

CHAPTER 1

Introduction

1.1 Purpose

The purpose of this report is to provide information about the location and quantities of the radioactive waste, spent nuclear fuel, 11e(2) byproduct material, contaminated media, and non-radioactive waste¹ managed by the United States Department of Energy (DOE). This report also summarizes the total estimated radioactivity of DOE-managed high-level waste, transuranic waste, previously-disposed transuranic-contaminated waste, and previously-disposed low-level waste. As explained in Section 1.4 (Data Sources), this report provides summary-level data that were reported by DOE sites through national data collection efforts. The report does not attempt to interpret these data in detail.

The DOE intends this report to be used as a reference by waste management professionals and other interested stakeholders. This report is not intended to provide an extensive account of the historical background of the nuclear weapons programs or of the DOE's current programs; however, this Introduction does provide a brief overview of these topics.

The DOE's Office of Environmental Management (EM) manages most of the waste and related materials covered in this report. EM has primary responsibility for addressing and managing the cleanup of nuclear waste contamination at DOE sites that remains from the nuclear weapons complex and dates back to the Manhattan Project and the Cold War era.

1.2 Scope

Chapter 2 of this report provides a summary of the data provided in this report.

The following DOE-managed wastes and materials are covered in chapters 3 through 11, respectively: spent nuclear fuel (SNF), high-level waste (HLW) and high-level waste-vitrified (HLW-vitrified), transuranic waste (TRU waste), previously-disposed transuranic contaminated waste (buried TRU waste), low-level waste (LLW), mixed-low-level waste (MLLW), 11e(2) byproduct material (11e(2)), contaminated media, and non-radioactive waste. The following data (provided by DOE sites) are presented at the site, state, and national levels (DOE) when applicable:

- The quantity of material (radioactive waste, SNF, contaminated media, etc.) both recently managed by the DOE and that will be managed by the DOE in the future. The data include past "actuals" for FY 1998 and FY 1999, and the quantities projected for FY 2000 - FY 2070.²
- Information on the physical forms of TRU, buried TRU waste, LLW, MLLW, contaminated media, and 11e(2) byproduct material.
- Summary information on the radioactivity (in curies) of the HLW in inventory, TRU waste in inventory, buried TRU waste, and previously-disposed LLW. (National-level infor-

¹ Non-radioactive waste includes both hazardous and sanitary non-radioactive wastes.

² As of the printing of this report, the official FY 2000 "actual" quantities managed were not yet available.

mation was not available on the radioactivity of the other wastes and materials covered in this report.)

1.3 Background

The DOE Nuclear Waste Cleanup Program

In 1942, the U.S. began to develop technology capable of producing nuclear weapons under the Manhattan Project. Initial efforts resulted in the first atomic bombs used at the end of World War II. With the enactment of the Atomic Energy Act of 1946, nuclear weapons development and production was transferred to the newly-created civilian Atomic Energy Commission (AEC). The AEC developed and managed a network of research, manufacturing, and testing sites, focusing the efforts of these sites on stockpiling an arsenal of nuclear weapons. Initially, the nuclear weapons production network was small and scattered, relying on many small, privately owned facilities. In the late 1940s and early 1950s, during a period of great expansion of the nuclear weapons complex, most of these functions were consolidated into a complex of large, centralized, government-owned production facilities.

Congress abolished the AEC in 1975, after which time the nuclear weapons production mission was incorporated into the Energy Research and Development Administration (ERDA). In 1977, ERDA was incorporated into the DOE.

Stockpiling nuclear materials and weapons required an extensive manufacturing effort that generated large volumes of waste and resulted in considerable environmental contamination. Growing concerns about safety and environmental problems caused various parts of the weapons-producing complex to be shut down in the 1980s. These shutdowns, at first expected to be temporary, became permanent when the Soviet Union dissolved in 1991. Although the nation continues to maintain a reduced arsenal of nuclear weapons and a limited production capability, the DOE has largely suspended nuclear weapons production activities and begun to downsize the weapons complex. Production materials and facilities once vital to national defense have become excess to the DOE's current mission. The primary missions of many former nuclear weapons production sites are now environmental restoration, waste management, nuclear material and facility stabilization, and technological development.

