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ENVIRONMENTAL RESTORATION PROGRAM

Summary of Available Waste Forecast Data for the Environmental Restoration Program at the Oak Ridge National Laboratory, Oak Ridge, Tennessee

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ORNL/ER-120

Energy Systems Environmental Restoration Program
ORNL Environmental Restoration Program

Summary of Available Waste Forecast Data for the Environmental Restoration Program at the Oak Ridge National Laboratory, Oak Ridge, Tennessee

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Prepared by
Science Applications International Corporation
Oak Ridge, Tennessee

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Oak Ridge National Laboratory
Oak Ridge, Tennessee 37831
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ABBREVIATIONS

ADS	activity data sheet
ANF	Acid Neutralization Facility
AOC	area of contamination
CDF	Chemical Detonation Facility
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CNF	Central Neutralization Facility
CPCF	Central Pollution Control Facility
CYRTP	Coal Yard Runoff Treatment Plant
D&D	decontamination and decommissioning
DOE	U. S. Department of Energy
EM	Office of Environmental Management
ER	environmental restoration
FFA	federal facilities agreement
FFCA	Federal Facilities Compliance Agreement
FY	fiscal year
HF1	hydrofracture experimental site 1
HRE	Homogeneous Reactor Experiment
ISV	in situ vitrification
ILLW	radioactive intermediate-level liquid waste
IWMF	Interim Waste Management Facility
LLW	low-level waste
LLWDF	Low-Level Waste Disposal Facilities
LLLW	liquid low-level waste
LLLWEF	Liquid Low-Level Waste Evaporation Facility
LSF	Liquid Storage Facility
MCD	Magnesium Chip Dissolver
MVST	Melton Valley storage tanks
NFA	no further action
NHF	New Hydrofracture Facility
NP	Neutralization Pit
NRWTP	Nonradiological Waste Treatment Plant
OHF	Old Hydrofracture Facility
ORNL	Oak Ridge National Laboratory
OR	Oak Ridge Operations Office
ORR	Oak Ridge Reservation
OREIS	Oak Ridge Environmental Information System
OU	operable unit
PCB	polychlorinated biphenyl
PF	Packaging Facility
PPE	personal protective equipment
PRTF	Plating Rinsewater Treatment Facility
PWTP	Process Waste Treatment Plant
RA	remedial action
RI	remedial investigation

SFF	Sludge Fixation Facility
SMF	Sludge Mobilization Facility
SLLW	solid low-level waste
STP	Sewage Treatment Plant
STT	shielded transfer tanks
SWMU	solid waste management unit
SWSA	solid waste storage area
TRU	transuranic
TSCA	Toxic Substances Control Act
TSD	treatment, storage, or disposal
UCOF	Uranium Chip Oxidation Facility
WAC	waste acceptance criteria
WAG	waste area grouping
WCF	Waste Compaction Facility
WCPF	Waste Coolant Processing Facility
WETF	West End Treatment Facility
WHPP	Waste Handling and Packaging Plant
WIPP	Waste Isolation Pilot Plant
WMRD	Waste Management and Remedial Action Division

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EXECUTIVE SUMMARY

This report identifies patterns of Oak Ridge National Laboratory (ORNL) Environmental Restoration (ER) waste generation that are predicted by the current ER Waste Generation Forecast data base. It compares the waste volumes to be generated with the waste management capabilities of current and proposed treatment, storage, or disposal (TSD) facilities. The scope of this report is limited to wastes generated during activities funded by the Office of the Deputy Assistant Secretary for Environmental Restoration (EM-40) and excludes wastes from the decontamination and decommissioning of facilities. Significant quantities of these wastes are expected to be generated during ER activities.

This report has been developed as a management tool supporting communication and coordination of waste management activities at ORNL. It summarizes the available data for waste that will be generated as a result of remediation activities under the direction of the U.S. Department of Energy Oak Ridge Operations Office and identifies areas requiring continued waste management planning and coordination.

The quantities of wastes predicted in the Waste Generation Forecast data base are based on a set of assumptions that include the broad objectives of the ER Program site-wide strategy for ORNL, as well as specific estimates, such as how much disposable personal protective equipment is needed during field work. The data base also incorporates preliminary assumptions regarding the most appropriate TSD facility to be used for each waste stream. Supplementary information obtained for this report on the TSD facilities identified in the "waste destination" field of the data base provides a basis for comparison of waste management capabilities and the waste volume data. The anticipated ORNL ER requirements for TSD capacity which are projected in the data generally fall within the available TSD capacities. However, the period over which the waste will be generated extends beyond the current design life of several of the ORR facilities, including the IWMF and the LLLW system.

Based on the available data, it is evident that most remedial action wastes leaving the area of contamination can be managed adequately with existing and planned ORR waste management facilities if attention is given to waste generation scheduling and the physical limitations of particular TSD facilities. Limited use of off-site commercial TSD facilities is anticipated, provided the affected waste streams can be shown to satisfy the requirements of the performance objective for certification of non-radioactive hazardous waste and the waste acceptance criteria of the off-site facilities.

Ongoing waste characterization will be required to determine the most appropriate TSD facility for each waste stream. To ensure that waste management capabilities are available when needed and appropriate for a specific ER-generated waste, communication and coordination between ER managers and waste management personnel will be essential throughout the performance of remedial activities.

1. INTRODUCTION

1.1 PURPOSE AND SCOPE

The Martin Marietta Energy Systems, Inc. (Energy Systems) Environmental Restoration (ER) Division has developed a data base that identifies volumes of various wastes that may be generated as a result of remedial action (RA) and decontamination and decommissioning (D&D) activities that are planned to be carried out during the next twenty five years under the direction of the U.S. Department of Energy Oak Ridge Operations Office (DOE-OR). The resulting projections are reported in the ER Waste Generation Forecast, which is updated approximately annually. Data available for the Oak Ridge National Laboratory (ORNL) include planned destinations for wastes to be removed from the areas being remediated. Because the data base identifies a treatment, storage, or disposal (TSD) destination for each waste volume, it is possible using additional sources of information to evaluate the TSD facilities in terms of their present and future capabilities relative to ER waste generation. The primary objectives of this report are to summarize the available waste generation data and to identify areas for concern or continued work on waste management planning.

This report has been prepared as a management tool for ORNL ER Program staff for communicating information and coordinating activities regarding ER waste management. Information presented in this report identifies assumptions, potential shortcomings and inconsistencies associated with current plans for managing waste resulting from ER activities. The data presented in this report reflect the situation at the most recent time of the most recent update to the data base. Thus, for this report, the discussion of remediation activities reflects the situation that existed in July 1993. When possible, the information provided has been updated with current information from other sources and any differences among details explained.

The scope of this report is limited to wastes generated during activities funded by the Office of the Deputy Assistant Secretary for Environmental Restoration (EM-40). Wastes from facility D&D are excluded.

1.2 REPORT FORMAT

Background information applicable to ORNL that is necessary to understand the ER Waste Generation Forecast is provided in the first sections of this report. Section 2 consolidates the major assumptions used in developing the present forecast. Section 3 presents an overview of the planned ER activities that are expected to generate some type of waste. The forecast data are presented in summary form in Sect. 4 to show trends in waste type and volume. Section 5 presents brief descriptions of the various waste management facilities on the Oak Ridge Reservation (ORR) that may receive ORNL ER Program wastes. Facility capabilities are addressed in terms of acceptable waste types and TSD facility capacity. Information from the two previous sections is evaluated and compared, and results are provided in Sect. 6. Discrepancies between projected waste generation and TSD facility capabilities are discussed, and recommendations made for resolving these discrepancies. Section 7 offers concluding remarks,

and Sect. 8 provides a list of the references used to prepare the report. Appendixes are included to provide additional details on the evaluations performed for the report.

2. WASTE FORECASTING ASSUMPTIONS

Using the ER Waste Generation Forecast requires an understanding of the assumptions used for its development as well as for projecting estimates of wastes expected to be generated during all EM-40-funded activities conducted at ORNL. Thus, these assumptions range from the broad objectives of the ER Program sitewide strategy for ORNL to specific predictions, such as how much personal protective equipment (PPE) is needed during field work. The significant assumptions applicable to developing the ORNL portion of the ER Waste Generation Forecast are discussed in this section.

Major aspects of the site-wide strategy of the ER Program include

- supporting rapid reduction of risk to human health and the environment;
- reducing contaminant releases off-site via White Oak Creek and Raccoon Creek;
- addressing the major sources of contaminant releases in a prioritized and hierarchical fashion, with sites of greatest concern receiving highest priority, whether the concern is one of risk to human health and the environment, regulatory compliance, or public perception;
- identifying source control actions that result in a significant reduction of risk or contaminant flux; and
- collecting data necessary to design, implement, and verify final remedies.

The approach taken at ORNL supports DOE's nationwide ER strategy to first clean up the highest risk situations and then to address long-term contamination problems on a priority basis. Thus, activities necessary to prevent near-term adverse impacts to workers, to the public, or to the environment are the highest priority. Next to be initiated are activities required to meet the terms of agreements between DOE and local, state, and federal agencies. Third priority includes all activities required for compliance with environmental or safety and health regulations that have not been addressed by the first two priorities. Finally, activities that are not required by regulation, but that are deemed desirable, will be undertaken.

The cleanup activities being undertaken at ORNL are driven by the Federal Facilities Agreement (FFA) and are following the remediation process dictated by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Because waste-generating activities are anticipated only in the remedial investigation (RI) and RA phases, other phases are excluded from the ER Waste Generation Forecast.

Another important assumption used to develop the waste forecast relates to the concept of an area of contamination (AOC). An AOC is delineated by the boundary of contiguous contamination that may be extended to all suitable areas very near the contamination to implement a remedial action. Under provisions of CERCLA, certain waste materials may be consolidated in the AOC, as long as that area presents no significantly greater health or environmental hazard than existed before the remedial activities began. For the waste forecast, it was assumed that all wastes that could be left in the AOC would be left, and only those wastes requiring handling outside of the AOC would be removed. The waste volumes reported in the ER Waste Generation Forecast include, but differentiate between these waste management options.

Also applicable to development of the ER Waste Generation Forecast is the preference for using existing, on-site facilities for TSD of wastes. When used in this context, on-site refers to

TSD facilities that are currently operational at ORNL or elsewhere on the ORR, if appropriate facilities are not available at ORNL. For the initial forecast upon which this report was based, these facilities were assumed to have sufficient capacity to accept ER Program wastes. The current status of TSD facilities relative to this assumption is addressed in Sect. 6.

For estimating volumes of specific waste streams, several generic assumptions were made regarding quantities of waste to be generated. These assumptions address various field operations and categories of waste, and were generally applied to all Waste Area Groupings (WAGs) where similar wastes would be generated. The following generic assumptions were used in calculating waste volumes.

- During RIs, the miscellaneous trash category includes PPE as well as wipes, plastic, paper and cardboard, packing materials, and food waste. Debris represents noncompactible trash, such as broken drill bits and spent batteries from monitoring equipment. Field-generated wastes are assumed to be 92% radioactive, 2% hazardous, 1% mixed, and 5% noncontaminated. These percentages are based on prior experience; in particular, on initial RI work in WAG 1. Field office waste is assumed to be noncontaminated.
- Calculations of PPE are based on 4 changes of clothes per 8 person-hours, with 40 changes of clothes filling one 55-gal drum.
- Calculations of trash such as boxes, wipes, and general refuse are based on a generation rate of 0.3 ft^3 per person per day.
- Volume of trees cut during clearing required for implementing remedial actions is calculated on a per-acre basis of 4100 ft^3 of chipped vegetation for medium-density growth areas and 3200 ft^3 for light-density areas.
- Ninety percent of liquids resulting from the decontamination of personnel and equipment is expected to be process waste, and the remaining 10% is assumed to be liquid low-level waste (LLLW).

Assumptions specific to activities planned for a particular WAG are discussed in Sect. 3. These assumptions are derived from Appendix D, "Waste Management," of the Baseline Report for that WAG, which is also the source of the generic waste volume estimating assumptions presented above.

3. ER WASTE GENERATING ACTIVITIES

This section of the report presents a brief overview of the ER activities occurring at ORNL that have the potential to generate waste. These activities are the subject of the waste generation forecast forms that are used to determine future waste management requirements of the ER Program. The overview provides a baseline summary of the various planned ER activities to facilitate interpretation of the waste generation forecast evaluation reported in Sect. 4. The activities described are those specified in the Baseline Report for each WAG (except WAG 6, for which there is no Baseline Report) and are subject to change. Where updated information on the ER activities is available, it has been incorporated into the appropriate discussion. As the Baseline Reports are modified, the waste generation forecast will be changed accordingly.

To ensure comprehensive cleanup of areas where past or present operations have resulted in contamination of facilities or the environment, active and inactive solid waste management units (SWMUs) were identified, some of which were considered potential sources of continuing contaminant release to the environment. SWMUs were then combined into WAGs that are geographically contiguous or within defined hydrologic units. This categorization was necessary to facilitate management of remedial actions because so many sites (approximately 250 SWMUs) had been identified and there was so much interaction between many of them. Thus, all remedial activities conducted under the ER Program are associated with one of the 21 designated WAGs (Bechtel, 1990).

Within most WAGs, Ous have been defined for which it is expected that the same remedial action will be applied. Thus, OUs contain elements that could use similar remediation methods, which implies similarities in source physical features and contaminants (e.g., contaminated groundwater, inactive process tanks). The action distinction that creates OUs also requires that the definition of units be continually reviewed and revised as potential remedial actions are developed and modified (Walker, 1994).

Table 3.1 is a list of the WAGs currently being remediated at ORNL and identifies the operable units (OUs) and early actions associated with each WAG, as these were defined in the baseline reports. The early actions are designed to accelerate the cleanup process through construction of the infrastructure necessary to support remediation, development or procurement of equipment required for remediation, rapid reduction of the risk of release (e.g., emptying liquids from tanks), and control of further environmental contamination until remediation can be completed. Fig. 3.1 shows locations of all WAGs on the ORNL site except WAG 11, which is located beyond the boundaries shown on the map. Because WAG 21 addresses groundwater throughout much of the ORNL site, it is not shown on the location map.

In addition to describing the planned remediation activities at each WAG, the following sections address the types of wastes expected to be generated. Whenever possible, wastes will be consolidated within the AOC in accordance with established ORNL ER policy, as discussed in Sect. 2 of this report. In general, wastes removed from the AOC will include miscellaneous trash, PPE, decontamination liquids, groundwater, well development and purge water, solvents and oils, sanitary wastes, and process liquids. Disposition of these wastes may be at any one of the facilities listed in Table 3.2, depending on the level and nature of contamination, if any, of the waste.

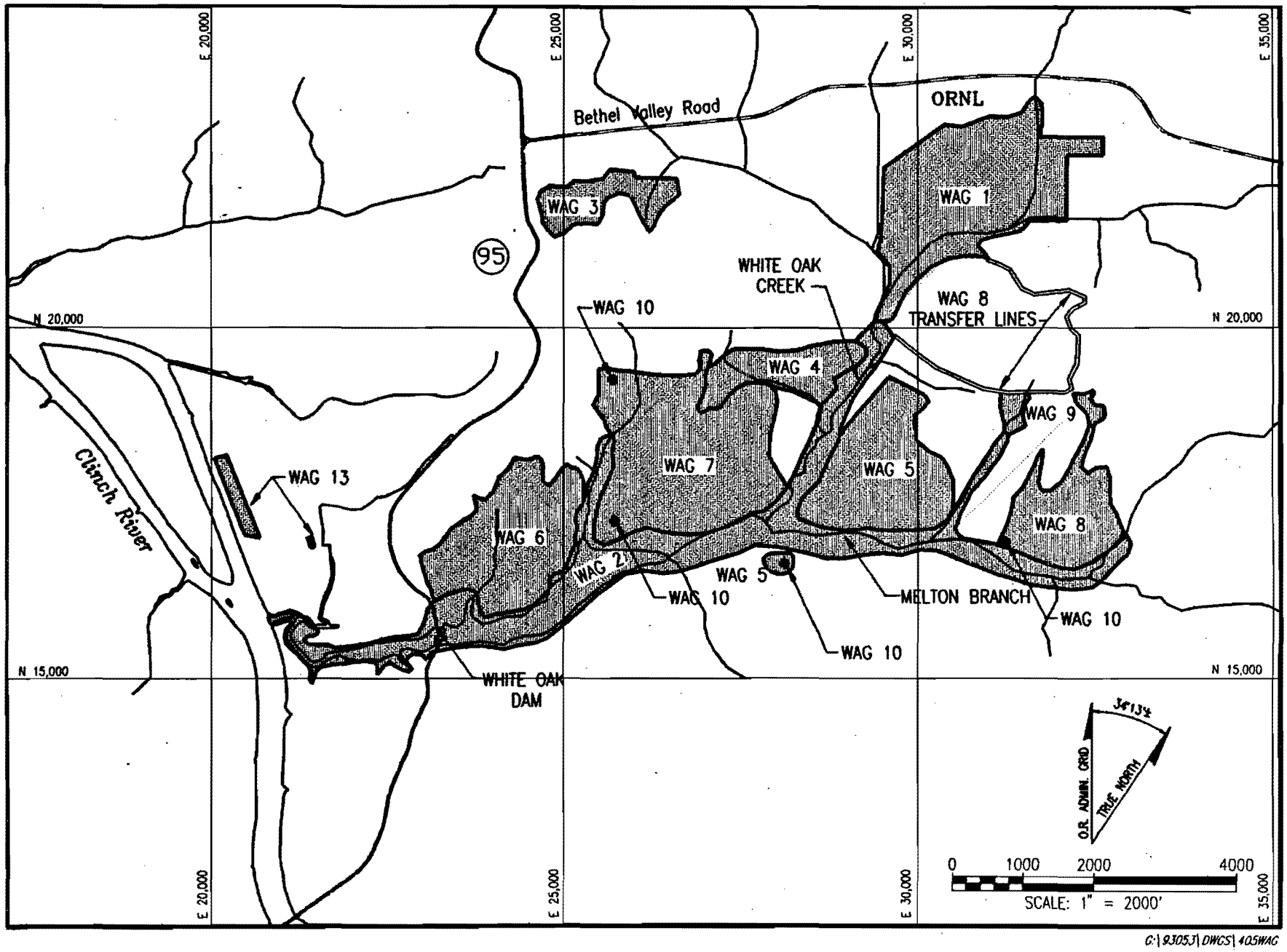

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Fig. 3.1 Map of the ORNL WAGs.

Table 3.1. OUs and early actions at ORNL waste area groupings

WAG	OU or Early Action
1	OU 1 - North Tank Farm, South Tank Farm, and TH-4/W-11
	OU 2 - Surface impoundments
	OU 3 - Underground pipelines/storm drains
	OU 4 - Groundwater
	OU 5 - White Oak Creek floodplain soils/sediments
	OU 6 - SWSA 1
	OU 7 - SWSA 2
	OU 8 - Waste pile
	OU 9 - Contaminated soils
	OU 10 - Steel tank systems
	Early Action 1 - Gunite tanks
	Early Action 2 - Tank contents removal
	Early Action 3 - Groundwater monitoring
	Early Action 4 - Inactive low-level radioactive waste tank systems
	Early Action 5 - Gunite tank robotics
	Early Action 6 - Core hole eight
	Early Action 7 - Boundary interception
	Early Action 8 - White Oak Creek
2	OU 1 - Surface soil and sediment
	OU 2 - Groundwater
	Early Action - Hot spot stabilization/erosion control
3	WAG 3 OU
	Early Action - Culvert diversion
4	OU 1 - SWSA 4
	OU 2 - Groundwater seeps (bathtubbing trench)
	OU 3 - Explosive trenches
	Early Action - Horizontal drilling demonstration
5	WAG 5 OU
6	OU 1 - Research areas
	OU 2 - Shallow land burial
	OU 3 - Parking and staging area
	OU 4 - Roadway improvements and SWSA 6 entrance
	OU 5 - Monitoring Station No. 3
	OU 6 - Liquid waste transfer station
	OU 7 - Tumulus I and II cap
	OU 8 - Well plugging and abandonment
7	OU 1 - Subsurface disposal areas
	OU 2 - Pipeline and leak sites/surface contamination
	Early Action 1 - In situ vitrification demonstration pit 1
	Early Action 2 - Existing cap upgrade/surface runoff control
8	WAG 8 OU

Table 3.1.(Continued)

WAG	OU or Early Action
9	WAG 9 OU Early Action - Tank contents removal
10	OU 1 - Grout sheets OU 2 - Contaminated deep groundwater OU 3 - Hydrofracture well plugging and abandonment
11	WAG 11 OU
13	Early Action - Cesium plots surface soil removal
21	WAG 21 Groundwater OU Early Action 1 - Well plugging and abandonment Early Action 2 - Retardation study Early Action 3 - Passive treatment Early Action 4 - Pump and treat Early Action 5 - Remote sampling

Table 3.2 Assumptions for disposition of ORNL wastes at TSD facilities

Waste Type	Proposed Facility for Management
Miscellaneous trash and debris	Interim Waste Management Facility (IWMF) Commercial disposal facility (e.g., Scientific Ecology Group, Inc.) Toxic Substances Control Act (TSCA) Incinerator Sanitary landfill
PPE	IWMF or Low-Level Waste Disposal Facilities (LLWDF) Solid Waste Storage Area (SWSA) 6 Commercial Disposal Facility
Decontamination liquids	Process Waste Treatment Plant (PWTP) Liquid low-level waste (LLLW) system
Groundwater	PWTP
Well development and purge water	PWTP
Solvents and oils	Commercial disposal facility
Sanitary wastes	ORNL Sewage Treatment Plant (STP)
Process liquids	PWTP LLLW system

Any transuranic (TRU) sludges removed will be stored at ORNL pending shipment to the Waste Isolation Pilot Plant (WIPP).

3.1 WASTE AREA GROUPING 1

WAG 1 encompasses the ORNL main plant area and consists of ten diverse OUs. The OUs have been categorized according to associated release mechanisms and potential exposure conditions (Ebasco, 1992a). There are three such categories composed of the following OUs.

Category 1 Source control

OU 1 - North Tank Farm, South Tank Farm, and TH-4/W-11

Category 2 Control of off-WAG migration

OU 2 - Surface impoundments
OU 3 - Underground pipelines/storm drains
OU 4 - Groundwater
OU 5 - White Oak Creek flood plain soils/sediments
OU 6 - SWSA 1

Category 3 Control of on-WAG migration

OU 7 - SWSA 2
OU 8 - Waste pile
OU 9 - Contaminated soils
OU 10 - Steel tank systems

Planned ER activities include seven early actions in addition to the potential remedial actions for the ten OUs. Each of the OUs and the planned early actions are described in this section.

3.1.1 Operable Units

According to the *Baseline Report for WAG 1* (Ebasco, 1992a), OU 1 consists of underground steel and gunite tanks associated with tank farms located in the center of the ORNL main plant area. Sixteen inactive radioactive waste storage tanks containing varying amounts of supernatant and sludges will be remediated. The liquid will be treated at the ORNL LLLW facility, and the sludges will be stabilized in place. All tanks will be filled with grout following removal of liquids and solidification of sludges. Other wastes expected to be generated include decontamination liquids, sewage, miscellaneous trash, PPE, and contaminated soil.

OU 2 includes the surface waters and sediments within four surface impoundments located at the south end of the main plant area. All the impoundments are considered inactive, although two are currently used as surge capacity for the process waste treatment system during high rainfall events. Proposed remedial actions are removal of the remaining liquid process waste for treatment in the ORNL Process Waste Treatment Plant (PWTP), in-place treatment of sludges with cement-based grout, and capping of the solidified material. In addition to the surface impoundment liquids, anticipated wastes requiring management outside of the AOC include decontamination liquids, sewage, PPE, and miscellaneous trash.

OU 3 consists of underground piping, pipe trenches, and storm drains in the main plant area. The pipeline network includes inactive LLLW pipelines, sewer lines, electrical conduits, and hot off-gas lines, as well as duct work. Planned remedial actions include excavation of some lines

and grouting of other lines, which will generate contaminated soil, piping, miscellaneous trash, PPE, and decontamination liquids.

OU 4 is the contaminated shallow groundwater underlying WAG 1, which will be sampled during the RI phase and collected during the RA phase of the remedial activities conducted in the WAG. Collected water will be treated at the ORNL PWTP. Other wastes to be generated include contaminated soil, PPE, and decontamination liquids.

OU 5 consists of the contaminated soil and sediments in the portion of White Oak Creek located in WAG 1. To allow decay of many radionuclides in these materials, in situ stabilization requiring temporary stream diversion, erosion control measures, and capping of stabilized areas is proposed. Wastes to be generated are PPE, miscellaneous trash, decontamination liquids, and sewage.

OU 6 is the Solid Waste Storage Area (SWSA) 1 burial site, which contains solid low-level radioactive waste. This unit will be capped during remediation activities. Constructing a slurry wall around the site to interrupt groundwater flow and rerouting Melton Valley Drive around the site are also planned. The wastes expected to be generated, including contaminated soil, debris, and trash, will be consolidated in the AOC.

OU 7 is SWSA 2, which is a 20-acre area located north of the 4500 Complex and east of the Isotopes Circle complex. A "no further action" (NFA) decision regarding to remediation is expected. Consequently, few wastes are expected to be generated at this OU. Only small quantities of PPE, decontamination liquids, soil, miscellaneous trash, and liquids associated with laboratory analysis of samples collected during RI activities are anticipated.

OU 8 is the Waste Pile located south of the Nonradiological Wastewater Treatment Plant (NRWTP). The Waste Pile is a 15- to 20- acre site once used as a soil borrowing area and disposal area for construction debris. Like OU 7, an NFA decision is expected for the Waste Pile, and only wastes associated with RI activities are expected to be generated.

OU 9 encompasses contaminated soils underlying portions of WAG 1 that are not associated with other OUs. Most of these soils resulted from pipeline leaks or other spills in the 3000 Area, the Isotopes area, and the 4500 complex. Mercury-contaminated soils will be removed and treated, whereas radioactively contaminated soils will be stabilized in place. In addition to soils, generated wastes will include PPE, decontamination liquids, and miscellaneous trash. RI activities conducted before the remedial action will generate small quantities of these same wastes as well as some solvents and liquids associated with laboratory analysis of samples.

OU 10 contains all remaining underground steel tanks in the main plant area that are not included in OU 1. These tanks will be characterized and remediated. The supernatant in the tanks, much of which is radioactive, will be removed during an early action. Sludges remaining in half of the tanks will be grouted and the tanks will be cleaned during the RA phase of the ER activities in this WAG. The remaining tanks, complete with sludges, will be removed and disposed of outside WAG 1 (Kaiser, 1994).

3.1.2 Early Actions

Early actions affecting several of the operable units in WAG 1 will be conducted to reduce risk or facilitate the planned cleanup activities. Each of these actions will generate some waste, as discussed in the following paragraphs.

Early Action 1, the gunite tanks early action, involves construction of buildings to enclose tanks to be remediated in OU 1. A piping system will also be constructed to maintain water levels in the tanks and to remove liquids before solidifying the tank contents during remediation. Wastes to be generated as a result of these activities include soils, decontamination liquids, and PPE.

Early Action 2 involves removal of liquids from nine underground tanks for treatment at the ORNL Liquid Low-Level Waste Evaporation Facility (LLLWEF). As part of the action, some existing piping will be plugged to control flow into the tanks. The liquids drained from the tanks, PPE, and decontamination liquids are the anticipated wastes.

A third action, Early Action 4, which was included in the Baseline Report for WAG 1 but has since been incorporated into the remedial actions being undertaken at other OUs, consists of sludge treatability studies and the development of robotics capabilities for in situ treatment of radioactive tank sludges (Kaiser, 1994). Although no longer a separate action, wastes will be generated during WAG 1 activities and are included in the waste generation forecast as a part of WAG 1. Possible wastes resulting from these activities are PPE and decontamination liquids.

Three additional early actions described in the Baseline Report address groundwater in WAG 1. These actions, the Core Hole 8 interim action (Early Action 5), the boundary interception action (Early Action 6), and the groundwater monitoring early action (Early Action 3), will generate contaminated soils, PPE, groundwater, well development and purge water, and decontamination water as wastes. The Core Hole 8 interim action involves construction of a French drain to intercept and collect contaminated shallow groundwater, until the overall strategy for remediating that groundwater (OU 4) can be implemented. The boundary interception action is similar in nature, in that it involves construction of systems to intercept and collect contaminated groundwater issuing from two storm drain outfalls and migrating from the 3500 area before its entry into White Oak Creek. Groundwater collected during both early actions will be treated at the PWTP. The Groundwater monitoring early action, as originally planned, involved installing monitoring wells to provide further information on groundwater flow and quality in WAG 1. This activity has since been deleted as a separate action, but will be incorporated into other OUs (Kaiser, 1994). Thus, the expected wastes remain the same.

The final early action, described in the Baseline Report, Early Action 7, involved the removal, treatment, and excavation of contaminated soils in the White Oak Creek floodplain. This action has also been deleted, but the projected waste volumes associated with it are still included in the Waste Generation Forecast analyzed in this report. Expected wastes included are mercury-contaminated soil, PPE, miscellaneous trash, and decontamination liquids.

3.2 WASTE AREA GROUPING 2

WAG 2 addresses White Oak Creek downstream of ORNL discharge points, Melton Branch downstream of reactor facilities in the Melton Valley, White Oak Lake, White Oak Creek

Embayment before its confluence with the Clinch River, and the floodplains and subsurface environment of these areas that may have been adversely affected by contaminants released from the mid 1940s to now. WAG 2 acts as a conduit for contaminants from upgradient areas (source control WAGs) to the Clinch River. As a result, radionuclides and other pollutants have accumulated in the sediment and biota. White Oak Lake has served as a final settling basin for radioactive effluent from ORNL for almost 5 decades. The White Oak Creek system has received effluent from ORNL since 1943. Releases into WAG 2 have included discharges from the sewage treatment plant (STP), PWTP, and several holding ponds. WAG 2 has also received releases from subsurface flow and surface drainage from WAG 1, waste burial areas, liquid seepage pits and trenches, and the experimental reactor facilities. Planned ER activities include OUs and one early action to stabilize the hot spots and control erosion.

3.2.1 Operable Units

According to the *Baseline Report for WAG 2* (Ebasco, 1992b), OU 1 consists of surface soils and sediments for tributaries, White Oak Lake, and White Oak Creek Embayment. The slopes of the White Oak Lake and White Oak Creek Embayment will be regraded by adding clean fill dirt, if required. No sediments will be excavated or disturbed from their original locations. Revetment matting will be applied to selected soils to immobilize the contaminants, and isolation will occur by controlling access to these areas with existing security fences. Expected wastes include miscellaneous trash, decontamination liquids, and PPE.

OU 2 consists of groundwater investigation and remediation activities and includes interfaces to characterization activities for adjacent Source Control WAGs under WAG 21, Groundwater.

3.2.2 Early Actions

The early action proposed for WAG 2 is stabilization of creek banks and erosion control to limit the migration of contaminants until later remediation activities at WAG 2 are complete. Existing vegetation and trees will be cleared to facilitate construction activities. Existing hot spots and creek banks that might be eroded because of increased surface water runoff will be regraded and covered with erosion-control matting. According to Appendix D of the Baseline Report, the primary waste generated during the RI phase is expected to be sediment resulting from dredging weirs. These wastes are to be consolidated within the AOC.

3.3 WASTE AREA GROUPING 3

WAG 3 is a disposal area containing mixed wastes, radioactive low-level wastes (LLW), and TRU wastes. It is located in Bethel Valley, approximately 0.6 miles west of the west entrance to the laboratory complex at ORNL. Within the approximately 14-acre area are three SWMUs: SWSA 3, the closed scrap metal yard area, and the contractor's landfill. WAG 3 remediation plans include one early action, a culvert diversion to control contaminant migration, and one OU.

3.3.1 Operable Units

The three SWMUs at WAG 3 compose the one OU to be remediated. Additional RI activities to be conducted include nonintrusive surveys and groundwater, surface water, sediment, and soils investigations. RA plans include containment of contaminated surface soils using

multilayer caps and associated surface runoff control methods. Two small contaminated areas located outside the SWSA 3 fence will be excavated and placed within the SWSA 3 area before placement of clean fill and subsequent installation of the multilayer cap. The excavated areas will be filled with clean soil, seeded, and mulched. Wastes expected to be generated during RI activities include soil cuttings, decontamination solutions, well development and purge water, solvents and other chemicals used for laboratory analysis, PPE, sewage, and miscellaneous trash and debris. RA wastes will include sewage and decontamination liquids, which will be treated outside the AOC, and PPE, trees and contaminated soil, which will be consolidated within the AOC.

3.3.2 Early Actions

The early action proposed for WAG 3 involves installation of a new culvert and construction of a new drainage system to divert surface water outside the boundaries of contaminated areas in SWSA 3 and the closed scrap metal yard. An existing pipe culvert around the eastern end of SWSA 3 will be filled with concrete and abandoned in place. Expected wastes include miscellaneous trash, PPE, and sewage.

3.4 WASTE AREA GROUPING 4

WAG 4 is located south of the main plant area along Lagoon Road and contains three SWMUs: the radioactive intermediate-level liquid waste (ILLW) transfer pipelines adjacent to SWSA 4, the experimental pilot pit area, and SWSA 4. Planned remediation activities include one early action and three OUs. In addition, several support facilities, including decontamination facilities and a parking and staging facility, will be constructed to enable remedial activities for OU 1 to begin.

3.4.1 Operable Units

OU 1 consists of SWSA 4, which occupies most of the WAG 4 surface area. SWSA 4 was used for disposing of various radioactively contaminated solid wastes generated by defense and research related activities. The ILLW pipeline that runs along the north and south boundaries of Lagoon Road is also part of this OU. The waste stored in SWSA 4 is poorly defined in terms of location and inventory; thus, an RI is planned for OU 1 that includes nonintrusive surveys and sampling of soils, groundwater, and surface water. Planned remediation activities include installing French drains along the northern and southern boundaries, grouting the trenches, excavating sediment hot spots and ILLW pipeline leak sites, and placing multilayer caps in various areas. Contaminated soil will be hauled to low-lying areas for consolidation under the cap, and leachate from trench grouting and groundwater from French drain activities and RI well installation will be collected for treatment at the PWTP. Other wastes include PPE, miscellaneous trash, debris, sewage, solvents and oils, and decontamination liquids.

OU 2 consists of the groundwater/seeps or bathtubbing trench activities. The trench areas exhibiting the bathtubbing effect are thought to contribute substantially to the flux of contaminants into the watershed from WAG 4. Voids in and around the buried waste in the nine bathtubbing trenches will be filled with cement grout. Leachate displaced during the process will be removed for treatment. The bathtubbing trenches are located inside the SWSA 4 area and, thus, will eventually be placed under the SWSA 4 multilayer cap.

OU 3 consists of explosive trenches on the WAG 4 site. During the RI phase, nonintrusive surveys will be conducted as well as groundwater and soils investigations focused on identifying specific contaminant sources. Remediation of the trenches will consist of placing reinforced concrete slabs over the explosive trenches and placing the approximately one acre area under a multilayer cap. Wastes expected during the RI phase of remediation include soil that will be consolidated within the AOC, groundwater, decontamination solutions, well development and purge water, PPE, miscellaneous trash, and miscellaneous liquids and solvents associated with laboratory analysis. RA wastes include PPE, contaminated and noncontaminated trees, and decontamination fluids.

3.4.2 Early Actions

The early action described in the Baseline Report for WAG 4 (Ebasco, 1992d) may be replaced with an alternative activity, a ^{90}Sr seeps removal action. A remedial strategy for the seeps will be devised as a result of a scheduled regulatory data quality objectives workshop. The wastes associated with the previously planned early action, installation of a horizontal drain along the eastern boundary in SWSA 4 to assess the effect on the water table in the vicinity, are included in the waste generation forecast analyzed in this report.

3.5 WASTE AREA GROUPING 5

WAG 5 is located in Melton Valley, approximately 2 miles southwest of the ORNL main plant area. WAG 5 is managed as a single OU, although it is composed of 13 SWMUs within four areas: SWSA 5 north, SWSA 5 south, the Old Hydrofracture Facility (OHF), and the New Hydrofracture Facility (NHF). SWSA 5, the major facility in WAG 5, has been used as a burial ground and storage area for radioactive solid wastes, including TRU wastes. The SWMUs identified for remediation are LLLW lines and leak sites, the OHF impoundment, OHF site surface facilities, NHF site surface facilities, OHF waste storage tanks, the Process Waste Sludge Basin, SWSA 5 south, LLW concentrate storage tanks, the radioactive contaminated waste oil storage tank, the TRU waste storage area (SWSA 5 north), the septic tank, the NHF Septic Tank, and the OHF septic tank. One early action will be undertaken to remove the contents of the OHF waste storage tanks.

3.5.1 Operable Units

Remediation planned for the WAG 5 OU will be conducted in six remediation packages composed of the following elements:

- OHF pond;
- Process Waste Sludge Basin;
- subsurface disposal;
  - SWSA 5 south trenches and auger holes,
  - SWSA 5 north TRU direct burial trenches,
  - SWSA 5 North classified burial ground, and
  - Old construction debris landfill;
- Pipeline leak sites and OHF waste grout release area;
- Empty OHF Tanks (T1, T2, T3, T4, and T9); and
- Well plugging and abandonment.

Remediation activities include plugging and abandonment of obsolete monitoring wells; removal of liquids from surface impoundments; stabilization of sludges in surface impoundments and inactive underground tanks; grouting of most waste disposal trenches and auger holes; excavation of LLLW line leak areas; and capping of SWSA 5, the OHF pond, and the process waste sludge basin with multilayer impervious caps. TRU waste trenches in SWSA 5 North remain retrievable through placement of precast concrete planks above the trenches before installation of the multilayer cap.

An RI will also be conducted which will include nonintrusive surveys and groundwater, surface water, sediment, and soils investigations. Wastes to be generated may include soil, decontamination fluids, miscellaneous trash, well development and purge water, drilling solutions, and laboratory analysis liquids, including solvents.

Shallow water below the bottom of trenches and auger holes will be lowered with French drains constructed upgradient and around the perimeter of buried wastes, although any treatment of the groundwater will be addressed separately in WAG 21. All depressed areas, impoundments, and excavated areas will be brought to a 3% to 8% grade with clean fill (Ebasco, 1992e).

Wastes expected to be generated during RA activities include tank sludges, decontamination solutions, miscellaneous trash and debris, sewage, contaminated groundwater, surface impoundment supernatant, contaminated soil, and PPE.

3.5.2 Early Actions

One early action is planned for WAG 5. Before initiating other remedial activities, the inactive OHF waste storage tanks will be emptied of liquids. Liquid decanted from the tanks will be pumped into tanker trucks and transported to the LLLW system for treatment. Wastes generated during this activity will include tank supernatant, PPE, decontamination solutions, sewage, and miscellaneous trash.

3.6 WASTE AREA GROUPING 6

WAG 6 is located in Melton Valley, approximately 2 miles southwest of the ORNL main plant area, and consists of three SWMUs: SWSA 6, the Emergency Waste Basin, and the Explosives Detonation Trench. SWSA 6 covers a 68-acre area that has been used for shallow land burial of LLW and nonradioactive wastes such as laboratory glassware and equipment, biological research wastes, filter media and resins, protective apparel, mechanical equipment, contaminated earth, and construction materials (SAIC, 1993). The Emergency Waste Basin is an emergency holding basin with a surface area of 2 acres and a storage capacity of 15 million gal. The basin, which is located in the northeast corner of WAG 6, receives runoff from SWSA 6. The exact location of the Explosives Detonation Trench is not known because it has been backfilled and covered, but it is located in the southeastern corner of SWSA 6. When in use for the detonation of explosives and shock-sensitive chemicals, the trench was approximately 15-ft long, 5-ft wide, and 4-ft deep (SAIC, 1993).

An environmental monitoring program is underway to track the surface and groundwater quality surrounding the WAG 6 area to determine whether degradation of water quality is occurring. Wastes generated during installation of wells and piezometers, construction of

monitoring stations, and monitoring activities include contaminated soil, decontamination solutions, development water, soil cuttings, miscellaneous trash, PPE, plastics, and glassware.

Plans for remediating WAG 6 have been modified several times over the past few years and no recent Baseline Report is available. Eight OUs were established and included in the waste generation forecast, but some of these have been delayed indefinitely, pending determination of final remediation. The determination has been postponed in deference to higher risk sites and until effective technologies for managing the wastes present in the WAG can be developed. Currently planned remedial activities include well plugging and abandonment and construction of a multilayer cap over the Tumulus I and II disposal unit at WAG 6. Wastes expected to be generated during implementation of these activities are contaminated groundwater, decontamination solutions, PPE, and miscellaneous debris and trash.

