PNNL-11800
Addendum 1

Pacific Northwest National Laboratory
Operated by Battelle for the U.S. Department of Energy

Addendum to Composite Analysis for Low-Level Waste Disposal in the 200 Area Plateau of the Hanford Site

M. P. Bergeron
E. J. Freeman
S. K. Wurstner

Appendix A

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P. S. Eslinger

September 2001

Prepared for the U.S. Department of Energy
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Richland, Washington 99352

Summary

This report summarizes the efforts to complete an addendum analysis to the first iteration of the Composite Analysis for Low-Level Waste Disposal in the 200 Area Plateau of the Hanford Site (Composite Analysis). This document describes the background and performance objectives of the Composite Analysis and this addendum analysis. The methods used, results, and conclusions for this Addendum analysis are summarized, and recommendations are made for work to be undertaken in anticipation of a second analysis.

As a condition of the Low-Level Waste Federal Review Group (LFRG) acceptance of the 200 Area Plateau Composite Analysis, the Hanford Site needs to provide a Composite Analysis Addendum that addresses a bounding sensitivity analysis of the impact on the composite analysis results of the Plutonium Uranium Extraction Plant (PUREX) tunnels, the chemical separations plants, and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites in the 200 Area that were not considered in the first Composite Analysis. The bounding sensitivity analysis was recommended because of the general lack of inventory information available for these sites when the initial analysis was performed.

In light of recent inventory information developed at Hanford as part of the initial assessment using the newly developed System Assessment Capability (SAC), this addendum analysis did not perform a bounding sensitivity analysis but rather focused on a best estimate analysis and limited sensitivity for the sites in question. This analysis used estimates developed for technetium-99 and iodine-129 from the SAC inventory database as representative mobile constituents that were used to evaluate the potential impact from the PUREX tunnels, the chemical separations plants, and the CERCLA sites not evaluated in the original Composite Analysis. Results from the original Composite Analysis indicate that technetium-99 and iodine-129 were key constituents in the projected doses estimated in the original analysis and that these constituents could be used as general indicator constituents for evaluation of potential impacts from the sites being considered in this analysis.

Performance Objectives

The performance objectives of the Composite Analysis followed U.S. Department of Energy (DOE) guidance for radiation dose to hypothetical future members of the public. DOE Order 5400.5 sets the primary dose limit of 100 mrem/yr but requires that a lower dose be examined (30 mrem/yr) to ensure the "as low as reasonably achievable" (ALARA) concept is followed. The 100 mrem/yr standard is the maximum allowable projected dose from all pathways to the hypothetical future member of the public.

In accordance with DOE guidance, the regulatory period of performance begins at the time of Hanford Site closure, assumed to be in 2050, and continues for 1000 years. In the Composite Analysis, an options analysis and ALARA assessment were to be prepared if the projected dose exceeded the dose constraint of 30 mrem/yr. The options and ALARA analyses were to consider alternative actions that would reduce the calculated doses and to provide an assessment of cost and benefit.

The point of compliance for exposure and radiological dose predictions to a hypothetical future member of the public in the Composite Analysis was a boundary based on anticipated land use at the Hanford Site. In 1992, the Hanford Future Site Uses Working Group, comprising representatives from government entities (federal, tribal, state, and local) and constituencies (labor, environment, agriculture, economic development, municipal, and public interest groups), defined the concepts of an "exclusive" waste management area within a surrounding buffer zone on the 200 Area Plateau. This area includes the land within and surrounding the 200 East and 200 West Areas of the Hanford Site, the commercial low-level radioactive waste disposal facility operated by US Ecology, Inc., and the Environmental Restoration Disposal Facility. The projected doses to hypothetical future members of the public from the low-level radioactive waste disposal actions and all other sources considered in the Composite Analysis were compared with the dose limit of 100 mrem/yr and dose constraint of 30 mrem/yr in the area between the buffer zone and the Columbia River.

Methodology

The process used for estimating doses to hypothetical future members of the public in the addendum was the same as that used in the original Composite Analysis. They include the following steps:

- The first step involved estimating the inventories of radionuclides for the various sources present or to be placed on the 200 Area Plateau. A complete and accurate inventory of sources of radioactive materials disposed to ground and stored at the Hanford Site does not exist. Consequently, an inventory had to be estimated based on process knowledge and plans for environmental restoration.

- The second step in the analysis involved calculating the radionuclide release from the various sources based on knowledge of waste form characteristics and long-term performance calculations (recharge characteristics and geochemical behavior).

- The third step involved predicting transport through the vadose zone to the water table under transient flow conditions. The recharge rate in the vadose zone was allowed to vary with the application of different surface treatments and covers (barriers).

- The fourth step involved predicting transport through the unconfined aquifer. The cessation of wastewater discharges from Hanford Site operations and the associated water table decline during the post-closure period were considered in the modeling of the unconfined aquifer.

- The fifth step in the analysis involved calculating dose based on exposure scenarios for hypothetical future members of the public at locations on the present Hanford Site and comparing those doses with the dose limit and constraint standards.

Four exposure scenarios defined by the Hanford Site Risk Assessment Methodology were used in this analysis to estimate radiation doses to hypothetical future members of the public: agriculture, residential, industrial, and recreational. These four scenarios were used to examine the potential variability in future land use. The four Hanford Site Risk Assessment Methodology exposure scenarios were developed for the Hanford Site to facilitate evaluation of risk related to CERCLA remedial investigations and Resource

Conservation and Recovery Act (RCRA) facility investigations. Groundwater transport was the primary exposure pathway considered in this analysis. However, a limited analysis of exposure and dose from the atmospheric pathway was also included in the all-pathways dose assessment.

Results

In this analysis, most of the technetium-99 and iodine-129 inventories in the addendum sites released after the first 100 years following Hanford Site closure. Peak concentrations of these radionuclides in groundwater inside and outside the buffer zone are predicted to occur before closure in 2050.

The groundwater plumes from the sources considered in the analysis are predicted to migrate away from the 200 Area Plateau in two primary directions north through the gap between Gable Mountain and Gable Butte and southeast toward the Hanford Town Site. The groundwater flow paths gradually change from an initial radial pattern from the 200 Area Plateau to an easterly direction as the water table changes in response to cessation of wastewater disposal.

Based on the best-estimate inventory for technetium-99, the peak predicted concentrations of technetium-99 outside of the buffer zone at about the time of site closure (i.e., year 2049), about 50 years after site closure (i.e., year 2099), and just after lost of institutional control (i.e., year 2159) for the addendum sites would be 1.3, 1.0, and 1.1 pCi/l, respectively. Maximum doses outside the buffer zone from technetium-99 sources would result from the agricultural exposure scenario. The maximum dose from technetium-99 sources for the agricultural scenario was 4.7×10^{-03} mrem/yr in 2050 and declined thereafter.

Based on the best-estimate inventory for iodine-129, the peak predicted concentrations of iodine-129 outside of the buffer zone at about the time of site closure (i.e., year 2049), about 50 years after site closure (i.e., year 2099), and just after lost of institutional control (i.e., year 2159) would be extremely low and on the order of 3.6×10^{-05}, 2.9×10^{-05}, 2.6×10^{-05} pCi/l, respectively. Dose results from iodine-129 sources indicate the maximum doses would result from the agricultural exposure scenario. Peak predicted doses from iodine-129 outside of the buffer zone for this scenario from the addendum sources at about the time of site closure (i.e., year 2049) were 2.2×10^{-05}mrem/yr. The maximum dose from iodine-129 sources for the agricultural and other scenarios declined thereafter.

Results of sensitivity cases from technetium-99 and iodine-129, which examined the effect of increased inventory estimates for these constituents, also yielded very low doses both within and outside of the buffer zone after site closure. Dose results for technetium-99 and iodine-129 for the sensitivity cases were about 55 and 30 percent higher than comparable doses for these constituents calculated in the best estimate case.

Calculated doses for technetium-99 and iodine-129 from addendum site sources for both the best-estimate and sensitivity cases were about two orders of magnitude lower than the maximum dose of 5.3 mrem/yr calculated for all future sources outside of the buffer in the year 2050 in the original Composite Analysis.

The radiological doses for technetium-99 and iodine-129 for all of the exposure scenarios outside the buffer zone were well below the dose levels estimated in the original Composite Analysis, the dose limit of 100 mrem/yr, and the dose constraint of 30 mrem/yr. Previous estimates of the predicted radionuclide concentrations and resulting doses in groundwater within the exclusion and buffer zones demonstrate the need for continued control of land use and monitoring programs at the Hanford Site to meet the primary objective of the long-term protection of human health and safety. This analysis of future radiological dose to the maximally exposed individual on lands outside the buffer zone supports the concept of retiring the Hanford Site boundary to the buffer zone boundary at the time of Hanford Site closure in 2050.

Conclusions

Based on an evaluation of new information and data being developed by a number of onsite programs and the results of this addendum analysis, the effect of the additional sites considered will not be significant during the 1000-year period of analysis, and conclusions of the 1998 version of the Composite Analysis (Kincaid et al. 1998) as conditionally approved (DOE 1999) remain valid. Dose estimates during the post-closure period are low–less than 6 mrem/yr to the maximally exposed individual in the agricultural exposure scenario. The area of the unconfined aquifer predicted to yield estimates of dose above 4 mrem/yr for the agricultural scenario decreases from approximately 40 km^2 in 2050 to zero by 2085. If inventories of the mobile radionuclides assigned to liquid discharge sites, past tank leaks, future tank sluicing losses, and pre-1988 solid waste burial grounds were increased, higher doses could be tolerated before approaching the dose constraint of 30 mrem/yr.

As a companion analysis for the performance and risk assessments associated with current and planned low-level radioactive waste disposal actions at the Hanford Site, the Composite Analysis has shown that the active and planned dry disposals are safe and will not contribute significantly to the radiation dose to the hypothetical future members of the public for the 1000-year period following Hanford Site closure.

The results of this analysis do not significantly change the key areas of future work outlined in the original Composite Analysis. Three key areas where additional data and information will contribute to greater confidence in the second iteration Composite Analysis are:

- a fully consistent Hanford Site-wide inventory
- an acceptable suite of conceptual models of liquid and dry disposals
- a tested linkage of inventory, release, and vadose zone models sufficient to explain existing plumes.

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Acronyms

ALARA	as low as reasonably achievable
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFEST	Coupled Fluid, Energy, and Solute Transport (code)
Composite Analysis	Composite Analysis for Low-Level Waste Disposal in the 200 Area Plateau of the Hanford Site
DNFSB	Defense Nuclear Facility Safety Board
DOE	U.S. Department of Energy
DOE-HQ	U.S. Department of Energy, Headquarters
DOE-RL	U.S. Department of Energy, Richland Operations Office
DOH	State of Washington Department of Health
DWS	drinking water standards
Ecology	State of Washington Department of Ecology
EDE	effective dose equivalent
EIS	environmental impact statement
EPA	U.S. Environmental Protection Agency
ERC	Environmental Restoration Contractor
ERDF	Environmental Restoration Disposal Facility
GIS	geographic information system
HDW	Hanford Defined Waste
HFSUWG	Hanford Future Site Uses Working Group
HSRAM	Hanford Site Risk Assessment Methodology
ICRP	International Commission on Radiological Protection
ILAW	Immobilized low-activity waste
LLW	low-level waste
MEPAS	Multimedia Environmental Pollutant Analysis System
MMEDE	Multimedia Modeling Environmental Database Editor
ORIGEN2	Oak Ridge Isotope Generation and Depletion (code)
OU	operable unit
PFP	Plutonium Finishing Plant
PNNL	Pacific Northwest National Laboratory
PUREX	Plutonium Uranium Extraction (Plant)
RCRA	Resource Conservation and Recovery Act
REDOX	Reduction-Oxidation (S Plant)
RfD	Reference Dose RFP Request for Proposal
RI/FS	remedial investigation and feasibility study
ROD	record of decision
SARA	Superfund Amendments and Reauthorization Act
STOMP	Subsurface Transport Over Multiple Phases (code)
S/V	surface to volume (ratio)
SWITS	Solid Waste Information Tracking System
TEDF	Treated Effluent Disposal Facility
TLV	threshold limit value
TRAC	Track Radioactive Components (model)

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1.0 Introduction

This report is an addendum analysis to the *Composite Analysis for Low-Level Waste Disposal in the 200 Area Plateau of the Hanford Site* (Composite Analysis) that was originally prepared in 1998. The Composite Analysis is a radiological assessment to estimate doses to hypothetical future members of the public from radionuclides from low-level waste (LLW) disposal and all other sources of radioactive contamination at the Hanford Site (Figure 1.1). The first iteration of the Composite Analysis (Kincaid et al. 1998) is a companion analysis to the facility-specific risk documentation for the following four active or planned LLW disposal actions at the Hanford Site:

- post-1988 solid waste burial ground in the 200 West Area (Wood et al. 1995)
- post-1988 solid waste burial ground in the 200 East Area (Wood et al. 1996)
- Environmental Restoration Disposal Facility (ERDF) (DOE-RL 1994)
- disposal facilities for immobilized low-activity wastes (ILAW) (Mann et al. 1998, 2001)

The Composite Analysis is part of the documentation required in U.S. Department of Energy (DOE) Order 435.1 for the continued and planned low-level radioactive waste (LLW) and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) waste disposal operations at these four facilities.

Newly issued DOE Order 435.1 (DOE 1999a) and its associated manual (DOE 1999b) set the radioactive waste management requirements for operations DOE undertakes. Chapter 4 of the manual (DOE 1999b) sets the requirements for the creation and maintenance of documents (known as a performance assessment and a composite analysis) that analyze the long-term effects of disposing of LLW. DOE has also issued guidance on the manual (DOE 1999c) and a guide dealing solely with the maintenance of performance assessments and composite analyses (DOE 1999d).

The Implementation Plan for Defense Nuclear Facility Safety Board (DNFSB) Recommendation 94-2 (DOE 1996b) requires that a Composite Analysis be prepared to accompany the performance assessments for the burial grounds and the planned low-activity tank waste disposal, and the risk assessment for ERDF. The Composite Analysis was prepared to provide an estimate of the cumulative radiological impacts from the active and planned LLW disposal actions and other potentially interacting radioactive sources at the Hanford Site. The calculations for original Composite Analysis were performed with a combination of spreadsheet programs, multidimensional numerical models, and geographic information system software. The DOE Richland Operations Office (DOE-RL) elected to complete a single composite analysis for wastes disposed in the 200 Area Plateau because multiple LLW disposals will occur at the Hanford Site, and many waste sites are present that may interact with the LLW disposals.

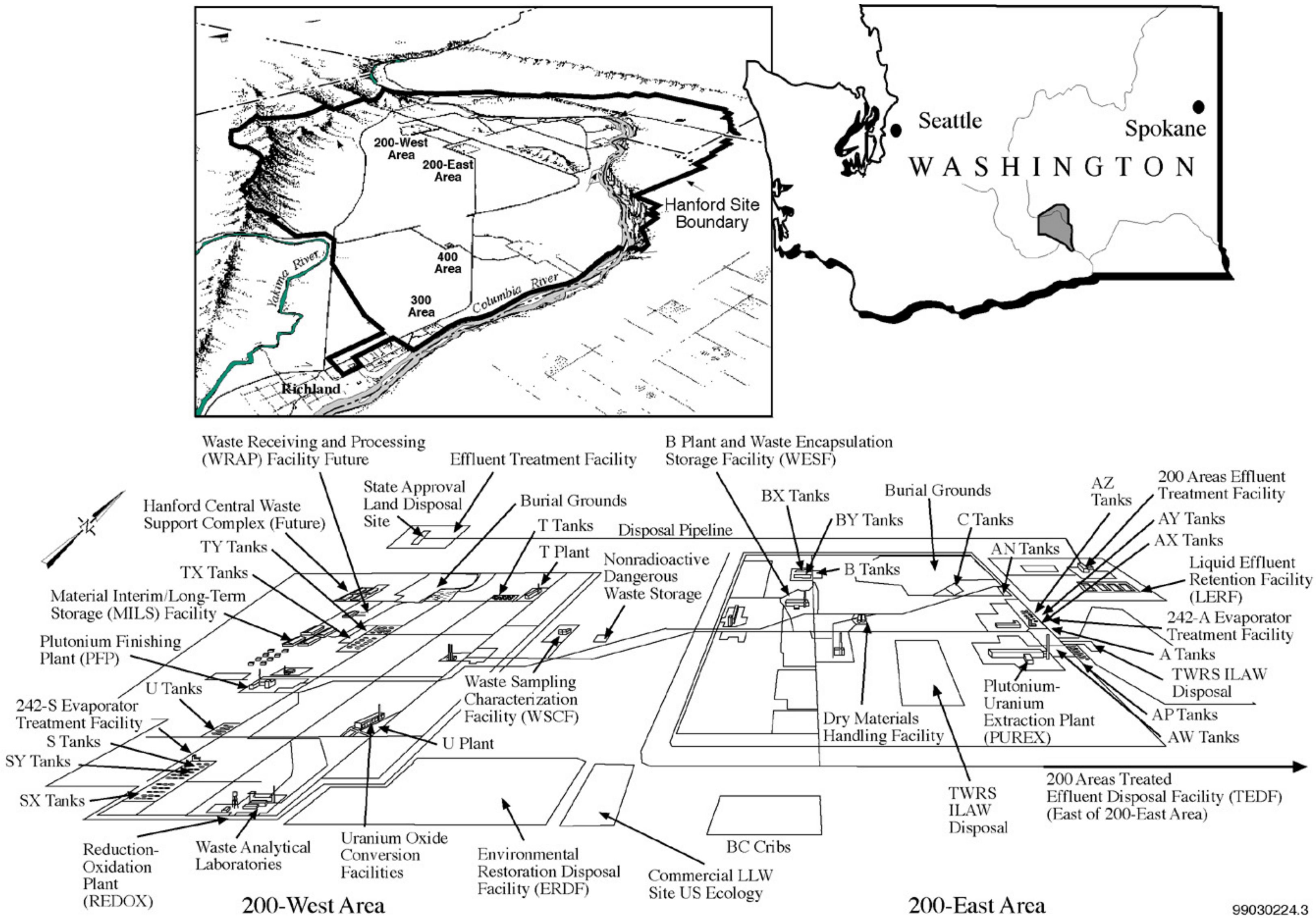

Figure 1.1. Location of Waste Management Facilities in the 200 Area of the Hanford Site

1.1 General Approach and Scope of Addendum Analysis

The current Composite Analysis was reviewed by the Low-Level Waste Federal Review Group (LFRG) and was accepted as meeting the requirements of DOE Order 435.1 as part of a disposal authorization for the four active and planned disposal actions at the Hanford Site. However, as a condition of the LFRG acceptance of the 200 Area Plateau Composite Analysis the Hanford Site must provide an addendum to the Composite Analysis that addresses a bounding sensitivity analyses of the impact on the Composite Analysis results of the Plutonium Uranium Extraction Plant (PUREX) tunnels, the chemical separations plants, and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites in the 200 Area that were not considered in the first Composite Analysis.

In light of recent inventory information developed at Hanford as part of the initial assessment using the newly developed System Assessment Capability (SAC), this addendum analysis did not perform a bounding sensitivity analysis but rather focused on a best estimate analysis and limited sensitivity for the sites in question. This analysis used estimates developed for technetium-99 and iodine-129 from the SAC inventory database as representative mobile constituents that were used to evaluate the potential impact from within the PUREX tunnels, the chemical separations plants, and the CERCLA sites not evaluated in the original Composite Analysis. Examination of results from the original analysis indicate that technetium-99 and iodine-129 were key constituents in the projected doses estimated in the original Composite Analysis and that these constituents could be used as general indicator constituents for evaluation of potential impacts from the sites being considered in this analysis.

1.1.1 General Approach

This addendum analysis used the same multi-step approach that was used to estimate doses in the original Composite Analysis:

- The first step was to estimate the inventories of radionuclides for the various sources. A complete and accurate inventory of sources of radioactive materials disposed to ground and stored at the Hanford Site does not exist and had to be estimated based on knowledge of the processes that generated the waste.

- The second step in the analysis was to calculate the radionuclide release from the various sources, based on knowledge of waste form characteristics and long-term performance calculations (e.g., recharge characteristics and geochemical behavior).

- The third step was to predict transport through the vadose zone under transient conditions. The recharge rate in the vadose zone was allowed to vary with different surface conditions and especially surface covers (barriers).

- The fourth step was to predict transport through the unconfined aquifer under transient conditions that occurred as groundwater flow in the unconfined aquifer responded to the cessation of wastewater discharges from Hanford Site operations. Separate analyses were conducted of existing contaminant plumes and future releases from the vadose zone in the original Composite Analysis. In this addendum analysis, releases to groundwater from the considered sites prior to 1996 were assumed to be part of existing plumes. Impacts from calculated releases after 1996 were the only releases considered in the groundwater simulations.

- The fifth step in the analysis was to calculate dose based on exposure scenarios for hypothetical future members of the public at locations on the Hanford Site and compare those doses with standards outlined in the Composite Analysis guidance (DOE 1999b). The dose estimates provided represent the effective dose equivalent (EDE) received over a commitment period of 50 years.

1.1.2 Scope of Report

This report discusses the best estimate analysis and sensitivity analyses of the sites not evaluated in the initial Composite Analysis. This addendum analysis is based on revised inventory data and information that has been developed at the Hanford Site by an inventory element of the Groundwater/ Vadose Zone Integration Project that is supporting initial assessments using a newly developed System Assessment Capability (SAC).

The format for this report generally follows the standard format and content required for Composite Analyses as directed by the DOE guidance associated with DOE Order 435.1. However, since much of the required content was presented in the original Composite Analyses (Kincaid et al. 1998), much of the discussion is abbreviated with numerous references to pertinent sections of the original Composite Analyses document. As required by Composite Analyses guidance, the remaining parts of this introductory section include the general approach used in this analysis, a brief description of the Hanford Site and key facilities that were considered in the previous Composite Analyses and the current addendum analysis, a summary of related Hanford activities and documents, the performance criteria used in this analysis, and a summary of key assumptions. Section 2 summarizes the Composite Analyses methodology. Section 3 provides a summary of the inventory compilation and source-term development of radioactive waste inventories for the sites being considered in this analysis. Section 4 summarizes the Composite Analyses methodology and results of the best estimate case for this addendum analysis. Section 5 discusses previous sensitivity analysis and some bounding sensitivity analysis of estimated inventories for the site being examined in this assessment. Section 6 provides an interpretation of results relative to performance criteria and the results of other onsite analyses and a discussion of uncertainties. Section 7 presents suggestions for further study. Section 8 contains the cited references. Appendix A contains the data used for the assessment; Appendix B presents results of the SAC evaluation of all sites; and Appendix C describes the credentials of key preparers of the addendum and the previous Composite Analysis.

1.2 Overview of the Hanford Site

According to Dirkes and Hanf (2000), the Hanford Site lies within the semiarid Pasco Basin of the Columbia Plateau in southeastern Washington State (Figure 1.1). The site occupies an area of approximately 1,450 km^2 located north of the city of Richland, Washington and the confluence of the Yakima and Columbia rivers. This large area has had restricted public access since 1943 and provides a buffer for the smaller areas onsite that were used for research, fuel fabrication, fuel irradiation, the production of nuclear materials, and the storage and disposal of wastes. Approximately 6% of the land area has been disturbed and is actively used. The Columbia River flows eastward through the northern part of the Hanford Site and then turns south, forming part of the eastern site boundary. The Yakima River flows near a portion of the southern boundary and joins the Columbia River downstream of the city of Richland.

The Composite Analysis focused on wastes in the central plateau containing the 200 East and 200 West areas as well as ERDF and a commercial LLW burial site operated by US Ecology, Inc. The 200 West and 200 East areas are located approximately 8 and 11 km, respectively, south of the Columbia River and cover approximately 16 km^2.

The Hanford mission was to produce plutonium for nuclear weapons (Dirkes and Hanf 1997). Hanford operations resulted in the production of liquid, solid, and gaseous wastes. Most wastes from these operations have a potential to contain radioactive materials. From an operational standpoint, radioactive wastes were originally categorized as "high-level," "intermediate-level," and "low-level," which referred to the level of radioactivity present.

Some high-level solid waste, such as large pieces of machinery and equipment, were placed onto railroad flatcars and stored in underground tunnels. High-level liquid wastes were stored in large underground tanks in the 200 Areas. Both intermediate- and low-level solid wastes (e.g., tools, machinery, paper, and wood) were placed into covered trenches at storage and disposal sites known as burial grounds. Beginning in 1970, solid wastes were segregated according to the makeup of the waste material. Solids containing plutonium and other transuranic materials were packaged in special containers and stored in lined trenches covered with soil for possible later retrieval.

Intermediate-level liquid waste streams were usually routed to underground structures of various types including cribs, French drains, and specific retention trenches. Occasionally, trenches were filled with the liquid waste and then covered with soil after the waste had soaked into the ground. Low-level liquid waste streams were usually routed to surface impoundments (ditches and ponds). Nonradioactive solid wastes were usually burned in burning grounds. This practice was discontinued in the late 1960s in response to the Clean Air Act, and the materials were buried at sanitary landfill sites instead. These storage and disposal sites, with the exception of high-level waste tanks, are now designated as active or inactive waste sites depending on whether the site currently receives wastes.

1.3 Related Hanford Site Activities and Documents

The Composite Analysis activity has relied on many programs at the Hanford Site to provide information useful to the Composite Analysis program. Among the most important of these are the other active Performance Assessment programs of the Solid Waste Burial Grounds and the ILAW disposal facilities. A brief description of these key projects, and others with which the Composite Analysis interacts, is provided in Kincaid et al. (1998) and Hildebrand et al. (2001).

1.4 Performance Criteria

This analysis estimates the potential cumulative impact to a hypothetical future member of the public from the addendum sources of radioactive material to remain at the Hanford Site after closure. DOE

Order 5400.5 sets the DOE primary dose limit[a] of 100 mrem to members of the public in a year and as low as reasonably achievable (ALARA). This is the maximum allowable projected total dose from all pathways to the future member of the public. An options analysis and ALARA assessment are to be prepared if the projected dose exceeds the 100 mrem/yr limit or a significant fraction of the limit (defined as a dose constraint of 30 mrem/yr). The options analysis and ALARA assessment are to consider those actions that could be taken to reduce the calculated dose and their costs. They are to focus on those sources making a significant contribution to dose. If the projected dose is below the significant fraction of the limit, a brief ALARA assessment should still be performed to determine whether a quantitative or semi-quantitative options analysis and ALARA assessment are warranted.

If the projected dose is above 100 mrem/yr, DOE uses the options analysis to identify alternatives that reduce projected future doses to tolerable levels, and selects one for implementation. Performing these calculations provides the DOE with information supporting a comprehensive approach to environmental management that will ensure that the 100 mrem/yr primary annual dose limit is not exceeded in the future and that potential doses are maintained at ALARA levels.

At the Hanford Site, the approach adopted to achieve comprehensive environmental management involves a complex process of negotiated decisions among DOE, the State of Washington Department of Ecology, and the U.S. Environmental Protection Agency. Even the selection of each alternate remedial action for further study needs to be a joint decision of the three parties. At this time, DOE is beginning to negotiate the cleanup of past-practice sites in the exclusive waste management area. Thus, there has been insufficient time to determine whether alternative remedies are necessary and to identify them through a negotiation process. Accordingly, the options analysis (if necessary) and ALARA assessment will be deferred to the second iteration of the Composite Analysis.

1.5 Summary of Key Assumptions

Key assumptions used in the original Composite Analysis that are most critical to the analysis of performance in this addendum analysis are presented in this section. They include assumptions about point of compliance, release modeling, vadose zone flow and transport modeling, groundwater flow and transport modeling, and exposure and dose modeling.

The point of compliance for exposure and radiological dose predictions to a hypothetical future member of the public in the Composite Analysis was a boundary based on anticipated land use at the Hanford Site. In 1992, the Hanford Future Site Uses Working Group, comprising representatives from government entities (federal, tribal, state, and local) and constituencies (labor, environment, agriculture, economic development, municipal, and public interest groups), defined the concepts of an “exclusive” waste management area within a surrounding buffer zone on the 200 Area Plateau (HFSUWG 1992). This area, shown in Figure 1.2, includes the land within and surrounding the 200 East and 200 West Areas of the Hanford Site, the commercial low-level radioactive waste disposal facility operated by US Ecology, Inc., and the ERDF.

(a) All doses in the Composite Analysis (except where noted) are in units of mrem EDE in a year.

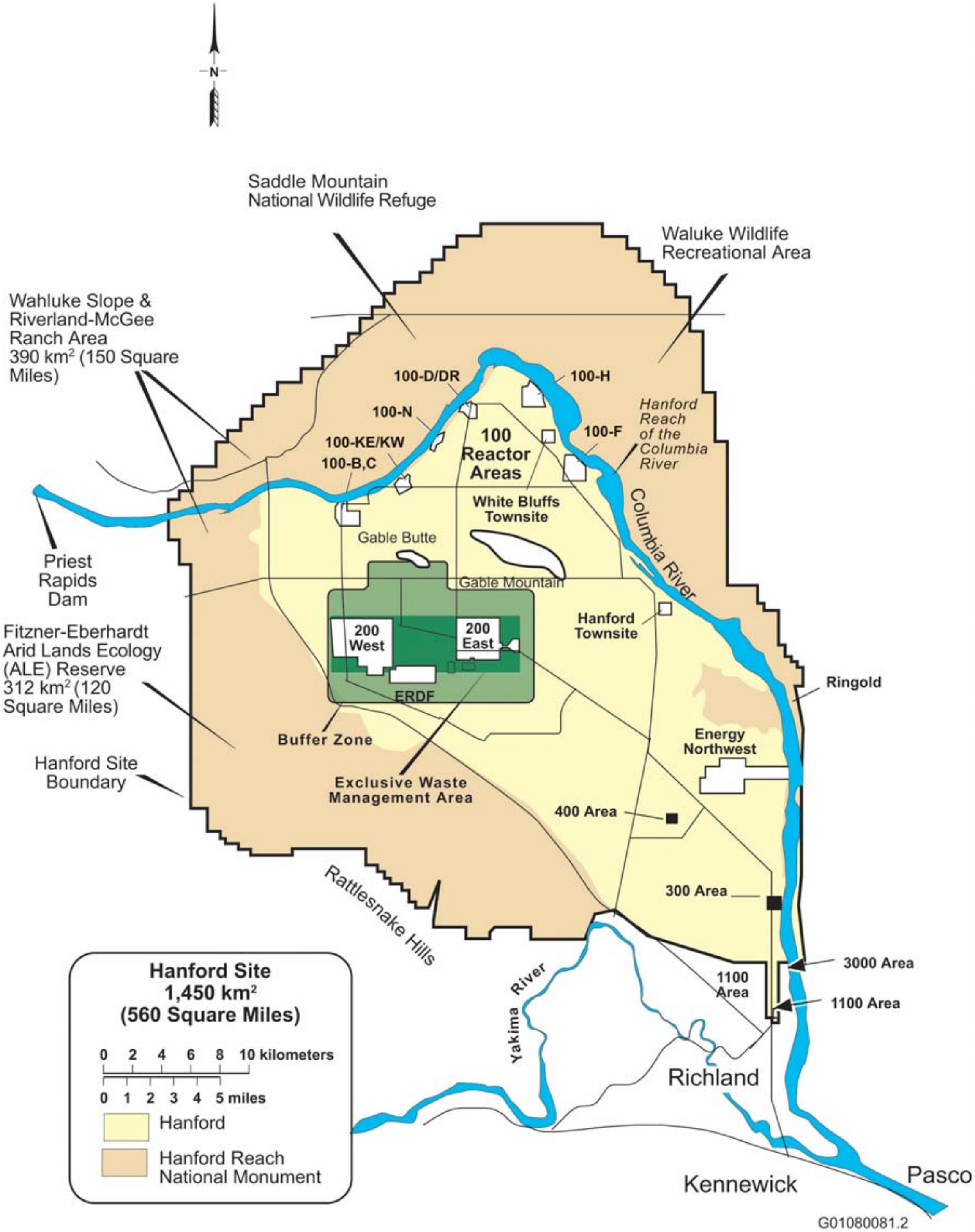

Figure 1.2. Location of Exclusive Waste Management Area and Buffer Boundaries in the 200 Area of the Hanford Site

The simplifying assumptions used in this addendum analysis were the same as those made in the original Composite Analysis. The key assumptions made to facilitate the development and implementation of release modeling, vadose zone flow and transport modeling, groundwater flow and transport modeling, and exposure and dose modeling are presented in Tables 4.1, 4.8, 4.9, 4.11, 4.12, 4.13 (Kincaid et al. 1998, pp. 4.54, 4.84, 4.87, 4.90, 4.92, 4.93).

2.0 Technical Approach

This addendum was performed in the same multistep process as the original Composite Analysis. This process involves the use of a combination of spreadsheet programs, multidimensional numerical models, and geographic information system software to calculate source release, vadose zone transport, groundwater transport, and dose for the radionuclides of concern.

2.1 Overview of Analysis

The sequence of calculations required to estimate the cumulative dose was performed with a suite of software elements that were integrated across two computational environments. These software elements included: 1) an Excel™ workbook, 2) a dynamically linked library version of the Subsurface Transport Over Multiple Phases (STOMP) code (White and Oostrom 1996, 1997; Nichols et al. 1997), 3) the Coupled Fluid, Energy, and Solute Transport (CFEST-96) code (Gupta 1987, 1997; Cole et al. 1988), and 4) the ARC/INFO™ Geographic Information System.[a] Elements 1 and 2 were implemented on personal computers running either Windows 95™ or Windows NT™. Elements 3 and 4 were implemented on UNIX workstations. Figure 2.1 illustrates the relationship among the software elements.

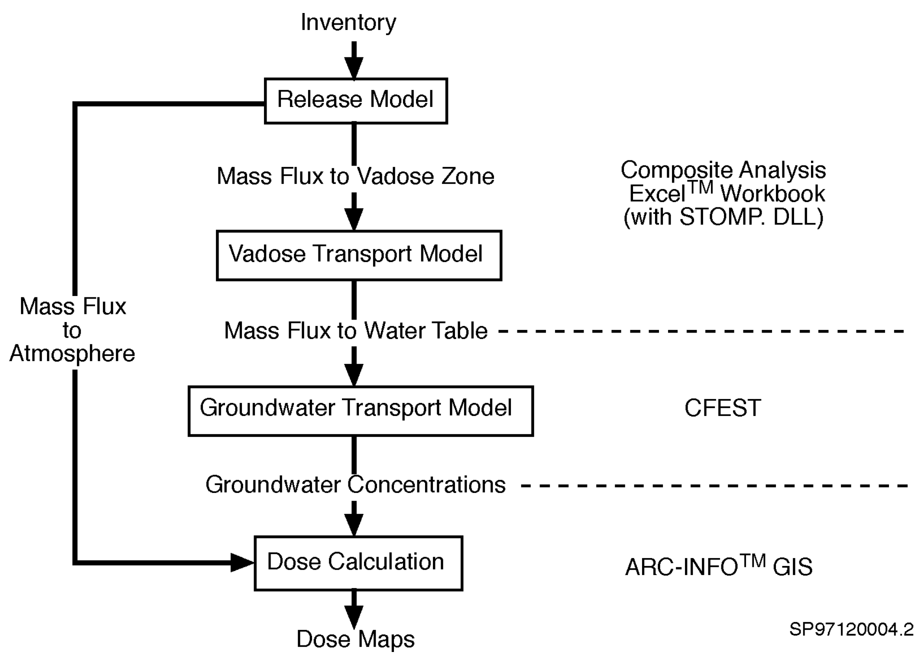

Figure 2.1. Relationship Among the Software Elements Used in the Composite Analysis

(a) ARC/INFO is a registered trademark of Environmental Systems Research Institute, Inc., Redlands, California.

2.2 Conceptual Model, Pathways, and Scenarios of Radionuclide Release

As in the original Composite Analysis, this analysis involved estimating cumulative radionuclide doses from both subsurface and atmospheric pathways. As in the original analysis, the surface pathway was not considered because surface water transport within the 200 Area Plateau rarely occurs. The points of assessment for the Composite Analysis were located on the Hanford Site between the buffer zone and the Columbia River. The area inside the buffer zone (see Figure 1.2) was excluded from the bulk of this analysis because, in current land use plans, this portion of the Hanford Site will be used exclusively for waste management to minimize human exposure (DOE 1996a). Dose impacts inside the buffer zone are shown only for the industrial exposure scenario. Although the atmospheric pathway was included in the analysis, the primary exposure route for contaminants from the Hanford Site was through the groundwater pathway, involving source term release, transport through the vadose zone and groundwater, and exposure from using the contaminated groundwater in a variety of exposure pathways. The transport and exposure pathways considered in the Composite Analysis are illustrated in Figure 2.2.

Radiological doses from the subsurface transport pathway were analyzed for each source site considered in the Composite Analysis. The radionuclide inventory for each waste site was released to the vadose zone according to its release model. Transport within the vadose zone was estimated with a transient one-dimensional variably-saturated vadose zone transport model. Travel times to the water table for annual releases of unit mass from source areas were defined by arrival of 50% of each unit mass. These travel times were used to translate annual releases from the waste into releases to the water table of the aquifer. The resulting fluxes into the water table were transported through the unconfined aquifer with a transient three-dimensional saturated groundwater transport model. The concentrations in the

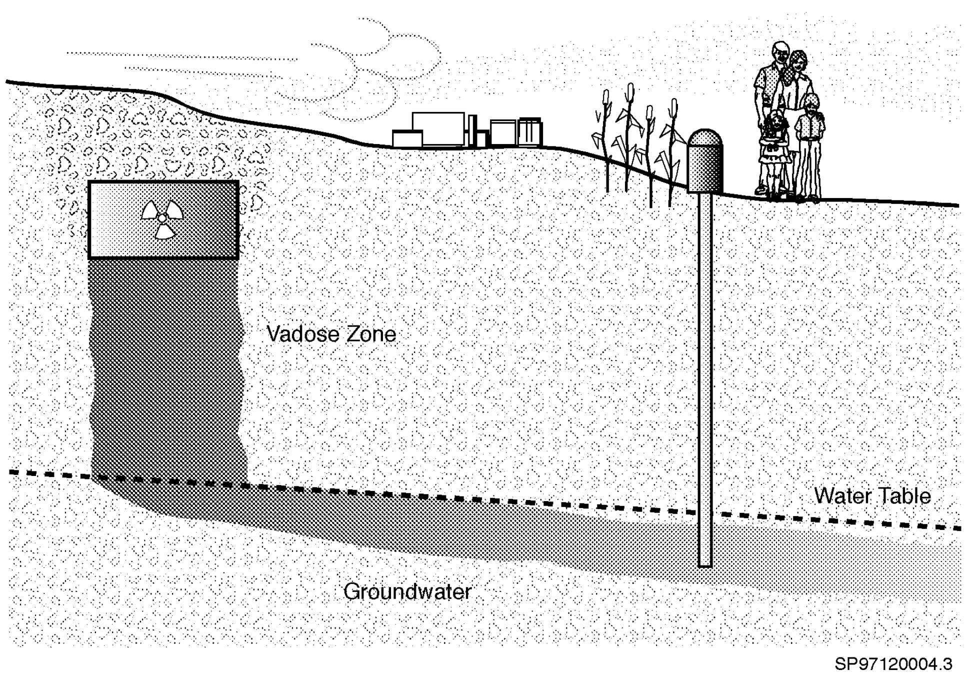

Figure 2.2. Transport and Exposure Pathways Considered in the Composite Analysis

groundwater plumes for each radionuclide were translated into doses associated with agricultural, residential, recreational, and industrial exposures using dose conversion factors. Doses from the various source locations and various radionuclides were combined to estimate the cumulative dose. Uranium toxicity was also considered in the Composite Analysis.

Radiological doses from the atmospheric pathway only considered releases from the graphite cores of surplus production reactors that are planned to be relocated to the 200 West Area solid waste burial grounds (ROD 1993) prior to Hanford Site closure. The radionuclide inventory contained in the reactor cores was released based on the atmospheric release model. The doses at different locations were estimated with spatial distribution functions for unit releases, and the predicted atmospheric transport was developed from historical wind profiles at the Hanford Site.

2.3 Analysis Methodology

This analysis focused only on estimating the potential impact from the PUREX tunnels, the chemical separations plants, and the CERCLA sites in the 200 Area that were not considered in the first Composite Analysis. This following section provides a summary of the assumptions and implementation of each model component of the composite analysis (source-term release, vadose zone transport, groundwater flow and transport, atmospheric transport, and exposure and dose calculations). Detailed descriptions of the original Composite Analysis methods and assumptions for each model component is given in Chapters 3 and 4 of Kincaid et al. (1998).

2.3.1 Source-Term Release Models

The inventories of radionuclides had to be estimated because a complete and accurate inventory of radioactive materials disposed to ground and stored at the Hanford Site does not currently exist. The estimate was based on knowledge of the processes that generated the waste and on disposal records. The waste source inventories, as they are currently known, were screened to select key radionuclides for study. This selection of radionuclides is described in Section 3.3.1.

Because of the variety of waste sources at the Hanford Site that released to the subsurface environment, or are expected to release in the future, a variety of release models was used. These release models were based on knowledge of waste form characteristics and long-term performance calculations (e.g., recharge characteristics and geochemical behavior). The summary of the seven different release models are described in Table 2.1. A more detailed description of these release models is provided in Appendix D of Kincaid et al. (1998). Figure 2.2 illustrates the implementation of the release models. The six waste chemical classification used in the original Composite Analysis is provided in Table 4.4 on p. 4.66 in Kincaid et al. (1998).

2.3.2 Vadose Zone Transport

The mechanism for transport of radionuclides through the vadose zone was by water flow in response to gravitational and capillary forces. The vadose zone was modeled as a stratified one-dimensional column. In the Composite Analysis, it was not appropriate to represent the vadose zone with a

Table 2.1. Summary of Source Release Models

Release Model	Brief Description
Liquid	Contaminants were released uniformly over the period of operation for a specific site. Liquid releases were the most common release mechanism and included sources from tank leaks, future tank sluicing losses, trenches, ditches, ponds, reverse wells, French drains, and cribs.
Soil Debris	Wastes were assumed to be mixed with soils and permeable to percolating water (recharge). This waste source type was used to represent solid waste burial grounds.
Cake	Wastes were assumed to dissolve at a constant rate controlled by aqueous solubility of nitrate; contaminants are released congruently at constant rates related to their concentrations in the waste. The cake release model was used to represent residual wastes in both single-shell and double-shell tanks after tank waste recovery operations (DOE-RL and Ecology 1996).
Glass	Vitrified wastes were assumed to release contaminants into pore water through corrosion of the glass. Release was assumed to occur by slow dissolution from the exterior surfaces of the glass, congruently into the pore water at rates related to concentration of contaminants in the waste form (Mann et al. 1997). The glass waste form model was used to represent the proposed ILAW program through ORP glass waste disposal sites.
Cement	Cement waste form contaminants were assumed to be released by diffusion from the waste form (Kincaid et al. 1995). This model was used for two solid waste burial grounds containing cement waste forms.
Reactor Block	Irradiated solids in the reactor blocks were assumed to release contaminants into percolating water at rates calculated from experimental leach data (DOE 1989).
Atmospheric	Atmospheric releases were assumed to occur from the reactor blocks at rates determined by the experimental leach data (DOE 1989).

multidimensional model because of the large number of waste sites modeled and limited characterization of the vadose zone. Vadose zone flow and transport calculations were implemented in an Excel™ spreadsheet. The STOMP code (White and Oostrom 1996) was accessed from the spreadsheet to calculate vadose zone flow and transport. The infiltration rate was based on natural recharge, which is well documented at the Hanford Site (Gee et al. 1992; Fayer et al. 1996). These estimates were based on assumed infiltration rates associated with surface cover conditions, including soil type and whether natural vegetation or engineered surface barriers are present. The infiltration rates for liquid discharge sites during their active disposal period were estimated based on the type of disposal facility and discharge records. A combination of unit gradient conditions, or the saturated hydraulic conductivity of the least conductive layer of the geologic profile, and a wetted area correction factor was used to define the cross section of the vadose zone sediment column conducting waste to the water table.

The stratigraphy used in the model was consistent with the major geologic formations found in the vadose zone beneath the 200 Area Plateau and was based on work documented in Thorne and Chamness (1992), Thorne et al. (1993, 1994). The geology at each site was defined as a set of strata consistent with nearest available well log. Each of the well logs included location, ground surface elevation, and the thickness of the various major sediment types. A summary of the geologic well logs used in the Composite Analysis appears in Table 2.2.

The model of soil hydraulic properties based on the van Genuchten (1980) and Mualem (1976) analytical expressions was used as the basis for the relationships between moisture content, pressure head, and unsaturated hydraulic conductivity. This model has been applied in previous vadose zone studies at the Hanford Site. Parameters for the van Genuchten and Mualem models have been determined by fitting experimental data for Hanford Site sediments to the classic analytic expressions of these models. These results are described in several Hanford Site documents; however, the parameters used in the initial iteration of the Composite Analysis were compiled by Khaleel and Freeman (1995).

For the Composite Analysis, unsaturated flow parameters were established for each of the vadose zone sediment types. The sediment types and associated sets of parameters used in the Composite Analysis unsaturated flow modeling are shown in Table 2.3. Note that the laboratory-measured moisture retention and saturated conductivity data in Table 2.3 have been corrected for the gravel fraction (>2 mm) present in the bulk sample.

The key assumptions related to development and implementation of vadose zone modeling in the original Composite Analysis and this analysis are presented in Table 4.8 on p. 4.84 in Kincaid et al. 1998.

Table 2.2. Summary of Well Logs Used in Vadose Zone Transport Calculations

Column	Surface Elevation (m)	Northing (m)[(a)]	Easting (m)[(b)]	Soil 1[(c)]	Thickness (m)	Soil 2	Thickness (m)	Soil 3	Thickness (m)	Soil 4[(d)]	Thickness (m)
218-W-5	737.7	137024	565658	WHS	19	WEP	4	WPP	7	WR	85
218-E-12B	629.5	137238	574643	EHG	10	EHS	6	LEHG	54	ER	0.01
218-E-10	625.7	137468	572924	EHG	10	EHS	6	LEHG	59	ER	0.01
299-E13-20	742.9	134313	573610	EHG	10	EHS	6	LEHG	80	ER	60
299-E19-1	735.4	135086	572820	EHG	10	EHS	6	LEHG	91	ER	51
299-E24-7	716.0	135561	574407	EHG	10	EHS	6	LEHG	60	ER	56
299-E25-2	675.5	136062	575514	EHG	10	EHS	6	LEHG	60	ER	36
299-E26-8	619.4	136687	575522	EHG	10	EHS	6	LEHG	44	ER	14
299-E28-16	703.1	136562	573135	EHG	10	EHS	6	LEHG	71	ER	12
299-E28-22	700.3	136321	574041	EHG	10	EHS	6	LEHG	83	ER	17
299-W6-1	702.5	137510	567214	WHS	14	WPP	4	WR	121		
299-W11-2	714.5	136671	567407	WHS	34	WEP	4	WPP	7	WR	110
299-W14-7	677.7	135655	567034	WHS	38	WPP	2	WR	118		
299-W14-8A	725.2	135688	568013	WHS	47	WEP	5	WPP	5	WR	106
299-W15-15	698.0	135752	566089	WHS	42	WEP	3	WPP	8	WR	100
299-W18-21	668.6	134979	566098	WHS	36	WEP	5	WPP	3	WR	100
299-W21-1	699.3	134397	568141	WHS	53	WEP	8	WPP	8	WR	100
299-W22-24	692.3	134411	567648	WHS	42	WEP	13	WPP	12	WR	104

(a) Refers to north coordinates in Washington State Plane NAD83 coordinate system.
(b) Refers to east coordinate in Washington State Plane NAD83 coordinate system.
(c) "Soil 1" refers to the upper soil layer.
(d) "Soil 4" refers to the lowest soil layer simulated.

Table 2.3. Summary of Unsaturated Zone Properties Used in Vadose Zone Transport Calculations

Soil Name	Code	van Genuchten alpha (-)	van Genuchten (1/cm)	Residual Water Content (cm^3/cm^3)	Saturated Water Content (cm^3/cm^3)	Saturated Hydraulic Conductivity (cm/s)	Bulk Density (g/cm^3)	Gravel %[(a)]
East Hanford Gravel	EHG	8.11E-03	1.58	0.0146	0.119	1.76E-03	1.97	41.70%
Lower East Hanford Gravel	LEHG	8.11E-03	1.58	0.0146	0.119	1.76E-03	1.97	41.70%
East Hanford Sand	EHS	1.30E-01	2.10	0.0257	0.337	1.19E-02	1.78	17.30%
East Ringold	ER	8.19E-03	1.53	0.0262	0.124	3.97E-04	2.04	43.30%
West Hanford Sand	WHS	1.44E-02	2.20	0.0519	0.382	3.98E-04	1.64	3.60%
Early Palouse	WEP	6.27E-03	2.53	0.0300	0.379	9.69E-05	1.68	2.00%
Plio-Pleistocene	WPP	1.55E-02	1.78	0.0616	0.337	5.79E-02	1.65	8.40%
West Ringold	WR	3.14E-02	1.65	0.0236	0.226	5.76E-02	2.04	43.30%

(a) Only fine particles were assumed to contribute to sorption of radionuclides. The impact of larger particles was corrected using Gravel %.

Data are from Khaleel and Freeman (1995). A normal distribution was assumed for the parameters van Genuchten n, residual, and saturated water content, and the mean was calculated accordingly. A log-normal distribution was assumed for the parameters van Genuchten alpha and saturated hydraulic conductivity, and the mean was calculated accordingly. If the sample size was less than 10, the parameters van Genuchten alpha and saturated hydraulic conductivity were determined using the geometric mean.