Office of Environmental Management

In 1989, the Secretary of Energy created the Office of Environmental Restoration and Waste Management (later renamed the Office of Environmental Management³) to consolidate budgets and staff devoted to similar environmental tasks within the Department into a single DOE program office. The Office of Environmental Management (EM) is the primary DOE program office addressing DOE nuclear waste cleanup throughout the DOE complex. The primary mission of the EM program is to reduce threats to health and safety posed by contamination and waste at DOE sites including those associated with the nuclear weapons complex. EM's work encompasses: waste management; stabilization of nuclear material; managing spent nuclear fuel; deactivation and decommissioning of facilities; remediation of contaminated soil and water; infrastructure and support; long-term stewardship of DOE sites; and national programs focused on science and technology development, transportation, emergency management, and pollution prevention.

Over the past ten years, EM has had central responsibility for managing, tracking, and reporting waste management and cleanup activities for the DOE. However, the DOE has recently re-directed some management, tracking, and reporting responsibilities from EM to other DOE program offices (see Other DOE Programs below) responsible for generation of waste and contaminated materials. Regardless of the administering program, EM continues to collect waste and management data annually from DOE Field sites.

³ For more information about the Office of Environmental Management, visit <http://www.em.doe.gov/>.

The EM program has identified 134 sites that generated waste or were contaminated by DOE (or predecessor agency) activities. These sites are located in thirty-one states and one territory. The 13 DOE Operations/Field Offices manage the cleanup work at DOE sites.

Other DOE Programs

In addition to the EM program, three other DOE programs are involved in nuclear waste generation and cleanup. The Office of Defense Programs (DP)⁴ carries out a single, highly-integrated program for maintaining the safety and reliability of the U.S. nuclear stockpile. The Office of Science (SC)⁵ fulfills the DOE's science mission in energy resources, environmental quality, and national security. The Office of Nuclear Energy, Science, and Technology (NE)⁶ helps maintain the nation's access to diverse and environmentally responsible sources of energy. This report includes data on the wastes and related materials managed by these three offices.

1.4 Data Sources

1.4.1 The Central Internet Database (CID) – Background

In June 1989, the Natural Resources Defense Council, Inc. (NRDC) and 38 other non-governmental organizations filed suit against the DOE's then-Secretary James Watkins over the Department's failure to prepare a Programmatic Environmental Impact Statement (PEIS) regarding its environmental management and weapons modernization activities. In October 1990, a settlement was reached that called for the development of two PEISs,⁷ one covering the nuclear weapons complex's future configuration and one for the Environmental Restoration (ER) and Waste Management (WM) programs.⁸ In 1995, the DOE modified the scope of the ER/WM PEIS to exclude environmental restoration activities. In 1997, the NRDC, acting on behalf of itself and the 38 other non-governmental groups, filed suit against the DOE and several DOE officials, alleging that the DOE violated the 1990 consent order by failing to prepare a PEIS for the Department's ER program, and that this constituted contempt of court. On December 12, 1998, the DOE and the NRDC et al. settled out of court with an agreement that required the DOE to take three major actions to enhance public understanding of the multi-billion dollar cleanup of the DOE's nuclear weapons complex. Specifically, the terms of the agreement require the DOE to accomplish three major tasks:

- Develop and deploy an integrated Internet-based database containing available information on waste, facilities, and contaminated media for which the DOE has responsibility. The resulting information system is known as the Central Internet Database (CID);
- Conduct a study on long-term stewardship at DOE sites; and
- Establish a \$6.25 million fund for technical and scientific reviews.

The deployment of the CID in January 2000 marked a milestone in meeting the terms of the first major task required by the settlement agreement. The DOE has also fulfilled the terms of the second and third tasks.