3.7 WASTE AREA GROUPING 7

WAG 7 is located in Melton Valley and is bounded on the northwest by Chestnut Ridge and on the southeast by Copper Ridge. There are eleven SWMUs in WAG 7, the largest one composed of a pipeline and waste pits and trenches that were used to dispose of ILLW. Other SWMUs located in WAG 7 include the Decontamination Facility; the homogeneous reactor experiment (HRE) fuel disposal auger holes; Hydrofracture Experimental Site 1 (HF1); Contaminated Storage Area 7841, which includes the shielded transfer tanks (STT) ST1-ST5; and, septic tank 7819. Waste will be generated from RI and RA activities in WAG 7. Planned remedial actions include in situ vitrification (ISV) of waste pits and trenches, consolidation and capping of contaminated soil from spill and leak sites and storage areas, and installation of French drains to divert shallow storm water flow. In addition to the two OUs, two early actions are planned for WAG 7 (Ebasco, 1992g).

3.7.1 Operable Units

According to the Baseline Report for WAG 7, OU 1 consists of subsurface disposal areas. Nonintrusive surveys and groundwater, surface water, and soil investigations will be conducted during the RI phases. Planned remediation activities consist of installing a French drain; applying ISV to the waste pits, trenches, and auger holes; and consolidating and capping all contaminated soils in the vicinity of the pits and trenches. Contaminated trees and vegetation cleared from remediation and construction areas will be cut, chipped, bagged, and consolidated within the STT storage area (Ebasco, 1992f). Asphalt from previously capped areas will be excavated and consolidated. Contaminated soils will be consolidated and covered with a multilayer cap to prevent any further migration of contaminants. The proposed French drains will be located in the vicinity of each pit or trench and will include the existing seeps to collect groundwater from each seep. Noncontaminated soil resulting from excavation will be used on-site as fill, while contaminated soils will be disposed of in the HF1 surface contamination area. Groundwater collected during installation of the French drain will be discharged into the existing drainage system located farther downstream of the contaminated area. Other generated wastes for remediation efforts at OU 1, as reported by the *ER Waste Generation Forecast* (Energy Systems, 1993), include well development and purge water, solvents and oils from laboratory analyses, miscellaneous trash, and PPE.

OU 2 is composed of pipeline leak sites and surface contamination. Proposed remediation activities consist of excavation of contaminated soils at the HF1 site and capping of the HF1 and

STT areas. Remediation activities for the pipeline leak sites consist of excavation of existing asphalt and contaminated soils, cutting the existing pipes, and plugging each end with concrete. Excavated soil would be transported to the HF1 site to await consolidation under the multilayer cap. Asphalt debris and pipes will be transported to the STT area.

The STT area, located south of Bldg. 7841, was used to store contaminated shielded transfer tanks and other equipment. Remediation for the STT involves placement of a multilayer cap over the contaminated area. Construction trash, PPE, and contaminated trees from other WAG 7, OU activities will be placed under the STT cap. Other wastes expected from WAG 7 OU activities include decontamination liquids, sewage, PPE, and miscellaneous trash (Ebasco, 1992f and Energy Systems, 1993).

3.7.2 Early Actions

One of the two early actions proposed for WAG 7 consists of conducting an ISV demonstration at pit 1 to establish the feasibility of implementing the ISV technique for LLW pits and trenches. Following ISV, the demonstrated area will be covered with a synthetic liner. The waste generated at each setting will be disposed of into the next adjacent setting and vitrified with the soil. Waste generated during remediation is expected to include debris, decontamination liquids, sewage, PPE, scrubber solution, and miscellaneous trash.

The second early action proposed for WAG 7 involves upgrading the existing caps and controlling surface water runoff at the waste pits and trenches to control the migration of contaminants until further remediation efforts can be performed. Existing caps will be upgraded to stop the intrusion of surface water into the contaminated areas, and surface water control will be implemented. Waste generated during the remediation is expected to include decontamination liquids, sewage, PPE, and miscellaneous trash.

3.8 WASTE AREA GROUPING 8

WAG 8 is located in Melton Valley, approximately 1 mile southeast of the ORNL main plant. This WAG consists of several research and development facilities including the Molten Salt Reactor Experiment, the High Flux Isotope Reactor, the Transuranium Processing Plant, and the Transuranic Research Facility. Additional components of WAG 8 include underground storage tanks, a storage pool, aboveground storage tanks, filter pits, valve pits, electrical substations, surface impoundments, pumping stations, underground pipelines, and contaminated areas resulting from operational leaks and spills (Ebasco, 1992g).

Planned remediation of WAG 8 includes in situ solidification of sludges with cement grout in three impoundments; consolidating within the impoundments, contaminated soils excavated from pipeline/leak sites and removed from miscellaneous surface locations; capping the impoundments; and covering the caps with clean soil to produce a 3% to 8% final grade. To accomplish these actions, an existing access road will be upgraded and support facilities will be constructed. RI activities, including soil and groundwater sampling, will also be conducted.

Wastes expected to be generated during RI and RA activities include soil cuttings; decontamination solutions; well development and purge water; solvents and other chemicals used in laboratory analyses; miscellaneous trash; sanitary sewage; contaminated soil, trees, and debris; and noncontaminated soil, trees, and debris.

3.9 WASTE AREA GROUPING 9

WAG 9 is located in Melton Valley directly south of the ORNL main plant area, northeast of WAG 5, and west of WAG 8. Four SWMUs are located within WAG 9: the HRE surface impoundment, buried LLW collection and storage tanks, a septic tank, and the HRE parking lot. The surface impoundment, which contained radioactive and hazardous chemical liquid wastes, was closed in 1970 by backfilling with soil and shale fragments (Ebasco, 1992h).

Remediation activities planned for WAG 9 include one early action and one OU. An RI that includes nonintrusive surveys and groundwater, surface water, sediment, and soils investigations will also be conducted. Wastes generated during the RI phase will include soil cuttings, decontamination solutions, well development and purge water, solvents and other chemicals used in laboratory analyses, and miscellaneous trash and debris.

3.9.1 Operable Units

The OU to be remediated at WAG 9 addresses the HRE surface impoundment, two of the LLW storage tanks, and contaminated soils associated with areas such as the septic tank, parking lot, LLW transfer lines, waste evaporator, and loading pit. Contaminated sludges in the surface impoundment will be stabilized in place with cement grout. The mixture will be excavated and transported to a nearby consolidation area that will be constructed during the remedial action. This consolidation area will also receive contaminated soils excavated from various areas within WAG 9 that are suspected of being contaminated, such as the parking lot. The excavated area of the surface impoundment will be backfilled with clean fill to match the surface of the existing grade (Ebasco, 1992h).

Sludges remaining in two LLW storage tanks, tanks 7560 and 7562, will be stabilized with grout. The tanks will then be filled with grout and left in place to be covered eventually by a multilayer cap that will be placed over the tanks and surrounding soils, as well as the new consolidation area. In addition to the stabilized surface impoundment sludges, grouted tanks, and contaminated soils, other solid wastes generated during remediation activities in WAG 9, such as PPE, will be placed in the consolidation area before installation of the cap.

Waste generated during the RA phase will include liquids from decontamination of personnel and equipment, soils, sludges, PPE, sanitary sewage, and miscellaneous trash. Noncontaminated trees, cut during the clearing of areas for construction of remediation or support facilities, will be chipped and used as backfill for support facilities.

3.9.2 Early Actions

The one early action to be taken within WAG 9 is removal of the liquid contents remaining in tank 7562. The tank is an unlined, intermediate size, single wall, horizontal, stainless steel vessel with a capacity of 12,000 gal. It is buried about 60 ft southeast of Bldg. 7500, where the HRE reactor was located. Although the tank is considered inactive, contaminated runoff collecting in chemical processing cells in Bldg. 7500 may have been routed to the tank. Liquid contents must be removed before the tank sludges can be stabilized and the tank can be filled with grout. Except for soils and sludges, and with the addition of tank supernatant, wastes generated during the early action will be the same as those generated during the OU RA.

Restoration of contaminated groundwater in WAG 9 will be addressed as part of WAG 21 (groundwater) from the Melton Valley drainage basin.

3.10 WASTE AREA GROUPING 10

WAG 10, in Melton Valley south of the ORNL main plant, consists of four hydrofracture sites that were used for demonstration, pilot-scale testing, or full-scale waste disposal of LLLW. The LLLW was mixed with grout and injected into fractures within a geologic formation, forming thin sheets. Three OUs are in WAG 10: the grout sheets OU, the contaminated deep groundwater OU, and the hydrofracture well plugging and abandonment OU.

Remedial activities at the first OU involve some investigative work that has been integrated with the second OU, institutional control, and natural containment. The estimated boundary of the four grout sheet sites will be enclosed individually by connecting the existing fences of the adjacent WAGs. Warning signs will be erected stating that drilling in those areas is prohibited. Wastes expected to be generated include miscellaneous trash and debris, PPE, decontamination solutions, and contaminated soil.

The deep groundwater OU involves investigation of the area's hydrogeology to define groundwater flow and quality. Ten existing groundwater wells will be multizone recompleted to obtain piezometric data, and five wells will be multizone recompleted to obtain water quality and piezometric data. A fence will be provided around each group of hydrofracture injection wells. In addition, a long-term monitoring program will be instituted to check for reasonable deviations from the probable conditions (Ebasco, 1992i). Twenty-one new water-quality wells consisting of seven nests of three wells each (one shallow, one intermediate, and one deep well at each location) will be installed and developed. During RI and RA activities, anticipated wastes are decontamination solutions, miscellaneous trash, well development and purge water, PPE, sanitary sewage, contaminated soil, and solvents used during laboratory analyses.

The third OU consists of plugging and abandoning approximately 85 existing wells and boreholes associated with WAG 10. These wells had been used during the hydrofracture injection process for monitoring, observation, or rock characterization. A groundwater investigation will be conducted before the RA to determine the downhole configuration of each well and the standing water quality therein. This phase of the remedial work is expected to involve measuring and sampling at approximately 100 wells. The plugging and abandonment activity will displace well water from the top of the well and will generate decontamination solutions, sanitary sewage, PPE, and contaminated soil. The RI activities will generate these wastes, miscellaneous trash, and solvents used in laboratory analyses.

3.11 WASTE AREA GROUPING 11

WAG 11, the White Wing scrap yard, is located 6.5 miles northwest of ORNL. The ~25 acre site contained aboveground scrap metal which has recently been removed (Bednarz, 1994). Planned RAs involve one early action and one OU, including interim removal of surface debris and surface soil consolidation and capping. Nonintrusive surveys and subsequent focused intrusive investigations are planned as RI activities.

3.11.1 Operable Units

The one OU at WAG 11 consists of the aboveground scrap storage area. According to the *Baseline Report for WAG 11* (Ebasco, 1992j), remedial activities will include excavation, consolidation, and capping. The contaminated soils from various WAG 11 areas and hot-spot sediments from the wet-weather stream and drainage ditch will be removed and hauled to a central area, placed in layers, compacted, and capped. Any buried drums will be removed, overpacked, and transported to an ORNL storage site. Other generated wastes expected from remedial activities include decontamination liquids, PPE, and miscellaneous trash.

3.11.2 Early Action

The WAG 11 early action consists of removal and treatment or disposal of the contaminated debris present in WAG 11. The surface debris will be placed in B-25 boxes and transported to WAG 6 for disposal. In addition, the concrete structure located just north of Hot Yard Road will be decontaminated and will remain on-site for final disposal in the soil consolidation area. Lead bricks will be separated from other metals, decontaminated, and then transported to an ORNL storage area for future use. Other anticipated waste includes miscellaneous PPE trash.

3.12 WASTE AREA GROUPING 13

WAG 13, consisting of two release sites, is located southwest of the main ORNL complex near the Clinch River and includes about 5 acres. During the mid 1960s, a weapons fallout field study and erosion and runoff studies were performed on the WAG 13 site using ^{137}Cs and other isotopes. The tests consisted of 8 plots at SWMU 13.1 in which 4 of the 8 plots enclosed in sheet metal received ^{137}Cs silica particles. Liquid ^{137}Cs was applied to another area to study runoff, erosion and infiltration on silt loam soil. The WAG 13 scope includes one early action for removing ^{137}Cs-contaminated soils from the four research plots (Ebasco, 1992k).

3.12.1 Early Action

The early action for WAG 13 consisted of removing contaminated soils from the 4 research plots. The ^{137}Cs-contaminated soil was excavated and disposed of in rectangular silos in WAG 6 (Kendrick, 1994).

3.13 WASTE AREA GROUPING 21

WAG 21 addresses groundwater contamination across the ORNL site. The groundwater in WAG 21 consists of the aquifer systems for both Bethel Valley and Melton Valley. This WAG includes the fresh groundwater between the surface water base level and the fresh water/saline water interface. It does not include storm flow, water in the unsaturated zone, or the deeper saline groundwater. To provide continuity between the groundwater and surface water interface, the WAG may include shallow features such as groundwater seeps (Ebasco, 1992l). Because multiple WAGs are located within either Bethel Valley (i.e., WAGs 1 and 3) or Melton Valley (i.e., WAGs 4, 5, 6, 7, 8, 9, and 10) and because several of these have groundwater OUs, information from groundwater investigations conducted at those WAGs will be consolidated during WAG 21 activities to facilitate sitewide groundwater remediation assessments.

Environmental restoration activities for WAG 21 consist of a groundwater OU RI and well-plugging and abandonment, and could also include early actions such as passive treatment of contaminated groundwater and pumping and treatment of hot seeps and contaminated wells (Will, 1994). Remedial actions associated with the OU involve long-term monitoring, groundwater modeling, and well redevelopment and maintenance.

Well-plugging and abandonment activities affect many wells at ORNL, at least 1100 of which are expected to be plugged with cement grout and abandoned in place during the initial remedial effort (Ebasco, 1992l). Other existing monitoring wells that are identified during other remedial actions conducted at ORNL as affecting or being impacted by those actions will also be plugged and abandoned.

Anticipated wastes resulting from the early actions include contaminated groundwater. Wastes generated during RA activities are PPE, sewage, decontaminated liquids, contaminated groundwater, and soil and debris from well redevelopment and maintenance. The RI to be conducted will generate groundwater, well development and purge water, solvents resulting from drilling operations and laboratory analysis, and decontamination solutions (Ebasco, 1992l).

4. WASTE GENERATION FORECAST SUMMARY

The previous section described the planned ER remedial actions within each WAG and OU. This section of the report focuses on patterns of waste generation from those remedial actions. Summary data from the current Waste Generation Forecast data base for fiscal years (FY) 1994 through 2020 are presented, as well as site contaminant information obtained from the WAG baseline reports and other site characterization documents. These data do not include the waste forecast for D&D operations.

The total volumes of solid and liquid wastes that will be generated during ORNL ER remedial actions are discussed in Sect. 4.1. Section 4.2 provides an overview of the potential contaminants in these wastes, and Sect. 4.3 addresses waste streams requiring management outside the AOC. Section 4.4 presents more detailed information on the waste management destinations of various waste streams from the ORNL WAGs.

4.1 TOTAL WASTES GENERATED

During the period FY 1994 through 2021, it is anticipated that approximately 269 million gal of liquid wastes and over 3 million ft^3 of solid wastes will be generated by activities connected with ORNL ER RAs. The ranges of solid and liquid waste volumes that are expected to be generated each year are illustrated in Fig. 4.1. These waste volumes include wastes to be managed within the AOC and outside the AOC. Table 4.1 is a breakdown by year and waste class, of the total generated waste from RA activities at ORNL.

4.2 OVERVIEW OF POTENTIAL WASTE STREAM CONTAMINANTS

The waste streams that will be generated as a result of ORNL ER RAs may contain several radioactive and other toxic contaminants which have been detected in environmental media or which have been determined to be present from process knowledge. Table 4.2 is a matrix listing of the contaminants and suspected contaminants reported in WAG baseline documents and available site characterization documents. Although it does not reference all of the literature for the ORNL sites, the table indicates the complexity of contaminants to be addressed by RA and waste management activities.

Presently, the Waste Generation Forecast contains very limited information on contaminant concentrations, and contaminant data is contained mainly in the site description field, which is a text field. As site characterization studies for the WAGs are completed and RAs are defined, contaminant concentration data will become available for entry in the data base. Development of contaminant concentration data for PPE, decontamination solutions, and similar secondary waste streams will be based on the contaminant concentrations in environmental media and will require the application of site-specific assumptions, such as potential levels of exposures to personnel and dilution or concentration factors in decontamination/treatment processes.

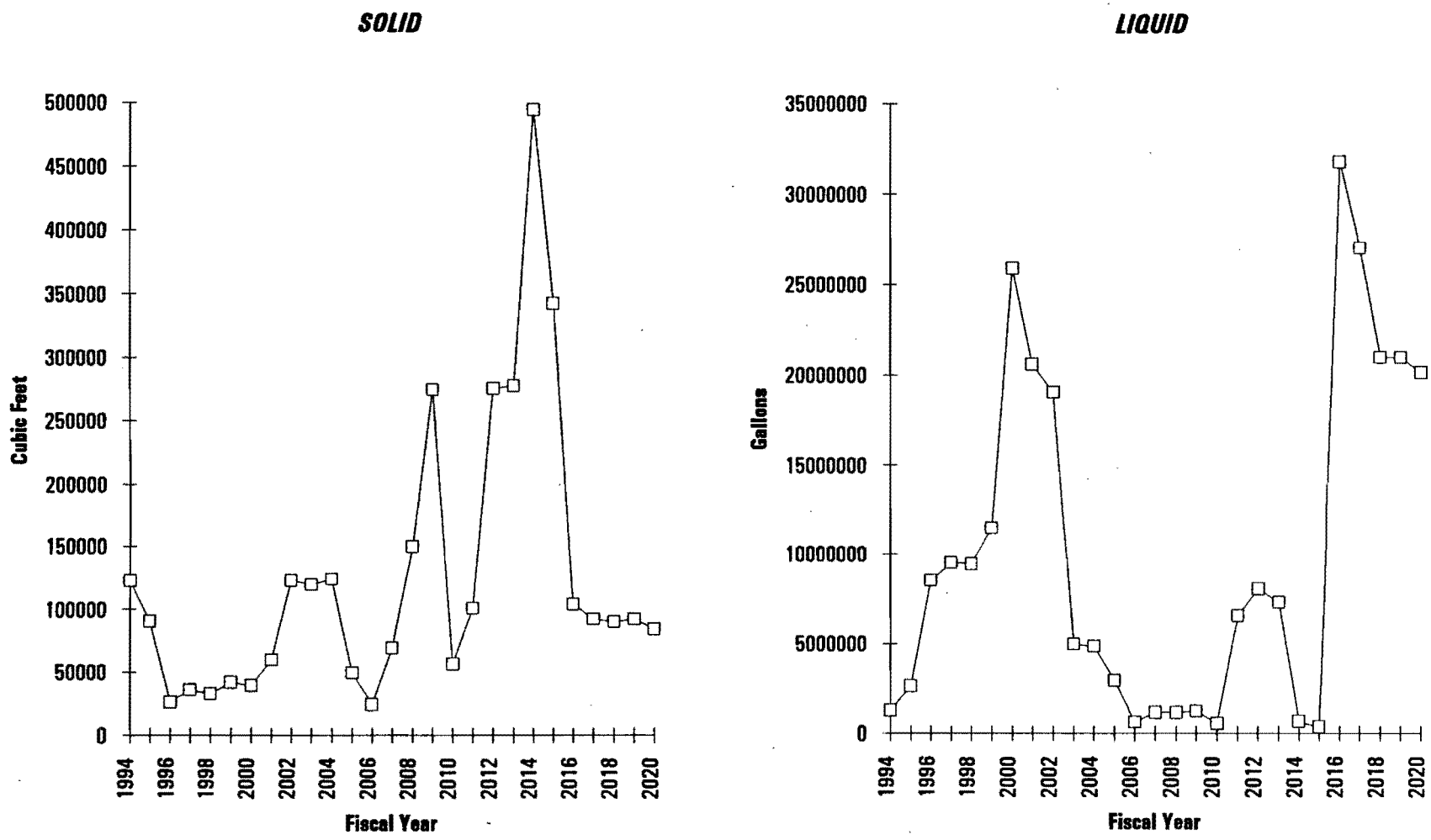


Fig. 4.1 ORNL total generated remedial action solid and liquid waste (FY 1994-2020).

RUN1COMB.XLS

Table 4.1. Waste Class[1] for Total Generated Waste
Oak Ridge National Laboratory Environmental Restoration FY 1994-2020

Solids = cubic feet / Liquids = gallons

Year	Media	LLW	RCRA	LLW/RCRA	LLW/RCRA/TSCA	SANITARY	TRU(all)	TOTAL
1994	Solids	107,949	89	52	0	14,387	0	122,477
	Liquids	1,214,329	1,585	754	0	55,647	0	1,272,315
1995	Solids	86,502	82	36	0	3,865	0	90,485
	Liquids	2,578,450	831	390	0	53,057	0	2,632,728
1996	Solids	22,324	47	21	0	4,058	0	26,450
	Liquids	8,450,853	779	364	0	82,495	0	8,534,491
1997	Solids	21,037	47	21	0	14,422	0	35,527
	Liquids	9,408,094	779	364	0	111,949	0	9,521,186
1998	Solids	26,481	47	21	0	5,756	0	32,305
	Liquids	9,247,687	779	364	0	198,593	0	9,447,423
1999	Solids	35,433	67	29	0	6,174	0	41,703
	Liquids	11,078,125	1,067	486	0	373,763	0	11,453,441
2000	Solids	30,802	119	53	0	7,605	0	38,579
	Liquids	25,542,874	1,781	823	0	353,438	0	25,898,916
2001	Solids	51,349	126	56	0	7,627	0	59,158
	Liquids	20,285,914	1,782	833	0	290,319	0	20,578,848
2002	Solids	111,510	121	55	0	11,082	0	122,768
	Liquids	18,753,843	1,758	828	0	253,791	0	19,010,220
2003	Solids	108,440	130	57	0	7,376	3,654	119,657
	Liquids	4,700,301	1,964	930	0	236,434	0	4,939,629
2004	Solids	106,657	112	50	0	5,809	10,962	123,590
	Liquids	4,607,877	1,612	756	0	232,571	0	4,842,816
2005	Solids	33,639	93	42	0	12,656	2,784	49,214
	Liquids	2,836,612	1,267	581	0	85,639	0	2,924,099
2006	Solids	21,280	87	40	0	2,921	0	24,328
	Liquids	463,261	1,334	622	0	146,608	0	611,825
2007	Solids	65,690	71	32	0	2,913	0	68,706
	Liquids	747,425	1,407	531	0	396,163	0	1,145,526
2008	Solids	146,390	21	9	0	3,197	0	149,617
	Liquids	742,260	853	128	0	419,932	0	1,163,173

Table 4.1. Waste Class[1] for Total Generated Waste (Continued)
Oak Ridge National Laboratory Environmental Restoration FY 1994-2020

Solids = cubic feet / Liquids = gallons

Year	Media	LLW	RCRA	LLW/RCRA	LLW/RCRA/TSCA	SANITARY	TRU(all)	TOTAL
2009	Solids	84,930	12	4	152,604	36,509	0	274,059
	Liquids	797,372	490	82	0	426,804	0	1,224,748
2010	Solids	30,231	7	2	161	25,907	0	56,308
	Liquids	405,445	161	58	0	140,627	0	546,291
2011	Solids	25,107	1	56,171	0	19,463	0	100,742
	Liquids	6,398,595	26	6	0	117,218	0	6,515,845
2012	Solids	22,542	0	248,756	0	4,058	0	275,356
	Liquids	7,839,455	6	0	0	232,084	0	8,071,545
2013	Solids	28,236	1	248,757	0	156	0	277,150
	Liquids	7,066,844	4	0	0	220,949	0	7,287,797
2014	Solids	244,991	0	248,756	0	88	0	493,835
	Liquids	337,887	3	0	0	306,311	0	644,201
2015	Solids	74,561	0	148,410	0	119,445	0	342,416
	Liquids	267,669	0	0	0	62,025	0	329,694
2016	Solids	45,805	0	30,398	0	27,732	0	103,935
	Liquids	12,550,275	0	0	0	19,204,077	0	31,754,352
2017	Solids	90,689	0	0	0	1,165	0	91,854
	Liquids	20,507,329	0	0	0	6,503,008	0	27,010,337
2018	Solids	88,497	0	0	0	1,165	0	89,662
	Liquids	20,078,155	0	0	0	869,723	0	20,947,878
2019	Solids	90,657	0	0	0	1,165	0	91,822
	Liquids	20,078,155	0	0	0	869,723	0	20,947,878
2020	Solids	82,971	0	0	0	1,223	0	84,194
	Liquids	19,325,830	0	0	0	787,512	0	20,113,342
Total	Solids	1,884,700	1,280	981,828	152,765	347,924	17,400	3,385,897
	Liquids	236,310,916	20,268	8,900	0	33,030,460	0	269,370,544

[1]No values are found in the database for Free-Hg, TSCA, RCRA/TSCA, LLW/TSCA or Special Nuclear Material.

Data Ref. ORNL394

Table 4.2 Contaminants and suspected contaminants within ORNL WAGs and OUs

			Radioactive																		Inorganics															Organics							
WAG	OU	Description	Cobalt-60	Strontium-90	Cesium-137	Europium-15X	Thorium-232/234	Uranium-23X	Plutonium-23X	Americium-241	Californium-244	Tritium (^3H)	Rubidium-106	Technetium-99	TRU isotopes	Radium-228	Promethium isotopes	Potassium-40	Carbon-14	Other radionuclides	Cadmium (Cd)	Chromium (Cr)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Lead (Pb)	Zinc (Zn)	Copper (Cu)	Silver (Ag)	Cyanide (Cn)	Arsenic(As)	Beryllium (Be)	Sodium (Na)	Explosives	Nitrates	PCBs	Chlordane	VOCs	Fuel-derived hydrocarbons	Solvents	Spent Batteries	BNAEs	Misc. pesticides
1		Overall[a]	●	●	●	●	●	●	●	●	●									●	●	●	●	●	●	●	●									●	●						
1	4[b]	Groundwater		●			●	●				●				●	●				●	●	●			●			●											●			
1	6[b]	SWSA			●													●		●**																							
1	5 or 9[b]	Contaminated soils	●*					●	●	●											●	●	●			●	●		●	●	●	●				●		●				●	●
1	050[c]	Steel tank system		●	●										●					●																							
1	EA[1]	Gunite tanks–South Tank Farm		●		●	●	●	●	●				●																													
1	EA[1]	Gunite tanks–TH-4		●	●		●	●							●																												
2		Overall[b]	●	●	●							●								●**		●	●				●									●							
2	1[a]	Sediment and Soils		●								●																								●							
3		Overall[a]		●	●							●																															
4		Overall[a]	●	●	●				●			●	●	●						●																							
4	1	SWSA4[d]	●	●	●		●	●				●			●					●**																							
4	3	Explosives trench[d]																														●	●		●								
5°		Overall[a]	●	●	●			●	●	●	●	●								●		●	●		●	●	●								●								
5		Overall[e,f]	●	●	●			●	●				●							●																							
6		Overall[b]	●	●	●	●		●					●						●			●	●	●	●	●	●	●									●	●					
6		Overall[g]	●	●	●								●																								●						
7		Overall[a]	●	●	●			●				●	●	●								●			●		●							●									
7	1	Subsurface disposal[h]		●	●							●																												●	●		
8		Overall[a]	●	●	●																	●					●	●															
8		Surface impoundments[i]	●	●	●					●											●	●	●			●			●														
9		Overall[a]	●	●	●																	●					●																
9	EA	Early action[j]		●	●										●																												
10		Overall[a]		●	●						●				●																												
10		Overall[k]		●	●						●				●					●																							
10		Melton Valley Storage Tanks[l]	●	●	●	●	●	●	●	●				●	●				●	●	●	●	●			●							●		●								
11		Overall[m]																		●						●																	
13		Overall[a]			●																																						
13		Overall[n]			●																																						
21		Overall[⊗,p]	●	●	●			●				●																				●						●		●	●		

* Refers to cobalt, not ^{60}Co
** B-emitters

[a]Ebasco 1992b
[b]Bechtel National Inc. 1992b
[c]Oak Ridge National Laboratory 1992
[d]Ebasco 1992d
[e]Ebasco 1992e
[f]Bechtel National Inc. 1992a
[g]Bechtel National Inc. 1990b
[h]Ebasco 1992f
[i]Ebasco 1992g
[j]Bechtel National Inc. 1992b
[k]Bechtel National Inc. 1990a
[l]Oak Ridge National Laboratory 1990
[m]Ebasco 1992j
[n]Ebasco 1992k
[⊗]Ebasco 1992l
[p]Will 1994

4.3 REMEDIAL ACTION WASTE STREAMS LEAVING THE AOC

Table 4.3 is a breakdown by year and waste class of the RA wastes leaving the AOC. It is these waste streams that will require management at ORNL or other TSD facilities. The total volume of RAs wastes leaving the AOC during the period FY 1994 through 2020 includes approximately 174 million gal of liquid wastes and 121,000 ft^3 of solid wastes. Comparison of the annual solid and liquid waste volumes to be managed outside the AOC with the annual total waste volumes generated are presented in Fig. 4.2 and 4.3, respectively. These figures show that liquid wastes generated will be managed predominantly outside the AOC, while a minimal amount (approximately 3%) of the total solid waste volume generated will leave the AOC.

Figure 4.4 shows the phases of RAs that will generate wastes leaving the AOC. Solid wastes leaving the AOC will be derived somewhat equally from investigative (RI) and remedial (RA) phase activities. In contrast, 99% of the liquid waste volume leaving the AOC will be generated during the RA phase. This difference may be attributable in part to a relatively constant rate of generation of trash and PPE solid wastes from field activities, which is independent of the RA phase. Also, large volumes of groundwater and leachate requiring treatment are reflected in the pattern of liquid waste generation.

The percentages of waste classes of solid and liquid wastes leaving the AOC are presented in Fig. 4.5. Figure 4.6 illustrates the distribution among waste management destinations of the total volumes of liquid and solid wastes leaving the AOC during the period FY 1994 to 2021. In general, solid wastes leaving the AOC will be managed by disposal while liquid wastes leaving the AOC will be handled by treatment facilities.

More than 50% of the solid waste leaving the AOC is identified in the data base as sanitary waste and will be taken to the Y-12 industrial landfill. Radioactive low-level solid wastes (SLLW) will be sent off-site to a commercial incinerator or taken to LLW disposal facilities, and TRU wastes will be stored until a suitable disposal option is available. Only a small fraction of solid waste leaving the AOC will be recycled.

Figures 4.5 and 4.6 indicate that the bulk of liquid waste leaving the AOC will be contaminated with low-level radioactive contaminants. Only 5% of the total liquid waste leaving the AOC will be sent directly to the STP (Fig. 4.6). Of the total liquid waste volume leaving the AOC, 94% will be managed by treatment at the PWTP.

4.4 DESTINATIONS OF REMEDIAL ACTION WASTES LEAVING THE AOC

Waste management outside the AOC is addressed in the Waste Generation Forecast by the waste destination text field. Table 4.4 lists the waste destinations cited in the data base records along with the waste class, waste type, and anticipated years of generation for various waste streams. A further breakdown of waste volumes by year for each destination is presented in Appendix A. Of these facilities, the industrial landfill (referred to as a sanitary landfill in the data base) and the LLWDF are located at the Oak Ridge Y-12 Plant. All other facilities, except for the commercial facilities and TSCA Incinerator, are located at the ORNL site. Capacities and other specific operating information for the ORNL waste management facilities are presented in Sect. 5.

Table 4.3. Waste Class [1] for Waste Leaving the AOC
Oak Ridge National Laboratory Environmental Restoration FY 1994-2020

Solids = cubic feet / Liquids = gallons

Year	Media	LLW	RCRA	LLW/RCRA	LLW/RCRA/TSCA	SANITARY	TRU(all)	TOTAL
1994	Solids	3,156	37	26	0	8,422	0	11,641
	Liquids	1,214,329	1,585	754	0	55,647	0	1,272,315
1995	Solids	924	30	10	0	3,722	0	4,686
	Liquids	2,578,450	831	390	0	53,057	0	2,632,728
1996	Solids	603	17	6	0	1,392	0	2,018
	Liquids	8,450,853	779	364	0	82,495	0	8,534,491
1997	Solids	603	17	6	0	1,710	0	2,336
	Liquids	8,388,094	779	364	0	111,949	0	8,501,186
1998	Solids	603	17	6	0	1,794	0	2,420
	Liquids	8,257,687	779	364	0	198,593	0	8,457,423
1999	Solids	862	25	8	0	2,189	0	3,084
	Liquids	10,088,125	1,067	486	0	373,763	0	10,463,441
2000	Solids	1,604	45	17	0	3,494	0	5,160
	Liquids	10,473,274	1,781	823	0	353,438	0	10,829,316
2001	Solids	1,846	48	18	0	3,564	0	5,476
	Liquids	5,216,314	1,782	833	0	290,319	0	5,509,248
2002	Solids	2,716	46	18	0	3,336	0	6,116
	Liquids	3,680,043	1,758	828	0	253,791	0	3,936,420
2003	Solids	2,298	49	17	0	3,305	3,654	9,323
	Liquids	3,629,301	1,964	930	0	236,434	0	3,868,629
2004	Solids	1,715	42	15	0	3,063	10,962	15,797
	Liquids	3,599,877	1,612	756	0	232,571	0	3,834,816
2005	Solids	1,202	35	13	0	3,100	2,784	7,134
	Liquids	1,828,612	1,267	581	0	85,639	0	1,916,099
2006	Solids	1,159	32	12	0	2,802	0	4,005
	Liquids	463,261	1,334	622	0	146,608	0	611,825
2007	Solids	910	26	10	0	2,205	0	3,151
	Liquids	747,425	1,407	531	0	396,163	0	1,145,526
2008	Solids	273	8	2	0	1,339	0	1,622
	Liquids	742,260	853	128	0	419,932	0	1,163,173

Table 4.3. Waste Class [1] for Waste Leaving the AOC (Continued)
Oak Ridge National Laboratory Environmental Restoration FY 1994-2020

Solids = cubic feet / Liquids = gallons

Year	Media	LLW	RCRA	LLW/RCRA	LLW/RCRA/TSCA	SANITARY	TRU(all)	TOTAL
2009	Solids	6,229	4	1	0	3,703	0	9,937
	Liquids	797,372	490	82	0	426,804	0	1,224,748
2010	Solids	7,461	2	0	0	3,781	0	11,244
	Liquids	405,445	161	58	0	140,627	0	546,291
2011	Solids	4,982	0	0	0	2,112	0	7,094
	Liquids	6,398,595	26	6	0	117,218	0	6,515,845
2012	Solids	645	0	0	0	158	0	803
	Liquids	7,839,455	6	0	0	232,084	0	8,071,545
2013	Solids	2,185	0	0	0	154	0	2,339
	Liquids	7,066,844	4	0	0	220,949	0	7,287,797
2014	Solids	8	0	0	0	87	0	95
	Liquids	337,887	3	0	0	306,311	0	644,201
2015	Liquids	267,669	0	0	0	62,025	0	329,694
2016	Solids	0	0	0	0	1,107	0	1,107
	Liquids	3,147,353	0	0	0	19,204,077	0	22,351,430
2017	Solids	0	0	0	0	1,165	0	1,165
	Liquids	11,682,300	0	0	0	6,503,008	0	18,185,308
2018	Solids	0	0	0	0	1,165	0	1,165
	Liquids	11,678,155	0	0	0	869,723	0	12,547,878
2019	Solids	0	0	0	0	1,165	0	1,165
	Liquids	11,678,155	0	0	0	869,723	0	12,547,878
2020	Solids	0	0	0	0	1,223	0	1,223
	Liquids	10,505,830	0	0	0	787,512	0	11,293,342
Total	Solids	41,984	480	185	0	61,257	17,400	121,306
	Liquids	141,162,965	20,268	8,900	0	33,030,460	0	174,222,593

[1]No values are found in the database for Free-Hg, TSCA, RCRA/TSCA, LLW/TSCA or Special Nuclear Material.

Data Ref. ORNL394
ORNL Data compiled 07/11/94 report yrtable

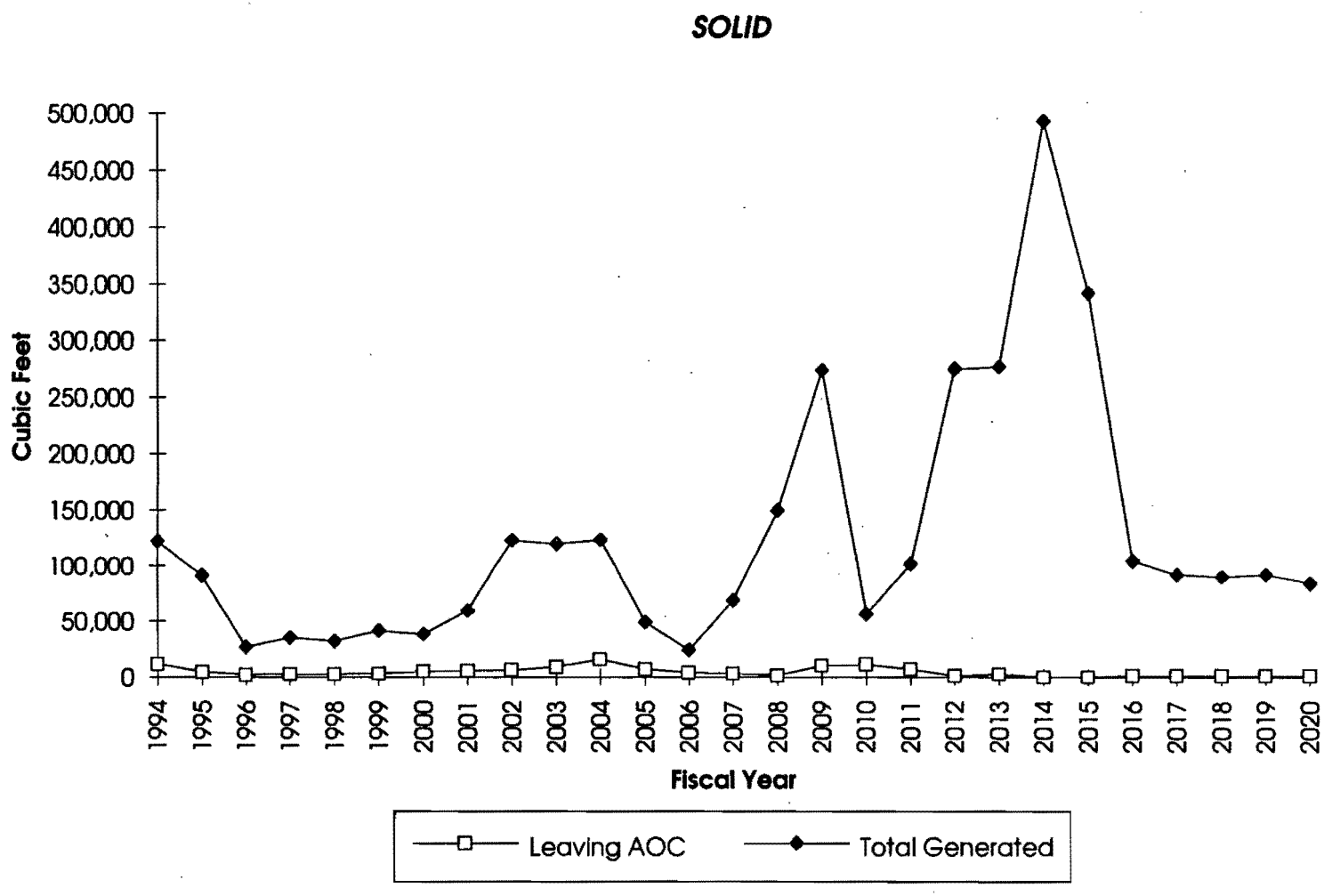


Fig. 4.2. ORNL remedial action solid waste generated vs solid waste leaving the AOC (FY 1994-2020).