2.3.3 Groundwater Transport

For groundwater flow and saturated-zone transport of contaminants, an existing three-dimensional numerical model that has been developed for the Hanford Site unconfined Aquifer (Wurstner et al. 1995; Barnett et al. 1997; Cole et al. 1997) was used. Predictions of groundwater flow in the unconfined aquifer focused on the response of the aquifer to the cessation of wastewater discharges from Hanford Site operations. The three-dimensional model was used to simulate transient flow conditions from 1996 through the year 4000. Separate analyses were performed for each contaminant.

The three-dimensional model was used to simulate transient flow conditions from 1996 through the year 4000, based on the distribution of hydraulic conductivity from the steady-state calibration to conditions observed in 1979 and the specific yields developed from the transient calibration to conditions observed between 1979 and 1996. All transport calculations used porosity estimates of 0.25 for Hanford formation layers and 0.1 for Ringold Formation layers. The water table contours estimated for the years 2000, 2100, 2200, and 2350 with the three-dimensional model (see Figures 4.20 through 4.23 on pp. 4.120-4-123 in Kincaid et al. 1998) predict an overall decline in the water table and accompanying changes (mainly declines and shifts) in hydraulic gradients within the operating areas and across the site. The different areas approach steady state at varying rates, as illustrated in Cole et al. (1997). The areas north of the gap between Gable Butte and Gable Mountain along the Columbia River have the shortest time constants, and water levels in this region reach steady state by the year 2100. The area between the Gable Butte and Gable Mountain reach steady-state conditions sometime between the years 2200 and 2300. The rest of the Hanford Site, including the area south of Gable Mountain and east of the 200 West Area, all are predicted to reach steady-state conditions by the year 2350.

Geochemical interactions during contaminant transport in the vadose zone and groundwater were limited to processes represented by the linear sorption isotherm model. This model was selected because it is the only approach for which model parameters (distribution coefficients) were available for the broad range of waste sites and radionuclides considered. The distribution coefficients and their corresponding retardation factors were varied spatially in two zones away from the contaminant waste sources in the vadose zone (near field and far field) and assigned a third value in the groundwater.

The key assumptions related to development and implementation of groundwater flow and transport modeling in the original Composite Analysis are presented in Tables 4.9 and 4.11 on pp. 4.87 and 4.90 in Kincaid et al. (1998).

2.3.4 Atmospheric Transport

The evaluation of the atmospheric pathway in the original Composite Analysis only considered potential releases from reactors graphic cores disposed in hypothetical burial grounds in the 200 West Area and potential exposures to individuals living in the vicinity of these releases. Radionuclides released to the atmosphere were transported downwind from the solid waste burial ground that contained the graphite cores. The location employed in this analysis was assumed and simply placed the cores in the northwestern portion of the 200 West Area.

The key assumptions made for development of the atmospheric transport model are listed in Section 4.1.5, Table 4.12 in Kincaid et al. (1998). In the original Composite Analysis, unit transport factors (UTFs) were calculated for the postulated release originating within the exclusive waste management area. The atmospheric transport of gaseous radionuclides was evaluated with the Multimedia Environmental Pollutant Analysis System (MEPAS). Buck et al. (1995) and Droppo and Buck (1996) describe the MEPAS code. The MEPAS code is based on the sector-averaged Gaussian model, which is the method recommended for dose calculations performed for releases from Hanford Site facilities (Schreckhise et al. 1993).

The UTFs provide estimates of air concentration and deposition rate to soil as a function of distance and direction from each source area. The UTFs were normalized to an annual release of 1 pCi of each radionuclide and provided air concentration estimates in units of pCi/m^3 and deposition rates in units of $pCi/m^2/yr$. The emission was assumed to occur uniformly over an area source 100 m by 600 m. Recommended atmospheric data from Schreckhise et al. (1993) were used to perform the atmospheric transport calculations. The environmental settings for the transport calculations used for the Composite Analysis are described by Holdren et al. (1995).

Although atmospheric transport was considered in the original Composite Analysis, Rev. 0, this pathway was not considered in the current analysis since atmospheric releases represented a very minor aspect of contaminant releases associated with sites considered in this analysis. Additionally, the original Composite Analysis showed that exposure from atmospheric releases from the reactor graphic cores to be an insignificant contributor to the total dose outside of the buffer zone during the 1000 years following site closure.

2.3.5 Exposure Scenarios and Dose Calculations

Four exposure scenarios were used to evaluate the potential radiological impacts on hypothetical future individuals. The exposure scenarios are those defined for the Hanford Risk Assessment Methodology (HSRAM) (DOE-RL 1995), developed to facilitate evaluations of dose and risk related to CERCLA remedial investigations and Resource Conservation and Recovery Act (RCRA) facility investigations at the Hanford Site. The four HSRAM scenarios considered were recreational, industrial, residential, and agricultural. The dose impacts were predicted with Unit Dose factors (UDFs) that relate concentration of a radionuclide in an environmental medium to the resulting radiation dose for each of the four scenarios. The UDFs evaluated for the radionuclides of interest, and for chemical effects of uranium, for each exposure scenario are summarized in Table 2.4. Doses were calculated outside the buffer zone and the "exclusive" waste management area, which includes the land within and surrounding the 200 East and 200 West Areas, the commercial LLW disposal facility operated by US Ecology, Inc., and the ERDF.

Radiological doses from the subsurface transport pathway were analyzed for each source site considered in the Addendum to the Composite Analysis. The radionuclide inventory for each waste site was released to the vadose zone according to its release model. Transport within the vadose zone was estimated with a transient one-dimensional variably saturated vadose zone transport model. Travel times for annual releases of unit mass were defined by arrival of 50% of each unit mass. These travel times were used to translate annual releases from the waste into releases to the water table of the aquifer. The resulting fluxes into the water table were transported in the unconfined aquifer with a transient three-dimensional saturated groundwater transport model. The concentrations in the groundwater plumes for each radionuclide were translated into doses associated with agricultural, residential, recreational, and industrial exposures using dose conversion factors. Doses from the various source locations and various radionuclides were combined to estimate the cumulative dose. Uranium toxicity was also considered.

The key assumptions related to development and implementation of exposure and dose modeling models in the original Composite Analysis and this analysis are presented in Table 4.13 on pp. 4-93 in Kincaid et al. (1998).

Table 2.4. Summary of Unit Dose Factors for Each Exposure Scenario

Radionuclide	Agricultural Scenario mrem/(pCi/L)	Residential Scenario mrem/(pCi/L)	Industrial Scenario mrem/(pCi/L)	Recreational Scenario mrem/(pCi/L)
Tc-99	3.66E-03	1.36E-03	3.65E-04	2.10E-05
I-129	6.19E-01	2.27E-01	6.90E-02	3.95E-03
	mrem/(μg/L)	mrem/(μg/L)	mrem/(μg/L)	mrem/(μg/L)
U-total	1.86E-01	1.69E-01	5.27E-02	2.96E-03
Hazard Factor	Hazard Index/(μ-g/L)	Hazard Index/(μ-g/L)	Hazard Index/(μ-g/L)	Hazard Index/(μ-g/L)
U-Total	1.19E-02	1.08E-02	3.48E-03	1.89E-04

3.0 Source-Term Development

This section describes the sources of radioactive material that were considered and provides a brief description and status of radioactive source site inventories considered in this addendum analysis. Specifically, this description includes a status of inventory development efforts under the Groundwater/ Vadose Zone Integration Project for Hanford Site canyon facilities, PUREX Tunnels, and the 352 CERCLA and Unplanned Release Sites that were not considered in the previous Composite Analysis.

3.1 Summary of Sites Evaluated in the Addendum

This section describes the source sites considered in the addendum that were excluded in the original Composite Analysis. They include the chemical separations plants, the PUREX tunnels, and 352 CERCLA sites.

3.1.1 Chemical Separation Plants (Canyon Buildings)

Six canyon buildings and associated facilities, designed for the processing of special nuclear materials, are present on the 200 Area Plateau. Two of these plants, B Plant and PUREX, are located inside the 200 East Area. Four plants, T Plant, the Plutonium Finishing Plant (PFP), U Plant and Reduction-Oxidation Plant (REDOX), are located inside the 200 West Area. Figures 3.1a and 3.1b show the location of these facilities in the 200 East and 200 West Areas. Other site-specific information for these facilities is provided in Table 3.1.

The canyon buildings will be decontaminated and decommissioned under the CERCLA program. However, the various standards (e.g., for levels of contamination) and final disposition of the canyon buildings (e.g., whether cells are to be filled to provide stability and prevent subsidence or canyon buildings are to be demolished to grade, entombed, and covered with surface barriers to reduce infiltration) have not been defined.

3.1.2 PUREX Tunnels

The PUREX storage tunnels (#1 and #2) branch off from the PUREX railroad tunnel and extend southward from the east end of the PUREX plant (Table 3.2). The tunnels are used for storage of mixed waste (e.g., spent equipment and tank cars) from the PUREX plant and from other onsite sources. The radiological contamination in the tunnels consists primarily of uranium, transuranics, and/or mixed fission products. Tunnel #1 (218-E-14) is constructed of creosote-treated timber covered by roofing material and 2.4 m of earthen fill. Tunnel #2 (218-E-15) is constructed of steel and reinforced concrete covered with 2.4 m of earthen fill Currently, each storage tunnel is isolated by a water-filled shielding door. No electrical utilities, water lines, fire detection or suppression systems, radiation monitoring, or communication systems exist inside the PUREX storage tunnels. Material selected for storage is typically loaded on railcars modified for both transport and storage.

Figure 3.2 shows the location of these facilities in the 200 East Area. Other site-specific information for these facilities is also provided in Table 3.2.

3.1.3 CERCLA Sites (Liquid Discharge Sites, Miscellaneous 200 Area Sites, and Unplanned Release Sites)

A total of 141 waste sites and more than 211 “unplanned releases” in the 200 Area Plateau were identified that do not have any documented inventory estimates. Table 3.3, developed from the site list in Appendix C in Kincaid et al. (1998), lists sites classified as CERCLA sites that were excluded in the original Composite Analysis. Most of these waste sites and unplanned releases have very low radionuclide inventories, have already been remediated, or have been included in another source inventory. Figures 3.1a and 3.1b show the location of these facilities in the 200 East and 200 West Areas. Other site specific information for these facilities is provided in Table 3.3.

3.2 Sources Excluded from Analysis

All 368 waste sites (canyon facilities, PUREX tunnels, and other CERCLA sites) were reevaluated as part of this addendum analysis. During FY 2000-2001, the inventory component of the Systems Assessment Capability (SAC) work element of the Groundwater/Vadose Zone Integration Project has been developing an inventory of all facilities on the Hanford Site for representative contaminants in the categories of very mobile (e.g., tritium, technetium-99), mobile (e.g., iodine-129, uranium), slightly mobile (e.g., cesium-137, strontium-90), and immobile (e.g., plutonium-239 and -240) (Kincaid et al. 2000). Data gathering for this inventory task was completed in FY 2001, and the data and information derived from this effort provided the basis for site-specific information and inventory estimates used in this addendum analysis.

The SAC inventory element used information developed by the Science & Technology (S&T) inventory-related task that has focused on development of a probabilistic approach for estimating mass balanced-based inventories for the Hanford Site post-closure setting. The scope of this S&T work is to extend the Hanford-Defined Waste (HDW) methodology for soil sites receiving process waste directly to soils, i.e., non-tank waste. The chemical separations conducted in the canyon buildings yielded waste streams that were discharged directly to ditches, ponds, chemical sewers, and cribs. These sites include the plant cooling water, chemical sewer, scavenging waste, and surface spills. The S&T inventory task worked with the SAC to further define soil waste groupings in the Hanford Site post- closure scenario and to identify the precision with which inventory for different radionuclides and chemicals will be needed for Rev. 0 and the planned Rev.1 assessments of the SAC.

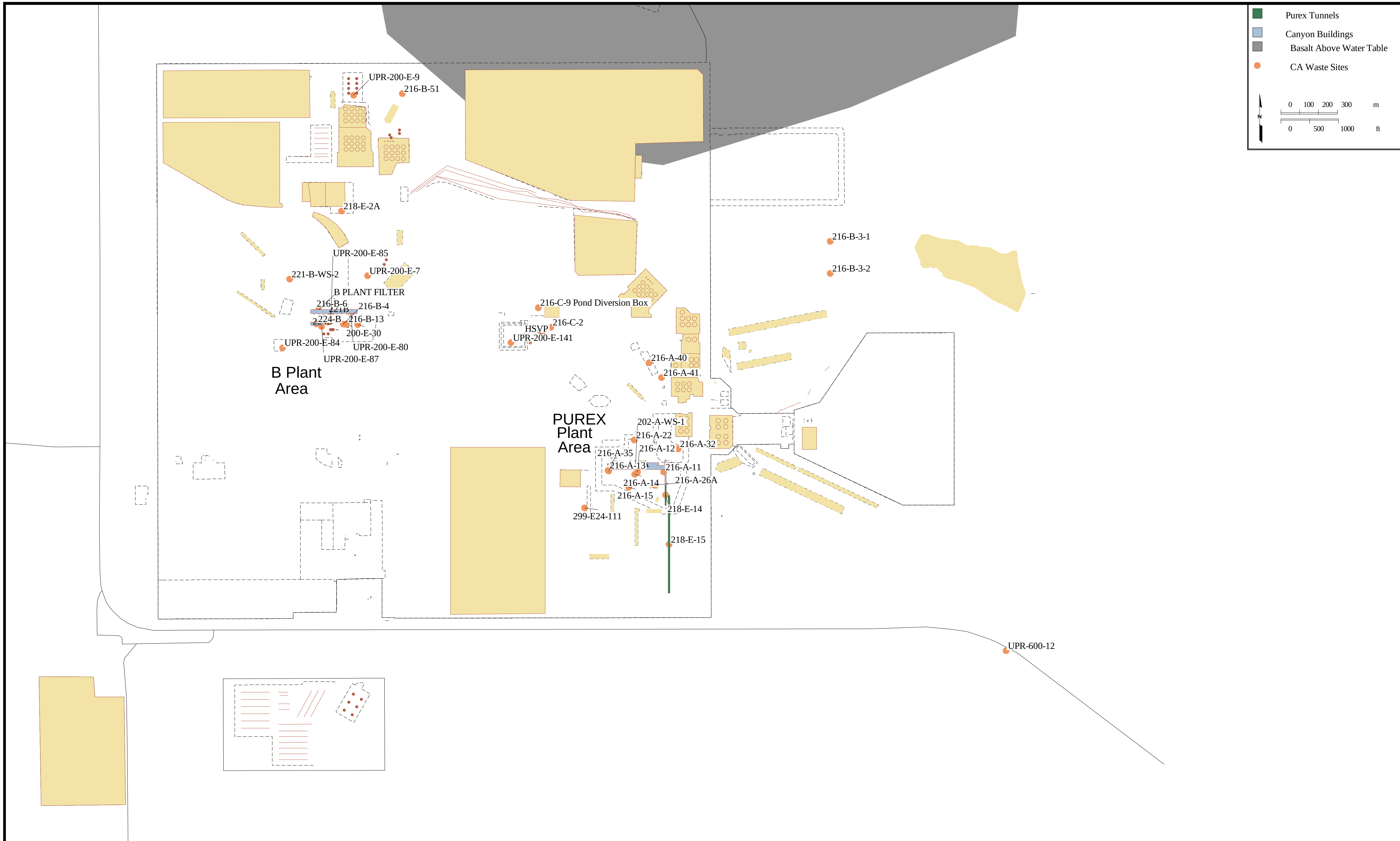

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Figure 3.1a. Location of Canyon Facilities, PUREX Tunnels, and Other CERCLA Sites in the 200 East Area

Figure 3.1b. Location of Canyon Facilities and Other CERCLA Sites in the 200 West Area

Table 3.1. Site-Specific Data and Information for Canyon Facilities

Site Name		Easting (m)	Northing (m)	Depth (m)	Water Table	Surface Elevation (m)	Column Name	Site Type	Volume (m^3)
200-E-30	B-Plant Sand Filter	573630.4	136389.0	4.88	122	216	299-E28-22	Sand Filter	1.0E+00
200-W-43	REDOX Plant Stack Sand Filter	567481.8	133973.4	4.00	138	210	299-W22-24	Sand Filter	1.7E+01
200-W-44	U Plant Stack Sand Filter	567688.1	135206.7	6.71	139	220	299-W14-8A	Sand Filter	1.0E+00
202-A	PUREX Building	575100.0	135650.0	20.00	122	216	299-E25-2	Process Unit/Plant	1.0E+00
202-S	REDOX Plant	567379.1	133972.8	24.99	138	210	299-W22-24	Process Unit/Plant	1.0E+00
221-B	B Plant Building	573270.0	136630.0	20.00	122	214	299-E28-16	Process Unit/Plant	1.0E+00
221-U	U Plant Building	567558.6	135170.7	23.47	139	221	299-W14-8A	Process Unit/Plant	1.0E+00
224-B	B-Plant Concentration Facility	573411.4	136393.4	21.34	122	219	299-E28-16	Process Unit/Plant	1.0E+00
224-U	U Plant Building	567549.9	135056.7	20.00	139	213	299-W22-24	Process Unit/Plant	1.0E+00
276-U	U-Plant Solvent Recovery Building	567470.9	135066.9	2.44	139	213	299-W22-24	Process Unit/Plant	6.1E+02
221-T	T-Plant Building	567568.3	136849.7	20.00	139	222	299-W11-2	Process Unit/Plant	0.0E+00
224-T	T-Plant Processing Facility	567555.8	136724.8	18.28	139	222	299-W11-2	Process Unit/Plant	0.0E+00
234-52	Plutonium Finishing Plant	566472.8	135657.2	20.00	144	201	299-W18-21	Process Unit/Plant	0.0E+00
B_PLANT_FILTER	B-Plant Filter	573422.8	136465.2	2.00	122	219	299-E28-16	Process Unit/Plant	0.0E+00

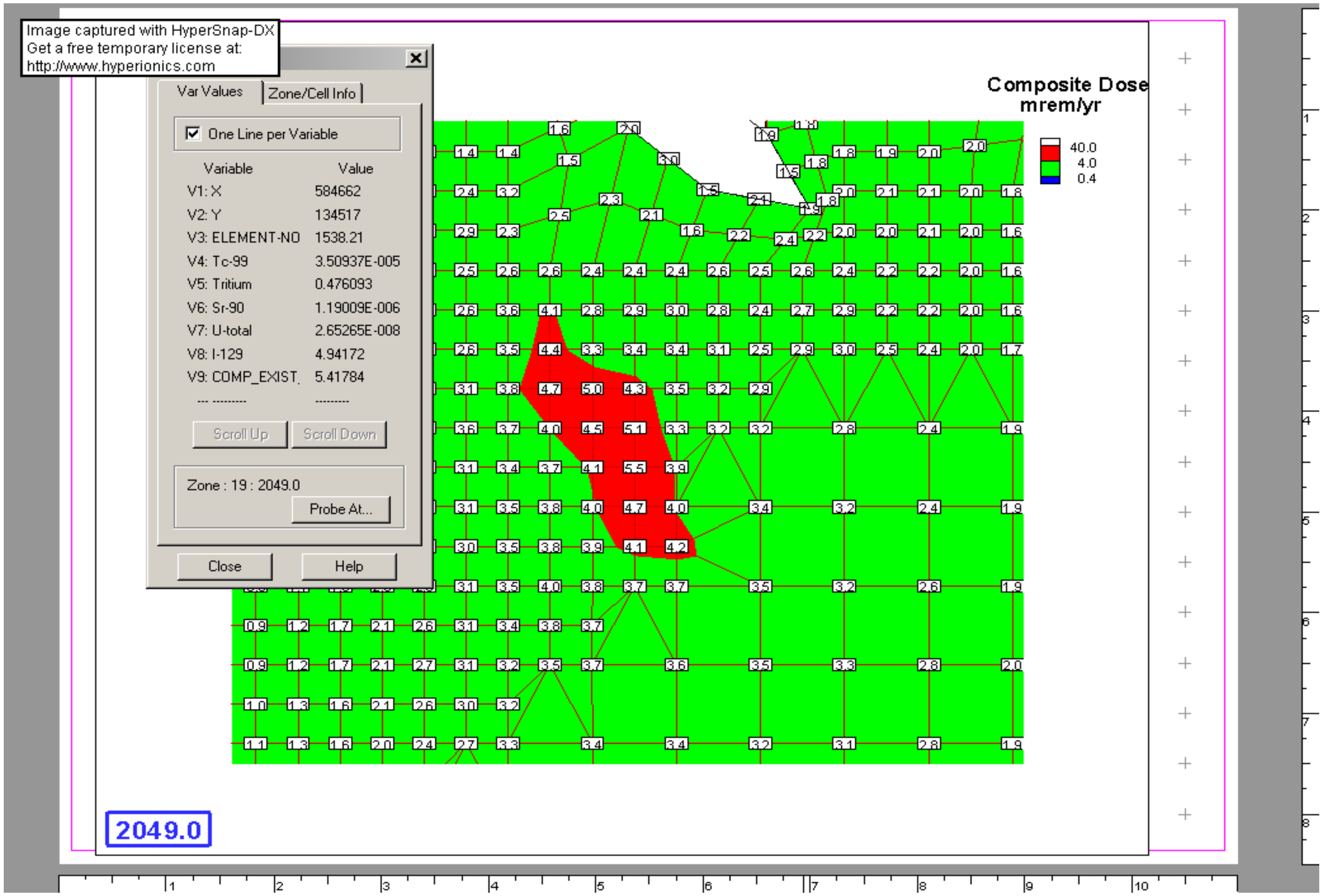


Figure 3.2. Key Constituents Contributing to Maximum Composite Dose Outside of the Buffer Zone from Existing Plumes, Year 2050

Table 3.2. Site-Specific Data and Information for PUREX Tunnels

Site Name	Easting (m)	Northing (m)	Depth (m)	Water Table Elevation (m)	Surface Elevation (m)	Column Name	Site Type	
218-E-14	575259.1	135486.9	6.86	122	221	299-E25-2	Storage Tunnel	5.7E+02
218-E-15	575277.3	135225.6	6.71	122	221	299-E25-2	Storage Tunnel	1.1E+03

Specific S&T activities included using the extension of the HDW model to include improved estimates of contaminant waste streams and inventories from the PFP building, PUREX tunnels, solid waste burial grounds, graphic cores from production reactors, ancillary piping, and residues in the canyon facilities. This effort also identified and quantified inventories discharges to specific cribs and trenches receiving tank wastes.

The results of the Groundwater/Vadose Zone Integration Project inventory work element have improved current estimates of total site inventories and their allocation to major waste facilities. The SAC inventory efforts in FY 2000-2001 resulted in the in data and information that was used to evaluate the complete list of the Composite Analysis Addendum sites from Appendix C in Kincaid et al. (1998). This evaluation process resulted in a reduction of the initial 365 potential sites to 75 waste sites for consideration in this addendum analysis. The distribution of the 75 sites in the 200 East and 200 West Areas, including the canyon facilities, PUREX tunnels, and selected CERCLA sites are shown in Figures 3.1a and 3.1b, respectively. A brief summary of the disposition resulting from the SAC evaluation of all sites initially considered in the assessment is given in Appendix B. Of all the waste sites included in this table (365 sites), 290 waste sites were eliminated for one or more of the following reasons:

- three waste sites were eliminated because they were identified as having never been used

- 96 waste sites were eliminated because they were considered to be insignificant based on technical review of the description of waste site operational history in the Waste Inventory Database System (WIDS) data

- 20 waste sites were eliminated because they received only non-radiological wastes

- 38 waste sites were eliminated because they were remediated

- Inventories for 11 French-drain sites were eliminated because wastes at these sites were discharged in amounts assumed to be very small and below monitoring criteria when disposed

- Inventories from 116 waste sites were eliminated because their inventories were accounted for in aggregated inventories included in other waste sites. (Note: A summary of the sites reviewing inventory basis for these 116 sites is provided in Table 3.4). Three of the receiving sites are analyzed in the addendum; the remaining receiving sites were evaluated in the original composite analyses.

Table 3.3. Site-Specific Data and Information for Other CERCLA Sites

Site Name	Easting (m)	Northing (m)	Depth (m)	Water Table Elevation (m)	Surface Elevation (m)	Column Name	Site Type	Volume (m^3)
216-N-1	569885.6	140044.6	1.83	125	172	299-W6-1	Pond	9.5E+05
UPR-600-12	577060.4	134662.3	2.00	123	214	299-E25-2	Unplanned Release	1.6E+00
218-E-2A	573544.6	136989.9	2.00	122	209	299-E28-16	Burial Ground	0.0E+00
216-A-22	575093.1	135778.2	3.05	122	216	299-E25-2	Crib	5.9E+00
216-A-32	575325.6	135730.8	3.66	122	210	299-E25-2	Crib	4.0E+00
216-A-41	575237.4	136108.5	2.00	122	217	299-E25-2	Crib	1.0E+01
216-B-3-1	576130.0	136830.0	2.00	124	179	299-E26-8	Ditch	1.5E+08
216-B-3-2	576130.0	136660.0	2.44	124	179	299-E26-8	Ditch	1.5E+08
216-A-11	575248.6	135608.7	9.14	122	221	299-E25-2	French Drain	1.0E+02
216-A-12	575110.6	135608.3	5.49	122	221	299-E25-2	French Drain	1.0E+02
216-A-13	574954.5	135616.6	2.00	122	221	299-E24-7	French Drain	1.0E+01
216-A-14	575095.9	135596.7	8.84	122	221	299-E25-2	French Drain	1.0E+00
216-A-15	575064.1	135527.7	13.41	122	221	299-E24-7	French Drain	8.8E+00
216-A-26A	575200.7	135538.5	4.57	122	221	299-E25-2	French Drain	1.0E+01
216-A-35	574958.5	135613.7	2.00	122	221	299-E24-7	French Drain	1.0E+01
216-B-13	573571.5	136392.3	5.49	122	219	299-E28-16	French Drain	2.1E+01
216-B-51	573866.3	137611.9	4.27	122	197	218-E-12B	French Drain	1.0E+00
216-B-4	573554.1	136391.1	33.00	122	219	299-E28-16	Injection/Reverse Well	1.0E+01
216-B-6	573472.6	136403.0	23.00	122	219	299-E28-16	Injection/Reverse Well	1.0E+03
216-C-2	574652.1	136375.0	12.19	122	214	299-E28-22	Injection/Reverse Well	1.0E+01
299-E24-111	574830.1	135418.8	18.29	122	222	299-E24-7	Injection/Reverse Well	4.2E+01
216-A-40	575172.1	136187.2	3.66	122	210	299-E25-2	Retention Basin	9.5E+02
UPR-200-E-141	574440.9	136294.2	2.00	122	215	299-E28-22	Unplanned Release	2.1E-01
UPR-200-E-7	573682.4	136648.0	2.00	122	215	299-E28-22	Unplanned Release	1.9E+01
UPR-200-E-80	573594.4	136441.9	2.00	122	219	299-E28-22	Unplanned Release	0.0E+00
UPR-200-E-84	573232.9	136266.2	2.00	122	220	299-E28-16	Unplanned Release	6.4E+00
UPR-200-E-85	573488.3	136443.8	4.57	122	219	299-E28-16	Unplanned Release	1.0E+01
UPR-200-E-87	573439.2	136379.2	2.00	122	219	299-E28-16	Unplanned Release	1.0E+00
UPR-200-E-9	573608.3	137603.3	2.00	122	201	218-E-10	Unplanned Release	4.2E+01
HSVP	574604.1	136341.3	2.00	122	215	299-E28-22	Valve Pit	0.0E+00
216-W-LWC	567916.1	135885.3	2.00	138	226	299-W14-8A	Crib	9.6E+05
216-S-16D	565674.0	133546.6	2.00	140	198	299-W18-21	Ditch	4.0E+05
216-U-14	567033.2	135347.1	2.00	140	208	299-W14-7	Ditch	3.1E+06

Table 3.3. (contd)

Site Name	Easting (m)	Northing (m)	Depth (m)	Water Table Elevation (m)	Surface Elevation (m)	Column Name	Site Type	Volume (m^3)
216-Z-1D	566644.1	135258.1	0.61	140	203	299-W14-7	Ditch	4.0E+05
241-TX-154	567598.8	136835.4	5.49	139	222	299-W11-2	Diversion Box	1.9E+01
216-S-4	566549.3	134456.6	6.10	140	202	299-W18-21	French Drain	1.0E+03
216-T-29	567705.3	136914.0	2.00	138	222	299-W11-2	French Drain	7.4E+01
216-T-2	567588.9	136781.9	22.86	139	222	299-W11-2	Injection/Reverse Well	1.0E+03
216-U-4	567579.4	135109.2	22.86	139	213	299-W22-24	Injection/Reverse Well	3.0E+02
216-S-10P	566402.8	133308.6	2.00	139	203	299-W22-24	Pond	7.4E+05
216-T-4A	566533.0	137099.1	2.00	140	210	299-W6-1	Pond	4.2E+07
216-S-14	567430.2	133541.1	2.00	138	208	299-W22-24	Trench	7.6E+01
216-S-18	567065.9	134407.9	1.83	139	207	299-W22-24	Trench	9.8E+01
216-T-13	566776.3	136520.4	3.05	140	208	299-W11-2	Trench	0.0E+00
UPR-200-W-101	567558.6	135170.7	2.00	139	221	299-W14-8A	Unplanned Release	1.0E+02
UPR-200-W-108	567186.4	134413.6	6.10	139	212	299-W22-24	Unplanned Release	1.1E-01
UPR-200-W-113	567064.3	136095.6	2.00	140	209	299-W14-7	Unplanned Release	1.0E+02
UPR-200-W-125	567411.5	135115.3	4.57	139	213	299-W14-7	Unplanned Release	0.0E+00
UPR-200-W-135	567119.2	136074.4	2.00	140	209	299-W14-7	Unplanned Release	3.8E+00
UPR-200-W-138	567603.0	135235.0	2.00	139	221	299-W14-8A	Unplanned Release	0.0E+00
UPR-200-W-29	566907.9	136595.6	2.00	140	209	299-W11-2	Unplanned Release	3.8E+00
UPR-200-W-30	567531.3	134120.3	3.05	138	210	299-W22-24	Unplanned Release	6.8E+01
UPR-200-W-36	566990.0	134255.0	2.00	139	206	299-W22-24	Unplanned Release	0.0E+00
UPR-200-W-38	567603.0	136840.6	2.00	139	222	299-W11-2	Unplanned Release	2.9E+01
UPR-200-W-8	567819.0	135066.2	2.00	139	216	299-W14-8A	Unplanned Release	0.0E+00
UPR-200-W-98	567510.7	136736.7	2.00	139	222	299-W11-2	Unplanned Release	1.0E+02
241-WR VAULT	567691.3	135305.2	13.72	139	220	299-W14-8A	Receiving Vault	1.0E+00

Table 3.4. Sites Designated as Receiving Inventory from Aggregated Addendum Sites

Site Name	Operating Area	Site Type	Receiving Site Code
270-E CNT	600	Neutralization Tank	216-B-12
270-W	600	Neutralization Tank	224-U[(a)]
216-B-64	600	Retention Basin	216-B-55
291-C-1	200E	Burial Ground	218-E-9
200-W-7	200E	Catch Tank	TK Tank Farm
240-S-302	200E	Catch Tank	TX Tank farm
241-A-302A	200E	Catch Tank	A Tank Farm
241-A-302B	200E	Catch Tank	A Tank Farm
241-B-302B	200E	Catch Tank	B Tank Farm
241-BX-302B	200E	Catch Tank	BX Tank Farm
241-BX-302C	200E	Catch Tank	BX Tank Farm
216-A-524	200E	Control Structure	216-A-24
2904-S-160	200E	Control Structure	202-S[(a)]
2904-S-170	200E	Control Structure	202-S[(a)]
2904-S-171	200E	Control Structure	202-S[(a)]
216-A-29	200E	Ditch	216-B-3
216-A-34	200E	Ditch	216-A-19
216-B-3-3	200E	Ditch	216-B-3
240-S-151	200E	Diversion Box	TX Tank farm
240-S-152	200E	Diversion Box	TX Tank farm
241-A-151	200E	Diversion Box	A Tank Farm
241-B-154	200E	Diversion Box	216-B-10A
241-BX-154	200E	Diversion Box	216-B-10A
241-BX-155	200E	Diversion Box	BX Tank Farm
241-C-154	200E	Diversion Box	216-B-10A
241-Z Diversion Box No. 2	200E	Diversion Box	216-Z-12
216-B-3A	200E	Pond	216-B-3
216-B-3B	200E	Pond	216-B-3
216-B-3C	200E	Pond	216-B-3
207-SL	200E	Retention Basin	216-S-19, 216-S-26
207-T	200E	Retention Basin	216-T-4-1, 216-T-4-2
207-Z	200E	Retention Basin	216-Z-1, 216-Z-11
216-A-42	200E	Retention Basin	216-A-30, 216-A-37-1, 216-A-37-2
200-E-14	200E	Storage Tank	216-B-15
241-CX-TK-70	200E	Storage Tank	216-C-1
200-W-9	200E	Unplanned Release	218-W-5
UPR-200-E-1	200E	Unplanned Release	BX Tank Farm
UPR-200-E-103	200E	Unplanned Release	216-B-62
UPR-200-E-110	200E	Unplanned Release	BX Tank Farm

Table 3.4. (contd)

Site Name	Operating Area	Site Type	Receiving Site Code
UPR-200-E-117	200E	Unplanned Release	216-B-62
UPR-200-E-145	200E	Unplanned Release	216-A-45
UPR-200-E-17	200E	Unplanned Release	216-A-21
UPR-200-E-21	200E	Unplanned Release	216-A-21
UPR-200-E-29	200E	Unplanned Release	216-A-21
UPR-200-E-3	200E	Unplanned Release	216-B-10A
UPR-200-E-44	200E	Unplanned Release	216-B-62
UPR-200-E-50	200E	Unplanned Release	218-W-4C
UPR-200-E-52	200E	Unplanned Release	216-B-62
UPR-200-E-56	200E	Unplanned Release	216-A-37-1
209-E-WS-3	200E	Valve Pit	216-C-7
241-C Waste Line Unplanned Release No. 1	200E	Waste Line	216-B-10A
241-ER-311	200W	Catch Tank	
241-ER-311A	200W	Catch Tank	
241-S-302A	200W	Catch Tank	216-Z-1A
241-SX-302	200W	Catch Tank	216-Z-12
241-TX-302B	200W	Catch Tank	216-Z-1A
241-TX-302BR	200W	Catch Tank	216-Z-12
241-TX-302C	200W	Catch Tank	216-Z-1A
241-U-302	200W	Catch Tank	216-Z-12
216-S-172	200W	Control Structure	216-S-6, 216-S-17
216-T-4-1D	200W	Ditch	216-T-4A[(a)]
216-T-4-2	200W	Ditch	216-T-4B
216-U-11	200W	Ditch	216-U-10
216-U-9	200W	Ditch	216-U-10
216-Z-11	200W	Ditch	216-U-10
216-Z-19	200W	Ditch	216-U-10
241-ER-151	200W	Diversion Box	216-B-10A
241-ER-152	200W	Diversion Box	216-B-10A
241-S-151	200W	Diversion Box	216-Z-12
241-TX-152	200W	Diversion Box	216-Z-1A
241-TX-155	200W	Diversion Box	216-Z-12
241-U-151	200W	Diversion Box	216-Z-12
241-U-152	200W	Diversion Box	216-Z-1A
241-UX-154	200W	Diversion Box	216-Z-1A
241-Z Diversion Box No. 1	200W	Diversion Box	Z Tank Farm
241-Z-TK-D5	200W	Neutralization Tank	216-Z-1A
216-N-8	200W	Pond	216-N-6

Table 3.4. (contd)

Site Name	Operating Area	Site Type	Receiving Site Code
216-Z-21	200W	Pond	216-Z-20
231-W-151	200W	Receiving Vault	216-U-10
207-A-NORTH	200W	Retention Basin	216-A-40
207-A-SOUTH	200W	Retention Basin	216-A-40
207-B	200W	Retention Basin	216-B-3
207-S	200W	Retention Basin	216-S-17, 216-S-16
216-BY-201	200W	Settling Tank	216-B-10B
216-TY-201	200W	Settling Tank	216-T-18
200-W-16	200W	Storage Tank	216-T-36
UPR-200-W-109	200W	Unplanned Release	216-S-9
UPR-200-W-127	200W	Unplanned Release	216-U-16
UPR-200-W-130	200W	Unplanned Release	216-S-9
UPR-200-W-134	200W	Unplanned Release	LLW Burial Grounds
UPR-200-W-14	200W	Unplanned Release	216-T-1
UPR-200-W-163	200W	Unplanned Release	SX Tank Farm
UPR-200-W-19	200W	Unplanned Release	U Tank Farm
UPR-200-W-2	200W	Unplanned Release	TX Tank farm
UPR-200-W-21	200W	Unplanned Release	TX Tank farm
UPR-200-W-35	200W	Unplanned Release	216-A-18
UPR-200-W-5	200W	Unplanned Release	TX Tank farm
UPR-200-W-52	200W	Unplanned Release	SX Tank Farm
244-S RT	200W	Receiver Tank	216-U-16
(a) Site being evaluated in Addendum.			

- Six waste sites were eliminated because they were found to be duplicates of other waste sites being considered.

3.3 Estimating Radionuclide Inventory and Release Rates

3.3.1 Selection of Key Radionuclides for Current Analysis

This section describes the basis for the selection of the key radionuclides used in the addendum analysis to illustrate the potential impacts of releases from sources sites not considered in the previous analysis. Included in this discussion are descriptions of the

- selection of key radionuclides in the original Composite Analysis
- evaluation of radionculides important to past dose estimates
- selection of radionuclides for this Addendum Analysis.

3.3.1.1 Selection of Key Radionuclides in the Original Composite Analysis

The radionuclides included in the previous Composite Analysis of future sources as described in Kincaid et al. (1998) were carbon-14; chlorine-36; selenium-79; technetium-99; iodine-129; and uranium-233, -234, -235, -236, -238, and their daughters. This list was the result of merging the two lists from performance assessments of the immobilized low-activity waste from tanks and the solid waste burial grounds. In addition, the remedial investigation and feasibility study for the ERDF and other environmental impact statements (DOE 1987, 1989, 1992, 1996a, 1998; DOE-RL 1994; DOE-RL and Ecology 1996) were reviewed, and no other radionuclides were identified as potentially significant contributors to the groundwater pathway dose. In the first iteration of the Composite Analysis, the contribution of uranium and its progeny to dose was estimated by simulating uranium-238, approximating the abundance of other uranium isotopes using a single set of isotopic ratios, and assuming that uranium daughter products move with the parent.

Kincaid et al. (1998) also evaluated the radiological impact of plumes of tritium, strontium-90, technetium-99, and iodine-99 that exist in the unconfined aquifer at the Hanford Site. While radionuclides with long half-lives, i.e., technetium-99, iodine-129, and uranium, were identified as key nuclides in the Composite Analysis, tritium and strontium-90 are not. However. Tritium and strontium-90 were included in a recent study of existing plumes (Cole et al. 1997), and the Composite Analysis has included the influence of these existing plumes on future dose projections. Thus, while no effort has been made to assemble inventory data and model release and vadose zone migration of either tritium or strontium-90, their effects on dose are included as described in Kincaid et al. (1998).

3.3.1.2 Evaluation of Radionculides Important to Dose Estimates in Composite Analysis

In the Composite Analysis, most of the radionuclide inventory in past-practice liquid discharge and solid waste burial sites on the 200 Area Plateau were projected to be released within the first several hundred years following Hanford Site closure. A significant fraction of that radionuclide inventory was projected to release before Hanford Site closure in 2050, and peak concentrations of key radionuclides in groundwater were predicted to occur before closure in 2050. For the agricultural exposure scenario, which results in the highest predicted doses, the maximum dose from the key radionuclides and all sources considered in the Composite Analysis outside the buffer zone at Hanford Site closure was less than 6 mrem in a year. The maximum dose from the agricultural scenario declined thereafter. The maximum doses estimated for the other scenarios, i.e., residential, industrial, and recreational, were 2.2, 0.7, and 0.04 mrem in a year, respectively, and also declined after 2050.

The groundwater plumes from existing sources considered in the analysis are predicted to migrate away from the 200 Area Plateau in two primary directions, to the east and southeast following the major existing plumes, and to the north. The groundwater flow paths gradually change from an initial radial pattern from the 200 Area Plateau to an easterly direction as the water table changes in response to cessation of wastewater disposal. The dominant radionuclides contributing to maximum doses from these sources were found to be the existing tritium and iodine-129 plumes just upgradient from where the plumes discharge into the Columbia River near the Hanford Townsite (Figure 3.2). Contributions from other constituents such as technetium-99 and uranium, at site closure and in the future site closure period, were found to be minor (e.g. less 10^{-04} mrem/yr) outside of the exclusive waste management area and the surrounding buffer zone.

The most significant impact of future source releases, particularly those in the 200 East Area, occurred outside the buffer zone after the time of assumed site closure in 2050. These plumes were initially predicted to migrate away from the 200 Area Plateau in a northerly direction through the gap between Gable Butte and Gable Mountain toward discharge point in the Columbia River. The maximum doses from these sources after site closure were between 4 and 5 mrem/yr for the agricultural exposure scenario (Figure 3.3). The dominant radionuclide contributing to maximum doses from these sources were found to be technetium-99 from liquid discharge sites, older LLW burial grounds, and past tank leak sources in 200 East Area. Other components of the composite future maximum dose were attributable to iodine-129 released to groundwater from past liquid discharges and of the release to groundwater of chlorine-36 inventories originating from older LLW burial grounds. Contributions from other constituents such as uranium, carbon-14, and selenium-79, from sources in the plateau were found to be minor at site closure and during the site analysis period of 1000 years after site closure.

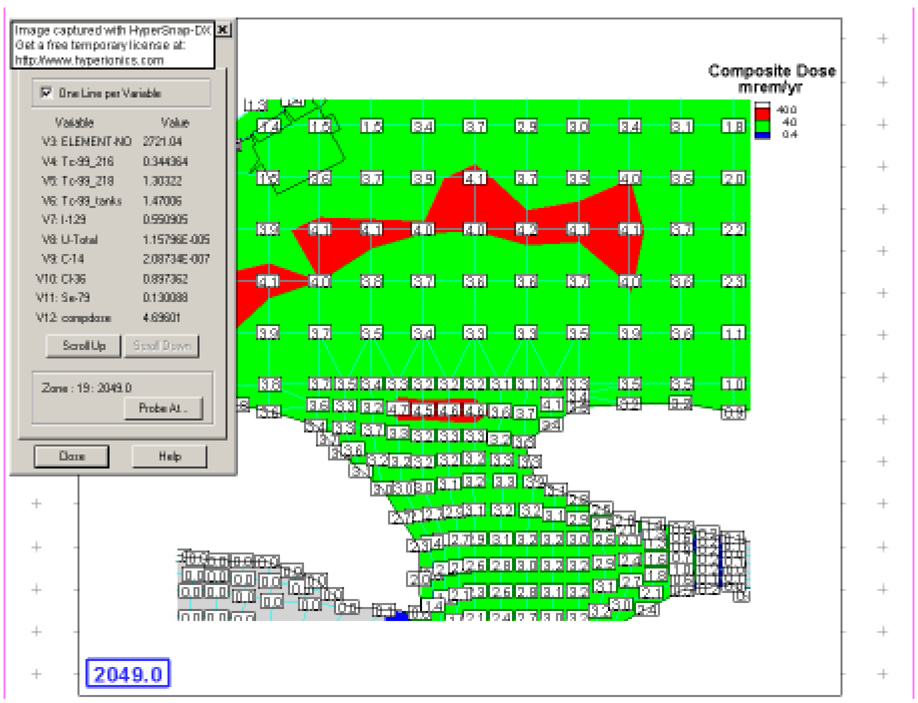


Figure 3.3. Key Constituents Contributing to Maximum Composite Dose Outside of the Buffer Zone from Future Releases, Year 2050

3.3.1.3 Selection of Key Radionuclides in the Addendum Analysis

The principal objective of this addendum analysis is to evaluate the potential impact from additional sites not thoroughly evaluated in the original Composite Analysis. In this context, this analysis did not evaluate all six constituents considered in the original Composite Analysis but rather focused on the two of the key radionuclides from sources contributing to projected future doses. Results from the original analysis indicate that technetium-99 and iodine-129 accounted for about 75 percent of the maximum estimated dose from future releases. The assumption was made that these constituents can be used as general indicator constituents to evaluate potential impacts from the sites being considered in this addendum analysis. Thus, technetium-99 and iodine-129 were the only constituents considered in this analysis. The SAC effort did develop estimates of strontium-90 and uranium inventories as part of its initial assessment. However, because of assumptions made about their adsorption onto Hanford sediments and in the case of strontium-90, their relatively short half life, these constituents were not significant contributors to dose outside of the exclusive waste management and buffers area in the original Composite Analysis. Thus, these constituents were not evaluated as part of this Addendum analysis. Contributions to dose from other relatively mobile and long-lived constituents such as carbon-14, chlorine-36, and selenium-79 were also found to be minor in the original Composite Analysis (i.e., < 25 percent of total composite dose). Thus, these other constituents were also not examined in this addendum analysis.

3.3.2 Estimated Site Inventories

The estimated inventories used to support this assessment relied on the broader scope of work performed for SAC described in Appendix A. Inventories of waste released at the Hanford Site are derived from numerous databases, which include measured as well as estimated values. The total inventory at the Hanford Site is based on the quantity of radionuclides brought onsite plus the quantity generated, minus the material that was exported from the site and lost through decay. The total inventory for the Hanford Site is then used to bound the inventory for all sites. For sites identified as potential sources but missing data, estimation techniques were used to populate the database for the missing values. Estimation techniques are necessary when, for example, the fission product of interest is not known but other fission products are known, uranium isotopes are known but uranium mass is not, uranium mass is known but the isotopes are not, the volume released at a site is unknown, or no information exists for a site at all. A detailed discussion of the techniques used to fill in the database and site-specific inventory values are provided in Appendix A. The basis of inventory estimates for sites considered in the analysis is summarized in Table 3.5. A further discussion of the structure and content of the inventory database is available from the SAC publications website.[a]

(a) http://www.bhi-erc.com/projects/vadose/sac/sacdocs.htm, Groundwater/Vadose Zone Integration Project Preliminary System Assessment Capability Concepts for Architecture, Platform, and Data Management.

Table 3.5. Basis for Inventory Estimates from Sites Considered in Addendum Analysis

Site Name	Operating Area	Site Type	Basis for Inventory	Surrogate Site Name or Note
216-N-1	600	Pond	S-Estimate	216-N-4
UPR-600-12	600	Unplanned Release	Zero_Inv_S-Estimate	
218-E-2A	200E	Burial Ground	S-Estimate	218-E-5
216-A-22	200E	Crib	ST	
216-A-32	200E	Crib	S-Estimate	216-A-22
216-A-41	200E	Crib	S-Estimate	216-A-31
216-B-3-1	200E	Ditch	S-Estimate	216-B-3
216-B-3-2	200E	Ditch	S-Estimate	216-A-9
216-A-11	200E	French Drain	ST	
216-A-12	200E	French Drain	ST	
216-A-13	200E	French Drain	S-Estimate	216-A-15
216-A-14	200E	French Drain	S-Estimate	216-A-11
216-A-15	200E	French Drain	ST	
216-A-26A	200E	French Drain	S-Estimate	216-A-11
216-A-35	200E	French Drain	S-Estimate	216-B-53B
216-B-13	200E	French Drain	S-Estimate	216-B-10B
216-B-51	200E	French Drain	ST	
216-B-4	200E	Injection/Reverse Well	S-Estimate	216-B-10B
216-B-6	200E	Injection/Reverse Well	Records	
216-C-2	200E	Injection/Reverse Well	S-Estimate	216-C-9
299-E24-111	200E	Injection/Reverse Well	S-Estimate	216-C-7
216-C-9 Pond Diversion Box	200E	Pond	Records	
202-A-WS-1	200E	Process Unit/Plant	Records	
221-B-WS-2	200E	Process Unit/Plant	Records	
224-B	200E	Process Unit/Plant	Records	
B PLANT FILTER	200E	Process Unit/Plant	Records	
216-A-40	200E	Retention Basin	ST	
200-E-30	200E	Sand Filter	Records	
218-E-14	200E	Storage Tunnel	Records	
218-E-15	200E	Storage Tunnel	Records	
UPR-200-E-141	200E	Unplanned Release	Records	
UPR-200-E-7	200E	Unplanned Release	S-Estimate	216-A-1
UPR-200-E-80	200E	Unplanned Release	Records	
UPR-200-E-84	200E	Unplanned Release	Records	
UPR-200-E-85	200E	Unplanned Release	Records	
UPR-200-E-87	200E	Unplanned Release	Records	
UPR-200-E-9	200E	Unplanned Release	S-Estimate	216-A-1
HSVP	200E	Valve Pit	Estimated	Std_sm_Inv
216-W-LWC	200W	Crib	Records	
216-S-16D	200W	Ditch	S-Estimate	216-S-10D
216-U-14	200W	Ditch	Records	
216-Z-1D	200W	Ditch	S-Estimate	216-Z-9
241-TX-154	200W	Diversion Box	Records	
216-S-4	200W	French Drain	S-Estimate	216-S-3

Table 3.5. (contd)

Site Name	Operating Area	Site Type	Basis for Inventory	Surrogate Site Name or note
216-T-29	200W	French Drain	S-Estimate	216-T-1
216-T-2	200W	Injection/Reverse Well	Records	
216-U-4	200W	Injection/Reverse Well	S-Estimate	216-U-3
216-S-10P	200W	Pond	Records	
216-T-4A	200W	Pond	Records	
202-S	200W	Process Unit/Plant	Records	
221-U	200W	Process Unit/Plant	Records	
224-U HWSA	200W	Process Unit/Plant	Records	
276-U	200W	Process Unit/Plant	Records	
221-T	200W	Process Unit/Plant	Records	
224-T	200W	Process Unit/Plant	Records	
200-W-43	200W	Sand Filter	Records	
200-W-44	200W	Sand Filter	Records	
UPR-200-W-140	200W	Single-Shell Tank	ST	
UPR-200-W-141	200W	Single-Shell Tank	ST	
276-S-TK-141	200W	Storage Tank	Estimated	Std_sm_Inv
276-S-TK-142	200W	Storage Tank	Estimated	Std_sm_Inv
216-S-14	200W	Trench	S-Estimate	216-S-22
216-S-18	200W	Trench	Records	
216-T-13	200W	Trench	Estimated	Std_sm_Inv
UPR-200-W-101	200W	Unplanned Release	Records	
UPR-200-W-108	200W	Unplanned Release	Records	
UPR-200-W-113	200W	Unplanned Release	Records	
UPR-200-W-125	200W	Unplanned Release	Records	
UPR-200-W-135	200W	Unplanned Release	S-Estimate	241-TX-107
UPR-200-W-138	200W	Unplanned Release	Records	
UPR-200-W-29	200W	Unplanned Release	ST	
UPR-200-W-30	200W	Unplanned Release	S-Estimate	216-S-12
UPR-200-W-36	200W	Unplanned Release	Records	
UPR-200-W-38	200W	Unplanned Release	ST	
UPR-200-W-8	200W	Unplanned Release	Records	
UPR-200-W-98	200W	Unplanned Release	Records	
241-WR VAULT	200W		Records	

NOTES:

Basis for Inventory Estimate
Estimated - Inventory estimated with other method.
Records - Inventory is found in the Records table (from historical records)
ST - Inventory from S&T program
S-Estimate - Inventory estimated using surrogate site inventory, listed under “Surrogate Name or Note.”
Zero_Inv_S-Estimate - Inventory estimated as zero.
Surrogate Site Name or Note
Highlighted site name is surrogate site from which inventory is calculated (usually by volume ratio).
Std_sm_Inv - Inventory estimated using standard small inventory estimate.

