - Argonne, IL	ER	ST	CH
		Argonne National Laboratory-West - Idaho Falls, ID	NE	EP	CH
EM	Environmental Restoration and Waste Management Program	Battelle Columbus Laboratories Decommissioning Project - Columbus, OH	EM	WP	CH
		Bonneville Power Administration - Portland, OR	PM	EP	HQ
		Brookhaven National Laboratory - Upton, NY	ER	ST	CH
		Energy Technology Engineering Center - Canoga Park, CA	NE	EP	SF
ET	Science Education and Technical Information Program	Fermi National Accelerator Laboratory - Batavia, IL	ER	ST	CH
		Fernald Environmental Management Project - Cincinnati, OH	EM	WP	FN
ER	Energy Research Program	Formerly Utilized Sites Remedial Action Program (FUSRAP) Program Management Office - Oak Ridge, TN	EM	WP	OR
FE	Fossil Energy Program	Albany Metallurgical Research Center - Albany, OR			
NE	Nuclear Energy Program	Colonie Interim Storage Site - Colonie, NY			
		Elza Gate Site - Oak Ridge, TN			
PM	Power Marketing Administration	Grand Junction Projects Office - Grand Junction, CO	EM	WP	AL
RW	Civilian Radioactive Waste Management Program	Hanford Site - Richland, WA	EM	WP	RL
		Hanford Environmental Health Foundation - Richland, WA			
		Kaiser Engineering - Richland, WA			
		Idaho Chemical Processing Plant - Idaho Falls, ID	EM	WP	ID
		Idaho National Engineering Laboratory - Idaho Falls, ID	EM	WP	ID
		Inhalation Toxicology Research Institute - Albuquerque, NM	ER	ST	AL
		Kansas City Plant - Kansas City, MO	DP	WP	AL
		Laboratory for Energy-Related Health Research - Davis, CA	EM	WP	SF
		Lawrence Berkeley Laboratory - Berkeley, CA	ER	ST	SF
		Lawrence Livermore National Laboratory - Livermore, CA	DP	WP	SF
		Los Alamos National Laboratory - Los Alamos, NM	DP	WP	AL
		Morgantown Energy Technology Center - Morgantown, WV	FE	EP	HQ
		Laramie Energy Technology Center - Laramie, WY			
		Mound Plant - Miamisburg, OH	DP	WP	AL
		National Institute for Petroleum and Energy Research - Bartlesville, OK	FE	EP	HQ
		National Renewable Energy Laboratory - Golden, CO	EE	EP	HQ
		Naval Oil Shale Reserve No. 3 - Rifle, CO	FE	EP	HQ
		Naval Petroleum Reserve No. 1 - Tupman, CA	FE	EP	HQ
		Naval Petroleum Reserve No. 3 - Casper, WY	FE	EP	HQ
		Nevada Test Site (NTS) - Mercury, NV	DP	WP	NV
		Defense Nuclear Agency, NTS Operations			
		Los Alamos National Laboratory, NTS Operations			
		Lawrence Livermore National Laboratory, NTS Operations			
Management Cluster					
Acronym					
EP	Energy Programs				
ST	Science and Technology Programs				
WP	Weapons/Waste Clean Up Programs				
Operations Office					
Acronym					
AL	Albuquerque				
CH	Chicago				
FN	Fernald				
HQ	Headquarters				
ID	Idaho				
NV	Nevada				
OR	Oak Ridge				
RL	Richland				
RF	Rocky Flats				
SF	San Francisco				
SR	Savannah River				

Operational Program		Reporting Sites	Operational Program	Management Cluster	Operations Office
Acronym					
AD	Administration	Raytheon Services Nevada, NTS Operations			
DP	Defense Programs	Reynolds Electrical & Engineering Co.			
EE	Energy Efficiency and Renewable Energy Program	Sandia National Laboratories, NTS Operations			
EM	Environmental Restoration and Waste Management Program	Wachenhut, NTS Operations			
ET	Science Education and Technical Information Program	North Las Vegas Facility - Las Vegas, NV	DP	WP	NV
ER	Energy Research Program	EG&G/Energy Measurements:			
FE	Fossil Energy Program	Amador Valley, Pleasanton, CA			
NE	Nuclear Energy Program	Kirtland Air Force Base, Albuquerque, NM			
PM	Power Marketing Administration	Los Alamos Operations, Los Alamos, NM			
RW	Civilian Radioactive Waste Management Program	Remote Sensing Laboratory, Nellis Air Force Base, NV			
		Santa Barbara Operations, Santa Barbara, CA			
		Special Technologies Laboratory, Santa Barbara, CA			
		Washington Aerial Measurements Department, Andrews Air Force Base - Camp Springs, MD			
		Woburn Court, Woburn, MA			
		Oak Ridge Institute for Science and Education - Oak Ridge, TN	ER	ST	OR
		Oak Ridge K-25 Site - Oak Ridge, TN	EM	WP	OR
		Oak Ridge National Laboratory - Oak Ridge, TN	ER	ST	OR
		Oak Ridge Y-12 Plant - Oak Ridge, TN	DP	WP	OR
		Office of Scientific and Technical Information - Oak Ridge, TN	ET	ST	OR
		Oxnard Facility - Oxnard, CA	DP	WP	RF
		Pacific Northwest Laboratory - Richland, WA	ER	ST	RL
		Paducah Gaseous Diffusion Plant - Paducah, KY	NE	EP	OR
		Pantex Plant - Amarillo, TX	DP	WP	AL
		Pinellas Plant - Largo, FL	DP	WP	AL
		4.5 Acre Site, St. Petersburg, FL			
		Pittsburgh Energy Technology Center - Pittsburgh, PA	FE	EP	HQ
		Pittsburgh Energy Technology Center Component Development and Integration Facility - Butte, MT	FE	EP	HQ
		Portsmouth Gaseous Diffusion Plant - Piketon, OH	NE	EP	OR
		Princeton Plasma Physics Laboratory - Princeton, NJ	ER	ST	CH
		Rocky Flats Plant - Golden, CO	DP	WP	RF
		Sandia National Laboratories/California - Livermore, CA	DP	WP	AL
		Sandia National Laboratories/New Mexico - Albuquerque, NM	DP	WP	AL
		Savannah River Site - Aiken, SC	DP	WP	SR
		Savannah River Ecology Laboratory - Aiken, SC			
		Savannah River Technology Center - Aiken, SC			
		Stanford Linear Accelerator Center - Stanford, CA	ER	ST	SF
		Strategic Petroleum Reserve Office - New Orleans, LA	FE	EP	HQ
		Strategic Petroleum Reserve Office - Bayou Choctow			
		Strategic Petroleum Reserve Office - Big Chill			
		Strategic Petroleum Reserve Office - Bryan Mound			

Operational Program		Reporting Sites	Operational Program	Management Cluster	Operations Office
Acronym					
AD	Administration	Strategic Petroleum Reserve Office - New Orleans			
DP	Defense Programs	Strategic Petroleum Reserve Office - St. James Terminal			
EE	Energy Efficiency and Renewable Energy Program	Strategic Petroleum Reserve Office - Sulfur Mines			
EM	Environmental Restoration and Waste Management Program	Strategic Petroleum Reserve Office - Week Island			
		Strategic Petroleum Reserve Office - West Hackberry			
ET	Science Education and Technical Information Program	Superconducting Super Collider Laboratory - Dallas, TX	ER	ST	HQ
ER	Energy Research Program	Uranium Mill Tailings Remedial Action (UMTRA) Project Office - Albuquerque, NM	EM	WP	AL
FE	Fossil Energy Program	UMTRA - Ambrosia Lake, NM			
NE	Nuclear Energy Program	UMTRA - Belfield, ND			
PM	Power Marketing Administration	UMTRA - Bowman, ND			
RW	Civilian Radioactive Waste Management Program	UMTRA - Canonsburg, PA			
		UMTRA - Durango, CO			
		UMTRA - Falls City, TX			
		UMTRA - Grand Junction, CO			
		UMTRA - Green River, UT			
		UMTRA - Gunnison, CO			
		UMTRA - Lakeview, OR			
		UMTRA - Lowman, ID			
		UMTRA - Maybell, CO			
		UMTRA - Mexican Hat, UT			
		UMTRA - Monument Valley, AZ			
		UMTRA - Naturita, CO			
		UMTRA - Rifle, CO			
		UMTRA - Riverton, WY			
		UMTRA - Salt Lake City, UT			
		UMTRA - Shiprock, NM			
		UMTRA - Slick Rock, CO			
		UMTRA - Spook, WY			
		UMTRA - Tuba City, AZ			
		Waste Isolation Pilot Plant - Carlsbad, NM	EM	WP	AL
		Weldon Spring Site Remedial Action Project - St. Charles, MO	EM	WP	OR
		West Valley Demonstration Project - West Valley, NY	EM	WP	ID
		Western Area Power Administration - Golden, CO	PM	EP	HQ
		Yucca Mountain Project Office - Las Vegas, NV	RW	EP	HQ
Management Cluster					
Acronym					
EP	Energy Programs				
ST	Science and Technology Programs				
WP	Weapons/Waste Clean Up Programs				
Operations Office					
Acronym					
AL	Albuquerque				
CH	Chicago				
FN	Fernald				
HQ	Headquarters				
ID	Idaho				
NV	Nevada				
OR	Oak Ridge				
RL	Richland				
RF	Rocky Flats				
SF	San Francisco				
SR	Savannah River				

<u>Operational Program</u>		<u>Non-Reporting Sites</u>	<u>Operational Program</u>	<u>Management Cluster</u>	<u>Operations Office</u>
<u>Acronym</u>					
AD	Administration	Atomics International - Canoga Park, CA	EM	WP	SF
DP	Defense Programs	Bates Linear Accelerator Laboratory - Boston, MA	ER	ST	CH
EE	Energy Efficiency and Renewable Energy Program	Butte Project Office - Butte, MT	FE	EP	ID
EM	Environmental Restoration and Waste Management Program	California Institute of Technology - Pasadena, CA	ER	ST	SF
ET	Science Education and Technical Information Program	Center for Energy and Environmental Research - Mayaguez, PR	EM	WP	OR
ER	Energy Research Program	Central Training Academy - Albuquerque, NM	DP	WP	AL
FE	Fossil Energy Program	Cheltenham Secom Site - Cheltenham, MD	DP	WP	AL
NE	Nuclear Energy Program	Continuous Electron Beam Accelerator Facility - Newport News, VA	ER	ST	OR
PM	Power Marketing Administration	DOE Washington Headquarters	AD	-	HQ
RW	Civilian Radioactive Waste Management Program	Forrestal Hall Building, Washington, D.C.			
		Germantown Building - Germantown, MD			
		Trevion Building - Germantown, MD			
		Environmental Measurements Laboratory - New York, NY	ER	ST	CH
		Fast Flux Test Facility/HEDL - Richland, WA	NE	EP	RL
		Fields Brook Site - Ashtabula, OH	EM	WP	OR
		FUSRAP Program Management Office - Oak Ridge, TN	EM	WP	OR
		Acid/Pueblo Canyon - Los Alamos, NM			
		Aliquippa Forge - Aliquippa, PA			
		Ashland Oil Co. #1 - Tonawanda, NY			
		Ashland Oil Co. #2 - Tonawanda, NY			
		Associate Aircraft - Fairfield, OH			
		B&L Steel - Buffalo, NY			
		B&T Metals - Columbus, OH			
		Baker and Williams Warehouse - New York, NY			
		Baker Brothers - Toledo, OH			
		Bayo Canyon - Los Alamos, CA			
		Chapman Valve - Indian Orchard, MA			
		Chupadera Mesa - White Sands, NM			
		DuPont & Company - Deepwater, NJ			
		General Motors - Adrian, MI			
		Granite City Steel - Granite City, IL			
		Kellex/Pierpoint - Jersey City, NJ			
		Latty Avenue Properties - Hazelwood, MO			
		Lewiston Storage Site - Niagara Falls, NY			
		Linde Center - Tonawanda, NY			
		Luckey Site - Luckey, OH			
		Madison Site - Madison, IL			
		Maywood Interim Storage Site - Maywood, NJ			
		Middlesex Municipal Landfill - Middlesex, NJ			
		Middlesex Sampling Plant - Middlesex, NJ			
		National Guard Armory - Chicago, IL			
		New Brunswick Site - New Brunswick, NJ			
		Niagara Falls Storage Site			
		Vicinity Properties - Lewiston, NY			
		Oxford - Oxford, OH			
		Painesville - Painesville, OH			
		Seaway Industrial Park - Tonawanda, NY			
		Seymour Specialty Wire - Seymour, CT			
		Shpack Landfill - Norton, MA			
		Springdale Site - Springdale, PA			
<u>Management Cluster</u>					
<u>Acronym</u>					
EP	Energy Programs				
ST	Science and Technology Programs				
WP	Weapons/Waste Clean Up Programs				
<u>Operations Office</u>					
<u>Acronym</u>					
AL	Albuquerque				
CH	Chicago				
FN	Fernald				
HQ	Headquarters				
ID	Idaho				
NV	Nevada				
OR	Oak Ridge				
RL	Richland				
RF	Rocky Flats				
SF	San Francisco				
SR	Savannah River				

Operational Program**Acronym**

AD Administration
DP Defense Programs
EE Energy Efficiency
and Renewable
Energy Program
EM Environmental
Restoration and
Waste
Management
Program
ET Science Education
and Technical
Information
Program
ER Energy Research
Program
FE Fossil Energy
Program
NE Nuclear Energy
Program
PM Power Marketing
Administration
RW Civilian
Radioactive Waste
Management
Program

Management Cluster**Acronym**

EP Energy Programs
ST Science and
Technology
Programs
WP Weapons/Waste
Clean Up
Programs

Operations Office**Acronym**

AL Albuquerque
CH Chicago
FN Fernald
HQ Headquarters
ID Idaho
NV Nevada
OR Oak Ridge
RL Richland
RF Rocky Flats
SF San Francisco
SR Savannah River

Non-Reporting Sites**Operational
Program****Management
Cluster****Operations
Office**

St Louis Airport Storage Site - St Louis, MO			
St Louis Airport Storage Site Vicinity Properties - St Louis, MO			
St Louis Downtown Site - Mallinckrodt, Inc. - St Louis, MO			
University of California - Berkeley, CA			
University of Chicago - Chicago, IL			
Ventron Corporation - Beverly, MA			
Wayne Interim Storage Site - Wayne, NJ			
W.R. Grace & Co. - Curtis Bay, MD			
General Electric Vallecitos Nuclear Center - Vallecitos, CA	EM	WP	SF
Grand Forks Energy Technology Center - Grand Forks, ND	FE	EP	HQ
Hallam Nuclear Power Facility - Lincoln, NE	EM	WP	CH
Johnston Atoll	EM	WP	NV
Kansas City Secom Site - Kansas City, MO	DP	WP	AL
Laboratory for Biomedical and Environmental Science - Los Angeles, CA	ER	ST	SF
Laboratory for Radiobiology and Environmental Health (UCSF) - San Francisco, CA	ER	ST	SF
Liquefied Gaseous Fuels Spill Test Facility - Mercury, NV	FE	EP	NV
Lynchburg Technology Center - Lynchburg, VA	DP	WP	HQ
Magnetic Fusion Energy Computing Center	ER	ST	
Massachusetts Institute of Technology - Boston, MA	ER	ST	CH
Maxey Flats - Hillsboro, KY	EM	WP	OR
Naval Petroleum & Oil Shale Reserves - Casper, WY	FE	EP	HQ
Naval Oil Shale Reserve No. 1 - Carbon, CO			
Naval Oil Shale Reserve No. 2 - Uintah, UT			
Naval Petroleum Reserve No. 2 - Buena Vista, CA			
Nevada Off-site Locations (OSL) Program - Mercury, NV	EM	WP	NV
Amchitka Island Test Site - Amchitka Island, AK			
Central Nevada Test Area - Faultless, NV			
Project Charlot - Cape Thompson, AK			
Project Gasbuggy Site - Farmington, NM			
Project Gnome Site - Carlsbad, NM			
Project Rio Blanco Site - Rifle, CO			
Project Rulison Site - Grand Valley, CO			
Project Shoal Site - Fallon, NV			
Tatum Dome - Hattiesburg, MS			
Notre Dame Radiation Laboratory - Notre Dame, IN	ER	ST	CH
Piqua Nuclear Power Facility - Piqua, OH	EM	WP	CH
Ross Aviation - Albuquerque, NM	DP	WP	AL
Sandia Laboratories - Cape Canaveral, FL	DP	WP	AL
Sandia Laboratories - Holloman AFB, Alamogordo, NM	DP	WP	AL
Sandia Laboratories - Pacific Missile Range - Kauai, HI	DP	WP	AL
Sandia Laboratories - Vernal, UT	DP	WP	AL
Schneectady Naval Reactors Office - Schneectady, NY	NE	EP	HQ

<u>Operational Program</u>	
<u>Acronym</u>	
AD	Administration
DP	Defense Programs
EE	Energy Efficiency and Renewable Energy Program
EM	Environmental Restoration and Waste Management Program
ET	Science Education and Technical Information Program
ER	Energy Research Program
FE	Fossil Energy Program
NE	Nuclear Energy Program
PM	Power Marketing Administration
RW	Civilian Radioactive Waste Management Program

<u>Management Cluster</u>	
<u>Acronym</u>	
EP	Energy Programs
ST	Science and Technology Programs
WP	Weapons/Waste Clean Up Programs

<u>Operations Office</u>	
<u>Acronym</u>	
AL	Albuquerque
CH	Chicago
FN	Fernald
HQ	Headquarters
ID	Idaho
NV	Nevada
OR	Oak Ridge
RL	Richland
RF	Rocky Flats
SF	San Francisco
SR	Savannah River

<u>Non-Reporting Sites</u>	<u>Operational Program</u>	<u>Management Cluster</u>	<u>Operations Office</u>
Separations Process Research Unit - Niskayuna, NY	EM	WP	CH
Shippingport Station Decommissioning Project - Shippingport, PA	EM	WP	RL
Site A/Plot M - Palos Park Forest Preserve, Cook County, IL	EM	WP	CH
South Valley Site - Albuquerque, NM	EM	WP	AL
Southeastern Power Administration - Atlanta, GA	PM	EP	HQ
Southwestern Power Administration - Tulsa, OK	PM	EP	HQ
Stanford Synchrotron Radiation Laboratory - Stanford, CA	ER	ST	SF

Appendix B: Reporting Site Index

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Appendix C: Project History and Data Collection Methodology

This appendix provides for the history of this Report. It discusses the directives and missions that were used to produce this Report; the methodology used to gather data; the design and testing of software, user training of the software, and finalization of the roll-up data; the waste generation reporting thresholds; and the aspects involved in the data validation process.

Appendix C: Project History and Data Collection Methodology

Project History

The basic objective of the "Annual Report on Waste Generation and Waste Minimization Progress 1991-1992" was established by the "Waste Minimization/Pollution Prevention Crosscut Plan" directive, issued in May of 1992. This directive called for an "annual report detailing waste generated within the DOE by waste type, waste stream, site, operational program, and the progress made to minimize these wastes." Beginning in July 1992, the Waste Minimization Reporting System software was developed to help produce a report on total waste generated in the DOE complex. Using standardized software, each site was asked to provide data on quantities of waste generated, quantities of waste avoided, and narrative text describing waste minimization efforts and their effectiveness. Site submittals were combined at Headquarters into a single complex-wide database that was used to generate this Report to the Secretary.

The "Annual Report on Waste Generation and Waste Minimization Progress 1991-1992" includes individual site and rolled-up data on waste generated and highlights of progress made in waste minimization efforts. This Report was designed to tabulate and illustrate waste generation and waste minimization progress by operational program and by major waste type.

In a memorandum dated August 21, 1992, the Assistant Secretary for the *Environmental Restoration and Waste Management Program* stated that the submission of data for the "Annual Report on Waste Generation and Waste Minimization Progress 1991-1992" will also fulfill the requirements of the "General Environmental Protection Program," DOE Order 5400.1.

To effectively implement the requirements specified by the "Waste Minimization/Pollution Prevention Crosscut Plan" directive, and to assist the sites in the interpretation of the reporting requirements, a plan for implementation was discussed with the Headquarters Waste Reduction Steering Committee. Various actions were undertaken as a result of discussions with the Committee's members. These included a detailed presentation of the reporting cycle and reporting thresholds, specifications for the reporting mechanism, conveyance of the reported information, and the initial specification for the content of the "Annual Report on Waste Generation and Waste Minimization Progress 1991-1992."