RUN3COMB.XLS

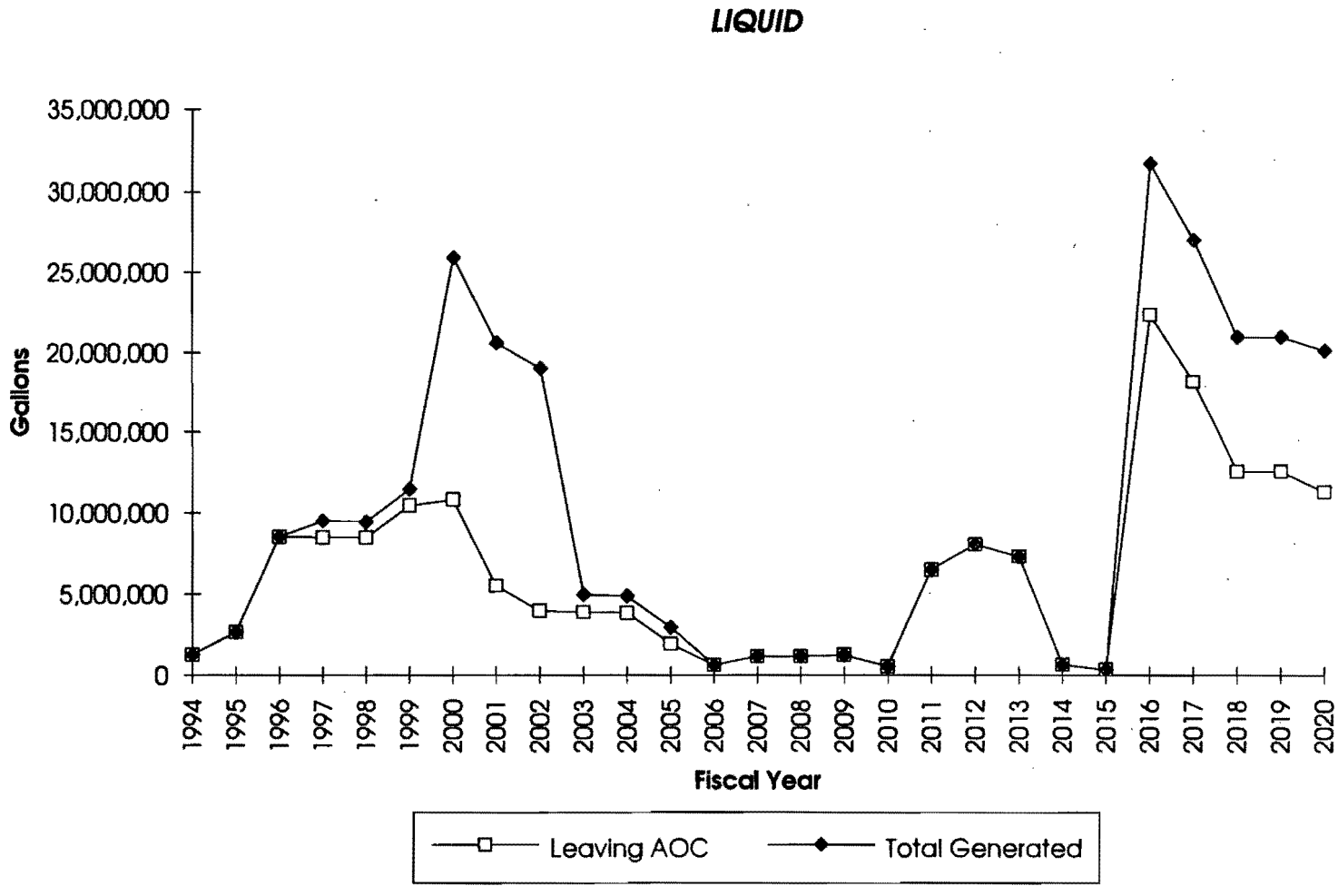


Fig. 4.3. ORNL remedial action liquid waste generated vs liquid waste leaving the AOC FY (1994-2020).

RUN3COMB.XLS

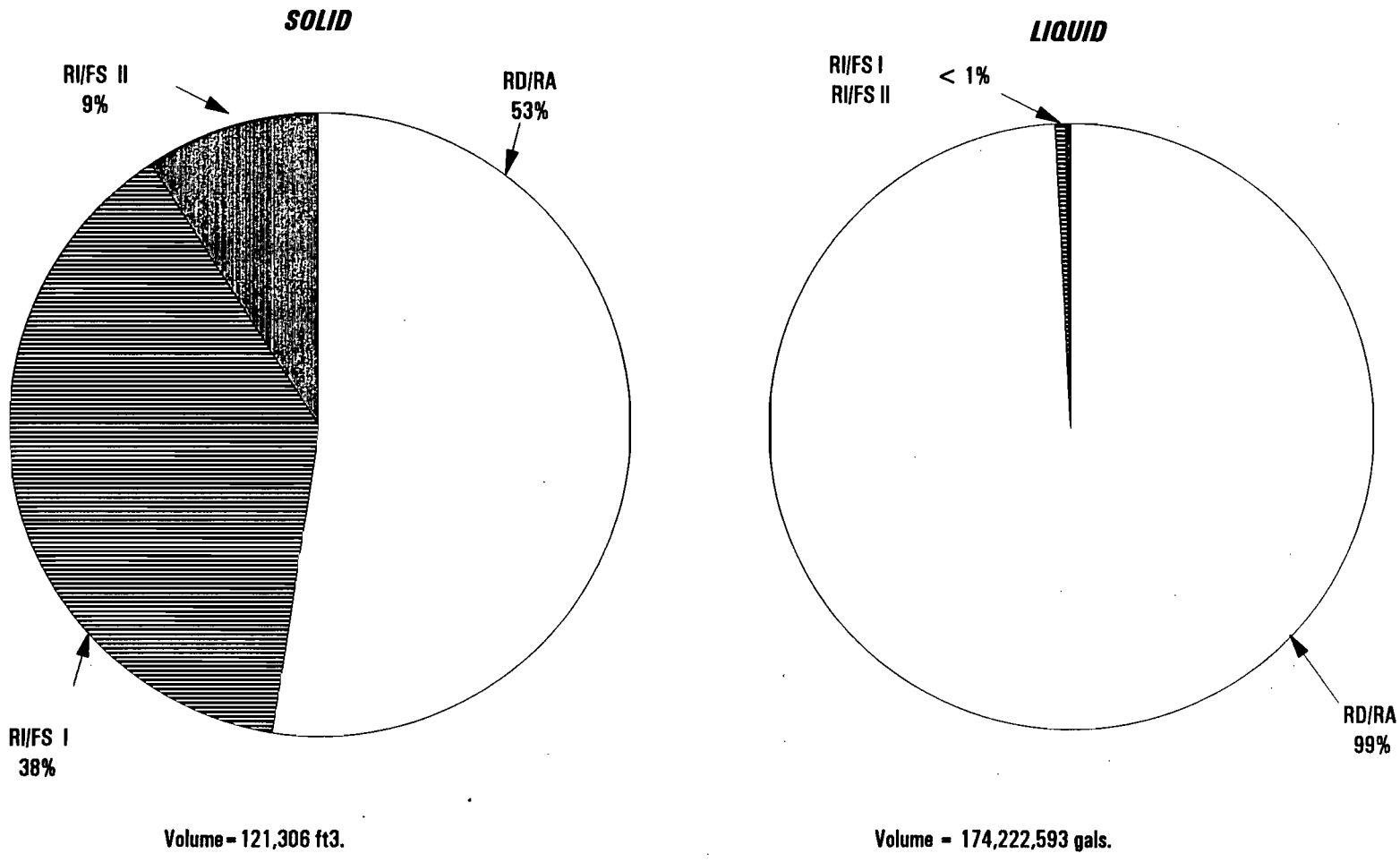


Fig. 4.4. ORNL remedial action liquid and solid waste leaving the AOC by remedial action phase (FY 1994-2020).

RUN4COMB.XLS

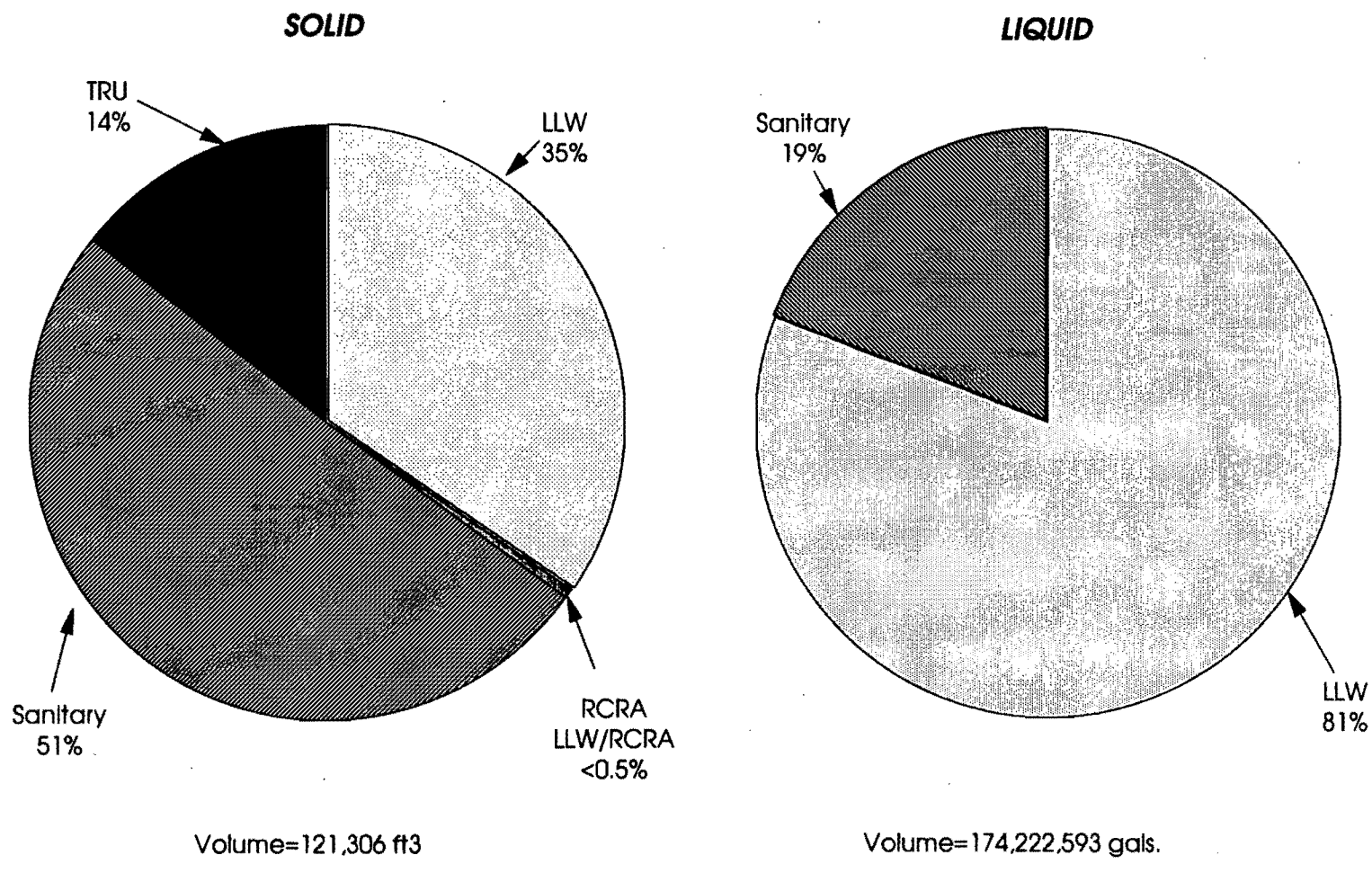
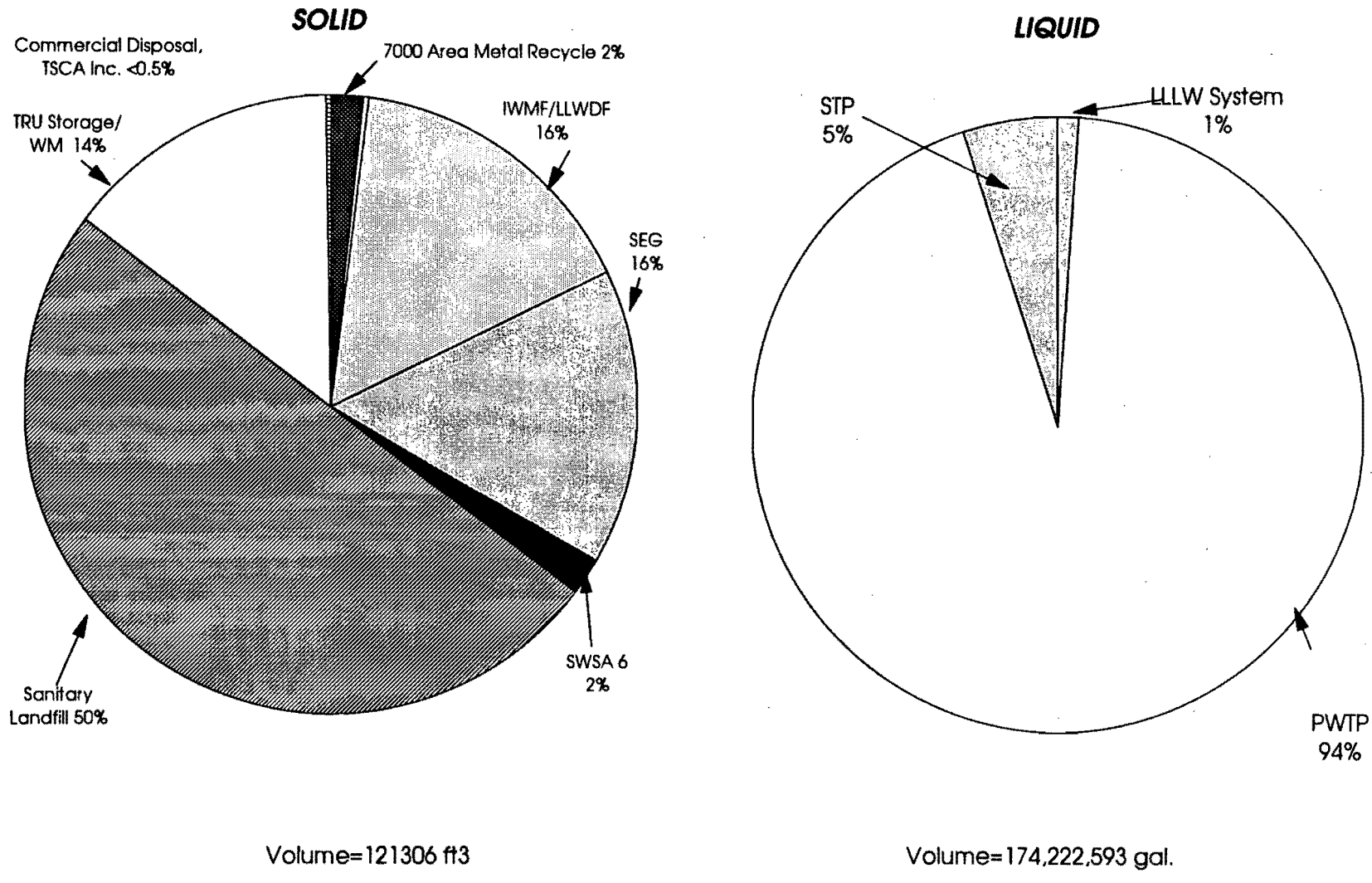


Fig. 4.5. ORNL remedial action solid and liquid waste by class leaving the AOC (FY 1994-2020).

RUN5COMB.XLS



Volume=121306 ft3

Volume=174,222,593 gal.

Fig. 4.6. Destinations of remedial action wastes leaving the AOC (FY 1994-2020).

RUN6COMB.XLS

Table 4.4. Waste Destination Summary by Waste Class and Years of Generation for Remedial Action Waste Leaving the AOC
Oak Ridge National Laboratory Environmental Restoration FY 1994-2020

Waste Destination	Waste Class	Waste Type	First Year	Last Year	Volume	
7000 Area Metal Recycle	SANITARY	Metal	1994	1995	2,178	ft3
					2,178	ft3
Commercial Facility/Waste Management	RCRA	Misc	1994	2009	120	ft3
	RCRA	PPE/Trash	1994	2010	360	ft3
					480	ft3
	RCRA	Misc	1994	1995	8	gal
	RCRA	Solvents/Oils	1994	2014	5,378	gal
					5,386	gal
Decontaminate/Reuse	RCRA/LLW	Metal	1994	1994	14	ft3
					14	ft3
Interim Waste Management Facility or Low Level Waste Disposal Facility	LLW	Debris	2013	2013	1	ft3
	LLW	Misc	1994	1995	38	ft3
	LLW	PPE/Trash	1994	2014	19,000	ft3
	LLW	Sludge	1994	1995	16	ft3
					19,055	ft3
LLLW System	LLW	Decon	1994	2020	1,561,431	gal
	LLW	Decon Solution	1995	2010	13,027	gal
	LLW	Misc	1997	2009	105,400	gal
	LLW	Misc Liquid	1994	2005	439,200	gal
					2,119,058	gal
Process Waste Treatment Plant (PWTP)	LLW	Decon	1994	2020	12,983,410	gal
	LLW	Decon Solution	1994	2010	151,410	gal
	LLW	Groundwater/Surface Water	1994	2020	90,561,553	gal
	LLW	Misc	1994	2020	14,068,192	gal
	LLW	Solvents/Oils	2012	2014	17	gal
	LLW	Well Dev/Purge	1994	2013	21,279,325	gal
					139,043,907	gal
	RCRA	Decon	1994	2011	1,356	gal

Table 4.4. Waste Destination Summary by Waste Class and Years of Generation
for Remedial Action Waste Leaving the AOC
Oak Ridge National Laboratory Environmental Restoration FY 1994-2020

Waste Destination	Waste Class	Waste Type	First Year	Last Year	Volume	
	RCRA	Groundwater/Surface Water	1994	2010	6,822	gal
	RCRA	Solvents/Oils	2002	2004	55	gal
	RCRA	Well Dev/Purge	1994	2011	6,649	gal
					14,882	gal
	RCRA/LLW	Decon	1994	2011	687	gal
	RCRA/LLW	Groundwater/Surface Water	1994	2010	5,449	gal
	RCRA/LLW	Well Dev/Purge	1994	2011	2,764	gal
					8,900	gal
	SANITARY	Decon	1994	2017	24,515,645	gal
	SANITARY	Groundwater/Surface Water	1994	2011	27,284	gal
	SANITARY	Misc	1994	2011	40,592	gal
	SANITARY	Misc Liquid	1998	1999	170,100	gal
	SANITARY	Well Dev/Purge	1994	2011	13,840	gal
					24,767,461	gal
Recycle	SANITARY	PPE/Trash	1994	1994	23	ft3
					23	ft3
SEG/Incinerate	LLW	Debris	2002	2002	410	ft3
	LLW	Misc	2009	2011	5,535	ft3
	LLW	PPE/Trash	2002	2011	12,948	ft3
					18,893	ft3
Sanitary Landfill	LLW	PPE/Trash	2012	2013	1,731	ft3
					1,731	ft3
	SANITARY	Debris	2012	2014	45	ft3
	SANITARY	Misc	1994	1995	450	ft3
	SANITARY	PPE/Trash	1994	2020	58,561	ft3
					59,056	ft3
Sewage Treatment Plant (STP)	SANITARY	Misc	1994	2020	6,900,893	gal
	SANITARY	Misc Liquid	1996	2005	1,361,800	gal
	SANITARY	Solvents/Oils	2012	2014	306	gal
					8,262,999	gal

Table 4.4. Waste Destination Summary by Waste Class and Years of Generation for Remedial Action Waste Leaving the AOC
Oak Ridge National Laboratory Environmental Restoration FY 1994-2020

Waste Destination	Waste Class	Waste Type	First Year	Last Year	Volume	
Solid Waste Storage Area 6 (SWSA 6)	LLW	Debris	1994	1994	2,000	ft3
	LLW	PPE/Trash	1994	2013	305	ft3
					2,305	ft3
TRU Storage/Waste Management	TRU	Sludge	2003	2005	17,400	ft3
					17,400	ft3
TSCA Incinerator	RCRA/LLW	PPE/Trash	1994	2009	171	ft3
					171	ft3

Data Ref. ORNL394
ORNL Data complied 07/08/94 report ORNLprg.Destclass

A summary of waste quantities to be sent from each WAG to TSD facilities is presented in Table 4.5. Appendix B contains a breakdown of these data by year. Waste streams generated across most of the WAGs include liquid wastes to be sent to the PWTP, LLLW system, and STP. The IWMF, TSCA Incinerator, and Y-12 industrial (sanitary) landfill will receive solid wastes from most WAGs. Waste streams requiring TSD at other facilities are more closely tied to individual WAGs. For example, the entire volume of solid waste to be sent to an off-site incinerator (e.g., Scientific Ecology Group, Inc.) will be generated within WAG 1. Similarly, WAG 5 will generate the entire waste stream for the Storage/WM destination.

Additional detailed analysis of waste generation by individual WAGs has been performed and these data are contained in appendixes C through F.

- Appendix C, Waste Class Summary by ADS for Waste Leaving the AOC, ADS Summary FY 1994–2020;
- Appendix D, Summary of Waste Class by WAG and Year for Total Generated Waste, Oak Ridge National Laboratory Environmental Restoration FY 1994–2020;
- Appendix E, Waste Class Summary by WAG for Waste Leaving the AOC, Oak Ridge National Laboratory Environmental Restoration FY 1994–2020;
- Appendix F, Waste Destination Summary by Year for Waste Leaving the AOC, Oak Ridge National Laboratory Environmental Restoration FY 1994–2020.

The relative contribution from each WAG to the total waste volume to be managed at each ORR facility is represented in a series of pie chart diagrams in Appendix G.

Table 4.5 Summary of Destinations of Wastes Leaving the AOC by WAG
Oak Ridge National Laboratory Environmental Restoration FY 1994-2020

Solids = cubic feet / Liquids = gallons

Destination	Media	WAG 1	WAG 2	WAG 3	WAG 4	WAG 5	WAG 6	WAG 7	WAG 8	WAG 9	WAG 10	WAG 11	WAG 13	WAG 21	Total
7000 Area Metal Recycle	Solids	0	0	0	0	0	2,178	0	0	0	0	0	0	0	2,178
	Liquids	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Commercial Facility/Waste Management	Solids	47	0	30	39	24	3	67	10	10	6	0	0	244	480
	Liquids	408	0	274	481	8	0	429	59	29	84	0	0	3,614	5,386
Decontaminate/ Reuse	Solids	0	0	0	0	0	0	0	0	0	0	14	0	0	14
	Liquids	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LLLW System	Solids	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Liquids	704,792	21,190	4,069	37,265	255,800	0	19,623	6,292	6,227	119,932	0	0	943,868	2,119,058
LLWDF or IWMF *	Solids	2,427	0	1,071	1,594	642	0	2,327	360	340	180	1,500	0	8,614	19,055
	Liquids	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Process Waste Treatment Plant (PWTP)	Solids	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Liquids	72,514,286	174,232	95,250	72,256,699	7,395,318	48,278	279,503	68,547	51,955	1,613,307	105,639	0	9,232,136	163,835,150
Recycle	Solids	0	0	0	0	0	23	0	0	0	0	0	0	0	23
	Liquids	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SEG/Incinerate	Solids	0	18,893	0	0	0	0	0	0	0	0	0	0	0	18,893
	Liquids	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sanitary Landfill	Solids	10,402	6,644	1,591	3,817	1,530	4,329	8,270	1,511	767	1,500	538	0	19,888	60,787
	Liquids	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sewage Treatment Plant (STP)	Solids	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Liquids	1,511,548	0	191,779	3,001,570	1,162,066	48,000	661,362	53,752	57,804	1,283,314	0	0	291,804	8,262,999
Solid Waste Storage Area 6 (SWSA 6)	Solids	0	0	0	0	0	0	0	0	0	0	2,305	0	0	2,305
	Liquids	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 4.5 Summary of Destinations of Wastes Leaving the AOC by WAG (continued)
Oak Ridge National Laboratory Environmental Restoration FY 1994-2020

Solids = cubic feet / Liquids = gallons

Destination	Media	WAG 1	WAG 2	WAG 3	WAG 4	WAG 5	WAG 6	WAG 7	WAG 8	WAG 9	WAG 10	WAG 11	WAG 13	WAG 21	Total
TRU Storage/ Waste Management	Solids	0	0	0	0	17,400	0	0	0	0	0	0	0	0	17,400
	Liquids	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TSCA Incinerator	Solids	17	0	12	17	8	0	22	5	2	2	0	0	86	171
	Liquids	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	Solids	12,893	25,537	2,704	5,467	19,604	6,533	10,686	1,886	1,119	1,688	4,357	0	28,832	121,306
	Liquids	74,731,034	195,422	291,372	75,296,015	8,813,192	96,278	960,917	128,650	116,015	3,016,637	105,639	0	10,471,422	174,222,593

*Low Level Waste Disposal Facility or Interim Waste Management Facility

Data Ref. ORNL394
ORNL Data compiled 07/08/94 report DWSumm

5. CAPABILITIES OF WASTE MANAGEMENT FACILITIES

This section presents brief descriptions of the various waste management facilities on the ORR that are currently cited in the Waste Generation Forecast as destinations for ORNL ER wastes. Off-site commercial TSD facilities that are identified in the Waste Generation Forecast are not discussed. ORNL facilities are addressed in Section 5.1. Facilities elsewhere on the ORR that may be suitable for ORNL ER waste are discussed in Section 5.2. Details of the facilities are extracted from the 1992 Energy Systems document, *Central Waste Management Division Descriptions of Existing and Planned Waste Management Facilities at the Oak Ridge Reservation* (Energy Systems, 1992), unless otherwise noted.

5.1 ORNL WASTE MANAGEMENT FACILITIES

5.1.1 ORNL Waste Treatment Facilities

Three ORNL treatment facilities are cited as waste destinations in the Waste Generation Forecast data base. They include the Liquid Low-Level Waste Evaporation Facility, the Process Waste Treatment Plant, and the Sewage Treatment Plant.

5.1.1.1 Liquid Low-Level Waste Evaporation Facility

The LLLWEF provides treatment of LLLW streams from various ORNL sources. The LLLWEF receives radioactively-contaminated wastewater from collection tanks that service ORNL facilities located in Bethel Valley and Melton Valley. The wastewater is collected from a variety of sources, including waste solutions from reactors, radioactive fuel and target processing facilities, decontamination operations, hot cells, and analytical laboratories. The waste system accommodates waste solutions having radionuclide contents as high as 2 Ci/gal strontium equivalent. The concentrated LLLW is classified as a mixed waste.

The LLLWEF operates in a semicontinuous mode and involves evaporation and condensation. The waste accumulated in the collection tanks is transferred via underground piping to the LLLWEF (Bldg. 2531), where it is concentrated in one of the two evaporator units. Concentrated wastes from the evaporator (i.e., evaporator bottoms) are sent to tanks for storage. Evaporator condensate, (i.e., distillate) containing traces of radionuclides, is transferred to the PWTP for further treatment.

Location:	ORNL Bldg 2531 and associated LLLW collection system areas;
Waste Processed:	Radioactive LLW;
Technologies:	Evaporation/condensation;
Design Capacity:	14,000 gal/day; 5 million gal/year; 9.7 gpm effective (Scott, 1994);
Capacity Used:	3000 gal/day (25%);
Operational Start:	1965 for evaporator A2; approximately 1978 for evaporator 2A2 (Reece, 1994);
Design Life:	30 years;
Status:	Operational;
Facility Operator:	WMRAD

5.1.1.2 Process Waste Treatment Plant

The PWTP is designed to remove small quantities of radionuclides from process wastewaters generated at ORNL facilities in Bethel Valley and Melton Valley, in addition to the condensate from LLLW evaporators.

The PWTP treats wastewater, groundwater, and evaporator condensate wastewater streams from the process waste system that are potentially radioactive or known to contain trace levels of radioactivity. Process wastes may contain small quantities of radionuclides, metals, anions, and organics. Principal radioactive contaminants are ^{90}Sr and ^{137}Cs.

Location:	ORNL Bldg. 3544;
Waste Processed:	Liquid wastes containing slight amounts of radioactive or hazardous materials, such as metals and inorganics;
Technologies:	Precipitation, clarification, filtration, ion exchange, neutralization;
Design Capacity:	100 million gal/year; 130 gpm - normal, 220 gpm - max;
Capacity Used:	70 million gal/year
Operational Start:	Initially 1976, 1981 for the currently utilized filtration/ion exchange process;
Design Life:	?;
Status:	Operational;
Facility Operator:	WMRAD

5.1.1.3 Sewage Treatment Plant

Original equipment consists of a waste influent pump station equipped with comminutors (to break up solids) and level controls, chlorination equipment, flow recording and effluent sampling equipment, a Parshall flume and chlorine contact basin, and a control/laboratory building. Upgrading of the STP, which was completed in September 1985, involved adding a packaged, extended-aeration treatment plant; an average/peak flow head box system; a sewage pump station; and a tertiary filter system; inflow/infiltration rehabilitation of sewage piping; and modifications to existing facilities, including the west lagoon, the sludge drying beds, and the pump station. Generally, no radioactive or hazardous waste is accepted at this facility, although the laundry wastewater treated contains very low levels of radioactivity (Roush, 1994).

Location:	ORNL Bldg. 2521;
Waste Processed:	Sanitary waste and laundry wastewater;
Technologies:	Aeration, clarification, filtration, sludge dewatering, and chlorination;
Design Capacity:	300,000 gal/day;
Capacity Used:	165,000 - 250,000 gal/day; (75%);
Operational Start:	Upgrade completed in 1985;
Design Life:	?;
Status:	Operational;
Facility Operator:	Plant and Equipment Division (Roush, 1994)

5.1.2 ORNL Waste Storage Facilities

At present, there are 31 storage facilities at ORNL including the MVST. The number of such facilities available for use, as well as the available storage capacity, fluctuates constantly as existing storage space is filled and additional space is permitted. The *Quarterly Waste Storage*

Report issued by Energy Systems is the most current reference for storage facilities and capacities.

ORNL is the only site on the ORR that generates and stores TRU waste. New storage facilities for both CH- and RH-TRU waste are being constructed, and availability is not expected until FY 1995. Other facilities have been designated for storage of low-level or mixed waste (hazardous or toxic waste that has radioactive components) or some combination of the three types of waste. In addition, there is one contaminated scrap metal accumulation area at ORNL. New facilities planned include two fabric membrane structures that will provide 60,000 ft^3 of additional storage capacity for LLW and a Class III/IV Retrievable Waste Storage Facility. The retrievable storage facility will consist of both above- and below-ground facilities located in SWSA 7. Its earliest projected availability is FY 1995. (SAIC, 1994).

5.1.3 ORNL Disposal Facilities

Active disposal at ORNL involves aboveground LLW facilities at SWSA 6. Industrial waste is sent to the Oak Ridge Y-12 Plant for burial. Although the disposal of TRU waste has occurred in the past, it is currently stored, pending off-site disposal at the WIPP.

5.1.3.1 Interim Waste Management Facility

ORNL is currently operating the IWMF in SWSA 6 as a disposal site for Class II SLLW. The technology used is the aboveground tumulus design, like that of the full Tumulus I and II facility. Two of the currently designed six pads are filled now with approximately 60,000 ft^3 of waste. An additional six pads have been proposed for construction to provide needed disposal capacity for another 10 years (Jones, 1994). It is estimated that the operational life of the IWMF under the current rate of waste generation and approved disposal criteria, will extend into the 2000's (Trabalka, 1994).

5.1.3.2 Low-Level Waste Disposal Facilities

LLWDF are planned to manage Class I and Class II SLLW but are presently in the process of being rescoped and rescheduled. If constructed as previously proposed, the LLWDF will provide lined trenches for leachate collection and treatment for disposal of Class I waste and concrete casks on tumulus pads for surface/subsurface drainage collection and monitoring for disposal of Class II waste. The lined industrial landfill units would be located approximately 2 miles northwest of ORNL, along the top of West Chestnut Ridge, and will support 15 years of operation based on an estimated disposal rate of 1.6 million ft^3 of waste per year (Energy Systems, 1990b). The tumulus units would be located in West Bear Creek Valley, approximately 2.5 miles northwest of ORNL, and would provide 20 years of disposal operation (MMES, 1990b) at an annual generation rate of approximately 30,000 ft^3 of waste per year (Energy Systems, 1990a).

Recent reevaluation of the project indicates a preference for indefinitely deferring the Class I facility and rescoping the Class II facility. The proposed modifications are linked to the IWMF, in that the new LLWDF will not be available until at least 2000, when the IWMF should be nearing capacity.

5.2 OTHER ORR WASTE MANAGEMENT FACILITIES

The Waste Generation Forecast data base cites additional TSD waste destinations within the ORR. These facilities include industrial waste disposal facilities located at the Y-12 Plant and the TSCA Incinerator located at the K-25 Plant. Information on the proposed Mixed Waste Treatment Facility is included in this section, although this facility is not yet cited in the Waste Forecast data base.

5.2.1 Y-12 Waste Disposal Facilities

On-line disposal activities conducted at the Y-12 Plant include the Centralized Sanitary/Industrial Landfill II, the Classified Industrial Landfill IV, and the new Industrial Landfill V.

Classified Industrial Landfill IV provides for disposal of nonhazardous, nonradioactive classified wastes. Approximately 30% of the classified wastes generated at the Y-12 Plant can be disposed of in this landfill. The estimated useful life of the landfill is approximately 20 years. Classified wastes that cannot be disposed on- or off-site eventually will be treated and rendered unclassified at the Material Treatment Facility.

For the remainder of the classified wastes that cannot be disposed on-site in this landfill or off-site, plans are underway to construct a Classified Waste Treatment Facility as part of the Production Waste Treatment and Disposal Facility Project.

The Y-12 Plant Sanitary/Industrial Landfill II provides disposal for nonradioactive, nonhazardous, and unclassified solid wastes. The Y-12 Plant Construction/Demolition Landfill VI has a limited life of 3 years. The Y-12 Plant Construction/Demolition Landfill VII is in the design/construction phase and has a 35-year design life.

5.2.2 Toxic Substances Control Act Incinerator

The TSCA Incinerator is a rotary kiln incinerator designed to treat hazardous organic wastes, including PCBs and low-level radioactive wastes, although it is intended primarily for mixed waste incineration. The incinerator is capable of operating in either batch or continuous mode. However, because all waste must be characterized to assure permit requirements are met and proper incineration methods are used, the incinerator operates in a batch mode. Waste treatment involves liquids blending, solids shredding, and thermal destruction by incineration. Incinerator ash and scrubber solids are collected and stored in 55-gal drums. Other solids are destroyed thermally by cycling through the incinerator. Slurries collected from the flue gas scrubber system blowdown are sent to the CNF for treatment.

Location:	K-25 Site Building K-1435, on the east end of K-25 Site;
Waste processed:	Hazardous organic/PCB and low-level radioactive liquid, sludge, and solid wastes;
Technologies:	Incineration;
Design capacity:	Liquids — 1 to 1.8 gpm, sludges — 1 gpm, solids — 1039 lb/h (permit limited to 700 lb/h);
Capacity used:	
Operational start:	1990;
Design life:	20 years;

Status: Operational;
Facility operator: Waste Management Division

5.2.3 Mixed Waste Treatment Facility

A Mixed Waste Treatment Facility (MWTF) is being considered for the ORR to treat predominantly solid mixed waste to meet land disposal restriction (LDR) criteria and result in a final waste form that is acceptable for disposal. The facility is in the conceptual stage, but is expected to treat approximately 80% of the mixed waste listed in the Oak Ridge Federal Facilities Compliance Agreement (FFCA) for Mixed Waste Subject to Land Disposal Restrictions, Appendix B, LDR Mixed Waste Without Identified Existing Treatment (Parsons, 1993). The MWTF will support defense programs and research, uranium enrichment, and environmental restoration activities managed by DOE-OR. The MWTF will consist of a Central Facility, for which locations at the K-25 Site are being evaluated (Energy Systems, 1994), and mobile units that can be used at all three ORR sites.

The Central Facility would treat mixed waste generated as a result of ORR operations, as well as the residuals from the mobile units. The Central Facility would be designed to receive and treat approximately 1,353,000 ft^3/yr of soils, sludges, incinerator ashes, combustibles, non-combustibles, and metals, which includes 599,000 ft^3/yr of residuals from the mobile units. Treatment capabilities would include dewatering, thermal desorption, incineration, decontamination (e.g., surface washing or direct fixation), acid leaching, ion exchange, evaporation, cementation, vitrification, and encapsulation. The mobile units would thermally treat sludges and soils to remove the hazardous component, then remove and consolidate the radioactive component through a washing process. The radioactive residual would be sent to the Central Facility for uranium removal. Treated components would be returned to the site of origin or sent to an appropriate disposal facility. Non-combustibles and metals would be decontaminated, with the residues packaged and sent to the Central Facility for further processing. The mobile units would be designed to process approximately 1,200,000 ft^3/yr of mixed waste (Parsons, 1993). The proposed operating life of the MWTF is 30 years, at a minimum.

6. COMPARISON OF WASTE MANAGEMENT FACILITIES WITH WASTE GENERATION FORECAST

This section of the report summarizes information from the previous sections on the generation of ORNL ER wastes and ORR waste management capabilities. Section 6.1 summarizes and compares information on waste streams for which ORR waste management facilities have been designated in the data base. Section 6.2 summarizes patterns of generating waste streams to be managed at commercial facilities.

6.1 COMPARISON OF ER WASTE GENERATION WITH CAPABILITIES OF DESIGNATED ORR WASTE MANAGEMENT FACILITIES

Table 6.1 is a summary of available information on the capabilities of ORR facilities currently identified in the Waste Generation Forecast as destinations for ORNL ER RA wastes. The table also presents information on projected waste generation rates associated with those destinations.

Requirements for ORNL ER waste management capacity outlive the current design life of several of the ORR facilities including the IWMF and the LLLW system. Although capacity and design life information has not been verified for all designated facilities, the available capacity data are generally consistent with the requirements of ORNL ER RA activities, given the following assumptions:

- Wastes can meet the waste acceptance criteria (WAC) of the designated facilities.
- Waste generation rates of ER and non-ER waste streams will not increase significantly above current projections.

Several apparent inconsistencies were found between the waste destination information in the data base and the types of waste usually handled at the facilities. For example, Table 4.4 listed the PWTP as the destination of several RCRA waste streams and the Sewage Treatment Plant was listed for a waste stream containing solvents/oils. The PWTP could not accept RCRA waste except via a variance or if the waste were pretreated to remove the RCRA characteristic(s). Solvents and oils may be more appropriately assigned to a commercial RCRA treatment facility or the proposed MWTF. Contacts were made with ORNL waste management personnel to verify capacity data and to discuss inconsistencies between the projections in the Waste Generation Forecast and the capabilities of the designated facilities. The following waste management issues were identified:

- **SWSA 6.** The SWSA 6 facility is reaching capacity and alternate solid waste storage facilities may be needed for the ORNL ER waste streams currently identified for that facility (Jones, 1994).

- **PWTP.** The mode of transportation for process waste (e.g., tanker truck vs direct transfer line) will affect the daily receiving capacity of the PWTP (Scott, 1994). Thus, the annual operating capacity shown in Table 6.1 may not accurately predict the true capacity for ER wastes, which may be more limited. The issue is complicated by the large number of individual waste streams composing the total waste volume (Appendix B).

Table 6.1 Comparison of waste leaving the AOC with Capabilities of ORR waste management facilities

Waste management				Waste Generation[a]			
Facility	Estimated design capacity	Estimated utilized capacity	Design life	Starting year of waste generation	Ending year of waste generation	Total volume of RA waste leaving the AOC	Maximum annual volume of RA wastes
LLLW system	5,000,000 gal/yr	1,250,000 gal/yr	through 2008	1994	2020	2,119,058 gal	285,199 gal
Process Waste Treatment Plant (PWTP)	100,000,000 gal/yr	70,000,000 gal/yr		1994	2020	163,835,150 gal	21,995,245 gal
Sewage Treatment Plant (STP)	109,500,000 gal/yr	91,250,000 gal/yr		1994	2020	8,262,999* gal	869,723* gal
7000 Area metal recycle	40 yd^3 pans (reusable volume)		indefinite	1994	1995	2178 ft^3	2166 ft^3
Interim Waste Management Facility (IWMF)	360,000 ft^3	60,000 ft^3	ending 2000–2003	1994	2014	19,055 ft^3	2,298 ft^3 **
Low-Level Waste Disposal Facility (LLWDF)	in conceptual design phase		not available until after 2000				
Industrial (Sanitary) Landfill				1994	2020	60,787 ft^3	6,233 ft^3
Solid Waste Storage Area 6 (SWSA 6)		no remaining capacity		1994	2013	2,305 ft^3	2052 ft^3
Transuranic (TRU) Storage/WM				1994	2009	17,400 ft^3	10,962 ft^3

Table 6.1 (Continued)

Waste management				Waste Generation[a]			
Facility	Estimated design capacity	Estimated utilized capacity	Design life	Starting year of waste generation	Ending year of waste generation	Total volume of RA waste leaving the AOC	Maximum annual volume of RA wastes
TSCA Incinerator	700 lbs/hr (Permit limit)		through 2010	1994	2009	171 ft^3	18 ft^3

* includes sum of volumes from waste destinations = STP and STP/ORNL

** includes sum of volumes from waste destinations = IWMF, IWMF/LLWDF, IWMF or LLWDF, and LLWDF

[a] data refs: Report form DMINMAX, report form DESTCLASS

- **LLLW System.** The limiting factor for the LLLW system may be the waste capacity of concentrate storage tanks. The system has a design capacity of 20 gpm, but effectively achieves only 9.7 gpm (Scott, 1994).