The CID provides the first set of DOE waste management and cleanup data available through the Internet, integrating multiple sources of data from the DOE programs. Most of the data in this report are based upon the data available through the CID.

⁴ For more information on the Office of Defense Programs, visit <http://www.dp.doe.gov/>.

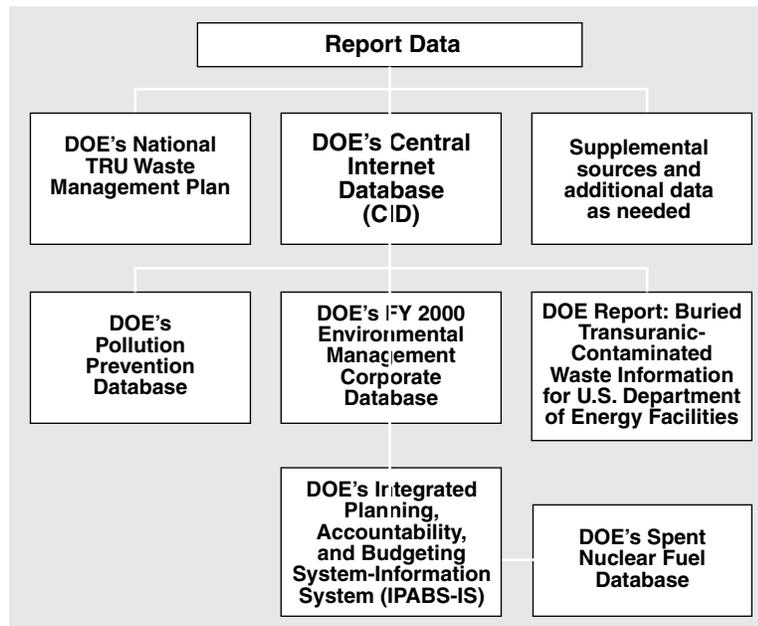
⁵ For more information on the Office of Science, visit <http://www.sc.doe.gov/>.

⁶ For more information on the Office of Nuclear Energy, Science & Technology, visit <http://www.ne.doe.gov/>.

⁷ For more information on the PEIS Settlement Agreement, visit <http://www.em.doe.gov/settlement>.

⁸ The responsibilities of the ER and WM programs are currently handled by the EM, DP, SC, and NE programs and DOE Field staff.

**Figure 1-1
Report Data Sources**



1.4.2 Sources of Data Included in This Report

The data in this report are primarily from three sources that are all integrated into the CID (see also Figure 1-1):

- The DOE's FY 2000 Environmental Management (EM) Corporate Database;
- The DOE's Pollution Prevention Database; and
- The DOE's *Report on Previously-Disposed TRU-Contaminated Waste*.⁹

This report also includes information from other (non-CID) sources:

- The DOE's *National TRU Waste Management Plan, Rev.*; 2¹⁰
- The Yucca Mountain Draft Environmental Impact Statement;¹¹
- The DOE's *Integrated Database Report—1996, Rev. 13*;¹²
- The DOE's *Linking Legacies*;¹³ and
- The DOE's *Current and Planned LLW Disposal Capacity Report, Rev. 2*.¹⁴

⁹ U.S. Department of Energy, Office of Environmental Management, *Buried Transuranic-Contaminated Waste Information for U.S. Department of Energy Facilities*, (June 2000).

¹⁰ U.S. Department of Energy, Carlsbad Field Office, *The National TRU Waste Management Plan (NTWMP)*, DOE/NTP-96-1204 Revision 2 (December 2000).

¹¹ U.S. Department of Energy, Office of Civilian Radioactive Waste Management, *Draft Environmental Impact Statement for a Geologic Repository of Spent Nuclear Fuel and High-Level Waste at Yucca Mountain, Nye County, Nevada*, DOE/EIS-0250D (July 1999).

¹² U.S. Department of Energy, Office of Environmental Management, *Integrated Data Base Report—1996: U.S. Spent Nuclear Fuel and Radioactive Waste Inventories, Projections, and Characteristics*, DOE/RW-0006, Revision 13 (December 1997).