In July and August 1992, a series of workshops were held at *Defense Programs*, *Energy Research Program*, and *Nuclear Energy Program* sites to obtain field input for improving and refining the proposed reporting process. Many site and field office recommendations for improvement were made at the workshops. These recommendations have been incorporated into the reporting process and in designing the reporting software system. A major issue surfaced during the workshops regarding April 30 as the date originally proposed to submit the "Annual Report on Waste Generation and Waste Minimization Progress 1991-1992" to the Secretary. This date had been proposed assuming fiscal year reporting, while most

sites collect waste data on a calendar year basis. The schedule was adjusted to accommodate calendar year reporting.

In response to information gathered during the workshops, a decision was made to have the sites deliver data to their Field Operations Office. The Field Operations Office would then forward a report for each of its sites to the site's operational program. Upon receipt of the data, EM-352 combined each site's submittal with submittals from other site's reporting to the same operational program.

To improve consistency when collecting data and to facilitate data roll-up and analysis, it was also decided that all data would be collected using software provided by EM-352. It was hoped that this software would also be useful for the sites to generate reports required by Federal and State regulatory agencies.

EM-352 then developed specifications for the reporting software. The information gathered from the sites included textual information and quantitative data. In addition to standardizing definitions of terms, EM-352 identified specific guidance that noted accomplishments within the information submittals. This guidance was formalized in a "Standard Data Report," which forms the framework for data submittal.

The specifications of the reporting software revolved around the "Standard Data Report." The software was designed to be convenient for data entry, suitable for entry of textual information, and easy to navigate. Furthermore, it could be quickly installed and made functional on a majority of the hardware configurations in use at the various sites. A thorough design effort was performed to identify the specifications for a system meeting these requirements.

Upon completion, the software system was developed and internally tested over a period of 12 weeks. The Waste Minimization Reporting Software, as it came to be known, included a menu driven color windows user interface that enabled the user to enter waste generation information by year, operational program, waste type and physical form. The system included many free form text "memo" fields that allowed entry of a variety of textual information required to explain and augment the waste generation information and to document waste minimization projects at the site.

The Waste Minimization Reporting Software was tested by a field users group at Headquarters for a week long testing period. Representatives from several DOE reporting sites volunteered to exercise the software and comment on the performance, usability, and overall design of the system. The system was well received and a variety of comments were generated. Comments were collected and used to refine the Waste Minimization Reporting Software. In addition to testing the reporting system software, the field users group participated in several meetings with EM-352 staff to discuss the final reporting approach, the content of the information, and the final glossary of terms to be used. It was evident from these meetings that the use of the software would facilitate and standardize each site's reporting efforts.

In addition, a series of training classes were performed in early December 1992 at eight selected Field Operations Offices. Training included several hours of lecture and discussion sessions for technology transfer, as well as several hours of hands on workshop activities. The attendees provided typical information and unique situations for tracking waste generation at their sites. A variety of usability and technical comments were received concerning the reporting software. Various terms and conventions were established to provide consistency in reporting. At the Nevada Field Operations Office, a video tape was made of a training session that will be used for future training activities. This interactive session constituted a third testing and the comments received helped to further refine the software and ensure its friendly applicability.

After completion of the Waste Minimization Reporting Software, a "Waste Minimization Software User's Manual" was developed. It provides instruction for the installation and use of the software, and defines the final terms and conventions to be used. The reporting software was released at the end of December 1992. The software was sent to the Field Operations Offices and then distributed by Field Operations Offices to the reporting sites. Software for sites that report directly to the Headquarters Operations was sent directly by EM-352. Over 90 Waste Minimization Reporting Software packages were distributed to Field Operations Offices, reporting sites, operational programs and various interested parties within the DOE complex.

Beginning January 5, 1993 and running through March of 1993, a user support "Hotline" was established and operated to provide assistance to the users of the Waste Minimization Reporting Software, and to those who were gathering information for a site's waste minimization report. The staff that supported the waste minimization "Hotline" addressed calls from almost every reporting site. Assistance requirements ranged from interpretation of terminology to questions on software installation. For further assistance, general guidance information and summary information from many of the "Hotline" calls were published in a users bulletin, the "Waste Minimization User's Update," that was issued at various intervals, starting in February of 1993.

Towards the end of the reporting period, in late February and early March, EM-352 representatives visited several of the Field Operations Offices to provide an initial review of the information submittals from the reporting sites. This effort allowed for immediate feedback to the Field Operations Offices and reporting site representatives, and ultimately, provided more complete and consistent responses.

During the period when the reporting sites were gathering their waste generation information, EM-352 undertook development of a mock up of the "Annual Report on Waste Generation and Waste Minimization Progress 1991-1992." The evolution of this Report began in December of 1992 and continued through December of 1993.

Beginning in early March 1993, information from the reporting sites was examined upon receipt using a series of automated and manual validation criteria. In addition to checking consistency and general completeness, the information was

immediately examined to ensure that each of the reporting requirements was met. These reviews prompted several quick turn around information gathering discussions to complete reporting site submittals. The end result of this review process provided for further consistency and completeness of the complex-wide waste minimization reporting effort. Several sorts and quantitative roll-up reports were produced for writers and representatives from operational programs. These data analysis aids were utilized to draw out preliminary conclusions, to test possible inferences from the information received, and to develop the final tabular and graphical materials to be included in the draft Report. The writers were augmented by data analysts and graphic artists to assist in the completion of the draft Report.

Data Collection Process

The waste minimization software was designed with several purposes in mind. Providing the Report to the Secretary was the primary goal, but a key consideration was its development as a simple and effective tool for DOE sites. The data tables and text fields have been designed to require minimum input to provide all the necessary information within the "Annual Report on Waste Generation and Waste Minimization Progress 1991-1992." The software was designed to indicate to the user when all the required input has been completed. The software was developed in a modular format so improvements and other reporting requirements can be incorporated at a later date.

All report data received from the individual sites was downloaded at DOE Headquarters into a central database by EM-352. This collected information was sorted and compiled to provide a number of reports to the Secretary and to operational programs. In addition, this information was made available to the sites in the form of a floppy disk. In this way, individual sites have access to information from other DOE sites on specific waste minimization activities, accomplishments, and lessons learned.

Between February and March of 1993, the sites sent database disks and reports to the Field Operations Offices. By March 15, 1993 the Field Operations Offices delivered site reports to their operational program and sent the data disks to EM-352. On April 2, 1993, EM-352 delivered the rolled-up quantitative database to the Waste Reduction Steering Committee.

Approximately one month after completion of the "Annual Report on Waste Generation and Waste Minimization Progress 1991-1992," information from the database was distributed to all sites. The information contains waste minimization data in a consistent format, and highlights waste minimization initiatives at each site.

Program Management Office/Site Coverage of Report

The sites delivered data to DOE through the normal reporting chain to either their appropriate Field Operations Offices or Headquarters. The Field Operations Offices and Headquarters then forwarded a hard copy report for each site to the site's operational program and EM-352. EM-352 combined each site's submittal with submittals from other sites reporting to the same operational program.

Because of the large number of reporting sites within the DOE complex, a threshold reporting requirement was defined by DOE. This is demonstrated in Figure C.1. Sites required to report data are those previously required to report under DOE Order 5400.1; those required to report to any Federal or State Agency on waste generation, e.g., Nuclear Regulatory Commission, EPA, Department of Health, etc.; those generating hazardous radioactive mixed waste in any quantity; or those generating more than one curie of total activity per year or more than 14 cubic meters of radioactive waste per year. Sites which perform only environmental restoration, decontamination and decommissioning activities, or sites which function only as treatment, storage and disposal facilities were not automatically excluded by this criteria.

Figure C.1 Reporting Thresholds

It was very important that all reporting sites attributed waste generation and minimization activities to the correct operational program. The effort to properly attribute waste generation will affect incentives for waste minimization activities and funding. It is equally important that each operational program be given credit for their waste reduction efforts.

Data Validation

This section describes the activities that were performed by the reporting sites. The activities performed are presented in Figure C.2. The waste minimization data disks were received over a period of approximately five weeks, beginning in early March 1993. The majority of the site submittals were received within the first two weeks of that period. A total of 80 diskettes were received and processed, representing 65 reporting sites. In addition, there were several duplicate disks sent as backup submittals, and several re-submittals received.

The approach for processing the diskettes received from the field included several activities such as management of the diskettes themselves, intermediate re-

Figure C.2 Data Processing Activities Performed to Create the "Annual Report on Waste Generation and Waste Minimization Progress 1991-1992"

view and modification of information, and cross-checking of data to ensure consistency across all sites.

When the diskettes were received, each was assigned a physical inventory control number to track the disk and assist in filing related materials. After the disk and any hard copy information accompanying the disk was tagged, the diskette was checked for any viruses and the directory examined for appropriate files. Several blank disks and disks with essentially no information in the data files were received. The sites involved were immediately contacted to send another diskette. No virus infected diskettes were received.

After it was determined that a valid diskette was received, several verification steps were performed. These steps included printing the reporting site's information in raw form to further examine it and compare it to the "Standard Data Report," examining the data using several automated programs to identify missing data, conflicting information, and values that may require further investigation; and manually evaluating the data for consistency and textual clarification.

In addition to checking the consistency of the report and general completeness, the information was examined to ensure that each of the reporting requirements were met. This examination included a review of the information supplied along with the accuracy and consistency of information inferred from the textual information, and a review and development of themes brought out from the textual information.

An ad hoc committee was established by EM-352 and DOE contractors to review the potential changes to the data, manage interaction with the reporting sites, and implement modifications to the reporting site information. When minor additions or clarifications were needed, the reporting sites were contacted for quick turnaround information gathering discussions conducted over the telephone and by facsimile machine. When more information was needed, detailed discussions and some re-submittals of information were required. For all reporting sites, files were kept of original submittals, including all changes made to the site's information.

Once a reporting site's information was examined, and changes, if appropriate, were incorporated, the information was entered in a single database that combined each of the reporting site submittals. This database, identified as the "Master Data Set," was used as the baseline set of information and the source of all quantitative roll-up calculations and summary information.

The development of roll-up calculations was performed using several software tools, including the Waste Minimization Reporting Software, newly created program macros in the Clipper 5.01 language, the R&R Relational Report Writer program, and the dbPublisher program. Several calculations and databases were developed specifically for the generation of tables presenting the waste generation information in a variety of formats. Several reports and calculations were performed to provide data analysis and data sorts for the writers of the "Annual Report on Waste Generation and Waste Minimization Progress 1991-1992."

An important step in the production of the Report information and completion of the automated data analysis activities was the validation of the quantitative roll-up calculations. This was performed using several methods that resulted in verification of information using at least two methods concurrently. The methods used included hand calculations, development of several specialized validation calculations and reports, and final visual examination of the information transfer from the database file to the printed page.

"Annual Report on Waste Generation and Waste Minimization Progress 1991-1992" in Relation to Other Waste Management Reports

In addition to the "Annual Report on Waste Generation and Waste Minimization Progress 1991-1992," there are two other waste management reports that provide waste generation data to the public. These reports are the "Mixed Waste Inventory Report," required by the Federal Facility Compliance Act and the "Integrated Data

Base for 1991." These reports were prepared to meet different objectives, specifically, to document the waste inventory stored, treated or disposed at DOE sites.

The "Mixed Waste Inventory Report" is a detailed compilation by individual waste streams of radioactive wastes, specifically, HLW, MLLW, and MTRU waste. The report contains inventory data on these wastes, by site, as of December 1991, and projections for the total amount of waste generated for the period 1993 to 1997. Because the actual year of waste generation is not specified in the report, there can be no direct correlation between the "Mixed Waste Inventory Report" data and the 1991 and 1992 waste generation numbers in this Report. In addition, the total waste generation figures cannot be compared directly because the "Mixed Waste Inventory Report" contains sites not included in this Report. For additional information, see Appendix G.

The "Integrated Data Base for 1991" is an annual report produced by ORNL that details the location of all radioactive waste inventories in the country. It provides a national perspective through a comparison of waste generated by DOE and commercial activities. The report includes projections of the waste to be generated over the next 38 years based on various commercial reactor scenarios. The waste volumes within the report are separated into nine categories, including the type of waste, e.g., LLW, TRU waste, as well as the source, e.g., commercial decommissioning waste, environmental restoration waste. Although these categories overlap, an effort was made to maintain the inventories separately to aid in projections.

The current version of the "Integrated Data Base for 1991" includes data for 1991. Furthermore, the report contains waste generation data for LLW, TRU wastes and MLLW only. As with the "Mixed Waste Inventory Report," direct comparisons of the total waste generation are not possible since the same sites are not contained in each report. The "Integrated Data Base for 1991" contains some of the Naval Nuclear Propulsion sites but not the Naval Shipyards. In addition, the data gathered for the "Integrated Data Base for 1991" was conducted in mid-1992 while the data for this Report was gathered in March 1993. In some cases, the amount of waste shown as generated by each site in the "Integrated Data Base for 1991" may actually represent more than one site, such as the Pacific Northwest Laboratory, which is included in the Hanford Site waste totals.

Appendix D: Margin-of-Error Estimates for Site Waste Generation Data

This appendix presents an estimate of the margin-of-error for the waste types generated by each reporting site. For the purposes of this Report, each percentage indicates the estimated level of uncertainty in the data gathered for each waste type generated by a reporting site.

Margin-of-Error Estimates for Site Waste Generation Data

Reporting Site Name	LLW	MLLW	MTRU	TRU	HLW	San.	State	RCRA	TSCA
Alaska Power Administration	*	*	*	*	*	*	±10%	*	*
Ames Laboratory	±10%	±10%	*	*	*	*	±10%	±10%	±10%
Argonne National Laboratory - East	±10%	±25%	±25%	±10%	*	±10%	*	±10%	±10%
Argonne National Laboratory - West	±10%	±10%	±10%	±10%	*	±25%	*	±10%	±10%
Battelle Columbus Laboratories Decommissioning Project	*	*	*	*	*	*	*	*	*
Bonneville Power Administration	*	*	*	*	*	±10%	±25%	±25%	±10%
Brookhaven National Laboratory	±25%	±10%	*	*	*	±10%	±25%	±25%	±10%
Energy Technology Engineering Center	±10%	±10%	*	*	*	±25%	±10%	±10%	±10%
Fermi National Accelerator Laboratory	±10%	±10%	*	*	*	±10%	±10%	±10%	±10%
Fernald Environmental Management Project	±10%	±25%	*	*	*	±10%	*	±25%	±10%
FUSRAP (Albany Research Center site)	*	*	*	*	*	*	*	*	*
FUSRAP (Colonic Interim Storage site)	*	*	*	*	*	*	*	*	*
FUSRAP (Elza Gate site)	±10%	±10%	*	*	*	±25%	*	±10%	±10%
Grand Junction Projects Office	±10%	±10%	*	*	*	±10%	*	±10%	±10%
Hanford Site	±25%	±25%	±25%	±25%	*	±50%	±25%	±25%	±25%
Idaho Chemical Processing Plant	±10%	±10%	*	*	±10%	±10%	*	±10%	±10%
Idaho National Engineering Laboratory	±25%	±25%	*	*	*	±10%	±25%	±25%	±50%
Inhalation Toxicology Research Institute	±10%	±10%	*	±10%	*	±25%	±10%	±10%	±25%
Kansas City Plant	±10%	±10%	*	*	*	±25%	±10%	±10%	±10%
Laboratory for Energy-Related Health Research	±25%	*	*	*	*	±25%	*	*	*
Lawrence Berkeley Laboratory	±25%	±25%	*	±25%	*	*	±25%	±25%	±10%
Lawrence Livermore National Laboratory	±25%	±25%	±25%	±25%	*	±50%	±25%	±25%	±25%
Los Alamos National Laboratory	±10%	±10%	±10%	*	*	±25%	±10%	±10%	±10%
Morgantown Energy Technology Center	±10%	*	*	*	*	±25%	*	±10%	±10%
Mound Plant	±10%	±10%	*	*	*	±10%	±25%	±25%	±25%

* - Indicates that no waste of this type was generated at this site.

Margin-of-Error Estimates for Site Waste Generation Data

Reporting Site Name	LLW	MLLW	MTRU	TRU	HLW	San.	State	RCRA	TSCA
National Institute for Petroleum and Energy Research	*	*	*	*	*	±25%	*	±25%	*
National Renewable Energy Laboratory	*	*	*	*	*	±25%	±10%	±10%	±10%
Naval Oil Shale Reserve Number 3	*	*	*	*	*	±25%	*	*	*
Naval Petroleum Reserve Number 1	*	*	*	*	*	±25%	±10%	±10%	*
Naval Petroleum Reserve Number 3	*	*	*	*	*	±25%	*	±10%	±10%
Nevada Test Site	±10%	*	*	*	*	±25%	±10%	±10%	±10%
North Las Vegas Facility	±10%	*	*	*	*	±25%	±10%	±10%	*
Oak Ridge Institute for Science and Education	±10%	±10%	*	*	*	±25%	±10%	±10%	±10%
Oak Ridge K-25 Site	±10%	±10%	*	*	*	±10%	*	*	±10%
Oak Ridge National Laboratory	±10%	±10%	*	±25%	*	±25%	±25%	±25%	±25%
Oak Ridge Y-12 Plant	±25%	±25%	*	*	*	±25%	±25%	±25%	±25%
Office of Scientific and Technical Information	*	*	*	*	*	±10%	±10%	±10%	±10%
Oxnard Facility	*	*	*	*	*	±25%	*	±10%	*
Pacific Northwest Laboratory	±10%	±10%	*	±10%	*	*	±10%	±10%	±10%
Paducah Gaseous Diffusion Plant	±10%	±10%	*	*	*	±10%	*	*	±10%
Pantex Plant	±25%	±25%	*	*	*	±10%	±25%	±25%	±25%
Pinellas Plant	±10%	*	*	*	*	±25%	*	±10%	*
Pittsburgh Energy Technology Center	*	*	*	*	*	±10%	*	±10%	±10%
Pitts. (PETC) Component Development & Integration Facility	*	*	*	*	*	±10%	±10%	±10%	*
Portsmouth Gaseous Diffusion Plant	±10%	±10%	*	*	*	±25%	*	*	±10%
Princeton Plasma Physics Laboratory	±25%	±25%	*	*	*	±10%	±25%	±10%	±10%
Rocky Flats Plant	±10%	±10%	±10%	±10%	*	±25%	*	±10%	±10%
Sandia National Laboratories / California	*	±10%	*	*	*	±10%	±10%	±10%	±10%
Sandia National Laboratories / New Mexico	±25%	±25%	*	*	*	*	±10%	±10%	±50%
Savannah River Site	±10%	±25%	*	±10%	±10%	±25%	*	±25%	±10%

* - Indicates that no waste of this type was generated at this site.

Margin-of-Error Estimates for Site Waste Generation Data

Reporting Site Name	LLW	MLLW	MTRU	TRU	HLW	San.	State	RCRA	TSCA
Stanford Linear Accelerator Center	±10%	±10%	*	*	*	±10%	±10%	±10%	±10%
Strategic Petroleum Reserve	*	*	*	*	*	±25%	*	±10%	*
Superconducting Super Collider Laboratory	*	*	*	*	*	±50%	±10%	±10%	*
Uranium Mill Tailings Remedial Action Project	*	*	*	*	*	*	*	*	*
Waste Isolation Pilot Plant	*	*	*	*	*	±10%	*	±10%	*
Weldon Spring Site Remedial Action Project	±25%	±25%	*	*	*	±50%	±10%	*	±10%
West Valley Demonstration Project	±10%	±10%	*	*	*	±10%	±10%	±10%	±10%
Western Area Power Administration	*	*	*	*	*	±50%	±10%	±10%	±10%
Yucca Mountain Site Characterization Project	*	*	*	*	*	±25%	*	±10%	*

* - Indicates that no waste of this type was generated at this site.

Appendix E: Master Data Bar Charts

This appendix serves as a graphical compilation for all types of wastes generated and provided by each reporting site. This compilation is organized by waste type, solid and liquid waste totals and the number of employees at each reporting site. Data from each reporting site has been sorted and ranked by combining 1991 and 1992 waste generation amounts for each waste type.

Figure E.1 DOE Solid Low-Level Waste (LLW) Generation Rates in 1991 and 1992 by Reporting Site

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure E.1 DOE Solid Low-Level Waste (LLW) Generation Rates in 1991 and 1992 by Reporting Site (Cont'd.)

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure E.1 DOE Solid Low-Level Waste (LLW) Generation Rates in 1991 and 1992 by Reporting Site (Cont'd.)