The discussion that follows summarizes estimated inventories used in the Addendum analysis. The estimated inventories by individual sites for the canyon facilities, PUREX tunnels, and other CERCLA sites are presented in Tables 3.6 to 3.8. The total inventory for each waste site category (canyon facilities, PUREX tunnels, liquid discharge sites, unplanned release sites, and other miscellaneous sites) relative to each radionuclide is listed in Table 3.9. Table 3.9 shows that most of the technetium-99 is distributed between the 200-UPR sites, canyon facilities, and PUREX sites. Iodine-129 is primarily located at one of the PUREX tunnel sites (218-E-15).

Table 3.6. Technetium-99 and Iodine-129 for Canyon Facility Sites

Site Name	Tc-99 (Ci)	I-129 (Ci)
200-E-30	4.5E-01	9.7E-04
200-W-43	1.8E+00	3.9E-03
200-W-44	1.3E+00	4.1E-04
202-A	8.4E-02	1.6E-04
202-S	1.5E+00	3.5E-03
221-B	1.4E+01	2.8E-02
221-U	5.6E+00	6.1E-05
224-B	3.9E-03	3.5E-07
224-U	7.3E-02	1.4E-04
276-U	3.0E-04	1.7E-06
221-T	9.8E-01	2.1E-03
224-T	2.4E-03	3.0E-07
234-52[a]	0.0E+00	0.0E+00
B_PLANT_FILTER	1.2E+01	2.0E-02

(a) Inventory consists of only plutonium-239.

Table 3.7. Technetium-99 and Iodine-129 Inventories for PUREX Tunnels

Site Name	Tc-99 (Ci)	I-129 (Ci)
218-E-14	2.7E-01	1.0E-03
218-E-15	1.6E+00	2.7E+01

Table 3.8. Technetium-99 and Iodine-129 Inventories for Other CERCLA Sites

Site Name	Tc-99 (Ci)	I-129 (Ci)
216-A-11	0.0E+00	5.7E-05
216-A-12	0.0E+00	5.7E-05
216-A-13	0.0E+00	5.6E-06
216-A-14	0.0E+00	5.5E-07
216-A-15	0.0E+00	5.0E-06
216-A-22	0.0E+00	3.4E-06
216-A-26A	0.0E+00	6.2E-07
216-A-32	0.0E+00	2.3E-06
216-A-35	7.1E-04	1.8E-06
216-A-40	5.6E-08	1.1E-04
216-A-41[a]	0.0E+00	0.0E+00
216-B-13	2.7E-08	6.5E-11
216-B-3-1	1.3E-02	1.7E-05
216-B-3-2[a]	0.0E+00	0.0E+00
216-B-4	1.2E-08	2.9E-11
216-B-51	4.9E-03	9.3E-06
216-B-6[a]	0.0E+00	0.0E+00
216-C-2[a]	0.0E+00	0.0E+00
216-C-9 Pond Diversion Box	2.4E-04	6.4E-07
216-N-1	2.9E-05	6.9E-08
216-S-10P	1.4E-04	3.0E-07
216-S-14	9.2E-05	2.1E-07
216-S-16D	4.1E-08	1.2E-10
216-S-18	1.2E-05	3.1E-08
216-S-4	7.1E-05	5.5E-06
216-T-13[a]	0.0E+00	0.0E+00
216-T-2[a]	0.0E+00	0.0E+00
216-T-29	2.6E-06	5.9E-09
216-T-4A	1.5E-03	4.5E-06
216-U-14	1.8E-02	3.2E-07
216-U-4	3.6E-06	7.8E-09
216-W-LWC	7.0E-04	2.6E-03
216-Z-1D	2.2E-06	5.1E-09
218-E-2A[a]	0.0E+00	0.0E+00

Table 3.8. (contd)

Site Name	Tc-99 (Ci)	I-129 (Ci)
241-TX-154	2.7E+00	5.1E-03
241-WR VAULT	1.2E+01	2.3E-02
299-E24-111	8.2E-04	1.5E-05
HSVP[(a)]	0.0E+00	0.0E+00
UPR-200-E-141	2.4E-06	5.9E-09
UPR-200-E-7[(a)]	0.0E+00	0.0E+00
UPR-200-E-80[(a)]	0.0E+00	0.0E+00
UPR-200-E-84	2.4E-06	8.7E-09
UPR-200-E-85	3.1E-04	7.9E-07
UPR-200-E-87	4.4E-04	7.3E-07
UPR-200-E-9	2.2E-03	5.2E-06
UPR-200-W-101[(a)]	0.0E+00	0.0E+00
UPR-200-W-108	4.8E-06	1.6E-08
UPR-200-W-113	1.3E-04	3.3E-07
UPR-200-W-125[(a)]	0.0E+00	0.0E+00
UPR-200-W-135[(a)]	0.0E+00	0.0E+00
UPR-200-W-138	2.8E-05	8.0E-08
UPR-200-W-29	4.9E-01	1.3E-03
UPR-200-W-30[(a)]	0.0E+00	0.0E+00
UPR-200-W-36	5.0E-03	9.4E-06
UPR-200-W-38	1.3E-04	2.8E-07
UPR-200-W-140[(a)]	0.0E+00	0.0E+00
UPR-200-W-200	9.5E-04	1.3E-05
UPR-200-W-8	3.7E-05	7.6E-08
UPR-200-W-98	2.9E-04	6.9E-07
UPR-600-12[(a)]	0.0E+00	0.0E+00

(a) These sites were considered in the initial assessment using the SAC because of estimated inventories of other containments of concern (i.e., tritium, cesium-137, strontium-90, plutonium-241, total uranium, and/or chromium). However, no inventories of technetium-99 and iodine-129 were assigned.

Table 3.9. Summary of Technetium-99 and Iodine-129 for all Addendum Site Categories

Site Name	Tc-99 (Ci)	I-129 (Ci)
200 East Area		
Canyons	2.6E+01	4.9E-02
PUREX Tunnels	1.9E+00	2.7E+01
Liquid Discharge Sites	1.9E-02	2.7E-04
Unplanned Release Sites	2.9E-03	6.7E-06
Other CERCLA Sites	1.5E+01	5.9E-09
Subtotal	**4.3E+01**	**2.7E+01**
200 West Area		
Canyons	1.0E+01	8.0E-03
Liquid Discharge Sites	2.0E-02	2.6E-03
Unplanned Release Sites	5.0E-01	1.3E-03
Other CERCLA Sites	8.2E-04	1.5E-05
Subtotal	**1.2E+01**	**1.2E-02**
600 Area		
Liquid Discharge Sites	2.9E-05	6.9E-08
Unplanned Release Sites	0.0E+00	0.0E+00
Subtotal	**2.9E-05**	**6.9E-08**
All Areas		
Canyons	3.6E+01	5.7E-02
PUREX Tunnels	1.9E+00	2.7E+01
Liquid Discharge Sites	3.9E-02	2.9E-03
Unplanned Release Sites	5.0E-01	1.3E-03
Other CERCLA Sites	1.5E+01	1.5E-05
Overall Total	**54.9**	**27.5**

3.3.2.1.1 Canyon Facilities

A total of 14 sites were identified as canyon buildings and associated facilities, five sites in the 200 East Area and nine sites in the 200 West Area (Table 3.6). Estimated technetium-99 inventory for the canyon facilities represents a total of 37.5 Ci, with about 26.2 Ci estimated for sites in the 200 East Area and about 11.2 Ci for sites in the 200 West Area (Table 3.9). The estimated iodine-129 inventory amounts to about 0.05 Ci. The majority of the iodine-129 inventory is associated with the 218-E-30 site (Table 3.6). The Plutonium Finishing Plant (234-52) is included for completeness but its estimated inventory is plutonium-239.

3.3.2.1.2 PUREX Tunnels

The PUREX Tunnels 1 and 2 sites (218-E-14 and 218-E-15) are storage facilities found near the PUREX processing facility in 200 East Area. Overall estimates of the technetium-99 and iodine-129 amount to 1.9 and 27 Ci, respectively. Almost all of the estimated inventories of both constituents are associated with the 218-E-15 site.

3.3.2.1.3 Other CERCLA Sites

The other CERCLA sites considered in the analysis included 32 liquid discharge sites, 20 unplanned release sites, and 5 other miscellaneous sites.

Of the 32 sites identified as liquid release sites, 18 sites are in the 200 East Area, and 14 sites are in the 200 West Area (Table 3.8). The estimated total inventories of technetium-99 and iodine-129 associated with these sites are about 0.04 and 0.003 Ci, respectively (Table 3.9). Six sites had no estimated inventory of technetium-99 and iodine 129.

Of the 20 sites identified as unplanned release sites, 7 sites are in the 200 East Area, and 13 sites are in the 200 West Area (Table 3.8). The estimated total inventories of technetium-99 and iodine-129 associated with sites are about 0.5 and 0.001 Ci, respectively (Table 3.9). Six sites had no estimated inventory of technetium-99 and iodine 129.

Of the five sites identified as other miscellaneous sites, two sites are in the 200 East Area, and three sites are in the 200 West Area (Table 3.8). The estimated total inventories of technetium-99 and iodine-129 associated with these sites are about 8×10^{-04} and 1×10^{-05} Ci, respectively. Three sites had no estimated inventory of technetium-99 and iodine 129.

The total inventory for each waste site category (canyon facilities, PUREX tunnels, liquid discharge sites, unplanned release sites, and other miscellaneous sites) relative to each radionuclide is listed in Table 3.9. Table 3.9 shows that most of the technetium-99 is distributed between the 200-UPR sites, canyon facilities, and PUREX sites. Iodine-129 is primarily located at one of the PUREX tunnel sites (218-E-15).

3.3.3 Release Mechanisms and Rates

Release mechanisms refers to the physical form from which waste is transferred from the waste site to the ground. The release mechanism controls the rate and duration at which contamination is released. For the addendum analysis, four of the six original waste release models are used. The four models are liquid, soil/debris, salt cake, and cement. A description of the release models is available in Kincaid et al. 1998 (Chapter 4 and Appendix D). A detailed description of the mathematical derivation of soil/debris, salt cake, and cement release models is in Appendix D of Kincaid et al. (1998). In addition to the waste form, the hydraulic conditions and geochemical nature of the effluent strongly influences the arrival time and concentration levels at the water table. Two of the principal controls of contaminant migration through the porous sediment are the recharge, derived from either natural or artificial liquid sources, and the chemical interaction between the effluent plume and the porous matrix.

3.3.3.1 Canyon Facilities

In the case of canyon buildings, the major radionuclide sources and waste within the retired plants will be removed, reduced, or stabilized. Radiological contamination within the facility will be removed or fixed in place. The canyon buildings are massive concrete structures, and the concrete itself provides a durable waste form for radionuclides found in the residual contamination. Whatever structure is left in place will be stabilized (i.e., filled with soil, gravel, or concrete) and all services (such as water) will be disconnected. Retired filters will be isolated and stabilized to ensure a safe condition. It is likely that these areas, and especially any remaining structure, will be covered with a protective barrier to further isolate contamination from intrusion and recharge. Final disposals will be dry with minimal driving force to mobilize and transport radionuclides from the facilities.

Assumed release models and time-varying recharge rates for the canyon facility sites are presented in Table 3.10. The recharge index and infiltration rate for these facilities are listed in Table 3.11. Three of

Table 3.10. Assumed Release Model and Recharge Rates at Canyon Facilities (see Table 3.11 for recharge index and infiltration rates)

Site Name	Time				Recharge Index			
	1	2	3	4	1	2	3	4
200-E-30	1950	1950	2524	2050	6	5	7	6
200-W-43	1951	1967	2524	2050	6	5	7	6
200-W-44	1959	1959	2524	2050	6	5	7	6
202-A	1957	1998	2524	2050	7	7	7	7
202-S	1968	1968	2524	2050	6	7	7	6
221-B	1978	1978	2524	2050	6	7	7	6
221-U	1959	1959	2524	2050	6	7	7	6
224-B	1957	1957	2524	2050	6	7	7	6
224-U	1989	1989	2524	2050	6	7	7	6
276-U	1995	1959	2524	2050	6	7	7	6
234-52	1949	2024	2524		6	7	6	
221-T	1944	1999	2038	2138	6	7	7	6
224-T	1957	1957	2033	2533	6	7	7	6
B_PLANT_FILTER	1944	1977	2524	2050	6	7	7	6

Table 3.11. Relation of Recharge Index to Infiltration Rate

Recharge	Infiltration Rate (cm/yr)
1	3040
2	50
3	20
4	7.5
5	5
6	0.5
7	0.05
8	0.01
9	0.127

the processing facilities used a liquid discharge model. For the remaining facilities, the canyon processing facilities with residual contamination and the concrete structures associated with the facilities, the diffusion-controlled release model referred to as the cement release model is used. In all case, the assumed end-state of these facilities involved the placement of an engineered barrier system capable of reducing facility infiltration rates of 0.5 cm/yr.

Although the chemical character of the wastes associated with these facilities does not generally affect the overall release and mobility of technetium-99 and iodine-129, the assumed chemical classification of wastes for these facilities, assumed to be low-organic, low-salt, near-neutral wastes, is summarized in Table 3.12. The specific distribution coefficients, with the six categories of waste chemical classifications for technetium-99 and iodine-129 used in the original Composite Analysis, is summarized in Table 3.13.

3.3.3.2 PUREX Tunnels

Final closure of the PUREX storage tunnels will require the evaluation of alternatives. In general, these alternatives will involve either stabilizing the waste in the tunnels, or removing it and then stabilizing the tunnels (DOE 1996b). Alternatives for stabilizing the waste in place include, but are not limited to, backfilling the tunnels, waste, and railcars with gravel, or grout, or a combination of the grout on the bottom and gravel on the top. All means of access to the tunnels would be permanently sealed. For purposes of this analysis, it was assumed that facilities would be filled with grout and then covered with a final surface barrier that meets Resource Conservation and Recovery Act (RCRA) landfill cover requirements to prevent water from leaching the waste in the tunnels would be constructed. Thus, the tunnels would be left in a stable configuration resistant to consolidation and settlement.

Table 3.12. Assumed Chemical Classification of Canyon Facilities (see Table 3.11 for recharge index and infiltration rates)

Site Name	Waste Type Name	Kd Switch Depth (m)
200-E-30	Low Organic - Low Salts - Near Neutral	0
200-W-43	Low Organic - Low Salts - Near Neutral	0
200-W-44	Low Organic - Low Salts - Near Neutral	0
202-A	Low Organic - Low Salts - Near Neutral	0
202-S	Low Organic - Low Salts - Near Neutral	0
221-B	Low Organic - Low Salts - Near Neutral	0
221-U	Low Organic - Low Salts - Near Neutral	0
224-B	Low Organic - Low Salts - Near Neutral	0
224-U	Low Organic - Low Salts - Near Neutral	0
276-U	Low Organic - Low Salts - Near Neutral	0
227-T	Low Organic - Low Salts - Neutral	0
224-T	Low Organic - Low Salts - Neutral	0
234-52	Low Organic - Low Salts - Neutral	0
B_PLANT_FILTER	Low Organic - Low Salts - Near Neutral	0

Table 3.13. Distribution Coefficients (in ml/g) with the Six Categories of Waste Chemical Classification for Technetium-99 and Iodine-129 Used in the Original Composite Analysis (see Appendix E in Kincaid et al. 1998)

Chemical	Tc-99		I-129	
Classification	Kd Upper	Kd Lower	Kd Upper	Kd Lower
Highly Organic Very Acidic	0	0	0	0.1
Highly Organic Near Neutral	0	0	0.1	0.1
Very High Salts - Very Basic	0	0	0	0
Chelates - High Salt	0	0	0	0
Low Organic - Low Salt - Acidic	0	0	0.2	0.5
Low Organic - Low Salt - Near Neutral	0	0	0.5	0.5

Assumed release models and time varying recharge rates for the PUREX tunnel sites are presented in Table 3.14. For purposes of this analysis, the assumed end-state of the PUREX tunnels will involve the injection of a grout matrix. Thus, the release model assumed was the diffusion-controlled cement release model. Because of the nature of the waste involved, the assumed end-state of these facilities involves the placement of a engineered barrier capable of reducing facility infiltration rates to 0.05 cm/yr.

Although the chemical character of the wastes associated with these facilities do no generally affect the overall release and mobility of technetium-99 and iodine-129, the chemical classification of wastes for the PUREX tunnels is assumed to be in low organic-low-salt-near neutral waste category (Table 3.15).

3.3.3.3 Other CERCLA Sites

The other CERCLA sites involve a number of different types of liquid discharge sites (small ponds, cribs, ditches, trenches, French drains, retention basins, and injection/reverse wells), unplanned release sites, and other miscellaneous sites (burial grounds, diversion boxes, valve pits, and receiving vaults). All of these sites involve residual contamination left by near-surface releases into the vadose zone and, in some cases, direct injection of contaminants into the aquifer system.

For purposes of this analysis, the release models used were either assumed to be liquid release or soil debris release models. The assumed end-state of these facilities will involve the placement of an engineered cover system capable of reducing facility infiltration rates to 0.5 cm/yr during the period of time associated with final stabilization of these facilities, from 2008 to 2028. Assumed release models and time-varying recharge rates associated with these CERCLA site end-states are presented in Table 3.16.

Table 3.14. Assumed Release Model and Recharge Rates at PUREX Tunnels (see Table 3.11 for recharge index and infiltration rates)

Site Name	Time				Recharge Index			
	1	2	3	4	1	2	3	4
218-E-14	1960	1964	2010	2510	7	5	7	7
218-E-15	1967	1988	2010	2510	7	5	7	7

Table 3.15. Assumed Chemical Classification of PUREX Tunnels

Site Name	Waste Type Name	Kd Switch Depth (m)
218-E-14	Low Organic - Low Salts - Near Neutral	0
218-E-15	Low Organic - Low Salts - Near Neutral	0

Table 3.16. Assumed Release Model and Recharge Rates at Other CERCLA Sites

Site Name	Release Model	Time				Recharge Index			
		1	2	3	4	1	2	3	4
216-N-1	Liquid	1944	1952	2010	2040	5	5	6	6
UPR-600-12	Soil/debris	1954	1954	2010	0	5	5	7	0
218-E-2A	Soil/debris	1945	1950	2018	2518	5	5	7	6
216-A-22	Liquid	1956	1969	2010	2040	5	5	6	7
216-A-32	Liquid	1959	1972	2010	2510	5	5	7	7
216-A-41	Liquid	1968	1974	2010	2040	5	5	6	7
216-B-3-1	Liquid	1945	1964	2012	2042	5	5	6	6
216-B-3-2	Liquid	1964	1970	2012	2042	5	5	6	6
216-A-11	Liquid	1956	1972	2010	2040	5	5	6	7
216-A-12	Liquid	1955	1972	2010	2040	5	5	6	7
216-A-13	Liquid	1956	1962	2010	2040	5	5	6	7
216-A-14	Liquid	1956	1972	2010	2040	5	5	6	7
216-A-15	Liquid	1955	1972	2010	2040	5	5	6	7
216-A-26A	Liquid	1959	1965	2010	2510	5	5	7	7
216-A-35	Liquid	1963	1966	2010	2040	5	5	6	7
216-B-13	Liquid	1945	1976	2010	2040	5	5	6	6
216-B-51	Liquid	1956	1958	2010	2510	5	5	7	6
216-B-4	Liquid	1945	1949	2010	2040	5	5	6	6
216-B-6	Liquid	1945	1949	0	0	6	6	0	0
216-C-2	Liquid	1953	1988	2010	2510	5	5	7	7
299-E24-111	Liquid	1980	1981	2010	2510	5	5	7	7
216-A-40	Liquid	1968	1979	2012	2042	5	5	6	7
UPR-200-E-141	Liquid	1984	1984	2013	2043	5	5	7	7
UPR-200-E-7	Liquid	1954	1954	2010	0	5	5	6	0
UPR-200-E-80	Liquid	1946	1946	2010	0	5	5	6	0
UPR-200-E-84	Liquid	1953	1953	2010	0	5	5	6	0
UPR-200-E-85	Liquid	1972	1972	2010	0	5	5	6	0
UPR-200-E-87	Liquid	1945	1953	2010	0	5	5	6	0

Table 3.16. (contd)

Site Name	Release Model	Time				Recharge Index			
		1	2	3	4	1	2	3	4
UPR-200-E-9	Liquid	1955	1955	2010	0	5	5	6	0
216-W-LWC	Liquid	1981	1994	2007	2507	5	5	7	6
216-S-16D	Liquid	1957	1975	2014	2044	5	5	6	6
216-U-14	Liquid	1944	1995	2013	2043	5	5	6	6
216-Z-1D	Liquid	1944	1959	2013	3013	5	5	7	6
241-TX-154	Liquid	1949	2015	2015	2045	4	4	6	6
216-S-4	Liquid	1953	1956	2008	2508	5	5	7	6
216-T-29	Liquid	1949	1964	2010	2510	5	5	7	6
216-T-2	Liquid	1945	1950	2010	0	5	5	6	0
216-U-4	Liquid	1947	1955	2010	2040	8	8	6	6
216-S-10P	Liquid	1952	1984	2007	2037	5	5	6	6
216-T-4A	Liquid	1944	1972	2012	2512	5	5	7	6
216-S-14	Liquid	1951	1952	2009	2039	5	5	6	6
216-S-18	Liquid	1954	1954	2010	2510	5	5	7	6
216-T-13	Liquid	1954	1964	2010	2510	5	5	7	6
UPR-200-W-101	Liquid	1957	1957	2013	2043	5	5	6	6
UPR-200-W-108	Liquid	1969	1969	2010	0	5	5	6	0
UPR-200-W-113	Soil/debris	1977	1977	2026	2056	5	5	6	6
UPR-200-W-125	Liquid	1956	1956	2010	0	5	5	6	0
UPR-200-W-135	Liquid	1954	1954	2010	0	5	5	6	0
UPR-200-W-138	Liquid	1953	1953	2010	0	5	5	6	0
UPR-200-W-29	Liquid	1954	1954	2026	2056	4	4	6	6
UPR-200-W-30	Liquid	1954	1954	2010	2510	5	5	7	6
UPR-200-W-36	Liquid	1955	1955	2010	0	5	5	6	6
UPR-200-W-38	Liquid	1955	1955	2026	2056	5	5	6	6
UPR-200-W-8	Soil/debris	1950	1950	2010	0	5	5	6	0
UPR-200-W-98	Liquid	1945	1945	2027	2057	5	5	6	6
241-WR VAULT	Liquid	1952	1976	2015	2045	4	4	6	6

The chemical classification of wastes for the majority of other CERCLA sites is assumed to be in the low-organic, low-salt, near-neutral waste category (Table 3.17). However, a few of the sites under consideration have been classified with wastes in all of the other five categories discussed in Table 4.4 on p. 4.66 in Kincaid et al. (1998) (i.e., chelates - high salts; high organic - near neutral; very high salts - very basic; low organic-low salt-acidic; and low organic-low salts-acidic waste categories).

Table 3.17. Assumed Chemical Classification of Other CERCLA Sites

Site Name	Waste Type Name	Kd Switch Depth (m)
216-N-1	Low Organic - Low Salts - Near Neutral	0
UPR-600-12	Low Organic - Low Salts - Near Neutral	0
218-E-2A	Low Organic - Low Salts - Near Neutral	0
216-A-22	Low Organic - Low Salts - Near Neutral	0
216-A-32	Low Organic - Low Salts - Near Neutral	0
216-A-41	Low Organic - Low Salts - Near Neutral	0
216-B-3-1	Low Organic - Low Salts - Near Neutral	0
216-B-3-2	Low Organic - Low Salts - Near Neutral	0
216-A-11	Low Organic - Low Salts - Near Neutral	0
216-A-12	Low Organic - Low Salts - Near Neutral	0
216-A-13	Low Organic - Low Salts - Near Neutral	0
216-A-14	Low Organic - Low Salts - Near Neutral	0
216-A-15	Low Organic - Low Salts - Acidic	0
216-A-26A	Low Organic - Low Salts - Near Neutral	0
216-A-35	Low Organic - Low Salts - Near Neutral	0
216-B-13	Low Organic - Low Salts - Near Neutral	0
216-B-51	Chelates - High Salts	40
216-B-4	Low Organic - Low Salts - Near Neutral	40
216-B-6	Low Organic - Low Salts - Near Neutral	0
216-C-2	Low Organic - Low Salts - Near Neutral	0
299-E24-111	Low Organic - Low Salts - Near Neutral	0
216-A-40	Low Organic - Low Salts - Near Neutral	0
UPR-200-E-141	Low Organic - Low Salts - Near Neutral	30
UPR-200-E-7	Very High Salts - Very Basic	40
UPR-200-E-80	Low Organic - Low Salts - Near Neutral	40
UPR-200-E-84	Very High Salts - Very Basic	0
UPR-200-E-85	Low Organic - Low Salts - Near Neutral	0
UPR-200-E-87	Low Organic - Low Salts - Near Neutral	0

Table 3.17. (contd)

Site Name	Waste Type Name	Kd Switch Depth (m)
UPR-200-E-9	Very High Salts - Very Basic	20
HSVP	Low Organic - Low Salts - Near Neutral	0
216-W-LWC	Low Organic - Low Salts - Near Neutral	10
216-S-16D	Low Organic - Low Salts - Near Neutral	0
216-U-14	Low Organic - Low Salts - Near Neutral	10
216-Z-1D	Low Organic - Low Salts - Near Neutral	0
241-TX-154	Very High Salts - Very Basic	0
216-S-4	Low Organic - Low Salts - Near Neutral	0
216-T-29	Low Organic - Low Salts - Acidic	0
216-T-2	Low Organic - Low Salts - Acidic	0
216-U-4	Low Organic - Low Salts - Near Neutral	10
216-S-10P	Low Organic - Low Salts - Near Neutral	0
216-T-4A	Low Organic - Low Salts - Near Neutral	10
216-S-14	High Organic - Near Neutral	0
216-S-18	Low Organic - Low Salts - Near Neutral	0
216-T-13	Low Organic - Low Salts - Near Neutral	0
UPR-200-W-101	Low Organic - Low Salts - Acidic	10
UPR-200-W-108	Low Organic - Low Salts - Acidic	10
UPR-200-W-113	Low Organic - Low Salts - Near Neutral	10
UPR-200-W-125	Low Organic - Low Salts - Near Neutral	0
UPR-200-W-135	Very High Salts - Very Basic	10
UPR-200-W-138	Low Organic - Low Salts - Near Neutral	10
UPR-200-W-29	Very High Salts - Very Basic	0
UPR-200-W-30	Low Organic - Low Salts - Near Neutral	0
UPR-200-W-36	Low Organic - Low Salts - Acidic	0
UPR-200-W-38	Very High Salts - Very Basic	0
UPR-200-W-8	Low Organic - Low Salts - Near Neutral	0
UPR-200-W-98	Very High Salts - Very Basic	0
241-WR VAULT	Very High Salts - Very Basic	0

4.0 Analysis of Performance (Best Estimate Case)

This section describes the analysis of performance for the best-estimate inventories of technetium-99 and iodine-129 developed for the Addendum sites as described in Section 3.0. Results for each constituent are summarized in three main areas including releases to groundwater, groundwater transport, and exposure and dose.

4.1 Releases to Groundwater

4.1.1 Technetium-99

Technetium-99 releases to the groundwater associated with the base case were evaluated as a combined waste form release and vadose zone transport calculation. Cumulative and time-varying releases of technetium-99 from the vadose zone to the groundwater in the 200 East and 200 West Areas are shown in Figures 4.1 and 4.2, respectively. Cumulative and time-varying releases of technetium-99 from the vadose zone to the groundwater in the 200 East and 200 West Areas for selected times and time periods are summarized in Table 4.1.

Results of these release analyses indicate that about 2.5 Ci of technetium-99 is released to groundwater during the 1500-year release period. The majority of the technetium-99 released is estimated to occur in the 200 West Area and is predicted to release after 100 years (i.e., between years 2100 and 3440). Very limited release or no release would be expected to occur in the next 500 to 1000 years from the majority of sites, particularly the canyon facilities and PUREX tunnels during the period of concern. Limited releases for canyon facilities and PUREX tunnels are directly attributable to the assumed end-states of these facilities, which involve the use of engineered barriers and using a diffusion-controlled release model to approximate the release of contaminants from existing facilities and buildings.

4.1.2 Iodine-129

Figures 4.3 and 4.4 show cumulative and time-varying releases of iodine-129 from the vadose zone to the groundwater. Cumulative and time-varying releases of iodine-129 from the vadose zone to the groundwater in the 200 East and 200 West Areas for selected times and time periods are summarized in Table 4.2. Results of release analyses for iodine-129 demonstrate that very small releases of iodine-129 (i.e., about 7×10^{-04} Ci) for the sites under consideration can be expected to reach the water table in the coming decades. The largest portion of iodine-129 inventories from the sites evaluated are predicted to release after the year 2100. The bulk of releases are attributable to a small number of liquid discharge sites in the 200 West Area. Very limited or no releases from the majority of sites, particularly the canyon facilities and PUREX tunnels, would be expected to occur in the next 1000 to 1500 years. As in the case for technetium-99, the small releases of iodine-129 for canyon facilities and PUREX tunnels, in particular, are directly attributable to the assumed end-states of these facilities, which involve the use of engineered barriers and controlling contaminant releases using a diffusion-controlled release model to approximate the release of contaminants from existing facilities and buildings.

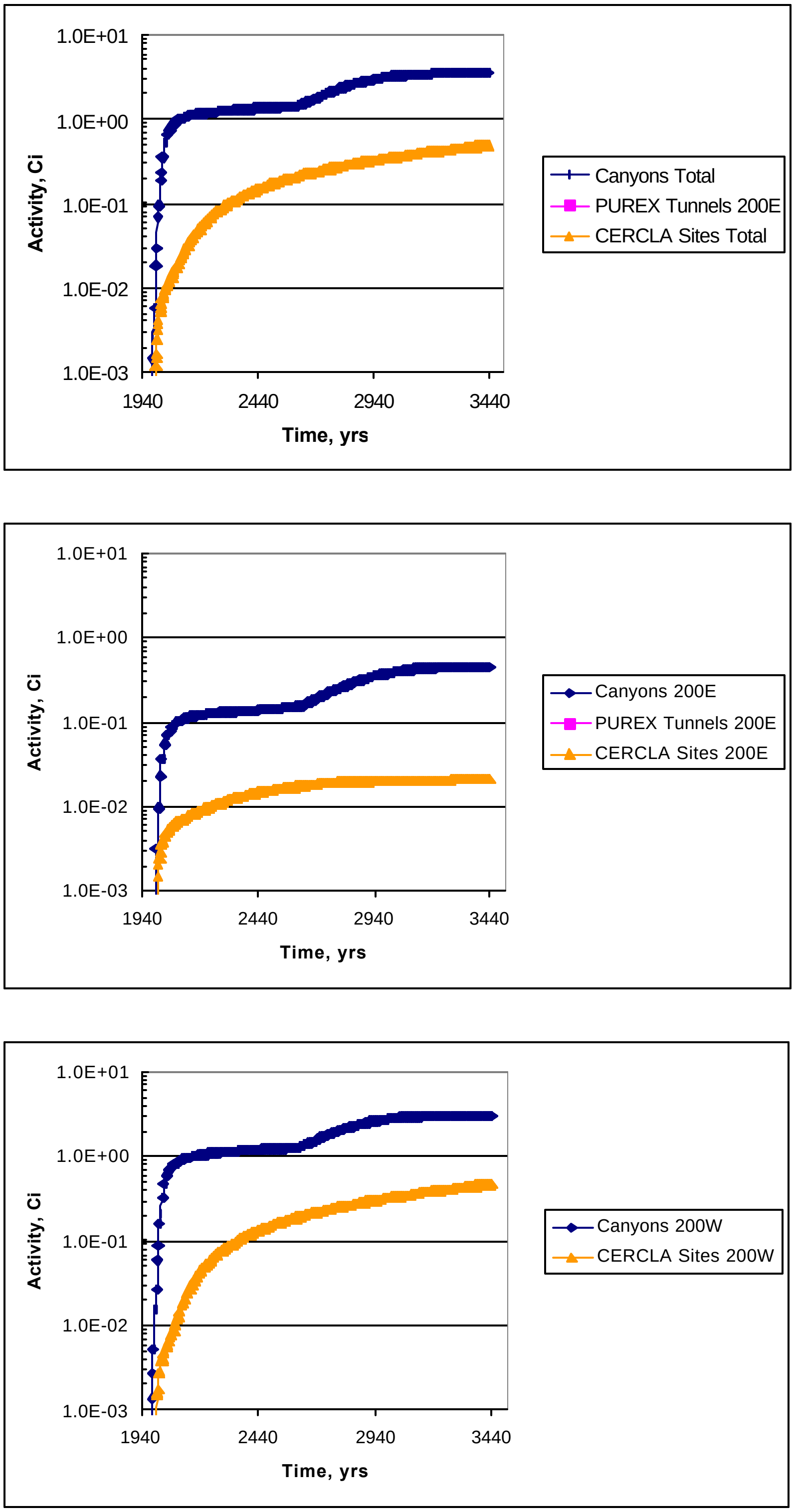


Figure 4.1. Cumulative Releases of Technetium-99 to Groundwater Between 1996 and 3440

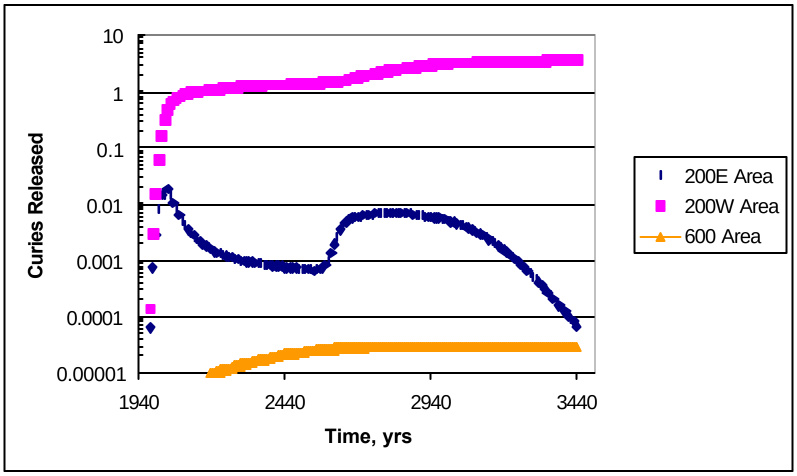


Figure 4.2. Time-Varying Releases of Technetium-99 to Groundwater Between 1996 and 3440

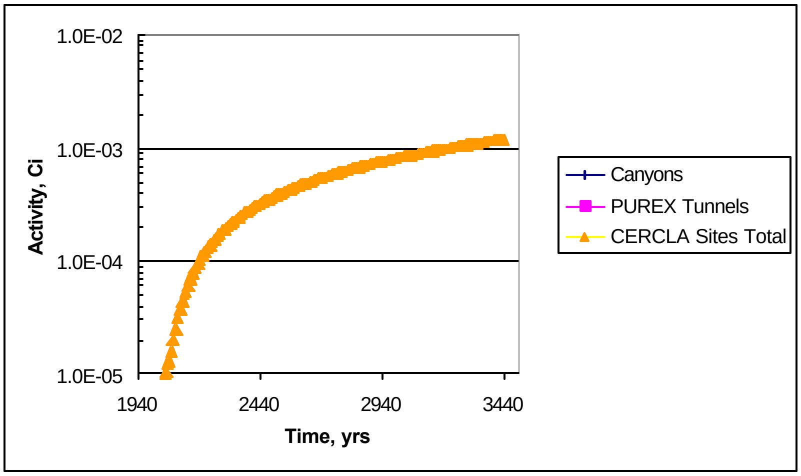
Table 4.1. Cumulative and Time-Varying Releases of Technetium-99 for Selected Times and Time Periods

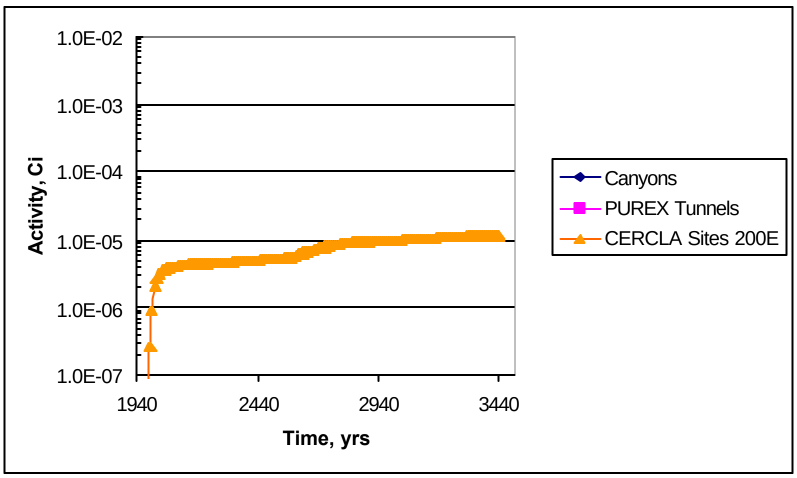
Cumulative Release of Technetium-99 (Ci) at Selected Times						
	Canyons		**PUREX Tunnels**	**CERCLA Sites**		
Year	**200E**	**200W**	**200E**	**200E**	**200W**	**600 Area**
2000	3.1E-03	1.5E-02	0.0E+00	5.0E-04	6.4E-04	2.9E-07
2100	1.0E-01	8.8E-01	0.0E+00	6.6E-03	1.3E-02	6.1E-06
2500	1.4E-01	1.2E+00	0.0E+00	1.6E-02	1.5E-01	2.4E-05
3000	3.8E-01	2.8E+00	0.0E+00	2.0E-02	3.3E-01	2.9E-05
3440	4.5E-01	3.1E+00	0.0E+00	2.1E-02	4.7E-01	2.9E-05
Release of Technetium-99 (Ci) for Selected Time Intervals						
Time	**Canyons**		**PUREX Tunnels**	**CERCLA Sites**		
Interval	**200E**	**200W**	**200E**	**200E**	**200W**	**600 Area**
1940-2000	3.1E-03	1.5E-02	0.0E+00	5.0E-04	6.4E-04	2.9E-07
2001-2100	9.9E-02	8.6E-01	0.0E+00	6.1E-03	1.2E-02	5.8E-06
2101-2500	4.1E-02	3.5E-01	0.0E+00	9.1E-03	1.4E-01	1.8E-05
2501-3000	2.4E-01	1.6E+00	0.0E+00	4.6E-03	1.7E-01	5.7E-06
3001-3440	7.1E-02	2.9E-01	0.0E+00	9.4E-04	1.4E-01	8.4E-09

4.2 Groundwater Transport Results

4.2.1 Technetium-99

As was done in the original Composite Analysis, the plan-view, maximum-concentration plots discussed in this subsection were prepared from the three-dimensional model results through a sampling process that determined the maximum at each location regardless of depth. This process involved sampling the vertical stack of nodes at each plan view location in the grid to find the maximum predicted





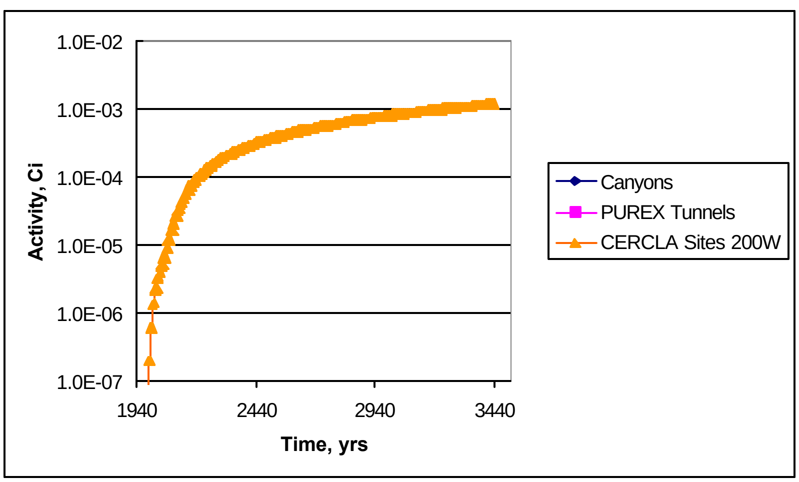


Figure 4.3. Cumulative Releases of Iodine-129 to Groundwater Between 1996 and 3440

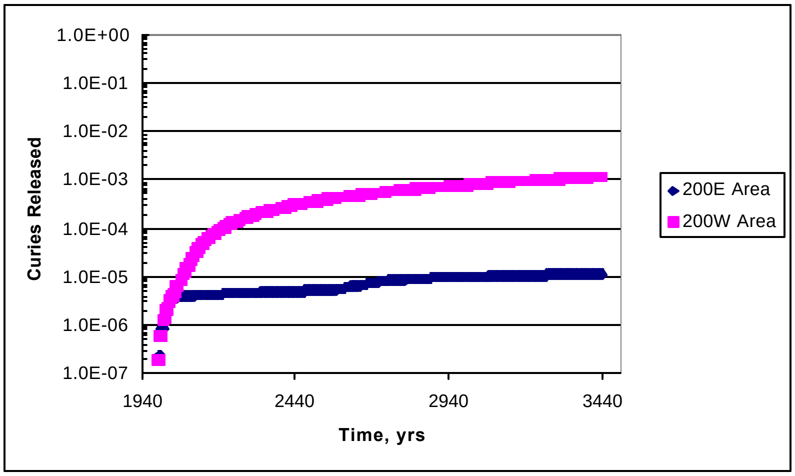


Figure 4.4. Time-Varying Releases of Iodine-129 to Groundwater Between 1996 and 3500

Table 4.2. Cumulative and Time-Varying Releases of Iodine-129 for Selected Times and Time Periods

Cumulative Release of Iodine-129 (Ci) at Selected Times						
	Canyons		**PUREX Tunnels**	**CERCLA Sites**		
Year	**200E**	**200W**	**200E**	**200E**	**200W**	**600 Area**
2000	0.0E+00	0.0E+00	0.0E+00	2.5E-07	5.9E-07	0.0E+00
2100	0.0E+00	0.0E+00	0.0E+00	4.0E-06	2.0E-05	0.0E+00
2500	0.0E+00	0.0E+00	0.0E+00	5.1E-06	3.6E-04	0.0E+00
3000	0.0E+00	0.0E+00	0.0E+00	9.9E-06	8.1E-04	0.0E+00
3440	0.0E+00	0.0E+00	0.0E+00	1.2E-05	1.2E-03	0.0E+00
Release of Iodine-129 (Ci) for Selected Time Intervals						
Time	**Canyons**		**PUREX Tunnels**	**CERCLA Sites**		
Interval	**200E**	**200W**	**200E**	**200E**	**200W**	**600 Area**
1940-2000	0.0E+00	0.0E+00	0.0E+00	2.5E-07	5.9E-07	0.0E+00
2001-2100	0.0E+00	0.0E+00	0.0E+00	3.8E-06	2.0E-05	0.0E+00
2101-2500	0.0E+00	0.0E+00	0.0E+00	1.1E-06	3.4E-04	0.0E+00
2501-3000	0.0E+00	0.0E+00	0.0E+00	4.8E-06	4.5E-04	0.0E+00
3001-3440	0.0E+00	0.0E+00	0.0E+00	1.7E-06	3.7E-04	0.0E+00

concentration at any depth in the profile. The contour plots of concentration shown represent the spatial distribution of maximum concentration values, which are generally found at the uppermost node in the three-dimensional model. The radiological doses resulting from each radionuclide simulation were constructed from these maximum plan-view concentration distributions and added together in ARC/INFO™ to produce the final results.

Figure 4.5 illustrates the predicted distribution of technetium-99 in the unconfined aquifer at about the time of site closure, assumed to be year 2050 (results for this time are approximated by the nearest model time plane, which corresponds to the year 2049). Figure 4.6 illustrates the distribution of technetium-99 from the sources examined at about 50 years after the start of the compliance period (results for this time are approximated by the nearest model time plane which corresponds to the year 2099). These distributions of technetium-99 concentration illustrate the very low levels of technetium-99 predicted in the three-dimensional groundwater model both within and outside of the exclusive waste management and buffer zone areas for the period after assumed site closure. The results of this analysis show that estimates of technetium-99 inventories and releases produce maximum groundwater concentrations that would be well below levels predicted in the original Composite Analysis.

Results from technetium-99 sources indicate that peak predicted concentrations of technetium-99 outside of the buffer zone at 2049, 2099, and 2159 would be relatively low and on the order of 1.3, 1.0, and 1.1 pCi/l, respectively. These values were about two to three orders of magnitude below the maximum concentrations for technetium-99 in the original Composite Analysis.

4.2.2 Iodine-129

Figure 4.7 illustrates the predicted distribution of iodine-129 in the unconfined aquifer at about the assumed time of site closure (i.e., year 2049). Figure 4.8 illustrates the distribution of iodine-129 from the sources examined at about 50 years after closure (i.e., year 2099). These distributions of iodine-129 concentration illustrate the very low levels of iodine-129 predicted in the three-dimensional groundwater model both within and outside of the exclusive waste management and buffer zone areas for the period of assumed site closure. The results of this analysis show that current estimates of iodine-129 inventories and releases produce maximum groundwater concentrations that would be well below levels predicted in the original Composite Analysis.

Results from iodine-129 sources indicate that peak predicted concentrations of iodine-129 outside of the buffer zone at 2049, 2099, and 2159 would be extremely low and on the order of 3.6×10^{-05}, 2.8×10^{-05}, 2.6×10^{-05} pCi/l, respectively. These peak values are about four orders of magnitude (i.e., 1e-04) below iodine-129 levels estimated in the original Composite Analysis.

4.3 Exposure and Dose Results

4.3.1 Technetium-99

Figures 4.9, 4.10, and 4.11 illustrate the predicted distributions of composite dose rate for the agricultural exposure scenario from technetium-99 at about the assumed time of site closure (i.e., year 2049), about 50 years after site closure (i.e., year 2099), and just after the assumed time that institutional control is lost outside the buffer zone (i.e., year 2159). Maximum dose outside the buffer zone for the agricultural, recreational, industrial and residential exposures, shown in Table 4.3, indicate the maximum doses would result from the agricultural exposure scenario. Peak predicted doses from technetium-99 sources for this scenario outside of the buffer zone at 2049, 2099, and 2159 would be very low and on the order of 4.7×10^{-03}, 3.6×10^{-03}, and 4.4×10^{-03} mrem/yr, respectively.