¹³ U.S. Department of Energy, Office of Environmental Management, *Linking Legacies: Connecting the Cold War Nuclear Weapons Processes to Their Environmental Consequences*, DOE-EM-0319 (January 1997).

The DOE FY 2000 EM Corporate Database.

The primary data source for the CID and this report is the EM Corporate Database.¹⁵ The DOE developed the EM Corporate Database in 1998 to support EM planning, budgeting, performance measurement, and project progress-reporting activities. The DOE updates this database through a large annual data collection during which the Field/Operations Offices and sites provide information over a web-based application.

Data collected for the EM Corporate Database include information on the quantity, characteristics, management and disposition strategy schedule, programmatic risk, and other details associated with each waste stream (see Waste Stream Definition). Stream data are grouped, summarized, and reported at various levels to focus attention on various aspects of management plans or progress.

The EM Corporate Database also contains information from the Spent Fuel Database that is provided through the National Spent Nuclear Fuel Management Program at the Idaho National Engineering and Environmental Laboratory.

Supplementary data sources for this report that are not part of the EM Corporate Database include the DOE's Pollution Prevention Database and the DOE's Previously-Disposed TRU Contaminated Waste Database.

The DOE Pollution Prevention Database.

The Pollution Prevention database stores information collected through the DOE's Pollution Prevention program, and is a primary source of information for the DOE's *Annual Report of Waste Generation and Pollution Prevention Progress* (also called the *Waste Generation Report*). The Pollution Prevention program and database are administered through EM's Office of Pollution Prevention. The mission of the Pollution Prevention Program is to reduce, and where possible, eliminate the generation and release of DOE wastes and pollutants by implementing cost-effective pollution prevention techniques, practices, and policies. The DOE Complex-Wide Waste Reduction Goals were established by the Secretary of Energy in the 1996 U.S. Department of Energy, Office of Environmental Management, *Pollution Prevention Program Plan*, DOE/S-0118 (May 1996), which served as the principal guidance to fully implement pollution prevention programs within the DOE Complex.

Waste Stream Definition^a

A waste stream is the smallest quantity of material managed (unit of work) for which data are collected at the national level. A stream is defined as a group of materials, media, or wastes having similar origin, generating program, waste type, management requirements (i.e., same disposition path^b) or barriers to disposition. A stream is dispositioned when it enters the next treatment, storage, or disposal system, or is transferred to another site.

^a Source: U.S. Department of Energy, Office of Environmental Management, *FY 2000 Detailed Guidance for the Integrated Planning, Accountability, and Budgeting System Information System-Information System (IPABS-IS) Volume 2*, (February 2000).

^b "Disposition path" refers to the set of management activities that a waste/media or SNF stream will undergo throughout its life-cycle from generation until final disposal. Waste/media management activities include treatment, disposal, recycling, and emplacing on site. Spent nuclear fuel management activities include stabilization, moving to dry storage, and SNF treatment.

This report includes data from the Pollution Prevention Database in the chapter on non-radioactive hazardous waste and sanitary waste, Chapter 11.

¹⁴ U.S. Department of Energy, Office of Environmental Management, *Current and Planned Low-Level Waste Disposal Capacity Report*, Revision 2 (December 2000).

¹⁵ Most of the data in this report are from stream disposition data as reported through the EM Integrated Planning, Accountability, and Budgeting System-Information System (IPABS-IS), which includes SNF data provided through the National Spent Fuel database.

Report on Previously-Disposed TRU-Contaminated Waste.

The June 2000 *Buried Transuranic-Contaminated Waste Information for U.S. Department of Energy Facilities* includes information on all previously-disposed TRU-contaminated waste containing TRU alpha-emitting radionuclides in concentrations greater than 10 nanocuries per gram. The data present a complete account of all previously-disposed TRU-contaminated waste for which the DOE has responsibility. The data are presented regardless of the regulatory definition (radioactive waste or contaminated media) that applies to the TRU, the DOE program, responsible for managing this material (EM or non-EM), time of disposal (before or after 1970), or definition of TRU waste at the time of disposal (before or after 1982).