- **STP.** The STP has a reserve daily "surge" capacity that is well beyond its normal capacity of 245,000 to 250,000 gpd. However, STP operators will need to examine carefully the projected rates of ER sewage wastes before confirming the facility's capability to handle them. If wastes are transported to the STP by tanker truck (~5000 gal capacity), transfer of these wastes into the system will depend on available surge capacity (Baxter, 1994).

- **IWMF/LLWDF.** The IWMF has a design life extended to handle LLW until 2000 to 2003, depending on the rate that wastes are received. The LLWDF is being rescoped. The proposed Class I facility will be deferred indefinitely and the Class II facility will undergo rescoping and rescheduling. Disposal capacity in the Class II facility will not be available until after 2000 (Jones, 1994).

6.2 COMMERCIAL WASTE MANAGEMENT FACILITIES

Limited volumes of ORNL ER RA wastes will be sent off-site to commercial contractors. Commercial disposal facilities are designated to receive approximately 118 RCRA waste streams from ER activities between 1994 and 2014. Waste streams to be disposed of commercially are primarily composed of laboratory solvents and solid debris that includes spent batteries. In addition, from 2002 to 2011, the SEG incinerator is designated to receive approximately 19,000 ft^3 of miscellaneous trash that includes trees, PPE, and other solid wastes not consolidated in the AOC. The capacity of commercial facilities to handle these waste streams is not anticipated to be a problem for the ORNL ER program, but further contacts should be made with each facility to verify capacity and WAC for individual waste streams.

7. CONCLUSIONS

This report identifies patterns of ORNL ER waste generation predicted by the current Waste Generation Forecast data base and compares the waste volumes to be generated with the waste management capacities of current and proposed TSD facilities. Based on the analysis conducted using the available information, the following observations and recommendations are presented.

Remedial action wastes leaving the AOC will usually be managed at ORNL facilities, although selected wastes will be sent to the Oak Ridge Y-12 Plant landfills, to the TSCA Incinerator at the Oak Ridge K-25 Site, or to commercial disposal facilities.

Large volumes of LLLW will be managed outside the AOC. The ORNL PWTP is the usual destination given in the data base for these wastes. The waste forecast data suggest that in peak years ER RAs will contribute volumes equivalent to 22% of the annual design capacity of the PWTP. Apparent capacities of the PWTP and LLLW System may be limited by the logistics of transfer from tanker trucks and by other factors. Because virtually all the WAGs will be generating LLLW, often in concurrent years, the coordination among WAG managers of schedules for waste generation and waste transport of LLLW will be critical to the progress of remediation activities requiring LLLW treatment. Further evaluation of daily capacity of the PWTP will be required. Also, alternate strategies for handling LLLW (e.g., recycling decontamination fluids) should be evaluated to minimize the load on the PWTP and LLLW system.

Because contaminant concentration data generally are not available in the data base, ongoing evaluation of wastes leaving the AOC will be needed to determine whether RA wastes will meet the WAC of the destination facilities. To support such an evaluation, site characterization data should be entered into the Waste Generation Forecast data base as they become available for each WAG and OU. The ER Waste Actuals and Oak Ridge Environmental Information System (OREIS) data bases could be evaluated as cross-references of contaminant data applicable to the ORNL WAGs.

The remediation schedule reflected in this report can be expected to change periodically as the ORNL ER baseline is updated. Design and operation of waste management facilities will also be subject to reevaluation and scheduling changes. Therefore, the current status of waste generation schedules and waste management capabilities should be made available to, and evaluated jointly by, ORNL ER managers and the managers of Energy Systems waste management facilities. This type of communication will facilitate planning and implementation of RA objectives.

8. REFERENCES

Baxter, J.L., Oak Ridge National Laboratory, Plant and Equipment Division. Personal communication, March 29, 1994.

Bechtel National, Inc. 1988. *Remedial Investigation Plan for ORNL Waste Area Grouping 4, Oak Ridge National Laboratory Remedial Investigation/Feasibility Study.* ORNL/RAP/Sub-87/99053/11. Oak Ridge, Tennessee.

Bechtel National, Inc., et al. 1988. *Remedial Investigation Plan for ORNL Waste Area Grouping 7 Oak Ridge National Laboratory Remedial Investigation/Feasibility Study.* ORNL/RAP/Sub-87-99053/16&R1. Oak Ridge, Tennessee.

Bechtel National, Inc., et al. 1988. *Remedial Investigation Plan for ORNL Waste Area Grouping 9 Oak Ridge National Laboratory Remedial Investigation/Feasibility Study.* ORNL/RAP/SUB-87/99053/12. Oak Ridge, Tennessee

Bechtel National, Inc., et al. 1990. *Remedial Investigation Implementation Plan for ORNL WAG 10 Oak Ridge National Laboratory Remedial Investigation/Feasibility Study.* ES/ER-4&D1. ORNL/RAP/Sub-87/99053/6&R2. Oak Ridge, Tennessee.

Bechtel National, Inc. 1990. *ORNL WAG 6 Site Characterization Summary, Volume I, Main Report.* ORNL/ER-11/V1&D1. ORNL/RAP/Sub-87/99053/27&V1. Oak Ridge, Tennessee.

Bechtel National, Inc., et al. 1992a. *RI Plan for WAG 5. Remedial Investigation Plan for Waste Area Grouping 5 at Oak Ridge National Laboratory, Oak Ridge, Tennessee.* DOE/OR-1032/V2. Oak Ridge, Tennessee.

Bechtel National, Inc., et al. 1992b. *WAG 1 Site Characterization Summary Report.* DOE/OR-1043/V2 &D1. Oak Ridge, Tennessee.

Bednarz, C. A., Oak Ridge National Laboratory, Environmental Restoration Program. Personal communication. May 12, 1994.

Crow, K. R., Oak Ridge Y-12 Plant, Waste Management Division. Personal communication, March 23, 1994.

Ebasco Services Incorporated. 1992a. *Baseline Report for Waste Area Grouping 1 at Oak Ridge National Laboratory, Oak Ridge, Tennessee.* ORNL/ER-94/V1. Oak Ridge, Tennessee.

Ebasco Services Incorporated. 1992b. *Baseline Report for Waste Area Grouping 2 at Oak Ridge National Laboratory, Oak Ridge, Tennessee.* ORNL/ER-95/V1. Oak Ridge, Tennessee.

Ebasco Services Incorporated. 1992c. *Baseline Report for Waste Area Grouping 3 at Oak Ridge National Laboratory, Oak Ridge, Tennessee.* ORNL/ER-96/V1. Oak Ridge, Tennessee.

Ebasco Services Incorporated. 1992d. *Baseline Report for Waste Area Grouping 4 at Oak Ridge National Laboratory, Oak Ridge, Tennessee.* ORNL/ER-97/V1. Oak Ridge, Tennessee.

Ebasco Services Incorporated. 1992e. *Baseline Report for Waste Area Grouping 5 at Oak Ridge National Laboratory, Oak Ridge, Tennessee.* ORNL/ER-92/V1. Oak Ridge, Tennessee.

Ebasco Services Incorporated. 1992f. *Baseline Report for Waste Area Grouping 7 at Oak Ridge National Laboratory, Oak Ridge, Tennessee.* ORNL/ER-99/V1. Oak Ridge, Tennessee.

Ebasco Services Incorporated. 1992g. *Baseline Report for Waste Area Grouping 8 at Oak Ridge National Laboratory, Oak Ridge, Tennessee.* ORNL/ER-100/V1. Oak Ridge, Tennessee.

Ebasco Services Incorporated. 1992h. *Baseline Report for Waste Area Grouping 9 at Oak Ridge National Laboratory, Oak Ridge, Tennessee.* ORNL/ER-101/V1. Oak Ridge, Tennessee.

Ebasco Services Incorporated. 1992i. *Baseline Report for Waste Area Grouping 10 at Oak Ridge National Laboratory, Oak Ridge, Tennessee.* ORNL/ER-102/V1. Oak Ridge, Tennessee.

Ebasco Services Incorporated. 1992j. *Baseline Report for Waste Area Grouping 11 at Oak Ridge National Laboratory, Oak Ridge, Tennessee.* ORNL/ER-103/V1. Oak Ridge, Tennessee.

Ebasco Services Incorporated. 1992k. *Baseline Report for Waste Area Grouping 13 at Oak Ridge National Laboratory, Oak Ridge, Tennessee.* ORNL/ER-105/V1. Oak Ridge, Tennessee.

Ebasco Services Incorporated. 1992l. *Baseline Report for Waste Area Grouping 21 at Oak Ridge National Laboratory, Oak Ridge, Tennessee.* ORNL/ER-113/V1. Oak Ridge, Tennessee.

Gilpin, J., Oak Ridge National Laboratory, Waste Management Remedial Action Division. Personal communication, February 14, 1994.

Hensley, J. E., Oak Ridge National Laboratory, Plant and Equipment Division. Personal communication, March 29, 1994.

Jones, L. S., Energy Systems Waste, Waste Management Organization. Personal communication, March 28, 1994.

Kaiser, L.L., Oak Ridge National Laboratory, Environmental Restoration Program. Personal communication, June 20, 1994.

Kendrick, C. M., Oak Ridge National Laboratory, Chemical Technology Division. Personal communication, March 11, 1994.

Kent, T. E., Oak Ridge National Laboratory, Chemical Technology Division. Personal communication, February 14, 1994.

Martin Marietta Energy Systems, Inc. 1992. *Central Waste Management Division Descriptions of Existing and Planned Waste Management Facilities at the Oak Ridge Reservation.* CWMD-20. Oak Ridge, Tennessee.

Martin Marietta Energy Systems, Inc. September 1993. *Environmental Restoration Waste Management Data Base Waste Generation Forecast.*

McRae, N. G., Y-12 Plant Waste Management. Personal communication, March 15, 1994.

Oak Ridge National Laboratory. *Sampling and Analyses of Radioactive Liquid Wastes and Sludges in the Melton Valley Storage Tanks at ORNL.* ORNL/TM-11652 (September), Oak Ridge, Tennessee.

Oak Ridge National Laboratory. June 1992. *Waste Characterization Data Manual for the Inactive Liquid Low Level Waste Tank Systems at ORNL.* ORNL/ER-80, Oak Ridge, Tennessee.

Oak Ridge, Y-12 Plant. March 1994. *System Requirements Document for the Mixed Waste Treatment Facility, Revision 2.* Y/EN-4429/R2. Oak Ridge, Tennessee.

Parsons Main, Inc. June 1993. *Enhanced Feasibility Study for Mixed Waste Treatment Facility, Volume I, Technical Information Document.* Y/EN-4927. Charlotte, North Carolina.

Reece, S. H., Oak Ridge National Laboratory, Waste Management and Remedial Action Division. Personal communication, February 14, 1994.

Roush, P. H., Oak Ridge National Laboratory, Waste Management and Remedial Action Division. Personal communication, February 14, 1994.

Science Applications International Corporation. 1993. *Environmental Monitoring Plan for Waste Area Grouping 6 at Oak Ridge National Laboratory, Oak Ridge, Tennessee.* DOE/OR/01-1192&D1, ORNL/ER-158&D1. Oak Ridge, Tennessee.

Science Applications International Corporation. 1994. *Oak Ridge Reservation Quarterly Waste Storage Report, Quarter Ending 12/31/93.* ES/WM-8. Oak Ridge, Tennessee.

Scott, C. B., Oak Ridge National Laboratory, Waste Management and Remedial Action Division. Personal communication, February 14, 1994.

Standifer, P. W., Oak Ridge Y-12 Plant. Personal communication, March 23, 1994.

Trabalka, J., Oak Ridge National Laboratory, Environmental Sciences Division. Personal communication, February 14, 1994.

Walker, A. B., Oak Ridge National Laboratory, Chemical Technology Division. Personal communication, March 15, 1994.

Will, A. S., Oak Ridge National Laboratory, Environmental Restoration Program. Personal communication, June 14, 1994.

Willoughby, M. L., Oak Ridge Y-12 Plant, Waste Management. Personal communication, March 24, 1994.

Appendix A

Summary Of Waste Class And Type By Destination For Waste Leaving The Area Of Contamination,Oak Ridge National Laboratory Environmental Restoration Fiscal Years 1994–2020

Summary of Waste Class and Type by Destination for Waste Leaving the AOC
ORNL Environmental Restoration FY 1994-2020

Solid Wastes

Waste Destination	Class	Type	Year	Volume	Units
7000 Area Metal Recycle	SANITARY	Metal	1994	2,166	ft3
	SANITARY	Metal	1995	12	ft3
				2,178	ft3
Commercial Facility/Waste Management	RCRA	Compactibles	1994	8	ft3
	RCRA	Debris (Non-compactible Trash)	1994	11	ft3
	RCRA	Trash	1994	18	ft3
	RCRA	Compactibles	1995	8	ft3
	RCRA	Debris (Non-compactible Trash)	1995	9	ft3
	RCRA	Trash	1995	13	ft3
	RCRA	Debris (Non-compactible Trash)	1996	5	ft3
	RCRA	Trash	1996	12	ft3
	RCRA	Debris (Non-compactible Trash)	1997	5	ft3
	RCRA	Trash	1997	12	ft3
	RCRA	Debris (Non-compactible Trash)	1998	5	ft3
	RCRA	Trash	1998	12	ft3
	RCRA	Debris (Non-compactible Trash)	1999	7	ft3
	RCRA	Trash	1999	18	ft3
	RCRA	Debris (Non-compactible Trash)	2000	12	ft3
	RCRA	Debris (Spent Batteries)	2000	1	ft3
	RCRA	Trash	2000	32	ft3
	RCRA	Debris (Non-compactible Trash)	2001	12	ft3
	RCRA	Debris (Spent Batteries)	2001	2	ft3
	RCRA	Trash	2001	34	ft3
	RCRA	Debris (Non-compactible Trash)	2002	11	ft3
	RCRA	Debris (Spent Batteries)	2002	2	ft3
	RCRA	Trash	2002	33	ft3
	RCRA	Debris (Non-compactible Trash)	2003	13	ft3
	RCRA	Debris (Spent Batteries)	2003	1	ft3
	RCRA	Trash	2003	35	ft3
	RCRA	Debris (Non-compactible Trash)	2004	11	ft3
	RCRA	Debris (Spent Batteries)	2004	2	ft3
	RCRA	Trash	2004	29	ft3
	RCRA	Debris (Non-compactible Trash)	2005	9	ft3
	RCRA	Debris (Spent Batteries)	2005	2	ft3
	RCRA	Trash	2005	24	ft3
	RCRA	Debris (Non-compactible Trash)	2006	8	ft3
	RCRA	Debris (Spent Batteries)	2006	1	ft3
	RCRA	Trash	2006	23	ft3
	RCRA	Debris (Non-compactible Trash)	2007	6	ft3

Summary of Waste Class and Type by Destination for Waste Leaving the AOC (Continued)
ORNL Environmental Restoration FY 1994-2020

Solid Wastes

Waste Destination	Class	Type	Year	Volume	Units
Commercial Facility/Waste Management	RCRA	Debris (Spent Batteries)	2007	2	ft3
	RCRA	Trash	2007	18	ft3
	RCRA	Compactible Trash	2008	1	ft3
	RCRA	Debris (Spent Batteries)	2008	2	ft3
	RCRA	Trash	2008	5	ft3
	RCRA	Compactible Trash	2009	1	ft3
	RCRA	Debris (Spent Batteries)	2009	1	ft3
	RCRA	Trash	2009	2	ft3
	RCRA	Compactible Trash	2010	1	ft3
	RCRA	Trash	2010	1	ft3
				480	ft3
Decontaminate/Reuse	RCRA/LLW	Metal (Lead)	1994	14	ft3
				14	ft3
Interim Waste Management Facility or Low Level Waste Disposal Facility	LLW	Compactibles	1994	294	ft3
	LLW	Debris (Non-compactible Trash)	1994	64	ft3
	LLW	Decon Solids	1994	8	ft3
	LLW	Trash	1994	738	ft3
	LLW	Compactibles	1995	294	ft3
	LLW	Debris (Non-compactible Trash)	1995	54	ft3
	LLW	Decon Solids	1995	8	ft3
	LLW	Trash	1995	568	ft3
	LLW	Debris (Non-compactible Trash)	1996	35	ft3
	LLW	Trash	1996	568	ft3
	LLW	Debris (Non-compactible Trash)	1997	35	ft3
	LLW	Trash	1997	568	ft3
	LLW	Debris (Non-compactible Trash)	1998	35	ft3
	LLW	Trash	1998	568	ft3
	LLW	Debris (Non-compactible Trash)	1999	50	ft3
	LLW	Trash	1999	812	ft3
	LLW	Debris (Non-compactible Trash)	2000	93	ft3
	LLW	Trash	2000	1,511	ft3
	LLW	Debris (Non-compactible Trash)	2001	98	ft3

Summary of Waste Class and Type by Destination for Waste Leaving the AOC (Continued)
ORNL Environmental Restoration FY 1994-2020

Solid Wastes

Waste Destination	Class	Type	Year	Volume	Units
Interim Waste Management Facility or Low Level Waste Disposal Facility	LLW	Trash	2001	1,748	ft3
	LLW	Debris (Non-compactible Trash)	2002	95	ft3
	LLW	Trash	2002	2,093	ft3
	LLW	Debris (Non-compactible Trash)	2003	101	ft3
	LLW	Trash	2003	2,197	ft3
	LLW	Debris (Non-compactible Trash)	2004	87	ft3
	LLW	Trash	2004	1,628	ft3
	LLW	Debris (Non-compactible Trash)	2005	71	ft3
	LLW	Trash	2005	1,131	ft3
	LLW	Debris (Non-compactible Trash)	2006	67	ft3
	LLW	Trash	2006	1,092	ft3
	LLW	Debris (Non-compactible Trash)	2007	53	ft3
	LLW	Trash	2007	857	ft3
	LLW	Compactible Trash	2008	27	ft3
	LLW	Debris (Non-compactible Trash)	2008	17	ft3
	LLW	Trash	2008	229	ft3
	LLW	Compactible Trash	2009	33	ft3
	LLW	Debris (Non-compactible Trash)	2009	9	ft3
	LLW	Trash	2009	126	ft3
	LLW	Compactible Trash	2010	33	ft3
	LLW	Debris (Non-compactible Trash)	2010	6	ft3
	LLW	Trash	2010	76	ft3
	LLW	Compactible Trash	2011	14	ft3
	LLW	Debris (Non-compactible Trash)	2011	1	ft3
	LLW	Trash	2011	9	ft3
	LLW	Trash	2012	212	ft3
	LLW	Debris (Non-compactible Trash)	2013	1	ft3
	LLW	Trash	2013	633	ft3
	LLW	Trash	2014	8	ft3
				19,055	ft3
Recycle	SANITARY	Trash	1994	23	ft3
				23	ft3
SEG/Incinerate	LLW	Misc Other (Trees)	2002	410	ft3

Summary of Waste Class and Type by Destination for Waste Leaving the AOC (Continued)
ORNL Environmental Restoration FY 1994-2020

Solid Wastes

Waste Destination	Class	Type	Year	Volume	Units
SEG/Incinerate	LLW	Trash	2002	118	ft3
	LLW	Misc Other (Trees)	2009	1,827	ft3
	LLW	Trash	2009	4,234	ft3
	LLW	Misc Other (Trees)	2010	2,214	ft3
	LLW	Trash	2010	5,132	ft3
	LLW	Misc Other (Trees)	2011	1,494	ft3
	LLW	Trash	2011	3,464	ft3
				18,893	ft3
Sanitary Landfill	LLW	Trash	2012	433	ft3
	LLW	Trash	2013	1,298	ft3
				1,731	ft3
	SANITARY	Compactibles	1994	614	ft3
	SANITARY	Debris (Non-compactible Trash)	1994	721	ft3
	SANITARY	Trash	1994	4,898	ft3
	SANITARY	Compactibles	1995	614	ft3
	SANITARY	Debris (Non-compactible Trash)	1995	425	ft3
	SANITARY	Trash	1995	2,671	ft3
	SANITARY	Debris (Non-compactible Trash)	1996	274	ft3
	SANITARY	Trash	1996	1,118	ft3
	SANITARY	Debris (Non-compactible Trash)	1997	274	ft3
	SANITARY	Trash	1997	1,436	ft3
	SANITARY	Debris (Non-compactible Trash)	1998	274	ft3
	SANITARY	Trash	1998	1,520	ft3
	SANITARY	Debris (Non-compactible Trash)	1999	351	ft3
	SANITARY	Trash	1999	1,838	ft3
	SANITARY	Debris (Non-compactible Trash)	2000	588	ft3
	SANITARY	Trash	2000	2,906	ft3
	SANITARY	Debris (Non-compactible Trash)	2001	629	ft3
	SANITARY	Trash	2001	2,935	ft3
	SANITARY	Debris (Non-compactible Trash)	2002	562	ft3
	SANITARY	Trash	2002	2,774	ft3
	SANITARY	Debris (Non-compactible Trash)	2003	568	ft3
	SANITARY	Trash	2003	2,737	ft3
	SANITARY	Debris (Non-compactible Trash)	2004	541	ft3
	SANITARY	Trash	2004	2,522	ft3
	SANITARY	Debris (Non-compactible Trash)	2005	564	ft3
	SANITARY	Trash	2005	2,536	ft3
	SANITARY	Debris (Non-compactible Trash)	2006	506	ft3

Summary of Waste Class and Type by Destination for Waste Leaving the AOC (Continued)
ORNL Environmental Restoration FY 1994-2020

Solid Wastes

Waste Destination	Class	Type	Year	Volume	Units
Sanitary Landfill	SANITARY	Trash	2006	2,296	ft3
	SANITARY	Debris (Non-compactible Trash)	2007	388	ft3
	SANITARY	Trash	2007	1,817	ft3
	SANITARY	Compactible Trash	2008	151	ft3
	SANITARY	Debris (Non-compactible Trash)	2008	218	ft3
	SANITARY	Trash	2008	970	ft3
	SANITARY	Compactible Trash	2009	187	ft3
	SANITARY	Debris (Non-compactible Trash)	2009	255	ft3
	SANITARY	Trash	2009	3,261	ft3
	SANITARY	Compactible Trash	2010	187	ft3
	SANITARY	Debris (Non-compactible Trash)	2010	226	ft3
	SANITARY	Trash	2010	3,368	ft3
	SANITARY	Compactible Trash	2011	78	ft3
	SANITARY	Debris (Non-compactible Trash)	2011	66	ft3
	SANITARY	Trash	2011	1,968	ft3
	SANITARY	Debris (Non-compactible Trash)	2012	31	ft3
	SANITARY	Trash	2012	127	ft3
	SANITARY	Debris (Non-compactible Trash)	2013	23	ft3
	SANITARY	Trash	2013	131	ft3
	SANITARY	Debris (Non-compactible Trash)	2014	17	ft3
	SANITARY	Trash	2014	70	ft3
	SANITARY	Trash	2016	1,107	ft3
	SANITARY	Trash	2017	1,165	ft3
	SANITARY	Trash	2018	1,165	ft3
	SANITARY	Trash	2019	1,165	ft3
	SANITARY	Trash	2020	1,223	ft3
				59,056	ft3
Solid Waste Storage Area 6 (SWSA 6)	LLW	Debris	1994	2,000	ft3
	LLW	Trash	1994	52	ft3
	LLW	Trash	2013	253	ft3
				2,305	ft3
TRU Storage/Waste Management	TRU	Sludge	2003	3,654	ft3
	TRU	Sludge	2004	10,962	ft3
	TRU	Sludge	2005	2,784	ft3

Summary of Waste Class and Type by Destination for Waste Leaving the AOC (Continued)
ORNL Environmental Restoration FY 1994-2020

Solid Wastes

Waste Destination	Class	Type	Year	Volume	Units
				17,400	ft3
TSCA Incinerator	RCRA/LLW	Compactibles	1994	4	ft3
	RCRA/LLW	Trash	1994	8	ft3
	RCRA/LLW	Compactibles	1995	4	ft3
	RCRA/LLW	Trash	1995	6	ft3
	RCRA/LLW	Trash	1996	6	ft3
	RCRA/LLW	Trash	1997	6	ft3
	RCRA/LLW	Trash	1998	6	ft3
	RCRA/LLW	Trash	1999	8	ft3
	RCRA/LLW	Trash	2000	17	ft3
	RCRA/LLW	Trash	2001	18	ft3
	RCRA/LLW	Trash	2002	18	ft3
	RCRA/LLW	Trash	2003	17	ft3
	RCRA/LLW	Trash	2004	15	ft3
	RCRA/LLW	Trash	2005	13	ft3
	RCRA/LLW	Trash	2006	12	ft3
	RCRA/LLW	Trash	2007	10	ft3
	RCRA/LLW	Trash	2008	2	ft3
	RCRA/LLW	Trash	2009	1	ft3
				171	ft3
Commercial Facility/Waste Management	RCRA	Analytical Lab (CSL)	1994	4	gal
	RCRA	Solvents/Oils	1994	281	gal
	RCRA	Analytical Lab (CSL)	1995	4	gal
	RCRA	Solvents/Oils	1995	253	gal
	RCRA	Solvents/Oils	1996	253	gal
	RCRA	Solvents/Oils	1997	253	gal
	RCRA	Solvents/Oils	1998	253	gal
	RCRA	Solvents/Oils	1999	339	gal
	RCRA	Solvents/Oils	2000	499	gal
	RCRA	Solvents/Oils	2001	479	gal
	RCRA	Solvents/Oils	2002	469	gal
	RCRA	Solvents/Oils	2003	502	gal
	RCRA	Solvents/Oils	2004	444	gal
	RCRA	Solvents/Oils	2005	392	gal

Summary of Waste Class and Type by Destination for Waste Leaving the AOC (Continued)
ORNL Environmental Restoration FY 1994-2020

Liquid Wastes

Waste Destination	Class	Type	Year	Volume	Units
Commercial Facility/Waste Management	RCRA	Solvents/Oils	2006	406	gal
	RCRA	Solvents/Oils	2007	349	gal
	RCRA	Solvents/Oils	2008	76	gal
	RCRA	Solvents/Oils	2009	57	gal
	RCRA	Solvents/Oils	2010	46	gal
	RCRA	Solvents/Oils	2011	14	gal
	RCRA	Solvents/Oils	2012	6	gal
	RCRA	Solvents/Oils	2013	4	gal
	RCRA	Solvents/Oils	2014	3	gal
				5,386	gal
LLLW System	LLW	Decon	1994	110,160	gal
	LLW	Misc Other	1994	7,154	gal
	LLW		1995	1,760	gal
	LLW	Decon	1995	139,043	gal
	LLW	Misc Other	1995	30,946	gal
	LLW		1996	2,980	gal
	LLW	Decon	1996	120,960	gal
	LLW	Misc Other	1996	39,200	gal
	LLW		1997	740	gal
	LLW	Decon	1997	129,140	gal
	LLW	Misc Other (Supernate)	1997	2,856	gal
	LLW		1998	138,340	gal
	LLW	Decon	1998	45,589	gal
	LLW	Misc Other (Supernate)	1998	5,712	gal
	LLW		1999	207,140	gal
	LLW	Decon	1999	72,347	gal
	LLW	Misc Other (Supernate)	1999	5,712	gal
	LLW		2000	740	gal
	LLW	Decon	2000	84,417	gal
	LLW	Misc Other (Supernate)	2000	5,712	gal
	LLW	Decon	2001	88,128	gal
	LLW	Misc Other (Supernate)	2001	6,162	gal
	LLW	Decon	2002	78,570	gal
	LLW	Misc Other (Supernate)	2002	6,162	gal
	LLW	Decon	2003	66,426	gal
	LLW	Misc Other (Supernate)	2003	12,663	gal
	LLW		2004	14,499	gal
	LLW	Decon	2004	64,134	gal
	LLW	Misc Other (Supernate)	2004	26,565	gal

Summary of Waste Class and Type by Destination for Waste Leaving the AOC (Continued)
ORNL Environmental Restoration FY 1994-2020

Liquid Wastes

Waste Destination	Class	Type	Year	Volume	Units
LLLW System	LLW		2005	3,401	gal
	LLW	Decon	2005	38,363	gal
	LLW	Misc Other (Supernate)	2005	11,008	gal
	LLW	Decon	2006	35,293	gal
	LLW	Misc Other (Supernate)	2006	5,712	gal
	LLW	Decon	2007	55,904	gal
	LLW	Misc Other (Supernate)	2007	5,712	gal
	LLW	Decon	2008	59,050	gal
	LLW	Misc Other (Supernate)	2008	5,712	gal
	LLW	Decon	2009	65,032	gal
	LLW	Misc Other (Supernate)	2009	5,712	gal
	LLW	Decon	2010	36,455	gal
	LLW	Decon	2011	28,380	gal
	LLW	Decon	2012	29,935	gal
	LLW	Decon	2013	28,489	gal
	LLW	Decon	2014	31,959	gal
	LLW	Decon	2015	24,978	gal
	LLW	Decon	2016	29,358	gal
	LLW	Decon	2017	31,769	gal
	LLW	Decon	2018	31,261	gal
	LLW	Decon	2019	31,261	gal
	LLW	Decon	2020	10,357	gal
				2,119,058	gal
Process Waste Treatment Plant (PWTP)	LLW	Analytical Lab (CSL)	1994	8	gal
	LLW	Decon	1994	1,031,148	gal
	LLW	Decon Water	1994	202	gal
	LLW	Development/Purge Water	1994	36,197	gal
	LLW	Groundwater	1994	27,150	gal
	LLW	Misc Other	1994	210	gal
	LLW	Well Drilling/Dev Fluids	1994	2,100	gal
	LLW		1995	30,670	gal
	LLW	Analytical Lab (CSL)	1995	8	gal
	LLW	Decon	1995	1,016,134	gal
	LLW	Decon Water	1995	202	gal
	LLW	Development/Purge Water	1995	5,837	gal
	LLW	Groundwater	1995	1,351,650	gal
	LLW	Misc Other	1995	100	gal
	LLW	Well Drilling/Dev Fluids	1995	2,100	gal
	LLW		1996	45,735	gal

Summary of Waste Class and Type by Destination for Waste Leaving the AOC (Continued)
ORNL Environmental Restoration FY 1994-2020

Liquid Wastes

Waste Destination	Class	Type	Year	Volume	Units
Process Waste Treatment Plant (PWTP)	LLW	Decon	1996	995,391	gal
	LLW	Development/Purge Water	1996	5,937	gal
	LLW	Groundwater	1996	7,240,550	gal
	LLW	Misc Other	1996	100	gal
	LLW		1997	6,701	gal
	LLW	Decon	1997	1,002,000	gal
	LLW	Development/Purge Water	1997	6,007	gal
	LLW	Groundwater	1997	7,240,550	gal
	LLW	Misc Other	1997	100	gal
	LLW		1998	6,701	gal
	LLW	Decon	1998	253,834	gal
	LLW	Development/Purge Water	1998	6,007	gal
	LLW	Groundwater	1998	7,238,850	gal
	LLW	Misc Other	1998	100	gal
	LLW	Misc Other (Supernate)	1998	562,554	gal
	LLW		1999	1,409,351	gal
	LLW	Decon	1999	495,413	gal
	LLW	Development/Purge Water	1999	11,134	gal
	LLW	Groundwater	1999	7,244,256	gal
	LLW	Misc Other	1999	127	gal
	LLW	Misc Other (Supernate)	1999	642,645	gal
	LLW		2000	1,876,901	gal
	LLW	Decon	2000	606,400	gal
	LLW	Development/Purge Water	2000	25,273	gal
	LLW	Groundwater	2000	7,290,973	gal
	LLW	Misc Other	2000	213	gal
	LLW	Misc Other (Supernate)	2000	582,645	gal
	LLW		2001	1,402,650	gal
	LLW	Decon	2001	650,325	gal
	LLW	Development/Purge Water	2001	34,595	gal
	LLW	Groundwater	2001	2,752,950	gal
	LLW	Misc Other	2001	227	gal
	LLW	Misc Other (Supernate)	2001	281,277	gal
	LLW	Decon	2002	679,503	gal
	LLW	Development/Purge Water	2002	37,882	gal
	LLW	Groundwater	2002	2,877,725	gal
	LLW	Misc Other	2002	201	gal
	LLW	Decon	2003	631,064	gal
	LLW	Development/Purge Water	2003	34,355	gal
	LLW	Groundwater	2003	2,884,588	gal
	LLW	Misc Other	2003	205	gal
	LLW	Decon	2004	596,066	gal
	LLW	Development/Purge Water	2004	22,463	gal
	LLW	Groundwater	2004	2,875,954	gal

Summary of Waste Class and Type by Destination for Waste Leaving the AOC (Continued)
ORNL Environmental Restoration FY 1994-2020

Liquid Wastes

Waste Destination	Class	Type	Year	Volume	Units
Process Waste Treatment Plant (PWTP)	LLW	Misc Other	2004	196	gal
	LLW	Decon	2005	355,112	gal
	LLW	Development/Purge Water	2005	14,566	gal
	LLW	Groundwater	2005	1,405,956	gal
	LLW	Misc Other	2005	206	gal
	LLW	Decon	2006	311,903	gal
	LLW	Development/Purge Water	2006	14,796	gal
	LLW	Groundwater	2006	39,051	gal
	LLW	Misc Other	2006	184	gal
	LLW	Purge Water	2006	56,322	gal
	LLW	Decon	2007	464,704	gal
	LLW	Development/Purge Water	2007	11,088	gal
	LLW	Groundwater	2007	34,652	gal
	LLW	Misc Other	2007	141	gal
	LLW	Purge Water	2007	175,224	gal
	LLW	Decon	2008	491,344	gal
	LLW	Development/Purge Water	2008	5,949	gal
	LLW	Groundwater	2008	4,900	gal
	LLW	Misc Other	2008	67	gal
	LLW	Misc Other (Lab Solutions)	2008	14	gal
	LLW	Purge Water	2008	175,224	gal
	LLW	Decon	2009	545,610	gal
	LLW	Development/Purge Water	2009	4,220	gal
	LLW	Groundwater	2009	1,479	gal
	LLW	Misc Other	2009	78	gal
	LLW	Misc Other (Lab Solutions)	2009	17	gal
	LLW	Purge Water	2009	175,224	gal
	LLW	Decon	2010	321,601	gal
	LLW	Development/Purge Water	2010	2,803	gal
	LLW	Groundwater	2010	696	gal
	LLW	Misc Other	2010	67	gal
	LLW	Misc Other (Lab Solutions)	2010	17	gal
	LLW	Purge Water	2010	43,806	gal
	LLW	Decon	2011	258,551	gal
	LLW	Development/Purge Water	2011	6,111,216	gal
	LLW	Groundwater	2011	423	gal
	LLW	Misc Other	2011	18	gal
	LLW	Misc Other (Lab Solutions)	2011	7	gal
	LLW	Decon	2012	272,208	gal
	LLW	Development/Purge Water	2012	7,536,900	gal
	LLW	Groundwater	2012	400	gal
	LLW	Misc Other	2012	10	gal
	LLW	Solvents/Oils	2012	2	gal
	LLW	Decon	2013	309,476	gal

Summary of Waste Class and Type by Destination for Waste Leaving the AOC (Continued)
ORNL Environmental Restoration FY 1994-2020

Liquid Wastes

Waste Destination	Class	Type	Year	Volume	Units
Process Waste Treatment Plant (PWTP)	LLW	Development/Purge Water	2013	6,722,100	gal
	LLW	Groundwater	2013	6,770	gal
	LLW	Solvents/Oils	2013	9	gal
	LLW	Decon	2014	299,152	gal
	LLW	Groundwater	2014	6,770	gal
	LLW	Solvents/Oils	2014	6	gal
	LLW	Decon	2015	235,921	gal
	LLW	Groundwater	2015	6,770	gal
	LLW	Decon	2016	271,938	gal
	LLW	Groundwater	2016	2,126,270	gal
	LLW	Leachate	2016	719,787	gal
	LLW	Decon	2017	286,613	gal
	LLW	Groundwater	2017	8,484,770	gal
	LLW	Leachate	2017	2,879,148	gal
	LLW	Decon	2018	282,521	gal
	LLW	Groundwater	2018	8,485,225	gal
	LLW	Leachate	2018	2,879,148	gal
	LLW	Decon	2019	282,521	gal
	LLW	Groundwater	2019	8,485,225	gal
	LLW	Leachate	2019	2,879,148	gal
	LLW	Decon	2020	84,754	gal
	LLW	Groundwater	2020	7,771,500	gal
	LLW	Leachate	2020	2,639,219	gal
				139,043,907	gal
	RCRA	Decon	1994	126	gal
	RCRA	Decon Water	1994	4	gal
	RCRA	Development/Purge Water	1994	787	gal
	RCRA	Groundwater	1994	339	gal
	RCRA	Well Drilling/Dev Fluids	1994	44	gal
	RCRA	Decon	1995	60	gal
	RCRA	Decon Water	1995	4	gal
	RCRA	Development/Purge Water	1995	127	gal
	RCRA	Groundwater	1995	339	gal
	RCRA	Well Drilling/Dev Fluids	1995	44	gal
	RCRA	Decon	1996	60	gal
	RCRA	Development/Purge Water	1996	127	gal
	RCRA	Groundwater	1996	339	gal
	RCRA	Decon	1997	60	gal
	RCRA	Development/Purge Water	1997	127	gal
	RCRA	Groundwater	1997	339	gal
	RCRA	Decon	1998	60	gal
	RCRA	Development/Purge Water	1998	127	gal

Summary of Waste Class and Type by Destination for Waste Leaving the AOC (Continued)
ORNL Environmental Restoration FY 1994-2020

Liquid Wastes

Waste Destination	Class	Type	Year	Volume	Units
Process Waste Treatment Plant (PWTP)	RCRA	Groundwater	1998	339	gal
	RCRA	Decon	1999	77	gal
	RCRA	Development/Purge Water	1999	238	gal
	RCRA	Groundwater	1999	413	gal
	RCRA	Decon	2000	127	gal
	RCRA	Development/Purge Water	2000	546	gal
	RCRA	Groundwater	2000	609	gal
	RCRA	Decon	2001	136	gal
	RCRA	Development/Purge Water	2001	557	gal
	RCRA	Groundwater	2001	610	gal
	RCRA	Decon	2002	112	gal
	RCRA	Development/Purge Water	2002	543	gal
	RCRA	Groundwater	2002	626	gal
	RCRA	Solvents/Oils	2002	8	gal
	RCRA	Decon	2003	81	gal
	RCRA	Development/Purge Water	2003	629	gal
	RCRA	Groundwater	2003	721	gal
	RCRA	Solvents/Oils	2003	31	gal
	RCRA	Decon	2004	76	gal
	RCRA	Development/Purge Water	2004	473	gal
	RCRA	Groundwater	2004	603	gal
	RCRA	Solvents/Oils	2004	16	gal
	RCRA	Decon	2005	76	gal
	RCRA	Development/Purge Water	2005	317	gal
	RCRA	Groundwater	2005	482	gal
	RCRA	Decon	2006	84	gal
	RCRA	Development/Purge Water	2006	321	gal
	RCRA	Groundwater	2006	523	gal
	RCRA	Decon	2007	76	gal
	RCRA	Development/Purge Water	2007	519	gal
	RCRA	Groundwater	2007	463	gal
	RCRA	Decon	2008	32	gal
	RCRA	Development/Purge Water	2008	685	gal
	RCRA	Groundwater	2008	60	gal
	RCRA	Decon	2009	49	gal
	RCRA	Development/Purge Water	2009	371	gal
	RCRA	Groundwater	2009	13	gal
	RCRA	Decon	2010	49	gal
	RCRA	Development/Purge Water	2010	62	gal
	RCRA	Groundwater	2010	4	gal
	RCRA	Decon	2011	7	gal
	RCRA	Development/Purge Water	2011	5	gal

Summary of Waste Class and Type by Destination for Waste Leaving the AOC (Continued)
ORNL Environmental Restoration FY 1994-2020