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure E.2 DOE Liquid Low-Level Waste (LLW) Generation Rates in 1991 and 1992 by Reporting Site

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure E.3 DOE Solid Mixed Low-Level Waste (MLLW) Generation Rates in 1991 and 1992 by Reporting Site

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure E.3 DOE Solid Mixed Low-Level Waste (MLLW) Generation Rates in 1991 and 1992 by Reporting Site (Cont'd.)

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure E.4 DOE Liquid Mixed Low-Level Waste (MLLW) Generation Rates in 1991 and 1992 by Reporting Site

* Does not include MLLW wastewater generated at the Oak Ridge K-25 Site TSCA Incinerator Facility in 1991 and 1992.

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure E.4 DOE Liquid Mixed Low-Level Waste (MLLW) Generation Rates in 1991 and 1992 by Reporting Site (Cont'd.)

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure E.5 DOE Solid Mixed Transuranic Waste (MTRU) Generation Rates in 1991 and 1992 by Reporting Site

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure E.6 DOE Solid Transuranic Waste (TRU) Generation Rates in 1991 and 1992 by Reporting Site

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure E.7 DOE Liquid Transuranic Waste (TRU) Generation Rates in 1991 and 1992 by Reporting Site

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure E.8 DOE Liquid High-Level Waste (HLW) Generation Rates in 1991 and 1992 by Reporting Site

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure E.9 DOE Sanitary Waste Generation Rates in 1991 and 1992 by Reporting Site

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure E.9 DOE Sanitary Waste Generation Rates in 1991 and 1992 by Reporting Site (Cont'd.)

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure E.9 DOE Sanitary Waste Generation Rates in 1991 and 1992 by Reporting Site (Cont'd.)

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure E.9 DOE Sanitary Waste Generation Rates in 1991 and 1992 by Reporting Site (Cont'd.)

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure E.10 DOE RCRA Waste Generation Rates in 1991 and 1992 by Reporting Site

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure E.10 DOE RCRA Waste Generation Rates in 1991 and 1992 by Reporting Site (Cont'd.)

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure E.10 DOE RCRA Waste Generation Rates in 1991 and 1992 by Reporting Site (Cont'd.)

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

**Figure E.10 DOE RCRA Waste Generation Rates in 1991 and 1992 by Reporting Site
(Cont'd.)**

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure E.11 DOE State Waste Generation Rates in 1991 and 1992 by Reporting Site

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure E.11 DOE State Waste Generation Rates in 1991 and 1992 by Reporting Site (Cont'd.)

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure E.11 DOE State Waste Generation Rates in 1991 and 1992 by Reporting Site (Cont'd.)*

* This bar chart does not include State regulated wastewater generated at the Pantex Plant in 1991 and 1992.

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure E.12 DOE TSCA Waste Generation Rates in 1991 and 1992 by Reporting Site

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure E.12 DOE TSCA Waste Generation Rates in 1991 and 1992 by Reporting Site (Cont'd.)

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Figure E.12 DOE TSCA Waste Generation Rates in 1991 and 1992 by Reporting Site (Cont'd.)

NOTE: The measurement scale is adjusted to adequately reflect the generation rates shown on each figure.

Appendix F: Master Data Tables

This appendix serves as a master data compilation for all types of wastes generated and provided by each reporting site. This compilation is organized by waste type and provides solid and liquid waste totals for radioactive waste and solid waste totals for hazardous waste.

1991 Site Waste Generation
Low-Level Waste (Cubic Meters)

Reporting Site Name		DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste
1. Savannah River Site	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	11,973.84	0.00	9,658.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21,631.53
	Total	11,973.84	0.00	9,658.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21,631.53
2. Oak Ridge Y-12 Plant	Liq	825.75	0.00	218.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,043.90
	Solid	5,863.00	0.00	160.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6,023.00
	Total	6,688.75	0.00	378.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7,066.90
3. Fernald Environmental Management Project	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	6,669.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6,669.88
	Total	0.00	0.00	6,669.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6,669.88
4. Los Alamos National Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	3,526.04	0.00	1,052.04	505.74	0.00	0.00	685.75	0.00	0.00	0.00	5,769.57
	Total	3,526.04	0.00	1,052.04	505.74	0.00	0.00	685.75	0.00	0.00	0.00	5,769.57
5. Formerly Utilized Sites Remedial Action Program	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	5,068.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5,068.84
	Total	0.00	0.00	5,068.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5,068.84
6. Hanford Site	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	3,874.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3,874.00
	Total	0.00	0.00	3,874.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3,874.00
7. Mound Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	976.93	0.00	2,279.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3,256.44
	Total	976.93	0.00	2,279.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3,256.44
8. Idaho Chemical Processing Plant	Liq	0.00	0.00	347.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	347.12
	Solid	0.06	0.00	2,009.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,009.57
	Total	0.06	0.00	2,356.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,356.69
9. Portsmouth Gaseous Diffusion Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	2,232.36	0.00	0.00	0.00	2,232.36
	Total	0.00	0.00	0.00	0.00	0.00	0.00	2,232.36	0.00	0.00	0.00	2,232.36
10. Oak Ridge National Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	271.56	1,493.59	0.00	0.00	96.98	77.58	0.00	0.00	1,939.71
	Total	0.00	0.00	271.56	1,493.59	0.00	0.00	96.98	77.58	0.00	0.00	1,939.71
11. Paducah Gaseous Diffusion Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	1,874.58	0.00	0.00	0.00	1,874.58
	Total	0.00	0.00	0.00	0.00	0.00	0.00	1,874.58	0.00	0.00	0.00	1,874.58

1991 Site Waste Generation
Low-Level Waste (Cubic Meters)

Reporting Site Name		DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste
12 . Rocky Flats Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	682.14	0.00	722.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,404.80
	Total	682.14	0.00	722.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,404.80
13 . Idaho National Engineering Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	205.00	0.00	412.00	0.00	0.00	0.00	279.00	0.00	0.00	0.00	696.00
	Total	205.00	0.00	412.00	0.00	0.00	0.00	279.00	0.00	0.00	0.00	696.00
14 . Oak Ridge K-25 Site	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	628.78	0.00	0.00	0.00	87.82	0.00	0.00	0.00	716.60
	Total	0.00	0.00	628.78	0.00	0.00	0.00	87.82	0.00	0.00	0.00	716.60
15 . Pacific Northwest Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	629.46	0.00	0.00	0.00	0.00	0.00	0.00	629.46
	Total	0.00	0.00	0.00	629.46	0.00	0.00	0.00	0.00	0.00	0.00	629.46
16 . West Valley Demonstration Project	Liq	0.00	0.00	1.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.69
	Solid	0.00	0.00	607.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	607.28
	Total	0.00	0.00	608.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	608.97
17 . Lawrence Livermore National Laboratory	Liq	56.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.32
	Solid	184.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	184.75
	Total	241.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	241.07
18 . Argonne National Laboratory - West	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	210.14	0.00	0.00	0.00	210.14
	Total	0.00	0.00	0.00	0.00	0.00	0.00	210.14	0.00	0.00	0.00	210.14
19 . Energy Technology Engineering Center	Liq	0.00	0.00	3.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.37
	Solid	0.00	0.00	194.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	194.00
	Total	0.00	0.00	197.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	197.37
20 . Brookhaven National Laboratory	Liq	0.00	0.00	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	7.13
	Solid	0.00	0.00	0.00	180.10	0.00	0.00	0.00	0.00	0.00	0.00	180.10
	Total	0.00	0.00	0.00	187.23	0.00	0.00	0.00	0.00	0.00	0.00	187.23
21 . Pantex Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	67.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	67.23
	Total	67.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	67.23
22 . Nevada Test Site	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	64.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.85
	Total	64.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.85

1991 Site Waste Generation
Low-Level Waste (Cubic Meters)

Reporting Site Name		DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste
23 . Sandia National Laboratories / New Mexico	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	64.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.00
	Total	64.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.00
24 . Pinellas Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	63.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.00
	Total	63.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.00
25 . Inhalation Toxicology Research Institute	Liq	0.00	0.00	0.00	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.41
	Solid	0.00	0.00	0.00	61.71	0.00	0.00	0.00	0.00	0.00	0.00	61.71
	Total	0.00	0.00	0.00	62.12	0.00	0.00	0.00	0.00	0.00	0.00	62.12
26 . Fermi National Accelerator Laboratory	Liq	0.00	0.00	0.00	2.56	0.00	0.00	0.00	0.00	0.00	0.00	2.56
	Solid	0.00	0.00	0.00	52.90	0.00	0.00	0.00	0.00	0.00	0.00	52.90
	Total	0.00	0.00	0.00	55.46	0.00	0.00	0.00	0.00	0.00	0.00	55.46
27 . Lawrence Berkeley Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	52.18	0.00	0.00	0.00	0.00	0.00	0.00	52.18
	Total	0.00	0.00	0.00	52.18	0.00	0.00	0.00	0.00	0.00	0.00	52.18
28 . Argonne National Laboratory - East	Liq	0.00	0.00	0.00	0.62	0.00	0.00	0.21	0.00	0.00	0.00	0.84
	Solid	0.00	0.03	6.29	16.60	0.00	0.00	14.68	0.00	0.00	0.00	37.60
	Total	0.00	0.03	6.29	17.22	0.00	0.00	14.89	0.00	0.00	0.00	38.44
29 . Princeton Plasma Physics Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	35.00	0.00	0.00	0.00	0.00	0.00	0.00	35.00
	Total	0.00	0.00	0.00	35.00	0.00	0.00	0.00	0.00	0.00	0.00	35.00
30 . Oak Ridge Institute for Science and Education	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	26.59	0.00	0.00	0.00	0.00	0.00	0.00	26.59
	Total	0.00	0.00	0.00	26.59	0.00	0.00	0.00	0.00	0.00	0.00	26.59
31 . Ames Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	19.82	0.00	0.00	0.00	0.00	0.00	0.00	19.82
	Total	0.00	0.00	0.00	19.82	0.00	0.00	0.00	0.00	0.00	0.00	19.82
32 . Weldon Spring Site Remedial Action Project	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	14.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.15
	Total	0.00	0.00	14.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.15
33 . Laboratory for Energy-Related Health Research	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00
	Total	0.00	0.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00

1991 Site Waste Generation
Low-Level Waste (Cubic Meters)

<u>Reporting Site Name</u>		<u>DP</u>	<u>EE</u>	<u>EM</u>	<u>ER</u>	<u>ET</u>	<u>FE</u>	<u>NE</u>	<u>NP</u>	<u>PM</u>	<u>RW</u>	<u>Total Waste</u>
34 . Morgantown Energy Technology Center	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	0.00	0.00	2.89	0.00	0.00	0.00	0.00	2.89
	Total	0.00	0.00	0.00	0.00	0.00	2.89	0.00	0.00	0.00	0.00	2.89
35 . North Las Vegas Facility	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50
	Total	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50
36 . Kansas City Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29
	Total	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29
37 . Grand Junction Projects Office	Liq	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13
	Solid	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
	Total	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22
Totals For Waste Type		Liq	882.36	0.00	570.47	10.73	0.00	0.00	0.21	0.00	0.00	1,463.77
		Solid	23,670.83	0.03	33,631.05	3,073.61	0.00	2.89	5,481.31	77.58	0.00	65,937.30
		Total	24,553.19	0.03	34,201.52	3,084.34	0.00	2.89	5,481.52	77.58	0.00	67,401.07

1992 Site Waste Generation
Low-Level Waste (Cubic Meters)

Reporting Site Name		DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste
1. Fernald Environmental Management Project	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	12,571.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12,571.00
	Total	0.00	0.00	12,571.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12,571.00
2. Savannah River Site	Liq	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90
	Solid	8,316.09	0.00	4,126.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12,442.42
	Total	8,316.09	0.00	4,126.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12,442.42
3. Oak Ridge Y-12 Plant	Liq	551.54	0.00	38.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	589.62
	Solid	5,412.00	0.00	299.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5,711.00
	Total	5,963.54	0.00	337.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6,300.62
4. Oak Ridge National Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	376.24	2,069.32	0.00	0.00	134.37	107.49	0.00	0.00	2,687.42
	Total	0.00	0.00	376.24	2,069.32	0.00	0.00	134.37	107.49	0.00	0.00	2,687.42
5. Los Alamos National Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	1,440.23	0.00	511.88	248.49	0.00	0.00	135.47	0.00	0.00	0.00	2,336.87
	Total	1,440.23	0.00	511.88	248.49	0.00	0.00	135.47	0.00	0.00	0.00	2,336.87
6. Hanford Site	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	2,291.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,291.00
	Total	0.00	0.00	2,291.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,291.00
7. Oak Ridge K-25 Site	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	2,151.10	0.00	0.00	0.00	0.50	0.00	0.00	0.00	2,151.60
	Total	0.00	0.00	2,151.10	0.00	0.00	0.00	0.50	0.00	0.00	0.00	2,151.60
8. Mound Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	594.65	0.00	1,387.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,982.18
	Total	594.65	0.00	1,387.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,982.18
9. Portsmouth Gaseous Diffusion Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	1,648.75	0.00	0.00	0.00	1,648.75
	Total	0.00	0.00	0.00	0.00	0.00	0.00	1,648.75	0.00	0.00	0.00	1,648.75
10. Idaho Chemical Processing Plant	Liq	0.00	0.00	163.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	163.15
	Solid	1.30	0.00	1,448.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,449.76
	Total	1.30	0.00	1,611.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,612.91
11. Idaho National Engineering Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	49.64	0.00	190.69	0.00	0.00	0.00	837.05	0.00	0.00	0.00	1,077.38
	Total	49.64	0.00	190.69	0.00	0.00	0.00	837.05	0.00	0.00	0.00	1,077.38

1992 Site Waste Generation
Low-Level Waste (Cubic Meters)

Reporting Site Name		DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste
12 . West Valley Demonstration Project	Liq	0.00	0.00	1.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.84
	Solid	0.00	0.00	716.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	716.84
	Total	0.00	0.00	718.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	718.68
13 . Rocky Flats Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	545.85	0.00	133.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	679.51
	Total	545.85	0.00	133.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	679.51
14 . Paducah Gaseous Diffusion Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	499.79	0.00	0.00	0.00	499.79
	Total	0.00	0.00	0.00	0.00	0.00	0.00	499.79	0.00	0.00	0.00	499.79
15 . Pacific Northwest Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	384.83	0.00	0.00	0.00	0.00	0.00	0.00	384.83
	Total	0.00	0.00	0.00	384.83	0.00	0.00	0.00	0.00	0.00	0.00	384.83
16 . Brookhaven National Laboratory	Liq	0.00	0.00	0.00	12.16	0.00	0.00	0.00	0.00	0.00	0.00	12.16
	Solid	0.00	0.00	0.00	272.70	0.00	0.00	0.00	0.00	0.00	0.00	272.70
	Total	0.00	0.00	0.00	284.86	0.00	0.00	0.00	0.00	0.00	0.00	284.86
17 . Lawrence Livermore National Laboratory	Liq	142.41	0.00	0.73	4.38	0.00	0.00	4.61	0.00	0.00	0.00	152.13
	Solid	56.97	0.00	0.29	1.73	0.00	0.00	1.82	0.00	0.00	0.00	59.91
	Total	199.38	0.00	1.02	6.11	0.00	0.00	6.43	0.00	0.00	0.00	212.04
18 . Argonne National Laboratory - West	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	187.54	0.00	0.00	0.00	187.54
	Total	0.00	0.00	0.00	0.00	0.00	0.00	187.54	0.00	0.00	0.00	187.54
19 . Pantex Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	178.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	178.00
	Total	178.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	178.00
20 . Fermi National Accelerator Laboratory	Liq	0.00	0.00	0.00	3.81	0.00	0.00	0.00	0.00	0.00	0.00	3.81
	Solid	0.00	0.00	0.00	141.20	0.00	0.00	0.00	0.00	0.00	0.00	141.20
	Total	0.00	0.00	0.00	145.01	0.00	0.00	0.00	0.00	0.00	0.00	145.01
21 . Energy Technology Engineering Center	Liq	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00
	Solid	0.00	0.00	139.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	139.00
	Total	0.00	0.00	141.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	141.00
22 . Formerly Utilized Sites Remedial Action Program	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	127.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	127.99
	Total	0.00	0.00	127.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	127.99

1992 Site Waste Generation
Low-Level Waste (Cubic Meters)

Reporting Site Name		DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste
23 . Nevada Test Site	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	64.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.85
	Total	64.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.85
24 . Inhalation Toxicology Research Institute	Liq	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.21
	Solid	0.00	0.00	0.00	61.18	0.00	0.00	0.00	0.00	0.00	0.00	61.18
	Total	0.00	0.00	0.00	61.39	0.00	0.00	0.00	0.00	0.00	0.00	61.39
25 . Pinellas Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	61.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	61.00
	Total	61.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	61.00
26 . Stanford Linear Accelerator Center	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	55.93	0.00	0.00	0.00	0.00	0.00	0.00	55.93
	Total	0.00	0.00	0.00	55.93	0.00	0.00	0.00	0.00	0.00	0.00	55.93
27 . Argonne National Laboratory - East	Liq	0.00	0.00	0.01	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.13
	Solid	0.00	0.01	8.07	25.55	0.00	0.00	13.37	0.00	0.00	0.00	47.08
	Total	0.00	0.01	8.08	25.67	0.00	0.00	13.37	0.00	0.00	0.00	47.13
28 . Lawrence Berkeley Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	39.26	0.00	0.00	0.00	0.00	0.00	0.00	39.26
	Total	0.00	0.00	0.00	39.26	0.00	0.00	0.00	0.00	0.00	0.00	39.26
29 . Princeton Plasma Physics Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	35.00	0.00	0.00	0.00	0.00	0.00	0.00	35.00
	Total	0.00	0.00	0.00	35.00	0.00	0.00	0.00	0.00	0.00	0.00	35.00
30 . Sandia National Laboratories / New Mexico	Liq	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
	Solid	34.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34.30
	Total	34.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34.50
31 . Weldon Spring Site Remedial Action Project	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	21.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.24
	Total	0.00	0.00	21.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.24
32 . Laboratory for Energy-Related Health Research	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	16.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.20
	Total	0.00	0.00	16.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.20
33 . Oak Ridge Institute for Science and Education	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	14.44	0.00	0.00	0.00	0.00	0.00	0.00	14.44
	Total	0.00	0.00	0.00	14.44	0.00	0.00	0.00	0.00	0.00	0.00	14.44

1992 Site Waste Generation
Low-Level Waste (Cubic Meters)

Reporting Site Name		DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste
34. Ames Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	14.16	0.00	0.00	0.00	0.00	0.00	0.00	14.16
	Total	0.00	0.00	0.00	14.16	0.00	0.00	0.00	0.00	0.00	0.00	14.16
35. Kansas City Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51
	Total	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51
36. Morgantown Energy Technology Center	Liq	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.14
	Solid	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.14
	Total	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.00	0.28
37. Grand Junction Projects Office	Liq	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11
Totals For Waste Type	Liq	694.15	0.00	205.91	20.68	0.00	0.14	4.61	0.00	0.00	0.00	925.49
	Solid	16,753.69	0.01	26,516.60	3,362.99	0.00	0.14	3,458.66	107.49	0.00	0.00	50,199.58
	Total	17,447.84	0.01	26,722.51	3,383.67	0.00	0.28	3,463.27	107.49	0.00	0.00	51,125.07