Data from this report are used in the buried TRU waste chapter, Chapter 6.

The National TRU Waste Management Plan (NTWMP).

The NTWMP, Rev. 2, published in December 2000, provided the data for Chapter 5: Transuranic Waste. The NTWMP reflects information contained in the DOE FY 2000 EM Corporate Database, as well as supplemental information from the DOE TRU program and various stakeholders. Data reported for TRU waste volumes are FY 2000 actuals and projections, with the exception of the FY 1996 data, which the DOE's Integrated Database Report—1996, Rev. 13, reports as the best available for the volume of TRU waste in inventory.

Radioactivity Data.

The radioactivity (curie) estimates in the HLW, TRU waste, buried TRU waste, and LLW chapters of this report were compiled from four main sources:

- The FY 2000 EM Corporate Database;
- For HLW information: The Yucca Mountain Draft Environmental Impact Statement and the *Integrated Database Report—1996, Rev. 13*;
- For LLW information: *Linking Legacies*, the *Current and Planned LLW Disposal Capacity Report Rev. 2*, and the *Integrated Database Report—1996, Rev. 13*; and
- For TRU waste information: *The National TRU-Waste Management Plan (NTWMP), Rev. 2*.

1.4.3 Data Not Included in This Report

The EM Corporate Database does not report information on all environmental restoration projects for which remediation was already completed and a No Further Action (NFA) decision has been made, or that did not require any action to meet environmental cleanup objectives initially. No Further Action is a decision that can be made as part of a remediation project that, based upon technical evidence, a site or area does not warrant any more current or future remedial action based on the risks or conditions present.¹⁶ Criteria for NFA decisions are site-specific; they typically must demonstrate that there is no current or potential threat to human health or the environment. A NFA decision may or may not mean that cleanup is complete or that contamination no longer exists. In some cases, NFA may mean that further cleanup is deemed unnecessary. For example, if a site's future land use is expected to be industrial (versus unrestricted use), a NFA decision may be appropriate as long as the site has been cleaned to industrial use standards.

Similarly, Field staff may determine that remediation of in-situ contaminated media is not technically practicable, and data on the media related to these decisions is not provided in this report.

¹⁶ U.S. Department of Energy, Office of Environmental Management, *A Report to Congress on Long-Term Stewardship, Volume 1, DOE/EM-0563 (January 2001)*.

Some data reported in the CID are not included in this report (e.g., waste stream level data and data from the Materials in Inventory database, Toxic Release Inventory database, or the Facilities Information Management System).

1.5 Key Definitions and Descriptions

1.5.1 Types of Waste, Media, Materials, etc.

Radioactive Waste:

Radioactive waste is any garbage, refuse, sludges, and other discarded material, including solid, liquid, semisolid, or contained gaseous material that must be managed for its radioactive content. Radioactive waste includes 1) HLW, TRU waste, and LLW – including components of mixed waste – for which the DOE is responsible; 2) DOE accelerator-produced radioactive waste; and 3) if managed at DOE low-level waste facilities, byproduct materials as defined by section 11e(2) of the Atomic Energy Act of 1954, as amended, or naturally occurring radioactive materials (DOE Order 435.1 issued July 1999).

Spent Nuclear Fuel (SNF):

SNF is fuel that has been permanently withdrawn from a nuclear reactor following irradiation, but has not been processed to remove its constituent elements (DOE Order 5660.1B, Management of Nuclear Materials, 1994).

High-Level Waste (HLW):

HLW is the highly radioactive material resulting from the reprocessing of SNF. This material includes mainly the liquid wastes remaining from the recovery of uranium and plutonium in a fuel reprocessing plant. HLW may also be in the form of sludge, calcine, or other products into which such liquid wastes are converted to facilitate their handling and storage. Such waste contains fission products that result in the release of considerable decay energy. For this reason, heavy shielding is required to absorb penetrating radiation, and provisions (e.g., cooling systems) are needed to dissipate decay heat from HLW (DOE Order 435.1 issued July 1999).