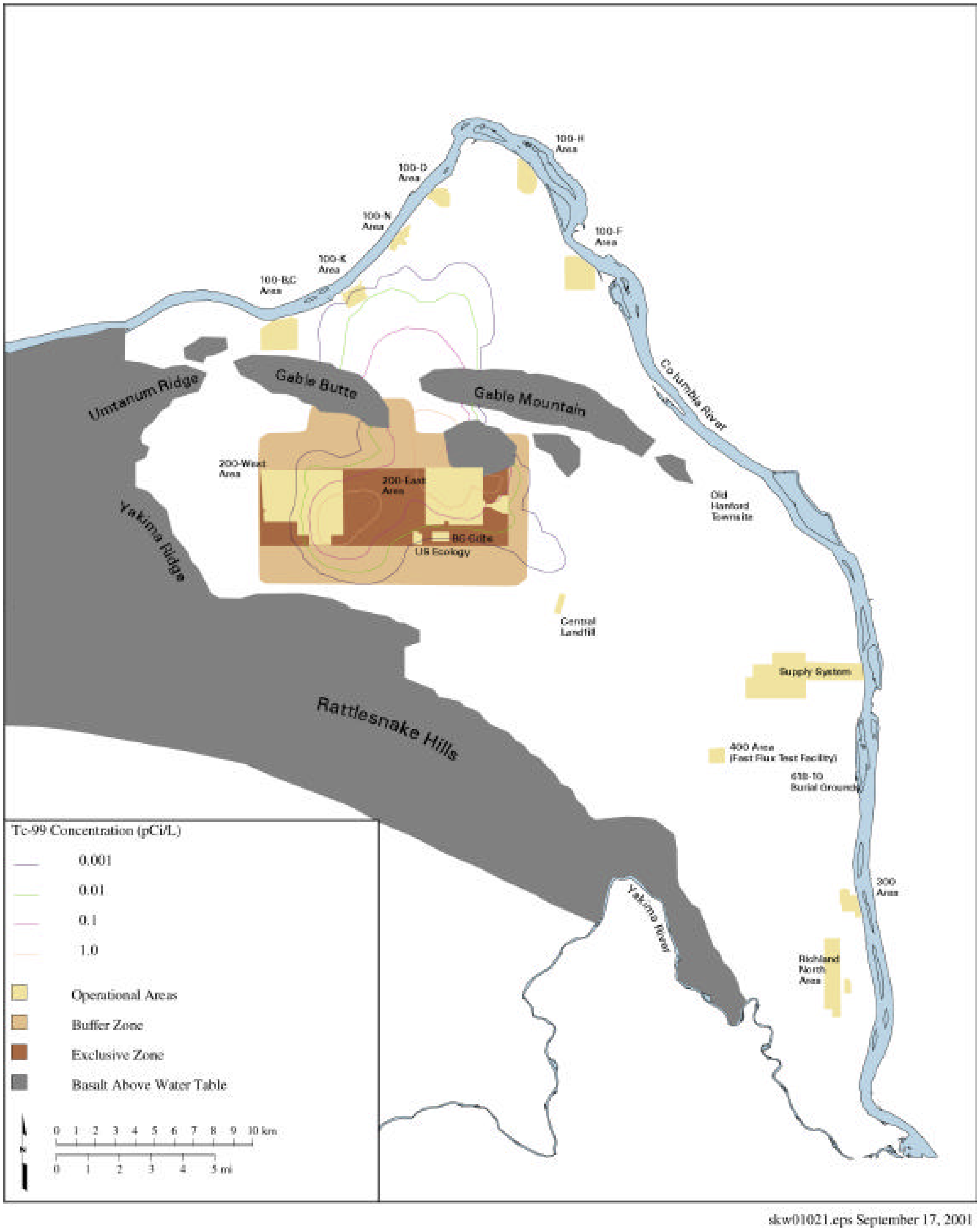


Figure 4.5. Distribution of Technetium-99 in the Unconfined Aquifer in 2049

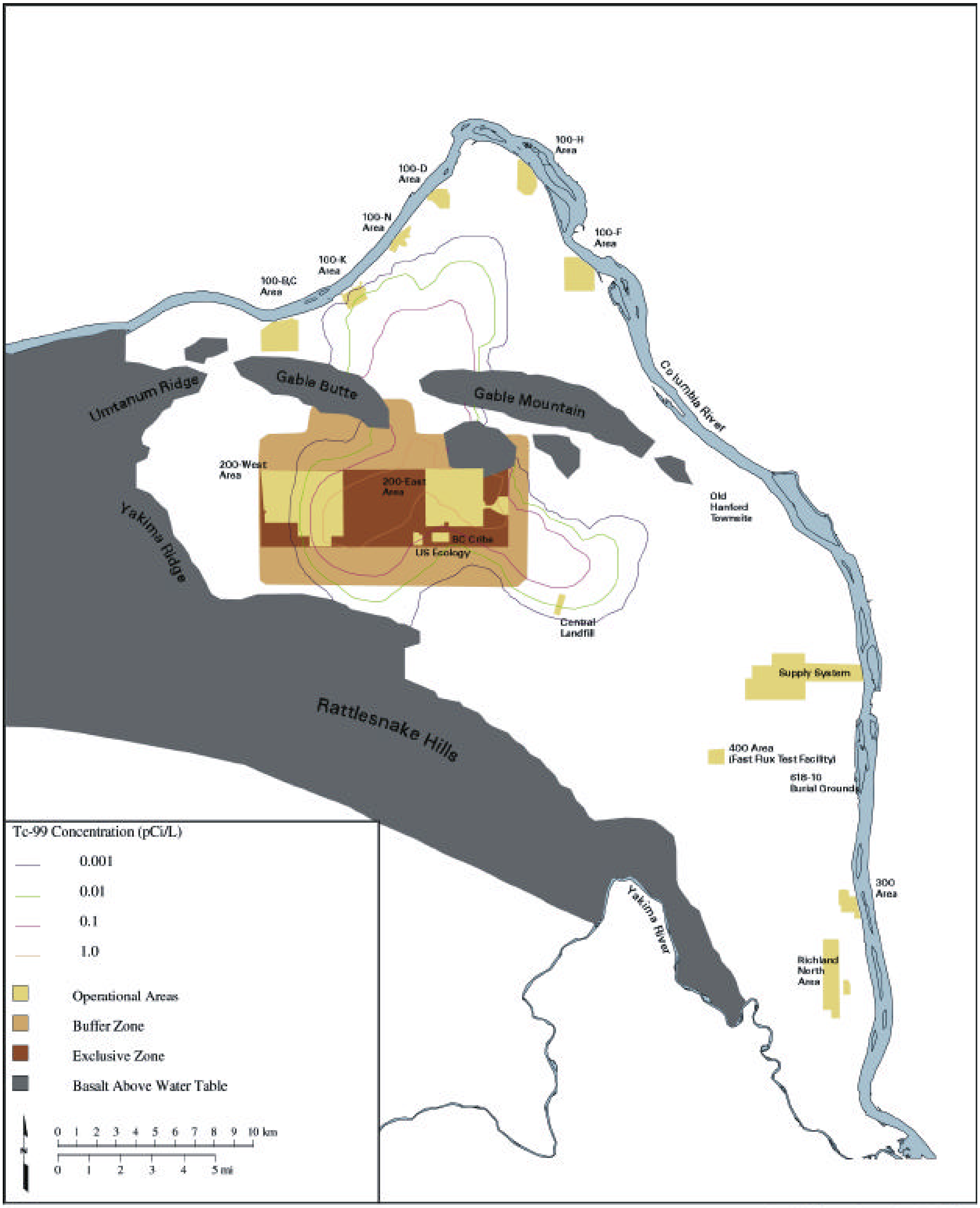


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Figure 4.6. Distribution of Technetium-99 in the Unconfined Aquifer in 2099

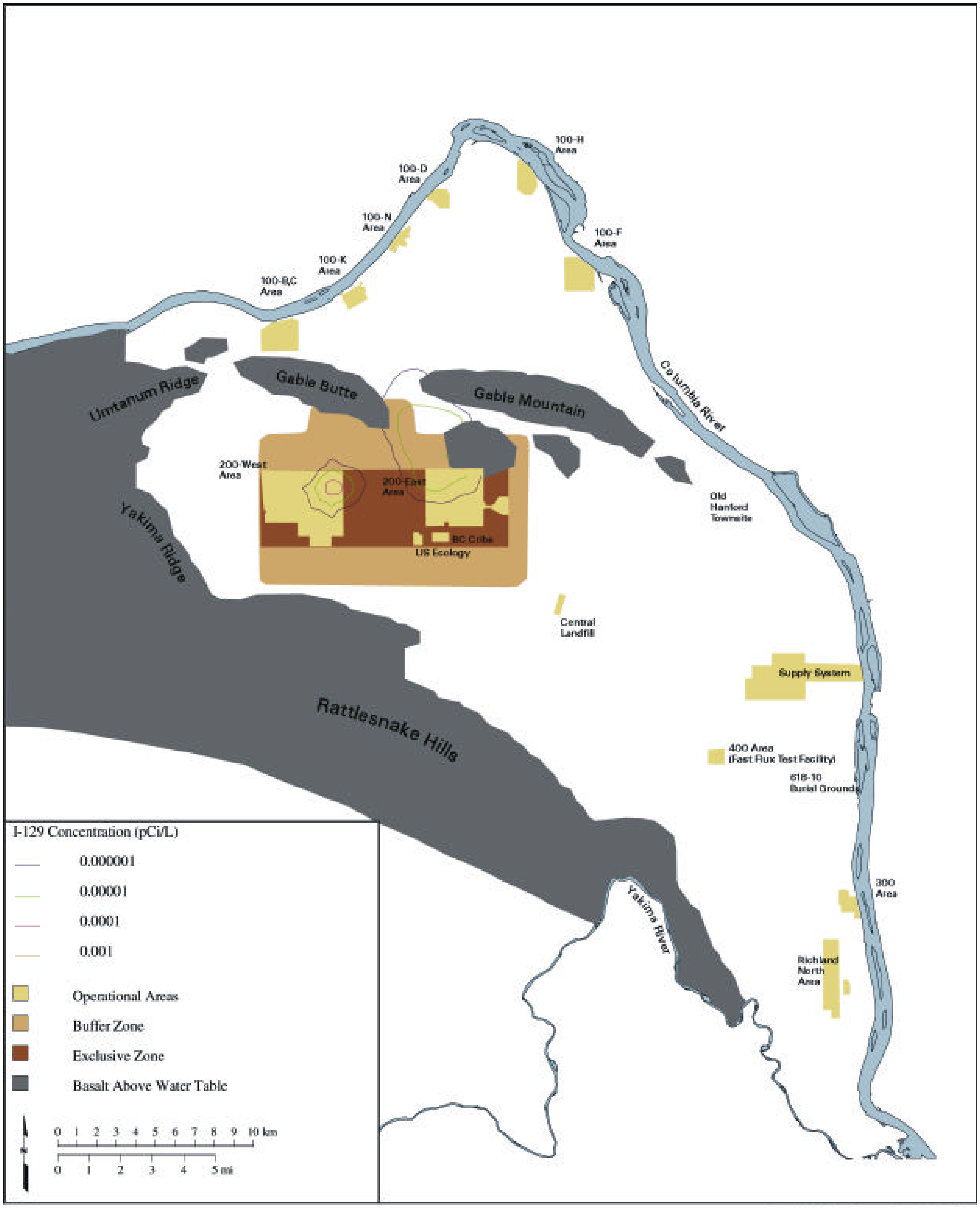

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Figure 4.7. Distribution of I-129 in the Unconfined Aquifer in 2049

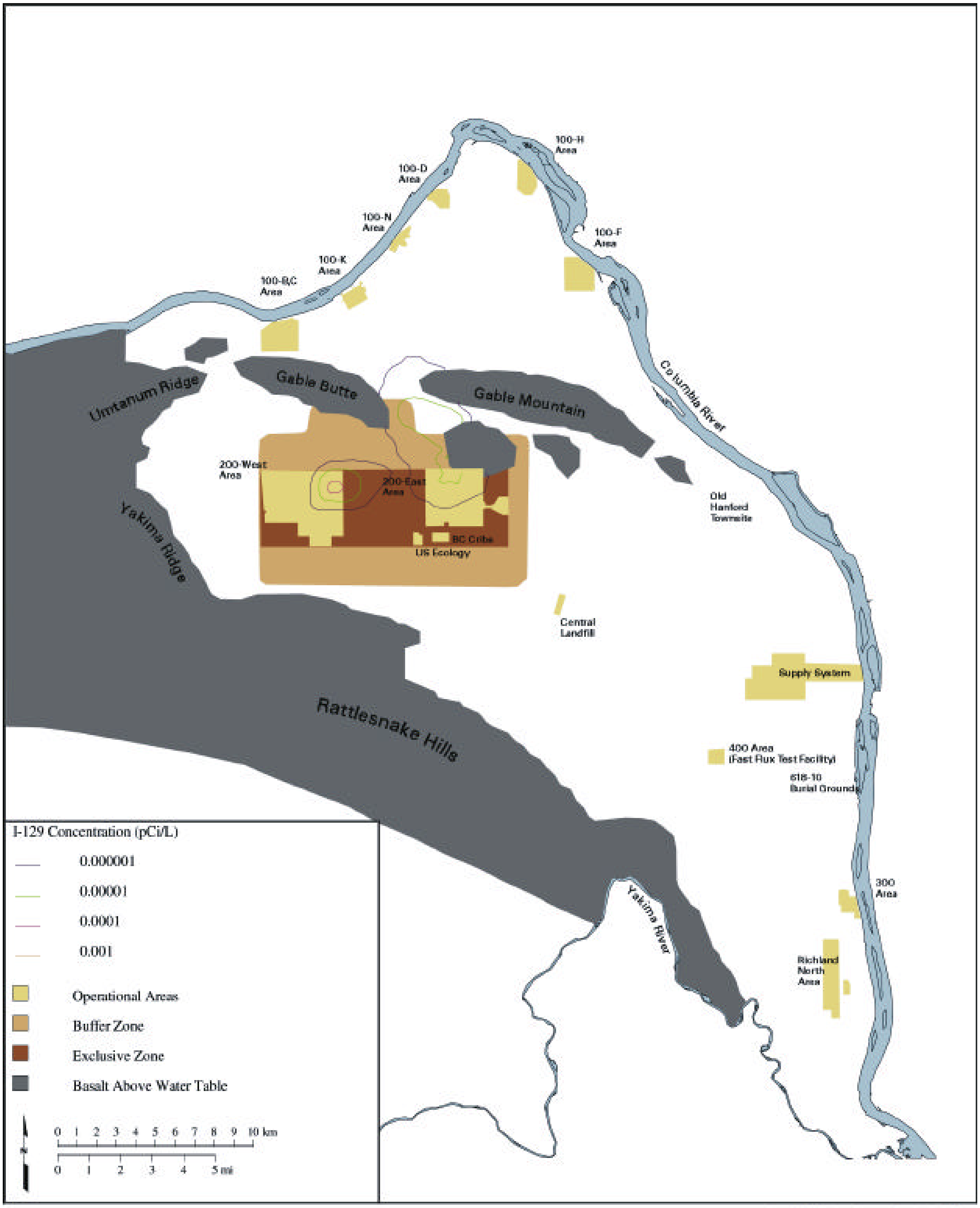

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Figure 4.8. Distribution of I-129 in the Unconfined Aquifer in 2099

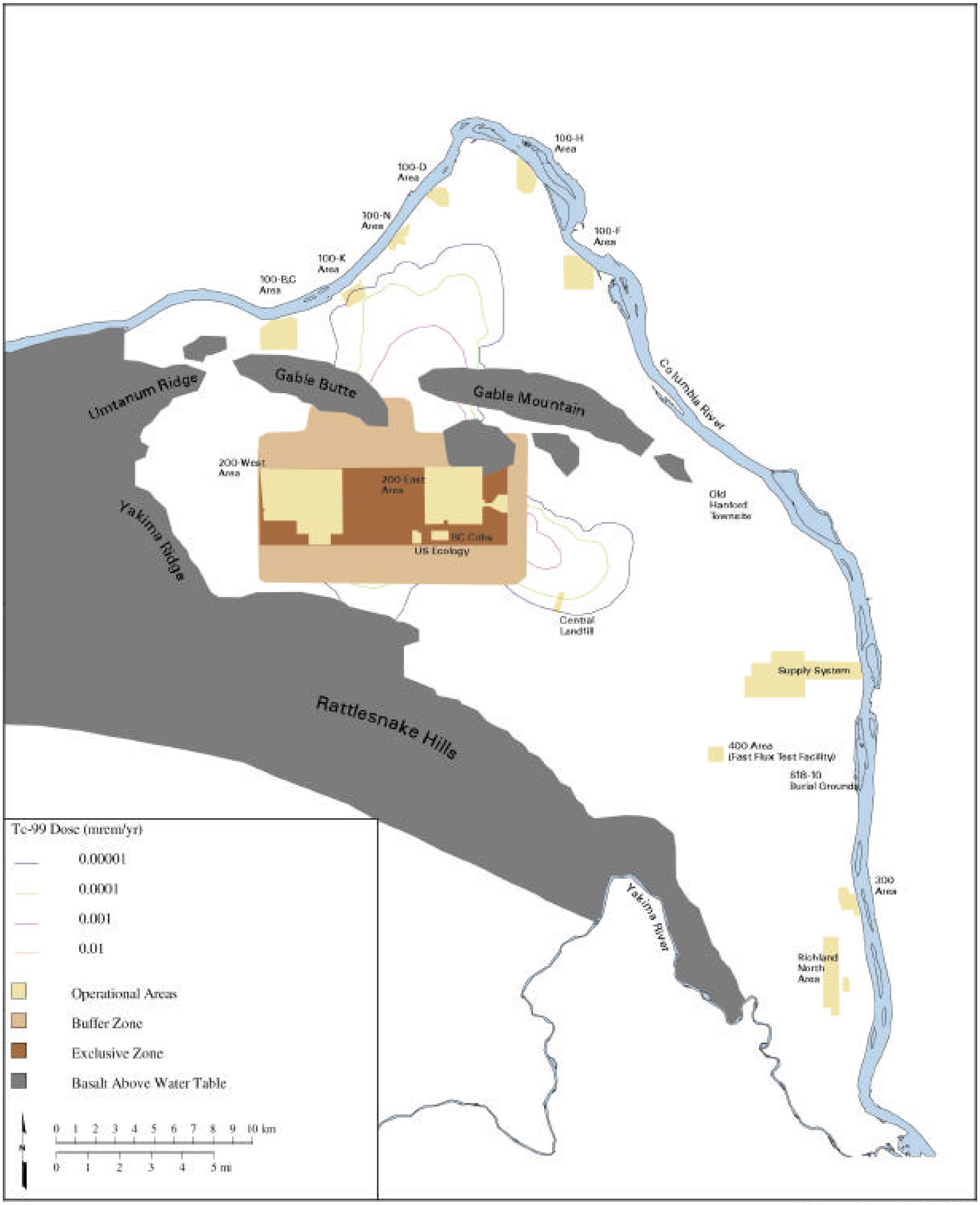

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Figure 4.9. Predicted Distribution of Maximum Dose Rate for the Agricultural Exposure Scenario from Technetium-99 in 2049

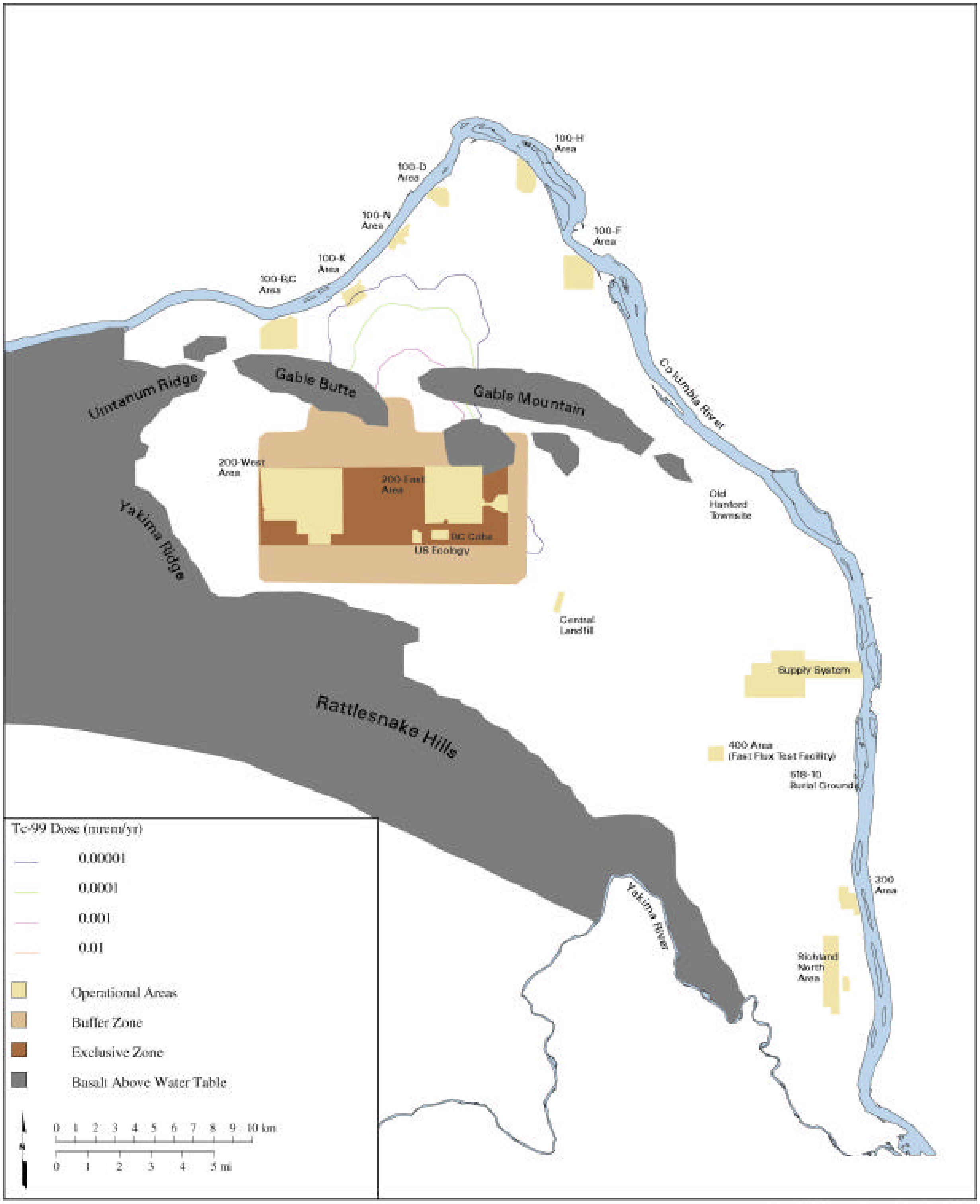

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Figure 4.10. Predicted Distribution of Composite Dose Rate for the Agricultural Exposure Scenario from Technetium-99 in 2099

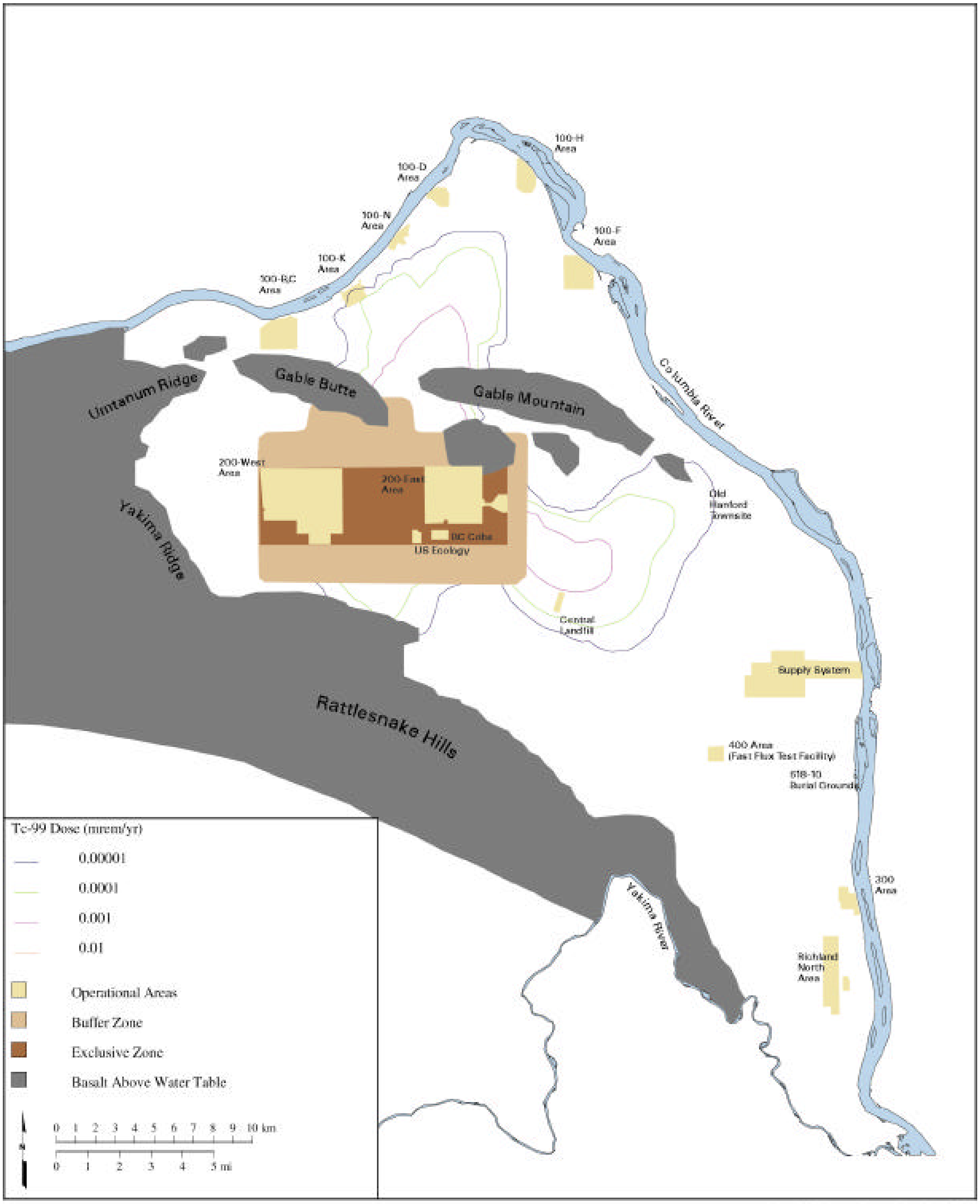

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Figure 4.11. Predicted Distribution of Composite Dose Rate for the Agricultural Exposure Scenario from Technetium-99 in 2159

Table 4.3. Maximum Technetium-99 Concentrations and Associated Doses for the Agricultural, Residential, Industrial, and Recreational Scenarios Outside of the Buffer Zone in 2049, 2099, and 2159 (Base Case Inventory)

	Maximum Concentration (pCi/l)	Agricultural Scenario (mrem/yr)	Residential Scenario (mrem/yr)	Industrial Scenario (mrem/yr)	Recreational Scenario (mrem/yr)
2049	1.3E+00	4.7E-03	1.7E-03	4.7E-04	2.7E-05
2099	9.7E-01	3.6E-03	1.3E-03	3.5E-04	2.0E-05
2159	1.1E+00	4.1E-03	1.5E-03	4.1E-04	2.3E-05

As in the original Composite Analysis, the radiological dose rate results are presented for lands outside the buffer zone because the exposure scenarios (agricultural, residential, recreational, and industrial) are assumed not applicable inside the buffer zone. These portions of the Hanford Site will remain in exclusive use for waste management with a surrounding buffer area for protection of the public. It is assumed these lands will remain under federal control until they are determined to be safe for release to the public. To provide an indication of the potential impacts if groundwater inside the buffer zone was used, radiological dose rates resulting from the industrial exposure scenario were calculated for the area inside the buffer and exclusion zones. If groundwater inside the zone were used in the industrial scenario, the peak dose rate from technetium-99 sources at the approximate time assumed for Hanford Site closure in 2050 would be 1.5×10^{-02} mrem in a year, and the maximum dose rate just after the approximate time assumed for the end of institutional control in 2150 (i.e., year 2159) would be 1.6×10^{-03} mrem in a year. The DOE intends to maintain the exclusive waste management area and buffer zone until they can be released to the public. The DOE has acknowledged that many low-level radioactive waste facilities may never be suitable for unconditional release to the public and that deed restrictions on the future use of groundwater resources may be necessary. Consequently, these predicted future doses in these areas will not be realized.

Results of this base analysis suggest that maximum doses outside the buffer zone after site closure with the conservative inventories estimates would be well below any significant dose levels and well below previous dose estimates after the site closure made in the original Composite Analysis.

4.3.1.1 Iodine-129

Figures 4.12, 4.13, and 4.14 illustrate the predicted distributions of composite dose rate for the agricultural exposure scenario from iodine-129 are illustrated at about the assumed time of site closure (i.e., year 2049), about 50 years after site closure (i.e., year 2099) and just after the assumed time institutional control is lost outside the buffer zone (i.e., year 2159), respectively. Maximum dose for the agricultural, recreational, industrial and residential exposures, shown in Table 4.4, indicate the maximum doses would result from the agricultural exposure scenario. Peak predicted doses from iodine-129 for this scenario from the addendum sources outside of the buffer zone at 2049, 2099, and 2159 would be very

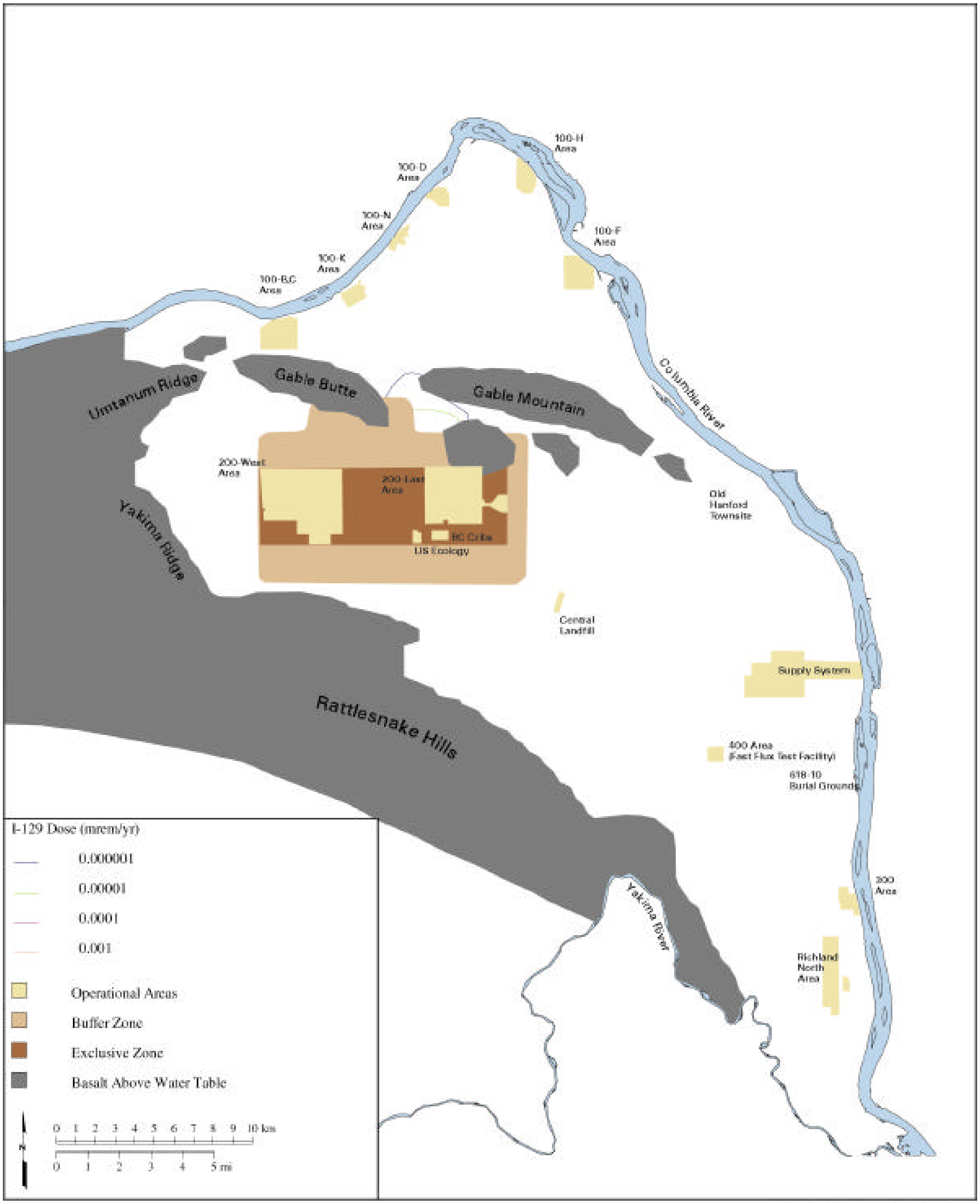

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Figure 4.12. Predicted Distribution of Composite Dose Rate for the Agricultural Exposure Scenario from Iodine-129 in 2049

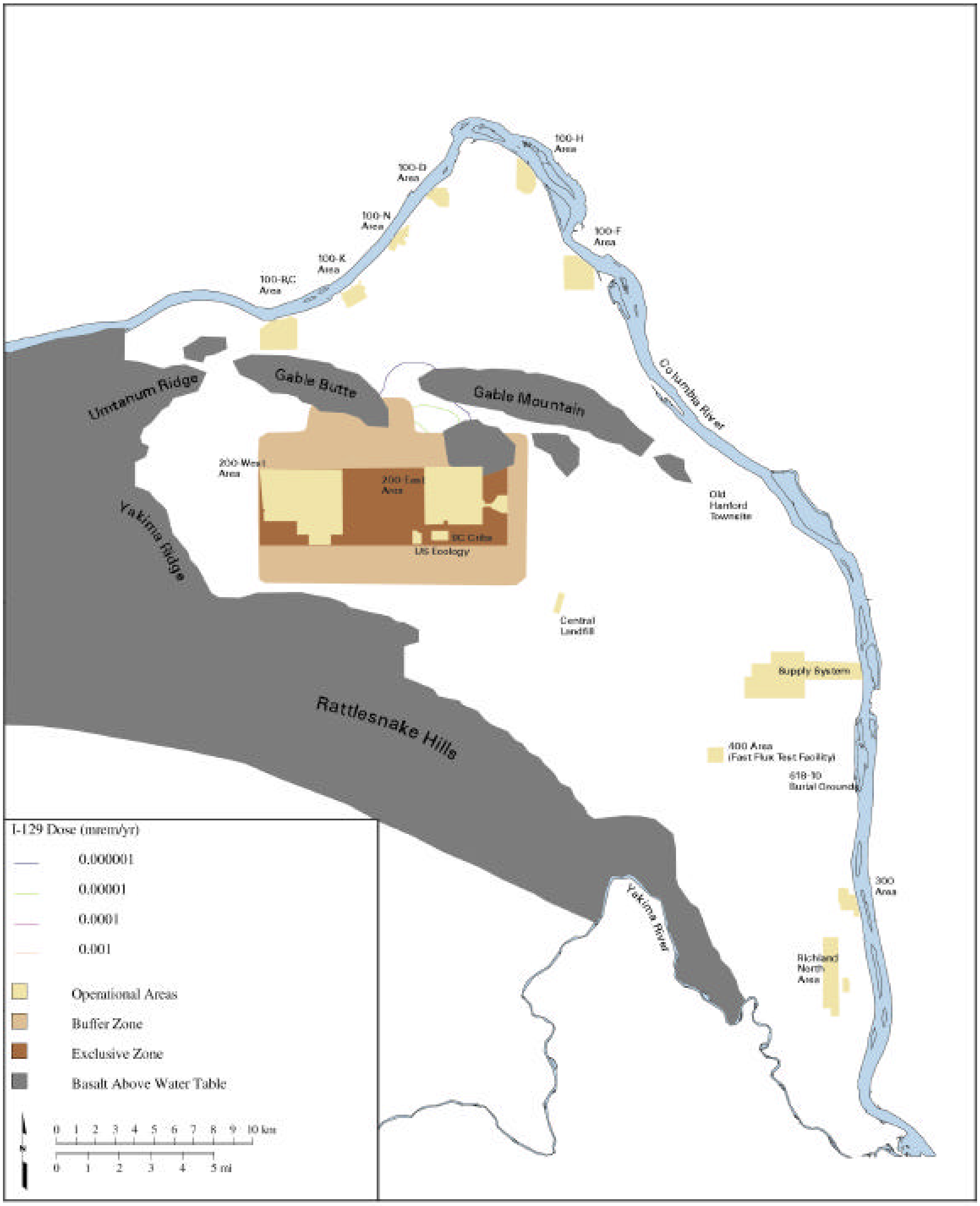

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Figure 4.13. Predicted Distribution of Composite Dose Rate for the Agricultural Exposure Scenario from Iodine-129 in 2099

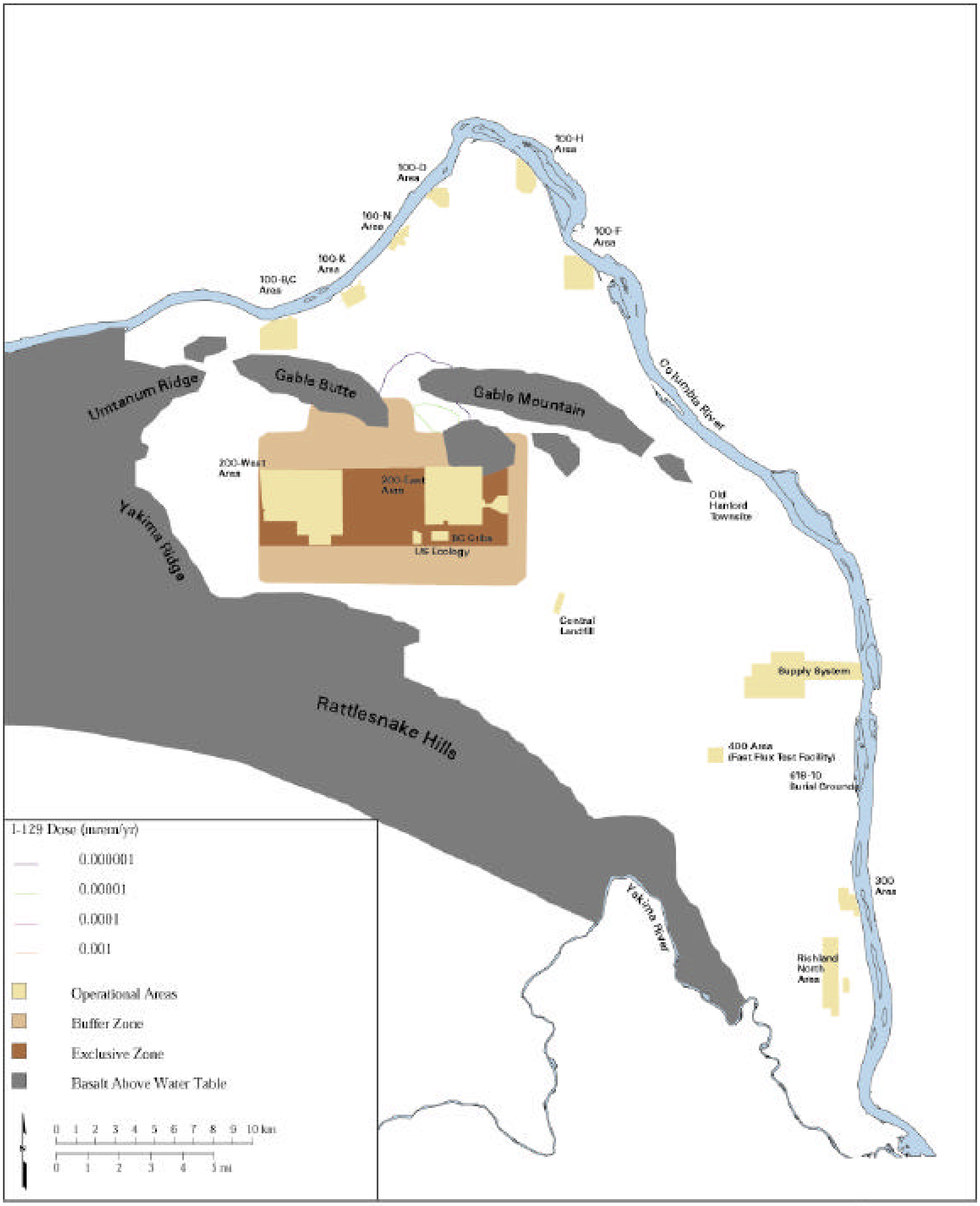

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Figure 4.14. Predicted Distribution of Composite Dose Rate for the Agricultural Exposure Scenario from Iodine-129 in 2159

Table 4.4. Maximum Iodine-129 Concentrations and Associated Doses for the Agricultural, Residential, Industrial, and Recreational Scenarios Outside of the Buffer Zone in 2049, 2099, and 2159 (Base Case Inventory)

	Maximum Concentration (pCi/l)	Agricultural Scenario (mrem/yr)	Residential Scenario (mrem/yr)	Industrial Scenario (mrem/yr)	Recreational Scenario (mrem/yr
2049	3.6E-05	2.2E-05	8.2E-06	2.5E-06	1.4E-07
2099	2.9E-05	1.8E-05	6.6E-06	2.0E-06	1.2E-07
2159	2.6E-05	9.5E-08	3.5E-08	9.5E-09	5.5E-10

low and on the order of 2.2 x 10^{-05}, 1.8 x 10^{-05}, and 1.6 x 10^{-05} mrem/yr, respectively. As in the case of technetium-99, the maximum doses outside the buffer zone after site closure with the inventories estimates provided in the initial SAC assessment were well below 100-mrem/yr dose limit and the 30 mrem/yr dose constraint and well below previous dose estimates made in the original Composite Analysis.

To provide an indication of the potential impacts if groundwater inside the buffer zone was used, radiological dose rates resulting from the industrial exposure scenario for technetium-99 and iodine-129 were calculated for the area inside the buffer and exclusion zones. If groundwater inside the buffer zone were used in the industrial scenario, iodine-129 related doses at the approximate time assumed for Hanford Site closure (i.e., year 2049) would be 4.0 x 10^{-05} mrem in a year, and the maximum dose rate just after the approximate time assumed for the end of institutional control (i.e., year 2159) would be 6.9 x 10^{-06} mrem in a year. The DOE intends to maintain the exclusive waste management area and buffer zone until they can be released to the public. The DOE has acknowledged that many low-level radioactive waste facilities may never be suitable for unconditional release to the public, and that deed restrictions on the future use of groundwater resources may be necessary. Consequently, these future doses in these areas will not be realized.

5.0 Sensitivity Analysis of Inventory

This section presents results of the limited sensitivity analyses performed as a part of this addendum analysis. The primary purpose of these limited sensitivity analyses is to support the original determination of the composite analysis that there is a reasonable expectation of meeting the performance objectives defined in Section 1.6.

The limited sensitivity analyses performed as a part of this addendum focused on the uncertainty in the estimates of technetium-99 and iodine-129 inventories for the sites evaluated. These specific constituents were evaluated because they represented key radionuclides of concern in the original analysis and are good indicator constituents to evaluate the potential impacts of the sites under consideration.

5.1 Upper End Inventory Estimates

Estimates of the technetium-99 and iodine-129 inventory for the addendum analysis sites used in this sensitivity analysis were developed from 25 realizations of inventory estimates developed as part of the initial assessment using the SAC. The methods used in the development of these realization estimates is described in Section A.4.3 in Appendix A.

The multiple realizations of the technetium-99 and iodine-129 inventories for the sites considered in this addendum analysis were ranked, and the 23rd highest realization of inventory was selected as an upper-end estimate of the inventory. The resulting site inventory estimates for all canyon facilities, PUREX tunnels, and other CERCLA sites (i.e., liquid discharge sites, unplanned release sites, and other miscellaneous sites) are provided in Tables 5.1 to 5.4.

5.1.1 Technetium-99

The upper end inventory estimates of technetium-99 developed from the multiple realizations of inventories described in Appendix A increased overall by 56 percent over the base case estimates and exhibited a similar distribution of technetium-99 as was developed in the base case. The majority (58.1 Ci) of the 79.2 Ci of technetium-99 estimate (36.3 Ci from the 200 East Area and 43 Ci in the 200 West Area) was attributable to canyon facility sites. Estimates amounting to 2.4 Ci and 1.3 Ci are attributable to PUREX tunnels and other CERCLA sites, respectively.

5.1.2 Iodine-129

The upper-end inventory estimates of iodine-129 developed from the multiple realizations of inventories described in Appendix A increased overall by 30 percent over the base case estimates and exhibited a similar distribution of technetium-99 as was developed in the base case. The majority of the 28 Ci of the iodine-129 estimate was attributable to one of the PUREX tunnels, site 218-E-15.

Table 5.1. Upper End Estimates of Technetium-99 and Iodine-129 Inventories for Canyon Facility Sites (Sensitivity Case)

Site Name	Technetium-99 (Ci)	Iodine-129 (Ci)
200-E-30	1.1E+00	2.1E-03
200-W-43	3.1E+00	5.8E-03
200-W-44	2.6E+00	1.1E-03
202-A	1.2E-01	2.2E-04
202-S	3.5E+00	8.1E-03
221-B	1.8E+01	4.0E-02
221-U	1.4E+01	1.6E-04
224-B	6.5E-03	5.7E-07
224-U	9.4E-02	2.0E-04
276-U	7.1E-04	3.7E-06
221-T	1.3E+00	6.3E-03
224-T	2.9E-03	7.7E-07
234-5[(a)]	0.0E+00	0.0E+00
B_PLANT_FILTER	1.4E+01	2.7E-02
(a) Inventory consists of only plutonium-239.		

Table 5.2. Upper End Estimates of Technetium-99 and Iodine-129 Inventories for PUREX Tunnel Sites (Sensitivity Case)

Site Name	Technetium-99 (Ci)	Iodine-129 (Ci)
218-E-14	5.2E-01	1.2E-03
218-E-15	1.9E+00	3.5E+01

5.2 Releases to Groundwater

As in the base case calculations summarized in Section 4.0, technetium-99 and iodine-129 releases to the groundwater associated with the sensitivity case were evaluated as a combined waste form release and vadose zone transport calculation. Figures 5.1 through 5.4 present cumulative and time-varying releases of technetium-99 and iodine-129 from the vadose zone to the groundwater in the 200 East and 200 West Areas. Cumulative and time-varying releases of technetium-99 and iodine-129 for selected times and time periods are presented in Table 5.5 and 5.6.

5.2.1 Technetium-99

The results of this sensitivity analysis estimate that about 3.5 Ci of technetium-99 would be released to groundwater during the 1500-year period of release. The majority of the technetium-99 released is estimated to occur in the 200 West Area and is predicted to release at very low levels between the years 2100 and 3400. The technetium-99 released from the majority of sites, particularly the canyon facilities and PUREX Tunnels, is estimated to be very low in the next 1000 years. Limited releases for the canyon

Table 5.3. Upper End Estimates of Technetium-99 and Iodine-129 Inventories for Other CERCLA Sites (Sensitivity Case)

Site Name	Technetium-99 (Ci)	Iodine-129 (Ci)
216-A-11	0.0E+00	6.7E-05
216-A-12	0.0E+00	7.2E-05
216-A-13	0.0E+00	1.1E-05
216-A-14	0.0E+00	8.2E-07
216-A-15	0.0E+00	6.4E-06
216-A-22	0.0E+00	4.1E-06
216-A-26A	0.0E+00	1.5E-06
216-A-32	0.0E+00	3.5E-06
216-A-35	1.5E-03	3.0E-06
216-A-40	6.5E-08	1.4E-04
216-A-41[(a)]	0.0E+00	0.0E+00
216-B-13	3.7E-08	7.9E-11
216-B-3-1	1.8E-02	2.3E-05
216-B-3-2[(a)]	0.0E+00	0.0E+00
216-B-4	2.2E-08	5.3E-11
216-B-51	5.5E-03	1.2E-05
216-B-6[(a)]	0.0E+00	0.0E+00
216-C-2[(a)]	0.0E+00	0.0E+00
216-C-9 Pond Diversion Box	4.6E-04	9.3E-07
216-N-1	5.0E-05	1.4E-07
216-S-10P	3.1E-04	6.3E-07
216-S-14	2.1E-04	5.7E-07
216-S-16D	5.9E-08	1.4E-10
216-S-18	4.0E-05	7.4E-08
216-S-4	1.3E-04	1.1E-05
216-T-13[(a)]	0.0E+00	0.0E+00
216-T-2[(a)]	0.0E+00	0.0E+00
216-T-29	3.9E-06	8.1E-09
216-T-4A	3.0E-03	7.1E-06
216-U-14	2.3E-02	3.9E-07
216-U-4	8.5E-06	1.5E-08
216-W-LWC	8.3E-04	3.3E-03
216-Z-1D	2.8E-06	6.0E-09
218-E-2A[(a)]	0.0E+00	0.0E+00
241-SX-107	2.3E-03	3.0E-05
241-SX-108[(a)]	0.0E+00	0.0E+00
241-TX-154	2.8E-06	7.3E-09
241-WR VAULT[(a)]	0.0E+00	0.0E+00
299-E24-111[(a)]	0.0E+00	0.0E+00
HSVP	6.4E-06	1.3E-08
UPR-200-E-141	6.3E-04	1.8E-06
UPR-200-E-7	9.7E-04	1.7E-06
UPR-200-E-80	3.2E-03	6.5E-06
UPR-200-E-84[(a)]	0.0E+00	0.0E+00
UPR-200-E-85	1.2E-05	2.9E-08

Table 5.3. (contd)

Site Name	Technetium-99 (Ci)	Iodine-129 (Ci)
UPR-200-E-87	3.9E-04	8.0E-07
UPR-200-E-9[(a)]	0.0E+00	0.0E+00
UPR-200-W-101[(a)]	0.0E+00	0.0E+00
UPR-200-W-108	8.6E-05	1.8E-07
UPR-200-W-113	1.3E+00	2.8E-03
UPR-200-W-125[(a)]	0.0E+00	0.0E+00
UPR-200-W-135	6.1E-03	1.1E-05
UPR-200-W-138	2.6E-04	7.9E-07
UPR-200-W-29[(a)]	0.0E+00	0.0E+00
UPR-200-W-30	1.1E-03	1.5E-05
UPR-200-W-36	3.3E+00	6.4E-03
UPR-200-W-38	1.4E+01	2.9E-02
UPR-200-W-140	7.6E-05	1.9E-07
UPR-200-W-141	8.6E-04	1.6E-06
UPR-200-W-8[(a)]	0.0E+00	0.0E+00

(a) These sites were considered in the initial assessment using the SAC because of estimated inventories of other containments of concern (i.e., tritium, cesium-137, strontium-90, plutonium-241, total uranium, and/or chromium). However, no inventories of technetium-99 and iodine-129 were assigned.