1991 Site Waste Generation
Mixed Low-Level Waste (Cubic Meters)

Reporting Site Name		DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste
1 . Oak Ridge K-25 Site	Liq	0.00	0.00	56,923.70	0.00	0.00	0.00	7.53	0.00	0.00	0.00	56,931.23
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	56,923.70	0.00	0.00	0.00	7.53	0.00	0.00	0.00	56,931.23
2 . Oak Ridge Y-12 Plant	Liq	2,755.54	0.00	1.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,756.85
	Solid	71.00	0.00	663.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	734.00
	Total	2,826.54	0.00	664.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3,490.85
3 . Oak Ridge National Laboratory	Liq	0.00	0.00	0.00	2,045.44	0.00	0.00	0.00	0.00	0.00	0.00	2,045.44
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	0.00	2,045.44	0.00	0.00	0.00	0.00	0.00	0.00	2,045.44
4 . Hanford Site	Liq	0.00	0.00	1,177.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,177.50
	Solid	0.00	0.00	581.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	581.00
	Total	0.00	0.00	1,758.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,758.50
5 . Portsmouth Gaseous Diffusion Plant	Liq	0.00	0.00	122.83	0.00	0.00	0.00	97.76	0.00	0.00	0.00	220.59
	Solid	0.00	0.00	468.38	0.00	0.00	0.00	177.18	0.00	0.00	0.00	645.46
	Total	0.00	0.00	591.13	0.00	0.00	0.00	274.86	0.00	0.00	0.00	865.99
6 . Rocky Flats Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	47.96	0.00	506.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	554.27
	Total	47.96	0.00	506.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	554.27
7 . Los Alamos National Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	101.59	0.00	34.06	14.56	0.00	0.00	19.75	0.00	0.00	0.00	169.96
	Total	101.59	0.00	34.06	14.56	0.00	0.00	19.75	0.00	0.00	0.00	169.96
8 . Paducah Gaseous Diffusion Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	137.05	0.00	0.00	0.00	137.05
	Total	0.00	0.00	0.00	0.00	0.00	0.00	137.05	0.00	0.00	0.00	137.05
9 . Lawrence Livermore National Laboratory	Liq	93.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	93.56
	Solid	9.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.73
	Total	103.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	103.29
10 . Fernald Environmental Management Project	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	81.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	81.00
	Total	0.00	0.00	81.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	81.00
11 . Idaho National Engineering Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	2.91	0.00	11.77	0.00	0.00	0.00	36.84	0.00	0.00	0.00	51.52
	Total	2.91	0.00	11.77	0.00	0.00	0.00	36.84	0.00	0.00	0.00	51.52

1991 Site Waste Generation
Mixed Low-Level Waste (Cubic Meters)

Reporting Site Name		DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste
12. Pantex Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	39.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.70
	Total	39.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.70
13. Savannah River Site	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	25.06	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.10
	Total	25.06	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.10
14. Lawrence Berkeley Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	16.13	0.00	0.00	0.00	0.00	0.00	0.00	16.13
	Total	0.00	0.00	0.00	16.13	0.00	0.00	0.00	0.00	0.00	0.00	16.13
15. Pacific Northwest Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	11.69	0.00	0.00	0.00	0.00	0.00	0.00	11.69
	Total	0.00	0.00	0.00	11.69	0.00	0.00	0.00	0.00	0.00	0.00	11.69
16. Brookhaven National Laboratory	Liq	0.00	0.00	0.00	4.15	0.00	0.00	0.00	0.00	0.00	0.00	4.15
	Solid	0.00	0.00	0.00	3.44	0.00	0.00	0.00	0.00	0.00	0.00	3.44
	Total	0.00	0.00	0.00	7.59	0.00	0.00	0.00	0.00	0.00	0.00	7.59
17. Sandia National Laboratories / New Mexico	Liq	1.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.70
	Solid	3.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.40
	Total	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.10
18. Inhalation Toxicology Research Institute	Liq	0.00	0.00	0.00	3.91	0.00	0.00	0.00	0.00	0.00	0.00	3.91
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	0.00	3.91	0.00	0.00	0.00	0.00	0.00	0.00	3.91
19. Mound Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	2.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.97
	Total	2.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.97
20. Idaho Chemical Processing Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	2.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.79
	Total	0.00	0.00	2.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.79
21. Weldon Spring Site Remedial Action Project	Liq	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33
	Solid	0.00	0.00	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64
	Total	0.00	0.00	0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.97
22. Kansas City Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.87
	Total	0.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.87

1991 Site Waste Generation
Mixed Low-Level Waste (Cubic Meters)

Reporting Site Name		DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste
23 . Fermi National Accelerator Laboratory	Liq	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.20
	Solid	0.00	0.00	0.00	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.65
	Total	0.00	0.00	0.00	0.85	0.00	0.00	0.00	0.00	0.00	0.00	0.85
24 . Grand Junction Projects Office	Liq	0.00	0.00	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64
25 . West Valley Demonstration Project	Liq	0.00	0.00	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41
	Solid	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
	Total	0.00	0.00	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44
26 . Argonne National Laboratory - West	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.37	0.00	0.00	0.00	0.37
	Total	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.00	0.00	0.00	0.38
27 . Princeton Plasma Physics Laboratory	Liq	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.30
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.30
28 . Argonne National Laboratory - East	Liq	0.00	0.00	0.00	0.06	0.00	0.00	0.09	0.00	0.00	0.00	0.15
	Solid	0.00	0.00	0.01	0.01	0.00	0.00	0.09	0.00	0.00	0.00	0.11
	Total	0.00	0.00	0.01	0.07	0.00	0.00	0.18	0.00	0.00	0.00	0.26
29 . Sandia National Laboratories / California	Liq	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21
30 . Oak Ridge Institute for Science and Education	Liq	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.12
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.12
Totals For Waste Type		Liq	2,851.01	0.00	58,226.71	2,054.18	0.00	0.00	105.39	0.00	0.00	63,237.29
		Solid	305.19	0.00	2,356.95	46.48	0.00	0.00	371.20	0.00	0.00	3,079.82
		Total	3,156.20	0.00	60,583.66	2,100.66	0.00	0.00	476.59	0.00	0.00	66,317.11

1992 Site Waste Generation
Mixed Low-Level Waste (Cubic Meters)

Reporting Site Name		DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste
1. Oak Ridge K-25 Site	Liq	0.00	0.00	77,694.22	0.00	0.00	0.00	2.76	0.00	0.00	0.00	77,696.98
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	77,694.22	0.00	0.00	0.00	2.76	0.00	0.00	0.00	77,696.98
2. Hanford Site	Liq	0.00	0.00	2,415.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,415.25
	Solid	0.00	0.00	440.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	440.00
	Total	0.00	0.00	2,855.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,855.25
3. Oak Ridge Y-12 Plant	Liq	1,716.30	0.00	8.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,724.43
	Solid	87.00	0.00	394.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	481.00
	Total	1,803.30	0.00	402.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,205.43
4. Oak Ridge National Laboratory	Liq	0.00	0.00	0.00	1,521.74	0.00	0.00	0.00	0.00	0.00	0.00	1,521.74
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	0.00	1,521.74	0.00	0.00	0.00	0.00	0.00	0.00	1,521.74
5. Paducah Gaseous Diffusion Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	823.94	0.00	0.00	0.00	823.94
	Total	0.00	0.00	0.00	0.00	0.00	0.00	823.94	0.00	0.00	0.00	823.94
6. Portsmouth Gaseous Diffusion Plant	Liq	0.00	0.00	35.58	0.00	0.00	0.00	350.84	0.00	0.00	0.00	386.42
	Solid	0.00	0.00	64.00	0.00	0.00	0.00	289.00	0.00	0.00	0.00	353.00
	Total	0.00	0.00	99.58	0.00	0.00	0.00	639.84	0.00	0.00	0.00	739.42
7. Energy Technology Engineering Center	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	645.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	645.00
	Total	0.00	0.00	645.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	645.00
8. Rocky Flats Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	60.39	0.00	380.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	440.39
	Total	60.39	0.00	380.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	440.39
9. Lawrence Livermore National Laboratory	Liq	118.54	0.00	0.93	3.20	0.00	0.00	2.45	0.00	0.00	0.00	125.12
	Solid	20.79	0.00	0.16	0.56	0.00	0.00	0.43	0.00	0.00	0.00	21.94
	Total	139.33	0.00	1.09	3.76	0.00	0.00	2.88	0.00	0.00	0.00	147.06
10. Fernald Environmental Management Project	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	141.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	141.00
	Total	0.00	0.00	141.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	141.00
11. Idaho National Engineering Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	54.09	0.00	0.00	0.00	38.10	0.00	0.00	0.00	92.79
	Total	0.00	0.00	54.09	0.00	0.00	0.00	38.10	0.00	0.00	0.00	92.79

1992 Site Waste Generation
Mixed Low-Level Waste (Cubic Meters)

Reporting Site Name		DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste
12 . Los Alamos National Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	48.61	0.00	19.42	8.35	0.00	0.00	4.57	0.00	0.00	0.00	80.95
	Total	48.61	0.00	19.42	8.35	0.00	0.00	4.57	0.00	0.00	0.00	80.95
13 . Idaho Chemical Processing Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	70.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	70.42
	Total	0.00	0.00	70.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	70.42
14 . Pantex Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	50.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.47
	Total	50.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.47
15 . Formerly Utilized Sites Remedial Action Program	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	39.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.75
	Total	0.00	0.00	39.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.75
16 . Savannah River Site	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	15.38	0.00	5.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.42
	Total	15.38	0.00	5.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.42
17 . Sandia National Laboratories / New Mexico	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	6.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.40
	Total	6.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.40
18 . Pacific Northwest Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	4.90	0.00	0.00	0.00	0.00	0.00	0.00	4.90
	Total	0.00	0.00	0.00	4.90	0.00	0.00	0.00	0.00	0.00	0.00	4.90
19 . Lawrence Berkeley Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	4.84	0.00	0.00	0.00	0.00	0.00	0.00	4.84
	Total	0.00	0.00	0.00	4.84	0.00	0.00	0.00	0.00	0.00	0.00	4.84
20 . West Valley Demonstration Project	Liq	0.00	0.00	3.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.68
	Solid	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17
	Total	0.00	0.00	3.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.85
21 . Brookhaven National Laboratory	Liq	0.00	0.00	0.00	2.69	0.00	0.00	0.00	0.00	0.00	0.00	2.69
	Solid	0.00	0.00	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.19
	Total	0.00	0.00	0.00	2.88	0.00	0.00	0.00	0.00	0.00	0.00	2.88
22 . Stanford Linear Accelerator Center	Liq	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.33
	Solid	0.00	0.00	0.00	1.98	0.00	0.00	0.00	0.00	0.00	0.00	1.98
	Total	0.00	0.00	0.00	2.31	0.00	0.00	0.00	0.00	0.00	0.00	2.31

1992 Site Waste Generation
Mixed Low-Level Waste (Cubic Meters)

Reporting Site Name		DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste
23 . Fermi National Accelerator Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	1.73	0.00	0.00	0.00	0.00	0.00	0.00	1.73
	Total	0.00	0.00	0.00	1.73	0.00	0.00	0.00	0.00	0.00	0.00	1.73
24 . Inhalation Toxicology Research Institute	Liq	0.00	0.00	0.00	1.34	0.00	0.00	0.00	0.00	0.00	0.00	1.34
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	0.00	1.34	0.00	0.00	0.00	0.00	0.00	0.00	1.34
25 . Weldon Spring Site Remedial Action Project	Liq	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22
	Solid	0.00	0.00	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64
	Total	0.00	0.00	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.86
26 . Argonne National Laboratory - West	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.66	0.00	0.00	0.00	0.66
	Total	0.00	0.00	0.00	0.00	0.00	0.00	0.68	0.00	0.00	0.00	0.68
27 . Argonne National Laboratory - East	Liq	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	Solid	0.00	0.00	0.03	0.38	0.00	0.00	0.06	0.00	0.00	0.00	0.47
	Total	0.00	0.00	0.05	0.38	0.00	0.00	0.06	0.00	0.00	0.00	0.49
28 . Sandia National Laboratories / California	Liq	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
29 . Princeton Plasma Physics Laboratory	Liq	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.30
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.30
30 . Mound Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28
	Total	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28
31 . Ames Laboratory	Liq	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	Solid	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.14
	Total	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.15
32 . Oak Ridge Institute for Science and Education	Liq	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.11
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.11
33 . Kansas City Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

1992 Site Waste Generation
Mixed Low-Level Waste (Cubic Meters)

<u>Reporting Site Name</u>		<u>DP</u>	<u>EE</u>	<u>EM</u>	<u>ER</u>	<u>ET</u>	<u>FE</u>	<u>NE</u>	<u>NP</u>	<u>PM</u>	<u>RW</u>	<u>Total Waste</u>
34 . Grand Junction Projects Office	Liq	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
<hr/>												
Totals For Waste Type	Liq	1,835.26	0.00	80,158.05	1,529.72	0.00	0.00	356.06	0.00	0.00	0.00	83,879.09
	Solid	289.40	0.00	2,254.32	23.07	0.00	0.00	1,156.76	0.00	0.00	0.00	3,723.55
	Total	2,124.66	0.00	82,412.37	1,552.79	0.00	0.00	1,512.82	0.00	0.00	0.00	87,602.64

1991 Site Waste Generation
Mixed Transuranic Waste (Cubic Meters)

<u>Reporting Site Name</u>		<u>DP</u>	<u>EE</u>	<u>EM</u>	<u>ER</u>	<u>ET</u>	<u>FE</u>	<u>NE</u>	<u>NP</u>	<u>PM</u>	<u>RW</u>	<u>Total Waste</u>
1. Los Alamos National Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	131.65	0.00	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	133.55
	Total	131.65	0.00	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	133.55
2. Rocky Flats Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	52.46	0.00	12.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	65.25
	Total	52.46	0.00	12.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	65.25
3. Savannah River Site	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	17.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.10
	Total	17.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.10
4. Hanford Site	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	5.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.24
	Total	0.00	0.00	5.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.24
5. Lawrence Livermore National Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	2.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.52
	Total	2.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.52
6. Argonne National Laboratory - West	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.00	0.00	0.00	0.42
	Total	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.00	0.00	0.00	0.42
Totals For Waste Type		Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Solid	203.73	0.00	19.93	0.00	0.00	0.42	0.00	0.00	0.00	224.08
		Total	203.73	0.00	19.93	0.00	0.00	0.42	0.00	0.00	0.00	224.08

1992 Site Waste Generation
Mixed Transuranic Waste (Cubic Meters)

Reporting Site Name		DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste
1. Los Alamos National Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	49.31	0.00	0.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.10
	Total	49.31	0.00	0.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.10
2. Hanford Site	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	15.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.76
	Total	0.00	0.00	15.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.76
3. Rocky Flats Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	11.79	0.00	0.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.45
	Total	11.79	0.00	0.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.45
4. Savannah River Site	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	6.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.13
	Total	6.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.13
5. Lawrence Livermore National Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83
	Total	0.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83
6. Argonne National Laboratory - West	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.00	0.00	0.00	0.42
	Total	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.00	0.00	0.00	0.42
7. Argonne National Laboratory - East	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	0.12	0.00	0.00	0.17	0.00	0.00	0.00	0.29
	Total	0.00	0.00	0.00	0.12	0.00	0.00	0.17	0.00	0.00	0.00	0.29
Totals For Waste Type		Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Solid	68.06	0.00	17.21	0.12	0.00	0.59	0.00	0.00	0.00	85.98
		Total	68.06	0.00	17.21	0.12	0.00	0.59	0.00	0.00	0.00	85.98

1991 Site Waste Generation
Transuranic Waste (Cubic Meters)

Reporting Site Name	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste
1 . Savannah River Site	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	631.73	0.00	1.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	633.00
	Liq	Solid	Total	Liq	Solid	Total	Liq	Solid	Total	Liq	Solid
2 . Oak Ridge National Laboratory	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Liq	Solid	Total	Liq	Solid	Total	Liq	Solid	Total	Liq	Solid
3 . Hanford Site	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Liq	Solid	Total	Liq	Solid	Total	Liq	Solid	Total	Liq	Solid
4 . Rocky Flats Plant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Liq	Solid	Total	Liq	Solid	Total	Liq	Solid	Total	Liq	Solid
5 . Lawrence Berkeley Laboratory	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Liq	Solid	Total	Liq	Solid	Total	Liq	Solid	Total	Liq	Solid
6 . Lawrence Livermore National Laboratory	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Liq	Solid	Total	Liq	Solid	Total	Liq	Solid	Total	Liq	Solid
7 . Pacific Northwest Laboratory	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Liq	Solid	Total	Liq	Solid	Total	Liq	Solid	Total	Liq	Solid
8 . Argonne National Laboratory - East	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Liq	Solid	Total	Liq	Solid	Total	Liq	Solid	Total	Liq	Solid
9 . Argonne National Laboratory - West	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Liq	Solid	Total	Liq	Solid	Total	Liq	Solid	Total	Liq	Solid
10 . Inhalation Toxicology Research Institute	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Liq	Solid	Total	Liq	Solid	Total	Liq	Solid	Total	Liq	Solid
Totals For Waste Type	0.00	649.53	0.00	0.00	26.00	31.66	0.00	1.87	0.00	0.00	0.00
	Liq	Solid	Total	Liq	Solid	Total	Liq	Solid	Total	Liq	Solid

Master Tables - Data provided by the DOE reporting sites. See Appendix D for Margin-of-Error Information.

1992 Site Waste Generation
Transuranic Waste (Cubic Meters)

Reporting Site Name		DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste
1. Savannah River Site	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	563.99	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	564.39
	Total	563.99	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	564.39
2. Hanford Site	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	122.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	122.00
	Total	0.00	0.00	122.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	122.00
3. Lawrence Livermore National Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	18.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.70
	Total	18.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.70
4. Oak Ridge National Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	15.89	0.00	0.00	0.00	0.00	0.00	0.00	15.89
	Total	0.00	0.00	0.00	15.89	0.00	0.00	0.00	0.00	0.00	0.00	15.89
5. Rocky Flats Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	9.56	0.00	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.01
	Total	9.56	0.00	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.01
6. Argonne National Laboratory - East	Liq	0.00	0.00	0.00	0.06	0.00	0.00	0.11	0.00	0.00	0.00	0.17
	Solid	0.00	0.00	0.00	2.41	0.00	0.00	2.66	0.00	0.00	0.00	5.07
	Total	0.00	0.00	0.00	2.47	0.00	0.00	2.77	0.00	0.00	0.00	5.24
7. Pacific Northwest Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	3.95	0.00	0.00	0.00	0.00	0.00	0.00	3.95
	Total	0.00	0.00	0.00	3.95	0.00	0.00	0.00	0.00	0.00	0.00	3.95
8. Inhalation Toxicology Research Institute	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.45
	Total	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.45
9. Argonne National Laboratory - West	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.20
	Total	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.20
Totals For Waste Type		Liq	0.00	0.00	0.06	0.00	0.00	0.11	0.00	0.00	0.00	0.17
		Solid	592.25	0.00	122.85	22.70	0.00	2.86	0.00	0.00	0.00	740.66
		Total	592.25	0.00	122.85	22.76	0.00	2.97	0.00	0.00	0.00	740.83

1991 Site Waste Generation
High-Level Waste (Cubic Meters)

Reporting Site Name		DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste
1. Savannah River Site	Liq	3,039.94	0.00	37.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3,077.45
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	3,039.94	0.00	37.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3,077.45
2. Idaho Chemical Processing Plant	Liq	0.00	0.00	109.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	109.78
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	109.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	109.78
<hr/> Totals For Waste Type												
	Liq	3,039.94	0.00	147.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3,187.23
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	3,039.94	0.00	147.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3,187.23

1992 Site Waste Generation
High-Level Waste (Cubic Meters)

<u>Reporting Site Name</u>		<u>DP</u>	<u>EE</u>	<u>EM</u>	<u>ER</u>	<u>ET</u>	<u>FE</u>	<u>NE</u>	<u>NP</u>	<u>PM</u>	<u>RW</u>	<u>Total Waste</u>
1. Savannah River Site	Liq	1,597.74	0.00	86.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,683.81
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	1,597.74	0.00	86.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,683.81
2. Idaho Chemical Processing Plant	Liq	0.00	0.00	83.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	83.28
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	83.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	83.28
<hr/> Totals For Waste Type		Liq	1,597.74	0.00	169.34	0.00	0.00	0.00	0.00	0.00	0.00	1,767.09
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	1,597.74	0.00	169.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,767.09