Liquid Wastes

Waste Destination	Class	Type	Year	Volume	Units
				14,882	gal
Process Waste Treatment Plant (PWTP)	RCRA/LLW	Decon	1994	64	gal
	RCRA/LLW	Decon Water	1994	4	gal
	RCRA/LLW	Development/Purge Water	1994	393	gal
	RCRA/LLW	Groundwater	1994	271	gal
	RCRA/LLW	Well Drilling/Dev Fluids	1994	22	gal
	RCRA/LLW	Decon	1995	30	gal
	RCRA/LLW	Decon Water	1995	4	gal
	RCRA/LLW	Development/Purge Water	1995	63	gal
	RCRA/LLW	Groundwater	1995	271	gal
	RCRA/LLW	Well Drilling/Dev Fluids	1995	22	gal
	RCRA/LLW	Decon	1996	30	gal
	RCRA/LLW	Development/Purge Water	1996	63	gal
	RCRA/LLW	Groundwater	1996	271	gal
	RCRA/LLW	Decon	1997	30	gal
	RCRA/LLW	Development/Purge Water	1997	63	gal
	RCRA/LLW	Groundwater	1997	271	gal
	RCRA/LLW	Decon	1998	30	gal
	RCRA/LLW	Development/Purge Water	1998	63	gal
	RCRA/LLW	Groundwater	1998	271	gal
	RCRA/LLW	Decon	1999	38	gal
	RCRA/LLW	Development/Purge Water	1999	119	gal
	RCRA/LLW	Groundwater	1999	329	gal
	RCRA/LLW	Decon	2000	65	gal
	RCRA/LLW	Development/Purge Water	2000	272	gal
	RCRA/LLW	Groundwater	2000	486	gal
	RCRA/LLW	Decon	2001	69	gal
	RCRA/LLW	Development/Purge Water	2001	277	gal
	RCRA/LLW	Groundwater	2001	487	gal
	RCRA/LLW	Decon	2002	57	gal
	RCRA/LLW	Development/Purge Water	2002	271	gal
	RCRA/LLW	Groundwater	2002	500	gal
	RCRA/LLW	Decon	2003	42	gal
	RCRA/LLW	Development/Purge Water	2003	314	gal
	RCRA/LLW	Groundwater	2003	574	gal
	RCRA/LLW	Decon	2004	39	gal
	RCRA/LLW	Development/Purge Water	2004	236	gal
	RCRA/LLW	Groundwater	2004	481	gal
	RCRA/LLW	Decon	2005	39	gal
	RCRA/LLW	Development/Purge Water	2005	158	gal
	RCRA/LLW	Groundwater	2005	384	gal
	RCRA/LLW	Decon	2006	42	gal

Summary of Waste Class and Type by Destination for Waste Leaving the AOC (Continued)
ORNL Environmental Restoration FY 1994-2020

Liquid Wastes

Waste Destination	Class	Type	Year	Volume	Units
Process Waste Treatment Plant (PWTP)	RCRA/LLW	Development/Purge Water	2006	161	gal
	RCRA/LLW	Groundwater	2006	419	gal
	RCRA/LLW	Decon	2007	38	gal
	RCRA/LLW	Development/Purge Water	2007	121	gal
	RCRA/LLW	Groundwater	2007	372	gal
	RCRA/LLW	Decon	2008	15	gal
	RCRA/LLW	Development/Purge Water	2008	65	gal
	RCRA/LLW	Groundwater	2008	48	gal
	RCRA/LLW	Decon	2009	24	gal
	RCRA/LLW	Development/Purge Water	2009	47	gal
	RCRA/LLW	Groundwater	2009	11	gal
	RCRA/LLW	Decon	2010	24	gal
	RCRA/LLW	Development/Purge Water	2010	31	gal
	RCRA/LLW	Groundwater	2010	3	gal
	RCRA/LLW	Decon	2011	3	gal
	RCRA/LLW	Development/Purge Water	2011	3	gal
				8,900	gal
	SANITARY	Decon	1994	314	gal
	SANITARY	Decon Water	1994	11	gal
	SANITARY	Development/Purge Water	1994	1,967	gal
	SANITARY	Groundwater	1994	1,356	gal
	SANITARY	Misc Other	1994	3,782	gal
	SANITARY	Well Drilling/Dev Fluids	1994	114	gal
	SANITARY	Decon	1995	150	gal
	SANITARY	Decon Water	1995	11	gal
	SANITARY	Development/Purge Water	1995	317	gal
	SANITARY	Groundwater	1995	1,356	gal
	SANITARY	Misc Other	1995	1,802	gal
	SANITARY	Well Drilling/Dev Fluids	1995	114	gal
	SANITARY	Decon	1996	150	gal
	SANITARY	Development/Purge Water	1996	317	gal
	SANITARY	Groundwater	1996	1,356	gal
	SANITARY	Misc Other	1996	1,802	gal
	SANITARY	Decon	1997	150	gal
	SANITARY	Development/Purge Water	1997	317	gal
	SANITARY	Groundwater	1997	1,356	gal
	SANITARY	Misc Other	1997	1,802	gal
	SANITARY	Decon	1998	150	gal
	SANITARY	Development/Purge Water	1998	317	gal
	SANITARY	Groundwater	1998	1,356	gal
	SANITARY	Misc Other	1998	1,802	gal
	SANITARY	Sewage	1998	68,040	gal

Summary of Waste Class and Type by Destination for Waste Leaving the AOC (Continued)
ORNL Environmental Restoration FY 1994-2020

Liquid Wastes

Waste Destination	Class	Type	Year	Volume	Units
Process Waste Treatment Plant (PWTP)	SANITARY	Decon	1999	192	gal
	SANITARY	Development/Purge Water	1999	596	gal
	SANITARY	Groundwater	1999	1,649	gal
	SANITARY	Misc Other	1999	2,296	gal
	SANITARY	Sewage	1999	102,060	gal
	SANITARY	Decon	2000	319	gal
	SANITARY	Development/Purge Water	2000	1,364	gal
	SANITARY	Groundwater	2000	2,436	gal
	SANITARY	Misc Other	2000	3,742	gal
	SANITARY	Decon	2001	341	gal
	SANITARY	Development/Purge Water	2001	1,391	gal
	SANITARY	Groundwater	2001	2,440	gal
	SANITARY	Misc Other	2001	3,742	gal
	SANITARY	Decon	2002	280	gal
	SANITARY	Development/Purge Water	2002	1,357	gal
	SANITARY	Groundwater	2002	2,504	gal
	SANITARY	Misc Other	2002	3,009	gal
	SANITARY	Decon	2003	204	gal
	SANITARY	Development/Purge Water	2003	1,572	gal
	SANITARY	Groundwater	2003	2,878	gal
	SANITARY	Misc Other	2003	2,406	gal
	SANITARY	Decon	2004	191	gal
	SANITARY	Development/Purge Water	2004	1,180	gal
	SANITARY	Groundwater	2004	2,408	gal
	SANITARY	Misc Other	2004	2,723	gal
	SANITARY	Decon	2005	191	gal
	SANITARY	Development/Purge Water	2005	791	gal
	SANITARY	Groundwater	2005	1,925	gal
	SANITARY	Misc Other	2005	2,723	gal
	SANITARY	Decon	2006	211	gal
	SANITARY	Development/Purge Water	2006	805	gal
	SANITARY	Groundwater	2006	2,095	gal
	SANITARY	Misc Other	2006	2,565	gal
	SANITARY	Decon	2007	191	gal
	SANITARY	Development/Purge Water	2007	603	gal
	SANITARY	Groundwater	2007	1,856	gal
	SANITARY	Misc Other	2007	2,297	gal
	SANITARY	Decon	2008	79	gal
	SANITARY	Development/Purge Water	2008	323	gal
	SANITARY	Groundwater	2008	240	gal
	SANITARY	Misc Other	2008	703	gal
	SANITARY	Misc Other (Lab Solutions)	2008	248	gal
	SANITARY	Decon	2009	121	gal
	SANITARY	Development/Purge Water	2009	230	gal

Summary of Waste Class and Type by Destination for Waste Leaving the AOC (Continued)
ORNL Environmental Restoration FY 1994-2020

Liquid Wastes

Waste Destination	Class	Type	Year	Volume	Units
Process Waste Treatment Plant (PWTP)	SANITARY	Groundwater	2009	54	gal
	SANITARY	Misc Other	2009	1,158	gal
	SANITARY	Misc Other (Lab Solutions)	2009	307	gal
	SANITARY	Decon	2010	121	gal
	SANITARY	Development/Purge Water	2010	153	gal
	SANITARY	Groundwater	2010	17	gal
	SANITARY	Misc Other	2010	1,158	gal
	SANITARY	Misc Other (Lab Solutions)	2010	307	gal
	SANITARY	Decon	2011	18	gal
	SANITARY	Development/Purge Water	2011	12	gal
	SANITARY	Groundwater	2011	2	gal
	SANITARY	Misc Other	2011	89	gal
	SANITARY	Misc Other (Lab Solutions)	2011	129	gal
	SANITARY	Decon	2016	18,877,250	gal
	SANITARY	Decon	2017	5,635,000	gal
				24,767,461	gal
Sewage Treatment Plant (STP)	SANITARY	Analytical Lab (CSL)	1994	133	gal
	SANITARY	Misc Other (Sewage)	1994	47,970	gal
	SANITARY	Analytical Lab (CSL)	1995	133	gal
	SANITARY	Misc Other (Sewage)	1995	28,770	gal
	SANITARY	Sewage	1995	20,404	gal
	SANITARY	Misc Other (Sewage)	1996	14,370	gal
	SANITARY	Sewage	1996	64,500	gal
	SANITARY	Misc Other (Sewage)	1997	26,674	gal
	SANITARY	Sewage	1997	81,650	gal
	SANITARY	Misc Other (Sewage)	1998	42,135	gal
	SANITARY	Sewage	1998	84,793	gal
	SANITARY	Misc Other (Sewage)	1999	42,761	gal
	SANITARY	Sewage	1999	224,209	gal
	SANITARY	Misc Other	2000	99	gal
	SANITARY	Misc Other (Sewage)	2000	42,761	gal
	SANITARY	Sewage	2000	302,717	gal
	SANITARY	Misc Other	2001	366	gal
	SANITARY	Misc Other (Sewage)	2001	33,372	gal
	SANITARY	Sewage	2001	248,667	gal
	SANITARY	Misc Other	2002	643	gal
	SANITARY	Misc Other (Sewage)	2002	24,608	gal
	SANITARY	Sewage	2002	221,390	gal
	SANITARY	Misc Other	2003	1,287	gal

Summary of Waste Class and Type by Destination for Waste Leaving the AOC (Continued)
ORNL Environmental Restoration FY 1994-2020

Liquid Wastes

Waste Destination	Class	Type	Year	Volume	Units
Sewage Treatment Plant (STP)	SANITARY	Misc Other (Sewage)	2003	24,608	gal
	SANITARY	Sewage	2003	203,479	gal
	SANITARY	Misc Other	2004	812	gal
	SANITARY	Misc Other (Sewage)	2004	24,608	gal
	SANITARY	Sewage	2004	200,649	gal
	SANITARY	Misc Other	2005	990	gal
	SANITARY	Misc Other (Sewage)	2005	24,608	gal
	SANITARY	Sewage	2005	54,411	gal
	SANITARY	Misc Other	2006	752	gal
	SANITARY	Misc Other (Sewage)	2006	24,608	gal
	SANITARY	Sewage	2006	115,572	gal
	SANITARY	Misc Other	2007	248	gal
	SANITARY	Misc Other (Sewage)	2007	24,608	gal
	SANITARY	Sewage	2007	366,360	gal
	SANITARY	Misc Other	2008	495	gal
	SANITARY	Misc Other (Sewage)	2008	24,608	gal
	SANITARY	Sewage	2008	393,236	gal
	SANITARY	Misc Other	2009	248	gal
	SANITARY	Misc Other (Sewage)	2009	24,608	gal
	SANITARY	Sewage	2009	400,078	gal
	SANITARY	Misc Other	2010	55	gal
	SANITARY	Sewage	2010	138,816	gal
	SANITARY	Misc Other	2011	229	gal
	SANITARY	Misc Other (Sewage)	2011	44,738	gal
	SANITARY	Sewage	2011	72,001	gal
	SANITARY	Misc Other	2012	174	gal
	SANITARY	Misc Other (Sewage)	2012	141,637	gal
	SANITARY	Sewage	2012	90,236	gal
	SANITARY	Solvents/Oils	2012	37	gal
	SANITARY	Misc Other (Sewage)	2013	181,921	gal
	SANITARY	Sewage	2013	38,875	gal
	SANITARY	Solvents/Oils	2013	153	gal
	SANITARY	Misc Other (Sewage)	2014	261,112	gal
	SANITARY	Sewage	2014	45,083	gal
	SANITARY	Solvents/Oils	2014	116	gal
	SANITARY	Misc Other (Sewage)	2015	16,942	gal
	SANITARY	Sewage	2015	45,083	gal
	SANITARY	Misc Other (Sewage)	2016	3,470	gal
	SANITARY	Sewage	2016	323,357	gal
	SANITARY	Sewage	2017	868,008	gal
	SANITARY	Sewage	2018	869,723	gal
	SANITARY	Sewage	2019	869,723	gal
	SANITARY	Sewage	2020	787,512	gal

Summary of Waste Class and Type by Destination for Waste Leaving the AOC (Continued)
ORNL Environmental Restoration FY 1994-2020

Liquid Wastes

Waste Destination	Class	Type	Year	Volume	Units
				8,262,999	gal

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Report form TEMP1

Appendix B

Annual Waste Destination Summary By Waste Area Grouping For Waste Leaving The Area Of Contamination, Oak Ridge National Laboratory Environmental Restoration, Fiscal Years 1994-2020

Annual Waste Destination Summary by WAG for Waste Leaving the AOC
Oak Ridge National Laboratory Environmental Restoration FY 1994- 2020
Waste Destination : 7000 AREA METAL RECYCLE

Solids = cubic feet / Liquids = gallons

Year	Media	WAG 1	WAG 2	WAG 3	WAG 4	WAG 5	WAG 6	WAG 7	WAG 8	WAG 9	WAG 10	WAG 11	WAG 13	WAG 21	Total
1994	Solids	0	0	0	0	0	2,166	0	0	0	0	0	0	0	2,166
1995	Solids	0	0	0	0	0	12	0	0	0	0	0	0	0	12
Total	Solids	0	0	0	0	0	2,178	0	0	0	0	0	0	0	2,178
	Liquids	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Annual Waste Destination Summary by WAG for Waste Leaving the AOC
Oak Ridge National Laboratory Environmental Restoration FY 1994- 2020
Waste Destination : COMMERCIAL FACILITY/WASTE MANAGEMENT

Solids = cubic feet / Liquids = gallons

Year	Media	WAG 1	WAG 2	WAG 3	WAG 4	WAG 5	WAG 6	WAG 7	WAG 8	WAG 9	WAG 10	WAG 11	WAG 13	WAG 21	Total
1994	Solids	0	0	0	0	12	2	0	0	0	6	0	0	17	37
	Liquids	0	0	0	0	4	0	0	0	0	28	0	0	253	285
1995	Solids	0	0	0	0	12	1	0	0	0	0	0	0	17	30
	Liquids	0	0	0	0	4	0	0	0	0	0	0	0	253	257
1996	Solids	0	0	0	0	0	0	0	0	0	0	0	0	17	17
	Liquids	0	0	0	0	0	0	0	0	0	0	0	0	253	253
1997	Solids	0	0	0	0	0	0	0	0	0	0	0	0	17	17
	Liquids	0	0	0	0	0	0	0	0	0	0	0	0	253	253
1998	Solids	0	0	0	0	0	0	0	0	0	0	0	0	17	17
	Liquids	0	0	0	0	0	0	0	0	0	0	0	0	253	253
1999	Solids	0	0	3	1	0	0	3	1	0	0	0	0	17	25
	Liquids	0	0	25	12	0	0	16	5	0	28	0	0	253	339
2000	Solids	0	0	10	4	0	0	9	4	1	0	0	0	17	45
	Liquids	0	0	93	43	0	0	56	23	3	28	0	0	253	499
2001	Solids	0	0	10	4	0	0	9	4	4	0	0	0	17	48
	Liquids	0	0	93	43	0	0	56	23	11	0	0	0	253	479
2002	Solids	4	0	7	4	0	0	9	1	4	0	0	0	17	46
	Liquids	35	0	63	43	0	0	56	8	11	0	0	0	253	469
2003	Solids	18	0	0	4	0	0	9	0	1	0	0	0	17	49
	Liquids	146	0	0	43	0	0	56	0	4	0	0	0	253	502
2004	Solids	12	0	0	4	0	0	9	0	0	0	0	0	17	42
	Liquids	92	0	0	43	0	0	56	0	0	0	0	0	253	444
2005	Solids	5	0	0	4	0	0	9	0	0	0	0	0	17	35
	Liquids	40	0	0	43	0	0	56	0	0	0	0	0	253	392
2006	Solids	1	0	0	4	0	0	7	0	0	0	0	0	20	32
	Liquids	22	0	0	47	0	0	48	0	0	0	0	0	289	406
2007	Solids	2	0	0	4	0	0	0	0	0	0	0	0	20	26
	Liquids	13	0	0	47	0	0	0	0	0	0	0	0	289	349
2008	Solids	3	0	0	4	0	0	1	0	0	0	0	0	0	8
	Liquids	25	0	0	44	0	0	7	0	0	0	0	0	0	76

Annual Waste Destination Summary by WAG for Waste Leaving the AOC
Oak Ridge National Laboratory Environmental Restoration FY 1994- 2020
Waste Destination : COMMERCIAL FACILITY/WASTE MANAGEMENT
(CONTINUED)

Solids = cubic feet / Liquids = gallons

Year	Media	WAG 1	WAG 2	WAG 3	WAG 4	WAG 5	WAG 6	WAG 7	WAG 8	WAG 9	WAG 10	WAG 11	WAG 13	WAG 21	Total
2009	Solids	2	0	0	1	0	0	1	0	0	0	0	0	0	4
	Liquids	13	0	0	35	0	0	9	0	0	0	0	0	0	57
2010	Solids	0	0	0	1	0	0	1	0	0	0	0	0	0	2
	Liquids	2	0	0	35	0	0	9	0	0	0	0	0	0	46
2011	Liquids	7	0	0	3	0	0	4	0	0	0	0	0	0	14
2012	Liquids	6	0	0	0	0	0	0	0	0	0	0	0	0	6
2013	Liquids	4	0	0	0	0	0	0	0	0	0	0	0	0	4
2014	Liquids	3	0	0	0	0	0	0	0	0	0	0	0	0	3
Total	Solids	47	0	30	39	24	3	67	10	10	6	0	0	244	480
	Liquids	408	0	274	481	8	0	429	59	29	84	0	0	3,614	5,386

Annual Waste Destination Summary by WAG for Waste Leaving the AOC
Oak Ridge National Laboratory Environmental Restoration FY 1994- 2020
Waste Destination : DECONTAMINATE/REUSE

Solids = cubic feet / Liquids = gallons

Year	Media	WAG 1	WAG 2	WAG 3	WAG 4	WAG 5	WAG 6	WAG 7	WAG 8	WAG 9	WAG 10	WAG 11	WAG 13	WAG 21	Total
1994	Solids	0	0	0	0	0	0	0	0	0	0	14	0	0	14
Total	Solids	0	0	0	0	0	0	0	0	0	0	14	0	0	14
	Liquids	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Annual Waste Destination Summary by WAG for Waste Leaving the AOC
Oak Ridge National Laboratory Environmental Restoration FY 1994- 2020
Waste Destination : IWMF OR LLWDF

Solids = cubic feet / Liquids = gallons

Year	Media	WAG 1	WAG 2	WAG 3	WAG 4	WAG 5	WAG 6	WAG 7	WAG 8	WAG 9	WAG 10	WAG 11	WAG 13	WAG 21	Total
1994	Solids	0	0	0	0	321	0	0	0	0	180	0	0	603	1,104
1995	Solids	0	0	0	0	321	0	0	0	0	0	0	0	603	924
1996	Solids	0	0	0	0	0	0	0	0	0	0	0	0	603	603
1997	Solids	0	0	0	0	0	0	0	0	0	0	0	0	603	603
1998	Solids	0	0	0	0	0	0	0	0	0	0	0	0	603	603
1999	Solids	0	0	97	41	0	0	88	33	0	0	0	0	603	862
2000	Solids	0	0	364	153	0	0	310	140	34	0	0	0	603	1,604
2001	Solids	0	0	364	153	0	0	310	140	126	0	150	0	603	1,846
2002	Solids	148	0	246	153	0	0	310	47	126	0	555	0	603	2,188
2003	Solids	623	0	0	153	0	0	310	0	54	0	555	0	603	2,298
2004	Solids	409	0	0	153	0	0	310	0	0	0	240	0	603	1,715
2005	Solids	136	0	0	153	0	0	310	0	0	0	0	0	603	1,202
2006	Solids	38	0	0	167	0	0	265	0	0	0	0	0	689	1,159
2007	Solids	54	0	0	167	0	0	0	0	0	0	0	0	689	910
2008	Solids	107	0	0	137	0	0	29	0	0	0	0	0	0	273
2009	Solids	54	0	0	79	0	0	35	0	0	0	0	0	0	168
2010	Solids	1	0	0	79	0	0	35	0	0	0	0	0	0	115
2011	Solids	3	0	0	6	0	0	15	0	0	0	0	0	0	24
2012	Solids	212	0	0	0	0	0	0	0	0	0	0	0	0	212
2013	Solids	634	0	0	0	0	0	0	0	0	0	0	0	0	634
2014	Solids	8	0	0	0	0	0	0	0	0	0	0	0	0	8
Total	Solids	2,427	0	1,071	1,594	642	0	2,327	360	340	180	1,500	0	8,614	19,055
	Liquids	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Annual Waste Destination Summary by WAG for Waste Leaving the AOC
Oak Ridge National Laboratory Environmental Restoration FY 1994- 2020
Waste Destination : LLLW SYSTEM

Solids = cubic feet / Liquids = gallons

Year	Media	WAG 1	WAG 2	WAG 3	WAG 4	WAG 5	WAG 6	WAG 7	WAG 8	WAG 9	WAG 10	WAG 11	WAG 13	WAG 21	Total
1994	Liquids	7,154	0	0	0	0	0	0	0	0	0	0	0	110,160	117,314
1995	Liquids	61,106	0	0	0	0	0	483	0	0	0	0	0	110,160	171,749
1996	Liquids	52,980	0	0	0	0	0	0	0	0	0	0	0	110,160	163,140
1997	Liquids	22,576	0	0	0	0	0	0	0	0	0	0	0	110,160	132,736
1998	Liquids	164,606	0	0	0	0	0	0	0	0	0	0	0	25,035	189,641
1999	Liquids	233,440	0	0	0	26,724	0	0	0	0	0	0	0	25,035	285,199
2000	Liquids	27,040	0	0	859	37,859	0	76	0	0	0	0	0	25,035	90,869
2001	Liquids	25,789	0	0	0	37,859	0	0	0	450	5,157	0	0	25,035	94,290
2002	Liquids	12,352	2,160	0	0	37,859	0	0	0	450	6,876	0	0	25,035	84,732
2003	Liquids	6,952	0	0	0	44,810	0	0	0	0	2,292	0	0	25,035	79,089
2004	Liquids	21,451	0	0	0	58,712	0	0	0	0	0	0	0	25,035	105,198
2005	Liquids	10,353	0	0	0	11,977	0	0	0	0	5,407	0	0	25,035	52,772
2006	Liquids	6,952	0	0	0	0	0	0	0	0	9,018	0	0	25,035	41,005
2007	Liquids	6,952	0	0	0	0	0	0	1,573	0	28,056	0	0	25,035	61,616
2008	Liquids	6,952	0	0	0	0	0	0	4,719	0	28,056	0	0	25,035	64,762
2009	Liquids	6,952	6,280	0	0	0	0	0	0	4,421	28,056	0	0	25,035	70,744
2010	Liquids	0	7,612	895	0	0	0	0	0	906	7,014	0	0	20,028	36,455
2011	Liquids	1,627	5,138	1,587	0	0	0	0	0	0	0	0	0	20,028	28,380
2012	Liquids	8,320	0	1,587	0	0	0	0	0	0	0	0	0	20,028	29,935
2013	Liquids	7,803	0	0	0	0	0	304	0	0	0	0	0	20,382	28,489
2014	Liquids	9,908	0	0	0	0	0	1,669	0	0	0	0	0	20,382	31,959
2015	Liquids	2,927	0	0	0	0	0	1,669	0	0	0	0	0	20,382	24,978
2016	Liquids	600	0	0	5,323	0	0	3,053	0	0	0	0	0	20,382	29,358

Annual Waste Destination Summary by WAG for Waste Leaving the AOC
Oak Ridge National Laboratory Environmental Restoration FY 1994- 2020
Waste Destination : LLLW SYSTEM (CONTINUED)

Solids = cubic feet / Liquids = gallons

Year	Media	WAG 1	WAG 2	WAG 3	WAG 4	WAG 5	WAG 6	WAG 7	WAG 8	WAG 9	WAG 10	WAG 11	WAG 13	WAG 21	Total
2017	Liquids	0	0	0	8,333	0	0	3,054	0	0	0	0	0	20,382	31,769
2018	Liquids	0	0	0	7,800	0	0	3,054	0	0	0	0	0	20,407	31,261
2019	Liquids	0	0	0	7,800	0	0	3,054	0	0	0	0	0	20,407	31,261
2020	Liquids	0	0	0	7,150	0	0	3,207	0	0	0	0	0	0	10,357
Total	Solids	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Liquids	704,792	21,190	4,069	37,265	255,800	0	19,623	6,292	6,227	119,932	0	0	943,868	2,119,058

Annual Waste Destination Summary by WAG for Waste Leaving the AOC
Oak Ridge National Laboratory Environmental Restoration FY 1994- 2020
Waste Destination : PROCESS WASTE TREATMENT PLANT (PWTP)

Solids = cubic feet / Liquids = gallons

Year	Media	WAG 1	WAG 2	WAG 3	WAG 4	WAG 5	WAG 6	WAG 7	WAG 8	WAG 9	WAG 10	WAG 11	WAG 13	WAG 21	Total
1994	Liquids	0	0	0	0	2,509	33,681	0	0	0	38,380	250	0	1,031,793	1,106,613
1995	Liquids	1,358,370	0	0	0	2,509	14,400	4,343	0	0	0	0	0	1,031,793	2,411,415
1996	Liquids	7,260,435	0	0	0	0	0	0	0	0	0	0	0	1,031,793	8,292,228
1997	Liquids	7,227,883	0	0	0	0	197	0	0	0	0	0	0	1,031,793	8,259,873
1998	Liquids	7,872,631	0	0	0	0	0	0	0	0	0	0	0	267,970	8,140,601
1999	Liquids	7,927,049	0	5,458	2,312	1,703,166	0	3,899	1,079	0	0	0	0	267,970	9,910,933
2000	Liquids	7,824,989	0	20,621	48,462	2,210,931	0	14,328	4,670	400	0	0	0	267,970	10,392,371
2001	Liquids	2,947,922	0	20,621	8,481	1,801,926	0	13,648	4,670	1,481	59,076	6,279	0	267,970	5,132,074
2002	Liquids	2,669,666	2,956	13,950	8,481	522,871	0	13,648	1,555	1,481	78,768	23,232	0	267,970	3,604,578
2003	Liquids	2,696,564	0	0	8,481	522,871	0	13,648	0	642	26,256	23,232	0	267,970	3,559,664
2004	Liquids	2,680,089	0	0	8,481	522,871	0	13,648	0	0	0	10,046	0	267,970	3,503,105
2005	Liquids	1,338,501	0	0	8,481	105,664	0	13,648	0	0	48,662	0	0	267,970	1,782,926
2006	Liquids	12,517	0	0	9,252	0	0	11,699	0	0	122,595	0	0	273,419	429,482
2007	Liquids	14,125	0	0	9,252	0	0	0	14,143	0	381,406	0	0	273,419	692,345
2008	Liquids	17,105	0	0	8,568	0	0	673	42,430	0	381,406	0	0	229,814	679,996
2009	Liquids	14,125	56,521	0	6,515	0	0	833	0	39,799	381,406	0	0	229,814	729,013
2010	Liquids	94	68,510	7,612	6,515	0	0	833	0	8,152	95,352	0	0	183,851	370,919
2011	Liquids	6,126,041	46,245	13,494	502	0	0	350	0	0	0	0	0	183,851	6,370,483
2012	Liquids	7,612,175	0	13,494	0	0	0	0	0	0	0	0	0	183,851	7,809,520
2013	Liquids	6,792,682	0	0	0	0	0	2,950	0	0	0	42,600	0	200,123	7,038,355
2014	Liquids	89,582	0	0	0	0	0	16,223	0	0	0	0	0	200,123	305,928
2015	Liquids	26,345	0	0	0	0	0	16,223	0	0	0	0	0	200,123	242,691
2016	Liquids	5,396	0	0	21,762,139	0	0	27,587	0	0	0	0	0	200,123	21,995,245

Annual Waste Destination Summary by WAG for Waste Leaving the AOC
Oak Ridge National Laboratory Environmental Restoration FY 1994- 2020
Waste Destination : PROCESS WASTE TREATMENT PLANT (PWTP)
(CONTINUED)

Solids = cubic feet / Liquids = gallons

Year	Media	WAG 1	WAG 2	WAG 3	WAG 4	WAG 5	WAG 6	WAG 7	WAG 8	WAG 9	WAG 10	WAG 11	WAG 13	WAG 21	Total
2017	Liquids	0	0	0	17,057,921	0	0	27,487	0	0	0	0	0	200,123	17,285,531
2018	Liquids	0	0	0	11,418,122	0	0	27,487	0	0	0	0	0	201,285	11,646,894
2019	Liquids	0	0	0	11,418,122	0	0	27,487	0	0	0	0	0	201,285	11,646,894
2020	Liquids	0	0	0	10,466,612	0	0	28,861	0	0	0	0	0	0	10,495,473
Total	Solids	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Liquids	72,514,286	174,232	95,250	72,256,699	7,395,318	48,278	279,503	68,547	51,955	1,613,307	105,639	0	9,232,136	163,835,150

Annual Waste Destination Summary by WAG for Waste Leaving the AOC
Oak Ridge National Laboratory Environmental Restoration FY 1994- 2020
Waste Destination : RECYCLE

Solids = cubic feet / Liquids = gallons

Year	Media	WAG 1	WAG 2	WAG 3	WAG 4	WAG 5	WAG 6	WAG 7	WAG 8	WAG 9	WAG 10	WAG 11	WAG 13	WAG 21	Total
1994	Solids	0	0	0	0	0	23	0	0	0	0	0	0	0	23
Total	Solids	0	0	0	0	0	23	0	0	0	0	0	0	0	23
	Liquids	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Annual Waste Destination Summary by WAG for Waste Leaving the AOC
Oak Ridge National Laboratory Environmental Restoration FY 1994- 2020
Waste Destination : SEG/INCINERATE

Solids = cubic feet / Liquids = gallons

Year	Media	WAG 1	WAG 2	WAG 3	WAG 4	WAG 5	WAG 6	WAG 7	WAG 8	WAG 9	WAG 10	WAG 11	WAG 13	WAG 21	Total
2002	Solids	0	528	0	0	0	0	0	0	0	0	0	0	0	528
2009	Solids	0	6,061	0	0	0	0	0	0	0	0	0	0	0	6,061
2010	Solids	0	7,346	0	0	0	0	0	0	0	0	0	0	0	7,346
2011	Solids	0	4,958	0	0	0	0	0	0	0	0	0	0	0	4,958
Total	Solids	0	18,893	0	0	0	0	0	0	0	0	0	0	0	18,893
	Liquids	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Annual Waste Destination Summary by WAG for Waste Leaving the AOC
Oak Ridge National Laboratory Environmental Restoration FY 1994- 2020
Waste Destination : SANITARY LANDFILL

Solids = cubic feet / Liquids = gallons

Year	Media	WAG 1	WAG 2	WAG 3	WAG 4	WAG 5	WAG 6	WAG 7	WAG 8	WAG 9	WAG 10	WAG 11	WAG 13	WAG 21	Total
1994	Solids	0	0	0	0	765	2,576	0	0	0	1,500	0	0	1,392	6,233
1995	Solids	0	0	0	0	765	1,553	0	0	0	0	0	0	1,392	3,710
1996	Solids	0	0	0	0	0	0	0	0	0	0	0	0	1,392	1,392
1997	Solids	118	0	0	0	0	200	0	0	0	0	0	0	1,392	1,710
1998	Solids	402	0	0	0	0	0	0	0	0	0	0	0	1,392	1,794
1999	Solids	408	0	141	47	0	0	65	136	0	0	0	0	1,392	2,189
2000	Solids	408	0	562	173	0	0	293	589	77	0	0	0	1,392	3,494
2001	Solids	319	0	529	173	0	0	228	589	284	0	50	0	1,392	3,564
2002	Solids	453	65	359	173	0	0	228	197	284	0	185	0	1,392	3,336
2003	Solids	1,205	0	0	173	0	0	228	0	122	0	185	0	1,392	3,305
2004	Solids	1,190	0	0	173	0	0	228	0	0	0	80	0	1,392	3,063
2005	Solids	1,307	0	0	173	0	0	228	0	0	0	0	0	1,392	3,100
2006	Solids	825	0	0	189	0	0	196	0	0	0	0	0	1,592	2,802
2007	Solids	424	0	0	189	0	0	0	0	0	0	0	0	1,592	2,205
2008	Solids	614	0	0	537	0	0	188	0	0	0	0	0	0	1,339
2009	Solids	424	2,171	0	875	0	0	233	0	0	0	0	0	0	3,703
2010	Solids	41	2,632	0	875	0	0	233	0	0	0	0	0	0	3,781
2011	Solids	172	1,776	0	67	0	0	97	0	0	0	0	0	0	2,112
2012	Solids	591	0	0	0	0	0	0	0	0	0	0	0	0	591
2013	Solids	1,414	0	0	0	0	0	0	0	0	0	38	0	0	1,452
2014	Solids	87	0	0	0	0	0	0	0	0	0	0	0	0	87
2016	Solids	0	0	0	0	0	0	1,107	0	0	0	0	0	0	1,107
2017	Solids	0	0	0	0	0	0	1,165	0	0	0	0	0	0	1,165

Annual Waste Destination Summary by WAG for Waste Leaving the AOC
Oak Ridge National Laboratory Environmental Restoration FY 1994- 2020
Waste Destination : SANITARY LANDFILL (CONTINUED)

Solids = cubic feet / Liquids = gallons

Year	Media	WAG 1	WAG 2	WAG 3	WAG 4	WAG 5	WAG 6	WAG 7	WAG 8	WAG 9	WAG 10	WAG 11	WAG 13	WAG 21	Total
2018	Solids	0	0	0	0	0	0	1,165	0	0	0	0	0	0	1,165
2019	Solids	0	0	0	0	0	0	1,165	0	0	0	0	0	0	1,165
2020	Solids	0	0	0	0	0	0	1,223	0	0	0	0	0	0	1,223
Total	Solids	10,402	6,644	1,591	3,817	1,530	4,329	8,270	1,511	767	1,500	538	0	19,888	60,787
	Liquids	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Annual Waste Destination Summary by WAG for Waste Leaving the AOC
Oak Ridge National Laboratory Environmental Restoration FY 1994- 2020
Waste Destination : SEWAGE TREATMENT PLANT (STP)

Solids = cubic feet / Liquids = gallons

Year	Media	WAG 1	WAG 2	WAG 3	WAG 4	WAG 5	WAG 6	WAG 7	WAG 8	WAG 9	WAG 10	WAG 11	WAG 13	WAG 21	Total
1994	Liquids	0	0	0	0	133	33,600	0	0	0	0	0	0	14,370	48,103
1995	Liquids	13,600	0	0	0	133	14,400	6,804	0	0	0	0	0	14,370	49,307
1996	Liquids	64,500	0	0	0	0	0	0	0	0	0	0	0	14,370	78,870
1997	Liquids	93,954	0	0	0	0	0	0	0	0	0	0	0	14,370	108,324
1998	Liquids	123,785	0	0	0	0	0	0	0	0	0	0	0	3,143	126,928
1999	Liquids	124,411	0	0	0	139,416	0	0	0	0	0	0	0	3,143	266,970
2000	Liquids	124,411	0	13,610	0	197,506	0	6,808	0	99	0	0	0	3,143	345,577
2001	Liquids	75,022	0	0	0	197,506	0	0	0	366	6,368	0	0	3,143	282,405
2002	Liquids	37,135	0	0	0	197,506	0	0	0	366	8,491	0	0	3,143	246,641
2003	Liquids	25,737	0	0	0	197,506	0	0	0	158	2,830	0	0	3,143	229,374
2004	Liquids	25,420	0	0	0	197,506	0	0	0	0	0	0	0	3,143	226,069
2005	Liquids	25,598	0	0	0	34,854	0	0	0	0	16,414	0	0	3,143	80,009
2006	Liquids	25,360	0	0	0	0	0	0	0	0	112,429	0	0	3,143	140,932
2007	Liquids	24,856	0	0	0	0	0	0	13,438	0	349,779	0	0	3,143	391,216
2008	Liquids	25,103	0	0	0	0	0	0	40,314	0	349,779	0	0	3,143	418,339
2009	Liquids	24,856	0	0	0	0	0	0	0	47,156	349,779	0	0	3,143	424,934
2010	Liquids	55	0	39,197	0	0	0	0	0	9,659	87,445	0	0	2,515	138,871
2011	Liquids	44,967	0	69,486	0	0	0	0	0	0	0	0	0	2,515	116,968
2012	Liquids	160,083	0	69,486	0	0	0	0	0	0	0	0	0	2,515	232,084
2013	Liquids	191,055	0	0	0	0	0	3,375	0	0	0	0	0	26,519	220,949
2014	Liquids	261,228	0	0	0	0	0	18,564	0	0	0	0	0	26,519	306,311
2015	Liquids	16,942	0	0	0	0	0	18,564	0	0	0	0	0	26,519	62,025
2016	Liquids	3,470	0	0	180,094	0	0	116,744	0	0	0	0	0	26,519	326,827

Annual Waste Destination Summary by WAG for Waste Leaving the AOC
Oak Ridge National Laboratory Environmental Restoration FY 1994- 2020
Waste Destination : SEWAGE TREATMENT PLANT (STP) (CONTINUED)

Solids = cubic feet / Liquids = gallons

Year	Media	WAG 1	WAG 2	WAG 3	WAG 4	WAG 5	WAG 6	WAG 7	WAG 8	WAG 9	WAG 10	WAG 11	WAG 13	WAG 21	Total
2017	Liquids	0	0	0	720,377	0	0	121,112	0	0	0	0	0	26,519	868,008
2018	Liquids	0	0	0	720,377	0	0	121,112	0	0	0	0	0	28,234	869,723
2019	Liquids	0	0	0	720,377	0	0	121,112	0	0	0	0	0	28,234	869,723
2020	Liquids	0	0	0	660,345	0	0	127,167	0	0	0	0	0	0	787,512
Total	Solids	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Liquids	1,511,548	0	191,779	3,001,570	1,162,066	48,000	661,362	53,752	57,804	1,283,314	0	0	291,804	8,262,999

Annual Waste Destination Summary by WAG for Waste Leaving the AOC
Oak Ridge National Laboratory Environmental Restoration FY 1994- 2020
Waste Destination : SOLID WASTE STORAGE AREA 6 (SWSA 6)

Solids = cubic feet / Liquids = gallons

Year	Media	WAG 1	WAG 2	WAG 3	WAG 4	WAG 5	WAG 6	WAG 7	WAG 8	WAG 9	WAG 10	WAG 11	WAG 13	WAG 21	Total
1994	Solids	0	0	0	0	0	0	0	0	0	0	2,052	0	0	2,052
2013	Solids	0	0	0	0	0	0	0	0	0	0	253	0	0	253
Total	Solids	0	0	0	0	0	0	0	0	0	0	2,305	0	0	2,305
	Liquids	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Annual Waste Destination Summary by WAG for Waste Leaving the AOC
Oak Ridge National Laboratory Environmental Restoration FY 1994- 2020
Waste Destination : TRU STORAGE/WASTE MANAGMENT

Solids = cubic feet / Liquids = gallons

Year	Media	WAG 1	WAG 2	WAG 3	WAG 4	WAG 5	WAG 6	WAG 7	WAG 8	WAG 9	WAG 10	WAG 11	WAG 13	WAG 21	Total
2003	Solids	0	0	0	0	3,654	0	0	0	0	0	0	0	0	3,654
2004	Solids	0	0	0	0	10,962	0	0	0	0	0	0	0	0	10,962
2005	Solids	0	0	0	0	2,784	0	0	0	0	0	0	0	0	2,784
Total	Solids	0	0	0	0	17,400	0	0	0	0	0	0	0	0	17,400
	Liquids	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Annual Waste Destination Summary by WAG for Waste Leaving the AOC
Oak Ridge National Laboratory Environmental Restoration FY 1994- 2020
Waste Destination : TSCA INCINERATOR