Table 5.4. Summary of Upper End Estimates of Technetium-99 and Iodine-129 Inventories for all Addendum Site Categories (Sensitivity Case)

Site Name	Technetium-99 (Ci)	Iodine-129 (Ci)
200 East Area		
Canyons	3.4E+01	7.0E-02
PUREX Tunnels	2.4E+00	3.5E+01
Liquid Discharge Sites	2.6E-02	3.4E-04
Unplanned Release Sites	5.2E-03	1.1E-05
Other CERCLA Sites	2.3E-03	3.0E-05
Subtotal	3.6E+01	3.5E+01
200 West Area		
Canyons	2.4E+01	1.5E-02
Liquid Discharge Sites	2.7E-02	3.3E-03
Unplanned Release Sites	1.9E+01	3.8E-02
Other CERCLA Sites	2.8E-06	7.3E-09
Subtotal		5.7E-02
600 Area	4.3E+01	
Liquid Discharge Sites	5.0E-05	1.4E-07
Unplanned Release Sites	0.0E+00	0.0E+00
Subtotal	5.0E-05	1.4E-07
Canyons	5.7E+01	8.5E-02
PUREX Tunnels	2.4E+00	3.5E+01
Liquid Discharge Sites	5.3E-02	3.7E-03
Unplanned Release Sites	1.9E+01	3.8E-02
Other CERCLA Sites	2.3E-03	3.0E-05
Overall Total	79.2	35.4

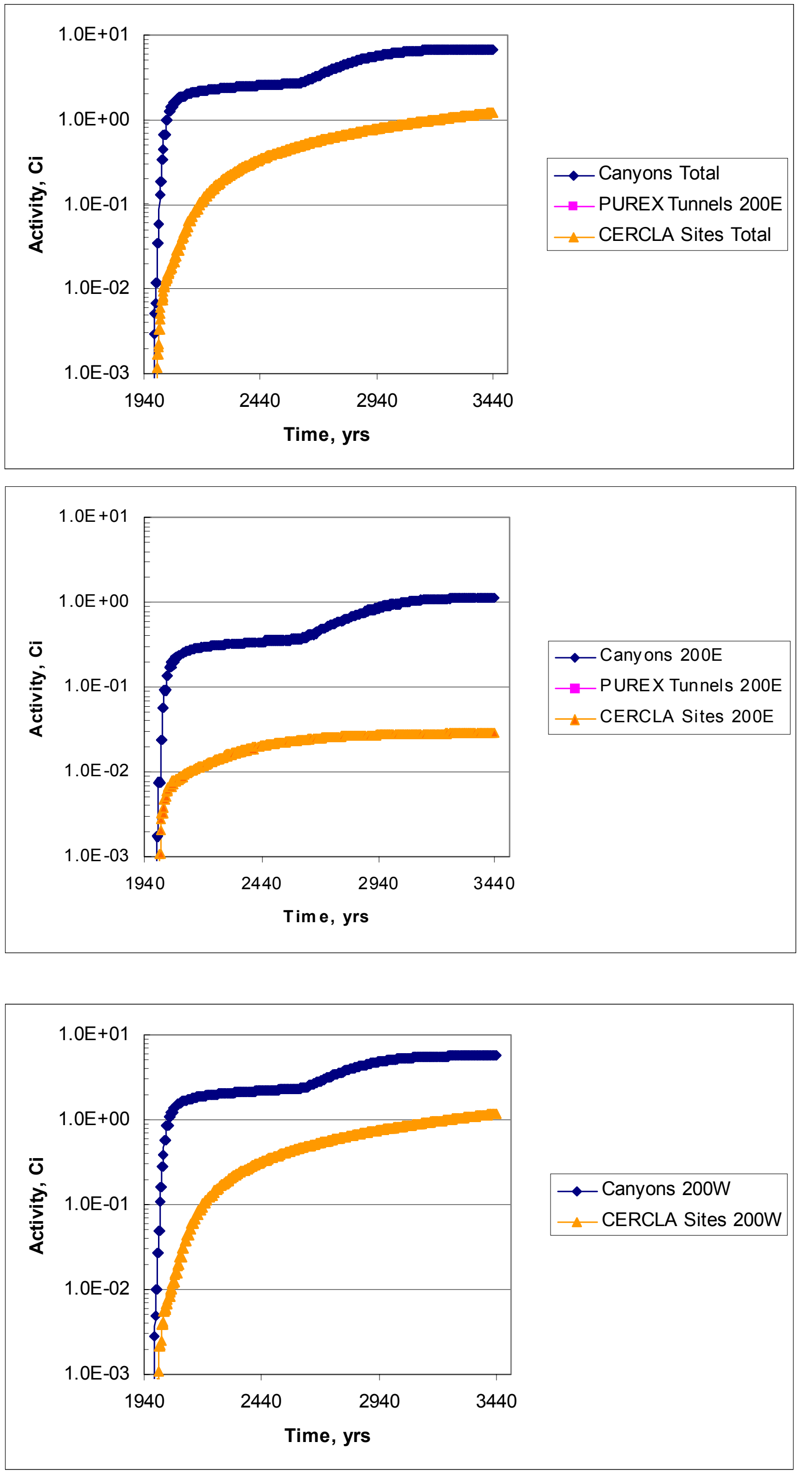


Figure 5.1. Cumulative Release of Technetium-99 to Groundwater Between 1996 and 3440 (Sensitivity Case)

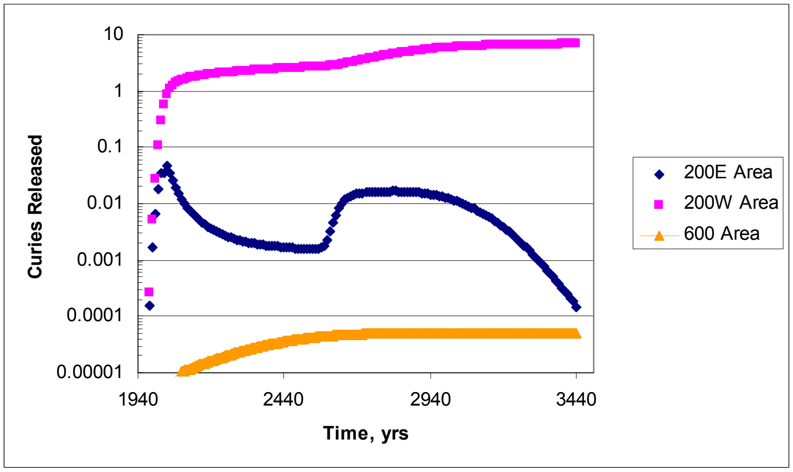


Figure 5.2. Time-Varying Release of Technetium-99 to Groundwater Between 1996 and 3440 (Sensitivity Case)

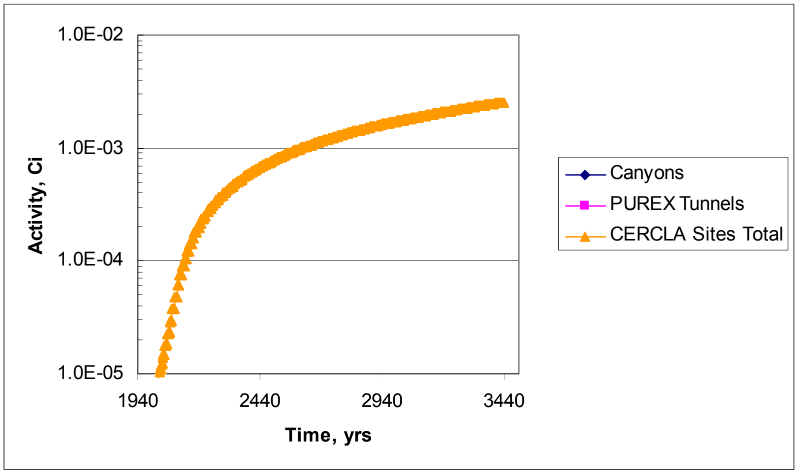
facilities and PUREX tunnels, in particular, are directly attributable to the assumed end-states of these facilities, which involve using a diffusion-controlled release model to approximate the release of contaminant out of existing facilities and buildings.

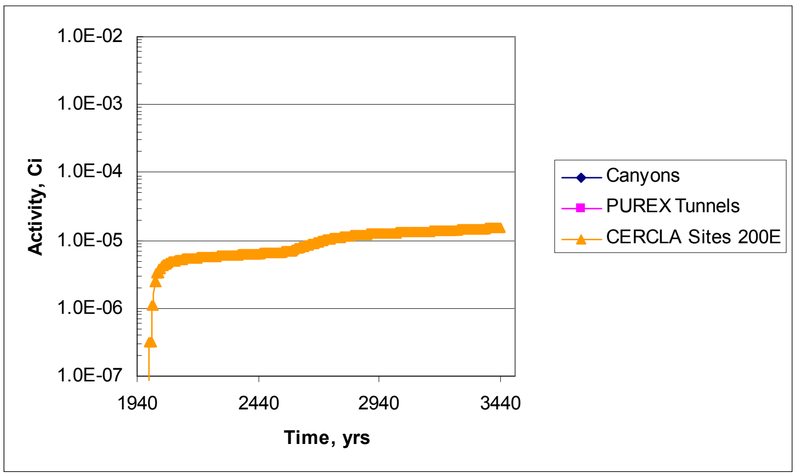
5.2.2 Iodine-99

Results of release analyses for iodine-129 demonstrate that very small releases of iodine-129 for the sites under consideration can be expected to reach to the water table. The largest portion of iodine-129 inventories from the sites being evaluated are predicted to release at very low rates after 100 years (i.e., Between 2100 and 3440). As was determined in the base case calculations, the bulk of releases are attributable to a small number of liquid discharge sites in the 200 West Area. Very limited or no releases would be expected to occur from the majority of sites, particularly the canyon facilities and PUREX tunnels, in the next 1000 years. As in the case for technetium-99, limited releases of iodine-129 for the canyon facilities and PUREX tunnels, in particular, are directly attributable to the assumed end states of these facilities, which involve using a diffusion-controlled release model to approximate the release of contaminant out of existing facilities and buildings.

5.3 Groundwater Transport

As was done in the original Composite Analysis, the plan-view, maximum-concentration plots discussed in this subsection were prepared from the three-dimensional model results through a sampling process that determined the maximum concentration at each location in space. This process involved sampling the vertical stack of nodes at each plan view location in the grid to find the maximum concentration calculated at any depth in the profile. The contour plots of concentration shown represent the spatial





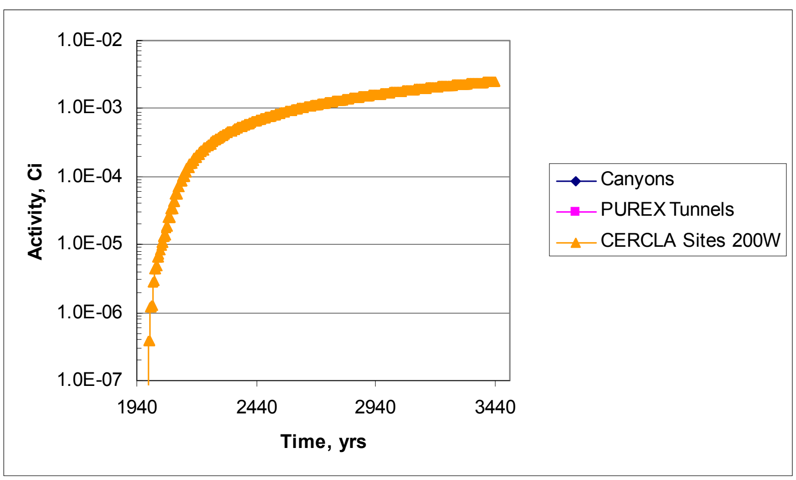


Figure 5.3. Cumulative Release of Iodine-129 to Groundwater Between 1996 and 3440 (Sensitivity Case)

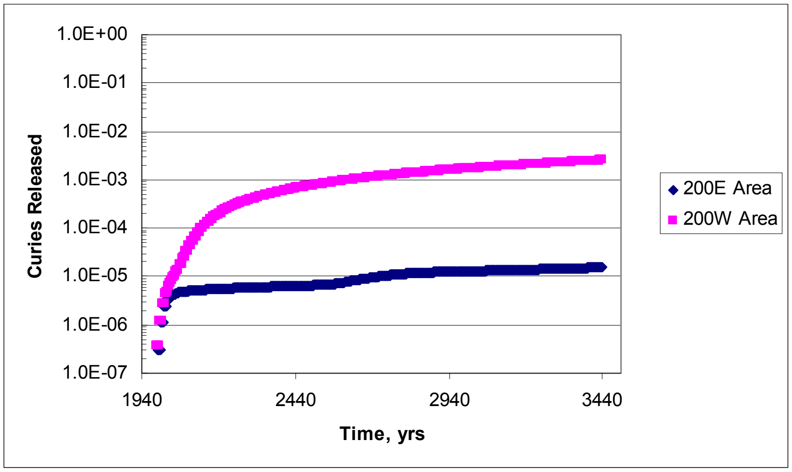


Figure 5.4. Time-Varying Release of Iodine-129 to Groundwater Between 1996 and 3440 (Sensitivity Case)

Table 5.5. Cumulative and Time-Varying Releases of Technetium-99 for Selected Times and Time Periods

Cumulative Release of Technetium-99 (Ci) at Selected Times						
	Canyons		**PUREX Tunnels**	**CERCLA Sites**		
Year	**200E**	**200W**	**200E**	**200E**	**200W**	**600 Area**
2000	7.7E-03	2.7E-02	0.0E+00	7.1E-04	8.8E-04	5.0E-07
2100	2.5E-01	1.6E+00	0.0E+00	8.9E-03	2.4E-02	1.0E-05
2500	3.5E-01	2.2E+00	0.0E+00	2.2E-02	3.7E-01	4.0E-05
3000	9.4E-01	5.1E+00	0.0E+00	2.8E-02	8.1E-01	5.0E-05
3440	1.1E+00	5.7E+00	0.0E+00	2.9E-02	1.2E+00	5.0E-05
Release of Technetium-99 (Ci) for Selected Time Intervals						
Time	**Canyons**		**PUREX Tunnels**	**CERCLA Sites**		
Interval	**200E**	**200W**	**200E**	**200E**	**200W**	**600 Area**
1940-2000	7.7E-03	2.7E-02	0.0E+00	7.1E-04	8.8E-04	5.0E-07
2001-2100	2.5E-01	1.6E+00	0.0E+00	8.2E-03	2.3E-02	9.8E-06
2101-2500	1.0E-01	6.4E-01	0.0E+00	1.3E-02	3.4E-01	3.0E-05
2501-3000	5.9E-01	2.9E+00	0.0E+00	6.1E-03	4.4E-01	9.7E-06
3001-3440	1.8E-01	5.6E-01	0.0E+00	1.6E-03	3.7E-01	1.4E-08

Table 5.6. Cumulative and Time-Varying Releases of Iodine-129 for Selected Times and Time Periods

Cumulative Release of Iodine-129 (Ci) at Selected Times						
Year	Canyons		PUREX Tunnels	CERCLA Sites		
	200E	200W	200E	200E	200W	600 Area
2000	0.0E+00	0.0E+00	0.0E+00	3.1E-07	1.2E-06	0.0E+00
2100	0.0E+00	0.0E+00	0.0E+00	5.0E-06	4.3E-05	0.0E+00
2500	0.0E+00	0.0E+00	0.0E+00	6.6E-06	7.7E-04	0.0E+00
3000	0.0E+00	0.0E+00	0.0E+00	1.3E-05	1.7E-03	0.0E+00
3440	0.0E+00	0.0E+00	0.0E+00	1.5E-05	2.5E-03	0.0E+00
Release of Iodine-129 (Ci) for Selected Time Intervals						
Time Interval	**Canyons**		**PUREX Tunnels**	**CERCLA Sites**		
	200E	**200W**	**200E**	**200E**	**200W**	**600 Area**
1940-2000	0.0E+00	0.0E+00	0.0E+00	3.1E-07	1.2E-06	0.0E+00
2001-2100	0.0E+00	0.0E+00	0.0E+00	4.7E-06	4.2E-05	0.0E+00
2101-2500	0.0E+00	0.0E+00	0.0E+00	1.6E-06	7.3E-04	0.0E+00
2501-3000	0.0E+00	0.0E+00	0.0E+00	6.2E-06	9.5E-04	0.0E+00
3001-3440	0.0E+00	0.0E+00	0.0E+00	2.5E-06	8.0E-04	0.0E+00

distribution of maximum concentration values, which is generally found at the uppermost node in the three-dimensional model. The radiological doses resulting from the separate radionuclide plume simulations were constructed from these maximum plan-view concentration distributions and added together in ARC/INFO™ to produce the final results.

5.3.1 Technetium-99

Figure 5.5 illustrates the predicted distribution of technetium-99 in the unconfined aquifer in 2050, the start of the compliance period. Figure 5.6 illustrates the distribution of technetium-99 from the sources examined in 2099, approximately 50 years after the start of the compliance period. These distributions of technetium-99 concentration illustrate the very low levels of technetium-99 predicted in the three-dimensional groundwater model both within and outside of the exclusive waste management and buffer zone areas for the period after assumed site closure. Results from technetium-99 sources indicate that peak predicted concentrations of technetium-99 outside of the buffer zone at 2049, 2099, and 2159 would be 3.3, 2.3, and 2.4 pCi/l, respectively. These peak values were about 60 percent higher than comparable values calculated in the "best-estimate" case but still well below (i.e., 0.01 to 0.001) technetium-99 values calculated in the original Composite Analysis.

5.3.2 Iodine-129

Figure 5.7 illustrates the predicted distribution of iodine-129 in the unconfined aquifer in 2050, the start of the compliance period. Figure 5.8 illustrates the distribution of iodine-129 from the sources examined in 2099, approximately 50 years after the start of the compliance period. These distributions of iodine-129 concentration illustrate the very low levels of iodine-129 predicted in the three-dimensional

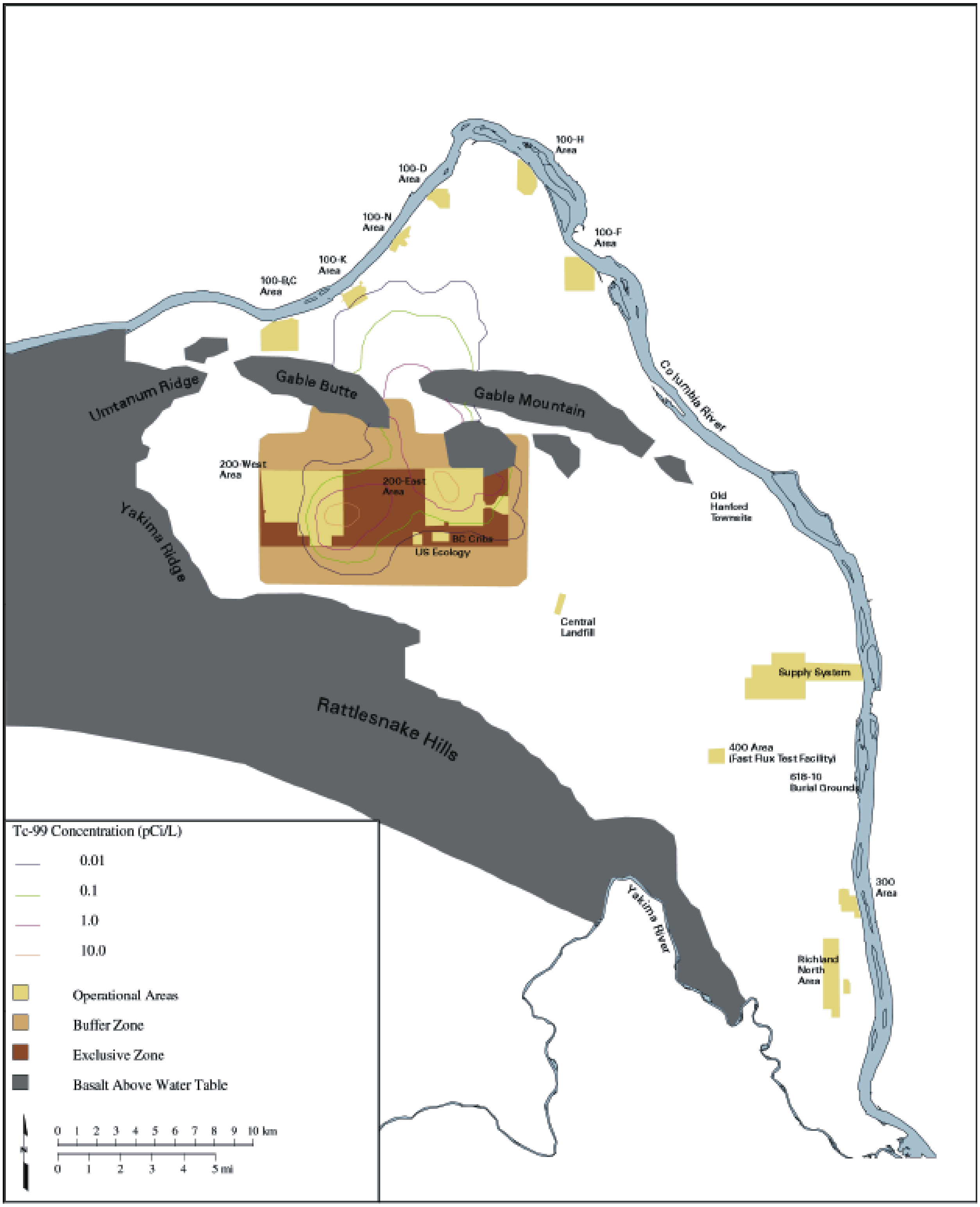


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Figure 5.5. Distribution of Technetium-99 in the Unconfined Aquifer for 2049

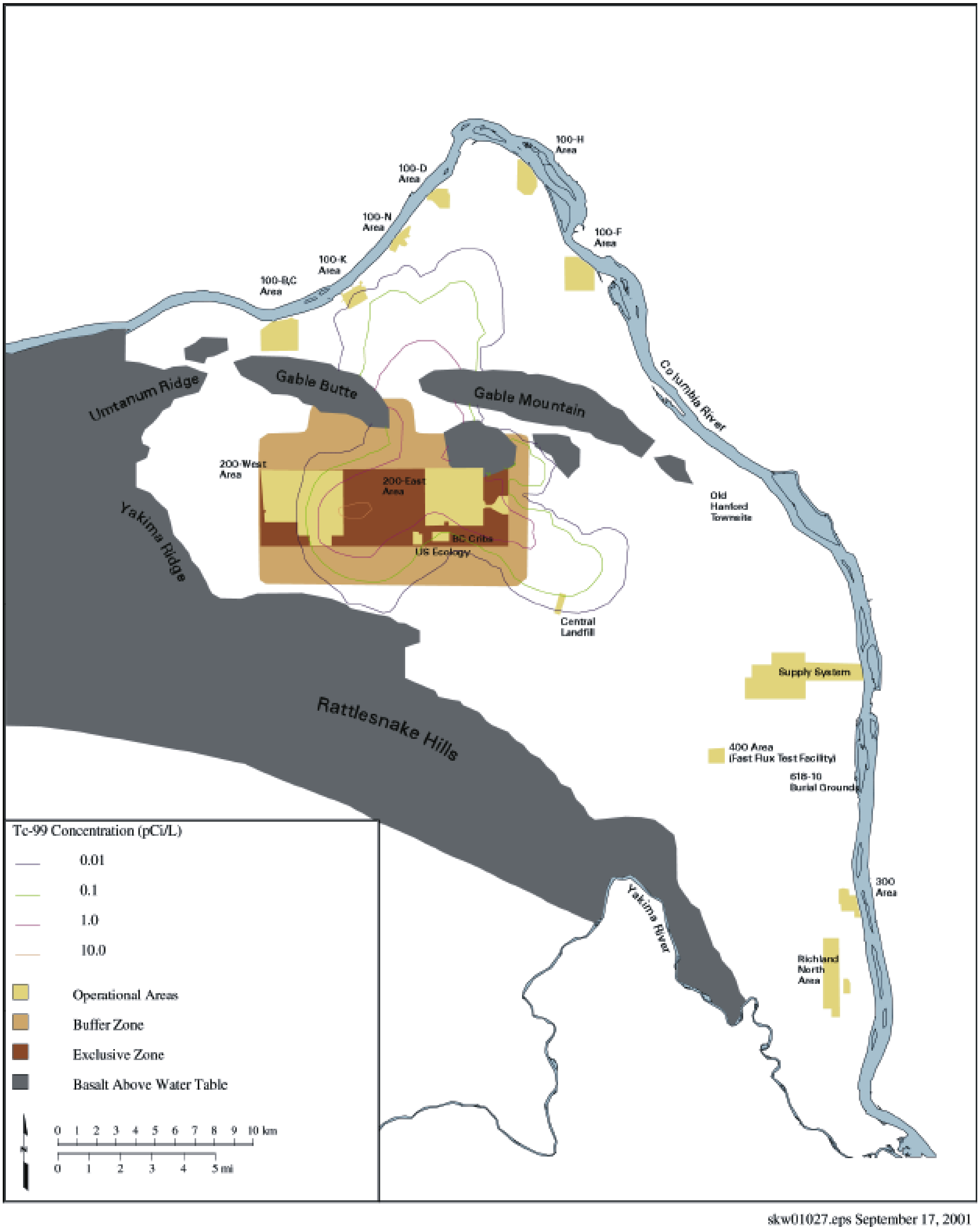

Figure 5.6. Distribution of Technetium-99 in the Unconfined Aquifer for 2099

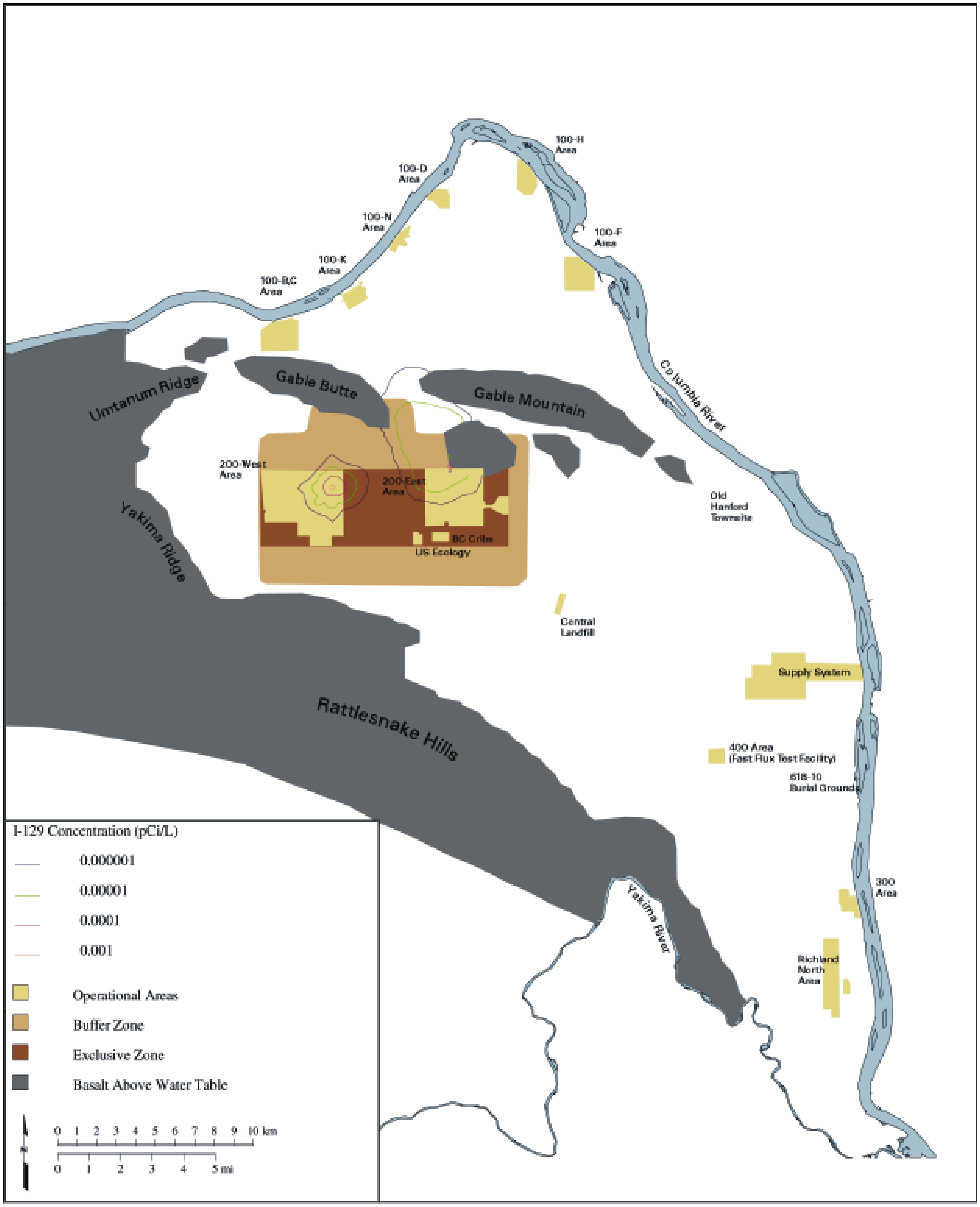

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Figure 5.7. Distribution of Iodine-129 in the Unconfined Aquifer for 2049

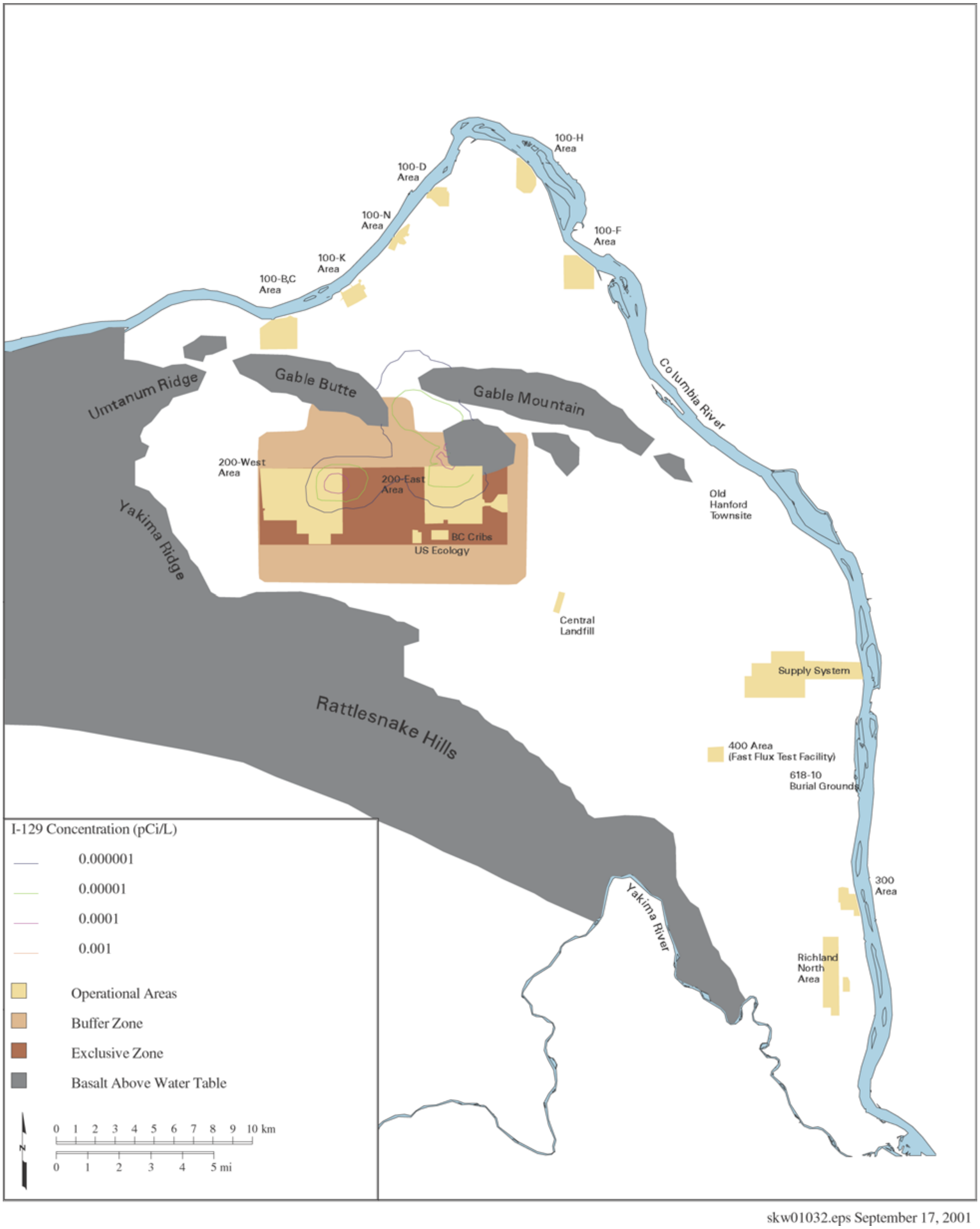

Figure 5.8. Distribution of Iodine-129 in the Unconfined Aquifer for 2099

groundwater model both within and outside of the exclusive waste management and buffer zone areas for the period after assumed site closure. Results from iodine-129 sources indicate that peak predicted concentrations of iodine-129 outside of the buffer zone at 2049, 2099, and 2159 would be extremely low and on the order of 5 x 10^{-05}, 4 x 10^{-05}, 3x 10^{-05} pCi/l, respectively. These peak values were about 30 percent higher than comparable values calculated in the "best-estimate" case but still well below (i.e., about factor of 1 x 10^{-04} lower) iodine-129 values calculated in the original Composite Analysis.

5.4 Dose Results

5.4.1 Technetium-99

Figure 5.9 illustrates the predicted distribution of dose rates from technetium-99 at about the time of site closure (i.e., year 2049) for the agricultural exposure only. Figures 5.10 through 5.11 illustrate the predicted distribution of composite dose rate at about 50 years (i.e., year 2099) and just after the period of institutional control (i.e., year 2159) for the same exposure scenario.

Resulting maximum concentration outside the buffer zone and the associated doses from technetium-99 for all exposure scenarios are summarized in Table 5.7. Dose results indicate that maximum doses would result from the agricultural exposure scenario. Peak predicted doses from technetium-99 sources for this scenario outside of the buffer zone at 2049, 2099, and 2159 would be 1.2 x 10^{-02}, 8.4 x 10^{-03}, and 8.8 x 10^{-03} mrem/yr, respectively. Resulting doses from technetium-99 for all exposure scenarios are summarized in Table 5.7. These peak dose values were about 60 percent higher than comparable values calculated in the "best-estimate" case but still well below (i.e., 0.01 to 0.001) technetium-99 values calculated for all future sources of technetium-99 in the original Composite Analysis.

If groundwater within the waste management area buffer zone were used in the industrial scenario, the peak dose rate from technetium-99 sources inside the buffer zone at the approximate time assumed for Hanford Site closure (i.e., year 2049) would be 2.0 x 10^{-02} mrem in a year, and the maximum dose rate just after the approximate time assumed for the end of institutional control (i.e., year 2159) would be 3.2 x 10^{-03} mrem in a year.

5.4.2 Iodine-129

The predicted distributions of composite dose rate for the agricultural exposure scenario from iodine-129 at the assumed time of site closure (2049), 50 years after site closure (2099), and near the time of loss of institutional control outside the buffer zone (2159) are provided in Figures 5.12, 5.13, and 5.14, respectively. Figure 5.12 illustrate the predicted distribution of composite dose rate in 2049 for the agricultural exposure only. Figures 5.13 through 5.14 illustrate the predicted distribution of composite dose rate at about 50 years (i.e., year 2099) and just after the period of institutional control (i.e., year 2159) for the exposure scenario.

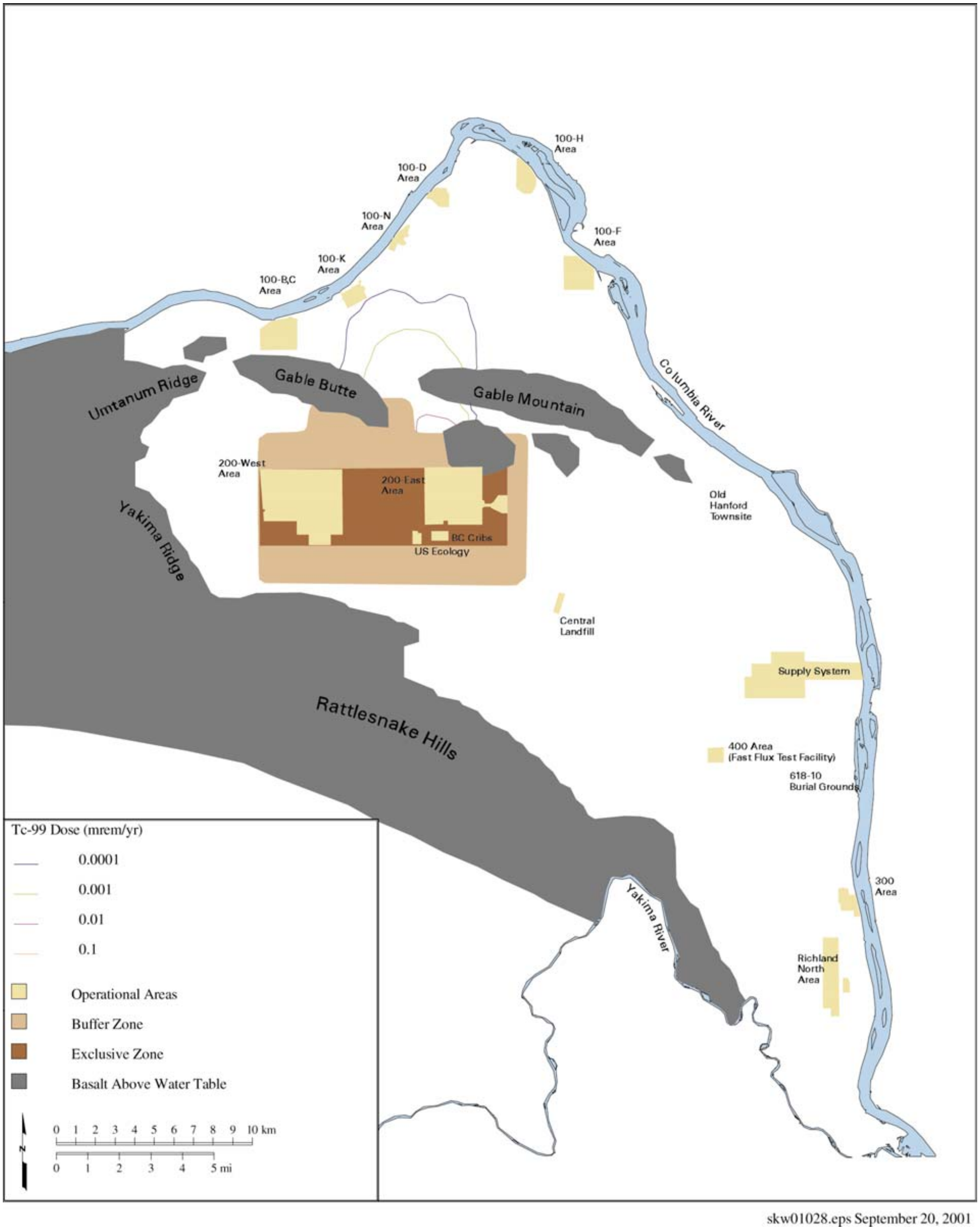

Figure 5.9. Predicted Distribution of Composite Dose Rate for the Agricultural Exposure Scenario from Technetium-99 in 2049

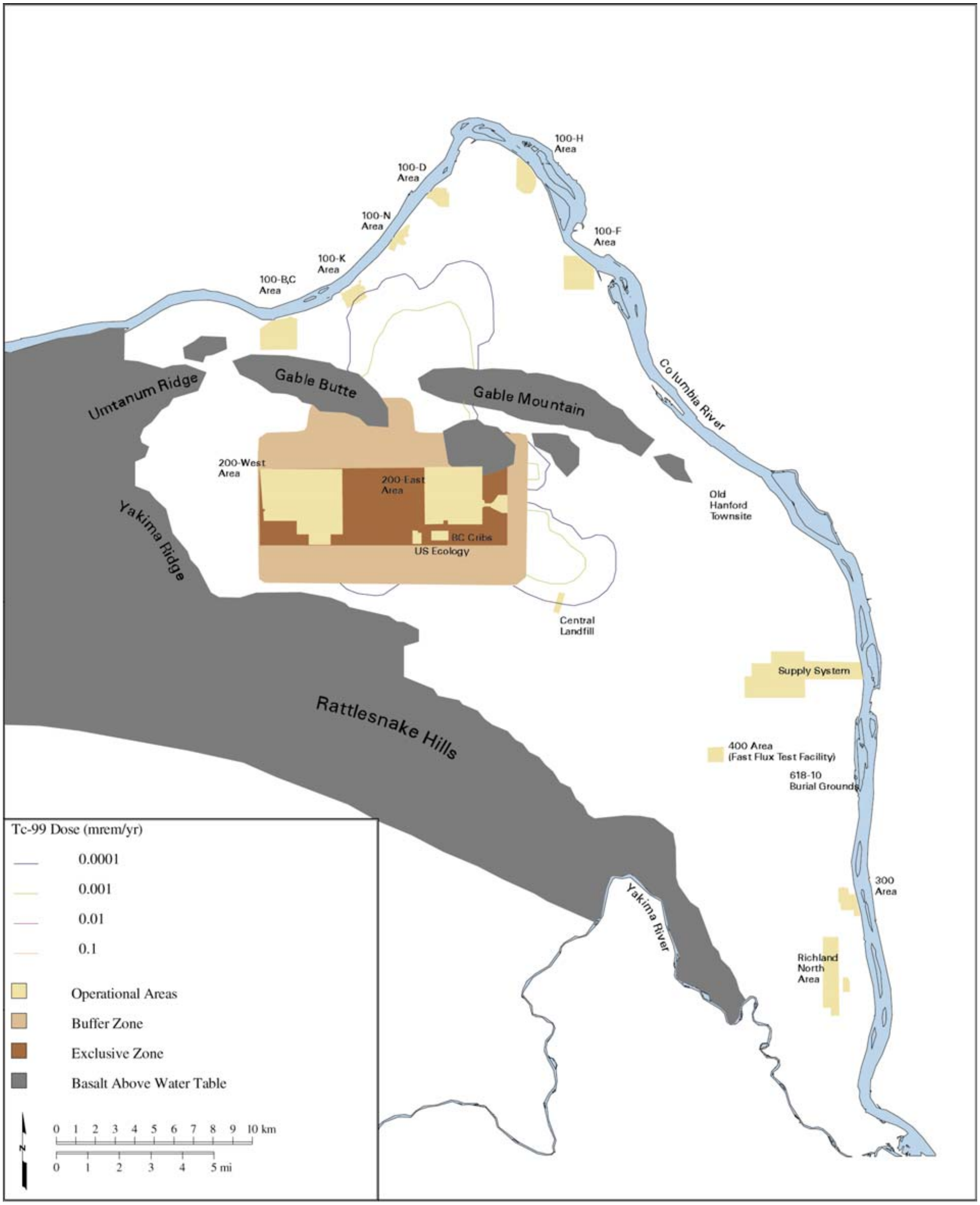

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Figure 5.10. Predicted Distribution of Composite Dose Rate for the Agricultural Exposure Scenario from Technetium-99 in 2099

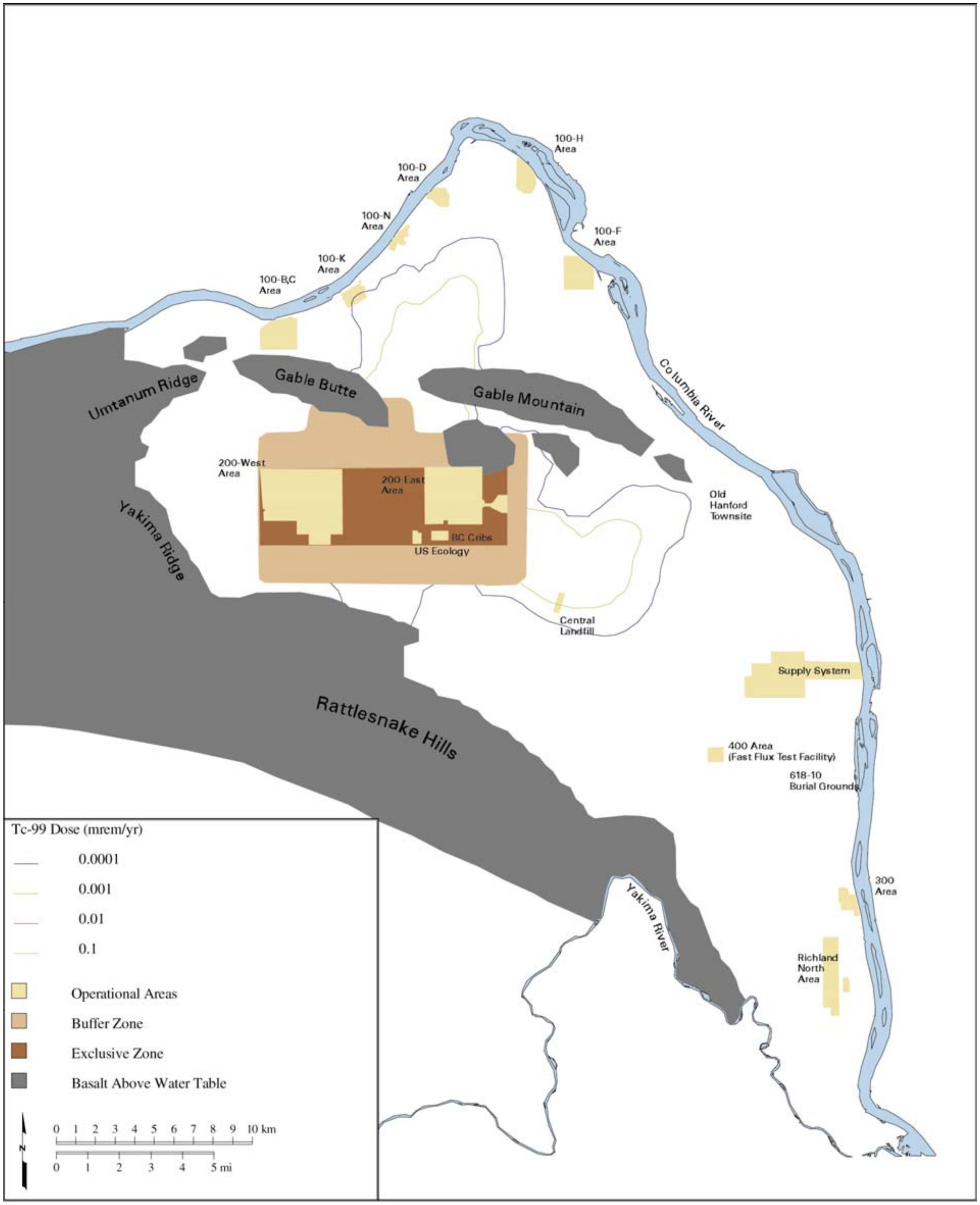

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Figure 5.11. Predicted Distribution of Composite Dose Rate for the Agricultural Exposure Scenario from Technetium-99 in 2159

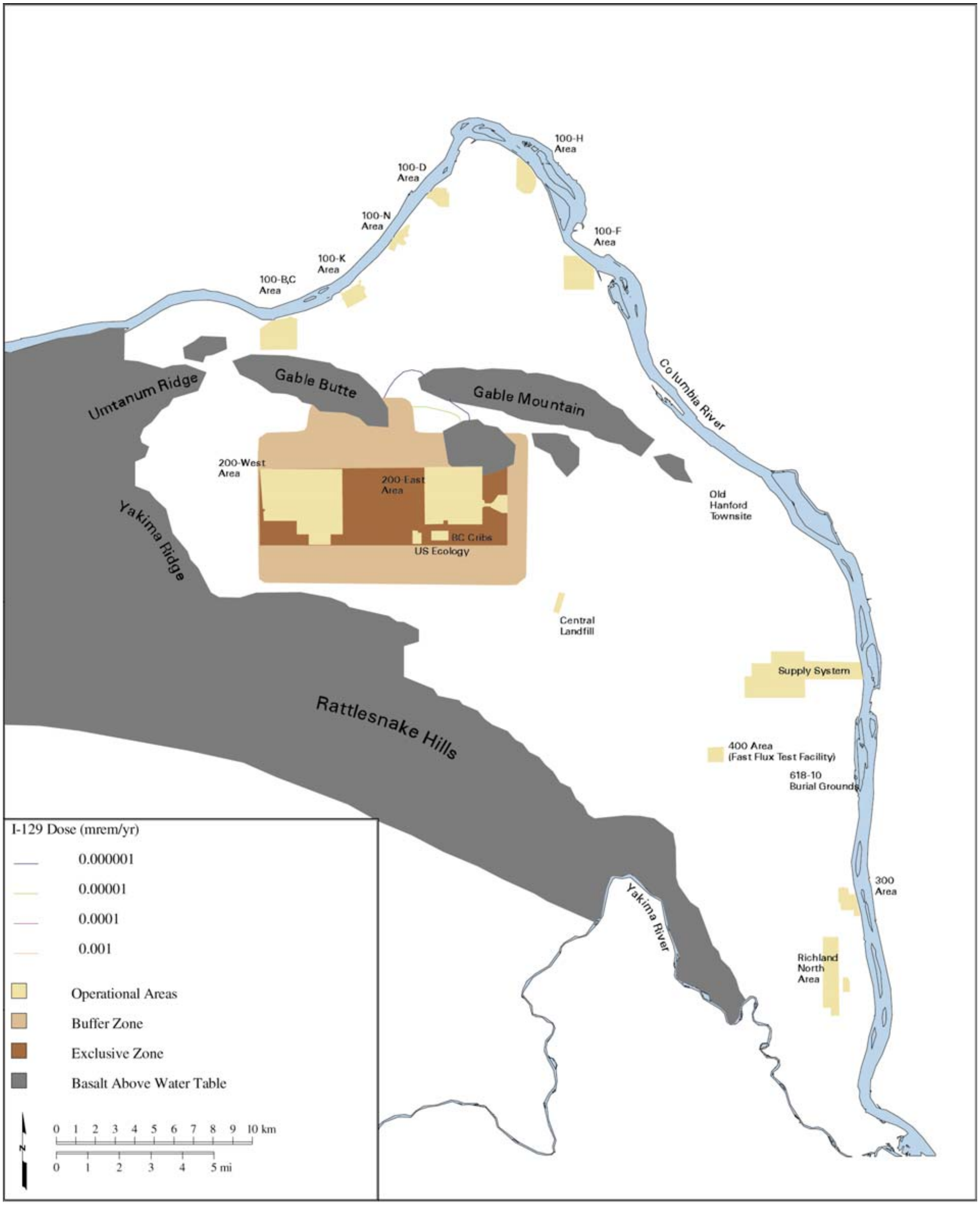
Table 5.7. Maximum Technetium-99 Concentrations and Associated Doses for the Agricultural, Residential, Industrial, and Recreational Scenarios Outside of the Buffer Zone in 2049, 2099, and 2159 (Sensitivity Case Inventory)

	Maximum Concentration (pCi/l)	Agricultural Scenario (mrem/yr)	Residential Scenario (mrem/yr)	Industrial Scenario (mrem/yr)	Recreational Scenario (mrem/yr
2049	3.3E+00	1.2E-02	4.5E-03	1.2E-03	6.9E-05
2099	2.3E+00	8.4E-03	3.1E-03	8.4E-04	4.8E-05
2159	2.4E+00	8.8E-03	3.3E-03	8.8E-04	5.0E-05

Resulting maximum concentration outside the buffer zone and associated doses from iodine-129 for all exposure scenarios are summarized in Table 5.8. Dose results indicate that maximum doses would result from the agricultural exposure scenario. Peak predicted doses from iodine-129 for this scenario from the addendum sources outside of the buffer zone at 2049, 2099, and 2159 would be very low and on the order of 2.9 x 10^{-05}, 2.3 x 10^{-05}, and 2.0 x 10^{-05} pCi/l, respectively. These peak dose values were about 30 percent higher than comparable values calculated in the "best-estimate" case but still well below (i.e., 0.01 to 0.001) technetium-99 values calculated for all future sources of technetium-99 in the original Composite Analysis. The results of this sensitivity analysis suggests that maximum doses outside the buffer zone after site closure, with the inventories estimates developed for the SAC initial assessment, would be well below the 100-mrem/yr dose levels and the 30 mrem/yr dose constraint and well below previous dose estimates made in the original Composite Analysis.