1991 Site Waste Generation
Sanitary Waste (Metric Tons)

Reporting Site Name	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste
1. Idaho Chemical Processing Plant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10,510.92
2. Savannah River Site	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8,741.63
3. Oak Ridge Y-12 Plant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8,638.62
4. Nevada Test Site	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8,117.49
5. Hanford Site	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6,890.00
6. Argonne National Laboratory - East	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6,069.07
7. Los Alamos National Laboratory	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4,593.98
8. Fernald Environmental Management Project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4,091.40
9. Kansas City Plant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,945.81
10. Rocky Flats Plant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,363.22
11. North Las Vegas Facility	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,218.14
12. Mound Plant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,202.64
13. Oxnard Facility	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,995.83
14. Naval Petroleum Reserve Number 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,965.23
15. Argonne National Laboratory - West	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,923.23
16. Sandia National Laboratories / California	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,423.46
17. Waste Isolation Pilot Plant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,415.21
18. Superconducting Super Collider Laboratory	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,298.20
19. Idaho National Engineering Laboratory	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,284.57
20. Paducah Gaseous Diffusion Plant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,236.49
21. Oak Ridge National Laboratory	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,206.56
22. Oak Ridge K-25 Site	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,092.25
23. Fermi National Accelerator Laboratory	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,013.33
24. Stanford Linear Accelerator Center	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	918.07
25. Portsmouth Gaseous Diffusion Plant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	912.19
26. Brookhaven National Laboratory	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	798.32
27. Naval Petroleum Reserve Number 3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	734.82
28. Strategic Petroleum Reserve	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	605.82
29. West Valley Demonstration Project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	567.70
30. Energy Technology Engineering Center	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	540.68
31. Inhalation Toxicology Research Institute	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	530.70
32. Pantex Plant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	403.47
33. Weldon Spring Site Remedial Action Project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	337.47
34. Office of Scientific and Technical Information	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	302.18
35. Princeton Plasma Physics Laboratory	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	266.35
36. Morgantown Energy Technology Center	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	265.17
37. Grand Junction Projects Office	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	239.50
38. Bonneville Power Administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	162.39
39. National Institute for Petroleum and Energy Research	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	128.82
40. Laboratory for Energy-Related Health Research	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	127.01
41. National Renewable Energy Laboratory	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	127.01
42. Formerly Utilized Sites Remedial Action Program	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	111.45
43. Pittsburgh Energy Technology Center	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.88
44. Western Area Power Administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	80.74
45. Fitts (PETC) Component Development & Integration Facility	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	72.57
46. Pinellas Plant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.58

1991 Site Waste Generation
Sanitary Waste (Metric Tons)

<u>Reporting Site Name</u>		<u>DP</u>	<u>EE</u>	<u>EM</u>	<u>ER</u>	<u>ET</u>	<u>FE</u>	<u>NE</u>	<u>NP</u>	<u>PM</u>	<u>RW</u>	<u>Total Waste</u>
47. Naval Oil Shale Reserve Number 3		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.91
Totals For Waste Type	Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	91,594.07

1992 Site Waste Generation
Sanitary Waste (Metric Tons)

Reporting Site Name	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste
1. Savannah River Site	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9,612.53
2. Nevada Test Site	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9,550.84
3. Lawrence Livermore National Laboratory	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7,576.26
4. Hanford Site	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7,263.00
5. Oak Ridge Y-12 Plant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6,187.56
6. Idaho Chemical Processing Plant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5,535.82
7. Argonne National Laboratory - East	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4,746.39
8. Los Alamos National Laboratory	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3,232.30
9. Kansas City Plant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3,199.46
10. Fernald Environmental Management Project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3,060.84
11. Mound Plant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3,051.95
12. Rocky Flats Plant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,254.35
13. Naval Petroleum Reserve Number 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,059.94
14. North Las Vegas Facility	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,889.99
15. Superconducting Super Collider Laboratory	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,876.48
16. Oxnard Facility	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,832.51
17. Argonne National Laboratory - West	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,522.26
18. Sandia National Laboratories / California	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,347.47
19. Waste Isolation Pilot Plant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,224.70
20. Weldon Spring Site Remedial Action Project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,132.17
21. Fermi National Accelerator Laboratory	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,013.33
22. Oak Ridge National Laboratory	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,002.44
23. Idaho National Engineering Laboratory	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	978.69
24. Portsmouth Gaseous Diffusion Plant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	951.27
25. Brookhaven National Laboratory	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	881.29
26. Oak Ridge K-25 Site	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	774.74
27. Naval Petroleum Reserve Number 3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	734.82
28. Stanford Linear Accelerator Center	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	593.30
29. West Valley Demonstration Project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	592.84
30. Strategic Petroleum Reserve	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	585.82
31. Paducah Gaseous Diffusion Plant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	577.88
32. Inhalation Toxicology Research Institute	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	530.70
33. Pantex Plant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	355.27
34. Office of Scientific and Technical Information	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	282.58
35. Grand Junction Projects Office	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	272.16
36. Morgantown Energy Technology Center	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	237.68
37. Princeton Plasma Physics Laboratory	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	234.56
38. Bonneville Power Administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	174.18
39. Formerly Utilized Sites Remedial Action Program	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	127.37
40. National Renewable Energy Laboratory	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	127.01
41. Pittsburgh Energy Technology Center	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	93.44
42. Western Area Power Administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	88.90
43. National Institute for Petroleum and Energy Research	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	78.02
44. Pitts. (PETC) Component Development & Integration Facility	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	68.04
45. Energy Technology Engineering Center	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.41
46. Pinellas Plant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.76
47. Yucca Mountain Site Characterization Project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.80
48. Laboratory for Energy-Related Health Research	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.78
49. Oak Ridge Institute for Science and Education	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.62

1992 Site Waste Generation
Sanitary Waste (Metric Tons)

<u>Reporting Site Name</u>		DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste
50 . Naval Oil Shale Reserve Number 3		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.91
Totals For Waste Type	Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	89,580.16

1991 Site Waste Generation
State Regulated Hazardous Waste (Metric Tons)

Reporting Site Name	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste	
1. Pantex Plant	3,783.73	0.00	1,544.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5,327.95	
2. Western Area Power Administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,890.35	0.00	2,890.35	
3. Los Alamos National Laboratory	530.67	0.00	277.06	76.06	0.00	0.00	103.18	0.00	0.00	0.00	986.90	
4. Stanford Linear Accelerator Center	0.00	0.00	615.91	196.03	0.00	0.00	0.00	0.00	0.00	0.00	811.94	
5. Lawrence Livermore National Laboratory	442.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	442.23	
6. Bonneville Power Administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	355.75	0.00	355.75	
7. Nevada Test Site	217.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	217.72	
8. Sandia National Laboratories / New Mexico	184.61	1.13	0.57	2.27	0.00	0.04	0.00	0.13	0.00	0.06	188.80	
9. Kansas City Plant	183.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	183.11	
10. Fermi National Accelerator Laboratory	0.00	0.00	0.00	146.95	0.00	0.00	0.00	0.00	0.00	0.00	146.95	
11. Brookhaven National Laboratory	0.00	0.00	0.00	39.52	0.00	0.00	0.00	0.00	0.00	0.00	39.52	
12. Naval Petroleum Reserve Number 1	0.00	0.00	0.00	0.00	0.00	37.66	0.00	0.00	0.00	0.00	37.66	
13. Mound Plant	36.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36.40	
14. Oak Ridge National Laboratory	0.00	4.71	5.07	23.18	0.00	0.00	1.81	1.45	0.00	0.00	36.21	
15. Lawrence Berkeley Laboratory	0.00	0.00	0.00	29.02	0.00	0.00	0.00	0.00	0.00	0.00	29.02	
16. Sandia National Laboratories / California	19.42	0.00	2.13	6.08	0.00	0.00	0.00	0.00	0.00	0.00	27.63	
17. Idaho National Engineering Laboratory	0.00	0.00	16.38	0.00	0.00	0.00	9.82	0.00	0.00	0.00	26.20	
18. Energy Technology Engineering Center	0.00	0.00	0.00	0.00	0.00	0.00	22.85	0.00	0.00	0.00	22.85	
19. Hanford Site	0.00	0.00	22.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.41	
20. Oak Ridge Y-12 Plant	10.55	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.76	
21. Inhalation Toxicology Research Institute	0.00	0.00	0.00	10.46	0.00	0.00	0.00	0.00	0.00	0.00	10.46	
22. North Las Vegas Facility	4.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.32	
23. Ames Laboratory	0.00	0.00	0.00	3.11	0.00	0.00	0.00	0.00	0.00	0.00	3.11	
24. Pitts. (PETC) Component Development & Integration Facility	0.00	0.00	0.00	0.00	0.00	1.63	0.00	0.00	0.00	0.00	1.63	
25. Weldon Spring Site Remedial Action Project	0.00	0.00	0.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.88	
26. National Renewable Energy Laboratory	0.00	0.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.81	
27. Pacific Northwest Laboratory	0.00	0.00	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.75	
28. Office of Scientific and Technical Information	0.00	0.00	0.00	0.00	0.56	0.00	0.00	0.00	0.00	0.00	0.56	
29. Alaska Power Administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.23	
30. Oak Ridge Institute for Science and Education	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.03	
Totals For Waste Type	Total	5,412.77	6.65	2,484.83	533.45	0.56	39.33	137.66	1.58	3,246.32	0.06	11,863.21

1992 Site Waste Generation
State Regulated Hazardous Waste (Metric Tons)

Reporting Site Name	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste	
1. Pantex Plant	2,838.57	0.00	778.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3,617.39	
2. Los Alamos National Laboratory	699.68	0.00	398.26	120.20	0.00	0.00	65.77	0.00	0.00	0.00	1,283.92	
3. Hanford Site	0.00	0.00	541.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	541.00	
4. Sandia National Laboratories / New Mexico	338.32	2.07	1.08	4.29	0.00	0.06	0.00	0.23	0.00	0.10	346.15	
5. Bonneville Power Administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	342.27	0.00	342.27	
6. Naval Petroleum Reserve Number 1	0.00	0.00	0.00	0.00	0.00	341.44	0.00	0.00	0.00	0.00	341.44	
7. Kansas City Plant	304.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	304.11	
8. Western Area Power Administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	300.07	0.00	300.07	
9. Lawrence Livermore National Laboratory	228.45	0.00	4.94	23.18	0.00	0.00	12.24	0.00	0.00	0.00	268.80	
10. Energy Technology Engineering Center	0.00	0.00	240.78	0.00	0.00	0.00	5.68	0.00	0.00	0.00	246.46	
11. Nevada Test Site	176.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	176.90	
12. Stanford Linear Accelerator Center	0.00	0.00	41.19	69.96	0.00	0.00	0.00	0.00	0.00	0.00	111.15	
13. Lawrence Berkeley Laboratory	0.00	0.00	0.00	96.74	0.00	0.00	0.00	0.00	0.00	0.00	96.74	
14. Fermi National Accelerator Laboratory	0.00	0.00	0.00	72.09	0.00	0.00	0.00	0.00	0.00	0.00	72.09	
15. Oak Ridge National Laboratory	0.00	5.58	6.01	27.48	0.00	0.00	2.15	1.72	0.00	0.00	42.94	
16. Mound Plant	33.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33.53	
17. Sandia National Laboratories / California	17.30	0.00	1.89	5.41	0.00	0.00	0.00	0.00	0.00	0.00	24.60	
18. Oak Ridge Y-12 Plant	18.64	0.00	1.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.33	
19. Princeton Plasma Physics Laboratory	0.00	0.00	0.00	14.70	0.00	0.00	0.00	0.00	0.00	0.00	14.70	
20. Idaho National Engineering Laboratory	3.99	0.00	5.05	0.00	0.00	0.00	2.32	0.00	0.00	0.00	11.35	
21. North Las Vegas Facility	6.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.48	
22. Brookhaven National Laboratory	0.00	0.00	0.00	3.12	0.00	0.00	0.00	0.00	0.00	0.00	3.12	
23. Ames Laboratory	0.00	0.00	0.00	3.08	0.00	0.00	0.00	0.00	0.00	0.00	3.08	
24. Inhalation Toxicology Research Institute	0.00	0.00	0.00	1.64	0.00	0.00	0.00	0.00	0.00	0.00	1.64	
25. Office of Scientific and Technical Information	0.00	0.00	0.00	0.00	0.94	0.00	0.00	0.00	0.00	0.00	0.94	
26. Weldon Spring Site Remedial Action Project	0.00	0.00	0.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.66	
27. Pitts. (PETC) Component Development & Integration Facility	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.45	
28. National Renewable Energy Laboratory	0.00	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	
29. Pacific Northwest Laboratory	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.32	
30. Superconducting Super Collider Laboratory	0.00	0.00	0.00	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.29	
31. Alaska Power Administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.23	
32. West Valley Demonstration Project	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	
33. Oak Ridge Institute for Science and Education	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.02	
Totals For Waste Type	Total	4,665.95	8.03	2,021.57	442.52	0.94	341.94	88.16	1.95	642.57	0.10	8,213.74

1991 Site Waste Generation
RCRA Regulated Hazardous Waste (Metric Tons)

Reporting Site Name	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste	
1. Oak Ridge Y-12 Plant	798.35	0.00	13.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	811.38	
2. Kansas City Plant	596.19	0.00	89.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	685.69	
3. Lawrence Livermore National Laboratory	500.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	500.45	
4. Savannah River Site	463.97	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	464.09	
5. Pantex Plant	444.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	444.57	
6. Los Alamos National Laboratory	159.43	0.00	71.22	22.85	0.00	0.00	31.00	0.00	0.00	0.00	284.50	
7. Pinellas Plant	199.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	199.18	
8. Stanford Linear Accelerator Center	0.00	0.00	0.00	186.08	0.00	0.00	0.00	0.00	0.00	0.00	186.08	
9. Energy Technology Engineering Center	0.00	0.00	163.41	0.00	0.00	0.00	13.61	0.00	0.00	0.00	177.02	
10. Sandia National Laboratories / New Mexico	147.56	7.91	1.90	0.28	0.00	0.32	0.01	0.16	0.00	0.13	158.26	
11. Hanford Site	0.00	0.00	149.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	149.63	
12. Idaho National Engineering Laboratory	0.27	0.00	9.56	0.00	0.00	0.00	110.00	0.00	0.00	0.00	119.83	
13. Argonne National Laboratory - East	0.00	0.12	1.43	86.55	0.00	0.00	15.04	0.00	0.00	0.00	103.14	
14. Nevada Test Site	85.79	0.00	11.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	97.33	
15. Oak Ridge National Laboratory	0.00	12.41	13.36	61.08	0.00	0.00	4.77	3.32	0.00	0.00	95.44	
16. Lawrence Berkeley Laboratory	0.00	0.00	0.00	85.11	0.00	0.00	0.00	0.00	0.00	0.00	85.11	
17. Princeton Plasma Physics Laboratory	0.00	0.00	0.00	75.82	0.00	0.00	0.00	0.00	0.00	0.00	75.82	
18. Mound Plant	53.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.68	
19. Pacific Northwest Laboratory	0.00	0.00	0.00	53.04	0.00	0.00	0.00	0.00	0.00	0.00	53.04	
20. Sandia National Laboratories / California	31.24	0.00	3.42	9.78	0.00	0.00	0.00	0.00	0.00	0.00	44.44	
21. Rocky Flats Plant	37.23	0.00	1.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.04	
22. North Las Vegas Facility	32.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.54	
23. Fermi National Accelerator Laboratory	0.00	0.00	0.00	31.47	0.00	0.00	0.00	0.00	0.00	0.00	31.47	
24. Bonneville Power Administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.31	0.00	28.31	
25. Brookhaven National Laboratory	0.00	0.00	0.00	22.30	0.00	0.00	0.00	0.00	0.00	0.00	22.30	
26. Pittsburgh Energy Technology Center	0.00	0.00	0.00	0.00	0.00	21.98	0.00	0.00	0.00	0.00	21.98	
27. National Institute for Petroleum and Energy Research	0.00	0.00	0.00	0.00	0.00	14.77	0.00	0.00	0.00	0.00	14.77	
28. Idaho Chemical Processing Plant	0.00	0.00	13.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.07	
29. Western Area Power Administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.25	0.00	12.25	
30. Oxnard Facility	10.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.81	
31. Argonne National Laboratory - West	0.00	0.00	0.00	0.00	0.00	0.00	9.22	0.00	0.00	0.00	9.22	
32. Ames Laboratory	0.00	0.00	0.00	6.75	0.00	0.00	0.00	0.00	0.00	0.00	6.75	
33. National Renewable Energy Laboratory	0.00	4.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.59	
34. Inhalation Toxicology Research Institute	0.00	0.00	0.00	4.25	0.00	0.00	0.00	0.00	0.00	0.00	4.25	
35. Morgantown Energy Technology Center	0.00	0.00	0.00	0.00	0.00	3.97	0.00	0.00	0.00	0.00	3.97	
36. Naval Petroleum Reserve Number 1	0.00	0.00	0.00	0.00	0.00	3.69	0.00	0.00	0.00	0.00	3.69	
37. Office of Scientific and Technical Information	0.00	0.00	0.00	0.00	3.27	0.00	0.00	0.00	0.00	0.00	3.27	
38. Waste Isolation Pilot Plant	0.00	0.00	3.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.02	
39. Pitts. (PETC) Component Development & Integration Facility	0.00	0.00	0.00	0.00	0.00	2.72	0.00	0.00	0.00	0.00	2.72	
40. Strategic Petroleum Reserve	0.00	0.00	0.00	0.00	0.00	2.29	0.00	0.00	0.00	0.00	2.29	
41. Naval Petroleum Reserve Number 3	0.00	0.00	0.00	0.00	0.00	2.24	0.00	0.00	0.00	0.00	2.24	
42. West Valley Demonstration Project	0.00	0.00	1.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.46	
43. Superconducting Super Collider Laboratory	0.00	0.00	0.00	1.03	0.00	0.00	0.00	0.00	0.00	0.00	1.03	
44. Grand Junction Projects Office	0.00	0.00	0.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79	
45. Oak Ridge Institute for Science and Education	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.20	
Totals For Waste Type	Total	3,561.23	25.03	548.29	646.59	3.27	51.96	183.64	3.98	40.55	0.13	5,064.67

1992 Site Waste Generation
RCRA Regulated Hazardous Waste (Metric Tons)

Reporting Site Name	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste
1. Oak Ridge Y-12 Plant	830.29	0.00	9.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	840.03
2. Lawrence Livermore National Laboratory	561.12	0.00	15.10	53.72	0.00	0.00	23.30	0.00	0.00	0.00	653.24
3. Pantex Plant	423.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	423.35
4. Kansas City Plant	317.16	0.00	79.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	396.28
5. Energy Technology Engineering Center	0.00	0.00	168.22	0.00	0.00	0.00	36.84	0.00	0.00	0.00	205.06
6. Pinellas Plant	160.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	160.01
7. Los Alamos National Laboratory	83.71	0.00	47.38	14.38	0.00	0.00	7.87	0.00	0.00	0.00	153.34
8. Sandia National Laboratories / New Mexico	137.31	7.47	1.71	0.27	0.00	0.35	0.01	0.15	0.00	0.12	147.39
9. Idaho National Engineering Laboratory	0.24	0.00	8.49	0.00	0.00	0.00	130.48	0.00	0.00	0.00	139.21
10. Nevada Test Site	73.17	0.00	22.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	95.89
11. Argonne National Laboratory - East	0.00	0.77	10.59	60.72	0.00	0.00	23.64	0.00	0.00	0.00	95.72
12. Oak Ridge National Laboratory	0.00	11.45	12.33	56.37	0.00	0.00	4.40	3.52	0.00	0.00	88.08
13. Stanford Linear Accelerator Center	0.00	0.00	0.00	78.41	0.00	0.00	0.00	0.00	0.00	0.00	78.41
14. Naval Petroleum Reserve Number 1	0.00	0.00	0.00	0.00	0.00	70.46	0.00	0.00	0.00	0.00	70.46
15. Lawrence Berkeley Laboratory	0.00	0.00	0.00	69.08	0.00	0.00	0.00	0.00	0.00	0.00	69.08
16. Mound Plant	58.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	58.88
17. National Renewable Energy Laboratory	0.00	52.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.38
18. Fermi National Accelerator Laboratory	0.00	0.00	0.00	45.64	0.00	0.00	0.00	0.00	0.00	0.00	45.64
19. Hanford Site	0.00	0.00	45.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.10
20. Bonneville Power Administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.22	0.00	44.22
21. North Las Vegas Facility	42.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.06
22. Princeton Plasma Physics Laboratory	0.00	0.00	0.00	39.12	0.00	0.00	0.00	0.00	0.00	0.00	39.12
23. Pacific Northwest Laboratory	0.00	0.00	0.00	33.92	0.00	0.00	0.00	0.00	0.00	0.00	33.92
24. Sandia National Laboratories / California	22.42	0.00	2.46	7.02	0.00	0.00	0.00	0.00	0.00	0.00	31.90
25. Savannah River Site	24.50	0.00	4.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	29.40
26. Argonne National Laboratory - West	0.00	0.00	0.00	0.00	0.00	0.00	23.00	0.00	0.00	0.00	23.00
27. Rocky Flats Plant	20.95	0.00	0.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.79
28. Brookhaven National Laboratory	0.00	0.00	0.00	18.36	0.00	0.00	0.00	0.00	0.00	0.00	18.36
29. Pittsburgh Energy Technology Center	0.00	0.00	0.00	0.00	0.00	16.86	0.00	0.00	0.00	0.00	16.86
30. Morgantown Energy Technology Center	0.00	0.00	0.00	0.00	0.00	12.42	0.00	0.00	0.00	0.00	12.42
31. West Valley Demonstration Project	0.00	0.00	11.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.60
32. National Institute for Petroleum and Energy Research	0.00	0.00	0.00	0.00	0.00	10.20	0.00	0.00	0.00	0.00	10.20
33. Superconducting Super Collider Laboratory	0.00	0.00	0.00	9.25	0.00	0.00	0.00	0.00	0.00	0.00	9.25
34. Idaho Chemical Processing Plant	0.00	0.00	8.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.38
35. Ames Laboratory	0.00	0.00	0.00	7.36	0.00	0.00	0.00	0.00	0.00	0.00	7.36
36. Office of Scientific and Technical Information	0.00	0.00	0.00	0.00	6.97	0.00	0.00	0.00	0.00	0.00	6.97
37. Oxnard Facility	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.57
38. Inhalation Toxicology Research Institute	0.00	0.00	0.00	4.31	0.00	0.00	0.00	0.00	0.00	0.00	4.31
39. Fernald Environmental Management Project	0.00	0.00	4.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.03
40. Western Area Power Administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.21	0.00	3.21
41. Strategic Petroleum Reserve	0.00	0.00	0.00	0.00	0.00	2.26	0.00	0.00	0.00	0.00	2.26
42. Waste Isolation Pilot Plant	0.00	0.00	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04
43. Pits (PETC) Component Development & Integration Facility	0.00	0.00	0.00	0.00	0.00	0.79	0.00	0.00	0.00	0.00	0.79
44. Grand Junction Projects Office	0.00	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57
45. Naval Petroleum Reserve Number 3	0.00	0.00	0.00	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.43
46. Oak Ridge Institute for Science and Education	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.14
47. Yucca Mountain Site Characterization Project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