Solids = cubic feet / Liquids = gallons

Year	Media	WAG 1	WAG 2	WAG 3	WAG 4	WAG 5	WAG 6	WAG 7	WAG 8	WAG 9	WAG 10	WAG 11	WAG 13	WAG 21	Total
1994	Solids	0	0	0	0	4	0	0	0	0	2	0	0	6	12
1995	Solids	0	0	0	0	4	0	0	0	0	0	0	0	6	10
1996	Solids	0	0	0	0	0	0	0	0	0	0	0	0	6	6
1997	Solids	0	0	0	0	0	0	0	0	0	0	0	0	6	6
1998	Solids	0	0	0	0	0	0	0	0	0	0	0	0	6	6
1999	Solids	0	0	1	0	0	0	1	0	0	0	0	0	6	8
2000	Solids	0	0	4	2	0	0	3	2	0	0	0	0	6	17
2001	Solids	0	0	4	2	0	0	3	2	1	0	0	0	6	18
2002	Solids	2	0	3	2	0	0	3	1	1	0	0	0	6	18
2003	Solids	6	0	0	2	0	0	3	0	0	0	0	0	6	17
2004	Solids	4	0	0	2	0	0	3	0	0	0	0	0	6	15
2005	Solids	2	0	0	2	0	0	3	0	0	0	0	0	6	13
2006	Solids	0	0	0	2	0	0	3	0	0	0	0	0	7	12
2007	Solids	1	0	0	2	0	0	0	0	0	0	0	0	7	10
2008	Solids	1	0	0	1	0	0	0	0	0	0	0	0	0	2
2009	Solids	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	Solids	17	0	12	17	8	0	22	5	2	2	0	0	86	171
	Liquids	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Data Ref. ORNL394
ORNL Data compiled 07/11/94 report destwag

Appendix C

Waste Class Summary By Activity Data Sheet For Waste Leaving The Area Of Contamination — Activity Data Sheet Summary Fiscal Years 1994–2020

Waste Class[1] Summary by ADS Waste Class Summary by ADS for
ADS Summary FY 1994-2020
Solids = cubic feet / Liquids = gallons

ADS Number: 3301 Plant: ORNL

Sites: WAG 1/Boundary Contaminant Interception System
WAG 1/Contaminated Soils
WAG 1/EA/1994-1995/TNK Content Removal
WAG 1/Early Action/Core Hole Eight
WAG 1/Early Action/Core Hole Eight Construction
WAG 1/Early Action/Groundwater Monitoring
WAG 1/Groundwater Remediation
WAG 1/Gunite Tanks - North Tank Farm
WAG 1/Gunite Tanks - South Tank Farm
WAG 1/Gunite Tanks - TH-4
WAG 1/SWSA 1
WAG 1/SWSA 2
WAG 1/Steel Tank Systems
WAG 1/Surface Impoundments
WAG 1/Tank Farm
WAG 1/Underground Pipeline & Storm Drain Network
WAG 1/Waste Pile
WAG 1/White Oak Creek Floodplain Soils & Sediment

Year	Media	LLW	RCRA	LLW/RCRA	LLW/TSCA	LLW/RCRA/TSCA	SANITARY	TRU(all)	TOTAL
1994	Liquids	7,154	0	0	0	0	0	0	7,154
1995	Liquids	1,419,476	0	0	0	0	13,600	0	1,433,076
1996	Liquids	7,313,415	0	0	0	0	64,500	0	7,377,915
1997	Solids	0	0	0	0	0	118	0	118
	Liquids	7,250,459	0	0	0	0	93,954	0	7,344,413
1998	Solids	0	0	0	0	0	402	0	402
	Liquids	7,969,197	0	0	0	0	191,825	0	8,161,022
1999	Solids	0	0	0	0	0	408	0	408
	Liquids	8,058,429	0	0	0	0	226,471	0	8,284,900
2000	Solids	0	0	0	0	0	408	0	408
	Liquids	7,852,029	0	0	0	0	124,411	0	7,976,440
2001	Solids	0	0	0	0	0	319	0	319
	Liquids	2,973,711	0	0	0	0	75,022	0	3,048,733
2002	Solids	148	4	2	0	0	453	0	607
	Liquids	2,681,371	176	85	0	0	37,556	0	2,719,188
2003	Solids	623	18	6	0	0	1,205	0	1,852
	Liquids	2,700,774	721	343	0	0	27,561	0	2,729,399
2004	Solids	409	12	4	0	0	1,190	0	1,615
	Liquids	2,699,774	385	175	0	0	26,718	0	2,727,052
2005	Solids	136	5	2	0	0	1,307	0	1,450
	Liquids	1,348,428	40	0	0	0	26,024	0	1,374,492
2006	Solids	38	1	0	0	0	825	0	864
	Liquids	19,439	22	0	0	0	25,390	0	44,851

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2007	Solids	54	2	1	0	0	424	0	481
	Liquids	20,621	331	24	0	0	24,970	0	45,946
2008	Solids	107	3	1	0	0	614	0	725
	Liquids	23,146	661	46	0	0	25,332	0	49,185
2009	Solids	54	2	1	0	0	424	0	481
	Liquids	20,621	331	24	0	0	24,970	0	45,946
2010	Solids	1	0	0	0	0	41	0	42
	Liquids	94	2	0	0	0	55	0	151
2011	Solids	3	0	0	0	0	172	0	175
	Liquids	6,127,668	7	0	0	0	44,967	0	6,172,642
2012	Solids	645	0	0	0	0	158	0	803
	Liquids	7,620,495	6	0	0	0	160,083	0	7,780,584
2013	Solids	1,932	0	0	0	0	116	0	2,048
	Liquids	6,800,485	4	0	0	0	191,055	0	6,991,544
2014	Solids	8	0	0	0	0	87	0	95
	Liquids	99,490	3	0	0	0	261,228	0	360,721
2015	Liquids	29,272	0	0	0	0	16,942	0	46,214
2016	Liquids	5,996	0	0	0	0	3,470	0	9,466
Total	Solids	4,158	47	17	0	0	8,671	0	12,893
	Liquids	73,041,544	2,689	697	0	0	1,686,104	0	74,731,034

Waste Class[1] Summary by ADS Waste Class Summary by ADS for
ADS Summary FY 1994-2020
Solids = cubic feet / Liquids = gallons

ADS Number: 3302 Plant: ORNL

Sites: WAG 2/Early Action:Hot Spot Stabil/Erosion Ctrl
WAG 2/RI/1995-1996
WAG 2/Sediment & Soil
WAG 2/RI/1998-1999
WAG 2/RI/2001-2002
WAG 2/RI/2004-2005
WAG 2/RI/2007-2008
WAG 2/RI/2010-2011
WAG 2/RI/2013-2014
WAG 2/RI/2016-2017
WAG 2/RI/2019-2020

Year	Media	LLW	RCRA	LLW/RCRA	LLW/TSCA	LLW/RCRA/TSCA	SANITARY	TRU(all)	TOTAL
2002	Solids	528	0	0	0	0	65	0	593
	Liquids	5,116	0	0	0	0	0	0	5,116
2009	Solids	6,061	0	0	0	0	2,171	0	8,232
	Liquids	62,801	0	0	0	0	0	0	62,801
2010	Solids	7,346	0	0	0	0	2,632	0	9,978
	Liquids	76,122	0	0	0	0	0	0	76,122
2011	Solids	4,958	0	0	0	0	1,776	0	6,734
	Liquids	51,383	0	0	0	0	0	0	51,383
Total	Solids	18,893	0	0	0	0	6,644	0	25,537
	Liquids	195,422	0	0	0	0	0	0	195,422

Waste Class[1] Summary by ADS Waste Class Summary by ADS for
ADS Summary FY 1994-2020
Solids = cubic feet / Liquids = gallons

ADS Number: 3303 Plant: ORNL

Sites: WAG 3
WAG 3/Early Action: Culvert Diversion

Year	Media	LLW	RCRA	LLW/RCRA	LLW/TSCA	LLW/RCRA/TSCA	SANITARY	TRU(all)	TOTAL
1999	Solids	97	3	1	0	0	141	0	242
	Liquids	4,877	111	53	0	0	442	0	5,483
2000	Solids	364	10	4	0	0	562	0	940
	Liquids	18,425	418	199	0	0	15,282	0	34,324
2001	Solids	364	10	4	0	0	529	0	907
	Liquids	18,425	418	199	0	0	1,672	0	20,714
2002	Solids	246	7	3	0	0	359	0	615
	Liquids	12,464	283	135	0	0	1,131	0	14,013
2010	Liquids	8,507	0	0	0	0	39,197	0	47,704
2011	Liquids	15,081	0	0	0	0	69,486	0	84,567
2012	Liquids	15,081	0	0	0	0	69,486	0	84,567
Total	Solids	1,071	30	12	0	0	1,591	0	2,704
	Liquids	92,860	1,230	586	0	0	196,696	0	291,372

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Waste Class[1] Summary by ADS Waste Class Summary by ADS for
ADS Summary FY 1994-2020
Solids = cubic feet / Liquids = gallons

ADS Number: 3304 Plant: ORNL

Sites: WAG 4/Early Action: Demo(Horizontal Drilling)
WAG 4/GW Seeps (Bathtubbing Trench)
WAG 4/RA Explosives Trench
WAG 4/RI
WAG 4/SWSA 4(PrimarySources,including pipeline)

Year	Media	LLW	RCRA	LLW/RCRA	LLW/TSCA	LLW/RCRA/TSCA	SANITARY	TRU(all)	TOTAL
1999	Solids	41	1	0	0	0	47	0	89
	Liquids	2,083	47	22	0	0	172	0	2,324
2000	Solids	153	4	2	0	0	173	0	332
	Liquids	48,477	172	83	0	0	632	0	49,364
2001	Solids	153	4	2	0	0	173	0	332
	Liquids	7,637	172	83	0	0	632	0	8,524
2002	Solids	153	4	2	0	0	173	0	332
	Liquids	7,637	172	83	0	0	632	0	8,524
2003	Solids	153	4	2	0	0	173	0	332
	Liquids	7,637	172	83	0	0	632	0	8,524
2004	Solids	153	4	2	0	0	173	0	332
	Liquids	7,637	172	83	0	0	632	0	8,524
2005	Solids	153	4	2	0	0	173	0	332
	Liquids	7,637	172	83	0	0	632	0	8,524
2006	Solids	167	4	2	0	0	189	0	362
	Liquids	8,331	187	91	0	0	690	0	9,299
2007	Solids	167	4	2	0	0	189	0	362
	Liquids	8,331	187	91	0	0	690	0	9,299
2008	Solids	137	4	1	0	0	537	0	679
	Liquids	7,262	177	78	0	0	1,095	0	8,612
2009	Solids	79	1	0	0	0	875	0	955
	Liquids	4,933	140	53	0	0	1,424	0	6,550
2010	Solids	79	1	0	0	0	875	0	955
	Liquids	4,933	140	53	0	0	1,424	0	6,550
2011	Solids	6	0	0	0	0	67	0	73
	Liquids	380	11	4	0	0	110	0	505
2016	Liquids	2,890,212	0	0	0	0	19,057,344	0	21,947,556
2017	Liquids	11,431,254	0	0	0	0	6,355,377	0	17,786,631
2018	Liquids	11,425,922	0	0	0	0	720,377	0	12,146,299
2019	Liquids	11,425,922	0	0	0	0	720,377	0	12,146,299
2020	Liquids	10,473,762	0	0	0	0	660,345	0	11,134,107

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ADS Number: 3304 Plant: ORNL Continued

Total	Solids	1,594	39	17	0	0	3,817	0	5,467
	Liquids	47,769,987	1,921	890	0	0	27,523,217	0	75,296,015

Waste Class[1] Summary by ADS Waste Class Summary by ADS for
ADS Summary FY 1994-2020
Solids = cubic feet / Liquids = gallons

ADS Number: 3305 Plant: ORNL

Sites: WAG 5 (4/1999-9/2001)
WAG 5 (9/2001-3/2005)
WAG 5/RI
WAG 5 (1/2000-1/2002)
WAG 5 (3/1999-4/1999)
WAG 5 (4/1996-9/2004)
WAG 5 (4/1999-3/2005)
WAG 5 (9/2001-3/2005)
WAG 5 (9/2003-3/2005)

Year	Media	LLW	RCRA	LLW/RCRA	LLW/TSCA	LLW/RCRA/TSCA	SANITARY	TRU(all)	TOTAL
1994	Solids	321	12	4	0	0	765	0	1,102
	Liquids	2,310	52	26	0	0	258	0	2,646
1995	Solids	321	12	4	0	0	765	0	1,102
	Liquids	2,310	52	26	0	0	258	0	2,646
1999	Liquids	1,729,890	0	0	0	0	139,416	0	1,869,306
2000	Liquids	2,248,790	0	0	0	0	197,506	0	2,446,296
2001	Liquids	1,839,785	0	0	0	0	197,506	0	2,037,291
2002	Liquids	560,730	0	0	0	0	197,506	0	758,236
2003	Solids	0	0	0	0	0	0	3,654	3,654
	Liquids	567,681	0	0	0	0	197,506	0	765,187
2004	Solids	0	0	0	0	0	0	10,962	10,962
	Liquids	581,583	0	0	0	0	197,506	0	779,089
2005	Solids	0	0	0	0	0	0	2,784	2,784
	Liquids	117,641	0	0	0	0	34,854	0	152,495
Total	Solids	642	24	8	0	0	1,530	17,400	19,604
	Liquids	7,650,720	104	52	0	0	1,162,316	0	8,813,192

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Waste Class[1] Summary by ADS Waste Class Summary by ADS for
ADS Summary FY 1994-2020
Solids = cubic feet / Liquids = gallons

ADS Number: 3306 Plant: ORNL

Sites: WAG 6/Monitoring Station No.3
WAG 6/Tumulus 1&2 Cap
WAG 6/Liquid Waste Transfer Station
WAG 6/Research Areas
WAG 6/Roadway Improvements & SWSA 6 Entrance
WAG 6/Well P&A (1993)
WAG 6/Well P&A (1994)
WAG 6/Well P&A (1997)

Year	Media	LLW	RCRA	LLW/RCRA	LLW/TSCA	LLW/RCRA/TSCA	SANITARY	TRU(all)	TOTAL
1994	Solids	0	2	0	0	0	4,765	0	4,767
	Liquids	33,681	0	0	0	0	33,600	0	67,281
1995	Solids	0	1	0	0	0	1,565	0	1,566
	Liquids	14,400	0	0	0	0	14,400	0	28,800
1997	Solids	0	0	0	0	0	200	0	200
	Liquids	197	0	0	0	0	0	0	197
Total	Solids	0	3	0	0	0	6,530	0	6,533
	Liquids	48,278	0	0	0	0	48,000	0	96,278

Waste Class[1] Summary by ADS Waste Class Summary by ADS for
ADS Summary FY 1994-2020
Solids = cubic feet / Liquids = gallons

ADS Number: 3307 Plant: ORNL

Sites: WAG 7/Early Action-Existing Cap Upgrade, Runoff
WAG 7/RI
WAG 7/Early Action: ISV Demo Pit 1
WAG 7/Pipeline & Leak Sites/Surface Contamination
WAG 7/Subsurface Disposal Area

Year	Media	LLW	RCRA	LLW/RCRA	LLW/TSCA	LLW/RCRA/TSCA	SANITARY	TRU(all)	TOTAL
1995	Liquids	4,826	0	0	0	0	6,804	0	11,630
1999	Solids	88	3	1	0	0	65	0	157
	Liquids	3,527	79	38	0	0	271	0	3,915
2000	Solids	310	9	3	0	0	293	0	615
	Liquids	13,103	276	134	0	0	7,755	0	21,268
2001	Solids	310	9	3	0	0	228	0	550
	Liquids	12,347	276	134	0	0	947	0	13,704
2002	Solids	310	9	3	0	0	228	0	550
	Liquids	12,347	276	134	0	0	947	0	13,704
2003	Solids	310	9	3	0	0	228	0	550
	Liquids	12,347	276	134	0	0	947	0	13,704
2004	Solids	310	9	3	0	0	228	0	550
	Liquids	12,347	276	134	0	0	947	0	13,704
2005	Solids	310	9	3	0	0	228	0	550
	Liquids	12,347	276	134	0	0	947	0	13,704
2006	Solids	265	7	3	0	0	196	0	471
	Liquids	10,583	236	115	0	0	813	0	11,747
2008	Solids	29	1	0	0	0	188	0	218
	Liquids	392	15	4	0	0	269	0	680
2009	Solids	35	1	0	0	0	233	0	269
	Liquids	486	19	5	0	0	332	0	842
2010	Solids	35	1	0	0	0	233	0	269
	Liquids	486	19	5	0	0	332	0	842
2011	Solids	15	0	0	0	0	97	0	112
	Liquids	204	8	2	0	0	140	0	354
2013	Liquids	3,254	0	0	0	0	3,375	0	6,629
2014	Liquids	17,892	0	0	0	0	18,564	0	36,456
2015	Liquids	17,892	0	0	0	0	18,564	0	36,456
2016	Solids	0	0	0	0	0	1,107	0	1,107
	Liquids	30,640	0	0	0	0	116,744	0	147,384
2017	Solids	0	0	0	0	0	1,165	0	1,165
	Liquids	30,541	0	0	0	0	121,112	0	151,653

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Waste Class[1] Summary by ADS Waste Class Summary by ADS for
ADS Summary FY 1994-2020
Solids = cubic feet / Liquids = gallons

2018	Solids	0	0	0	0	0	1,165	0	1,165
	Liquids	30,541	0	0	0	0	121,112	0	151,653
2019	Solids	0	0	0	0	0	1,165	0	1,165
	Liquids	30,541	0	0	0	0	121,112	0	151,653
2020	Solids	0	0	0	0	0	1,223	0	1,223
	Liquids	32,068	0	0	0	0	127,167	0	159,235
Total	Solids	2,327	67	22	0	0	8,270	0	10,686
	Liquids	288,711	2,032	973	0	0	669,201	0	960,917

Waste Class[1] Summary by ADS Waste Class Summary by ADS for
ADS Summary FY 1994-2020
Solids = cubic feet / Liquids = gallons

ADS Number: 3308 Plant: ORNL

Sites: WAG 8
WAG 8 (11/2007-6/2008)
WAG 8/In situ solidification of impoundment sludge
WAG 8/Support Area (11/2007-6/2008)
WAG 8 (2008)

Year	Media	LLW	RCRA	LLW/RCRA	LLW/TSCA	LLW/RCRA/TSCA	SANITARY	TRU(all)	TOTAL
1999	Solids	33	1	0	0	0	136	0	170
	Liquids	829	23	9	0	0	223	0	1,084
2000	Solids	140	4	2	0	0	589	0	735
	Liquids	3,591	98	39	0	0	965	0	4,693
2001	Solids	140	4	2	0	0	589	0	735
	Liquids	3,591	98	39	0	0	965	0	4,693
2002	Solids	47	1	1	0	0	197	0	246
	Liquids	1,196	33	13	0	0	321	0	1,563
2007	Liquids	15,716	0	0	0	0	13,438	0	29,154
2008	Liquids	47,149	0	0	0	0	40,314	0	87,463
Total	Solids	360	10	5	0	0	1,511	0	1,886
	Liquids	72,072	252	100	0	0	56,226	0	128,650

Waste Class[1] Summary by ADS Waste Class Summary by ADS for
ADS Summary FY 1994-2020
Solids = cubic feet / Liquids = gallons

ADS Number: 3309 Plant: ORNL

Sites: WAG 9/Land Clearing, support activities (2009)
WAG 9/RA/Equip. & Personnel Decon (3/2009-2/2010)
WAG 9/RA/Surface Impoundment 7556 (2009)
WAG 9/Trash Area (2009)
WAG 9/Early Action (10/2001-3/2002)
WAG 9/RI

Year	Media	LLW	RCRA	LLW/RCRA	LLW/TSCA	LLW/RCRA/TSCA	SANITARY	TRU(all)	TOTAL
2000	Solids	34	1	0	0	0	77	0	112
	Liquids	369	10	4	0	0	119	0	502
2001	Solids	126	4	1	0	0	284	0	415
	Liquids	1,816	39	14	0	0	439	0	2,308
2002	Solids	126	4	1	0	0	284	0	415
	Liquids	1,816	39	14	0	0	439	0	2,308
2003	Solids	54	1	0	0	0	122	0	177
	Liquids	592	16	6	0	0	190	0	804
2009	Liquids	44,220	0	0	0	0	47,156	0	91,376
2010	Liquids	9,058	0	0	0	0	9,659	0	18,717
Total	Solids	340	10	2	0	0	767	0	1,119
	Liquids	57,871	104	38	0	0	58,002	0	116,015

Waste Class[1] Summary by ADS Waste Class Summary by ADS for
ADS Summary FY 1994-2020
Solids = cubic feet / Liquids = gallons

ADS Number: 3310 Plant: ORNL

Sites: WAG 10/Grout Sheet OU
WAG 10/RA Deep Groundwater OU (4/2001-4/2003)
WAG 10/RI Deep Groundwater OU (10/1999-9/2000)
WAG 10/RI Deep Groundwater OU (1993-94)
WAG 10/Well P&A OU

Year	Media	LLW	RCRA	LLW/RCRA	LLW/TSCA	LLW/RCRA/TSCA	SANITARY	TRU(all)	TOTAL
1994	Solids	180	6	2	0	0	1,500	0	1,688
	Liquids	33,496	754	364	0	0	3,794	0	38,408
1999	Liquids	0	28	0	0	0	0	0	28
2000	Liquids	0	28	0	0	0	0	0	28
2001	Liquids	64,233	0	0	0	0	6,368	0	70,601
2002	Liquids	85,644	0	0	0	0	8,491	0	94,135
2003	Liquids	28,548	0	0	0	0	2,830	0	31,378
2005	Liquids	54,069	0	0	0	0	16,414	0	70,483
2006	Liquids	131,613	0	0	0	0	112,429	0	244,042
2007	Liquids	409,462	0	0	0	0	349,779	0	759,241
2008	Liquids	409,462	0	0	0	0	349,779	0	759,241
2009	Liquids	409,462	0	0	0	0	349,779	0	759,241
2010	Liquids	102,366	0	0	0	0	87,445	0	189,811
Total	Solids	180	6	2	0	0	1,500	0	1,688
	Liquids	1,728,355	810	364	0	0	1,287,108	0	3,016,637

Waste Class[1] Summary by ADS Waste Class Summary by ADS for
ADS Summary FY 1994-2020
Solids = cubic feet / Liquids = gallons

ADS Number: 3311 Plant: ORNL

Sites: WAG 11
WAG 11/IROD: Contaminated Debris Removal

Year	Media	LLW	RCRA	LLW/RCRA	LLW/TSCA	LLW/RCRA/TSCA	SANITARY	TRU(all)	TOTAL
1994	Solids	2,052	0	14	0	0	0	0	2,066
	Liquids	250	0	0	0	0	0	0	250
2001	Solids	150	0	0	0	0	50	0	200
	Liquids	6,279	0	0	0	0	0	0	6,279
2002	Solids	555	0	0	0	0	185	0	740
	Liquids	23,232	0	0	0	0	0	0	23,232
2003	Solids	555	0	0	0	0	185	0	740
	Liquids	23,232	0	0	0	0	0	0	23,232
2004	Solids	240	0	0	0	0	80	0	320
	Liquids	10,046	0	0	0	0	0	0	10,046
2013	Solids	253	0	0	0	0	38	0	291
	Liquids	42,600	0	0	0	0	0	0	42,600
Total	Solids	3,805	0	14	0	0	538	0	4,357
	Liquids	105,639	0	0	0	0	0	0	105,639

Waste Class[1] Summary by ADS Waste Class Summary by ADS for
ADS Summary FY 1994-2020
Solids = cubic feet / Liquids = gallons

ADS Number: 3321 Plant: ORNL

Sites: WAG 21/Well P&A Phase I (1993-1997)
WAG 21/Well P&A Phase II (1998-2019)
WAG 21/Early Action: Passive Treatment
WAG 21/Early Action: Pump and Treat
WAG 21/Groundwater
WAG 21/RI

Year	Media	LLW	RCRA	LLW/RCRA	LLW/TSCA	LLW/RCRA/TSCA	SANITARY	TRU(all)	TOTAL
1994	Solids	603	17	6	0	0	1,392	0	2,018
	Liquids	1,137,438	779	364	0	0	17,995	0	1,156,576
1995	Solids	603	17	6	0	0	1,392	0	2,018
	Liquids	1,137,438	779	364	0	0	17,995	0	1,156,576
1996	Solids	603	17	6	0	0	1,392	0	2,018
	Liquids	1,137,438	779	364	0	0	17,995	0	1,156,576
1997	Solids	603	17	6	0	0	1,392	0	2,018
	Liquids	1,137,438	779	364	0	0	17,995	0	1,156,576
1998	Solids	603	17	6	0	0	1,392	0	2,018
	Liquids	288,490	779	364	0	0	6,768	0	296,401
1999	Solids	603	17	6	0	0	1,392	0	2,018
	Liquids	288,490	779	364	0	0	6,768	0	296,401
2000	Solids	603	17	6	0	0	1,392	0	2,018
	Liquids	288,490	779	364	0	0	6,768	0	296,401
2001	Solids	603	17	6	0	0	1,392	0	2,018
	Liquids	288,490	779	364	0	0	6,768	0	296,401
2002	Solids	603	17	6	0	0	1,392	0	2,018
	Liquids	288,490	779	364	0	0	6,768	0	296,401
2003	Solids	603	17	6	0	0	1,392	0	2,018
	Liquids	288,490	779	364	0	0	6,768	0	296,401
2004	Solids	603	17	6	0	0	1,392	0	2,018
	Liquids	288,490	779	364	0	0	6,768	0	296,401
2005	Solids	603	17	6	0	0	1,392	0	2,018
	Liquids	288,490	779	364	0	0	6,768	0	296,401
2006	Solids	689	20	7	0	0	1,592	0	2,308
	Liquids	293,295	889	416	0	0	7,286	0	301,886
2007	Solids	689	20	7	0	0	1,592	0	2,308
	Liquids	293,295	889	416	0	0	7,286	0	301,886
2008	Liquids	254,849	0	0	0	0	3,143	0	257,992
2009	Liquids	254,849	0	0	0	0	3,143	0	257,992
2010	Liquids	203,879	0	0	0	0	2,515	0	206,394

Data Ref.ORNL394
Compiled 07/11/94 report ADSList

ADS Number: 3321 Plant: ORNL Continued

2011	Liquids	203,879	0	0	0	0	2,515	0	206,394
2012	Liquids	203,879	0	0	0	0	2,515	0	206,394
2013	Liquids	220,505	0	0	0	0	26,519	0	247,024
2014	Liquids	220,505	0	0	0	0	26,519	0	247,024
2015	Liquids	220,505	0	0	0	0	26,519	0	247,024
2016	Liquids	220,505	0	0	0	0	26,519	0	247,024
2017	Liquids	220,505	0	0	0	0	26,519	0	247,024
2018	Liquids	221,692	0	0	0	0	28,234	0	249,926
2019	Liquids	221,692	0	0	0	0	28,234	0	249,926
Total	Solids	8,614	244	86	0	0	19,888	0	28,832
	Liquids	10,111,506	11,126	5,200	0	0	343,590	0	10,471,422

Grand Total for ER PROGRAM (FY 1994-2021 Leaving the AOC)
Solids = cubic feet / Liquids = gallons

Year	Media	LLW	RCRA	LLW/RCRA	LLW/TSCA	LLW/RCRA/TSCA	SANITARY	TRU(all)	TOTAL
Total	Solids	41,984	480	185	0	0	61,257	17,400	121,306
	Liquids	141,162,965	20,268	8,900	0	0	33,030,460	0	174,222,593

[1]No values are found in the database for Free-Hg, TSCA, RCRA/TSCA, LLW/TSCA or Special Nuclear Material.

Appendix D

Summary of Waste Class by Waste Area Grouping and Year for Total Generated Waste, Oak Ridge National Laboratory, Environmental Restoration Fiscal Years 1994-2020

Summary of Waste Class by WAG and Year for Total Generated Waste
Oak Ridge National Laboratory Environmental Restoration FY 1994-2020
AT WAG 1

Solids = cubic feet / Liquids = gallons

Year	Media	LLW	RCRA	FREE-Hg	TSCA	RCRA/TSCA	LLW/RCRA	LLW/TSCA	LLW/RCRA/TSCA	SANITARY	TRU(all)	SNM	TOTAL
1994	Solids	5,292	0	0	0	0	0	0	0	0	0	0	5,292
	Liquids	7,154	0	0	0	0	0	0	0	0	0	0	7,154
1995	Solids	38,871	0	0	0	0	0	0	0	0	0	0	38,871
	Liquids	1,419,476	0	0	0	0	0	0	0	13,600	0	0	1,433,076
1996	Solids	12,989	0	0	0	0	0	0	0	0	0	0	12,989
	Liquids	7,313,415	0	0	0	0	0	0	0	64,500	0	0	7,377,915
1997	Solids	8,755	0	0	0	0	0	0	0	118	0	0	8,873
	Liquids	7,250,459	0	0	0	0	0	0	0	93,954	0	0	7,344,413
1998	Solids	15,936	0	0	0	0	0	0	0	402	0	0	16,338
	Liquids	7,969,197	0	0	0	0	0	0	0	191,825	0	0	8,161,022
1999	Solids	19,345	0	0	0	0	0	0	0	408	0	0	19,753
	Liquids	8,058,429	0	0	0	0	0	0	0	226,471	0	0	8,284,900
2000	Solids	9,139	0	0	0	0	0	0	0	408	0	0	9,547
	Liquids	7,852,029	0	0	0	0	0	0	0	124,411	0	0	7,976,440
2001	Solids	1,795	0	0	0	0	0	0	0	319	0	0	2,114
	Liquids	2,973,711	0	0	0	0	0	0	0	75,022	0	0	3,048,733
2002	Solids	1,214	11	0	0	0	5	0	0	469	0	0	1,699
	Liquids	2,681,371	176	0	0	0	85	0	0	37,556	0	0	2,719,188
2003	Solids	2,287	46	0	0	0	20	0	0	1,275	0	0	3,628
	Liquids	2,700,774	721	0	0	0	343	0	0	27,561	0	0	2,729,399
2004	Solids	2,327	32	0	0	0	14	0	0	1,238	0	0	3,611
	Liquids	2,699,774	385	0	0	0	175	0	0	26,718	0	0	2,727,052
2005	Solids	1,009	13	0	0	0	6	0	0	1,326	0	0	2,354
	Liquids	1,348,428	40	0	0	0	0	0	0	26,024	0	0	1,374,492
2006	Solids	510	3	0	0	0	1	0	0	831	0	0	1,345
	Liquids	19,439	22	0	0	0	0	0	0	25,390	0	0	44,851
2007	Solids	545	5	0	0	0	2	0	0	431	0	0	983
	Liquids	20,621	331	0	0	0	24	0	0	24,970	0	0	45,946

Summary of Waste Class by WAG and Year for Total Generated Waste
Oak Ridge National Laboratory Environmental Restoration FY 1994-2020
AT WAG 1 (continued)

Solids = cubic feet / Liquids = gallons

Year	Media	LLW	RCRA	FREE-Hg	TSCA	RCRA/TSCA	LLW/RCRA	LLW/TSCA	LLW/RCRA/TSCA	SANITARY	TRU(all)	SNM	TOTAL
2008	Solids	717	8	0	0	0	4	0	0	627	0	0	1,356
	Liquids	23,146	661	0	0	0	46	0	0	25,332	0	0	49,185
2009	Solids	545	5	0	0	0	2	0	0	431	0	0	983
	Liquids	20,621	331	0	0	0	24	0	0	24,970	0	0	45,946
2010	Solids	3	0	0	0	0	0	0	0	41	0	0	44
	Liquids	94	2	0	0	0	0	0	0	55	0	0	151
2011	Solids	5,415	0	0	0	0	56,171	0	0	173	0	0	61,759
	Liquids	6,127,668	7	0	0	0	0	0	0	44,967	0	0	6,172,642
2012	Solids	10,040	0	0	0	0	248,756	0	0	158	0	0	258,954
	Liquids	7,620,495	6	0	0	0	0	0	0	160,083	0	0	7,780,584
2013	Solids	10,191	1	0	0	0	248,757	0	0	118	0	0	259,067
	Liquids	6,800,485	4	0	0	0	0	0	0	191,055	0	0	6,991,544
2014	Solids	168,782	0	0	0	0	248,756	0	0	88	0	0	417,626
	Liquids	99,490	3	0	0	0	0	0	0	261,228	0	0	360,721
2015	Solids	512	0	0	0	0	148,410	0	0	119,445	0	0	268,367
	Liquids	29,272	0	0	0	0	0	0	0	16,942	0	0	46,214
2016	Solids	105	0	0	0	0	30,398	0	0	24,465	0	0	54,968
	Liquids	5,996	0	0	0	0	0	0	0	3,470	0	0	9,466
Total	Solids	316,324	124	0	0	0	981,302	0	0	152,771	0	0	1,450,521
	Liquids	73,041,544	2,689	0	0	0	697	0	0	1,686,104	0	0	74,731,034

Summary of Waste Class by WAG and Year for Total Generated Waste
Oak Ridge National Laboratory Environmental Restoration FY 1994-2020
AT WAG 2

Solids = cubic feet / Liquids = gallons

Year	Media	LLW	RCRA	FREE-Hg	TSCA	RCRA/TSCA	LLW/RCRA	LLW/TSCA	LLW/RCRA/TSCA	SANITARY	TRU(all)	SNM	TOTAL
1995	Solids	2,700	0	0	0	0	0	0	0	0	0	0	2,700
1996	Solids	2,700	0	0	0	0	0	0	0	0	0	0	2,700
1998	Solids	2,160	0	0	0	0	0	0	0	0	0	0	2,160
1999	Solids	2,160	0	0	0	0	0	0	0	0	0	0	2,160
2001	Solids	2,160	0	0	0	0	0	0	0	0	0	0	2,160
2002	Solids	2,688	0	0	0	0	0	0	0	3,755	0	0	6,443
	Liquids	5,116	0	0	0	0	0	0	0	0	0	0	5,116
2004	Solids	2,160	0	0	0	0	0	0	0	0	0	0	2,160
2005	Solids	2,160	0	0	0	0	0	0	0	0	0	0	2,160
2007	Solids	2,160	0	0	0	0	0	0	0	0	0	0	2,160
2008	Solids	2,160	0	0	0	0	0	0	0	0	0	0	2,160
2009	Solids	6,061	0	0	0	0	0	0	0	18,610	0	0	24,671
	Liquids	62,801	0	0	0	0	0	0	0	0	0	0	62,801
2010	Solids	9,506	0	0	0	0	0	0	0	22,558	0	0	32,064
	Liquids	76,122	0	0	0	0	0	0	0	0	0	0	76,122
2011	Solids	7,118	0	0	0	0	0	0	0	15,226	0	0	22,344
	Liquids	51,383	0	0	0	0	0	0	0	0	0	0	51,383
2013	Solids	2,160	0	0	0	0	0	0	0	0	0	0	2,160
2014	Solids	2,160	0	0	0	0	0	0	0	0	0	0	2,160
2016	Solids	2,160	0	0	0	0	0	0	0	0	0	0	2,160
2017	Solids	2,160	0	0	0	0	0	0	0	0	0	0	2,160
2019	Solids	2,160	0	0	0	0	0	0	0	0	0	0	2,160
2020	Solids	2,160	0	0	0	0	0	0	0	0	0	0	2,160

Summary of Waste Class by WAG and Year for Total Generated Waste
Oak Ridge National Laboratory Environmental Restoration FY 1994-2020
AT WAG 2 (continued)

Solids = cubic feet / Liquids = gallons

Year	Media	LLW	RCRA	FREE-Hg	TSCA	RCRA/TSCA	LLW/RCRA	LLW/TSCA	LLW/RCRA/TSCA	SANITARY	TRU(all)	SNM	TOTAL
Total	Solids	58,853	0	0	0	0	0	0	0	60,149	0	0	119,002
	Liquids	195,422	0	0	0	0	0	0	0	0	0	0	195,422

Summary of Waste Class by WAG and Year for Total Generated Waste
Oak Ridge National Laboratory Environmental Restoration FY 1994-2020
AT WAG 3

Solids = cubic feet / Liquids = gallons

Year	Media	LLW	RCRA	FREE-Hg	TSCA	RCRA/TSCA	LLW/RCRA	LLW/TSCA	LLW/RCRA/TSCA	SANITARY	TRU(all)	SNM	TOTAL
1999	Solids	276	7	0	0	0	3	0	0	151	0	0	437
	Liquids	4,877	111	0	0	0	53	0	0	442	0	0	5,483
2000	Solids	1,109	25	0	0	0	11	0	0	599	0	0	1,744
	Liquids	18,425	418	0	0	0	199	0	0	15,282	0	0	34,324
2001	Solids	1,039	25	0	0	0	11	0	0	566	0	0	1,641
	Liquids	18,425	418	0	0	0	199	0	0	1,672	0	0	20,714
2002	Solids	703	17	0	0	0	8	0	0	384	0	0	1,112
	Liquids	12,464	283	0	0	0	135	0	0	1,131	0	0	14,013
2010	Solids	6,988	0	0	0	0	0	0	0	2,200	0	0	9,188
	Liquids	8,507	0	0	0	0	0	0	0	39,197	0	0	47,704
2011	Solids	12,388	0	0	0	0	0	0	0	3,900	0	0	16,288
	Liquids	15,081	0	0	0	0	0	0	0	69,486	0	0	84,567
2012	Solids	12,388	0	0	0	0	0	0	0	3,900	0	0	16,288
	Liquids	15,081	0	0	0	0	0	0	0	69,486	0	0	84,567
Total	Solids	34,891	74	0	0	0	33	0	0	11,700	0	0	46,698
	Liquids	92,860	1,230	0	0	0	586	0	0	196,696	0	0	291,372

Summary of Waste Class by WAG and Year for Total Generated Waste
Oak Ridge National Laboratory Environmental Restoration FY 1994-2020
AT WAG 4

Solids = cubic feet / Liquids = gallons

Year	Media	LLW	RCRA	FREE-Hg	TSCA	RCRA/TSCA	LLW/RCRA	LLW/TSCA	LLW/RCRA/TSCA	SANITARY	TRU(all)	SNM	TOTAL
1999	Solids	132	3	0	0	0	1	0	0	47	0	0	183
	Liquids	2,083	47	0	0	0	22	0	0	172	0	0	2,324
2000	Solids	3,827	11	0	0	0	6	0	0	233	0	0	4,077
	Liquids	48,477	172	0	0	0	83	0	0	632	0	0	49,364
2001	Solids	487	11	0	0	0	6	0	0	173	0	0	677
	Liquids	7,637	172	0	0	0	83	0	0	632	0	0	8,524
2002	Solids	487	11	0	0	0	6	0	0	173	0	0	677
	Liquids	7,637	172	0	0	0	83	0	0	632	0	0	8,524
2003	Solids	487	11	0	0	0	6	0	0	173	0	0	677
	Liquids	7,637	172	0	0	0	83	0	0	632	0	0	8,524
2004	Solids	487	11	0	0	0	6	0	0	173	0	0	677
	Liquids	7,637	172	0	0	0	83	0	0	632	0	0	8,524
2005	Solids	487	11	0	0	0	6	0	0	173	0	0	677
	Liquids	7,637	172	0	0	0	83	0	0	632	0	0	8,524
2006	Solids	531	12	0	0	0	6	0	0	189	0	0	738
	Liquids	8,331	187	0	0	0	91	0	0	690	0	0	9,299
2007	Solids	531	12	0	0	0	6	0	0	189	0	0	738
	Liquids	8,331	187	0	0	0	91	0	0	690	0	0	9,299
2008	Solids	418	10	0	0	0	4	0	0	537	0	0	969
	Liquids	7,262	177	0	0	0	78	0	0	1,095	0	0	8,612
2009	Solids	220	4	0	0	0	1	0	0	875	0	0	1,100
	Liquids	4,933	140	0	0	0	53	0	0	1,424	0	0	6,550
2010	Solids	220	4	0	0	0	1	0	0	875	0	0	1,100
	Liquids	4,933	140	0	0	0	53	0	0	1,424	0	0	6,550
2011	Solids	17	0	0	0	0	0	0	0	67	0	0	84
	Liquids	380	11	0	0	0	4	0	0	110	0	0	505
2016	Solids	18,123	0	0	0	0	0	0	0	2,160	0	0	20,283
	Liquids	4,313,134	0	0	0	0	0	0	0	19,057,344	0	0	23,370,478