If groundwater within the waste management area buffer zone were used in the industrial scenario, iodine-129 related doses at the approximate time assumed for Hanford Site closure (i.e., year 2049) would be 1.0 x 10^{-04} mrem in a year, and the maximum dose rate just after the approximate time assumed for the end of institutional control (i.e., year 2159) would be 1.5 x 10^{-05} mrem in a year.

The DOE intends to maintain the exclusive waste management area and buffer zone until they can be released to the public. The DOE has acknowledged that many low-level radioactive waste facilities may never be suitable for unconditional release to the public, and that deed restrictions on the future use of groundwater resources may be necessary. Consequently, these future doses in these areas will not be realized.



skw01033.eps September 20, 2001

Figure 5.12. Predicted Distribution of Composite Dose Rate for the Agricultural Exposure Scenario from Iodine-129 in 2049

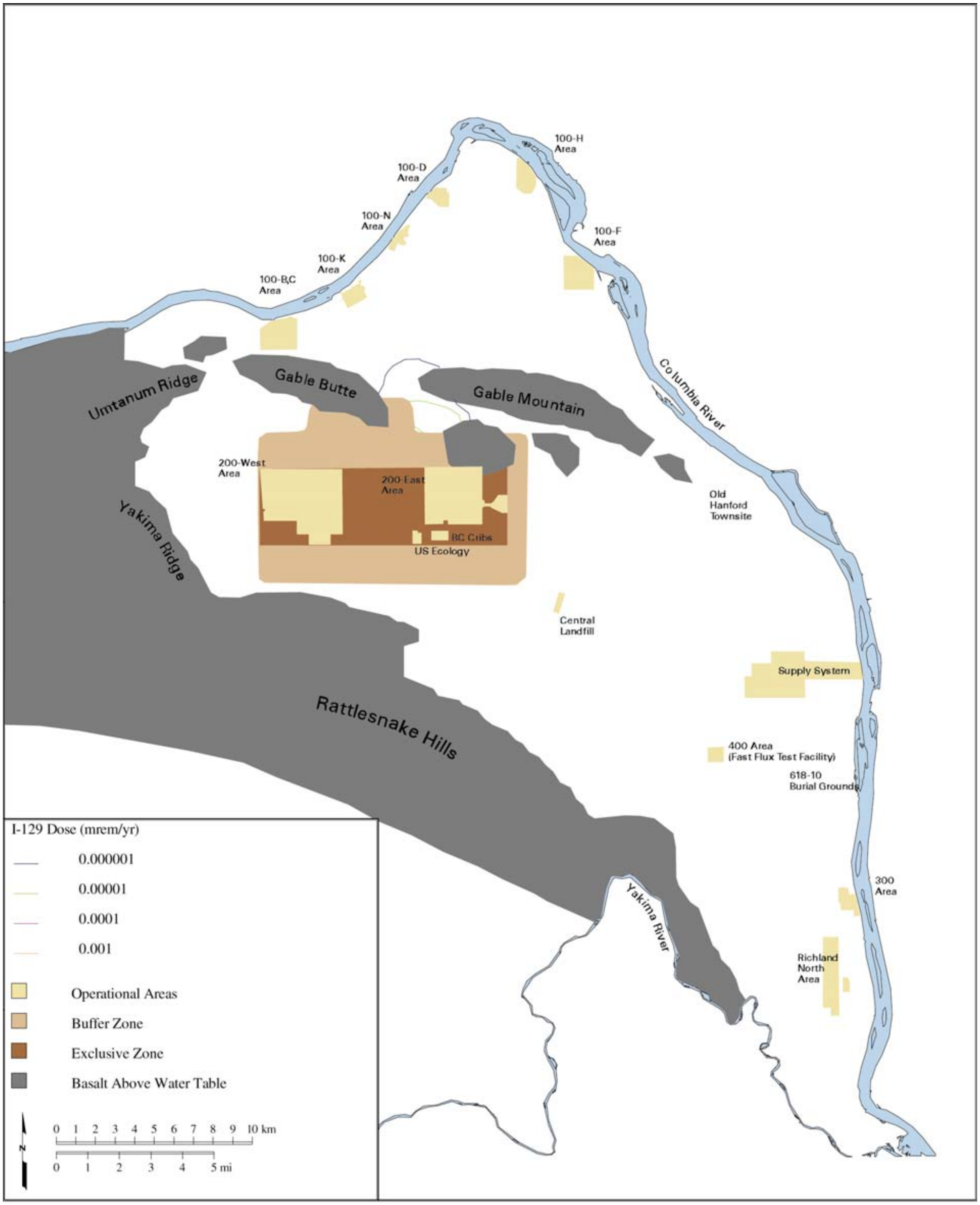


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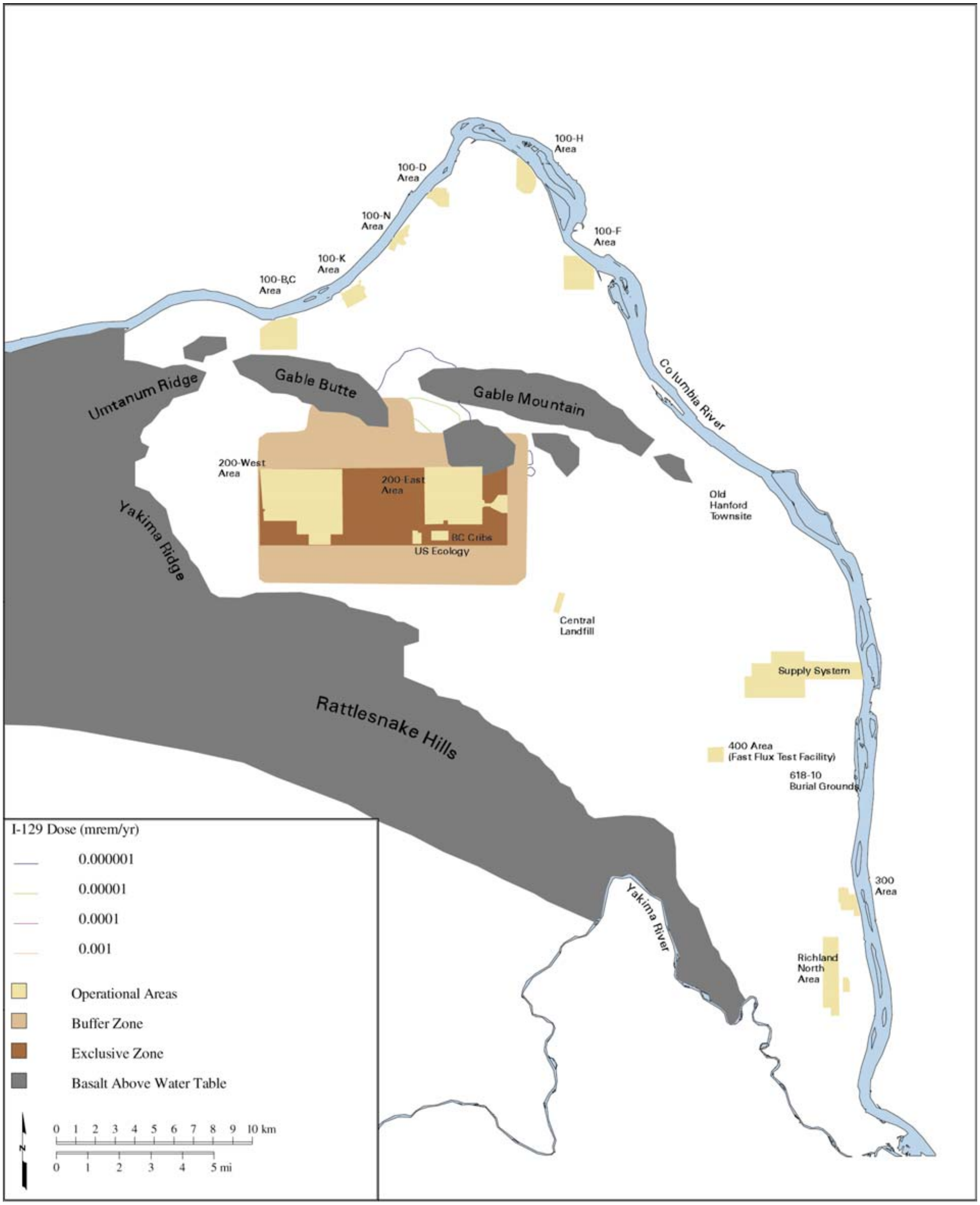
Figure 5.13. Predicted Distribution of Composite Dose Rate for the Agricultural Exposure Scenario from Iodine-129 in 2099



skw01035.eps September 20, 2001

Figure 5.14. Predicted Distribution of Composite Dose Rate for the Agricultural Exposure Scenario from Iodine-129 in 2159

Table 5.8. Maximum Iodine-129 Concentrations and Associated Doses for the Agricultural, Residential, Industrial, and Recreational Scenarios Outside of the Buffer Zone in 2049, 2099, and 2159 (Sensitivity Case Inventory)

	Maximum Concentration (pCi/l)	**Agricultural Scenario (mrem/yr)**	**Residential Scenario (mrem/yr)**	**Industrial Scenario (mrem/yr)**	**Recreational Scenario (mrem/yr**
2049	4.7E-05	2.9E-05	1.1E-05	3.2E-06	1.9E-07
2099	3.7E-05	2.3E-05	8.4E-06	2.5E-06	1.5E-07
2159	3.3E-05	2.0E-05	7.5E-06	2.3E-06	1.3E-07

6.0 Overall Performance Evaluation

This section discusses the results of the Composite Analysis Addendum in comparison with the primary dose limit and the dose constraint specified by DOE Order 435.1. It includes discussions of the principal sources of uncertainty and their implications to the results of the original Composite Analysis. A brief discussion of the estimated impacts from the addendum sites on the conclusions of the original qualitative ALARA assessment and the potential use of the Composite Analysis results is also presented..

6.1 Comparison of Results to Performance Objectives

The DOE primary dose limit of 100 mrem EDE in a year applies to a hypothetical future member of the public. This all-pathways dose to the maximally exposed offsite individual is calculated for 1000 years at points on the Hanford Site that a future member of the public could access. The point of access nearest the waste disposal sites in the future is defined by the boundary of a buffer zone designed to separate the public from the exclusive waste management area on the 200 Area Plateau (Figure 1.2). The dose constraint is defined as 30 mrem EDE in a year to the maximally exposed offsite individual for 1000 years (DOE 1996b) and ensures that no single source, practice, or pathway accounts for an extraordinary portion of the primary dose limit. If the dose to the maximally exposed individual is above either 100 or 30 mrem in a year, an options analysis and an ALARA assessment must be performed to evaluate alternate actions the DOE could take to reduce the dose. If the dose is below 30 mrem in a year, a qualitative ALARA assessment should be performed to determine whether a quantitative ALARA analysis would be cost-beneficial.

6.1.1 Comparison with the Primary Dose Limit

To quantify potential impacts from alternate future land uses, four exposure scenarios were used in the Hanford Site Composite Analysis and this addendum analysis to quantify dose to the hypothetical future member of the public. In order of significance with respect to the dose they yield, they are based on agricultural, residential, industrial, and recreational land use assumptions. Each of these scenarios was applied to the region of the present Hanford Site outside the buffer zone surrounding the exclusive waste management area. Maximum dose within the exclusion area and buffer zone was not compared to the dose limit.

In the original Composite Analysis, doses attributable to technetium-99 and iodine-129 inventories in future source releases accounted for about 75 percent of the maximum dose estimated outside the buffer zone and it is assumed that these constituents can provide a general indication of the potential impact from the additional sites evaluated in this addendum. Dose impacts from chlorine-36 and selenium-79 accounted for the remaining 25 percent of the maximum doses. Because of the assumptions made about carbon-14 mobility (kd = 0.5 ml/g) and uranium (kd = 3 ml/g), the contribution from these constituents to the maximum dose were less than 1×10^{-04} mrem/yr at site closure.

Results of this addendum analysis shows that maximum doses outside the buffer zone after site closure attributable to technetium-99 and iodine-129 in the addendum sources were 4.7×10^{-03} mrem/yr in 2050 for the best-estimate case and 1.2×10^{-02} mrem/yr in 2050 for the upper-end inventory case. These values are well below the 100 mrem/yr dose limit and the 30 mrem/yr dose constraint. Based on the impacts evaluated in previous analysis, the potential doses from other constituents considered in the original analysis (uranium, chlorine-36, selenium-79, and carbon-14) are not likely to significantly exceed these doses relative to the impacts arising from technetium-99 and iodine-129 inventories in the addendum sites.

6.1.2 The Influence of an Uncertain Inventory

This addendum analysis was designed to evaluate the potential impact of the canyon facilities, PUREX tunnels, and other CERCLA sites not evaluated in the previous assessment of the original Composite Analysis results. This addendum analysis performed a closer evaluation and screening of the original 368 sites to identify those with the potential to have an impact. This analysis has also benefited from the creation of site inventory estimates developed for the initial assessment of the SAC, which has attempted to honor or reconcile radionuclide generation data, import data, export data, process flow sheets, and waste transaction records.

The addendum inventory estimates for technetium-99 when compared to previous analysis inventory estimates developed in the original Composite Analysis reflect relatively minor contributions of additional inventory (Table 6.1). In the case of iodine, with the exception of additional contribution of iodine-129 inventory at one of the PUREX tunnels, the incremental increase in the total iodine-129 inventory is also small when compared to the original inventory. With the assumptions made with regard to the use of engineered barriers in the final end states of all the canyon facilities and the two PUREX tunnels, the resulting estimated impacts are consistent with this minor additional inventory contribution during the 1000-year period of analysis.

This analysis also considered uncertainty in the inventory estimates of contaminants of concern (i.e., technetium-99 and iodine-129) in the addendum sites using the approaches developed in the initial assessment of SAC. Current SAC approaches of estimating uncertainty which consider the constraints of a total site inventory in bounding the uncertainty of all sites resulted in about a 45 and 30 percent increase in technetium-99 and iodine-129 estimates for the addendum sites, respectively. Analysis of these

Table 6.1. Comparison of Technetium-99 and Iodine-129 Inventory for the Original Composite and Addendum Analyses

	Technetium-99	**Iodine-129**
Composite Analysis Total	24900.0	17.1
Addendum Analysis Total		
Base Case	54.9	27.5
Sensitivity Case	79.2	35.4

inventories in the sensitivity case did not significantly raise the low dose estimates calculated in the best-estimate case and the resulting doses were also well below previous estimates of radiological impacts in the 1000 yrs following site closure.

If one examines the maximum doses attributable to future releases from all sources considered in the original Composite Analysis after site closure (i.e., 4 and 5 mrem/yr for the agricultural exposure scenario) (see Figure 3.3), these dose results for future releases in the original Composite Analysis would suggest that radionuclide inventories associated with not only the additional addendum sites but all the Composite Analysis sites would have to be increased by a factor of about 6 before the dose constraint of 30 mrem/yr would be reached. These levels of required inventories would greatly exceed current estimates of total site inventories developed by other sources (Table 6.2).

6.2 Options Analysis and ALARA Assessment

Given the results of the original Composite Analysis, an options analysis was not performed. However, an ALARA assessment was performed and documented in the original Composite Analysis (Section 5.3, Kincaid et al. (1998). The conclusions of this addendum analysis indicate this original ALARA analysis is still appropriate, and it was not changed. This ALARA analysis indicated that when a representative individual dose (4 mrem in a year, a reasonable yet high average value for dose from the agricultural scenario) is applied to 1000 people for 1000 years, the result is a 4000-person-rem population dose. The resulting cost to the public would range between $4 million and $40 million. Based on these results, the original analysis concluded that cost did not justify a more detailed ALARA assessment because the cost to the public of further analysis and implementation of alternatives would likely be equal to or greater than this amount.

Table 6.2. Comparison of Radionuclide Inventories Considered in the Original Composite Analysis and Other Hanford Site Total Estimates

Radionuclide Inventories in Curies[(a)]						
Inventory Estimate Source	**C-14**	**Cl-36**	**Se-79**	**Tc-99**	**U-238**	**I-129**
Composite Analysis Total[(b)]	50000.0	345.0	1050.0	24900.0	66000.0	17.1
Agnew[(c)] All Tanks	4780.0		773.0	32600.0	906.0	63.0
Agnew[(c)] Cribs	124.0		26.3	868.0	1310.0	1.6
Agnew[(c)] Leaks	14.4		1.9	107.0	0.5	0.2
Agnew[(c)] Total Site	4910.0		801.0	33500.0	2220.0	64.8
Kupfer[(d)] Global Tank Inventories	4780.0		773.0	32600.0	322.0	66.1
Schmittroth[(e)] Total	769.0		1030.0	27200.0	296.0	66.1

(a) Inventories have been decayed to a common date of 2050.
(b) See Agnew et al. (1997).
(c) See Kupfer et al. (1997).
(d) See Schmittroth et al. (1995).
(e) Sum of estimated inventories of sites included in the first iteration of the Composite Analysis taken from Kincaid et al. (1998).

6.3 Use of the Composite Analysis Results

The conclusions of the original Composite Analysis presented in the interpretation of results and the ALARA assessment had no specific recommendations or constraints that would need to be implemented at individual waste sites or disposal sites to affect the radionuclide contribution to dose from other contributing sources. However, Kincaid et al. (1998) made several suggestions and recommendations that, if implemented, could lead to long-term improvements in understanding and analysis of future releases to the environment at the Hanford Site. These are discussed in more detail in the following section.

7.0 Future Work

The results of this addendum analysis have not significantly changed the recommendations developed in the original Composite Analysis, which identified the need for improvements in the areas of inventory, waste handling and engineered barriers, environmental mobility and models, and inclusion of additional sites in future iterations of the Composite Analysis. Progress in these areas of improvement is summarized in the following section.

7.1 The Inventory

Kincaid et al. (1998) indicated that an important area of future work was the need to estimate and evaluate the inventory for the Hanford Site, in a holistic sense, as a conserved quantity. Thus, the sitewide inventory assembled for future iterations of the Composite Analysis should be a balanced and best estimate that would enable the generation of sensitivity cases that examine the implications of a greater inventory lost to the atmosphere or sent in the liquid waste streams to cribs or tanks. The estimate needs to be centered about a best estimate that places waste where it is most likely to reside at the conclusion of Hanford Site operations. Sensitivity to inventory estimates could be analyzed as independent realizations that would be created by routing more or less waste to the atmosphere, to the liquid discharges sites, to the single- and double-shell tanks, and to the solid waste burial grounds. Reviewed and accepted methods of estimating the key mobile radionuclides of greatest importance to long-term health and safety studies should be incorporated into the inventory model.

Many of these recommendations have been incorporated into the inventory-related activities associated with the initial assessment of the SAC described in Appendix A. The analysis plan for estimation of total site and individual waste site inventory, presented in Kincaid et al. (2000), identifies the approach to be taken to develop a mass balanced inventory for the Hanford Site and discusses the types of data to be assembled to perform the initial assessment using the SAC (Rev. 0). The total Hanford Site inventory for the contaminants considered that has been developed, as well as an inventory for each waste site and each contaminant to be modeled, compares the total Hanford Site inventory for a contaminant to the total of the inventories for all waste sites. Within the stochastic analysis of the SAC, if criteria are not met by the two estimates of total inventory (i.e., total sitewide inventory and summed site-specific inventories), then individual realizations of waste site inventories will be scaled so that the total for all sites falls within the distribution of the total inventory. This would ensure that uncertainties in individual site inventories do not combine to create unrealistic total inventories for individual realizations of the Hanford Site inventory within the stochastic analysis. The total inventory for the site is based on the quantity (mass or curies) of a contaminant brought onsite plus the quantity generated onsite minus the amount of material exported from the site and/or lost through decay. Total site inventory has been founded on calculations of the byproducts of fuel irradiation and on process knowledge of chemical usage. In contrast with total inventory, the inventory for each waste site has been assembled from numerous databases, previous investigations, and inventory modeling done for the Hanford Site and summarized in Section A.3 of Appendix A.

An estimate was developed for waste sites in cases where records do not exist. Estimation methods are discussed in Section A.4 of Appendix A. The uncertainty associated with each inventory value also has been estimated.

7.2 Waste Handling and Engineered Barriers

A major finding of the first iteration of the Composite Analysis, discussed in Kincaid et al. (1998) is the separation in time of two release episodes. The first is the result of liquid discharges and tank leaks, and the second is the result of dry disposals. Confidence in this finding relies on the waste and its protective barriers and on estimates of contaminant migration and fate in the vadose zone. To a significant extent, confidence that dry disposals since 1988 will not release to the water table for hundreds of years relies on our confidence in engineered waste forms and barriers to infiltration and leaching. The following assumptions were made.

- Any large contributions to the key mobile nuclide inventories of the solid waste burial grounds will be detected before acceptance of the waste, and such a waste would be placed in a high-integrity waste form (e.g., mixed with a waste form material such as grout) or placed in a high-integrity container

- Engineered systems such as the double liner and surface barrier of the ERDF will function to specifications

- Engineered surface barriers placed over other wastes will perform to their design standards

- The Office of River Protection ILAW will meet performance specifications that have been the basis of its simulation in this analysis.

Confidence in the results of this and future Composite Analyses depends on efforts that justify the assumptions regarding the waste handling protocols, waste form performance, engineered barriers, and infiltration rates. Increased confidence in the long-term aspects of contaminant release and migration implies greater confidence in the performance of surface covers and protective barriers. Covers and barriers are included in disposal facility design to control or limit a number of impacts including intrusion by plants, small mammals, and humans, and especially the infiltration of water into the waste. Not all wastes will require the same cover or barrier. Consequently, a graded approach to barrier design is needed and has been identified as an important part of the Hanford Site's waste management and remediation strategy (DOE-RL 1996a).

Several conceptual designs are under development and testing that may be applied to different Hanford Site conditions (Miller and Faurette 2001). These include:

- The Hanford Protective Barrier, which is designed to provide maximum practicable containment, hydrologic protection, and intrusion control with a design life of 1000 years. This cover system is specifically for transuranic-contaminated soil sites, sites with transuranic-mixed wastes in a non-retrievable form, and sites with greater-than-class C low-level or mixed low-level wastes.

- The Modified RCRA Subtitle C Barrier, which incorporates the "minimum technology guidance" specified by RCRA with modifications for extended performance and design life of 500 years. This system is expected to be applicable for the majority of soil wastes in the 200 Areas.

- The Modified RCRA Subtitle D Barrier, which has a design life of 100 years and is designed for use at sites that contain non-hazardous wastes and low-level radioactive waste containing no hazardous constituents.

The Hanford Site has had active investigations and studies evaluating the performance of the various design features or components of typical covers and protective barriers that will enable DOE programs to incorporate into their designs only those cover features essential to the long-term performance of their waste (Buckmaster 1994; Gee et al. 1993a, 1993b, 1994, 1995, 1996; DOE-RL 1996a, Last et al. 1987; Miller and Faurette 2001; Myers and Duranceau 1994; Peterson et al. 1993; Ward and Gee 1997, 1998).

7.3 Environmental Mobility and Models

Kincaid et al. (1998) indicated that our increasing knowledge of the physical position and chemical character of radionuclides in the vadose zone beneath tank leaks and liquid discharge facilities should be incorporated into the conceptual and mathematical models. By necessity, a one-dimensional model of the vadose zone was employed to simulate the numerous waste sites within the exclusive waste management area in the first iteration the Composite Analysis. The greater understanding of contaminant migration in the vadose zone that will come from the ongoing and future vadose zone studies will either lead to the creation of more comprehensive, applicable, and accepted one-dimensional models or point to the need to perform multidimensional simulations of specific facilities or wastes. Certainly, the decision to proceed with the development and application of more sophisticated vadose zone transport models will be based on the perceived value of their predictive capability. An evaluation of their potential value may be approached through simulations with simpler models tailored to bound the potential impacts of the unresolved processes (e.g., multiphase physics, aqueous speciation, adsorption, precipitation) and geometries (e.g., two- or three-dimensional phenomena, preferential pathways) of a more sophisticated model. Studies may also conclude that probabilistic models are required as has been implemented in the SAC. Completion of these studies and the implementation of the next generation models will lead to greater confidence in future iterations of the Composite Analysis.

Numerous monitoring, characterization, research and development studies and investigations are being conducted that have some relevance to these areas of future work. A brief description and status of the these studies and investigations and their results relevant to the current Composite Analysis, including the following program/project areas, are summarized here and provided in Hildebrand et al. (2001).

- Summary of findings in FY 1999 groundwater monitoring report (Hartman et al. 2000), including a specific discussion of radiological and chemical monitoring for the upper basalt-confined aquifer

- Immobilized ILAW Performance Assessment maintenance

- Solid Wastes Burial Ground Performance Assessment maintenance

- Summary of SAC Developments

- Summary of Site-Wide Groundwater Modeling Activities

- Summary of Integration Project S&T Efforts

- Summary of Tank Waste Vadose Zone Characterization

- Summary of Tank Waste Retrieval Assessment.

7.4 Analysis of Additional Sources

This analysis has evaluated the potential impacts of the numerous liquid discharge sites and canyon facilities that were not modeled in the original Composite Analysis. This was justified in the original analysis, in the case of liquid discharge sites, by the belief that the most significant releases have been estimated and therefore included in current inventories. Analysis of the release of estimated inventories of key mobile constituents (technetium-99 and iodine-129) from the canyon buildings, their immovable underground filter assemblies, and the PUREX tunnels suggests that their impacts in the next 1000 years will be minimal when compared to impacts from other sources. However, the development of inventory estimates of the additional radionuclides evaluated in the original Composite Analysis and location of the key mobile radionuclides in these structures need to be developed as the basis of a credible and complete analysis of their potential impact. With the inventory estimates created for liquid-release and leak sites and canyon facilities in the initial assessment of the SAC, these sites have been evaluated in greater detail and will be included in future iterations of the Composite Analysis.

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Appendix A

Inventory Data for Initial Assessment Performed With the System Assessment Capability (Rev. 0)

TABLE OF CONTENTS

TABLES

ACRONYMS

BBI	best-basis inventory
CERCLA	*Comprehensive Environmental Response, Compensation, and Liability Act of 1980*
DOE	U.S. Department of Energy
EIS	Environmental Impact Statement
ETF	Effluent Treatment Facility
ERDF	Environmental Restoration Disposal Facility
ERS	Environmental Release Summary
GIS	Geographic Information System
GW/VZ	Groundwater/Vadose Zone
HEPA	high-efficiency particulate air (filter)
HLW	high-level waste
HTWOS	Hanford Tank Waste Operation Simulator
ILAW	immobilized low-activity waste
LAW	low-activity waste
LLW	low-level waste
MLLW	mixed low-level waste
S&T	Science and Technology
SAC	System Assessment Capability
SIM	Soil Inventory Model
SPRD	Surplus Production Reactor Draft
SWITS	Solid Waste Information and Tracking System
Tri-Party Agreement	*Hanford Federal Facility Agreement and Consent Order*
TRU	transuranic
WIDS	Waste Information Data System

APPENDIX A

Inventory Data for Initial Assessment Performed With the System Assessment Capability (Rev. 0)

A.1 INTRODUCTION

The objective of this appendix is to present the data and estimates of the Hanford Site radiological and chemical contaminants inventory assembled for the initial assessment performed using the System Assessment Capability (Rev. 0). Contaminants to be examined in the initial assessment include seven radionuclides and three hazardous chemicals (see Table A-1).

Table A-1. List of Radionuclides and Hazardous Chemicals.

Radionuclides	Hazardous Chemicals
Tritium	Chromium
Stontium-90	Carbon tetrachloride
Technetium-99	Uranium (as a toxin)
Iodine-129	--
Cesium-137	--
Uranium-234/235/238)[a]	--
Plutonium-239/240)[b]	--

[a]The uranium inventories of these three isotopes were summed and modeled as uranium-238.
[b]The plutonium inventories of the two isotopes were summed and modeled as plutonium-239.

Design of the SAC and a description of the initial assessment are presented in *System Assessment Capability (Revision 0); Assessment Description, Requirements, Software Design, and Test Plan* (Kincaid et al. 2000). Background information on the development of the SAC is presented in *Preliminary System Assessment Capability Concepts for Architecture, Platform, and Data Management*, which can be found at the Groundwater/Vadose Zone (GW/VZ) Integration Project website at http://www.bhi-erc.com/projects/vadose/sac/sacdocs.htm.

Section A.2 provides background information on the two types of inventory information assembled: a total sitewide inventory and a waste site by waste site inventory. Section A.3 details the use of the inventory information in the inventory module of the SAC, and the use of output from the inventory module in the release module of the SAC; thus, distinguishing the roles of the two modules. Section A.4 presents information on the data assembled (i.e., its database of origin) and the methods used to estimate values when data were absent. Section A.5 contains data tables presenting mean values for site-specific waste discharge and disposal inventories in the year 2000 and 2050, a summary level list of site-specific data (e.g., start and end dates of discharge or disposal, coordinates), and several tables revealing site inventory versus model and aggregation site relationships. Section A.6 provides a complete reference list.

A.2 BACKGROUND

The analysis plan for inventory is presented in Kincaid et al. (2000). The plan identifies the approach to be taken to develop a mass balanced inventory for the Hanford Site, and discusses the types of data to be assembled to perform the initial assessment using the SAC (Rev. 0). A total Hanford Site inventory for each contaminant to be modeled has been developed as well as an inventory for each waste site and each contaminant to be modeled. During the assessment, which is stochastic, the total Hanford Site inventory for a contaminant will be compared to the total of the inventories for all waste sites. If criteria are not met by the two estimates of total inventory (i.e., total sitewide inventory and summed site-specific inventories), then individual waste site inventories may be scaled so that the total for all sites falls within the distribution of the total inventory. This would ensure that uncertainties in individual site inventories do not combine to create unrealistic total inventories for individual realizations of the Hanford Site inventory within the stochastic analysis.

The total inventory for the site is based on the quantity (mass or curies) of a contaminant brought onsite plus the quantity generated onsite minus the amount of material exported from the site and/or lost through decay. Total site inventory has been founded on calculations of the byproducts of fuel irradiation and on process knowledge of chemical usage. In contrast with total inventory, the inventory for each waste site has been assembled from numerous databases, previous investigations, and inventory modeling done for the Hanford Site. An estimate was developed for waste sites in cases where records do not exist. Estimation methods are discussed in Section A.4. The uncertainty associated with each inventory value also has been estimated.

A.3 INTERACTION WITH OTHER SAC MODULES

The inventory module will provide information on the mass of contaminants at each waste site as a function of time. This information is provided to the release module. The inventory module also captures material estimates that are to be disposed offsite in “storage” bins; therefore, the module is able to summarize the amount of waste to be sent to the national repositories for transuranic (TRU) waste and high-level waste (HLW). Inventory is the first module in the SAC computational stream. As such, there is not a predecessor module to the inventory technical element aside from the stochastic processor that sets up all aspects of the Latin-Hypercube, Monte-Carlo simulation.

The inventory module is run for the period from 1944, the time of site startup, until 2050, the assumed date of site closure. It determines the initial deposition of waste materials in time and space at the Hanford Site. When processing yields waste to be disposed at Hanford and to be stored prior to transport to an offsite repository, both of these quantities are tracked. Thus TRU and HLW wastes are accumulated and stored. The inventory module can be run as a stand-alone model to develop an understanding of past waste discharges and disposal as well as future remedial and disposal actions. The inventory module is designed to be run and create all probabilistic realizations of initial waste discharges and disposals prior to execution of release and transport realizations. Thus, when inventory information is made available to the release module, all realizations of inventory are simultaneously made available.
Some aspects of waste disposal are tracked in the release module; therefore, at the time of site closure the inventory technical element reports the inventory disposed or discharged at original waste site and storage locations. All transfers of waste from one site to another (resulting from remedial actions) are tracked in the release module by the VADER (vadose zone release) code.

Thus, the VADER code and not the inventory module will provide the inventory of waste in the Environmental Restoration Disposal Facility (ERDF) at the time of site closure. In addition, it is only after the execution of VADER that inventory changes resulting from remedial actions will be reflected in the inventories of waste sites.

A.4 DATA GATHERED

The inventory that will be used for the initial assessment has been assembled from numerous databases, previous investigations, inventory modeling by Hanford Site programs, recent Science and Technology (S&T) modeling efforts, and estimates made by the SAC team.

A.4.1 Information from Databases, Process Models, and Previous Investigations

Information important to determining the total site inventory and individual waste site inventories has traditionally been stored in a variety of databases at the Hanford Site. Data has been pulled from these databases and inventory estimates have been made using several process-related models. Data sources are listed in Tables A-2, A-3, A-4, and A-5 for the Hanford Site individual waste site inventories, total inventories, and associated uncertainties.

Table A-2. Site-Specific Waste Inventory.

Waste Type	Inventory Source
High-level waste tanks	HTWOS (July 31, 2000, best basis inventory, “Ecology Case 1”)
Solid waste burial grounds	SWITS (May 1999 run)
Liquid waste disposal facilities	ERS (Diediker 1999)
Canyons and facilities	Specific facility reports listed in Table A-3
Reactor cores	SPRD EIS (DOE 1989, 1992)
CERCLA remediation sites	SWITS (August 2000 run), ERS (Diediker 1999), S&T inventory (Simpson et al. 2001)
Reverse wells	ERS (Diediker 1999), S&T inventory (Simpson et al. 2001)
Tank leaks	S&T inventory (Simpson et al. 2001)
Spent fuel inventory	Bergsman (1994), Pearce et al. (2000), Reilly (1998)
Unplanned releases	Stenner et al. (1988), S&T inventory (Simpson et al. 2001)
Columbia river discharges	SPRD EIS (DOE 1989, 1992), Heeb and Bates (1994)
Air discharge	Atmospheric effluent reports listed in Table A-4
Stored TRU inventory	SWITS (May 1999 run)
MLLW inventory	SWITS (May 1999 run)

Table A-3. Reference List for Facility Inventories.

Author	Title	Number	Date
D. K. Smith	Closeout of End Point 00.00.26, "Remaining Hazardous Substances/Dangerous Waste Documentation"	File No. 16D00-98-DKS-078 (Smith 1998)	1998
F. M. Simmons	*Documentation of Remaining Hazardous Substances/Dangerous Wastes in B Plant*	HNF-3208, Rev. 0A (Simmons 1999)	1999
B. A. Schwehr	*B Plant Surveillance and Maintenance Phase Safety Analysis Report*	HNF-3358, Rev. 0 (Schwehr 1999)	1999
H&R Technical Associates and N. R. Kerr	*U Plant Facility Safety Analysis Report*	BHI-01157, Rev. 2 (BHI 2000)	2000
N. R. Kerr	*224-B Facility Safety Analysis Report*	BHI-01156, Rev. 0 (Kerr 2000)	2000
N. R. Kerr, H&R Technical Associates, and M.H. Chew & Associates	*REDOX Facility Safety and Analysis Report*	BHI-01142, Rev. 2 (Kerr et al. 2000)	2000
E. N. Dodd, III	*Plutonium Uranium Extraction (PUREX) End State Basis for Interim Operation (BIO) for Surveillance and Maintenance*	HNF-SD-CP-ISB-004, Rev. 0 (Dodd 1999a)	1999
E. N. Dodd, III	*PUREX Deactivated End-State Hazard Analysis*	HNF-SD-CP-HIE-004, Rev. 0 (Dodd 1999b)	1999
J. Reddick	*Estimate of PUREX Plant Inventory of Chemicals and Radioactivity*	Letter report from LATA, Inc., to D. Washenfelder, WHC (Reddick 1993)	1993

Table A-4. Reference List of Reports Including Iodine-129 Atmospheric Effluent.

Year – Effluent Release	Report Reference – Author(s), Date
1944-1972	DSHS (1987)
1975[a]	Speer, Fix, and Blumer (1976)
1976	Fix, Blumer, Hoenes, and Bramson (1977)
1977	Houston and Blumer (1978)
1978	Houston and Blumer (1979)
1979	Houston and Blumer (1980)
1980	Sula and Blumer (1981)
1981	Sula, McCormack, Dirkes, Price, and Eddy (1982)
1982	Sula, Carlile, Price, and McCormack (1983)
1983	Price, Carlile, Dirkes, and Trevathan (1984)
1984	Price, Carlile, Dirkes, Jaquish, Trevathan, and Woodruff (1985)
1985	Price, Carlile, Dirkes, Jaquish, Trevathan, and Woodruff (1986)
1985, Supplement	Price (1986)
1986	PNL (1987)
1987	Jaquish and Mitchell (1988)
1988	Jaquish and Bryce (1989)
1989	Jaquish and Bryce (1990)
1990	Woodruff, Hanf, Hefty, and Lundgren (1991)
1991	Woodruff, Hanf, and Lundgren (1992)
1992	Woodruff, Hanf, and Lundgren (1993)
1993	Dirkes, Hanf, Woodruff, and Lundgren (1994)
1994	Dirkes and Hanf (1995)
1995	Dirkes and Hanf (1996)
1996	Dirkes and Hanf (1997)

[a]Surveillance reports for 1974 and 1973 were not acquired in time to use in the initial assessment. They are Fix (1975), Fix and Blumer (1975), Nees and Corley (1974a), and Nees and Corley (1974b).

Table A-5. Hanford Site Total Inventory.

Contaminant	Source
Tritium	Bergsman (1994), Watrous and Wooten (1997), Heeb and Gydesen (1994)
Technetium-99	Bergsman (1994), Watrous and Wooten (1997)
Iodine-129	Bergsman (1994), Watrous and Wooten (1997)
Uranium	Bergsman (1994), Watrous and Wooten (1997), Lini et al. (2001)
Strontium-90	Bergsman (1994), Watrous and Wooten (1997)
Cesium-137	Bergsman (1994), Watrous and Wooten (1997)
Plutonium-239/240	Bergsman (1994), DOE (1996), Watrous and Wooten (1997), Lini et al. (2001)
Total uranium	Bergsman (1994), Watrous and Wooten (1997), Lini et al. (2001)
Carbon tetrachloride	DOE-RL (1991)
Chromium	SPRD EIS (DOE 1989, 1992); Kupfer et al. (1999); Heeb and Bates (1994)

A.4.2 Methods to Populate the Inventory Database when Values are Missing

Several methods and conventions have been used to populate missing data items in the GW/VZ Inventory Database. The following subsections describe the steps used to complete the dataset for initial assessment and SAC (Rev. 0) overall history matching analyses.

A.4.2.1 Estimation of Fission Product Activities. When values for some fission products are unknown they may be estimated from values for known fission products. This is referred to as the fuel ratio method. Four fission products are considered in application of this method: cesium-137, strontium-90, technetium-99, and iodine-129. Fuel ratio factors were obtained from Hanson et al. (1973) for a large number of fission products based on the time out of reactor from 1 year through 11 years. The fuel used was 0.95% enriched, run at 3,900 megawatts power level for the maximum days of burnup and the shortest cooling time. As the fuel is decayed, fuel ratio factors do not change appreciably after 11 years; therefore, the factors at 11 years are applied to all longer-term cases. These factors have been used to generate multiplication factors to estimate fission product activities given a value for one of the fission products. The fuel ratio values and the multiplication factors are provided in Table A-6.

In application of the fuel ratio methods, the available data for a release is first reviewed to determine if data are missing for the fission products of interest. If none are missing, then no estimates need be made. Also, if there are no data present, then no estimates are made using the fuel ratio method because there are no values to use as the basis for the estimate. For missing data, the fission products to use as the basis for the estimate are, in order of preference: cesium-137, strontium-90, iodine-129, and technetium-99. If a value for cesium-137 is present, then that value is used to estimate values for any of the other fission products that have missing values. If there is no value for cesium-137, then the strontium-90 value is used (if present) to estimate the cesium-137 value and any other missing values. This procedure is continued using the iodine-129 and technetium-99 values, if necessary.

A.4.2.2 Estimation of Uranium Isotope Values Using Specific Activities. The inventory data set for a site should have values for three uranium isotopes (uranium-234, uranium-235, and uranium-238) if there are values for any one or more of the isotopes. There also should be a value for the mass of uranium in kilograms. Conversely, if there is a value for uranium based on mass, there should also be values for each of the isotopes. The estimation of activity of missing uranium isotopes is based on the relative activity values provided in Table A-7, and the representative Hanford Site isotopic composition provided in Table A-8 (RHO 1985). The order of application is to first look for a uranium-238 value and use that to estimate other missing values. If there is no uranium-238 value, then the uranium-235 value is used, if present. If there is no uranium-235 value, then the uranium-234 value is used.

Table A-6. Fuel Ratio Factors as a Function of Years out of Reactor.

Radionuclide	Year										
	<=1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	>=1982
Strontium-90	1.99 E-02	4.56 E-02	7.80 E-02	1.15 E-01	1.48 E-01	1.73 E-01	1.91 E-01	2.04 E-01	2.13 E-01	2.19 E-01	2.25 E-01
Cesium-137	2.12 E-02	4.88 E-02	8.36 E-02	1.23 E-01	1.59 E-01	1.86 E-01	2.06 E-01	2.20 E-01	2.30 E-01	2.38 E-01	2.44 E-01
Technetium-99	3.03 E-06	7.12 E-06	1.25 E-05	1.88 E-05	2.48 E-05	2.98 E-05	3.38 E-05	3.69 E-05	3.95 E-05	4.17 E-05	4.38 E-05
Tritium	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00	0.00 E+00
Iodine-129	7.35 E-09	1.69 E-08	2.89 E-08	4.26 E-08	5.49 E-08	6.45 E-08	7.13 E-08	7.61 E-08	7.96 E-08	8.22 E-08	8.43 E-08
Known radionuclide – cesium-137		**Multiplication factors for unknown inventory amounts by radionuclide**									
Strontium-90	9.36 E-01	9.35 E-01	9.33 E-01	9.32 E-01	9.30 E-01	9.29 E-01	9.28 E-01	9.26 E-01	9.25 E-01	9.23 E-01	9.22 E-01
Technetium-99	1.43 E-04	1.46 E-04	1.49 E-04	1.53 E-04	1.56 E-04	1.60 E-04	1.64 E-04	1.68 E-04	1.72 E-04	1.76 E-04	1.80 E-04
Iodine-129	3.46 E-07	3.46 E-07	3.46 E-07	3.46 E-07	3.46 E-07	3.46 E-07	3.46 E-07	3.46 E-07	3.46 E-07	3.46 E-07	3.46 E-07
Known radionuclide – strontium-90											
Cesium-137	1.07 E+00	1.07 E+00	1.07 E+00	1.07 E+00	1.08 E+00	1.08 E+00	1.08 E+00	1.08 E+00	1.08 E+00	1.08 E+00	1.09 E+00
Technetium-99	1.52 E-04	1.56 E-04	1.60 E-04	1.64 E-04	1.68 E-04	1.72 E-04	1.77 E-04	1.81 E-04	1.85 E-04	1.90 E-04	1.95 E-04
Iodine-129	3.69 E-07	3.70 E-07	3.71 E-07	3.71 E-07	3.72 E-07	3.72 E-07	3.73 E-07	3.74 E-07	3.74 E-07	3.75 E-07	3.75 E-07
Known radionuclide – iodine-129											
Strontium-90	2.71 E+06	2.70 E+06	2.70 E+06	2.69 E+06	2.69 E+06	2.69 E+06	2.68 E+06	2.68 E+06	2.67 E+06	2.67 E+06	2.66 E+06
Cesium-137	2.89 E+06	2.89 E+06	2.89 E+06	2.89 E+06	2.89 E+06	2.89 E+06	2.89 E+06	2.89 E+06	2.89 E+06	2.89 E+06	2.89 E+06
Technetium-99	4.12 E+02	4.22 E+02	4.32 E+02	4.42 E+02	4.52 E+02	4.63 E+02	4.74 E+02	4.84 E+02	4.96 E+02	5.07 E+02	5.19 E+02
Known radionuclide – technetium-99											
Strontium-90	6.56 E+03	6.40 E+03	6.24 E+03	6.09 E+03	5.95 E+03	5.80 E+03	5.66 E+03	5.52 E+03	5.39 E+03	5.26 E+03	5.13 E+03
Cesium-137	7.01 E+03	6.85 E+03	6.69 E+03	6.54 E+03	6.39 E+03	6.25 E+03	6.10 E+03	5.97 E+03	5.83 E+03	5.70 E+03	5.57 E+03
Iodine-129	2.42 E-03	2.37 E-03	2.32 E-03	2.26 E-03	2.21 E-03	2.16 E-03	2.11 E-03	2.06 E-03	2.02 E-03	1.97 E-03	1.93 E-03

Table A-7. Isotopic Ratios for Uranium Isotopes (Relative Activity Values).[a]

Known Isotope	Multiplication Factors (Ci/Ci)		
	U-234	U-235	U-238
Uranium-234	1.0	3.03 E-02	7.30 E-01
Uranium-235	3.30 E+01	1.0	2.41 E+01
Uranium-238	1.37	4.15 E-02	1.00

[a]Isotopic weight percent and specific activities for uranium isotopes taken from RHO (1985). The abundance of uranium-235 indicates this material is an average irradiated normal fuel (i.e., fuel with 0.71 wt% uranium-235 reduced to 0.65 wt% uranium-235. Use of such a fuel for inventory estimation purposes is justified because approximately 80% of the irradiated fuel processed at the Hanford Site was normal fuel.

Table A-8. Specific Activities of Uranium Isotopes.[a]

Uranium Isotope	Specific Activity (Ci/kg)	Relative Amount (Ci/kg Uranium Total)	Weight (%)
Uranium-233	9.65	[b]	0.0046
Uranium-234	6.16	4.56 E-04	0.0074
Uranium-235	2.13 E-03	1.38 E-05	0.648
Uranium-238	3.35 E-04	3.33 E-04	99.340

[a]Isotopic weight percent and specific activities for uranium isotopes taken from RHO (1985). The abundance of uranium-235 indicates this material is an average irradiated normal fuel (i.e., fuel with 0.71 wt% uranium-235 reduced to 0.65 wt% uranium-235). Use of such a fuel for inventory estimation purposes is justified because approximately 80% of the irradiated fuel processed at the Hanford Site was normal fuel.
[b]Uranium-233 values were not included in specific activity estimates or total uranium estimates in the SAC (Rev. 0) inventory because of the relatively small weight percent present.

A.4.2.3 Estimation of Uranium Mass from Specific Activities. If a value for uranium (total mass) is not present, then a value is estimated from the uranium isotope activities using specific activities for each isotope. This step is performed after activities for uranium isotopes have been estimated, if needed. The specific activities are given in Table A-8. The equation for estimating the uranium mass is as follows.

$$U = \sum_{i=1}^{4} \frac{A_i}{Spa_i}$$

Where:

U = Mass of uranium in kg.
A_i = Activity of uranium isotope i in curies.
Spa_i = Specific activity of isotope i in curies/kg.

A.4.2.4 Estimation of Activity from Total Uranium Mass. When there is a value for the uranium mass, but no isotope values, the activity values can be estimated using factors for activity per total uranium mass, as given in Table A-8. This is the uranium mass model and it is performed as follows.

$$A_i = U * SpU_i$$

Where:

SpU_i = Activity of uranium isotope i per kg total uranium (Ci/kg).