1992 Site Waste Generation
RCRA Regulated Hazardous Waste (Metric Tons)

<u>Reporting Site Name</u>		<u>DP</u>	<u>EE</u>	<u>EM</u>	<u>ER</u>	<u>ET</u>	<u>FE</u>	<u>NE</u>	<u>NP</u>	<u>PM</u>	<u>RW</u>	<u>Total Waste</u>
48. Formerly Utilized Sites Remedial Action Program		3.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
Totals For Waste Type	Total	2,759.75	72.07	454.33	498.06	6.97	113.77	249.53	3.67	47.43	0.16	4,205.75

1991 Site Waste Generation
TSCA Regulated Hazardous Waste (Metric Tons)

Reporting Site Name	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste	
1. Bonneville Power Administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5,586.96	0.00	5,586.96	
2. Oak Ridge K-25 Site	0.00	0.00	805.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	805.37	
3. Stanford Linear Accelerator Center	0.00	0.00	0.00	287.10	0.00	0.00	0.00	0.00	0.00	0.00	287.10	
4. Oak Ridge Y-12 Plant	271.51	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	272.25	
5. Portsmouth Gaseous Diffusion Plant	0.00	0.00	0.00	0.00	0.00	0.00	247.99	0.00	0.00	0.00	247.99	
6. Sandia National Laboratories / New Mexico	216.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	216.90	
7. Western Area Power Administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	283.59	0.00	283.59	
8. Fermi National Accelerator Laboratory	0.00	0.00	0.00	175.54	0.00	0.00	0.00	0.00	0.00	0.00	175.54	
9. Los Alamos National Laboratory	74.89	0.00	23.12	10.73	0.00	0.00	14.56	0.00	0.00	0.00	123.31	
10. Kansas City Plant	78.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	78.52	
11. Paducah Gaseous Diffusion Plant	0.00	0.00	0.00	0.00	0.00	0.00	68.49	0.00	0.00	0.00	68.49	
12. Oak Ridge National Laboratory	0.00	0.00	0.00	57.20	0.00	0.00	0.00	0.00	0.00	0.00	57.20	
13. Hanford Site	0.00	0.00	46.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.39	
14. Pantex Plant	46.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.05	
15. Lawrence Berkeley Laboratory	0.00	0.00	0.00	40.65	0.00	0.00	0.00	0.00	0.00	0.00	40.65	
16. Lawrence Livermore National Laboratory	39.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.09	
17. Mound Plant	23.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.24	
18. Rocky Flats Plant	21.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.16	
19. Energy Technology Engineering Center	0.00	0.00	9.08	0.00	0.00	0.00	3.39	0.00	0.00	0.00	12.98	
20. Nevada Test Site	10.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.40	
21. Sandia National Laboratories / California	9.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.23	
22. Pittsburgh Energy Technology Center	0.00	0.00	0.00	0.00	0.00	5.95	0.00	0.00	0.00	0.00	5.95	
23. Idaho National Engineering Laboratory	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.48	
24. Inhalation Toxicology Research Institute	0.00	0.00	0.00	5.34	0.00	0.00	0.00	0.00	0.00	0.00	5.34	
25. Argonne National Laboratory - East	0.00	0.00	0.00	4.98	0.00	0.00	0.00	0.00	0.00	0.00	4.98	
26. Idaho Chemical Processing Plant	0.00	0.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	
27. West Valley Demonstration Project	0.00	0.00	2.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.64	
28. Ames Laboratory	0.00	0.00	0.00	2.38	0.00	0.00	0.00	0.00	0.00	0.00	2.38	
29. Savannah River Site	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60	
30. Argonne National Laboratory - West	0.00	0.00	0.00	0.00	0.00	0.00	1.07	0.00	0.00	0.00	1.07	
31. Formerly Utilized Sites Remedial Action Program	0.00	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	
32. Fernald Environmental Management Project	0.00	0.00	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	
33. Weldon Spring Site Remedial Action Project	0.00	0.00	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	
34. Brookhaven National Laboratory	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.27	
35. Office of Scientific and Technical Information	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.23	
36. Grand Junction Projects Office	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	
37. Pacific Northwest Laboratory	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.02	
38. Oak Ridge Institute for Science and Education	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.02	
Totals For Waste Type	Total	792.60	0.00	898.85	584.23	0.23	5.95	336.00	0.00	5,790.56	0.00	8,408.41

1992 Site Waste Generation
TSCA Regulated Hazardous Waste (Metric Tons)

Reporting Site Name	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste	
1. Bonneville Power Administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21,161.46	0.00	21,161.46	
2. Kansas City Plant	531.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	531.11	
3. Western Area Power Administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	353.00	0.00	353.00	
4. Oak Ridge K-25 Site	0.00	0.00	334.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	334.15	
5. Portsmouth Gaseous Diffusion Plant	0.00	0.00	0.00	0.00	0.00	0.00	295.10	0.00	0.00	0.00	295.10	
6. Los Alamos National Laboratory	170.51	0.00	60.52	29.29	0.00	0.00	16.03	0.00	0.00	0.00	276.36	
7. Paducah Gaseous Diffusion Plant	0.00	0.00	0.00	0.00	0.00	0.00	189.19	0.00	0.00	0.00	189.19	
8. Brookhaven National Laboratory	0.00	0.00	0.00	166.90	0.00	0.00	0.00	0.00	0.00	0.00	166.90	
9. Sandia National Laboratories / New Mexico	128.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	128.32	
10. Stanford Linear Accelerator Center	0.00	0.00	0.00	110.66	0.00	0.00	0.00	0.00	0.00	0.00	110.66	
11. Hanford Site	0.00	0.00	110.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	110.50	
12. Oak Ridge Y-12 Plant	79.25	0.00	1.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	80.32	
13. Mound Plant	73.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	73.83	
14. Pantex Plant	68.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	68.47	
15. Fermi National Accelerator Laboratory	0.00	0.00	0.00	55.15	0.00	0.00	0.00	0.00	0.00	0.00	55.15	
16. Formerly Utilized Sites Remedial Action Program	0.00	0.00	47.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.03	
17. Lawrence Livermore National Laboratory	26.16	0.00	1.87	4.36	0.00	0.00	0.29	0.00	0.00	0.00	32.68	
18. Sandia National Laboratories / California	21.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.89	
19. Lawrence Berkeley Laboratory	0.00	0.00	0.00	20.14	0.00	0.00	0.00	0.00	0.00	0.00	20.14	
20. Oak Ridge National Laboratory	0.00	0.00	0.00	20.02	0.00	0.00	0.00	0.00	0.00	0.00	20.02	
21. Idaho Chemical Processing Plant	0.00	0.00	17.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.42	
22. Energy Technology Engineering Center	0.00	0.00	7.43	0.00	0.00	0.00	3.18	0.00	0.00	0.00	10.61	
23. Argonne National Laboratory - West	0.00	0.00	0.00	0.00	0.00	0.00	5.45	0.00	0.00	0.00	5.45	
24. Princeton Plasma Physics Laboratory	0.00	0.00	0.00	4.57	0.00	0.00	0.00	0.00	0.00	0.00	4.57	
25. Pittsburgh Energy Technology Center	0.00	0.00	0.00	0.00	0.00	3.83	0.00	0.00	0.00	0.00	3.83	
26. Idaho National Engineering Laboratory	0.00	0.00	3.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.40	
27. Argonne National Laboratory - East	0.00	0.00	0.00	3.21	0.00	0.00	0.00	0.00	0.00	0.00	3.21	
28. Nevada Test Site	2.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.47	
29. Savannah River Site	1.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.67	
30. Rocky Flats Plant	1.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.51	
31. Ames Laboratory	0.00	0.00	0.00	1.42	0.00	0.00	0.00	0.00	0.00	0.00	1.42	
32. Fernald Environmental Management Project	0.00	0.00	1.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	
33. Inhalation Toxicology Research Institute	0.00	0.00	0.00	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.41	
34. Pitts. (PETC) Component Development & Integration Facility	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.27	
35. Pacific Northwest Laboratory	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.23	
36. Weldon Spring Site Remedial Action Project	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	
37. Office of Scientific and Technical Information	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.15	
38. Naval Petroleum Reserve Number 3	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.14	
39. Grand Junction Projects Office	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	
40. Morgantown Energy Technology Center	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.05	
41. Oak Ridge Institute for Science and Education	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	
Totals For Waste Type	Total	1,105.19	0.00	585.00	416.38	0.15	4.29	509.24	0.00	21,514.66	0.00	24,134.90

**1991 Site Waste Generation
Combined Mixed Waste (MLW & MTRU) (Cubic Meters)**

Reporting Site Name	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste
1 . Oak Ridge K-25 Site	Liq	0.00	56,923.70	0.00	0.00	0.00	7.53	0.00	0.00	0.00	56,931.23
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.00	56,923.70	0.00	0.00	0.00	7.53	0.00	0.00	0.00	56,931.23
2 . Oak Ridge Y-12 Plant	Liq	0.00	1.31	663.00	664.31	0.00	0.00	0.00	0.00	0.00	2,756.85
	Solid	71.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	734.00
	Total	2,755.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3,490.85
3 . Oak Ridge National Laboratory	Liq	0.00	0.00	2,045.44	0.00	0.00	0.00	0.00	0.00	0.00	2,045.44
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	2,045.44	0.00	0.00	0.00	0.00	0.00	0.00	2,045.44
4 . Hanford Site	Liq	0.00	0.00	1,177.50	586.24	0.00	0.00	0.00	0.00	0.00	1,177.50
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	586.24
	Total	0.00	0.00	1,1763.74	0.00	0.00	0.00	0.00	0.00	0.00	1,763.74
5 . Portsmouth Gaseous Diffusion Plant	Liq	0.00	0.00	122.83	0.00	0.00	97.76	0.00	0.00	0.00	220.59
	Solid	0.00	0.00	468.30	0.00	0.00	177.10	0.00	0.00	0.00	645.40
	Total	0.00	0.00	591.13	0.00	0.00	274.86	0.00	0.00	0.00	865.99
6 . Rocky Flats Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	100.42	0.00	519.10	0.00	0.00	0.00	0.00	0.00	0.00	619.52
	Total	100.42	0.00	519.10	0.00	0.00	0.00	0.00	0.00	0.00	619.52
7 . Los Alamos National Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	233.24	0.00	35.96	14.56	0.00	19.75	0.00	0.00	0.00	303.51
	Total	233.24	0.00	35.96	14.56	0.00	19.75	0.00	0.00	0.00	303.51
8 . Paducah Gaseous Diffusion Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	0.00	0.00	137.05	0.00	0.00	0.00	137.05
	Total	0.00	0.00	0.00	0.00	0.00	137.05	0.00	0.00	0.00	137.05
9 . Lawrence Livermore National Laboratory	Liq	93.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	93.56
	Solid	12.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.25
	Total	105.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	105.81
10 . Fernald Environmental Management Project	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	81.00	0.00	0.00	0.00	0.00	0.00	0.00	81.00
	Total	0.00	0.00	81.00	0.00	0.00	0.00	0.00	0.00	0.00	81.00
11 . Idaho National Engineering Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.70	0.00	0.00	0.70
	Solid	2.91	0.00	0.00	0.00	0.00	36.84	0.00	0.00	0.00	39.75
	Total	2.91	0.00	0.00	0.00	0.00	36.84	0.00	0.00	0.00	39.75

Master Tables - Data provided by the DOE reporting sites. See Appendix D for Margin-of-Error Information.

1991 Site Waste Generation
Combined Mixed Waste (MLLW & MTRU) (Cubic Meters)

Reporting Site Name		DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste
12. Savannah River Site	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	42.16	0.00	8.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.20
	Total	42.16	0.00	8.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.20
13. Pantex Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	39.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.79
	Total	39.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.79
14. Lawrence Berkeley Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	16.13	0.00	0.00	0.00	0.00	0.00	0.00	16.13
	Total	0.00	0.00	0.00	16.13	0.00	0.00	0.00	0.00	0.00	0.00	16.13
15. Pacific Northwest Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	11.69	0.00	0.00	0.00	0.00	0.00	0.00	11.69
	Total	0.00	0.00	0.00	11.69	0.00	0.00	0.00	0.00	0.00	0.00	11.69
16. Brookhaven National Laboratory	Liq	0.00	0.00	0.00	4.15	0.00	0.00	0.00	0.00	0.00	0.00	4.15
	Solid	0.00	0.00	0.00	3.44	0.00	0.00	0.00	0.00	0.00	0.00	3.44
	Total	0.00	0.00	0.00	7.59	0.00	0.00	0.00	0.00	0.00	0.00	7.59
17. Sandia National Laboratories / New Mexico	Liq	1.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.70
	Solid	3.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.40
	Total	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.10
18. Inhalation Toxicology Research Institute	Liq	0.00	0.00	0.00	3.91	0.00	0.00	0.00	0.00	0.00	0.00	3.91
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	0.00	3.91	0.00	0.00	0.00	0.00	0.00	0.00	3.91
19. Mound Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	2.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.97
	Total	2.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.97
20. Idaho Chemical Processing Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	2.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.79
	Total	0.00	0.00	2.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.79
21. Weldon Spring Site Remedial Action Project	Liq	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33
	Solid	0.00	0.00	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64
	Total	0.00	0.00	0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.97
22. Kansas City Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.87
	Total	0.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.87

1991 Site Waste Generation
Combined Mixed Waste (MLLW & MTRU) (Cubic Meters)

Reporting Site Name		DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste
23 . Fermi National Accelerator Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.65
	Total	0.00	0.00	0.00	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.65
24 . Argonne National Laboratory - West	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.79	0.00	0.00	0.00	0.79
	Total	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00	0.00	0.80
25 . Grand Junction-Projects Office	Liq	0.00	0.00	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64
26 . West Valley Demonstration Project	Liq	0.00	0.00	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41
	Solid	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
	Total	0.00	0.00	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44
27 . Princeton Plasma Physics Laboratory	Liq	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.30
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.30
28 . Argonne National Laboratory - East	Liq	0.00	0.00	0.00	0.06	0.00	0.00	0.09	0.00	0.00	0.00	0.15
	Solid	0.00	0.00	0.01	0.01	0.00	0.00	0.09	0.00	0.00	0.00	0.11
	Total	0.00	0.00	0.01	0.07	0.00	0.00	0.18	0.00	0.00	0.00	0.26
29 . Sandia National Laboratories / California	Liq	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21
30 . Oak Ridge Institute for Science and Education	Liq	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.12
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.12
Totals For Waste Type	Liq	2,851.01	0.00	58,226.71	2,054.18	0.00	0.00	105.39	0.00	0.00	0.00	63,237.29
	Solid	508.92	0.00	2,376.88	46.48	0.00	0.00	371.62	0.00	0.00	0.00	3,303.90
	Total	3,359.93	0.00	60,603.59	2,100.66	0.00	0.00	477.01	0.00	0.00	0.00	66,541.19

1992 Site Waste Generation
Combined Mixed Waste (MLLW & MTRU) (Cubic Meters)

Reporting Site Name		DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste
1. Oak Ridge K-25 Site	Liq	0.00	0.00	77,694.22	0.00	0.00	0.00	2.76	0.00	0.00	0.00	77,696.96
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	77,694.22	0.00	0.00	0.00	2.76	0.00	0.00	0.00	77,696.96
2. Hanford Site	Liq	0.00	0.00	2,415.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,415.25
	Solid	0.00	0.00	455.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	455.76
	Total	0.00	0.00	2,871.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,871.01
3. Oak Ridge Y-12 Plant	Liq	1,716.36	0.00	8.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,724.43
	Solid	87.00	0.00	394.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	481.00
	Total	1,803.36	0.00	402.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,205.43
4. Oak Ridge National Laboratory	Liq	0.00	0.00	0.00	1,521.74	0.00	0.00	0.00	0.00	0.00	0.00	1,521.74
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	0.00	1,521.74	0.00	0.00	0.00	0.00	0.00	0.00	1,521.74
5. Paducah Gaseous Diffusion Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	823.94	0.00	0.00	0.00	823.94
	Total	0.00	0.00	0.00	0.00	0.00	0.00	823.94	0.00	0.00	0.00	823.94
6. Portsmouth Gaseous Diffusion Plant	Liq	0.00	0.00	35.58	0.00	0.00	0.00	350.84	0.00	0.00	0.00	386.42
	Solid	0.00	0.00	64.00	0.00	0.00	0.00	289.00	0.00	0.00	0.00	353.00
	Total	0.00	0.00	99.58	0.00	0.00	0.00	639.84	0.00	0.00	0.00	739.42
7. Energy Technology Engineering Center	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	645.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	645.00
	Total	0.00	0.00	645.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	645.00
8. Rocky Flats Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	72.18	0.00	380.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	452.84
	Total	72.18	0.00	380.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	452.84
9. Lawrence Livermore National Laboratory	Liq	118.54	0.00	0.93	3.20	0.00	0.00	2.45	0.00	0.00	0.00	125.12
	Solid	21.62	0.00	0.16	0.56	0.00	0.00	0.43	0.00	0.00	0.00	22.77
	Total	140.16	0.00	1.09	3.76	0.00	0.00	2.88	0.00	0.00	0.00	147.89
10. Fernald Environmental Management Project	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	141.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	141.00
	Total	0.00	0.00	141.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	141.00
11. Los Alamos National Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	97.92	0.00	28.21	8.35	0.00	0.00	4.57	0.00	0.00	0.00	131.85
	Total	97.92	0.00	28.21	8.35	0.00	0.00	4.57	0.00	0.00	0.00	131.85

1992 Site Waste Generation
Combined Mixed Waste (MLLW & MTRU) (Cubic Meters)

Reporting Site Name		DF	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste
12 . Idaho National Engineering Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	54.69	0.00	0.00	0.00	38.10	0.00	0.00	0.00	92.79
	Total	0.00	0.00	54.69	0.00	0.00	0.00	38.10	0.00	0.00	0.00	92.79
13 . Idaho Chemical Processing Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	70.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	70.42
	Total	0.00	0.00	70.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	70.42
14 . Pantex Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	50.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.47
	Total	50.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.47
15 . Formerly Utilized Sites Remedial Action Program	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	39.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.75
	Total	0.00	0.00	39.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.75
16 . Savannah River Site	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	21.51	0.00	5.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.55
	Total	21.51	0.00	5.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.55
17 . Sandia National Laboratories / New Mexico	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	6.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.40
	Total	6.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.40
18 . Pacific Northwest Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	4.90	0.00	0.00	0.00	0.00	0.00	0.00	4.90
	Total	0.00	0.00	0.00	4.90	0.00	0.00	0.00	0.00	0.00	0.00	4.90
19 . Lawrence Berkeley Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	4.84	0.00	0.00	0.00	0.00	0.00	0.00	4.84
	Total	0.00	0.00	0.00	4.84	0.00	0.00	0.00	0.00	0.00	0.00	4.84
20 . West Valley Demonstration Project	Liq	0.00	0.00	3.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.68
	Solid	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17
	Total	0.00	0.00	3.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.85
21 . Brookhaven National Laboratory	Liq	0.00	0.00	0.00	2.69	0.00	0.00	0.00	0.00	0.00	0.00	2.69
	Solid	0.00	0.00	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.19
	Total	0.00	0.00	0.00	2.88	0.00	0.00	0.00	0.00	0.00	0.00	2.88
22 . Stanford Linear Accelerator Center	Liq	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.33
	Solid	0.00	0.00	0.00	1.98	0.00	0.00	0.00	0.00	0.00	0.00	1.98
	Total	0.00	0.00	0.00	2.31	0.00	0.00	0.00	0.00	0.00	0.00	2.31