Summary of Waste Class by WAG and Year for Total Generated Waste
Oak Ridge National Laboratory Environmental Restoration FY 1994-2020
AT WAG 4 (continued)

Solids = cubic feet / Liquids = gallons

Year	Media	LLW	RCRA	FREE-Hg	TSCA	RCRA/TSCA	LLW/RCRA	LLW/TSCA	LLW/RCRA/TSCA	SANITARY	TRU(all)	SNM	TOTAL
2017	Solids	68,746	0	0	0	0	0	0	0	0	0	0	68,746
	Liquids	11,856,283	0	0	0	0	0	0	0	6,355,377	0	0	18,211,660
2018	Solids	68,532	0	0	0	0	0	0	0	0	0	0	68,532
	Liquids	11,425,922	0	0	0	0	0	0	0	720,377	0	0	12,146,299
2019	Solids	68,532	0	0	0	0	0	0	0	0	0	0	68,532
	Liquids	11,425,922	0	0	0	0	0	0	0	720,377	0	0	12,146,299
2020	Solids	62,821	0	0	0	0	0	0	0	0	0	0	62,821
	Liquids	10,473,762	0	0	0	0	0	0	0	660,345	0	0	11,134,107
Total	Solids	295,085	111	0	0	0	55	0	0	6,037	0	0	301,288
	Liquids	49,617,938	1,921	0	0	0	890	0	0	27,523,217	0	0	77,143,966

Summary of Waste Class by WAG and Year for Total Generated Waste
Oak Ridge National Laboratory Environmental Restoration FY 1994-2020
AT WAG 5

Solids = cubic feet / Liquids = gallons

Year	Media	LLW	RCRA	FREE-Hg	TSCA	RCRA/TSCA	LLW/RCRA	LLW/TSCA	LLW/RCRA/TSCA	SANITARY	TRU(all)	SNM	TOTAL
1994	Solids	1,277	34	0	0	0	15	0	0	817	0	0	2,143
	Liquids	2,310	52	0	0	0	26	0	0	258	0	0	2,646
1995	Solids	1,277	34	0	0	0	15	0	0	817	0	0	2,143
	Liquids	2,310	52	0	0	0	26	0	0	258	0	0	2,646
1996	Solids	4,172	0	0	0	0	0	0	0	2,591	0	0	6,763
1997	Solids	6,258	0	0	0	0	0	0	0	3,887	0	0	10,145
1998	Solids	6,258	0	0	0	0	0	0	0	3,887	0	0	10,145
1999	Solids	11,035	0	0	0	0	0	0	0	3,887	0	0	14,922
	Liquids	1,729,890	0	0	0	0	0	0	0	139,416	0	0	1,869,306
2000	Solids	13,025	0	0	0	0	0	0	0	3,887	0	0	16,912
	Liquids	16,247,390	0	0	0	0	0	0	0	197,506	0	0	16,444,896
2001	Solids	40,846	0	0	0	0	0	0	0	3,887	0	0	44,733
	Liquids	15,838,385	0	0	0	0	0	0	0	197,506	0	0	16,035,891
2002	Solids	99,576	0	0	0	0	0	0	0	3,887	0	0	103,463
	Liquids	14,563,530	0	0	0	0	0	0	0	197,506	0	0	14,761,036
2003	Solids	99,576	0	0	0	0	0	0	0	3,887	3,654	0	107,117
	Liquids	567,681	0	0	0	0	0	0	0	197,506	0	0	765,187
2004	Solids	97,490	0	0	0	0	0	0	0	2,591	10,962	0	111,043
	Liquids	581,583	0	0	0	0	0	0	0	197,506	0	0	779,089
2005	Solids	22,833	0	0	0	0	0	0	0	0	2,784	0	25,617
	Liquids	117,641	0	0	0	0	0	0	0	34,854	0	0	152,495
Total	Solids	403,623	68	0	0	0	30	0	0	34,025	17,400	0	455,146
	Liquids	49,650,720	104	0	0	0	52	0	0	1,162,316	0	0	50,813,192

Summary of Waste Class by WAG and Year for Total Generated Waste
Oak Ridge National Laboratory Environmental Restoration FY 1994-2020
AT WAG 6

Solids = cubic feet / Liquids = gallons

Year	Media	LLW	RCRA	FREE-Hg	TSCA	RCRA/TSCA	LLW/RCRA	LLW/TSCA	LLW/RCRA/TSCA	SANITARY	TRU(all)	SNM	TOTAL
1994	Solids	96,685	2	0	0	0	0	0	0	10,603	0	0	107,290
	Liquids	33,681	0	0	0	0	0	0	0	33,600	0	0	67,281
1995	Solids	40,533	1	0	0	0	0	0	0	1,581	0	0	42,115
	Liquids	14,400	0	0	0	0	0	0	0	14,400	0	0	28,800
1997	Solids	3,561	0	0	0	0	0	0	0	8,950	0	0	12,511
	Liquids	197	0	0	0	0	0	0	0	0	0	0	197
Total	Solids	140,779	3	0	0	0	0	0	0	21,134	0	0	161,916
	Liquids	48,278	0	0	0	0	0	0	0	48,000	0	0	96,278

Summary of Waste Class by WAG and Year for Total Generated Waste
Oak Ridge National Laboratory Environmental Restoration FY 1994-2020
AT WAG 7

Solids = cubic feet / Liquids = gallons

Year	Media	LLW	RCRA	FREE-Hg	TSCA	RCRA/TSCA	LLW/RCRA	LLW/TSCA	LLW/RCRA/TSCA	SANITARY	TRU(all)	SNM	TOTAL
1995	Solids	658	0	0	0	0	0	0	0	0	0	0	658
	Liquids	4,826	0	0	0	0	0	0	0	6,804	0	0	11,630
1999	Solids	255	7	0	0	0	3	0	0	74	0	0	339
	Liquids	3,527	79	0	0	0	38	0	0	271	0	0	3,915
2000	Solids	1,021	22	0	0	0	9	0	0	325	0	0	1,377
	Liquids	13,103	276	0	0	0	134	0	0	7,755	0	0	21,268
2001	Solids	896	22	0	0	0	9	0	0	260	0	0	1,187
	Liquids	12,347	276	0	0	0	134	0	0	947	0	0	13,704
2002	Solids	896	22	0	0	0	9	0	0	260	0	0	1,187
	Liquids	12,347	276	0	0	0	134	0	0	947	0	0	13,704
2003	Solids	896	22	0	0	0	9	0	0	260	0	0	1,187
	Liquids	12,347	276	0	0	0	134	0	0	947	0	0	13,704
2004	Solids	896	22	0	0	0	9	0	0	260	0	0	1,187
	Liquids	12,347	276	0	0	0	134	0	0	947	0	0	13,704
2005	Solids	896	22	0	0	0	9	0	0	260	0	0	1,187
	Liquids	12,347	276	0	0	0	134	0	0	947	0	0	13,704
2006	Solids	767	18	0	0	0	9	0	0	223	0	0	1,017
	Liquids	10,583	236	0	0	0	115	0	0	813	0	0	11,747
2008	Solids	105	3	0	0	0	1	0	0	188	0	0	297
	Liquids	392	15	0	0	0	4	0	0	269	0	0	680
2009	Solids	130	3	0	0	0	1	0	0	233	0	0	367
	Liquids	486	19	0	0	0	5	0	0	332	0	0	842
2010	Solids	130	3	0	0	0	1	0	0	233	0	0	367
	Liquids	486	19	0	0	0	5	0	0	332	0	0	842
2011	Solids	55	1	0	0	0	0	0	0	97	0	0	153
	Liquids	204	8	0	0	0	2	0	0	140	0	0	354
2013	Solids	12,982	0	0	0	0	0	0	0	0	0	0	12,982
	Liquids	3,254	0	0	0	0	0	0	0	3,375	0	0	6,629

Summary of Waste Class by WAG and Year for Total Generated Waste
Oak Ridge National Laboratory Environmental Restoration FY 1994-2020
AT WAG 7 (continued)

Solids = cubic feet / Liquids = gallons

Year	Media	LLW	RCRA	FREE-Hg	TSCA	RCRA/TSCA	LLW/RCRA	LLW/TSCA	LLW/RCRA/TSCA	SANITARY	TRU(all)	SNM	TOTAL
2014	Solids	71,399	0	0	0	0	0	0	0	0	0	0	71,399
	Liquids	17,892	0	0	0	0	0	0	0	18,564	0	0	36,456
2015	Solids	71,399	0	0	0	0	0	0	0	0	0	0	71,399
	Liquids	17,892	0	0	0	0	0	0	0	18,564	0	0	36,456
2016	Solids	22,767	0	0	0	0	0	0	0	1,107	0	0	23,874
	Liquids	8,010,640	0	0	0	0	0	0	0	116,744	0	0	8,127,384
2017	Solids	17,133	0	0	0	0	0	0	0	1,165	0	0	18,298
	Liquids	8,430,541	0	0	0	0	0	0	0	121,112	0	0	8,551,653
2018	Solids	17,133	0	0	0	0	0	0	0	1,165	0	0	18,298
	Liquids	8,430,541	0	0	0	0	0	0	0	121,112	0	0	8,551,653
2019	Solids	17,133	0	0	0	0	0	0	0	1,165	0	0	18,298
	Liquids	8,430,541	0	0	0	0	0	0	0	121,112	0	0	8,551,653
2020	Solids	17,990	0	0	0	0	0	0	0	1,223	0	0	19,213
	Liquids	8,852,068	0	0	0	0	0	0	0	127,167	0	0	8,979,235
Total	Solids	255,537	167	0	0	0	69	0	0	8,498	0	0	264,271
	Liquids	42,288,711	2,032	0	0	0	973	0	0	669,201	0	0	42,960,917

Summary of Waste Class by WAG and Year for Total Generated Waste
Oak Ridge National Laboratory Environmental Restoration FY 1994-2020
AT WAG 8

Solids = cubic feet / Liquids = gallons

Year	Media	LLW	RCRA	FREE-Hg	TSCA	RCRA/TSCA	LLW/RCRA	LLW/TSCA	LLW/RCRA/TSCA	SANITARY	TRU(all)	SNM	TOTAL
1999	Solids	103	3	0	0	0	1	0	0	140	0	0	247
	Liquids	829	23	0	0	0	9	0	0	223	0	0	1,084
2000	Solids	443	11	0	0	0	5	0	0	605	0	0	1,064
	Liquids	3,591	98	0	0	0	39	0	0	965	0	0	4,693
2001	Solids	443	11	0	0	0	5	0	0	605	0	0	1,064
	Liquids	3,591	98	0	0	0	39	0	0	965	0	0	4,693
2002	Solids	148	3	0	0	0	2	0	0	202	0	0	355
	Liquids	1,196	33	0	0	0	13	0	0	321	0	0	1,563
2007	Solids	6,963	0	0	0	0	0	0	0	615	0	0	7,578
	Liquids	15,716	0	0	0	0	0	0	0	13,438	0	0	29,154
2008	Solids	89,766	0	0	0	0	0	0	0	1,845	0	0	91,611
	Liquids	47,149	0	0	0	0	0	0	0	40,314	0	0	87,463
Total	Solids	97,866	28	0	0	0	13	0	0	4,012	0	0	101,919
	Liquids	72,072	252	0	0	0	100	0	0	56,226	0	0	128,650

Summary of Waste Class by WAG and Year for Total Generated Waste
Oak Ridge National Laboratory Environmental Restoration FY 1994-2020
AT WAG 9

Solids = cubic feet / Liquids = gallons

Year	Media	LLW	RCRA	FREE-Hg	TSCA	RCRA/TSCA	LLW/RCRA	LLW/TSCA	LLW/RCRA/TSCA	SANITARY	TRU(all)	SNM	TOTAL
2000	Solids	111	3	0	0	0	1	0	0	81	0	0	196
	Liquids	369	10	0	0	0	4	0	0	119	0	0	502
2001	Solids	409	10	0	0	0	4	0	0	300	0	0	723
	Liquids	1,816	39	0	0	0	14	0	0	439	0	0	2,308
2002	Solids	409	10	0	0	0	4	0	0	300	0	0	723
	Liquids	1,816	39	0	0	0	14	0	0	439	0	0	2,308
2003	Solids	176	4	0	0	0	1	0	0	129	0	0	310
	Liquids	592	16	0	0	0	6	0	0	190	0	0	804
2009	Solids	24,750	0	0	0	0	0	0	152,604	16,360	0	0	193,714
	Liquids	44,220	0	0	0	0	0	0	0	47,156	0	0	91,376
2010	Solids	0	0	0	0	0	0	0	161	0	0	0	161
	Liquids	9,058	0	0	0	0	0	0	0	9,659	0	0	18,717
Total	Solids	25,855	27	0	0	0	10	0	152,765	17,170	0	0	195,827
	Liquids	57,871	104	0	0	0	38	0	0	58,002	0	0	116,015

Summary of Waste Class by WAG and Year for Total Generated Waste
Oak Ridge National Laboratory Environmental Restoration FY 1994-2020
AT WAG 10

Solids = cubic feet / Liquids = gallons

Year	Media	LLW	RCRA	FREE-Hg	TSCA	RCRA/TSCA	LLW/RCRA	LLW/TSCA	LLW/RCRA/TSCA	SANITARY	TRU(all)	SNM	TOTAL
1994	Solids	180	6	0	0	0	2	0	0	1,500	0	0	1,688
	Liquids	33,496	754	0	0	0	364	0	0	3,794	0	0	38,408
1999	Liquids	0	28	0	0	0	0	0	0	0	0	0	28
2000	Liquids	0	28	0	0	0	0	0	0	0	0	0	28
2001	Solids	416	0	0	0	0	0	0	0	0	0	0	416
	Liquids	64,233	0	0	0	0	0	0	0	6,368	0	0	70,601
2002	Solids	556	0	0	0	0	0	0	0	0	0	0	556
	Liquids	85,644	0	0	0	0	0	0	0	8,491	0	0	94,135
2003	Solids	185	0	0	0	0	0	0	0	0	0	0	185
	Liquids	28,548	0	0	0	0	0	0	0	2,830	0	0	31,378
2005	Solids	4,127	0	0	0	0	0	0	0	9,430	0	0	13,557
	Liquids	54,069	0	0	0	0	0	0	0	16,414	0	0	70,483
2006	Solids	17,062	0	0	0	0	0	0	0	0	0	0	17,062
	Liquids	131,613	0	0	0	0	0	0	0	112,429	0	0	244,042
2007	Solids	53,081	0	0	0	0	0	0	0	0	0	0	53,081
	Liquids	409,462	0	0	0	0	0	0	0	349,779	0	0	759,241
2008	Solids	53,081	0	0	0	0	0	0	0	0	0	0	53,081
	Liquids	409,462	0	0	0	0	0	0	0	349,779	0	0	759,241
2009	Solids	53,081	0	0	0	0	0	0	0	0	0	0	53,081
	Liquids	409,462	0	0	0	0	0	0	0	349,779	0	0	759,241
2010	Solids	13,270	0	0	0	0	0	0	0	0	0	0	13,270
	Liquids	102,366	0	0	0	0	0	0	0	87,445	0	0	189,811
Total	Solids	195,039	6	0	0	0	2	0	0	10,930	0	0	205,977
	Liquids	1,728,355	810	0	0	0	364	0	0	1,287,108	0	0	3,016,637

Summary of Waste Class by WAG and Year for Total Generated Waste
Oak Ridge National Laboratory Environmental Restoration FY 1994-2020
AT WAG 11

Solids = cubic feet / Liquids = gallons

Year	Media	LLW	RCRA	FREE-Hg	TSCA	RCRA/TSCA	LLW/RCRA	LLW/TSCA	LLW/RCRA/TSCA	SANITARY	TRU(all)	SNM	TOTAL
1994	Solids	2,052	0	0	0	0	14	0	0	0	0	0	2,066
	Liquids	250	0	0	0	0	0	0	0	0	0	0	250
2001	Solids	731	0	0	0	0	0	0	0	50	0	0	781
	Liquids	6,279	0	0	0	0	0	0	0	0	0	0	6,279
2002	Solids	2,706	0	0	0	0	0	0	0	185	0	0	2,891
	Liquids	23,232	0	0	0	0	0	0	0	0	0	0	23,232
2003	Solids	2,706	0	0	0	0	0	0	0	185	0	0	2,891
	Liquids	23,232	0	0	0	0	0	0	0	0	0	0	23,232
2004	Solids	1,170	0	0	0	0	0	0	0	80	0	0	1,250
	Liquids	10,046	0	0	0	0	0	0	0	0	0	0	10,046
2013	Solids	253	0	0	0	0	0	0	0	38	0	0	291
	Liquids	42,600	0	0	0	0	0	0	0	0	0	0	42,600
Total	Solids	9,618	0	0	0	0	14	0	0	538	0	0	10,170
	Liquids	105,639	0	0	0	0	0	0	0	0	0	0	105,639

Summary of Waste Class by WAG and Year for Total Generated Waste
Oak Ridge National Laboratory Environmental Restoration FY 1994-2020
At WAG 21

Solids = cubic feet / Liquids = gallons

Year	Media	LLW	RCRA	FREE-Hg	TSCA	RCRA/TSCA	LLW/RCRA	LLW/TSCA	LLW/RCRA/TSCA	SANITARY	TRU(all)	SNM	TOTAL
1994	Solids	2,463	47	0	0	0	21	0	0	1,467	0	0	3,998
	Liquids	1,137,438	779	0	0	0	364	0	0	17,995	0	0	1,156,576
1995	Solids	2,463	47	0	0	0	21	0	0	1,467	0	0	3,998
	Liquids	1,137,438	779	0	0	0	364	0	0	17,995	0	0	1,156,576
1996	Solids	2,463	47	0	0	0	21	0	0	1,467	0	0	3,998
	Liquids	1,137,438	779	0	0	0	364	0	0	17,995	0	0	1,156,576
1997	Solids	2,463	47	0	0	0	21	0	0	1,467	0	0	3,998
	Liquids	2,157,438	779	0	0	0	364	0	0	17,995	0	0	2,176,576
1998	Solids	2,127	47	0	0	0	21	0	0	1,467	0	0	3,662
	Liquids	1,278,490	779	0	0	0	364	0	0	6,768	0	0	1,286,401
1999	Solids	2,127	47	0	0	0	21	0	0	1,467	0	0	3,662
	Liquids	1,278,490	779	0	0	0	364	0	0	6,768	0	0	1,286,401
2000	Solids	2,127	47	0	0	0	21	0	0	1,467	0	0	3,662
	Liquids	1,359,490	779	0	0	0	364	0	0	6,768	0	0	1,367,401
2001	Solids	2,127	47	0	0	0	21	0	0	1,467	0	0	3,662
	Liquids	1,359,490	779	0	0	0	364	0	0	6,768	0	0	1,367,401
2002	Solids	2,127	47	0	0	0	21	0	0	1,467	0	0	3,662
	Liquids	1,359,490	779	0	0	0	364	0	0	6,768	0	0	1,367,401
2003	Solids	2,127	47	0	0	0	21	0	0	1,467	0	0	3,662
	Liquids	1,359,490	779	0	0	0	364	0	0	6,768	0	0	1,367,401
2004	Solids	2,127	47	0	0	0	21	0	0	1,467	0	0	3,662
	Liquids	1,296,490	779	0	0	0	364	0	0	6,768	0	0	1,304,401
2005	Solids	2,127	47	0	0	0	21	0	0	1,467	0	0	3,662
	Liquids	1,296,490	779	0	0	0	364	0	0	6,768	0	0	1,304,401
2006	Solids	2,410	54	0	0	0	24	0	0	1,678	0	0	4,166
	Liquids	293,295	889	0	0	0	416	0	0	7,286	0	0	301,886
2007	Solids	2,410	54	0	0	0	24	0	0	1,678	0	0	4,166
	Liquids	293,295	889	0	0	0	416	0	0	7,286	0	0	301,886

Summary of Waste Class by WAG and Year for Total Generated Waste
Oak Ridge National Laboratory Environmental Restoration FY 1994-2020
AT WAG 21 (continued)

Solids = cubic feet / Liquids = gallons

Year	Media	LLW	RCRA	FREE-Hg	TSCA	RCRA/TSCA	LLW/RCRA	LLW/TSCA	LLW/RCRA/TSCA	SANITARY	TRU(all)	SNM	TOTAL
2008	Solids	143	0	0	0	0	0	0	0	0	0	0	143
	Liquids	254,849	0	0	0	0	0	0	0	3,143	0	0	257,992
2009	Solids	143	0	0	0	0	0	0	0	0	0	0	143
	Liquids	254,849	0	0	0	0	0	0	0	3,143	0	0	257,992
2010	Solids	114	0	0	0	0	0	0	0	0	0	0	114
	Liquids	203,879	0	0	0	0	0	0	0	2,515	0	0	206,394
2011	Solids	114	0	0	0	0	0	0	0	0	0	0	114
	Liquids	203,879	0	0	0	0	0	0	0	2,515	0	0	206,394
2012	Solids	114	0	0	0	0	0	0	0	0	0	0	114
	Liquids	203,879	0	0	0	0	0	0	0	2,515	0	0	206,394
2013	Solids	2,650	0	0	0	0	0	0	0	0	0	0	2,650
	Liquids	220,505	0	0	0	0	0	0	0	26,519	0	0	247,024
2014	Solids	2,650	0	0	0	0	0	0	0	0	0	0	2,650
	Liquids	220,505	0	0	0	0	0	0	0	26,519	0	0	247,024
2015	Solids	2,650	0	0	0	0	0	0	0	0	0	0	2,650
	Liquids	220,505	0	0	0	0	0	0	0	26,519	0	0	247,024
2016	Solids	2,650	0	0	0	0	0	0	0	0	0	0	2,650
	Liquids	220,505	0	0	0	0	0	0	0	26,519	0	0	247,024
2017	Solids	2,650	0	0	0	0	0	0	0	0	0	0	2,650
	Liquids	220,505	0	0	0	0	0	0	0	26,519	0	0	247,024
2018	Solids	2,832	0	0	0	0	0	0	0	0	0	0	2,832
	Liquids	221,692	0	0	0	0	0	0	0	28,234	0	0	249,926
2019	Solids	2,832	0	0	0	0	0	0	0	0	0	0	2,832
	Liquids	221,692	0	0	0	0	0	0	0	28,234	0	0	249,926
Total	Solids	51,230	672	0	0	0	300	0	0	20,960	0	0	73,162
	Liquids	19,411,506	11,126	0	0	0	5,200	0	0	343,590	0	0	19,771,422

Data Ref. ORNL394
ORNL Data compiled 07/08/94 report wagyear

Appendix E

Waste Class Summary By Waste Area Grouping For Waste Leaving The Area Of Contamination, Oak Ridge National Laboratory Environmental Restoration Fiscal Years 1994–2020

Waste Class Summary by WAG For Waste Leaving the AOC
Oak Ridge National Laboratory Environmental Restoration FY 1994-2020
Solids = cubic feet / Liquids = gallons

WAG	Media	LLW	RCRA	FREE-Hg	TSCA	RCRA/TSCA	LLW/RCRA	LLW/TSCA	LLW/RCRA/TSCA	SANITARY	TRU(all)	SNM	TOTAL
WAG 1	Solids	4,158	47	0	0	0	17	0	0	8,671	0	0	12,893
	Liquids	73,041,544	2,689	0	0	0	697	0	0	1,686,104	0	0	74,731,034
WAG 2	Solids	18,893	0	0	0	0	0	0	0	6,644	0	0	25,537
	Liquids	195,422	0	0	0	0	0	0	0	0	0	0	195,422
WAG 3	Solids	1,071	30	0	0	0	12	0	0	1,591	0	0	2,704
	Liquids	92,860	1,230	0	0	0	586	0	0	196,696	0	0	291,372
WAG 4	Solids	1,594	39	0	0	0	17	0	0	3,817	0	0	5,467
	Liquids	47,769,987	1,921	0	0	0	890	0	0	27,523,217	0	0	75,296,015
WAG 5	Solids	642	24	0	0	0	8	0	0	1,530	17,400	0	19,604
	Liquids	7,650,720	104	0	0	0	52	0	0	1,162,316	0	0	8,813,192
WAG 6	Solids	0	3	0	0	0	0	0	0	6,530	0	0	6,533
	Liquids	48,278	0	0	0	0	0	0	0	48,000	0	0	96,278
WAG 7	Solids	2,327	67	0	0	0	22	0	0	8,270	0	0	10,686
	Liquids	288,711	2,032	0	0	0	973	0	0	669,201	0	0	960,917
WAG 8	Solids	360	10	0	0	0	5	0	0	1,511	0	0	1,886
	Liquids	72,072	252	0	0	0	100	0	0	56,226	0	0	128,650
WAG 9	Solids	340	10	0	0	0	2	0	0	767	0	0	1,119
	Liquids	57,871	104	0	0	0	38	0	0	58,002	0	0	116,015
WAG 10	Solids	180	6	0	0	0	2	0	0	1,500	0	0	1,688
	Liquids	1,728,355	810	0	0	0	364	0	0	1,287,108	0	0	3,016,637
WAG 11	Solids	3,805	0	0	0	0	14	0	0	538	0	0	4,357
	Liquids	105,639	0	0	0	0	0	0	0	0	0	0	105,639
WAG 21	Solids	8,614	244	0	0	0	86	0	0	19,888	0	0	28,832
	Liquids	10,111,506	11,126	0	0	0	5,200	0	0	343,590	0	0	10,471,422
Total	Solids	41,984	480	0	0	0	185	0	0	61,257	17,400	0	121,306
	Liquids	141,162,965	20,268	0	0	0	8,900	0	0	33,030,460	0	0	174,222,593

Data Ref. ORNL394
ORNL Data compiled 07/08/94 report wagtable

Appendix F

Waste Destination Summary by Year for Waste Leaving the Area of Contamination, Oak Ridge National Laboratory Environmental Restoration, Fiscal Years 1994-2020

Waste Destination Summary by Year for Waste Leaving the AOC
Oak Ridge National Laboratory Environmental Restoration FY 1994- 2020

Solids = cubic feet / Liquids = gallons

Year	media	7000 Area Metal Recycle	Commercial Disposal/ Waste Management	Decon/ Reuse	Interim Waste Management Facility or LLW Disposal Facility (IWMF/LLWDF)	LLLW System	Process Waste Treatment Plant (PWTP)	Recycle	SEG	Sewage Treatment Plant(STP)	Solid Waste Storage Area 6 (SWSA 6)	Sanitary Landfill	TSCA Incinerator	Storage/ Waste Management	Total
1994	Liquids	0	285	0	0	117,314	1,106,613	0	0	48,103	0	0	0	0	1,272,315
	Solids	2,166	37	14	1,104	0	0	23	0	0	2,052	6,233	12	0	11,641
1995	Liquids	0	257	0	0	171,749	2,411,415	0	0	49,307	0	0	0	0	2,632,728
	Solids	12	30	0	924	0	0	0	0	0	0	3,710	10	0	4,686
1996	Liquids	0	253	0	0	163,140	8,292,228	0	0	78,870	0	0	0	0	8,534,491
	Solids	0	17	0	603	0	0	0	0	0	0	1,392	6	0	2,018
1997	Liquids	0	253	0	0	132,736	8,259,873	0	0	108,324	0	0	0	0	8,501,186
	Solids	0	17	0	603	0	0	0	0	0	0	1,710	6	0	2,336
1998	Liquids	0	253	0	0	189,641	8,140,601	0	0	126,928	0	0	0	0	8,457,423
	Solids	0	17	0	603	0	0	0	0	0	0	1,794	6	0	2,420
1999	Liquids	0	339	0	0	285,199	9,910,933	0	0	266,970	0	0	0	0	10,463,441
	Solids	0	25	0	862	0	0	0	0	0	0	2,189	8	0	3,084
2000	Liquids	0	499	0	0	90,869	10,392,371	0	0	345,577	0	0	0	0	10,829,316
	Solids	0	45	0	1,604	0	0	0	0	0	0	3,494	17	0	5,160
2001	Liquids	0	479	0	0	94,290	5,132,074	0	0	282,405	0	0	0	0	5,509,248
	Solids	0	48	0	1,846	0	0	0	0	0	0	3,564	18	0	5,476
2002	Liquids	0	469	0	0	84,732	3,604,578	0	0	246,641	0	0	0	0	3,936,420
	Solids	0	46	0	2,188	0	0	0	528	0	0	3,336	18	0	6,116
2003	Liquids	0	502	0	0	79,089	3,559,664	0	0	229,374	0	0	0	0	3,868,629
	Solids	0	49	0	2,298	0	0	0	0	0	0	3,305	17	3,654	9,323
2004	Liquids	0	444	0	0	105,198	3,503,105	0	0	226,069	0	0	0	0	3,834,816
	Solids	0	42	0	1,715	0	0	0	0	0	0	3,063	15	10,962	15,797
2005	Liquids	0	392	0	0	52,772	1,782,926	0	0	80,009	0	0	0	0	1,916,099
	Solids	0	35	0	1,202	0	0	0	0	0	0	3,100	13	2,784	7,134
2006	Liquids	0	406	0	0	41,005	429,482	0	0	140,932	0	0	0	0	611,825

Waste Destination Summary by Year for Waste Leaving the AOC (continued)
Oak Ridge National Laboratory Environmental Restoration FY 1994- 2020

Solids = cubic feet / Liquids = gallons

Year	media	7000 Area Metal Recycle	Commercial Disposal/ Waste Management	Decon/ Reuse	Interim Waste Management Facility or LLW Disposal Facility (IWMF/LLWDF)	LLLW System	Process Waste Treatment Plant (PWTP)	Recycle	SEG	Sewage Treatment Plant(STP)	Solid Waste Storage Area 6 (SWSA 6)	Sanitary Landfill	TSCA Incinerator	Storage/ Waste Management	Total
	Solids	0	32	0	1,159	0	0	0	0	0	0	2,802	12	0	4,005
2007	Liquids	0	349	0	0	61,616	692,345	0	0	391,216	0	0	0	0	1,145,526
	Solids	0	26	0	910	0	0	0	0	0	0	2,205	10	0	3,151
2008	Liquids	0	76	0	0	64,762	679,996	0	0	418,339	0	0	0	0	1,163,173
	Solids	0	8	0	273	0	0	0	0	0	0	1,339	2	0	1,622
2009	Liquids	0	57	0	0	70,744	729,013	0	0	424,934	0	0	0	0	1,224,748
	Solids	0	4	0	168	0	0	0	6,061	0	0	3,703	1	0	9,937
2010	Liquids	0	46	0	0	36,455	370,919	0	0	138,871	0	0	0	0	546,291
	Solids	0	2	0	115	0	0	0	7,346	0	0	3,781	0	0	11,244
2011	Liquids	0	14	0	0	28,380	6,370,483	0	0	116,968	0	0	0	0	6,515,845
	Solids	0	0	0	24	0	0	0	4,958	0	0	2,112	0	0	7,094
2012	Liquids	0	6	0	0	29,935	7,809,520	0	0	232,084	0	0	0	0	8,071,545
	Solids	0	0	0	212	0	0	0	0	0	0	591	0	0	803
2013	Liquids	0	4	0	0	28,489	7,038,355	0	0	220,949	0	0	0	0	7,287,797
	Solids	0	0	0	634	0	0	0	0	0	253	1,452	0	0	2,339
2014	Liquids	0	3	0	0	31,959	305,928	0	0	306,311	0	0	0	0	644,201
	Solids	0	0	0	8	0	0	0	0	0	0	87	0	0	95
2015	Liquids	0	0	0	0	24,978	242,691	0	0	62,025	0	0	0	0	329,694
2016	Liquids	0	0	0	0	29,358	21,995,245	0	0	326,827	0	0	0	0	22,351,430
	Solids	0	0	0	0	0	0	0	0	0	0	1,107	0	0	1,107
2017	Liquids	0	0	0	0	31,769	17,285,531	0	0	868,008	0	0	0	0	18,185,308
	Solids	0	0	0	0	0	0	0	0	0	0	1,165	0	0	1,165
2018	Liquids	0	0	0	0	31,261	11,646,894	0	0	869,723	0	0	0	0	12,547,878
	Solids	0	0	0	0	0	0	0	0	0	0	1,165	0	0	1,165
2019	Liquids	0	0	0	0	31,261	11,646,894	0	0	869,723	0	0	0	0	12,547,878

Waste Destination Summary by Year for Waste Leaving the AOC (continued)
Oak Ridge National Laboratory Environmental Restoration FY 1994- 2020

Solids = cubic feet / Liquids = gallons

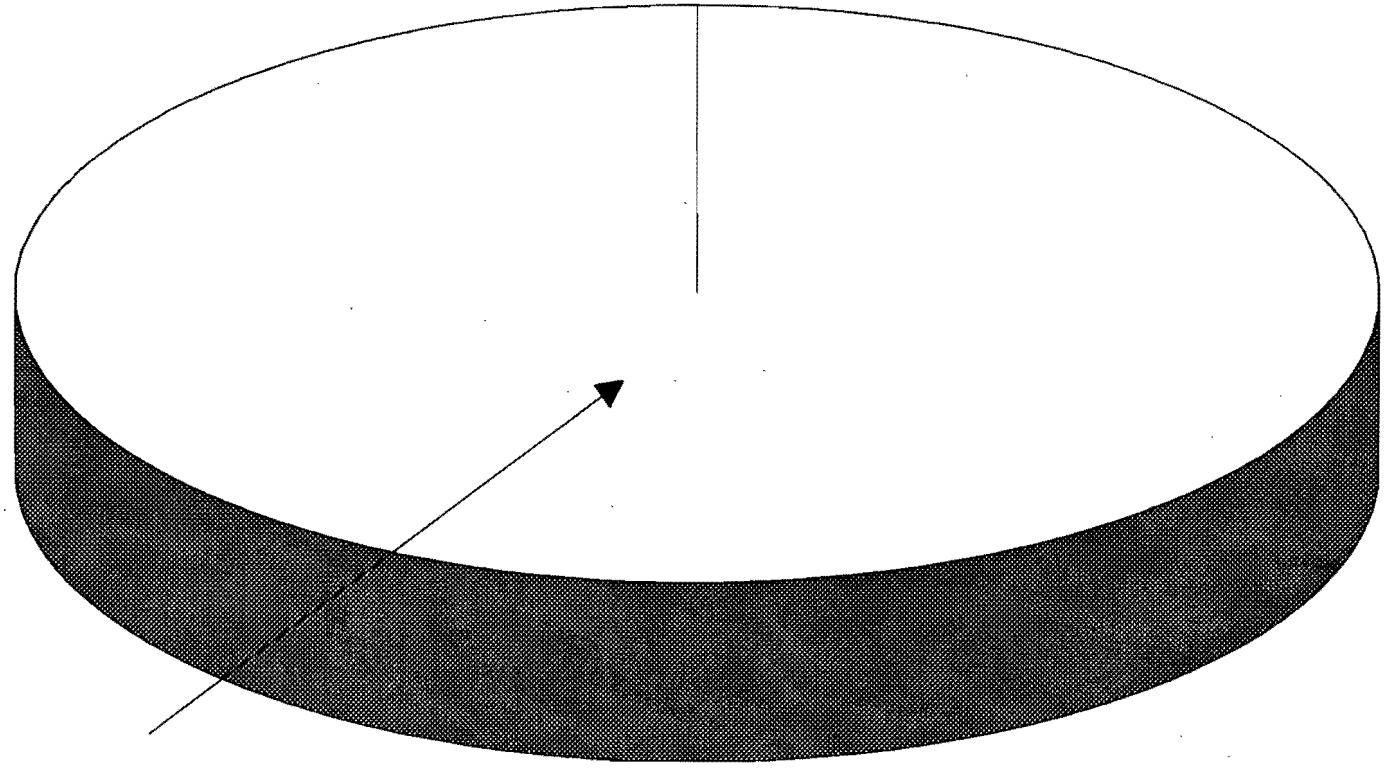
Year	media	7000 Area Metal Recycle	Commercial Disposal/ Waste Management	Decon/ Reuse	Interim Waste Management Facility or LLW Disposal Facility (IWMF/LLWDF)	LLLW System	Process Waste Treatment Plant (PWTP)	Recycle	SEG	Sewage Treatment Plant(STP)	Solid Waste Storage Area 6 (SWSA 6)	Sanitary Landfill	TSCA Incinerator	Storage/ Waste Management	Total
	Solids	0	0	0	0	0	0	0	0	0	0	1,165	0	0	1,165
2020	Liquids	0	0	0	0	10,357	10,495,473	0	0	787,512	0	0	0	0	11,293,342
	Solids	0	0	0	0	0	0	0	0	0	0	1,223	0	0	1,223
Total	Solids	2,178	480	14	19,055	0	0	23	18,893	0	2,305	60,787	171	17,400	121,306
	Liquids	0	5,386	0	0	2,119,058	163,835,150	0	0	8,262,999	0	0	0	0	174,222,593

Data Ref. ORNL394
ORNL Data compiled 07/08/94 report destyear

Appendix G

Distribution Of Waste Area Grouping Waste Volumes By Waste Management Destination, Oak Ridge National Laboratory Environmental Restoration Fiscal Years 1994–2020

7000 Area Metal Recycle
Solids



Volume = 2178 ft3

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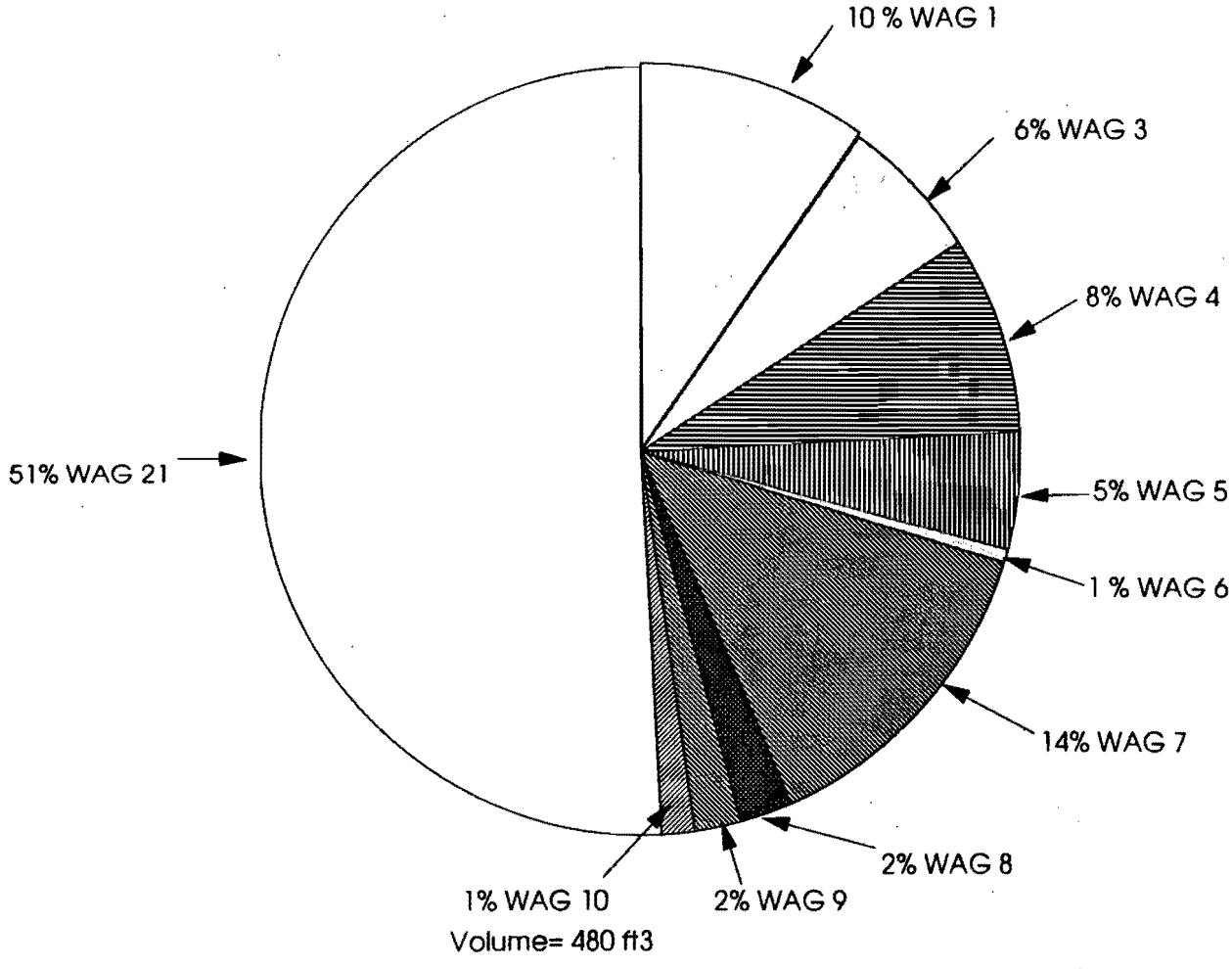
ornlchart.run8

Commercial Facility/Waste Management Solids



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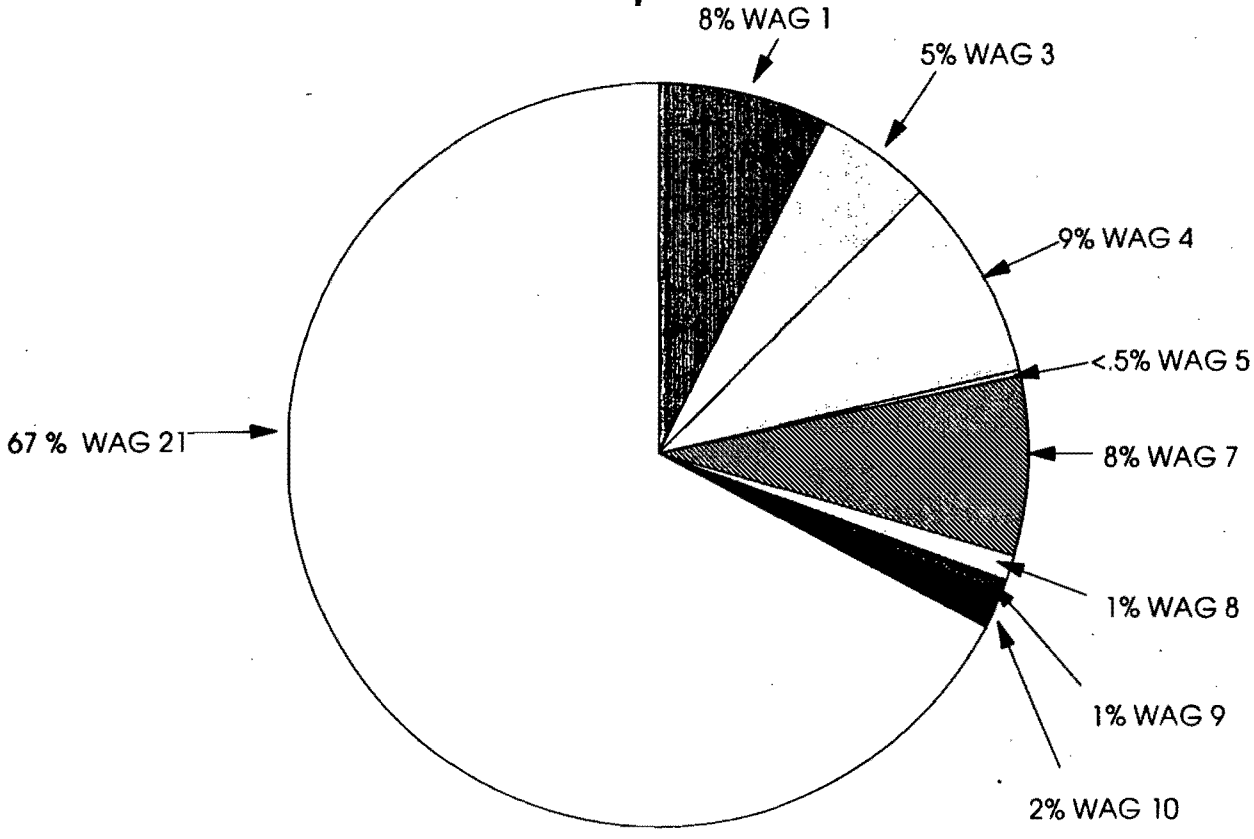
Commercial Facility/Waste Management Liquids



Volume= 5386 gals.