NOTE: These methods of estimating uranium were applied to the waste in the US Ecology, Inc. site where inventories for uranium-235 and uranium-238 isotopes were taken from the *State Environmental Policy Act of 1983* Environmental Impact Statement (DOH 2000). The methods described above rely on isotopic uranium ratios developed for U.S. Department of Energy (DOE) wastes (i.e., Tables A-7 and A-8), but were applied to the commercial waste inventory to estimate the amount of uranium-234 from the reported inventory of uranium-238.

A.4.2.5 Use of Surrogate Sites and a Volume Ratio Method. A volume ratio method was used when volume data existed for a site but inventory data did not. Using a listing of the known data, comparisons are made of releases during a given year for similar waste disposal sites and waste types. If one site has a complete data set, and release volume is available for another site with unknown inventory, then the known site values are used to estimate the inventory for the unknown site using the two volumes. The inventory is estimated by multiplying the known inventory of the surrogate site by the ratio of release volumes to estimate the release inventory for the unknown site. This calculation is expressed as follows.

$$A_{iu} = \frac{V_u}{V_n} A_{in}$$

Where:

V_u = Annual release volume for the unknown surrogate site (m^3).
V_n = Annual release volume for the known site (m^3).
A_{in} = Activity of radionuclide i in the known surrogate-site inventory (Ci or kg).
A_{iu} = Estimated activity of radionuclide i in the unknown site inventory (Ci or kg).

Criteria for application of the volume ratio method were that both surrogate and unknown sites must be in the same area (e.g., 100-B/C Area), both must have the same waste form attribute, both must be for the same waste type (e.g., burial ground), and both must be for the same year.

A.4.2.6 Use of Surrogate Sites when All Data are Missing. Several waste streams have been identified that have missing values for volume and inventory. To obtain an estimate of released quantities for these sites, it was necessary to review waste stream information for similar releases that have the necessary data. The review included extraction of text information from the Waste Information Data System (WIDS) database describing the waste sites (with and without data) and comparisons to obtain the best match possible between the known or potential surrogate sites and unknown sites. Once a surrogate site was identified, its record was duplicated without scaling as the estimated volume and inventory for the unknown site.

A.4.2.7 Hanford Tank Waste Operation Simulator Data. Future retrieval of inventory from tanks will result in additional waste streams to be included in the SAC database. A set of data files was received from tank farm contractor staff describing the projected processing of tank wastes by year between 1998 and 2028[1]. The Hanford Tank Waste Operation Simulator (HTWOS) analysis begins with a cataloged best-basis inventory (BBI) for waste in each single- and double-shell tank (see Kupfer et al. [1999] for a description of the BBI). A file was provided from the HTWOS for each year of operation, giving the constituent quantities at the end of each year in all 177 tanks, HLW glass produced, immobilized low-activity waste (ILAW) glass produced, and strontium-cesium (Sr-Cs) capsules. All activity values are expressed as curies decayed to January 1, 1994. This representation allows corresponding values from two successive files (1 year apart) to be subtracted to determine the change or amount processed during the second of the two years. Waste processing fractions and waste volume factors were provided by the River Protection Project. These fractions and factors will be applied to the data in the HTWOS files that allow estimation of the waste disposal and glass production quantities each year. The tank farm contractor staff prepared a description of the development of the waste processing fractions and waste volume factors. A summary of the use of the waste processing fractions and waste volume factors follows.

The quantity of each waste stream, and the activity of radionuclides and chemicals in the waste stream, are based on the amounts of HLW glass and ILAW glass produced each year. The volume of waste resin from the technetium and cesium columns is based on the amount of sodium processed in low-activity waste (LAW) each year. The waste volume factors are described in Table A-9, and the constituent waste processing fractions are described in Table A-10. The tables indicate two phases of processing. Phase I is for the time period through year 2017 and Phase II is year 2018 and later. A change of processing is made after year 2018, increasing the rate of vitrification and thus changing the generation rate of some waste streams.

[1] The *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement) (Ecology et al. 1998) compliant case has been included in the initial assessment as a baseline case for tank wastes at the request of the Office of River Protection and the tank farm contractor. The Tri-Party Agreement compliant case includes the following aspects (1) all single-shell tank waste are retrieved by 2018, (2) residuals in single-shell tanks will be 1% of tank waste volume, and (3) all waste is solidified into ILAW and HLW by 2028. The initial assessment using the SAC simulation package has been described as “based on the Hanford Site Disposition Baseline.” That baseline has been described as “based on existing DOE program multiyear plans.” The River Protection Project faces several technical and budget challenges to meet the Tri-Party Agreement compliant schedule. Sufficient tank space is not available to contain single-shell tank retrieved waste for later vitrification. Vitrification processing rates necessary to solidify the ILAW and HLW by 2028, are greater than the current technical planning or budget assumptions.

Table A-9. Waste Volume Estimation Factors.[a]

Waste Stream	Basis for Estimation	Phase I	Phase II	Units
Solid waste from ETF[b]	kg ILAW glass/year	1.630 E-07	1.630 E-07	m^3/kg glass
Liquid effluent from ETF	kg ILAW glass/year	3.660 E-03	3.660 E-03	m^3/kg glass
ILAW offgas to air[c]	No multiplier	1.0 E+03	1.0 E+03	m^3/yr
LAW HEPAs to solid waste	No multiplier	0.6	1.2	m^3/yr
ILAW glass	kg ILAW glass/year	3.76 E-04	3.76 E-04	m^3/kg glass
HLW offgas to air[c]	No multiplier	1.0 E+03	1.0 E+03	m^3/yr
Spent silver mordinite beds to solid waste	No multiplier	0.77	1.56	m^3/yr
HLW HEPAs to solid waste	No multiplier	0.0666	0.133	m^3/yr
Failed HLW melters to solid waste	No multiplier	8.8	17.6	m^3/yr
HLW glass	kg HLW glass/year	3.76 E-04	3.76 E-04	m^3/kg glass
Spent technetium resin to solid waste	kg sodium in ILAW	4.50 E-06	4.50 E-06	m^3/kg sodium
Spent cesium resin to solid waste	kg sodium in ILAW	5.10 E-06	5.10 E-06	m^3/kg sodium

[a]For most of the 11 waste streams, the volume factors are calculated as proportional to annual glass produced or annual sodium processed. As such, these volume factors are applicable to any HTWOS retrieval case no matter what plant throughput capacity is implied. However, for three of the waste streams, the annual waste volume estimate is more closely linked to the base case for off-gas treatment system design and assumed filter replacement intervals. These three waste streams are spent HEPA filters from LAW vitrification, spent HEPA filters from HLW vitrification, and spent iodine absorber beds. As such, the methodology may underestimate annual waste volumes for these three streams in HTWOS retrieval cases where larger-than-base-case off-gas systems are required (e.g., a Tri-Party Agreement [Ecology et al. 1998] compliant case).
[b]ETF is the Effluent Treatment Facility that will process some liquid waste streams from the vitrification plant.
[c]The volume of off-gas release is irrelevant to the analysis. A nominal nonzero value of 1,000 m^3/yr is used to avoid numerical problems in the analysis

The estimated releases are defined as a release volume and an associated concentration of each constituent. As indicated above the values in two successive annual HTWOS data files are subtracted to determine the quantity of ILAW glass and HLW glass generated in a year, and the amount of each constituent in the glass. The volume factors from Table A-9 are used to estimate the total annual volume for each waste stream by multiplication by the basis for estimation (ILAW glass or HLW glass as indicated in the table). The constituents quantity is estimated similarly using the waste processing factors from Table A-10 (e.g., the amount of strontium-90 disposed in failed HLW melters to solid waste during Phase II is evaluated by multiplying the quantity of HLW glass generated in a year [kg] by 1.54 E-03). The amount of constituents disposed to spent technetium and cesium resins are based on the amount of sodium in the ILAW glass generated during a year.

A.4.2.8 The Inventory Database: Data versus Estimates. Databases often contain a variety of data. This inventory database contains record data, process-knowledge-based model estimates, estimates based on partial record data and application of the fuel-ratio method and other estimation methods, and estimates based on the identification of surrogate sites. In light of the variety of sources of information that are entered as “data” in the database, some appreciation for the number of data entries and the relative inventory associated with them is important.

Table A-10. Waste Processing Factors for Estimation of Constituent Quantities

Waste Stream	Basis for Estimation	H-3	C-14	Sr-90	Tc-99	I-129	Cs-137	Pu-239	Pu-240	Cr	U total
ETF solid waste	ILAW	0.0	1.079 E-01	2.252 E-06	1.440 E-03	9.584 E-01	2.237 E-06	2.253 E-06	2.253 E-06	2.888 E-05	9.799 E-04
ETF liquid waste	ILAW	0.8001	1.080 E-04	7.036 E-08	5.143 E-05	3.423 E-02	1.398 E-07	5.775 E-08	5.775 E-08	7.405 E-07	2.513 E-05
ILAW offgas to air	ILAW	0.1999	8.920 E-01	2.520 E-10	5.174 E-08	7.389 E-03	4.787 E-09	1.256 E-10	1.256 E-10	9.457 E-10	1.255 E-10
ILAW HEPAs to solid waste	ILAW	0.0	0.0	2.525 E-05	5.174 E-03	0.0	4.787 E-04	1.256 E-05	1.256 E-05	9.457 E-05	1.255 E-05
ILAW glass	ILAW	0.0	0.0	1.0	9.933 E-01	0.0	9.995 E-01	1.0	1.0	9.999 E-01	9.990 E-01
HLW offgas to air	HLW	1.0	1.0	2.796 E-12	5.081 E-10	1.0 E-03	4.789 E-11	1.392 E-12	1.392 E-12	1.040 E-11	1.392 E-12
Spent silver mordinite beds to solid waste	HLW	0.0	0.0	0.0	0.0	9.990 E-01	0.0	0.0	0.0	0.0	0.0
HLW HEPAs to solid waste	HLW	0.0	0.0	2.796 E-07	5.081 E-05	0.0	4.789 E-06	1.392 E-07	1.392 E-07	1.040 E-06	1.392 E-07
Failed HLW melters to solid waste Phase I	HLW	0.0	0.0	3.011 E-03	2.948 E-03	0.0	3.021 E-03	3.012 E-03	3.012 E-03	2.991 E-03	3.012 E-03
Failed HLW melters to solid waste Phase II	HLW	0.0	0.0	1.540 E-03	1.473 E-03	0.0	1.510 E-03	1.505 E-03	1.505 E-03	1.495 E-03	1.505 E-03
HLW glass Phase I	HLW	0.0	0.0	9.97 E-01	9.97 E-01	0.0	9.97 E-01	9.97 E-01	9.97 E-01	9.97 E-01	9.97 E-01
HLW glass Phase II	HLW	0.0	0.0	9.98 E-01	9.99 E-01	0.0	9.98 E-01	9.98 E-01	9.98 E-01	9.99 E-01	9.98 E-01
Spent technetium resin to solid waste	ILAW – Na	0.0	0.0	0.0	1.485 E-05	0.0	2.070 E-07	0.0	0.0	1.080 E-08	0.0
Spent cesium resin to solid waste	ILAW – Na	0.0	0.0	0.0	3.978 E-06	0.0	6.120 E-05	0.0	0.0	3.927 E-07	0.0

Na = sodium

Because the model is probabilistic and some waste sites are represented by multiple data entries to capture uncertainty (while others are not), a counting mechanism has been adopted to represent a "data count." Data representing a single site for a single contaminant for a single year, (i.e., site-contaminant-year), are counted as a single "data count" regardless of the number of data entries used to quantify an uncertain inventory.

Table A-11 includes a high-level summary of the number of data counts associated with record data, model-based information, and estimates. The data counts are presented in this way to illustrate the role of record databases, process-knowledge-based models, and more uncertain estimates in assembling the site-wide inventory for the Hanford Site. Record data provide 43.2% of the data counts in the database and model-based estimates of inventory provide another 14.2%. Of those, the estimates produced by the Soil Inventory Model (SIM) (approximately 4% of the 14.2%) are based largely on (and are consistent with) record data of tank waste disposals to ground and past leaks from single-shell tanks. The remaining 42.6% of the data counts are estimates based on the fuel-ratio method, surrogate site assignments, etc.

Table A-11. Waste Site Data and Information Sources and Relative Amounts.

Category of Information/Sites	Information Type	Number of Waste Sites	Number of Data Counts	Percent of Database (Data Counts)	Number of Stochastic Data Entries
Sites with some record data	Record data	280	21,107	43.2	23,355
	Estimated		7,953	16.3	8,494
S&T SIM[a]	Model based	102	1,836	3.8	15,612
HTWOS model[a]	Model based	178	5,076	10.4	5,076
Sites without record data	Estimated	138	8,326	17.1	8,326
Sites assigned to other sites	Estimated[b]	227	4,510	9.2	4,510
Sites with no inventory in database (e.g., duplicates and ERDF)		4	None	0	None
Totals		**890**	**48,808**	**100**	**65,373**

[a]SIM and HTWOS model results apply to a total of 241 unique sites. Some single-shell tanks represent two (and others three) sources and releases to the underlying environment (e.g., past tank leak, future tank loss, tank residual).
[b]Sites assigned to other sites (e.g., ditches and lobes of ponds assigned to the larger pond facility) are not explicitly modeled in the initial assessment. Rather, the cumulative inventory for the discharge is modeled as occurring at the larger pond facility.

The mean values of site-specific inventories are summed and presented in Table A-12 as site-specific inventory subtotals. This is different than the total site-wide inventory presented in Section A.4.3. The information in Table A-12 provides insight on the inventories associated with three classes of waste site data (1) sites with some record data, (2) sites with S&T soil inventory and HTWOS model-based information, and (3) sites without record data. The vast majority (92% to 98%) of the carbon tetrachloride, chromium, tritium, iodine, plutonium, and uranium inventories are accounted for in the sites with some record data. (Note that some information for these sites are estimated based on the record values of other radionuclides.) The majority (78% to 83%) of the cesium, strontium, and technetium inventories are accounted for in the model-based calculated values. (Note that the model-based calculations are based on process knowledge.) In addition, the inventories are based on records or estimates of either the waste discharges or the origin of waste streams lost during unplanned releases. More important to the cesium, strontium, and technetium totals, projections of the amounts of each going to immobilized high-level wastes and LAWs are a function of model-based forecasts. The high-level and low-activity inventories for cesium-137, strontium-90, and technetium-99 are as follows: cesium-137 2.90 E+07 and 1.19 E+05 curies; strontium-90 2.3 E+07 and 7.10 E+05 curies; and technetium-99 1.84 E+04 and 1.27 E+04 curies[1]. Carbon tetrachloride and tritium have 4% to 5% contributions, respectively from the sites without record data; however, all other contaminants show a contribution of less than 0.1% from these sites.

Thus, the majority of Hanford Site inventory is attributed to sites with some record data, or sites simulated using either the SIM or HTWOS. These models are supported by record data and programmatic assumptions. As shown from the data in Table A-12, 42.5% of the sites simulated involve 65.6% of the data counts simulated and 92% to 98% of the inventory for all but cesium, strontium, and technetium. The cesium, strontium, and technetium inventories (e.g., 98.5%, 93.9%, and 96.5%, respectively) are well described by the sites with some record data and two sites that appear under the model-based estimates (i.e., immobilized high-level ["store" site] and LAWs ["ILAW" site]). Relatively little of the inventory is associated with the sites having no inventory records, even when their inventories are estimated using information available from surrogate sites identified through a review of waste stream information stored in the WIDS for each Hanford waste site.

[1] The technetium-99 inventories for HLW and ILAW shown in this Tri-Party Agreement compliant inventory are not actually compliant. The Tri-Party Agreement constraint limiting the ILAW inventory to 20% of the tank inventory of technetium-99 was not incorporated into the HTWOS model at the time of the simulation (i.e., July 2000). If the Tri-Party Agreement compliant rule were applied and total technetium-99 inventory in the two wastes were unchanged, the HLW inventory would be 24,880 Ci and the ILAW inventory would be 6,220 Ci of technetium-99.

Table A-12. Waste Site Inventory Totals[a] and Relative Amounts by Category of Information/Sites.

Number of Sites Simulated	Number of Data Counts Simulated	CCl_4 (kg)	Cr (kg)	Cs-137 (Ci)	H-3[b] (Ci)	I-129 (Ci)	PU-239[c] (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	U[d] (Ci)	Volume (m^3)
Sites with some Record Data											
280	29,060	1.6E+06	1.8E+07	8.3E+06	7.40E+04	115	7.12E+05	5.4E+06	9.12E+03	1.85E+04	2.7E+10
S&T SIM and HTWOS Model Calculated Values											
241	6,912	0	5.58E+05	3.0E+07	104	3	5.79E+04	2.6E+07	3.26E+04	298	4.5E+05
Sites without Record Data											
138	8,326	8.67E+04	1.68E+04	64	3.11E+03	0	9.83E+02	45	0	27	3.0E+08

Sites Simulated (%)	Data Counts Simulated (%)	CCl_4 (%)	Cr (%)	Cs-137 (%)	H-3[b] (%)	I-129 (%)	PU-239[c] (%)	Sr-90 (%)	Tc-99 (%)	U[d] (%)	Volume (%)
Sites with some Record Data											
42.5	65.6	95.0	96.9	21.9	95.8	97.8	92.4	17.4	21.9	98.3	98.9
S&T SIM and HTWOS Model Calculated Values											
36.6	15.6	0.0	3.0	78.1	0.1	2.2	7.5	82.6	78.1	1.6	0.0
Sites without Record Data											
20.9	18.8	5.0	0.1	0.0	4.0	0.0	0.1	0.0	0.0	0.1	1.1

[a]Radionuclide inventories are decayed to December 31, 2050.
[b]The waste site inventory of tritium does not include the quantity of this special nuclear material created, processed, and exported between 1949 and 1954. This inventory never resided in a "waste" site and is not tracked as an "export" in the database.
[c]The inventory of plutonium shown in this table includes the inventory in fuel and the Plutonium Finishing Plant, and the inventory forecast to be shipped to national repositories for HLW and TRU (i.e., the "store" category in the inventory). It does not include the plutonium exported from the site because it never resided in a "waste" site, and is not tracked as an "export" in the database.
[d]The inventory of uranium shows the summed curies of uranium-234, uranium-235, and uranium-238. It includes fuel and stored HLW and TRU (that will be disposed elsewhere), the commercial low-level waste (LLW) inventory, and a forecast of uranium disposals. Excluding the 218-W-3AE Burial Ground (~2,000 Ci) (that will receive future forecasts of uranium disposal) and the commercial LLW inventory of 13,200 Ci, there is approximately 4,500 metric tons of uranium in this inventory. It is comprised of the K Basin fuel (~2,100 metric tons); uranium in waste forms that will leave the site (~310 metric tons); the remainder being uranium in solid waste, liquid discharge sites, and facilities that will remain at the Hanford Site. Not accounted for in this inventory are approximately 1,900 metric tons of uranium in fuel, billets, UO_3, and UO_2 that will be either shipped to other DOE sites or disposed at the Hanford Site. Thus, this compilation of uranium inventory data and estimates found there was approximately 6,400 metric tons of uranium in waste and stored materials in the DOE Hanford Site inventory before July 2000.

A.4.3 Methods of Estimating Uncertainty

Eleven distribution types were available for use in the uncertainty models. They are listed in Table A-13. Greatest use was made of the triangular and lognormal (base e) models.

Table A-13. Types of Uncertainty Distributions Allowed.

Distribution Type	Parameters for Definition of Distribution
Constant	Constant value
Uniform	Minimum value, maximum value
Discrete uniform	Minimum value, maximum value (integer values)
Log uniform (base 10)	Minimum value, maximum value
Log uniform (base e)	Minimum value, maximum value
Triangular	Minimum value, mode, maximum value
Normal	Mean, standard deviation
Lognormal (base 10)	Arithmetic mean, arithmetic standard deviation (the arithmetic values computed using logarithmic values)
Lognormal (base e)	Arithmetic mean, arithmetic standard deviation (the arithmetic values computed using logarithmic values)
Cumulative Distribution Function table	Number of entries (pairs of data, each pair defining the probability and value)
Beta	Alpha parameter, beta parameter, lower limit, and upper limit

Uncertainty in the total inventory is modeled with a triangular distribution. Required data are the minimum, mode, and maximum values of the distribution. Table A-14 lists the total inventory in curies or metric tons (as noted), the uncertainty model, minimum value (percent away from mode), maximum value (percent away from mode), the commercial inventory, and the Hanford Site inventory (at closure) for each constituent. The uncertainty reported in this table reflects the professional judgement of Hanford contractor staff engaged in inventory estimates and a retiree familiar with past estimates of waste inventories on the central plateau. Project meetings were held on inventory estimates and their uncertainty on September 5 and 8, 2000, to develop this professional judgment for the initial assessment and SAC (Rev. 0) inventory.

The total inventory shown in Table A-14 is an estimate of contaminant inventory generated onsite. ORIGEN2 simulations of the irradiation of fuel in the Hanford Site production reactors were used to estimate the total curies generated. Knowledge of chemical processing was used to estimate the usage of two hazardous chemicals: chromium and carbon tetrachloride. For strontium-90, iodine-129, and cesium-137 the ORIGEN2 simulations represent the total inventory estimate. This compilation of technetium-99 inventory does not include an estimate of the amount of technetium-99 exported with uranium, and, therefore, the technetium-99 inventory is also represented by the ORIGEN2 simulation. For tritium, uranium, and plutonium isotopes, the totals shown include Hanford Site production of these special nuclear materials. Because of its proximity to DOE disposals, the total inventory at the Hanford Site must also include the commercial low-level radioactive waste disposal site operated by US Ecology, Inc. This commercial inventory was taken from the draft environmental impact statement (DOH 2000). The final column of Table A-14 provides an estimate of the closure inventory at the Hanford Site.

Table A-14. Hanford Site Total Inventory Uncertainty Models and Data.[a]

Constituent	Units	Total Inventory (Mode) (Decay Date 12/31/99)	Uncertainty Model	Minimum (% Away from Mode)	Maximum (% away from Mode)	US Ecology, Inc. Commercial Inventory[f] (Decay Date 12/31/50)	Inventory Remaining at Hanford (Decay Date 12/31/50)
Tritium	Ci	1,060,000[b]	Triangular	-10%	+10%	38,600	50,800[h]
Strontium-90	Ci	101,000,000	Triangular	-5%	+5%	12,000	30,700,000[i]
Technetium-99	Ci	36,100	Triangular	-5%	+5%	67.1	36,100[i]
Iodine-129	Ci	70.4	Triangular	-20%	+20%	6.03	76.4[j]
Cesium-137	Ci	121,000,000	Triangular	-5%	+5%	56,700	38,100,000[i]
Uranium-234	Ci	47,400[c]	Triangular	-5%	+5%	--	--
Uranium-235	Ci	1,440[c]	Triangular	-5%	+5%	--	--
Uranium-238	Ci	34,600[c]	Triangular	-5%	+5%	13,200[g]	17,400[k]
Plutoniumu-239 (=sum plutonium-239/240)	Ci	4,740,000[d,e]	Triangular	-5%	+5%	6,650	171,000[l]
Cr+6	MT	18,900	Triangular	-20%	+25%	--	18,900
CCl_4	MT	1,450	Triangular	-50%	+100%	--	1,450

[a]Includes fuel processed in chemical separation plants and spent fuel at the K Basins.
[b]Total tritium includes the byproduct of plutonium and tritium production between 1949 and 1954.
[c]Total uranium mass is 104,000 metric tons. Curie amount of each isotope is estimated using factors from Table A-8.
[d]Plutonium-239 shown is actually the total curies of plutonium-239 (3,940,000 Ci, t-half = 2.41 E+04 years) and plutonium-240 (800,000 Ci, t-half = 6.56 E+03 years). It is modeled as plutonium-239 because of the long decay half-life of both isotopes relative to the 1,100-year period of the initial assessment. The mass of plutonium-239 and plutonium-240 based on the curie amounts above (and specific activities) are 63,400 kg and 3,520 kg, respectively.
[e]Total accountable inventory of plutonium produced at the Hanford Site from 1944 through 1989 was 67,363 kg (DOE 1996).
[f]The US Ecology, Inc. inventory is taken from Table A-17 and provides site-specific inventories for the assumed site-closure date of 2050.
[g]The US Ecology, Inc. uranium inventory is total curies for uranium-235 and uranium-238, and includes an estimate of uranium-234 based on the uranium-238 inventory and the isotopic ratio for uranium-234 in Hanford Site DOE waste.
[h]Tritium production exported between 1949 and 1954, has been subtracted from the Hanford Site mean DOE inventory because it is not tracked as an export in the database. The commercial LLW site inventory of tritium has been added to the DOE inventory.
[i]The strontium-90, technetium-99, and cesium-137 inventory shown has been decayed. The total Hanford Site inventory is shown, even though most is destined for export as part of the immobilized HLW and spent fuel.
[j]Iodine-129 shown is the total of DOE and commercial inventories.
[k]Uranium reported is the sum of uranium-234, uranium-235, and uranium-238 curies. Value shown is "normal operating loss" (1,600 Ci), plus "inventory difference" (560 Ci), plus "commercial LLW" (13,200 Ci), plus "forecast DOE disposal" (2,000 Ci) inventories (Lini et al. 2001).
[l]Plutonium reported is plutonium-239 and plutonium-240 summed. Value shown is "normal operating loss" (75,100 Ci), plus "inventory difference" (89,600 Ci), plus "commercial LLW" (6,650 Ci) inventories (DOE 1996).
MT = metric ton

Uncertainty of individual site volumes and inventories is modeled with a variety of distributions. They are listed in Table A-15 for their associated site-specific information.

Table A-15. Site-Specific Inventory Uncertainty Models and Data.

Distribution Type	Site-Specific Information	Required Data
Triangular	Volume[a]	Minimum, mode, and maximum (in all cases the max, min was +/-20% away from the mode)
Lognormal (base e)	Concentration[b] of solid waste and liquid discharge for the period 1944 – 1969	Arithmetic mean = record value Arithmetic Std Dev = relative value of 2x mean
Lognormal (base e)	Concentration of solid waste, liquid discharge, spent fuel, and all waste streams from tank waste processing and disposal (HTWOS estimates) for the period 1970 to closure	Arithmetic mean = record value Arithmetic Std Dev = relative value of 0.25x mean
Cumulative Distribution Function table	S&T Inventory Task estimates of site-specific inventory	Integer number of pairs of probability and value, seven pairs, and center value is median

[a]Uncertainty in all volumes is represented by the triangular distribution with the record or estimated volume interpreted as the mode (most probable value), and the maximum and minimum represented as +/-20% from the mode.
[b]Uncertainty in waste contaminant concentrations, for the period 1944 - 1969, is represented by a lognormal (natural log) distribution, with the median (middle value of the distribution) set to the record or estimated value and a geometric standard deviation set to two, or twice the record or estimated value.

A.5 ASSESSMENT DATA

The Microsoft® Access database of inventory and associated site-specific information is massive. It is available on the SAC server, but access to the server is limited to project staff. A portion of the database has been imported into the Integration Project database visualization tool, SLATE®, and is accessible on the GW/VZ Integration Project website.

Tables A-16 through A-21 provide a subset of the inventory and associated site-specific information stored in the Access database. These tables are provided to give the reader a feeling for the extent of the data generated in this effort. Tables A-16 and A-17 provide the reader with mode values of inventory in each waste site for the years 2000 and 2050, respectively.
Table A-18 presents a summary of site-specific information assembled for the simulation of individual sites. Tables A-19 and A-20 present the list of past tank leaks, unplanned releases, and past-practice sites for which the SIM provided stochastic estimates of inventory. Table A-21 presents the mapping of those waste sites aggregated into their aggregation sites. This information is necessary to understand which sites are shown as aggregated in Tables A-16 and A-17.
The inventory data and estimates presented in Tables A-16 and A-17 are mode values (i.e., 50th percentile). Because the inventory database, and especially its application in the initial assessment are probabilistic, these tables are an attempt to present a summary level of inventory data that can be used to review, critique, and discuss the assembled information. Table A-16

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presents the mode values of site-specific inventory in the vadose zone at the close of year 2000. As such, this table does not reflect final remedial actions that will result in CERCLA wastes being disposed in the ERDF trench, and the final disposition of tank wastes that will be retrieved, separated, vitrified, and disposed after calendar year 2000. The only tank waste inventory shown in Table A-16 is the inventory attributed to past tank leaks from 38 single-shell tanks.

Table A-17 presents the mode values of site-specific inventory at the assumed time of Hanford Site closure, 2050. The inventories shown for single-shell tanks include past tank leaks, future tank losses (during tank waste recovery), and residuals left in tanks after recovery. The inventories shown for double-shell tanks include only residuals left following waste recovery operations. Sites that are remediated, (e.g., wastes recovered and disposed in the ERDF trench), still show there full inventory at the time of site closure in this data package because the remedial action and movement of inventory occurs elsewhere in the SAC modeling capability.

In both Tables A16 and A-17 there are numerous sites that show no volume or inventory. These sites are among a group of 227 sites whose inventories are assigned to other sites. That is, the total inventory sent to a major facility (e.g., a pond) may have moved though ditches and other facilities, and the total inventory is now assigned to the major facility. The other facilities (e.g., ditches and lobes of ponds) are carried in the data package, but the cumulative inventory is assigned to the major facility and, therefore, is accounted for in the assessment at that one location. At the scale of the Hanford Site, the inventory is accounted for even though the 227 individual sites are not explicitly simulated.

A review of Tables A-16 and A-17 revealed that several of the aggregate unplanned release sites appear to have higher than expected inventories of cesium and strontium. Within the 100-N Area, the aggregate site UPR-100-N$N6-12[1] includes UPR-100-N-7 that has elevated inventories. Upon review, these inventories are record values. The 200 East and 200 West Areas also include unplanned release sites with elevated inventories of strontium, cesium, or both. The aggregate site UPR-200-E$A3-5 includes UPR-200-E-86 that received record releases in 1971. The aggregate site UPR-200-W$S3-7 includes unplanned release sites UPR-200-W-143 and UPR-200-W-144 that received record releases in 1974 and 1959, respectively. In 1974, aggregation site UPR-200-W$T3-9 had a major source of release at UPR 200-W-151.

This site inventory is an estimate and is based on the volume ratio method and a known leak at Tank 241-TY-103. Thus, for the cases identified and evaluated, most cases with higher than expected inventories were a function of inventory data records and not estimates.

An extraordinary inventory of uranium in aggregate site 218-W$T6-12 was found to be from uranium bearing cemented waste disposed in site 218-W-3AE. Upon review, it was determined that only a small amount of this uranium is disposed as a byproduct of tank waste processing; most is forecast of future uranium disposal.

[1] Aggregate sites follow a unique naming convention. As much of the WIDS site code as is common to all of the aggregated sites is used for the start of the identifying name. Then a dollar sign ($) is included, followed by aggregation template information (the letter designating the geographic area of the base template used and a number (1 to 6) designating the waste chemistry type), followed by a dash (-) and the number of actual sites represented by the aggregate site. An example of the naming convention for aggregated sites is 218-W$T6-12, where “218-W” signifies solid waste disposals in the 200 West Area, “$T6” signifies the base template “T” and chemistry type “6,” and “-12” indicates there are 12 sites aggregated.

Table A-18 presents a representative suite of the other site-specific information assembled in the "inventory database" to support the simulation of contaminant release and migration in the environment. Information presented for each site in the initial assessment includes operational area, start and end dates of disposal or discharge, spatial (x,y) coordinates, and facility area.

The past tank leaks (38), unplanned releases (2), and past practice sites (62) for which SIM provided inventory estimates are listed in Tables A-19 and A-20. The potential uncertainty in the cumulative inventory of these releases to the vadose zone was estimated by SIM and incorporated into the inventory database as an integer number of pairs that quantify the probability and cumulative inventory. Seven pairs were used with the fourth (or center value) representing the median of the distribution.

The uncertainty in releases for all other sites had two components: waste volume and contaminant concentration. Uncertain volume was quantified using a triangular distribution. Uncertain concentration was quantified using a lognormal (natural logarithm) distribution. The combination of volume and concentration uncertainty yields inventory and its uncertainty. These model distributions were applied to solid waste, liquid discharge, unplanned releases, facilities, and tank waste inventories.

The S&T effort and SIM estimates of soil inventories are unique in their quantification of uncertainty. Tables A-19 and A-20 list those sites that include SIM estimates. Note, the sites that have past leaks from single-shell tanks can also have associated with them future tank losses and tank residuals. Thus, the combined inventory associated with the SiteCode of each single-shell tank that has leaked will be an aggregation of inventory models and uncertainty distributions. Accordingly, for single-shell tanks, Table A-16 shows the past tank leak inventories while Table A-17 shows the aggregation of past tank leaks, future losses, and tank residual.

Table A-16. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2000.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
Atmosphere	0.0	2.30E+05	5.68E+01	2.51E+05	2.84E+00	2.19E+00	0.0	0.0	6.37E+05	8.49E+04
Store	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-B-10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-B-5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-B-8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-C-3	0.0	0.0	0.0	3.39E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
100-C-6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-D-18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-D-19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-D-20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-D-21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-D-23	0.0	0.0	0.0	3.30E-07	0.0	0.0	0.0	0.0	0.0	9.99E-04
100-D-24	0.0	0.0	0.0	3.42E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
100-D-4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-D-48	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-D-49	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-D-52	0.0	0.0	0.0	2.75E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
100-D-57	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-F-10	0.0	0.0	0.0	3.01E-07	0.0	0.0	0.0	0.0	0.0	9.98E-04
100-F-11	0.0	0.0	0.0	3.56E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
100-F-12	0.0	0.0	0.0	3.18E-07	0.0	0.0	0.0	0.0	0.0	9.99E-04
100-F-16	0.0	0.0	0.0	3.37E-07	0.0	0.0	0.0	0.0	0.0	9.99E-04
100-F-19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-F-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-F-23	0.0	0.0	0.0	5.67E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
100-F-25	0.0	0.0	0.0	8.77E-06	0.0	0.0	0.0	0.0	0.0	2.00E-02
100-F-29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-F-4	0.0	0.0	0.0	3.40E-07	0.0	0.0	0.0	0.0	0.0	9.98E-04
100-F-9	0.0	0.0	0.0	3.46E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
100-H-10	0.0	0.0	0.0	2.83E-07	0.0	0.0	0.0	0.0	0.0	9.99E-04
100-H-12	0.0	0.0	0.0	2.98E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
100-H-13	0.0	0.0	0.0	3.40E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03

Table A-16. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2000.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
100-H-21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-H-30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-H-7	0.0	0.0	0.0	3.69E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
100-H-8	0.0	0.0	0.0	3.34E-07	0.0	0.0	0.0	0.0	0.0	9.99E-04
100-H-9	0.0	0.0	0.0	2.79E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
100-K-1	0.0	0.0	0.0	3.19E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
100-K-4	0.0	0.0	0.0	3.99E-06	0.0	0.0	0.0	0.0	0.0	1.00E-02
100-K-42	1.64E+04	4.58E+06	1.43E+03	6.21E+06	3.23E+00	1.67E+05	8.50E+02	0.0	0.0	9.33E+01
100-K-43	1.64E+04	4.56E+06	1.44E+03	6.27E+06	3.25E+00	1.71E+05	8.42E+02	0.0	0.0	9.32E+01
100-K-46	0.0	0.0	0.0	3.40E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
100-K-5	0.0	0.0	0.0	3.60E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
100-K-55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-K-56	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-K-57	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-N-1	0.0	0.0	0.0	1.80E-05	0.0	0.0	0.0	0.0	0.0	2.90E-02
100-N-54	0.0	0.0	0.0	4.79E-07	0.0	0.0	0.0	0.0	0.0	9.99E-04
100-N-58	0.0	0.0	0.0	3.72E-06	0.0	0.0	0.0	0.0	0.0	6.00E-03
100-N-60	1.44E-04	2.42E-05	3.57E-08	1.13E-04	1.13E-10	0.0	2.92E-06	8.30E-01	0.0	2.84E-01
100-N-62	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-N-63	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-N-64	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-N-66	2.85E+04	1.05E+01	2.02E-03	3.09E+01	1.37E-05	1.00E+00	0.0	0.0	0.0	1.60E+03
116-B-1	2.29E-02	4.38E-02	7.34E-05	2.06E-01	1.80E-07	1.52E-02	3.00E-02	5.95E+01	0.0	6.01E+04
116-B-10	2.10E+00	2.46E-01	6.56E-04	1.80E+00	1.75E-06	0.0	5.56E-02	1.57E+04	0.0	5.00E+03
116-B-11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
116-B-12	4.38E+00	3.66E-05	2.03E-08	6.73E-05	5.31E-11	0.0	1.05E-03	0.0	0.0	4.20E+02
116-B-13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
116-B-14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
116-B-15	4.54E-03	2.74E-03	3.27E-06	1.53E-02	8.15E-09	0.0	1.32E-03	0.0	0.0	5.67E+02
116-B-2	3.19E-03	7.20E-03	1.93E-05	4.42E-02	5.53E-08	3.25E-03	2.18E-03	0.0	0.0	4.00E+03
116-B-3	1.20E-01	1.14E-02	3.73E-05	8.55E-02	1.01E-07	8.09E-03	9.54E-04	4.21E-03	0.0	4.00E+00
116-B-4	1.56E-01	1.82E-02	3.98E-05	1.23E-01	9.74E-08	6.51E-03	7.95E-04	1.04E+03	0.0	3.00E+02

Table A-16. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2000.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
116-B-5	8.57E+01	8.21E-04	5.49E-07	1.50E-03	1.39E-09	0.0	7.11E-03	0.0	0.0	1.00E+04
116-B-6A	0.0	6.35E-01	3.71E-05	1.07E-01	9.30E-08	2.27E-03	2.02E-03	5.22E+01	0.0	5.00E+00
116-B-6B	3.59E-03	1.22E-04	6.38E-08	1.66E-04	1.43E-10	0.0	2.42E-05	4.77E+01	0.0	5.00E+00
116-B-7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.87E+06	0.0	2.64E+09
116-B-9	1.39E-02	1.60E-03	5.31E-06	1.25E-02	1.33E-08	0.0	4.20E-04	1.20E+02	0.0	4.00E+01
116-C-1	3.69E-01	1.13E+00	1.54E-03	4.06E+00	3.66E-06	1.20E-01	8.30E-02	1.10E+02	0.0	4.42E+07
116-C-2A	1.32E-01	6.59E-01	1.99E-07	5.46E-04	5.22E-10	0.0	2.27E-03	5.11E+02	0.0	7.50E+03
116-C-2C	1.16E-01	1.34E+00	2.00E-03	5.63E+00	5.09E-06	1.27E-01	3.00E-01	0.0	0.0	7.50E+03
116-C-5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
116-C-6	7.49E-02	4.23E-02	2.05E-05	7.62E-02	3.75E-08	8.26E-04	1.53E-05	0.0	0.0	2.16E+03
116-D-10	8.11E-05	3.70E-05	3.40E-07	1.72E-03	8.19E-10	0.0	2.75E-05	4.04E-03	0.0	2.35E+03
116-D-1A	3.47E-01	9.35E-02	3.12E-04	8.19E-01	7.60E-07	1.85E-02	8.05E-03	1.07E+03	0.0	2.00E+02
116-D-1B	7.84E-02	1.17E-01	1.72E-04	3.63E-01	3.05E-07	6.35E-03	5.90E-03	7.09E+02	0.0	8.00E+03
116-D-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.75E-03	0.0	4.00E+00
116-D-3	0.0	2.42E-02	7.96E-05	2.38E-01	2.25E-07	0.0	0.0	2.91E-02	0.0	3.00E+01
116-D-4	0.0	2.72E-02	7.79E-05	2.21E-01	2.19E-07	0.0	0.0	2.99E-02	0.0	3.00E+01
116-D-5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.77E+06	0.0	2.67E+09
116-D-6	9.49E-07	9.51E-07	1.52E-08	4.08E-05	3.33E-11	0.0	1.28E-06	1.61E-04	0.0	1.00E+02
116-D-7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
116-D-9	0.0	4.14E-01	1.05E-03	3.80E+00	3.59E-06	0.0	0.0	3.92E-01	0.0	4.20E+02
116-DR-1#2	4.04E-01	4.20E-01	7.13E-03	1.70E+01	1.49E-05	7.02E-02	1.38E-01	8.40E+01	0.0	4.65E+07
116-DR-10	3.18E-05	1.46E-05	1.30E-07	6.52E-04	3.18E-10	0.0	1.06E-05	1.58E-03	0.0	9.09E+02
116-DR-3	9.76E-02	6.17E-02	9.72E-06	2.22E-02	2.12E-08	3.17E-03	0.0	0.0	0.0	4.00E+03
116-DR-4	0.0	3.26E-03	1.10E-05	2.64E-02	2.69E-08	1.08E-04	0.0	3.88E-03	0.0	4.00E+00
116-DR-5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.27E+06	0.0	1.83E+09
116-DR-6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.95E+00	0.0	7.00E+03
116-DR-7	0.0	2.72E-03	1.09E-05	2.55E-02	2.63E-08	0.0	0.0	3.36E-03	0.0	4.00E+00
116-DR-8	0.0	2.16E-01	6.51E-04	1.99E+00	1.58E-06	0.0	0.0	2.17E-01	0.0	2.40E+02
116-DR-9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
116-F-1	7.86E-02	4.02E-02	2.33E-04	6.49E-01	5.36E-07	6.79E-03	4.23E-02	9.83E-03	0.0	1.00E+05
116-F-10	1.49E-02	4.58E-05	2.12E-06	4.29E-03	4.46E-09	6.61E-05	7.53E-05	2.00E+03	0.0	4.00E+02
116-F-11	8.63E-03	2.19E-05	8.63E-07	2.30E-03	2.31E-09	0.0	1.47E-04	9.42E+02	0.0	2.00E+02

Table A-16. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2000.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
116-F-12	6.31E-06	3.48E-06	2.29E-08	5.94E-05	5.59E-11	0.0	1.98E-05	1.01E-06	0.0	1.00E+01
116-F-14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
116-F-2	1.47E-01	4.83E-02	2.05E-04	5.33E-01	5.14E-07	8.56E-03	3.72E-02	5.98E+01	0.0	6.00E+04
116-F-3	2.04E-04	2.32E-04	1.31E-07	2.71E-04	3.08E-10	0.0	0.0	4.15E+00	0.0	8.00E+03
116-F-4	4.44E-03	6.97E-01	4.71E-04	9.90E-01	1.28E-06	3.89E-02	4.44E-03	3.61E-03	0.0	4.00E+00
116-F-5	0.0	1.40E-05	1.03E-08	2.82E-05	2.65E-11	0.0	0.0	0.0	0.0	3.00E+00
116-F-6	6.29E-01	1.49E-01	1.28E-04	3.79E-01	3.21E-07	1.11E-02	1.56E-02	0.0	0.0	1.00E+02
116-F-7	0.0	1.54E-05	5.00E-09	1.45E-05	1.21E-11	2.76E-05	0.0	0.0	0.0	3.00E+02
116-F-8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.56E+06	0.0	2.26E+09
116-F-9	0.0	1.35E+00	1.89E-05	6.35E-02	4.29E-08	6.51E-03	0.0	0.0	0.0	3.00E+05
116-H-1	1.40E-02	5.23E-01	9.38E-04	2.86E+00	2.34E-06	6.44E-02	4.01E-01	1.00E+02	0.0	9.00E+04
116-H-2	8.55E-02	3.67E-01	6.99E-05	1.84E-01	1.53E-07	4.21E-04	1.30E-02	5.94E+02	0.0	6.00E+05
116-H-3	4.03E-04	9.42E-05	9.21E-06	2.18E-02	2.10E-08	8.14E-05	0.0	1.96E+03	0.0	4.00E+02
116-H-4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.44E-04	0.0	9.99E-01
116-H-5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.37E+06	0.0	2.02E+09
116-H-6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.95E+01	0.0	1.97E+04
116-H-7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
116-H-9	5.27E-05	1.76E-03	3.29E-06	9.39E-03	7.58E-09	0.0	5.73E-03	2.68E-01	0.0	3.00E+02
116-K-1	0.0	5.05E-01	6.40E-03	1.24E+01	1.10E-05	1.19E-01	0.0	4.19E+01	0.0	4.01E+04
116-K-2	6.51E+00	6.20E+00	3.85E-02	1.05E+02	8.29E-05	4.85E+00	7.24E-01	2.82E+05	0.0	3.00E+08
116-K-3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.85E+06	0.0	1.13E+10
116-KE-1	2.38E+01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.01E+02
116-KE-2	1.91E-01	1.44E+00	1.64E-04	4.74E-01	3.64E-07	1.83E-02	4.84E-03	0.0	0.0	3.00E+03
116-KE-3	0.0	0.0	0.0	6.86E-06	0.0	0.0	0.0	0.0	0.0	1.70E-02
116-KE-4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
116-KW-1	0.0	1.02E-02	9.90E-05	3.24E-01	2.40E-07	0.0	0.0	7.58E-01	0.0	8.01E+02
116-KW-2	0.0	0.0	0.0	6.53E-06	0.0	0.0	0.0	0.0	0.0	1.60E-02
116-KW-3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
116-N-1	5.02E+03	1.57E+03	5.80E-01	1.96E+03	1.29E-03	2.42E+01	1.59E-05	0.0	0.0	8.37E+07
116-N-2	2.43E-01	6.49E-02	2.31E-05	8.51E-02	5.22E-08	9.71E-04	1.60E-09	0.0	0.0	3.40E+03
116-N-3	3.05E+02	1.58E+02	7.23E-02	2.85E+02	1.33E-04	2.92E+00	5.36E-02	0.0	0.0	7.60E+06
116-N-4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table A-16. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2000.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
118-$C6-9	2.07E+04	3.89E-01	1.82E-04	4.87E-01	4.58E-07	0.0	0.0	0.0	0.0	2.11E+04
118-B-8	3.25E+03	2.02E+01	4.49E-03	2.89E+01	2.01E-05	3.22E+00	2.15E-02	0.0	0.0	1.03E+03
118-B-9	1.18E+04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.12E+01
118-C-3	3.34E+03	1.23E+01	2.77E-03	2.37E+01	1.53E-05	2.99E+00	9.78E-03	0.0	0.0	1.03E+03
118-D$D6-14	2.17E+00	9.55E-01	3.34E-04	8.94E-01	8.33E-07	0.0	0.0	0.0	0.0	2.06E+04
118-D-6	2.78E+03	8.91E+00	1.71E-03	2.02E+01	1.50E-05	9.94E-01	0.0	0.0	0.0	1.03E+03
118-DR-2	2.06E+03	6.49E+00	1.92E-03	1.96E+01	1.58E-05	8.92E-01	0.0	0.0	0.0	1.03E+03
118-F$F6-6	1.02E+00	5.20E-01	2.02E-04	5.30E-01	4.85E-07	5.44E-01	0.0	0.0	0.0	4.30E+04
118-F-4	3.82E-01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00E+01
118-F-8	2.26E+03	1.63E+01	5.22E-03	5.09E+01	2.45E-05	3.18E+00	2.14E-02	0.0	0.0	1.03E+03
118-H$H6-7	7.69E-01	3.01E-01	1.18E-04	3.14E-01	2.94E-07	0.0	0.0	0.0	0.0	1.07E+04
118-H-6	2.27E+03	1.64E+01	4.85E-03	4.26E+01	1.94E-05	3.13E+00	2.19E-02	0.0	0.0	1.03E+03
118-K$K6-2	2.49E+00	9.78E-01	4.38E-04	9.88E-01	9.14E-07	0.0	0.0	0.0	0.0	1.00E+04
118-KE-1	1.22E+04	1.10E+03	1.76E-01	8.79E+02	3.33E-04	4.05E+02	0.0	1.70E+01	0.0	1.65E+03
118-KW-1	1.11E+04	7.26E+00	2.16E-03	2.11E+01	1.40E-05	1.04E+00	0.0	0.0	0.0	1.60E+03
132-C-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.27E+06	0.0	3.09E+09
132-DR-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
141-C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1908-NE	2.57E+03	3.40E+01	1.01E-01	4.46E+00	2.53E-06	1.03E-01	0.0	0.0	0.0	2.70E+01
200-E-102	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200-E-14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200-E-30	0.0	1.98E+03	4.70E-01	2.45E+03	8.94E-04	9.59E-01	0.0	0.0	0.0	1.00E+00
200-E-4	0.0	0.0	0.0	1.15E-06	0.0	0.0	0.0	0.0	0.0	2.00E-03
200-W-16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200-W-40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200-W-42	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200-W-43	0.0	3.60E+03	2.05E+00	4.54E+03	4.43E-03	0.0	0.0	0.0	0.0	1.70E+01
200-W-44	0.0	1.02E+03	1.20E+00	7.62E+03	4.88E-04	4.03E+01	0.0	0.0	0.0	1.00E+00
200-W-45	0.0	1.99E+03	4.65E-01	3.02E+03	9.55E-04	7.45E-01	0.0	0.0	0.0	1.00E+00
200-W-52	0.0	9.83E-06	0.0	1.02E-05	0.0	0.0	0.0	0.0	0.0	1.90E+00
200-W-58	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200-W-59	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table A-16. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2000.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
200-W-69	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200-W-7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
202-A	0.0	3.02E+02	8.27E-02	4.57E+02	1.59E-04	7.37E+02	0.0	0.0	0.0	1.00E+00
202-S	0.0	4.03E+03	1.32E+00	5.04E+03	3.16E-03	0.0	0.0	0.0	0.0	9.98E-01
207-A-NORTH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
207-A-SOUTH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
207-B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
207-S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
207-SL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
207-T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
207-U	3.75E-03	8.52E-06	0.0	7.45E-04	7.39E-06	1.34E-04	9.93E-07	0.0	0.0	1.30E+01
207-Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
209-E-WS-1	0.0	0.0	0.0	3.30E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
209-E-WS-2	0.0	0.0	0.0	3.55E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
209-E-WS-3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-A-1	0.0	3.03E-02	1.28E-05	4.57E-02	2.87E-08	6.50E-03	7.84E+00	0.0	0.0	9.83E+01
216-A-10	5.30E+04	7.14E+01	1.77E+01	6.29E+01	2.92E-04	2.58E+01	2.78E+02	0.0	0.0	2.96E+06
216-A-11	8.95E-03	4.27E-05	0.0	3.84E-03	5.65E-05	1.53E-03	1.15E-05	0.0	0.0	9.99E+01
216-A-12	8.95E-03	4.28E-05	0.0	3.88E-03	5.65E-05	1.55E-03	1.22E-05	0.0	0.0	1.00E+02
216-A-13	9.96E-04	5.11E-06	0.0	3.98E-04	6.06E-06	9.78E-05	7.40E-07	0.0	0.0	9.80E+00
216-A-14	1.44E-04	5.22E-07	0.0	4.53E-05	5.35E-07	9.42E-06	7.27E-08	0.0	0.0	9.99E-01
216-A-15	7.91E-04	3.77E-06	0.0	3.43E-04	5.01E-06	1.39E-04	1.09E-06	0.0	0.0	8.83E+00
216-A-16	0.0	4.85E-03	1.74E-06	4.97E-03	4.59E-09	8.64E-04	4.80E-02	0.0	0.0	1.22E+02
216-A-17	0.0	3.76E-01	1.48E-04	3.81E-01	2.86E-07	5.81E-02	4.13E-03	0.0	0.0	6.00E+01
216-A-18	0.0	3.04E-02	3.18E-05	3.03E-02	4.15E-08	6.69E-03	1.21E+00	0.0	0.0	4.89E+02
216-A-19	0.0	3.02E-02	1.23E-05	3.16E-02	2.97E-08	7.06E-03	2.71E+01	0.0	0.0	1.10E+03
216-A-2	0.0	8.48E-01	9.66E-04	1.23E+00	9.41E-07	8.33E+00	6.67E-02	0.0	0.0	2.30E+02
216-A-20	0.0	2.83E-02	2.07E-05	2.86E-02	3.41E-08	6.68E-03	2.91E-01	0.0	0.0	9.58E+02
216-A-21	1.78E+03	7.30E+00	6.92E-03	6.23E+01	4.70E-05	9.94E+00	1.46E-01	3.07E+02	0.0	7.79E+04
216-A-22	5.27E-04	2.54E-06	0.0	2.28E-04	3.36E-06	9.31E-05	6.89E-07	0.0	0.0	5.90E+00
216-A-23A	7.03E-04	2.96E-06	0.0	2.60E-04	3.35E-06	6.11E-05	4.60E-07	0.0	0.0	5.98E+00
216-A-23B	8.54E-04	2.92E-06	0.0	2.51E-04	3.18E-06	5.95E-05	4.73E-07	0.0	0.0	5.98E+00