1992 Site Waste Generation
Combined Mixed Waste (MLLW & MTRU) (Cubic Meters)

Reporting Site Name		DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste
23 . Fermi National Accelerator Laboratory	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	1.73	0.00	0.00	0.00	0.00	0.00	0.00	1.73
	Total	0.00	0.00	0.00	1.73	0.00	0.00	0.00	0.00	0.00	0.00	1.73
24 . Inhalation Toxicology Research Institute	Liq	0.00	0.00	0.00	1.34	0.00	0.00	0.00	0.00	0.00	0.00	1.34
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	0.00	1.34	0.00	0.00	0.00	0.00	0.00	0.00	1.34
25 . Argonne National Laboratory - West	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	1.08	0.00	0.00	0.00	1.08
	Total	0.00	0.00	0.00	0.00	0.00	0.00	1.10	0.00	0.00	0.00	1.10
26 . Weldon Spring Site Remedial Action Project	Liq	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22
	Solid	0.00	0.00	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64
	Total	0.00	0.00	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.86
27 . Argonne National Laboratory - East	Liq	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	Solid	0.00	0.00	0.03	0.50	0.00	0.00	0.23	0.00	0.00	0.00	0.76
	Total	0.00	0.00	0.05	0.50	0.00	0.00	0.23	0.00	0.00	0.00	0.78
28 . Sandia National Laboratories / California	Liq	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
29 . Princeton Plasma Physics Laboratory	Liq	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.30
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.30
30 . Mound Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28
	Total	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28
31 . Ames Laboratory	Liq	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
	Solid	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.14
	Total	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.15
32 . Oak Ridge Institute for Science and Education	Liq	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.11
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.11
33 . Kansas City Plant	Liq	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

1992 Site Waste Generation
Combined Mixed Waste (MLLW & MTRU) (Cubic Meters)

<u>Reporting Site Name</u>		<u>DP</u>	<u>EE</u>	<u>EM</u>	<u>ER</u>	<u>ET</u>	<u>FE</u>	<u>NE</u>	<u>NP</u>	<u>PM</u>	<u>RW</u>	<u>Total Waste</u>
34 . Grand Junction Projects Office	Liq	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
	Solid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
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Totals For Waste Type	Liq	1,835.26	0.00	80,158.05	1,529.72	0.00	0.00	356.06	0.00	0.00	0.00	83,879.09
	Solid	357.46	0.00	2,271.53	23.19	0.00	0.00	1,157.35	0.00	0.00	0.00	3,809.53
	Total	2,192.72	0.00	82,429.58	1,552.91	0.00	0.00	1,513.41	0.00	0.00	0.00	87,688.62

1991 Site Waste Generation
Combined Hazardous Waste (State, RCRA, TSCA) (Metric Tons)

Reporting Site Name	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste
1. Bonneville Power Administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5,971.02	0.00	5,971.02
2. Pantex Plant	4,274.34	0.00	1,544.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5,818.57
3. Western Area Power Administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3,106.18	0.00	3,106.18
4. Los Alamos National Laboratory	765.00	0.00	371.40	109.64	0.00	0.00	148.74	0.00	0.00	0.00	1,394.78
5. Stanford Linear Accelerator Center	0.00	0.00	615.91	669.22	0.00	0.00	0.00	0.00	0.00	0.00	1,285.12
6. Oak Ridge Y-12 Plant	1,080.40	0.00	13.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,094.39
7. Lawrence Livermore National Laboratory	981.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	981.77
8. Kansas City Plant	857.81	0.00	89.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	947.31
9. Oak Ridge K-25 Site	0.00	0.00	805.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	805.37
10. Sandia National Laboratories / New Mexico	549.06	9.05	2.47	2.55	0.00	0.35	0.01	0.29	0.00	0.18	563.97
11. Savannah River Site	465.57	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	465.70
12. Fermi National Accelerator Laboratory	0.00	0.00	0.00	353.95	0.00	0.00	0.00	0.00	0.00	0.00	353.95
13. Nevada Test Site	313.91	0.00	11.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	325.46
14. Portsmouth Gaseous Diffusion Plant	0.00	0.00	0.00	0.00	0.00	0.00	247.99	0.00	0.00	0.00	247.99
15. Hanford Site	0.00	0.00	218.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	218.43
16. Energy Technology Engineering Center	0.00	0.00	172.49	0.00	0.00	0.00	40.35	0.00	0.00	0.00	212.84
17. Pinellas Plant	199.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	199.18
18. Oak Ridge National Laboratory	0.00	17.11	18.43	141.46	0.00	0.00	6.58	5.26	0.00	0.00	188.85
19. Lawrence Berkeley Laboratory	0.00	0.00	0.00	154.78	0.00	0.00	0.00	0.00	0.00	0.00	154.78
20. Idaho National Engineering Laboratory	0.27	0.00	31.41	0.00	0.00	0.00	119.82	0.00	0.00	0.00	151.50
21. Mound Plant	113.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	113.32
22. Argonne National Laboratory - East	0.00	0.12	1.43	91.52	0.00	0.00	15.04	0.00	0.00	0.00	108.12
23. Sandia National Laboratories / California	59.90	0.00	5.55	15.85	0.00	0.00	0.00	0.00	0.00	0.00	81.30
24. Princeton Plasma Physics Laboratory	0.00	0.00	0.00	75.82	0.00	0.00	0.00	0.00	0.00	0.00	75.82
25. Paducah Gaseous Diffusion Plant	0.00	0.00	0.00	0.00	0.00	0.00	68.49	0.00	0.00	0.00	68.49
26. Brookhaven National Laboratory	0.00	0.00	0.00	62.09	0.00	0.00	0.00	0.00	0.00	0.00	62.09
27. Rocky Flats Plant	58.29	0.00	1.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.20
28. Pacific Northwest Laboratory	0.00	0.00	0.00	53.80	0.00	0.00	0.00	0.00	0.00	0.00	53.80
29. Naval Petroleum Reserve Number 1	0.00	0.00	0.00	0.00	0.00	41.35	0.00	0.00	0.00	0.00	41.35
30. North Las Vegas Facility	36.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36.86
31. Pittsburgh Energy Technology Center	0.00	0.00	0.00	0.00	0.00	27.92	0.00	0.00	0.00	0.00	27.92
32. Inhalation Toxicology Research Institute	0.00	0.00	0.00	20.06	0.00	0.00	0.00	0.00	0.00	0.00	20.06
33. Idaho Chemical Processing Plant	0.00	0.00	17.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.07
34. National Institute for Petroleum and Energy Research	0.00	0.00	0.00	0.00	0.00	14.77	0.00	0.00	0.00	0.00	14.77
35. Ames Laboratory	0.00	0.00	0.00	12.24	0.00	0.00	0.00	0.00	0.00	0.00	12.24
36. Oxnard Facility	10.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.81
37. Argonne National Laboratory - West	0.00	0.00	0.00	0.00	0.00	0.00	10.28	0.00	0.00	0.00	10.28
38. National Renewable Energy Laboratory	0.00	5.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.40
39. Pitts. (PETC) Component Development & Integration Facility	0.00	0.00	0.00	0.00	0.00	4.35	0.00	0.00	0.00	0.00	4.35
40. West Valley Demonstration Project	0.00	0.00	4.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.10
41. Office of Scientific and Technical Information	0.00	0.00	0.00	0.00	4.06	0.00	0.00	0.00	0.00	0.00	4.06
42. Morgantown Energy Technology Center	0.00	0.00	0.00	0.00	0.00	3.97	0.00	0.00	0.00	0.00	3.97
43. Waste Isolation Pilot Plant	0.00	0.00	3.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.02
44. Strategic Petroleum Reserve	0.00	0.00	0.00	0.00	0.00	2.29	0.00	0.00	0.00	0.00	2.29
45. Naval Petroleum Reserve Number 3	0.00	0.00	0.00	0.00	0.00	2.24	0.00	0.00	0.00	0.00	2.24
46. Weldon Spring Site Remedial Action Project	0.00	0.00	1.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30
47. Superconducting Super Collider Laboratory	0.00	0.00	0.00	1.03	0.00	0.00	0.00	0.00	0.00	0.00	1.03
48. Grand Junction Projects Office	0.00	0.00	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.01
49. Formerly Utilized Sites Remedial Action Program	0.00	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75

1991 Site Waste Generation
 Combined Hazardous Waste (State, RCRA, TSCA) (Metric Tons)

Reporting Site Name	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste	
50 . Fernald Environmental Management Project	0.00	0.00	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	
51 . Oak Ridge Institute for Science and Education	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.24	
52 . Alaska Power Administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.23	
Totals For Waste Type	Total	9,766.59	31.69	3,931.98	1,764.26	4.06	97.24	657.30	5.55	9,077.43	0.18	25,336.29

1992 Site Waste Generation
Combined Hazardous Waste (State, RCRA, TSCA) (Metric Tons)

Reporting Site Name	DP	EE	EM	ER	ET	FE	NE	NP	PM	RW	Total Waste
1. Bonneville Power Administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21,548.15	0.00	21,548.15
2. Pantex Plant	3,330.39	0.00	778.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4,109.21
3. Los Alamos National Laboratory	953.90	0.00	506.17	163.88	0.00	0.00	89.67	0.00	0.00	0.00	1,713.62
4. Kansas City Plant	1,152.37	0.00	79.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,231.49
5. Lawrence Livermore National Laboratory	815.72	0.00	21.91	41.26	0.00	0.00	35.83	0.00	0.00	0.00	954.71
6. Oak Ridge Y-12 Plant	928.19	0.00	12.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	940.68
7. Hanford Site	0.00	0.00	696.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	696.60
8. Western Area Power Administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	656.28	0.00	656.28
9. Sandia National Laboratories / New Mexico	603.95	9.54	2.79	4.55	0.00	0.41	0.01	0.38	0.00	0.22	621.86
10. Energy Technology Engineering Center	0.00	0.00	416.43	0.00	0.00	0.00	45.71	0.00	0.00	0.00	462.13
11. Naval Petroleum Reserve Number 1	0.00	0.00	0.00	0.00	0.00	411.90	0.00	0.00	0.00	0.00	411.90
12. Oak Ridge K-25 Site	0.00	0.00	334.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	334.15
13. Stanford Linear Accelerator Center	0.00	0.00	41.19	259.03	0.00	0.00	0.00	0.00	0.00	0.00	300.22
14. Portsmouth Gaseous Diffusion Plant	0.00	0.00	0.00	0.00	0.00	0.00	295.10	0.00	0.00	0.00	295.10
15. Nevada Test Site	252.54	0.00	22.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	275.26
16. Paducah Gaseous Diffusion Plant	0.00	0.00	0.00	0.00	0.00	0.00	189.19	0.00	0.00	0.00	189.19
17. Brookhaven National Laboratory	0.00	0.00	0.00	188.38	0.00	0.00	0.00	0.00	0.00	0.00	188.38
18. Lawrence Berkeley Laboratory	0.00	0.00	0.00	185.96	0.00	0.00	0.00	0.00	0.00	0.00	185.96
19. Fermi National Accelerator Laboratory	0.00	0.00	0.00	172.88	0.00	0.00	0.00	0.00	0.00	0.00	172.88
20. Mound Plant	166.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	166.24
21. Pinellas Plant	160.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	160.01
22. Idaho National Engineering Laboratory	4.23	0.00	16.93	0.00	0.00	0.00	132.80	0.00	0.00	0.00	153.96
23. Oak Ridge National Laboratory	0.00	17.03	18.34	103.87	0.00	0.00	6.55	5.24	0.00	0.00	151.04
24. Argonne National Laboratory - East	0.00	0.77	10.59	63.94	0.00	0.00	23.64	0.00	0.00	0.00	98.93
25. Sandia National Laboratories / California	61.61	0.00	4.35	12.43	0.00	0.00	0.00	0.00	0.00	0.00	78.39
26. Princeton Plasma Physics Laboratory	0.00	0.00	0.00	58.39	0.00	0.00	0.00	0.00	0.00	0.00	58.39
27. National Renewable Energy Laboratory	0.00	52.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.76
28. North Las Vegas Facility	48.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.55
29. Formerly Utilized Sites Remedial Action Program	0.00	0.00	47.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.06
30. Pacific Northwest Laboratory	0.00	0.00	0.00	34.47	0.00	0.00	0.00	0.00	0.00	0.00	34.47
31. Savannah River Site	26.17	0.00	4.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	31.07
32. Argonne National Laboratory - West	0.00	0.00	0.00	0.00	0.00	0.00	28.45	0.00	0.00	0.00	28.45
33. Idaho Chemical Processing Plant	0.00	0.00	25.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.79
34. Rocky Flats Plant	22.46	0.00	0.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.29
35. Pittsburgh Energy Technology Center	0.00	0.00	0.00	0.00	0.00	20.69	0.00	0.00	0.00	0.00	20.69
36. Morgantown Energy Technology Center	0.00	0.00	0.00	0.00	0.00	12.47	0.00	0.00	0.00	0.00	12.47
37. Ames Laboratory	0.00	0.00	0.00	11.86	0.00	0.00	0.00	0.00	0.00	0.00	11.86
38. West Valley Demonstration Project	0.00	0.00	11.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.81
39. National Institute for Petroleum and Energy Research	0.00	0.00	0.00	0.00	0.00	10.20	0.00	0.00	0.00	0.00	10.20
40. Superconducting Super Collider Laboratory	0.00	0.00	0.00	9.54	0.00	0.00	0.00	0.00	0.00	0.00	9.54
41. Office of Scientific and Technical Information	0.00	0.00	0.00	8.06	0.00	0.00	0.00	0.00	0.00	0.00	8.06
42. Inhalation Toxicology Research Institute	0.00	0.00	0.00	6.36	0.00	0.00	0.00	0.00	0.00	0.00	6.36
43. Fernald Environmental Management Project	0.00	0.00	5.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.40
44. Oxnard Facility	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.57
45. Strategic Petroleum Reserve	0.00	0.00	0.00	0.00	0.00	2.26	0.00	0.00	0.00	0.00	2.26
46. Pitts. (PETC) Component Development & Integration Facility	0.00	0.00	0.00	0.00	0.00	1.51	0.00	0.00	0.00	0.00	1.51
47. Waste Isolation Pilot Plant	0.00	0.00	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04
48. Weldon Spring Site Remedial Action Project	0.00	0.00	0.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84
49. Grand Junction Projects Office	0.00	0.00	0.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.63

1992 Site Waste Generation
Combined Hazardous Waste (State, RCRA, TSCA) (Metric Tons)

<u>Reporting Site Name</u>	<u>DP</u>	<u>EE</u>	<u>EM</u>	<u>ER</u>	<u>ET</u>	<u>FE</u>	<u>NE</u>	<u>NP</u>	<u>PM</u>	<u>RW</u>	<u>Total Waste</u>	
50. Naval Petroleum Reserve Number 3	0.00	0.00	0.00	0.00	0.00	0.57	0.00	0.00	0.00	0.00	0.57	
51. Alaska Power Administration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.23	
52. Oak Ridge Institute for Science and Education	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.17	
53. Yucca Mountain Site Characterization Project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	
Totals For Waste Type	Total	8,530.89	80.10	3,060.90	1,356.96	8.06	460.01	846.93	5.62	22,204.66	0.27	36,554.39

Appendix G: Other Types and Sources of Waste

This appendix presents data and information on classified waste, spent nuclear fuels, uranium mill tailings, and waste generated by the Naval Nuclear Propulsion Program. For the purposes of this Report, these wastes are referred to as other types and sources of waste, and with the exception of classified wastes, do not appear in the text or data presented throughout the rest of this Report.

Appendix G: Other Types and Sources of Waste

Classified Waste

Classified waste is waste that, for reasons of national security, must be managed to protect the information that may be obtained from analysis of the waste. These wastes either need to be declassified through dismantlement or destruction, or disposed of in a classified disposal site.

Table G.1 lists data developed in 1990 by the *Environmental Restoration and Waste Management Program* on the types and amounts of classified wastes that were stored at the DOE sites. Estimates of the quantities of classified waste that would be generated annually through 1995 were also developed.

Table G.1 Radioactive and Hazardous Classified Waste

Waste Category	Inventory Volume FY 90	Annual Generation Volume 1991-1995
Radioactive Waste		
Low-Level	2,150	2,030
Mixed Low-Level	83.0	7,820
Mixed Transuranic	23.0	9.00
Transuranic	322	59.0
High-Level	12,200	1,830
Hazardous Waste		
State Regulated Hazardous	3,600	1,720
Federal (RCRA and TSCA)	79.0	57.0
Total (in Cubic Meters)*	18,500	13,500

*Totals are rounded to three significant figures.

In general, the classified wastes that are generated are sanitized and reclassified as one of the seven waste types shown above. They are then disposed of with other wastes, and are included in the waste amounts reported by the sites. When sanitization cannot be accomplished, classified disposal is performed at the Nevada Test Site. As shown above, DOE estimates that 13,500 cubic meters of classified waste will be generated annually through 1995. This amount is not included in the 1991 and 1992 total DOE waste generation amounts within this Report. However, future reports will incorporate these classified waste amounts as part of the individual waste types as listed above.

Spent Nuclear Fuels

Decisions within DOE, as well as changing conditions throughout the world, have created a number of increased demands on the DOE with respect to managing spent nuclear fuel. In 1992, DOE decided to phase out the reprocessing of spent nuclear fuel from DOE production reactors. This decision has led to increased inventories of spent nuclear fuel.

Recently, a new office was established within the Office of Waste Operations to bring focus to, and to undertake resolution of, the spent nuclear fuel issues challenging the DOE. This office is tasked with preparing an integrated, long term Spent Nuclear Fuel Management Program to ensure the safe interim long term storage of its spent nuclear fuel prior to its permanent disposition in a mined geologic repository.

A complex-wide policy has been developed with input from stakeholder organizations. Detailed planning across the complex has been initiated with actions undertaken that include environmental analyses, fuels and facilities assessments, and storage options development. The necessary steps to prepare an environmental impact statement for a complex-wide review of the Spent Nuclear Fuel Program, as required under the National Environmental Policy Act, were integrated into the environmental impact statement being prepared for the Idaho National Engineering Laboratory.

Additionally, efforts were expedited toward renewing policy for receipt of foreign research reactor spent nuclear fuel generated in the United States. An environmental assessment, evaluating the initial receipt of up to 700 fuel assemblies, was drafted in 1993 and underwent internal DOE review. Planning for development of an environmental impact statement and evaluating the return of the remaining foreign research reactor fuel was also initiated.

The DOE is working to establish program requirements and an integrated program plan to govern activities and address issues of equity among sites. A DOE owned spent nuclear fuel technology integration development plan will be created to identify and develop treatment alternatives to meet the requirements specified in a performance assessment of spent nuclear fuel and various types of repositories.

Uranium Mill Tailings

Uranium mill tailings are the sand-like by-product generated by removing useful uranium from natural ores. Uranium mill tailings piles are a concern because of the health risk associated with inhalation of radon gas emitted by the piles.

While the quantity of uranium mill tailings is not addressed in this Report, the other wastes generated from clean up of uranium mill tailings sites are addressed. The Uranium Mill Tailings Remedial Action (UMTRA) Program provides funding to clean up these sites. In 1992, restoration efforts continued at the Monument Valley, Arizona; Gunnison, Grand Junction, and Rifle, Colorado; Ambrosia Lake and Mexican Hat, Utah; and Falls City, Texas UMTRA sites.