HLW-Vitrified:

HLW-vitrified is HLW that has been stabilized (chemically converted to a less harmful form) through vitrification. Vitrification stabilizes nuclear waste by mixing it with molten glass.

Transuranic Waste (TRU):

TRU is radioactive waste that contains more than 100 nanocuries per gram of alpha-emitting isotopes per gram of waste, with atomic numbers greater than 92 and half-lives greater than 20 years (DOE Order 435.1 issued July 1999). Such waste results primarily from fuel reprocessing and from the fabrication of plutonium weapons and plutonium-bearing reactor fuel. Generally, little or no shielding is required, but energetic gamma and neutron emissions from certain TRU nuclides and fission-product contaminants may require shielding or remote handling.

Previously-Disposed TRU Contaminated Waste (Buried TRU Waste):

Previously-disposed TRU contaminated waste is TRU waste that has been disposed of by shallow land burial generally within the top 30 m (100 ft) of the earth's surface, consistent with guidance of the U.S. Nuclear Regulatory Commission for near-surface disposal of LLW given in 10 CFR 61.

Low-Level Waste (LLW):

LLW is any radioactive waste, including accelerator-produced waste, that is not classified as SNF, HLW, TRU waste, 11e(2) byproduct material, or naturally-occurring radioactive material (DOE Order 435.1, issued July 1999).

Mixed Low-Level Waste (MLLW):

MLLW is LLW determined to contain both a hazardous component subject to the Resource Conservation and Recovery Act of 1976 (RCRA) and a radioactive component subject to the Atomic Energy Act (DOE Order 435.1 issued July 1999). The hazardous component of mixed waste has characteristics identified by any or all of the following statutes: RCRA, TSCA, and state regulations. Typically, MLLW from activities supporting DOE programs is comprised of items such as: waste from mercury cleanup kits, contaminated lead shielding bricks, contaminated water taken out of sumps, and spent solution from analytic chemistry operations.

11e(2) Byproduct Material (11e(2)):

11e(2) byproduct material is the tailings or waste produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material (i.e., uranium or thorium) content. Most 11e(2) results from the initial milling and refining of uranium ore. Uranium mill tailings are the earthen residues that remain after the extraction of uranium from ores. Tailings are generated in very large volumes and typically will contain between 50 and 86 percent of the original radioactivity from the ores depending on the proportion of radon lost during the mining operation. These materials pose a potential health hazard; the isotopes of major concern are radium-226 and daughter products of radium-226 decay. "11e(2)" refers to section 11e(2) of the Atomic Energy Act of 1954, which defined the legal management requirements for these materials.

Contaminated Media:

Contaminated media are materials such as soil, sediment, surface water, groundwater, and others (e.g., sludge and rubble/debris that are intermixed with media) that are contaminated at levels requiring cleanup or require further assessment to determine whether an environmental restoration action is warranted.

In-situ contaminated media

In-situ contaminated media is contaminated environmental media that has been or is planned to be remediated, without excavation, by using strategies that destroy, isolate, or prevent any further spread of contaminants into the surrounding environment (e.g., in-situ treatment, capping in place, institutional controls).

Ex-situ contaminated media

Ex-situ contaminated media is contaminated environmental media that has been or is planned to be remediated by 1) excavating or otherwise removing the contaminated media from the ground/environment; 2) treating when appropriate; and 3) disposing of these materials/waste either back in their initial location after treatment or in a specifically designed facility that isolates the waste from the environment.¹⁷

Non-Radioactive Hazardous Waste:

Non-radioactive hazardous waste is defined under the Resource Conservation and Recovery Act of 1976 (RCRA) as any solid waste or combination of solid wastes and, because of its quantity, concentration, or physical, chemical, or infectious characteristics may: 1) cause or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or 2) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

¹⁷ U.S. Department of Energy, Office of Environmental Management, *FY 2000 Detailed Guidance for the Integrated Planning, Accountability, and Budgeting System-Information System (IPABS-IS) Volume 2*, (February 2000).