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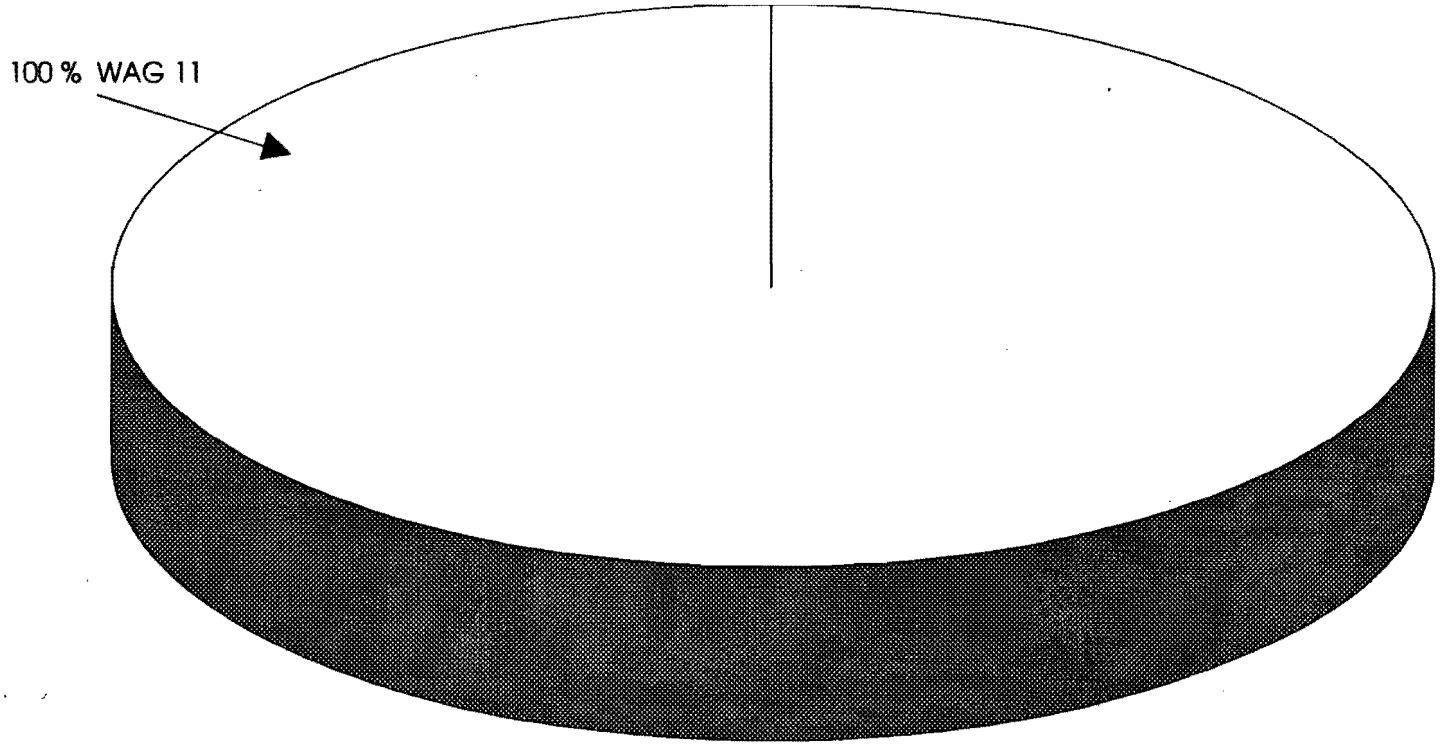
Decontaminate/Reuse Solids



Volume= 14 ft3

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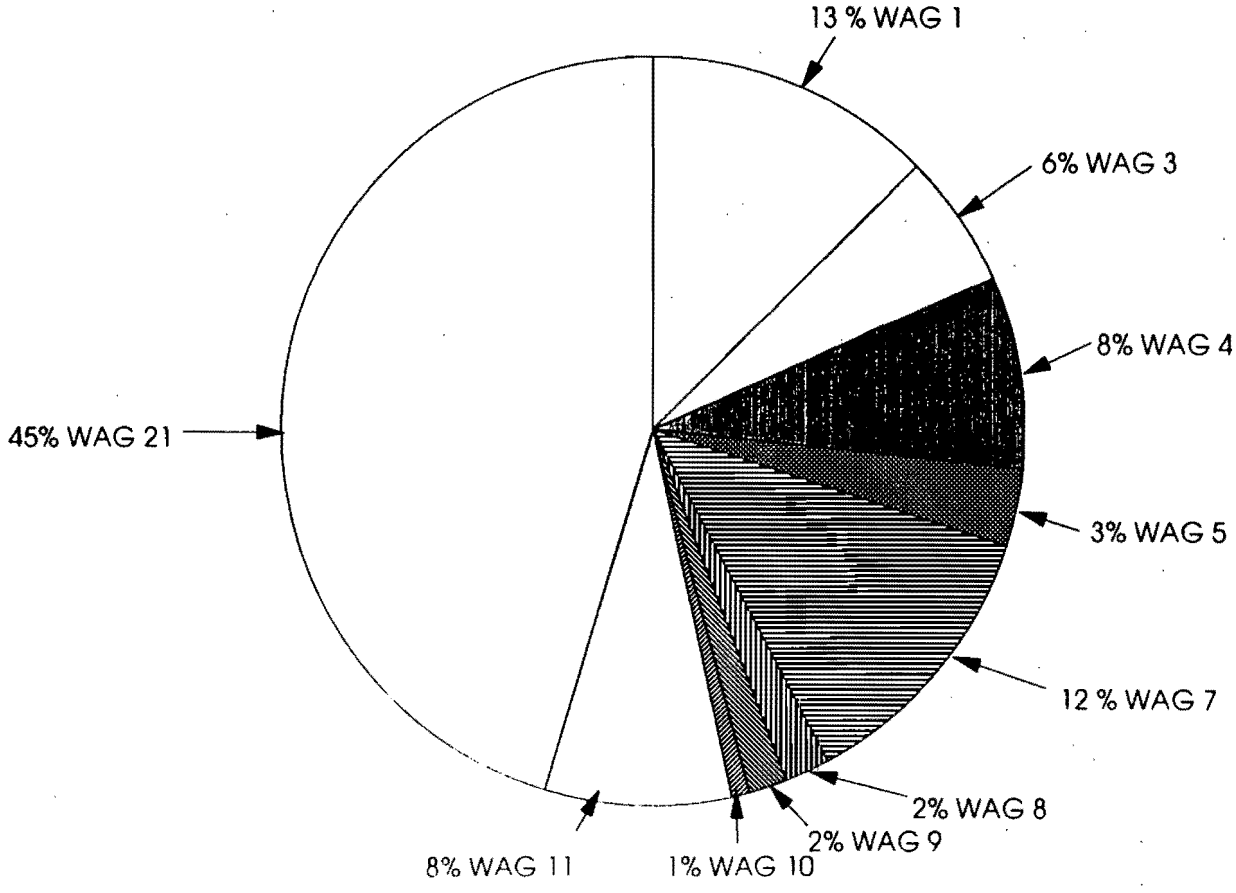
Interim Waste Management Facility or Low Level Waste Disposal Facility Solids



Volume= 19055 ft3.

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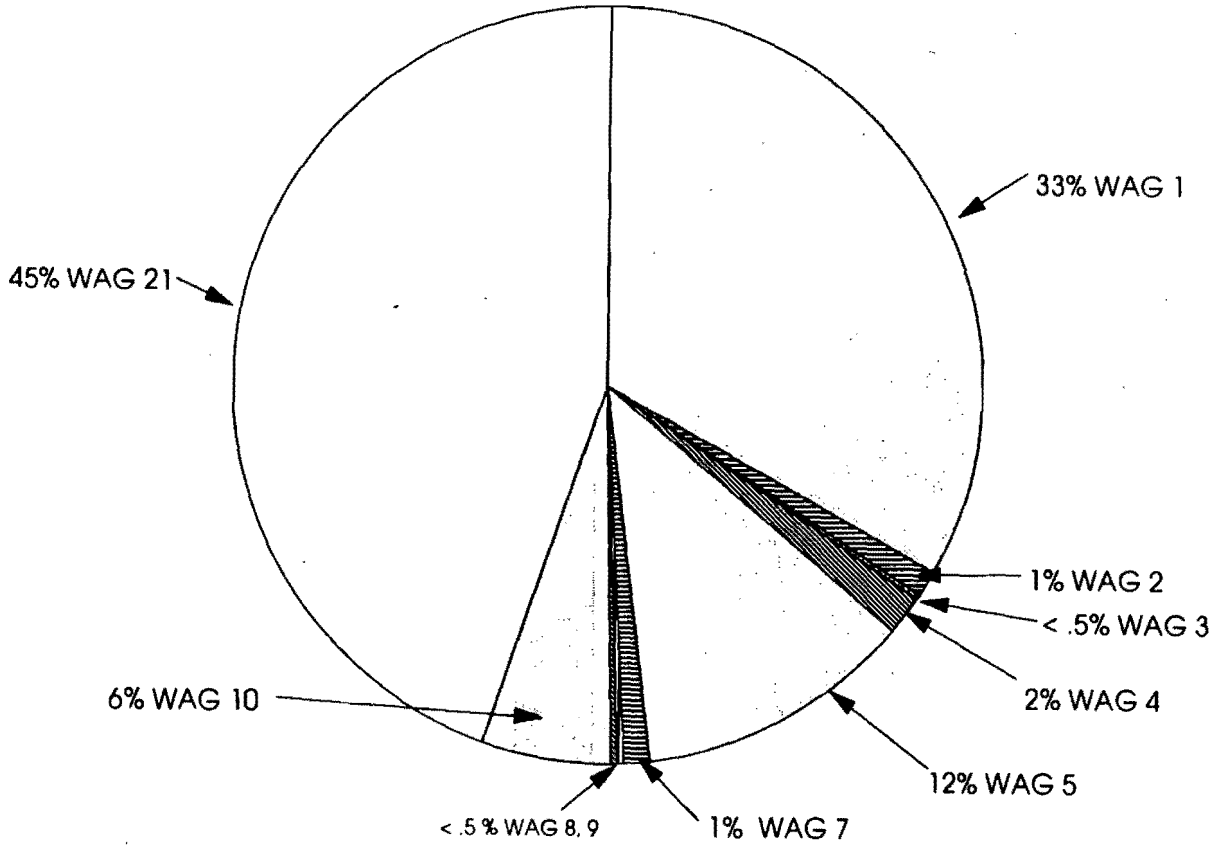
LLLW System
Liquids



Volume=2,119,058 gal.

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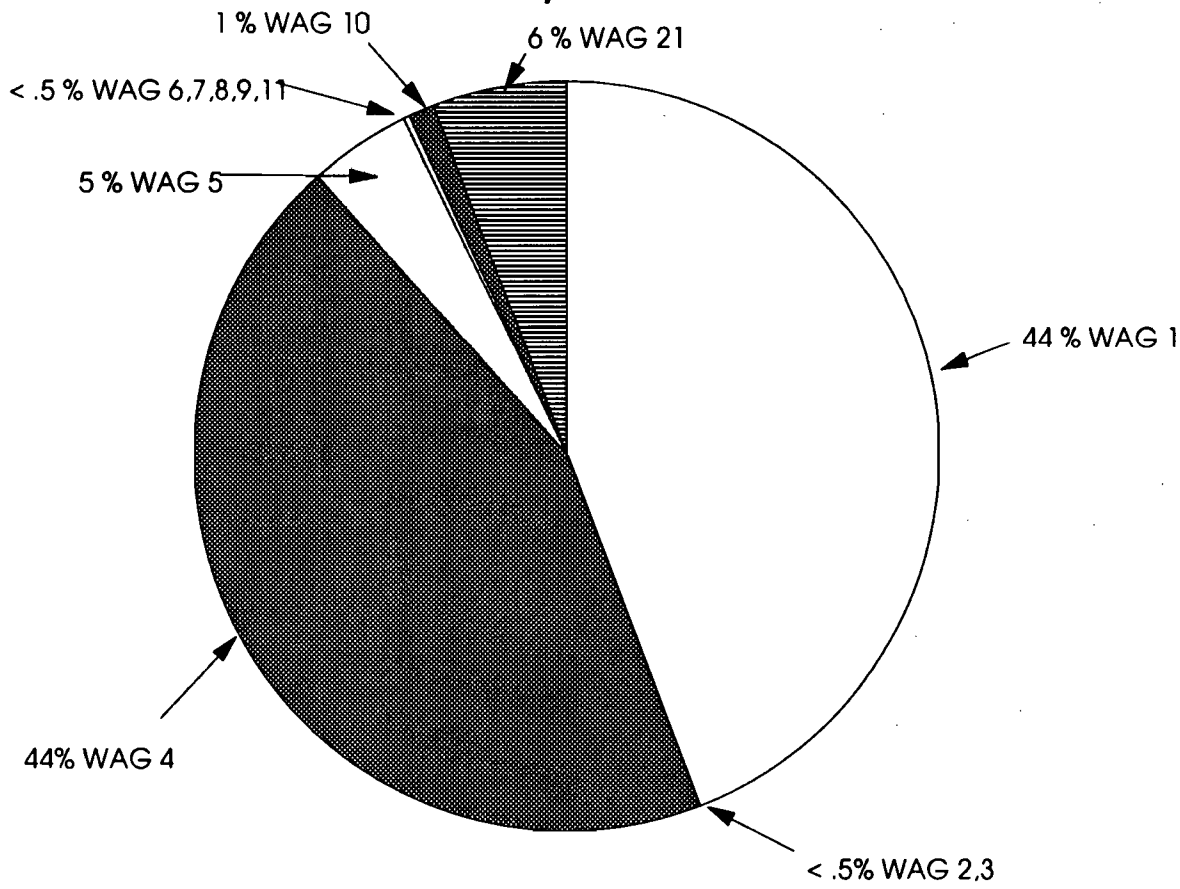
Process Waste Treatment Plant (PWTP) Liquids



Volume=163,835,150 gal.

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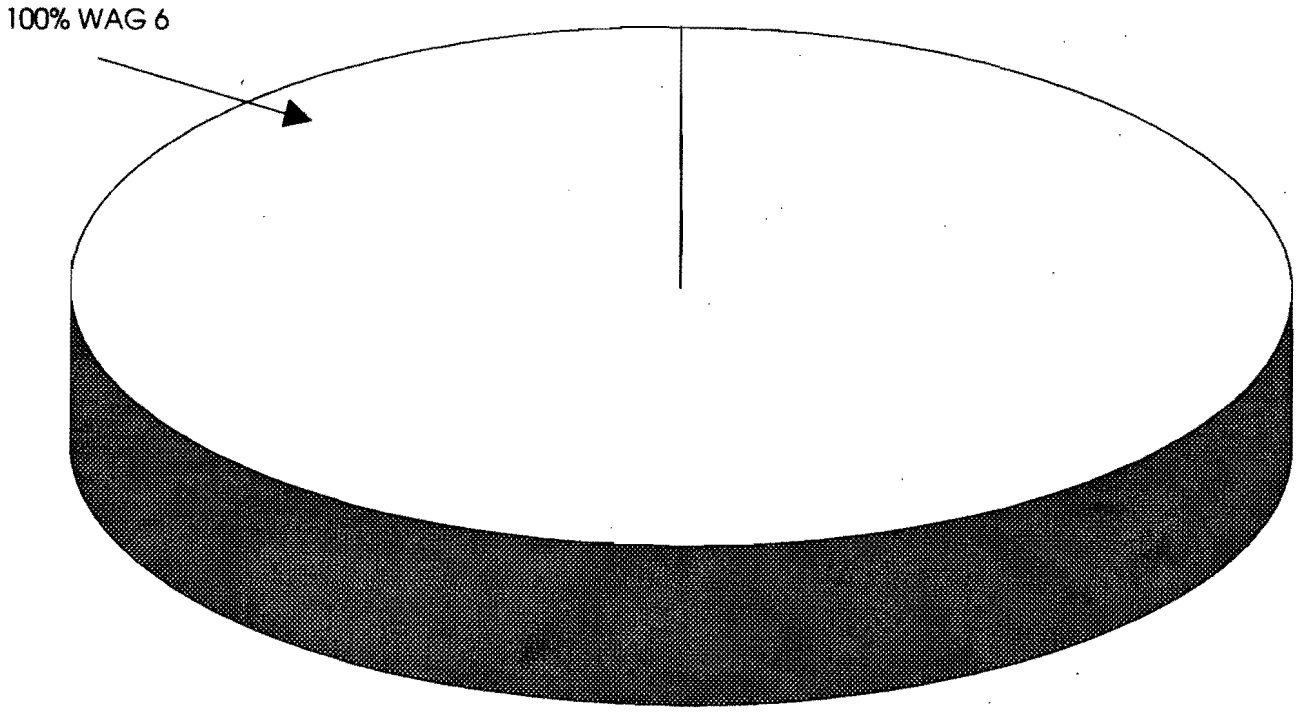
Recycle Solids



Volume=23 ft3.

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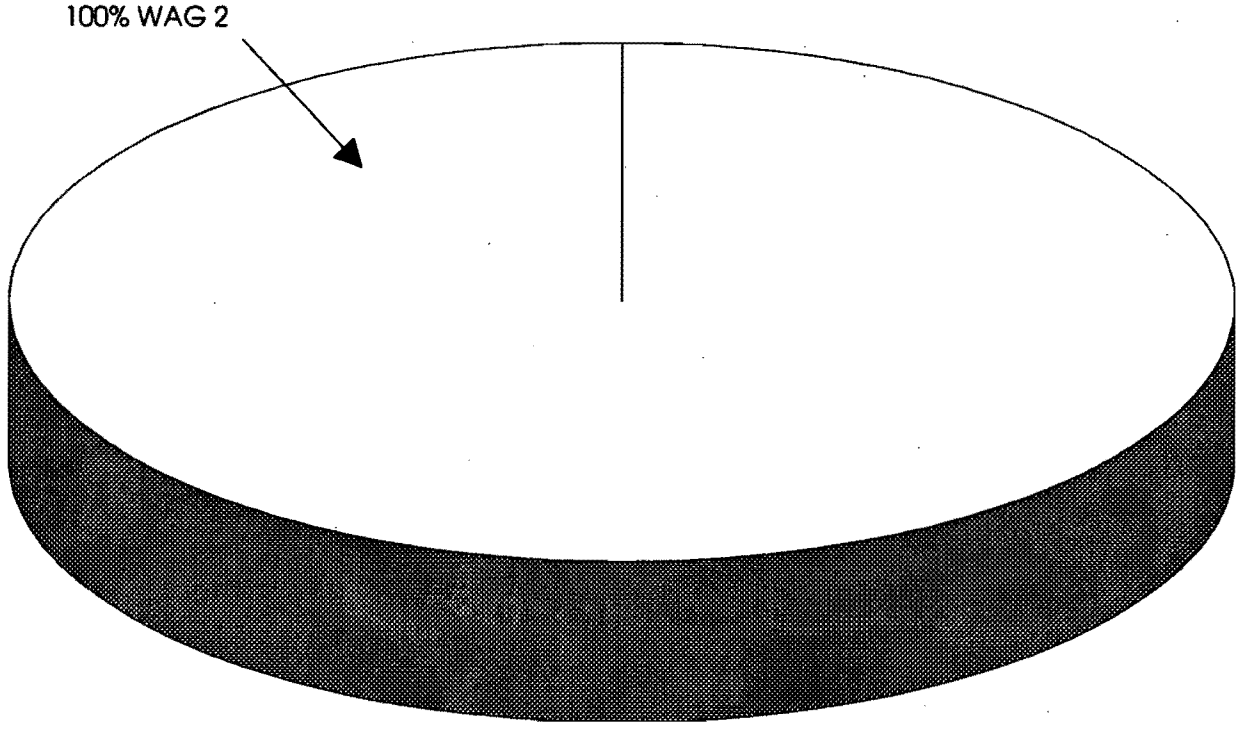
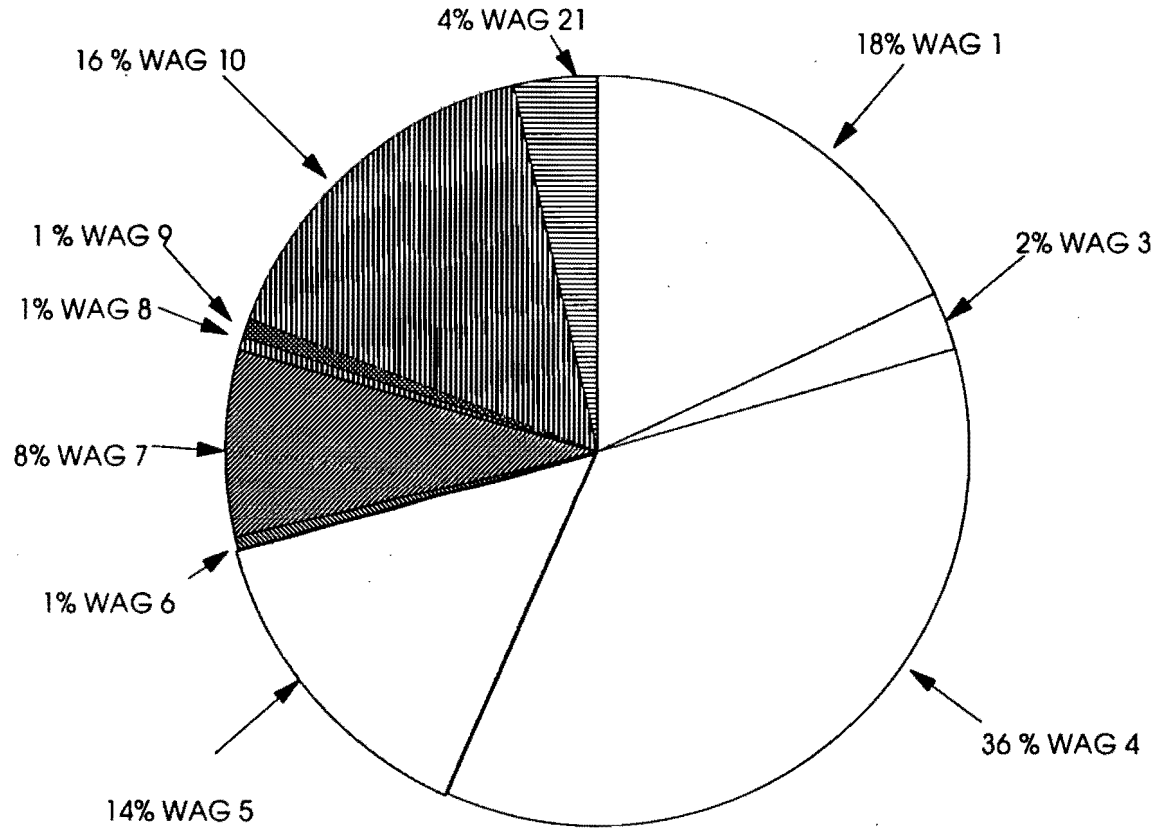
SEG/Incinerate Solids



Volume=18,893 ft3.

Sewage Treatment Plant (STP) Liquids



Volume=8,262,999 gal.

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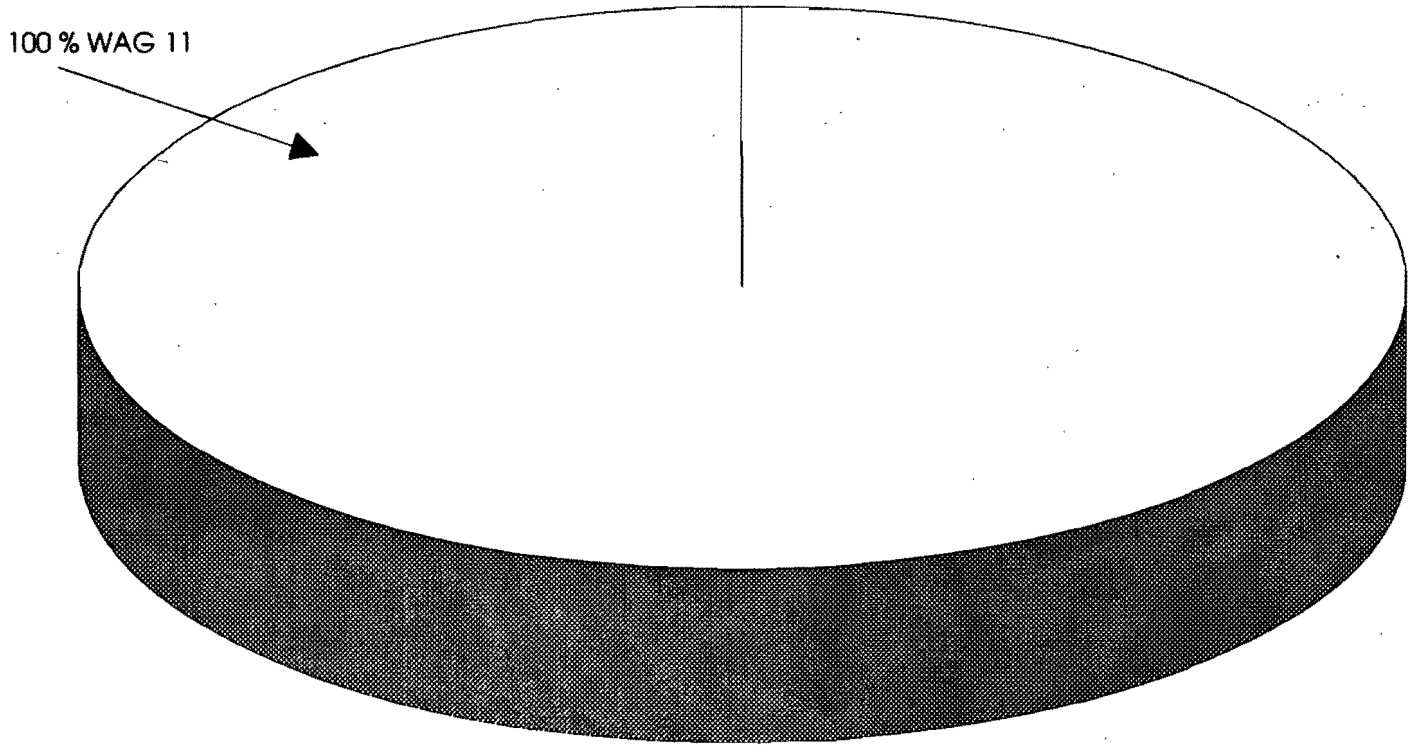
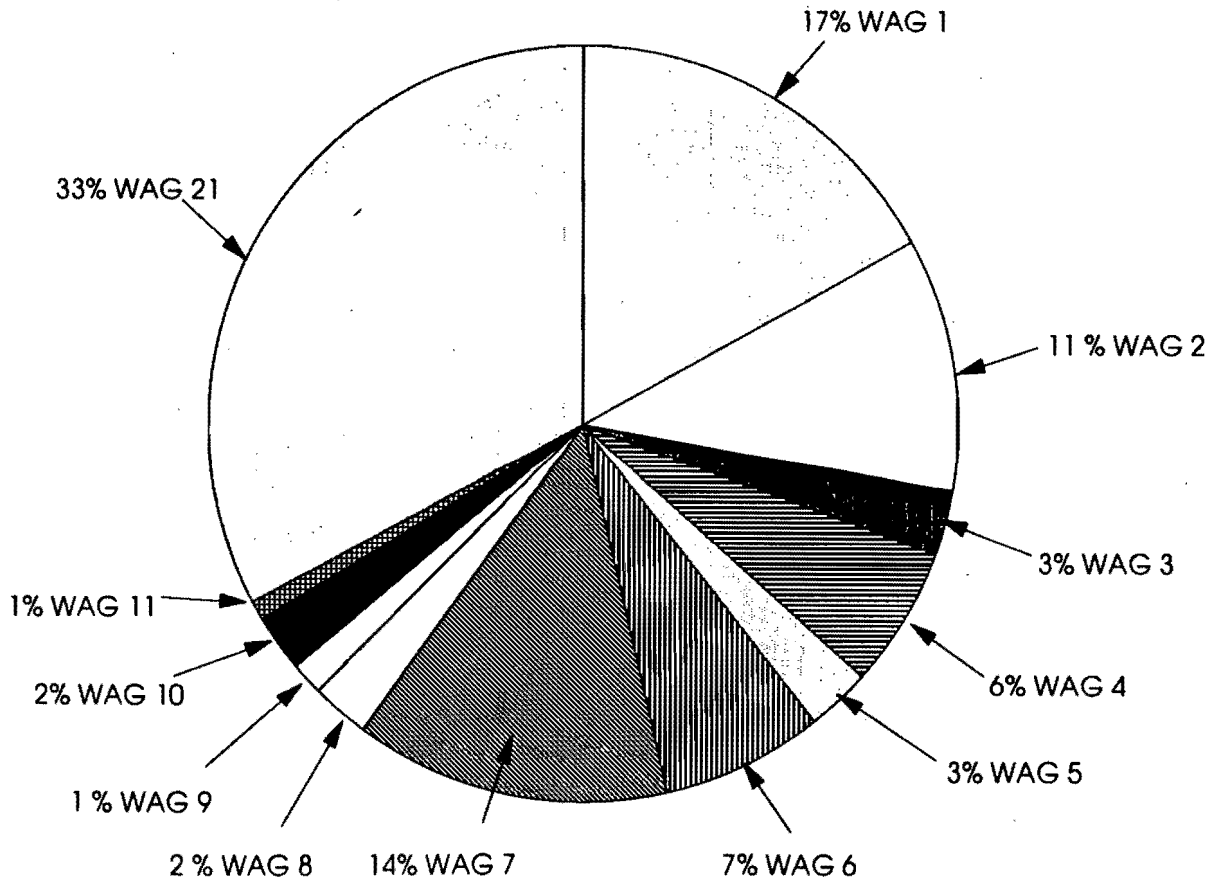
Solid Waste Storage Area 6 (SWSA 6)
Solids



Volume=2305 ft3.

Sanitary Landfill Solids



Volume=60,787 ft3.

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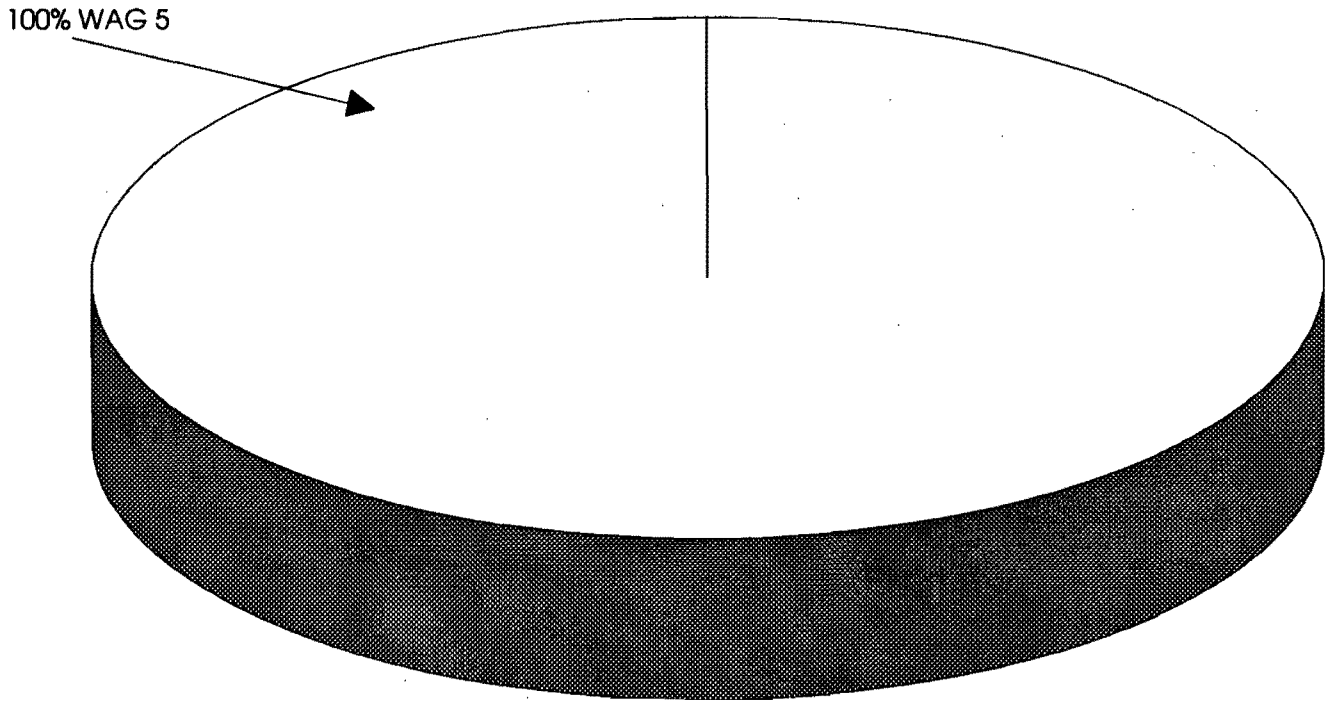
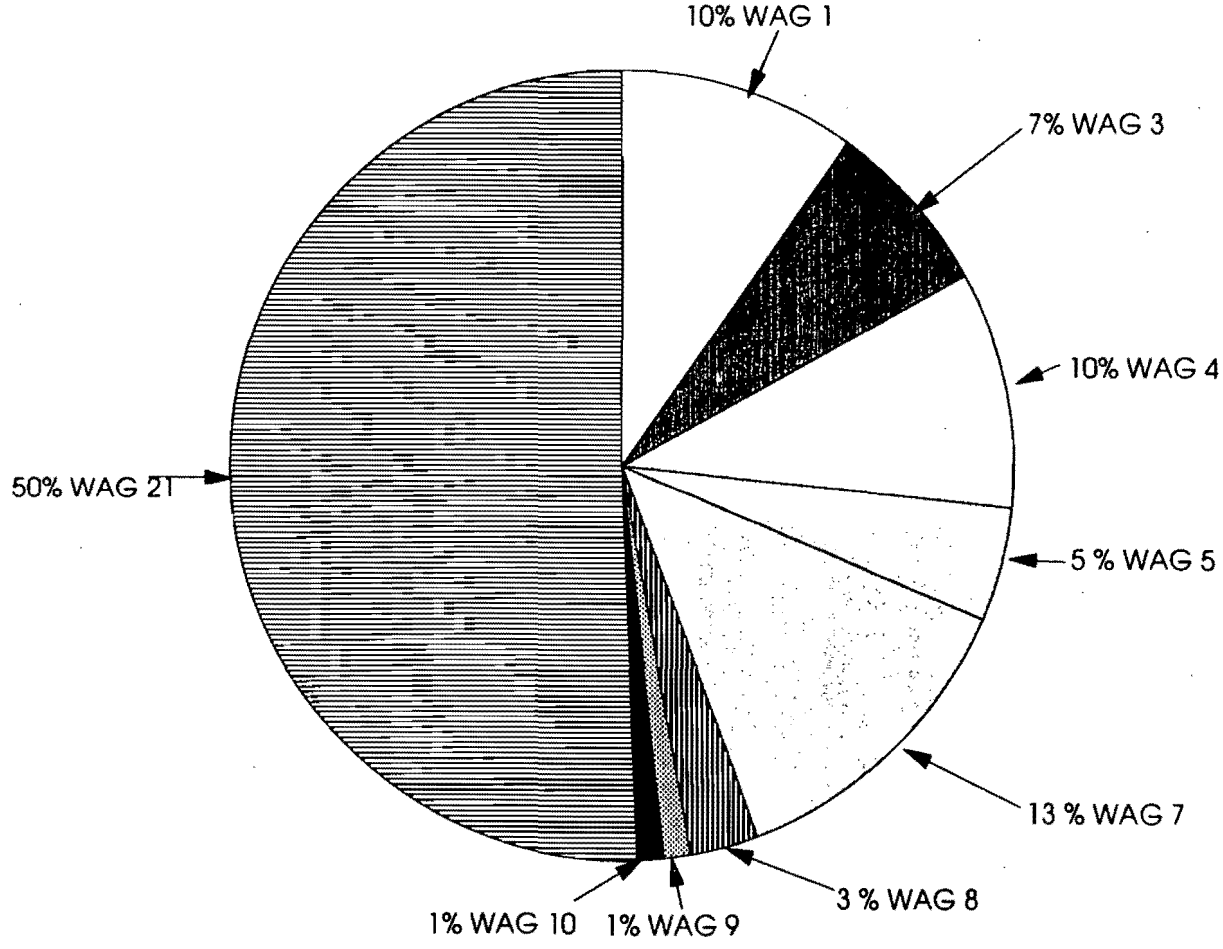
Transuranic Storage/Waste Management Solids



Volume=17,400 ft3.

TSCA Incinerator Solids



Volume=171 ft3.

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