Wastes associated with the clean up of UMTRA sites is considered residual radioactive material (RRM). This also includes contamination found at other properties in the vicinity of the uranium mill site. The RRM managed at UMTRA Project sites was not generated by the DOE, rather it was generated decades ago when the mills were active. The UMTRA Project only removes the mill tailings from their processing sites to disposal sites. RRM does not fit any of the waste type definitions for this Report, and the low-level waste definition specifically excludes

uranium tailings. Therefore, the UMTRA Program did not report any radioactive waste being generated for either 1991 or 1992. This information is to be provided in the next year's Report.

Some sanitary waste is produced by the UMTRA project sites. This waste is primarily paper and other office refuse, vehicle maintenance fluids and parts, aluminum cans, cardboard, and uncontaminated construction debris. The UMTRA project does not track the amounts of these wastes generated. While no formal waste minimization program exists for sanitary wastes, recycling is encouraged where feasible. Vehicle maintenance fluids produced at UMTRA sites are recycled by authorized vendors. Aluminum cans and paper are recycled routinely at DOE and contractor offices in Albuquerque, New Mexico, and recycling at processing and disposal sites is on an ad hoc basis. However, due to the geographical remoteness of many sites and poor market conditions for waste paper, vendors are not often available for paper and cardboard recycling. No formal tracking of recycled waste is performed for the UMTRA project. Sanitary wastes that are not recycled are properly disposed in off-site municipal landfills.

Naval Nuclear Propulsion Program

The Naval Nuclear Propulsion Program (NNPP) is a joint DOE and Department of the Navy program responsible for all matters pertaining to naval nuclear propulsion. The NNPP covers over 150 naval reactors onboard 120 nuclear powered warships. DOE sites include the Knolls Atomic Power Laboratory's (KAPL's) Knolls and Kesselring sites in New York, KAPL's Windsor site in Connecticut, the Bettis Atomic Power Laboratory in Pennsylvania, and the Naval Reactors Facility (NRF) in Idaho, which is located at the Idaho National Engineering Laboratory. Within the Navy, the NNPP is also responsible for the Nuclear Power Training Unit, Charleston, South Carolina, and nuclear propulsion work at Portsmouth Naval Shipyard in Maine, Norfolk Naval Shipyard in Virginia, Charleston Naval Shipyard in South Carolina, Puget Sound Naval Shipyard in Washington, Mare Island Naval Shipyard in California, and the Pearl Harbor Naval Shipyard in Hawaii.

The reporting requirements of the "Waste Minimization/Pollution Prevention Crosscut Plan" directive are not applicable to the NNPP, which conducts its waste minimization activities under the authority established by Presidential Executive Order 12344 of 1982 (enacted as permanent law by Public Law 98-525). However, the following information in Tables G.2, G.3, and G.4 was included for comparative purposes and to be consistent with the DOE's 1993 "Mixed Waste Inventory Report" which includes data on mixed wastes from all NNPP facilities including shipyards.

Table G.2 Waste Generation and Waste Shipped Off-Site by Naval Reactors Facilities in 1991*

<i>Naval Reactors Facilities</i>	<i>Low-Level Waste (LLW) (Cubic Meters)</i>	<i>Mixed Low-Level Waste (MLLW) (Cubic Meters)</i>	<i>RCRA Wastes (Metric Tons)</i>	<i>TSCA Wastes (Metric Tons)</i>
Bettis Atomic Power Lab.	509	9.20	12.0	0.5
NRF Idaho	776	0.1	14.0	0.3
KAPL Knolls	18.0	—	16.0	6.00
KAPL Kesselring	109	—	192	55.0
KAPL Windsor	—	—	7.00	0.3

* Amounts are rounded to three significant figures. If the amount was less than one cubic meter or one metric ton, it was rounded to the nearest tenth.

Table G.3 Current Inventory of DOE Mixed Wastes from Naval Shipyards and Naval Reactors Facilities

<i>Naval Shipyards/ Naval Reactors Facilities</i>	<i>High-Level Waste (HLW)</i>	<i>Mixed TRU Waste (MTRU)</i>	<i>Mixed Low-Level Waste (MLLW)</i>	<i>Total*</i>
Mare Island	—	—	7.40	7.40
Pearl Harbor	—	—	1.50	1.50
Portsmouth	—	—	0.1	0.1
Charleston	—	—	0.0	0.0
Norfolk	—	—	0.0	0.0
Puget Sound	—	—	60.0	60.0
Bettis Atomic Power Lab.	—	—	28.4	28.4
NRF Idaho	—	—	39.9	39.9
KAPL Knolls	—	—	0.8	0.8
KAPL Kesselring	—	—	1.70	1.70
KAPL Windsor	—	—	0.0	0.0

Volume Units (Cubic Meters)

* Totals are rounded to three significant figures. If the total was less than one cubic meter, it was rounded to the nearest tenth.

Table G.4 Five Year Projection of DOE Mixed Wastes from Naval Shipyards and Naval Reactors Facilities

Naval Shipyards/ Naval Reactors Facilities	High-Level Waste (HLW)	Mixed TRU Waste (MTRU)	Mixed Low-Level Waste (MLLW)	Total*
Mare Island	—	—	39.6	39.6
Pearl Harbor	—	—	0.9	0.9
Portsmouth	—	—	0.2	0.2
Charleston	—	—	0.7	0.7
Norfolk	—	—	1.50	1.50
Puget Sound	—	—	37.0	37.0
Bettis Atomic Power Lab.	—	—	4.80	4.80
NRF Idaho	—	—	0.2	0.2
KAPL Knolls	—	—	10.2	10.2
KAPL Kesselring	—	—	14.0	14.0
KAPL Windsor	—	—	10.1	10.1

Volume Units (Cubic Meters)

* Totals are rounded to three significant figures. If the total was less than one cubic meter, it was rounded to the nearest tenth.

Appendix H: Acronyms

Ames	Ames Laboratory
ANL-E	Argonne National Laboratory-East
ANL-W	Argonne National Laboratory-West
APA	Alaska Power Administration
BCLDP	Battelle Columbus Laboratories Decommissioning Project
BMI	Battelle Memorial Institute
BNL	Brookhaven National Laboratory
BPA	Bonneville Power Administration
BPO	Bartlesville Project Office
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFC	chlorofluorocarbon
CFR	Code of Federal Regulations
CHC	chlorinated hydrocarbon
D&D	Decontamination and Decommissioning
DOE	Department of Energy
DP	Defense Programs
EE	Energy Efficiency and Renewable Energy Program
EM	Environmental Restoration and Waste Management Program
EP	Energy Programs
EPA	Environmental Protection Agency
ER	Energy Research Program
ES&H	Environment, Safety & Health
ET	Science Education and Technical Information Program
ETEC	Energy Technology Engineering Center
FE	Fossil Energy Program

FEMP	Fernald Environmental Management Project
Fermi	Fermi National Accelerator Laboratory
FUSRAP	Formerly Utilized Sites Remedial Action Program
FY	fiscal year
gal	gallon
GJPO	Grand Junction Projects Office
Hanford	Hanford Site
HLW	High-level waste
HSSDS	Hazardous Solvent Substitution Database System
HWM	Hazardous Waste Management
ICPP	Idaho Chemical Processing Plant
IFR	Integral Fast Reactor
IITRI	IIT Research Institute
INEL	Idaho National Engineering Laboratory
ITRI	Inhalation Toxicology Research Institute
K	thousand
KAPL	Knolls Atomic Research Laboratory
K-25	Oak Ridge K-25 Site
KCP	Kansas City Plant
kgs	kilograms
LANL	Los Alamos National Laboratory
LBL	Lawrence Berkeley Laboratory
lbs	pounds
LEHR	Laboratory for Energy-Related Health Research
LLNL	Lawrence Livermore National Laboratory
LLW	Low-level waste
m³	cubic meter

M	million
METC	Morgantown Energy Technology Center
MLLW	Mixed low-level waste
Mound	Mound Plant
MTRU	Mixed transuranic waste
NE	Nuclear Energy Program
NIPER	National Institute for Petroleum and Energy Research
NLVF	North Las Vegas Facility
NNPP	Naval Nuclear Propulsion Program
NOSR-3	Naval Oil Shale Reserve Number 3
NP	New Production Reactor Program
NPDES	National Pollutant Discharge Elimination System
NPR-1	Naval Petroleum Reserve Number 1
NPR-3	Naval Petroleum Reserve Number 3
NREL	National Renewable Energy Laboratory
NRF	Naval Reactors Facility
NTS	Nevada Test Site
OP	Operational Program
ORISE	Oak Ridge Institute for Science and Education
ORNL	Oak Ridge National Laboratory
OSTI	Office of Scientific and Technical Information
Oxnard	Oxnard Facility
Pantex	Pantex Plant
PCB	Polychlorinated Biphenyl
PETC	Pittsburgh Energy Technology Center
PETC/CDIF	Pitts. (PETC) Component Development & Integration Facility
PGDP	Paducah Gaseous Diffusion Plant

Pinellas	Pinellas Plant
PM	Power Marketing Administration
PNL	Pacific Northwest Laboratory
PORTS	Portsmouth Gaseous Diffusion Plant
ppm	parts per million
PPPL	Princeton Plasma Physics Laboratory
PWA	Process Waste Assessment
R&D	Research and Development
RCRA	Resource Conservation and Recovery Act
RFP	Rocky Flats Plant
RRM	Residual Radioactive Materials
RW	Civilian Radioactive Waste Management Program
SEN	Secretary of Energy Notice
SLAC	Stanford Linear Accelerator Center
SNL/CA	Sandia National Laboratories/California
SNL/NM	Sandia National Laboratories/New Mexico
SPR	Strategic Petroleum Reserve
SRS	Savannah River Site
SSC	Superconducting Super Collider Laboratory
ST	Science and Technology Programs
TCLP	Toxicity Characteristic Leaching Procedure
TRU	Transuranic
TSCA	Toxic Substances Control Act
UMTRA	Uranium Mill Tailings Remedial Action Project
VOC	Volatile Organic Compound
WAPA	Western Area Power Administration
WINCO	Westinghouse Idaho Nuclear Company

WIPP	Waste Isolation Pilot Plant
WMin	Waste Minimization
WMPO	Waste Minimization Program Office
WP	Weapons/Waste Clean Up Programs
WSSRAP	Weldon Spring Site Remedial Action Project
WVDP	West Valley Demonstration Project
Y-12	Oak Ridge Y-12 Plant
YMP	Yucca Mountain Site Characterization Project
yr	year

Appendix I: Glossary of Terms

In some instances, the wording used to describe a term may be used specifically for the purpose of this Report and should not be compared to other descriptions (e.g., regulatory) used to describe the same term.

Additional Operational Program. An operational program that is responsible for some activities at a site, but is not designated as the lead operational program engaged in waste generation activities.

By-product. A material that is not one of the primary products of a production process and is not solely or separately produced by a production process. Examples include process residues such as slags or distillation column bottoms. (40 CFR 261.1(b)(3))

Classified Waste. Waste material that has been given security classification for reasons of national security in accordance with 50 U.S.C. 401 and Executive Order 11652.

Characterization. Facility or site sampling, monitoring, and analysis activities to determine the extent and nature of the waste stream. Characterization provides the basis for acquiring the necessary technical information to develop, screen, analyze, and select appropriate clean up techniques. (Environmental Restoration and Waste Management Five-Year Plan)

Cubic Meter. 0.765 cubic yard.

Decommissioning. Actions taken to reduce the potential health and safety impacts of DOE contaminated facilities, including activities to remove a facility from operations, followed by decontamination, entombment, dismantlement, or conversion to another use.

Decontamination. The removal of unwanted material, typically radioactive material, from facilities, soils, or equipment by washing, chemical action, mechanical cleaning, or other treatment techniques. (Environmental Restoration and Waste Management Five-Year Plan)

Direct Funding. Funding provided via a source which exclusively represents waste minimization activities.

Disposal. The placement of waste in a manner that assures isolation from the biosphere and requires deliberate action to regain access to the waste.

DOE Area Offices. The first line DOE field element that carries the organizational responsibility for managing and executing assigned programs; directing contractors who conduct programs; and assuring that environment, safety, and health protection are integral parts of each program.

DOE Operations Offices. In the absence of a DOE Area Office, the first line DOE field element that carries the organizational responsibility for managing and executing assigned programs; directing contractors who conduct programs; and assuring that environment, safety, and health protection are integral parts of each program.

Environmental Restoration. Clean up and restoration of sites contaminated with radioactive and hazardous substances from past production, accidental releases, or disposal activities. (Environmental Restoration and Waste Management Five-Year Plan)

Facility. Any building, structure, system, process, equipment, or activity that fulfills a specific purpose on a site.

Formerly Utilized Sites Remedial Action Program. The DOE program that addresses the clean up of sites and adjacent properties contaminated by activities of the Manhattan Project. (Environmental Restoration and Waste Management Five-Year Plan)

Hazardous Waste. Waste, which because of its quantity, concentration and physical, chemical, or infectious characteristics may cause, or significantly contribute to an increase in mortality, or may pose a potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed. See RCRA Regulated Waste and State Regulated Waste.

High-Level Waste. Liquid wastes resulting from the operation of the first cycle solvent extraction system, or equivalent, and the concentrated wastes from subsequent extraction cycles, or equivalent, in a facility for reprocessing irradiated reactor fuel, and solids into which such liquid wastes have been converted. (10 CFR 60.2)

Incineration. A treatment technology which uses combustion to destroy organic constituents and reduce the volume of wastes. (Environmental Restoration and Waste Management Five-Year Plan)

Indirect Funding. Funding for waste minimization that is extracted from or is included within a multi-purpose line item.

Land Disposal Restrictions. Part of the Hazardous and Solid Waste Amendments to RCRA, which restrict land disposal of certain hazardous wastes; these wastes may be land disposed only if they meet specified treatment [standards as regulated by 40 CFR 268].

Lead Operational Program. The operational program assigned line management responsibility for Headquarters and Field Operations Offices (i.e., landlord functions) at a site where one or more of the operational programs are represented.

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 warehouse storage, retrievable storage on bermed pads, or disposed of in trenches.

Low-Level Waste. Radioactive waste not classified as HLW, TRU waste, spent nuclear fuel, or by-product material [specified as uranium or thorium tailings and waste in accordance with DOE Order 5820.2A].

Meter. 3.28 feet; 39.37 inches.

Metric Ton. 1,000,000 grams; approximately 1.1 U.S. Tons or 2,200 pounds.

Mixed Waste. Waste which contains both radioactive (as defined by the Atomic Energy Act) and hazardous (as defined by RCRA, TSCA, and/or State regulations) components.

Non-RCRA Waste. See State Regulated Waste.

Overpack. A waste container used to hold waste packages which provides protection or convenience in handling, or consolidates two or more packages.

Point of Contact. The individuals responsible for data entry or review at the site or field office level.

Pollution Prevention. The use of any process, practice or product that reduces or eliminates the generation and release of pollutants, hazardous substances, contaminants, and wastes, including those which protect natural resources through conservation or more efficient utilization. (Waste Minimization/Pollution Prevention Crosscut Plan)

Process. A unique industrial, commercial, or manufacturing system or operation that produces products, and may generate waste by-products.

Process Waste Assessment. The evaluation and appraisal of a process, activity, or operation as a way to identify potential waste minimization opportunities.

Radioactive Waste. Radioactive waste is a solid, liquid, or gaseous material (i.e., sources, special nuclear, and by-product materials, as defined by the Atomic Energy Act of 1954, as amended), that contains radionuclides. Radioactive waste is divided into low-level waste (LLW), mixed waste (MW), transuranic (TRU) waste, and high-level waste (HLW). DOE regulates the management of radioactive waste under the Atomic Energy Act of 1954, as amended.

RCRA Regulated Waste. Solid waste, not specifically excluded from regulation under 40 CFR 261.4, or delisted by petition, that is either a listed hazardous waste (40 CFR 261.30 - 261.33) or exhibits the characteristics of a hazardous waste (40 CFR 261.20 - 261.24).

Recycling. A material that is reused, or reclaimed; employed as an ingredient to make a product; or employed in a particular function as an effective substitute for a commercial product. (40 CFR 261.1)

Release Site. A location at which a hazardous, radioactive, or mixed waste discharge has occurred or is suspected to have occurred. It is usually associated with an area where hazardous, radioactive, or mixed waste or waste contaminated substances have been used, treated, stored, and/or disposed.

Reporting Site. DOE sites that surpass the minimum threshold reporting criteria for this Report.

Reprocessing. The dissolution of spent reactor fuel and separation of uranium, transuranic elements, and fission products.

Sanitary Waste. Wastes such as garbage, that are generated by normal housekeeping activities and are not hazardous or radioactive. (Environmental Restoration and Waste Management Five-Year Plan)

Site. A geographic entity comprising land, installations, and/or facilities; required to perform program objectives for which DOE has, or shares, responsibility for environmental restoration or waste management activities. A site generally has all of the required management functions within its organizational structure.

Solid Waste. Any garbage, refuse, sludge, and other discarded material, including solid, liquid, semi-solid, or contained gaseous material from industrial and commercial operations, etc. Solid waste does not include domestic sewage, irrigation return flow, permitted industrial discharges; special nuclear, or by-product material.

Solvent Substitution. Replacement of a hazardous solvent with a less hazardous or non-toxic material for the purpose of eliminating hazardous and/or radioactive mixed wastes.

Source Reduction. Practices which reduce the amount of any hazardous substance, pollutant, or contaminant entering any waste stream released into the environment prior to recycling, treatment, or disposal; and reduces the hazards to public health and the environment associated with the release of such substances, pollutants, or contaminants. (EPA, Memorandum, "The Definition of Pollution Prevention, May 28, 1992.)

Spent Nuclear Fuel. Fuel that has been withdrawn from a nuclear reactor following irradiation, but that has not been reprocessed to remove its constituent elements. (DOE Order 5820.2A)

State Regulated Waste. Any other hazardous waste not specifically regulated under TSCA or RCRA, such as used oil, which may be regulated by a State or local authority.

Storage. Holding hazardous [radioactive, or sanitary] waste for a temporary period, at the end of which the hazardous [radioactive, or sanitary] waste is treated, disposed, or stored elsewhere. (40 CFR 260.10)

Surplus Facility. Any facility or site, including installed equipment, that has no identified programmatic use; and may or may not be radioactively contaminated to levels that require controlled access. (Environmental Restoration and Waste Management Five-Year Plan)

Tiger Team. The term used to refer to environmental audits conducted at DOE sites by the Office of Environment, Safety and Health.

Transition. The process of planning and completing a transfer of surplus facilities from one operational program to another. Transition involves safely deactivating unneeded facilities and overseeing their smooth transfer, where they may be cleaned up and/or prepared for further use.

Transuranic Waste. Waste that is contaminated with alpha emitting radionuclides with an atomic number greater than 92 (heavier than uranium); half-lives greater than 20 years; and concentrations greater than 100 nanocuries per gram of waste.

Treatment. Any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous [radioactive, or sanitary] waste so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste non-hazardous; safer to transport, store, or dispose; or amenable for recovery, amenable for storage, or reduced in volume. (40 CFR 260.10)

TSCA Regulated Waste. Hazardous chemical wastes, both liquid and solid, containing more than 50 parts per million of polychlorinated biphenyls.

Uranium Mill Tailings Remedial Action Program. The DOE program which provides for stabilization and control of uranium mill tailings from inactive sites, in order to minimize radiation health hazards to the public.

Waste. Damaged, defective, unwanted, or superfluous material. Anything unused, unproductive, or not properly used; or anything left over such as excess material or by-products to be discarded, which is to be recycled, treated, stored, or disposed.

Waste Container. A receptacle for waste, including any liner or shielding material, that can be used for long term storage, long term disposal, or for retrievable storage/disposal.

Waste Generation. Any waste produced during the current calendar year. This does not include waste produced in previous years that is being repacked, treated, or disposed in the current calendar year. It does include any secondary waste, e.g., clothing, gloves, waste from maintenance operations, etc., generated by treatment, storage, or disposal of previously generated wastes.

Waste Generator. Individual, group, or organization at a facility which produces waste.

Waste Minimization. An action that economically avoids or reduces the generation of waste by source reduction and recycling; or reduces the toxicity of hazardous waste, improving energy usage. This action will be consistent with the general goal of minimizing present and future threats to human health, safety, and the environment. (40 CFR 262)

Waste Stream. A waste or group of wastes with similar physical form, radiological properties, EPA waste codes, or associated Land Disposal Restriction treatment standards.

Waste Type. Definition of waste based on physical properties or characteristics (e.g., HLW, TRU, MTRU, LLW, MLLW, RCRA, TSCA, Other, and sanitary.)

Work for Others. Denotes waste generation activities at DOE sites on behalf of other funding entities or organizations outside of DOE.

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