Non-Radioactive Sanitary Waste:

Non-radioactive sanitary waste is waste that does not contain radioactive or hazardous constituents sufficient to require special management. Examples of sanitary waste are municipal solid waste, construction/demolition debris, and some waste water.

1.5.2 Inventory, Additions, and Dispositions**Inventory (storage):**

Inventory is the quantity of material in storage at a facility or site at a given time.

New generation:

New generation is the origination of new wastes from various facility operations (including production, decontamination and decommissioning, and rework).¹⁸ In this report, the new generation data do not include additional volumes that result from treatment processes¹⁹ or volumes transferred between sites. "Generation" of ex-situ contaminated media has a different meaning (see also chapter 10): It is not the origination of *new* contaminated media, but rather the *excavation* of contaminated media as part of a remedial action. By definition, in-situ contaminated media is never generated because it is contaminated media remediated *without excavation*. For in-situ contaminated media, DOE sites report the current year's total estimated volume (entered as an average or a range); for more information, see Chapter 10.

Treatment:

Treatment is any method, technique, or process designed to change the physical or chemical character of waste to: render the waste less hazardous; make the waste safer to transport, store, or dispose; or reduce the waste's volume.

Receipts:

Receipts are the quantity (volume/mass) of radioactive waste, SNF, 11e(2) byproduct material, etc., that a site receives from another site.

Disposal:

Disposal is the emplacement of a waste/media stream in a manner that ensures protection of human health and the environment within prescribed limits for the foreseeable future. For waste/media that has undergone disposal, there is no intent of retrieval, and deliberate action is required to regain access to the waste.

1.6 Data and Reporting Notes

Please note the following:

Waste water and ground/surface water data:

Data comparisons in this report do not incorporate waste water and ground/surface water quantities. Separate water summaries are found at the end of relevant chapters (LLW, MLLW, 11e(2), and contaminated media). Water quantities are not associated with HLW, SNF, TRU, buried TRU waste, and non-radioactive waste, and therefore summaries are not provided.

Data overlap:

The waste quantity data in this report are presented according to various categories, i.e., by the amount in inventory, generated, treated, received, etc. When considered across these categories, the data are not necessarily mutually exclusive. In other words, a particular amount of waste may be generated,

¹⁸ U.S. Department of Energy, Office of Environmental Management, *Integrated Data Base Report—1996: U.S. Spent Nuclear Fuel and Radioactive Waste Inventories, Projections, and Characteristics*, DOE/RW-0006, Rev. 13 (December 1997).

¹⁹ The term in the FY 2000 EM Corporate Database for waste that results from treatment processes is "process outputs." The 11e(2) chapter (Chapter 9) is the only chapter in which process outputs data are provided.

treated, and disposed of – all during the same fiscal year. The same holds true for data on projected waste. For these reasons, this report does not provide data summaries across the different data categories that would misleadingly suggest data exclusivity.

Data rounding:

With the exceptions explained below, the quantity data shown at the site level are rounded to the cubic meter for radioactive waste, contaminated media, and non-radioactive waste; to 0.1 metric tons of heavy metal for spent nuclear fuel; and to two or three significant figures for buried TRU waste. If the data show less than one cubic meter (or, in the case of spent nuclear fuel data shown at the site level, 0.1 metric ton of heavy metal), they have been rounded to the nearest significant digit. Finally, curie data have been rounded to two decimal places (0.01).

Small differences between data in this report and data in the EM Corporate Database:

In a few instances, the data in this report differ from the data in the CID because 1) data rounding occasionally resulted in small discrepancies, and 2) a few data in FY 2000 EM Corporate Database that were found to be erroneous were corrected for this report.