Table A-16. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2000.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
216-A-24	5.67E+02	1.51E+01	1.12E-02	2.14E+02	1.78E-04	3.60E-01	4.68E-02	0.0	0.0	8.21E+05
216-A-25	9.83E+01	1.78E+02	6.79E-01	1.62E+02	1.09E-04	3.14E+01	4.73E+02	0.0	0.0	2.85E+08
216-A-26	0.0	0.0	0.0	1.72E-05	0.0	0.0	0.0	0.0	0.0	2.70E-02
216-A-26A	1.21E-04	4.97E-07	0.0	5.57E-05	5.39E-07	1.07E-05	7.58E-08	0.0	0.0	1.00E+00
216-A-27	0.0	1.91E+01	4.65E-03	2.49E+01	1.80E-05	6.65E+00	1.55E+02	1.95E+02	0.0	2.31E+04
216-A-28	0.0	2.22E-01	8.46E-05	2.56E-01	3.38E-07	0.0	4.95E-01	0.0	0.0	3.00E+01
216-A-29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-A-3	0.0	1.12E-01	1.09E-04	1.08E-01	9.71E-08	1.25E-02	1.39E+00	0.0	0.0	2.87E+03
216-A-30	9.47E+00	8.17E+01	2.87E-02	8.38E+01	7.56E-05	5.54E+00	7.77E+00	0.0	0.0	7.68E+06
216-A-31	0.0	9.51E-02	0.0	3.06E+00	0.0	5.20E-01	3.66E-03	0.0	0.0	9.99E+00
216-A-32	5.99E-04	2.15E-06	0.0	1.87E-04	2.27E-06	3.89E-05	2.97E-07	0.0	0.0	3.92E+00
216-A-33	0.0	0.0	0.0	4.35E-06	0.0	0.0	0.0	0.0	0.0	1.00E-02
216-A-34	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-A-35	0.0	2.47E+00	7.16E-04	3.51E+00	1.90E-06	2.31E-01	4.47E-03	0.0	0.0	1.00E+01
216-A-36A	0.0	7.95E+02	4.62E-01	5.87E+02	5.16E-04	6.12E+00	1.06E-01	0.0	0.0	1.07E+03
216-A-36B	2.72E+02	2.68E+02	6.05E-01	2.78E+02	1.18E-03	1.24E+01	2.60E+01	0.0	0.0	3.15E+05
216-A-37-1	8.61E+02	6.93E-02	8.72E-01	7.47E-02	3.13E-03	2.03E-03	2.61E-02	0.0	0.0	3.71E+05
216-A-37-2	3.48E+00	2.67E-01	4.11E-03	2.06E-01	9.74E-08	7.71E-04	3.65E-02	0.0	0.0	1.07E+06
216-A-39	2.07E-03	5.57E-01	4.04E-03	1.28E+01	7.82E-06	5.45E-04	7.43E-06	8.12E-03	0.0	2.00E-02
216-A-4	0.0	3.94E+00	3.53E-04	4.97E+00	4.38E-06	9.75E+00	2.90E-01	1.01E+02	0.0	6.21E+03
216-A-40	1.68E-02	8.08E-05	5.62E-08	7.59E-03	1.08E-04	3.09E-03	4.59E-05	4.50E-04	0.0	9.49E+02
216-A-41	0.0	1.90E-02	0.0	7.53E-01	0.0	4.83E-01	2.80E-03	0.0	0.0	9.80E+00
216-A-42	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-A-45	1.34E+03	6.23E-03	2.08E+00	7.67E-03	3.50E-03	2.42E-04	5.59E-03	0.0	0.0	1.02E+05
216-A-5	2.13E+04	3.86E+01	8.84E-03	8.83E+00	1.05E-05	4.09E+00	2.17E-01	0.0	0.0	1.63E+06
216-A-524	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-A-6	0.0	4.03E+01	1.35E-02	9.21E+01	6.60E-05	2.19E+00	1.36E-01	0.0	0.0	3.36E+06
216-A-7	0.0	3.56E-01	5.86E-04	1.65E+00	1.52E-06	7.10E-02	4.90E-03	0.0	0.0	3.16E+02
216-A-8	1.98E-01	4.11E+01	2.46E-02	4.45E+02	3.54E-04	3.24E+00	2.60E-01	0.0	0.0	1.07E+06
216-A-9	1.57E+02	8.05E+00	6.12E-05	3.47E+00	3.10E-06	3.80E-02	1.65E-04	0.0	0.0	9.81E+05
216-B-10A	0.0	1.50E+00	8.90E-05	2.78E-01	3.19E-07	6.59E-01	1.00E-02	9.28E+01	0.0	1.00E+04
216-B-10B	0.0	1.48E-04	1.50E-08	5.90E-05	3.62E-11	0.0	0.0	0.0	0.0	1.44E+01

Table A-16. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2000.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
216-B-11A#B	8.81E+00	1.94E+00	7.15E-03	1.87E+01	2.35E-05	2.48E-01	1.02E-02	0.0	0.0	2.96E+04
216-B-12	0.0	6.92E+01	2.75E-02	5.18E+02	3.76E-04	2.35E+01	1.81E+01	0.0	0.0	5.20E+05
216-B-13	0.0	9.21E-05	2.63E-08	7.80E-05	6.42E-11	0.0	0.0	0.0	0.0	2.10E+01
216-B-14	3.00E+01	3.71E+03	4.25E+01	4.89E+03	7.97E-02	5.53E+00	3.93E-01	8.24E+02	0.0	8.71E+03
216-B-15	2.17E+01	3.59E+03	3.08E+01	3.21E+03	5.78E-02	4.03E+00	2.84E-01	5.79E+02	0.0	6.31E+03
216-B-16	1.92E+01	2.89E+03	2.72E+01	2.54E+03	5.14E-02	3.42E+00	2.54E-01	5.24E+02	0.0	5.60E+03
216-B-17	1.16E+01	1.56E+03	1.65E+01	1.84E+03	3.14E-02	2.16E+00	1.58E-01	3.15E+02	0.0	3.41E+03
216-B-18	2.93E+01	4.51E+03	4.16E+01	3.96E+03	7.82E-02	5.27E+00	3.96E-01	7.90E+02	0.0	8.52E+03
216-B-19	2.19E+01	3.48E+03	3.11E+01	3.62E+03	5.91E-02	4.21E+00	2.83E-01	5.93E+02	0.0	6.40E+03
216-B-20	1.59E+01	2.31E+03	2.29E+01	2.47E+03	4.25E-02	2.93E+00	2.16E-01	4.40E+02	0.0	4.68E+03
216-B-21	1.61E+01	2.05E+03	2.27E+01	2.71E+03	4.28E-02	3.09E+00	2.05E-01	4.32E+02	0.0	4.67E+03
216-B-2-1	0.0	3.36E+02	1.29E-04	2.43E-01	1.71E-07	0.0	0.0	0.0	0.0	1.00E-03
216-B-22	1.62E+01	2.00E+03	2.31E+01	2.38E+03	4.33E-02	2.84E+00	2.09E-01	4.39E+02	0.0	4.73E+03
216-B-2-2	0.0	1.17E+02	2.87E-05	2.59E-01	1.74E-07	2.88E-03	3.89E-05	0.0	0.0	4.98E+04
216-B-23	1.56E+01	2.59E+03	2.21E+01	1.89E+03	4.15E-02	2.99E+00	2.01E-01	4.22E+02	0.0	4.53E+03
216-B-2-3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-B-24	1.61E+01	1.94E+03	2.29E+01	2.09E+03	4.31E-02	3.04E+00	2.12E-01	4.37E+02	0.0	4.70E+03
216-B-25	1.30E+01	1.72E+03	1.83E+01	1.60E+03	3.46E-02	2.50E+00	1.68E-01	3.48E+02	0.0	3.76E+03
216-B-26	2.03E+01	2.83E+03	2.85E+01	3.09E+03	5.38E-02	3.81E+00	2.65E-01	5.55E+02	0.0	5.88E+03
216-B-27	1.52E+01	2.27E+03	2.16E+01	2.20E+03	4.10E-02	2.85E+00	2.00E-01	4.06E+02	0.0	4.42E+03
216-B-28	1.75E+01	2.36E+03	2.48E+01	2.94E+03	4.64E-02	3.17E+00	2.24E-01	4.61E+02	0.0	5.05E+03
216-B-29	1.65E+01	2.29E+03	2.36E+01	2.16E+03	4.48E-02	3.01E+00	2.18E-01	4.50E+02	0.0	4.85E+03
216-B-3	4.51E+02	7.65E+01	2.05E-01	8.00E+01	5.18E-05	1.93E+01	3.51E+01	0.0	0.0	2.67E+08
216-B-30	1.64E+01	2.44E+03	2.34E+01	2.77E+03	4.40E-02	3.00E+00	2.14E-01	4.42E+02	0.0	4.79E+03
216-B-31	1.64E+01	2.71E+03	2.31E+01	2.08E+03	4.38E-02	3.16E+00	2.20E-01	4.37E+02	0.0	4.74E+03
216-B-3-1	0.0	3.94E+00	1.38E-02	1.56E+01	1.48E-05	6.64E+00	2.62E+01	0.0	0.0	1.49E+08
216-B-32	1.63E+01	2.23E+03	2.32E+01	2.16E+03	4.38E-02	3.22E+00	2.16E-01	4.46E+02	0.0	4.77E+03
216-B-3-2	1.06E+04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.47E+08
216-B-33	1.62E+01	2.87E+03	2.30E+01	2.66E+03	4.36E-02	2.90E+00	2.13E-01	4.44E+02	0.0	4.75E+03
216-B-3-3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-B-34	1.67E+01	2.06E+03	2.38E+01	2.85E+03	4.47E-02	2.98E+00	2.16E-01	4.60E+02	0.0	4.88E+03
216-B-35	2.51E+00	7.04E+01	2.03E+00	3.78E+02	3.89E-03	1.85E-01	4.71E-02	1.39E+02	0.0	1.56E+03

Table A-16. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2000.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
216-B-36	3.11E+00	8.73E+01	2.55E+00	4.66E+02	4.82E-03	2.30E-01	5.97E-02	1.71E+02	0.0	1.94E+03
216-B-37	1.74E+01	7.51E+04	2.59E+01	5.73E+04	4.86E-02	4.20E+01	2.82E+00	2.05E+03	0.0	4.33E+03
216-B-38	2.30E+00	7.99E+01	1.87E+00	3.49E+02	3.54E-03	1.76E-01	4.39E-02	1.29E+02	0.0	1.43E+03
216-B-39	2.35E+00	6.70E+01	1.91E+00	3.61E+02	3.63E-03	1.78E-01	4.43E-02	1.31E+02	0.0	1.47E+03
216-B-3A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-B-3B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-B-3C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-B-4	0.0	3.33E-05	1.13E-08	2.59E-05	2.84E-11	0.0	0.0	0.0	0.0	1.00E+01
216-B-40	2.62E+00	8.69E+01	2.16E+00	4.12E+02	4.08E-03	1.96E-01	4.83E-02	1.44E+02	0.0	1.64E+03
216-B-41	2.31E+00	6.54E+01	1.89E+00	3.56E+02	3.58E-03	1.72E-01	4.43E-02	1.28E+02	0.0	1.44E+03
216-B-42	5.16E+00	6.52E+02	7.32E+00	6.81E+02	1.38E-02	9.61E-01	6.70E-02	1.39E+02	0.0	1.50E+03
216-B-43	7.21E+00	1.14E+03	1.02E+01	1.02E+03	1.93E-02	1.31E+00	1.01E-01	1.95E+02	0.0	2.10E+03
216-B-44	1.93E+01	2.75E+03	2.73E+01	3.20E+03	5.15E-02	3.34E+00	2.53E-01	5.19E+02	0.0	5.60E+03
216-B-45	1.69E+01	2.36E+03	2.38E+01	2.85E+03	4.52E-02	3.45E+00	2.15E-01	4.48E+02	0.0	4.91E+03
216-B-46	2.30E+01	2.96E+03	3.26E+01	3.07E+03	6.15E-02	4.48E+00	2.99E-01	6.28E+02	0.0	6.70E+03
216-B-47	1.27E+01	2.06E+03	1.81E+01	1.71E+03	3.43E-02	2.42E+00	1.67E-01	3.42E+02	0.0	3.70E+03
216-B-48	1.40E+01	2.06E+03	2.00E+01	2.07E+03	3.77E-02	2.59E+00	1.85E-01	3.78E+02	0.0	4.09E+03
216-B-49	2.30E+01	3.40E+03	3.26E+01	3.63E+03	6.16E-02	4.30E+00	3.01E-01	6.17E+02	0.0	6.70E+03
216-B-5	2.75E+00	1.18E+03	1.38E-01	1.29E+03	2.61E-04	8.60E-01	1.39E+00	5.70E+02	0.0	3.06E+04
216-B-50	3.66E+01	2.49E+00	4.43E-03	4.28E+01	3.59E-05	1.67E-02	2.14E-04	0.0	0.0	5.48E+04
216-B-51	3.41E-03	4.30E-01	4.85E-03	4.99E-01	9.20E-06	6.65E-04	4.53E-05	9.26E-02	0.0	9.98E-01
216-B-52	2.91E+01	5.05E+03	4.13E+01	3.72E+03	7.82E-02	5.60E+00	3.86E-01	7.87E+02	0.0	8.50E+03
216-B-53A	0.0	6.24E-02	1.22E-04	3.69E-02	3.01E-08	6.99E+00	1.80E-02	0.0	0.0	5.50E+02
216-B-53B	0.0	3.81E+00	8.75E-04	2.98E+00	2.21E-06	3.32E-01	9.06E-03	0.0	0.0	1.51E+01
216-B-54	0.0	4.08E-02	7.14E-03	3.55E-02	3.22E-08	3.43E-01	8.93E-03	0.0	0.0	9.99E+02
216-B-55	1.48E+00	5.70E+00	1.46E-03	1.04E+01	7.50E-06	4.50E-02	6.20E-02	0.0	0.0	1.20E+06
216-B-56	0.0	0.0	0.0	3.49E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
216-B-57	5.89E+01	1.40E+00	8.28E-03	1.69E+02	1.17E-04	1.31E-02	7.12E-04	0.0	0.0	8.44E+04
216-B-58	0.0	4.79E+00	9.64E-04	4.25E+00	3.24E-06	4.66E-01	6.96E-03	0.0	0.0	4.12E+02
216-B-59	1.72E-02	8.08E-05	2.98E-04	7.63E-03	1.08E-04	2.90E-03	3.02E-05	5.63E-03	0.0	4.80E+02
216-B-59B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-B-6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.35E+01	0.0	5.00E-03

Table A-16. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2000.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
216-B-60	0.0	1.42E+01	4.43E-03	3.67E+00	2.26E-06	4.60E-03	5.20E-01	0.0	0.0	1.89E+01
216-B-61	0.0	0.0	0.0	5.42E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
216-B-62	8.37E+00	4.67E+01	4.96E-02	9.65E+01	5.30E-05	5.45E-02	2.44E-02	0.0	0.0	2.63E+05
216-B-63	1.17E+00	1.94E+00	2.72E-04	5.42E-01	3.43E-07	4.08E-02	3.62E-01	0.0	0.0	7.99E+06
216-B-64	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-B-7A#B	0.0	1.71E+03	2.37E-03	3.11E+01	3.23E-05	2.98E+02	2.20E-01	0.0	0.0	4.34E+04
216-B-8	0.0	3.96E+00	1.63E-03	1.58E+01	1.78E-05	1.85E+00	3.40E-02	0.0	0.0	2.72E+04
216-B-9	5.15E-02	6.26E+01	7.81E-02	7.22E+01	1.49E-04	8.33E-03	1.43E+00	0.0	0.0	3.60E+04
216-BY-201	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-C-1	3.03E+01	5.94E+01	3.29E-02	4.05E+01	2.33E-05	5.44E-01	2.49E-01	0.0	0.0	2.34E+04
216-C-10	0.0	2.81E+01	6.33E-05	6.04E-02	4.76E-08	9.87E-03	2.03E-05	0.0	0.0	8.97E+02
216-C-2	0.0	1.24E-01	0.0	1.33E-01	0.0	0.0	0.0	0.0	0.0	3.39E+03
216-C-3	0.0	5.98E+00	4.55E-04	2.39E-01	2.35E-07	7.30E-02	3.43E-02	0.0	0.0	5.00E+03
216-C-4	0.0	8.32E+00	1.17E-04	3.67E-02	2.90E-08	6.00E-02	2.36E-03	0.0	0.0	5.31E+01
216-C-5	0.0	2.98E+00	2.54E-04	2.83E-02	3.54E-08	6.06E-02	5.00E-02	0.0	0.0	3.79E+01
216-C-6	0.0	2.43E+01	6.19E-03	1.23E+00	9.91E-07	6.75E-03	0.0	0.0	0.0	5.31E+02
216-C-7	0.0	4.87E-02	5.55E-05	4.30E-02	3.00E-08	7.36E-02	0.0	0.0	0.0	4.58E+01
216-C-8	0.0	2.49E+00	7.16E-04	1.98E+00	1.70E-06	2.66E-01	4.58E-03	0.0	0.0	1.00E+01
216-C-9	0.0	1.87E+00	3.77E-04	7.92E-01	6.49E-07	2.51E-02	6.96E-04	0.0	0.0	1.03E+06
216-N-1	0.0	5.99E-02	3.02E-05	7.50E-02	7.14E-08	6.31E-02	3.66E-03	0.0	0.0	9.45E+05
216-N-2	0.0	4.62E-02	3.41E-05	8.45E-02	6.42E-08	0.0	0.0	0.0	0.0	7.56E+03
216-N-3	0.0	5.99E-02	2.68E-05	6.37E-02	6.11E-08	0.0	0.0	0.0	0.0	7.57E+03
216-N-4	0.0	5.55E-02	2.95E-05	6.87E-02	6.73E-08	6.74E-02	3.44E-03	0.0	0.0	9.48E+05
216-N-5	0.0	6.01E-02	3.00E-05	6.32E-02	7.38E-08	0.0	0.0	0.0	0.0	7.56E+03
216-N-6	0.0	5.73E-02	3.25E-05	5.99E-02	6.79E-08	6.91E-02	3.25E-03	0.0	0.0	9.47E+05
216-N-7	0.0	5.09E-02	2.80E-05	8.59E-02	5.95E-08	0.0	0.0	0.0	0.0	7.58E+03
216-N-8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-S-1#2	1.77E+03	9.34E+02	2.90E+00	9.63E+02	8.15E-04	7.79E+01	1.60E+00	0.0	0.0	1.60E+05
216-S-10D	0.0	3.59E-03	4.59E-08	8.67E-03	3.77E-09	0.0	0.0	0.0	0.0	6.11E+05
216-S-10P	0.0	3.94E-01	1.43E-04	3.99E-01	3.55E-07	5.79E-03	1.93E-03	0.0	0.0	7.37E+05
216-S-11	5.28E-03	4.76E-01	1.47E-04	5.33E-01	4.16E-07	1.80E-02	1.82E-01	0.0	0.0	5.16E+06
216-S-12	0.0	2.94E-01	1.69E-04	2.97E-01	5.36E-07	7.80E-02	6.33E-03	0.0	0.0	6.81E+01

Table A-16. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2000.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
216-S-13	0.0	5.88E-01	1.39E-03	2.18E+00	1.68E-06	7.83E-01	8.67E-02	1.00E+04	0.0	5.00E+03
216-S-14	0.0	2.67E-01	9.91E-05	1.95E-01	2.12E-07	5.90E-03	0.0	0.0	0.0	7.60E+01
216-S-15	0.0	3.19E-02	1.11E-05	2.73E-02	3.12E-08	9.47E-04	0.0	0.0	0.0	1.00E+01
216-S-16D	0.0	1.28E-04	4.32E-08	1.42E-04	1.03E-10	0.0	0.0	0.0	0.0	4.00E+05
216-S-16P	0.0	3.61E+01	1.47E-03	2.24E+01	2.37E-05	2.37E+01	2.25E+00	0.0	0.0	4.07E+07
216-S-17	0.0	1.58E+01	2.96E-03	9.76E+00	8.81E-06	2.86E-01	1.09E-01	0.0	0.0	6.39E+06
216-S-172	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-S-18	0.0	3.14E-02	1.29E-05	3.01E-02	3.23E-08	6.77E-03	3.41E-05	0.0	0.0	9.82E+01
216-S-19	1.05E-01	1.03E+00	3.00E-04	9.56E-01	8.36E-07	1.34E+00	1.20E-01	0.0	0.0	1.18E+06
216-S-20	0.0	3.27E+01	2.44E-02	4.27E+01	3.66E-05	1.30E+01	2.99E-02	0.0	0.0	1.35E+05
216-S-21	8.91E+03	1.64E+01	5.61E-03	7.22E+01	5.32E-05	1.39E-01	3.21E-03	0.0	0.0	8.71E+04
216-S-22	0.0	3.19E-01	1.36E-04	4.60E-01	3.53E-07	8.28E-03	0.0	0.0	0.0	9.83E+01
216-S-23	0.0	8.81E-01	6.60E-04	2.70E+00	1.82E-06	6.64E-02	3.06E-04	0.0	0.0	3.41E+04
216-S-25	8.44E+01	3.26E-02	5.07E-03	5.02E-02	3.12E-08	3.30E-03	1.28E-01	0.0	0.0	2.88E+05
216-S-26	0.0	1.99E-03	5.34E-07	2.20E-03	1.06E-09	0.0	8.87E-05	0.0	0.0	2.00E+05
216-S-3	1.24E+03	3.52E-01	2.85E-04	1.87E+01	1.72E-05	3.30E-02	3.00E-04	1.86E+00	0.0	4.20E+03
216-S-4	7.31E+02	1.55E-01	9.35E-05	6.79E+00	5.88E-06	1.84E-02	1.60E-04	1.37E+00	0.0	1.00E+03
216-S-5	0.0	5.30E+01	1.88E-03	1.86E+01	1.92E-05	3.88E+01	2.10E-01	0.0	0.0	4.11E+06
216-S-6	0.0	1.71E+02	1.83E-02	9.27E+01	7.09E-05	3.17E+01	2.09E-01	0.0	0.0	4.47E+06
216-S-7	9.09E+03	1.05E+03	1.00E+00	5.47E+02	5.08E-04	3.19E+01	1.92E+00	0.0	0.0	3.90E+05
216-S-8	0.0	3.19E-01	4.64E-03	4.08E+00	4.69E-06	1.31E-01	3.23E-01	0.0	0.0	1.00E+04
216-S-9	2.45E+03	6.72E+01	2.47E-02	2.17E+02	1.52E-04	3.83E+00	2.53E-02	0.0	0.0	5.03E+04
216-SX-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-T-1	0.0	2.70E-02	1.23E-05	2.95E-02	4.93E-08	7.23E-03	2.95E-03	0.0	0.0	3.94E+02
216-T-12	0.0	1.59E+00	1.36E-05	2.85E+00	2.98E-06	5.87E-02	3.71E-02	0.0	0.0	4.99E+03
216-T-13	0.0	9.50E-05	0.0	1.15E-04	0.0	0.0	0.0	0.0	0.0	1.10E-02
216-T-14	1.60E+00	5.86E+01	1.31E+00	2.40E+02	2.48E-03	1.20E-01	2.95E-02	8.96E+01	0.0	1.00E+03
216-T-15	1.61E+00	5.55E+01	1.32E+00	2.49E+02	2.48E-03	1.21E-01	2.96E-02	8.89E+01	0.0	1.00E+03
216-T-16	1.59E+00	5.51E+01	1.31E+00	2.37E+02	2.51E-03	1.19E-01	2.96E-02	8.95E+01	0.0	9.98E+02
216-T-17	1.59E+00	5.60E+01	1.32E+00	2.41E+02	2.50E-03	1.20E-01	2.91E-02	8.92E+01	0.0	1.00E+03
216-T-18	9.41E-01	7.02E+03	1.27E+00	7.98E+03	2.41E-03	1.01E+01	1.78E-01	8.48E+01	0.0	9.99E+02
216-T-19	2.47E+00	2.15E+01	3.51E-03	1.50E+02	1.51E-04	1.05E+00	7.42E-03	0.0	0.0	4.55E+05

Table A-16. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2000.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
216-T-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.92E+02	0.0	6.00E-03
216-T-20	0.0	3.59E-01	2.41E-04	3.01E-01	3.66E-07	0.0	4.11E-03	0.0	0.0	1.89E+01
216-T-21	7.48E-01	2.61E+01	6.10E-01	1.16E+02	1.15E-03	5.52E-02	1.39E-02	4.15E+01	0.0	4.65E+02
216-T-22	2.45E+00	6.94E+01	2.00E+00	3.74E+02	3.79E-03	1.86E-01	4.82E-02	1.36E+02	0.0	1.53E+03
216-T-23	2.37E+00	6.52E+01	1.95E+00	3.58E+02	3.67E-03	1.81E-01	4.54E-02	1.30E+02	0.0	1.48E+03
216-T-24	2.42E+00	8.87E+01	2.01E+00	3.75E+02	3.78E-03	1.86E-01	4.49E-02	1.35E+02	0.0	1.53E+03
216-T-25	1.21E+01	5.17E+04	1.79E+01	3.97E+04	3.39E-02	2.92E+01	1.96E+00	1.42E+03	0.0	3.00E+03
216-T-26	1.12E+01	8.40E+04	1.53E+01	9.59E+04	2.89E-02	1.21E+02	1.89E+00	1.01E+03	0.0	1.20E+04
216-T-27	0.0	5.84E+01	3.97E-04	4.43E+01	4.11E-05	8.65E-01	7.06E-03	0.0	0.0	7.19E+03
216-T-28	0.0	7.98E+01	1.71E-01	1.39E+02	1.38E-04	4.38E+00	2.97E-01	0.0	0.0	4.23E+04
216-T-29	0.0	6.18E-03	2.71E-06	7.25E-03	7.67E-09	1.31E-03	6.76E-04	0.0	0.0	7.40E+01
216-T-3	2.81E+00	1.18E+03	9.86E-02	1.30E+03	1.86E-04	8.88E-01	6.43E-01	5.89E+02	0.0	1.13E+04
216-T-31	0.0	0.0	0.0	3.56E-06	0.0	0.0	0.0	0.0	0.0	9.00E-03
216-T-32	0.0	9.56E+00	4.63E-03	8.03E+00	8.05E-06	2.48E+02	2.03E-02	0.0	0.0	2.90E+04
216-T-33	0.0	1.92E-01	9.35E-05	2.33E-01	1.52E-07	3.12E-01	3.08E-03	0.0	0.0	1.90E+03
216-T-34	0.0	1.35E+02	8.43E-02	1.07E+02	8.73E-05	6.15E+00	3.30E-03	0.0	0.0	1.73E+04
216-T-35	0.0	8.89E+00	2.10E-03	8.17E+00	5.51E-06	4.92E+00	3.24E-02	0.0	0.0	5.72E+03
216-T-36	0.0	3.65E+00	3.18E-04	2.92E+00	2.14E-06	1.59E-01	8.20E-04	0.0	0.0	5.22E+02
216-T-4-1D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-T-4-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-T-4A	0.0	2.54E+00	1.78E-03	4.86E+00	3.57E-06	2.59E-01	5.65E-01	0.0	0.0	4.24E+07
216-T-4B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-T-5	2.02E+00	1.03E+01	2.40E-01	1.73E+01	4.52E-04	3.40E+00	1.22E-01	2.19E+02	0.0	2.60E+03
216-T-6	0.0	8.66E+01	5.30E-02	7.96E+01	9.12E-05	3.46E+01	1.60E-02	0.0	0.0	4.50E+04
216-T-7	0.0	1.73E+01	9.36E-03	1.56E+01	1.85E-05	9.71E+00	7.05E-03	0.0	0.0	1.10E+05
216-T-8	0.0	2.76E-01	2.84E-04	2.84E-01	3.70E-07	3.34E-01	3.68E-03	1.58E+01	0.0	4.99E+02
216-TY-201	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-U-1#2	0.0	1.81E+00	6.54E-04	3.39E+00	3.37E-06	3.09E+00	4.35E+00	0.0	0.0	1.59E+04
216-U-10	9.77E-01	8.77E+00	1.38E-03	1.00E+01	7.01E-06	5.33E+02	4.39E+00	0.0	0.0	1.62E+08
216-U-11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-U-12	6.93E-04	4.10E+01	1.71E-03	8.72E-01	5.54E-07	7.53E-02	1.47E+00	0.0	0.0	1.49E+05
216-U-13	0.0	1.98E-01	9.48E-05	2.31E-01	2.13E-07	6.43E-03	3.18E-04	0.0	0.0	1.14E+01

Table A-16. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2000.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
216-U-14	1.68E+02	3.30E-02	1.74E-02	7.17E-01	3.11E-07	2.28E-04	1.97E-01	0.0	0.0	4.43E+06
216-U-15	0.0	6.12E-01	0.0	2.09E+01	0.0	3.56E+00	2.61E-02	0.0	0.0	6.81E+01
216-U-16	0.0	7.16E-03	1.30E-05	1.27E-02	6.25E-09	1.00E-01	1.47E-02	0.0	0.0	4.10E+05
216-U-17	4.54E+01	1.89E+00	4.83E-04	2.06E+00	9.03E-07	0.0	2.68E-03	0.0	0.0	5.65E+05
216-U-3	0.0	3.33E-02	2.48E-04	2.91E-01	3.01E-07	6.54E-03	1.52E-02	0.0	0.0	7.90E+02
216-U-4	0.0	6.23E-03	3.25E-06	7.57E-03	8.17E-09	6.96E-03	2.28E-05	0.0	0.0	3.00E+02
216-U-4A	0.0	1.39E-02	5.15E-05	1.28E-01	1.19E-07	5.66E-04	6.87E-03	0.0	0.0	3.31E+02
216-U-4B	0.0	7.14E-03	6.05E-05	1.37E-01	1.13E-07	3.79E-03	0.0	0.0	0.0	3.30E+01
216-U-5	0.0	1.79E-02	5.80E-06	2.75E-02	1.67E-08	3.06E-03	2.44E-01	0.0	0.0	2.25E+03
216-U-6	0.0	1.47E-02	8.93E-06	1.51E-02	2.31E-08	2.96E-03	2.47E-01	0.0	0.0	2.25E+03
216-U-7	0.0	7.79E-02	5.78E-05	7.88E-02	8.11E-08	4.25E-03	2.16E-04	0.0	0.0	7.01E+00
216-U-8	1.22E+04	5.46E+00	9.64E-03	6.13E+00	5.90E-06	3.25E+01	1.87E+01	0.0	0.0	3.78E+05
216-U-9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-W-LWC	0.0	9.07E-02	6.93E-04	7.02E-01	2.63E-03	1.95E-02	2.26E-03	0.0	0.0	1.00E+06
216-Z-1#2	0.0	1.61E-01	9.89E-05	1.65E-01	1.71E-07	5.06E+02	6.05E-02	0.0	0.0	3.37E+04
216-Z-10	0.0	0.0	0.0	0.0	0.0	3.41E+00	0.0	0.0	0.0	1.00E+03
216-Z-11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-Z-12	0.0	1.09E-01	4.72E-05	1.19E-01	9.09E-08	1.79E+03	0.0	0.0	0.0	2.81E+05
216-Z-13	0.0	0.0	0.0	2.95E-07	0.0	0.0	0.0	0.0	0.0	9.99E-04
216-Z-14	0.0	0.0	0.0	2.57E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
216-Z-15	0.0	0.0	0.0	2.75E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
216-Z-16	0.0	1.51E-02	3.97E-06	1.43E-02	1.01E-08	5.05E+00	0.0	0.0	0.0	1.02E+05
216-Z-17	0.0	1.27E-02	4.45E-06	9.37E-03	6.67E-09	3.32E+00	0.0	0.0	0.0	3.68E+04
216-Z-18	0.0	0.0	0.0	0.0	0.0	1.63E+03	0.0	0.0	1.72E+05	3.86E+03
216-Z-19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-Z-1A	0.0	2.15E-01	6.20E-05	1.95E-01	1.52E-07	3.69E+03	1.86E-05	0.0	2.68E+05	6.20E+03
216-Z-1D	0.0	3.82E-03	1.86E-06	4.79E-03	4.56E-09	6.71E+02	0.0	0.0	8.67E+04	1.00E+03
216-Z-20	0.0	1.26E-01	7.11E-05	1.05E-01	5.14E-08	1.47E+00	0.0	0.0	0.0	4.53E+06
216-Z-21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-Z-3	0.0	5.13E-02	2.78E-05	6.04E-02	6.04E-08	3.91E+02	0.0	0.0	0.0	1.78E+05
216-Z-4	0.0	2.33E-02	2.69E-05	3.41E-02	2.90E-08	1.60E-01	5.30E-05	0.0	0.0	1.10E+01
216-Z-5	0.0	1.26E+00	7.16E-05	2.56E+00	3.09E-06	2.22E+01	0.0	0.0	0.0	3.10E+04

Table A-16. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2000.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
216-Z-6	0.0	2.34E-02	1.14E-05	2.50E-02	3.30E-08	3.08E-01	3.58E-05	0.0	0.0	9.82E+01
216-Z-7	0.0	1.43E+02	2.49E-03	2.31E+02	1.06E-04	1.32E+02	3.98E-03	0.0	0.0	8.00E+04
216-Z-8	0.0	0.0	0.0	0.0	0.0	3.18E+00	0.0	0.0	0.0	9.59E+00
216-Z-9	0.0	5.58E-02	1.85E-05	5.12E-02	7.12E-08	2.87E+03	0.0	0.0	5.13E+05	4.09E+03
218-E$B6-11	4.35E+03	6.24E+05	2.82E+01	7.49E+05	4.12E-01	1.71E+03	1.19E-01	9.34E+01	0.0	2.22E+05
218-E-14	0.0	6.13E+02	2.61E-01	7.38E+02	7.19E-04	1.66E+01	0.0	0.0	0.0	5.67E+02
218-E-15	0.0	5.88E+03	1.61E+00	6.46E+03	2.77E+01	5.39E+01	0.0	0.0	0.0	1.14E+03
218-W$A6-4	8.34E+00	7.51E-01	1.28E-02	9.56E-01	7.68E-07	9.43E+01	3.21E-04	0.0	0.0	5.59E+03
218-W$S6-3	2.51E+04	1.51E+05	4.49E+01	2.06E+05	8.67E-02	2.77E+04	1.03E+02	0.0	3.60E+02	1.65E+04
218-W$T6-12	2.74E+05	2.21E+05	3.09E+01	3.85E+05	5.74E-01	4.24E+04	3.66E+02	0.0	7.19E+02	2.85E+05
218-W-7	0.0	6.81E-02	3.38E-05	7.03E-02	6.96E-08	3.04E+02	1.33E-05	0.0	0.0	1.59E+02
221-B	0.0	4.03E+04	1.42E+01	8.29E+04	2.77E-02	0.0	0.0	8.35E+02	0.0	1.00E+00
221-B_SDT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
221-T	0.0	1.62E+03	9.85E-01	5.86E+03	2.10E-03	7.91E+01	0.0	0.0	0.0	9.99E-01
221-T_CSTF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
221-T-11-R	1.10E+01	2.45E+03	9.01E-01	4.90E+03	1.74E-03	6.86E+01	1.95E+01	0.0	0.0	2.30E+00
221-U	0.0	2.35E+02	7.43E+00	2.89E+02	4.52E-04	1.46E+01	5.62E+01	0.0	0.0	1.00E+00
222-SD	0.0	3.29E+01	1.36E-02	3.44E+01	3.40E-05	9.33E-02	0.0	0.0	0.0	2.27E+02
224-B	0.0	1.43E+01	2.50E-03	6.92E-01	3.48E-07	2.55E+01	0.0	0.0	0.0	1.00E+00
224-T	0.0	2.02E+01	2.39E-03	7.62E-01	3.05E-07	2.90E+01	0.0	0.0	0.0	1.00E+00
224-U	0.0	2.85E+02	7.18E-02	3.06E+02	1.38E-04	0.0	3.34E-01	0.0	0.0	9.99E-01
231-W-151	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
231-Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
234-5Z	0.0	0.0	0.0	0.0	0.0	2.63E+05	0.0	0.0	0.0	4.81E+03
240-S-151	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240-S-152	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240-S-302	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-A-101	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-A-102	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-A-103	2.46E+00	1.46E+03	4.36E+00	3.52E+03	8.44E-03	8.54E-01	8.72E-02	8.96E+01	0.0	2.09E+01
241-A-104	3.19E-02	2.19E+02	7.13E-01	2.03E+03	1.38E-03	7.01E-01	4.89E-03	6.73E+00	0.0	7.56E+00
241-A-105	1.25E+01	4.33E+03	2.70E+01	8.27E+04	5.19E-02	1.56E+00	3.97E-02	6.74E+01	0.0	1.05E+03

Table A-16. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2000.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
241-A-106	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-A-151	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-A-302A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-A-302B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-AN-101	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-AN-102	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-AN-103	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-AN-104	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-AN-105	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-AN-106	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-AN-107	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-AP-101	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-AP-102	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-AP-103	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-AP-104	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-AP-105	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-AP-106	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-AP-107	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-AP-108	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-AW-101	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-AW-102	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-AW-103	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-AW-104	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-AW-105	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-AW-106	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-AX-101	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-AX-102	1.94E+00	1.15E+03	3.26E+00	2.85E+03	6.32E-03	6.66E-01	6.13E-02	7.71E+01	0.0	1.14E+01
241-AX-103	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-AX-104	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-AY-101	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-AY-102	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-AZ-101	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table A-16. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2000.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
241-AZ-102	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-B-101	3.20E-01	5.52E+02	2.14E-01	1.37E-01	4.16E-04	2.02E-01	3.23E-04	8.46E-04	0.0	1.89E+01
241-B-102	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-B-103	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-B-104	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-B-105	4.69E-02	2.02E+02	7.00E-02	1.55E+02	1.32E-04	1.14E-01	7.62E-03	5.56E+00	0.0	1.14E+01
241-B-106	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-B-107	1.48E-01	2.40E+02	4.33E-01	1.22E+03	8.35E-04	5.24E-01	4.18E-02	1.03E+01	0.0	5.31E+01
241-B-108	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-B-109	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-B-110	6.39E+00	3.32E+03	1.38E+01	1.38E+04	2.68E-02	2.41E+00	1.08E-01	1.35E+02	0.0	9.47E+01
241-B-111	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-B-112	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-B-154	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-B-201	3.38E-05	1.36E+00	1.08E-04	1.56E+00	2.01E-07	4.47E-03	4.87E-04	2.94E+00	0.0	4.54E+00
241-B-202	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-B-203	4.04E-05	1.63E+00	1.30E-04	1.87E+00	2.43E-07	5.36E-03	5.88E-04	3.68E+00	0.0	1.14E+00
241-B-204	4.48E-08	1.80E-03	1.42E-07	2.06E-03	2.69E-10	5.96E-06	6.52E-07	5.45E-01	0.0	1.51E+00
241-B-302B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-B-361	0.0	2.24E-02	1.78E-07	4.89E-02	5.63E-08	1.06E-03	6.92E-04	0.0	0.0	8.31E+01
241-BX-101	6.35E-01	5.73E+02	1.11E+00	1.50E+02	2.14E-03	2.81E-01	4.33E-03	1.29E+01	0.0	1.51E+01
241-BX-102	6.02E+00	2.72E+03	3.28E+00	3.04E+03	6.25E-03	2.54E+00	6.61E+00	2.98E+01	0.0	3.48E+02
241-BX-103	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-BX-104	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-BX-105	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-BX-106	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-BX-107	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-BX-108	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-BX-109	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-BX-110	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-BX-111	9.91E-03	3.83E+01	1.50E-02	4.42E+01	2.90E-05	1.57E-01	1.35E-02	2.48E+00	0.0	1.51E+01
241-BX-112	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table A-16. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2000.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
241-BX-154	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-BX-155	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-BX-302B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-BX-302C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-BY-101	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-BY-102	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-BY-103	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-BY-104	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-BY-105	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-BY-106	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-BY-107	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-BY-108	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-BY-109	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-BY-110	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-BY-111	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-BY-112	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-C-101	9.05E+00	1.12E+04	3.91E+01	1.08E+05	7.56E-02	4.13E+00	1.05E-01	1.99E+02	0.0	7.57E+01
241-C-102	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-C-103	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-C-104	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-C-105	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-C-106	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-C-107	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-C-108	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-C-109	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-C-110	2.37E-01	1.47E+02	5.20E-01	9.09E+01	9.97E-04	1.17E-01	2.13E-02	8.19E+00	0.0	7.56E+00
241-C-111	1.46E-02	3.26E+02	4.67E-02	3.54E+01	9.00E-05	2.30E-01	7.73E-03	6.06E+00	0.0	2.08E+01
241-C-112	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-C-154	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-C-201	4.02E-04	6.43E+01	5.75E-03	3.39E-01	1.11E-05	2.33E-02	6.22E-06	9.38E-01	0.0	2.08E+00
241-C-202	3.06E-04	4.89E+01	4.34E-03	2.57E-01	8.43E-06	1.75E-02	4.72E-06	7.08E-01	0.0	1.70E+00
241-C-203	3.26E-04	5.30E+01	4.68E-03	2.76E-01	9.05E-06	1.88E-02	5.09E-06	7.70E-01	0.0	1.51E+00

Table A-16. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2000.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
241-C-204	2.59E-04	4.23E+01	3.73E-03	2.21E-01	7.18E-06	1.50E-02	4.03E-06	6.08E-01	0.0	1.33E+00
241-CX-70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-ER-151	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-ER-152	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-ER-311	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-ER-311A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-S-101	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-S-102	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-S-103	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-S-104	4.79E+00	3.81E+03	3.86E+00	9.68E+03	7.40E-03	1.63E+00	8.32E-02	7.79E+02	0.0	9.09E+01
241-S-105	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-S-106	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-S-107	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-S-108	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-S-109	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-S-110	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-S-111	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-S-112	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-S-151	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-S-302A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-SX-101	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-SX-102	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-SX-103	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-SX-104	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-SX-105	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-SX-106	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-SX-107	4.73E+00	1.33E+03	2.70E+00	7.70E+03	5.13E-03	4.77E-01	2.09E-02	2.73E+02	0.0	2.54E+01
241-SX-108	2.20E+01	5.59E+03	1.23E+01	3.54E+04	2.32E-02	2.01E+00	8.71E-02	1.16E+03	0.0	5.68E+01
241-SX-109	9.54E-01	2.85E+02	5.48E-01	1.57E+03	1.04E-03	1.02E-01	4.47E-03	5.93E+01	0.0	3.80E+00
241-SX-110	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-SX-111	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-SX-112	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table A-16. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2000.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
241-SX-113	2.41E+00	1.88E+03	1.92E+00	4.82E+03	3.71E-03	6.57E-01	3.02E-02	3.91E+02	0.0	5.68E+01
241-SX-114	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-SX-115	9.67E+00	2.84E+03	5.51E+00	1.59E+04	1.04E-02	2.05E+00	1.33E-01	5.01E+02	0.0	1.89E+02
241-SX-302	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-SY-101	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-SY-102	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-SY-103	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-T-101	6.12E-01	1.95E+02	3.85E-01	1.05E+03	7.31E-04	3.40E-01	2.48E-02	2.41E+01	0.0	3.78E+01
241-T-102	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-T-103	8.06E-01	4.38E+02	1.47E+00	4.52E+02	2.83E-03	2.69E-01	7.57E-03	2.35E+01	0.0	1.14E+01
241-T-104	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-T-105	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-T-106	3.21E+01	1.84E+04	6.04E+01	1.80E+04	1.17E-01	1.13E+01	2.96E-01	9.73E+02	0.0	4.35E+02
241-T-107	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-T-108	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-T-109	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-T-110	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-T-111	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-T-112	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-T-201	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-T-202	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-T-203	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-T-204	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-TX-101	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-TX-102	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-TX-103	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-TX-104	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-TX-105	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-TX-106	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-TX-107	3.12E+00	2.08E+03	4.60E+00	5.76E+03	8.88E-03	1.24E+00	1.37E-01	1.32E+02	0.0	3.03E+01
241-TX-108	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-TX-109	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table A-16. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2000.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
241-TX-110	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-TX-111	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-TX-112	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-TX-113	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-TX-114	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-TX-115	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-TX-116	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-TX-117	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-TX-118	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-TX-152	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-TX-154	0.0	1.22E+01	9.10E-04	1.29E+01	1.61E-05	1.13E-01	4.38E-03	0.0	0.0	1.90E+01
241-TX-155	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-TX-302B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-TX-302BR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-TX-302C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-TY-101	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-TY-102	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-TY-103	9.47E-01	5.52E+02	1.29E+00	2.31E+03	2.49E-03	3.26E-01	7.57E-02	4.57E+01	0.0	1.14E+01
241-TY-104	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-TY-105	4.68E-01	1.31E+03	6.63E-01	1.49E+03	1.25E-03	8.90E-01	3.40E-02	2.30E+01	0.0	1.33E+02
241-TY-106	2.61E-01	7.40E+02	3.72E-01	8.38E+02	6.96E-04	5.02E-01	1.92E-02	1.30E+01	0.0	7.58E+01
241-U-101	3.95E+00	3.07E+03	3.18E+00	7.95E+03	6.12E-03	1.08E+00	4.97E-02	6.42E+02	0.0	1.14E+02
241-U-102	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-U-103	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-U-104	1.44E+00	6.26E+02	7.80E-01	7.19E+02	1.48E-03	7.99E-02	3.14E-01	6.91E+00	0.0	5.01E+02
241-U-105	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-U-106	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-U-107	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-U-108	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-U-109	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-U-110	4.82E-01	2.45E+02	6.21E-01	1.79E+03	1.20E-03	1.74E-01	1.87E-02	2.55E+01	0.0	2.48E+01
241-U-111	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table A-16. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2000.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
241-U-112	9.99E-01	8.05E+02	7.95E-01	2.01E+03	1.53E-03	3.14E-01	1.88E-02	1.61E+02	0.0	3.22E+01
241-U-151	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-U-152	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-U-201	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-U-202	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-U-203	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-U-204	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-U-361	0.0	1.68E-02	7.20E-06	1.97E-02	1.79E-08	1.71E-02	5.98E-05	0.0	0.0	7.28E+02
241-UX-154	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-UX-302A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-WR_VAULT	0.0	5.06E+01	4.98E-02	8.42E+01	6.23E-07	0.0	0.0	0.0	0.0	1.00E+00
241-Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-Z-361	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-Z-8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
244-S_DCRT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2704-C-WS-1	0.0	0.0	0.0	4.29E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
270-E-1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
270-W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2718-E-WS-1	0.0	0.0	0.0	3.67E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
276-S-141	0.0	1.90E-04	0.0	2.05E-04	0.0	0.0	0.0	0.0	0.0	8.31E-01
276-S-142	0.0	1.91E-04	0.0	1.97E-04	0.0	0.0	0.0	0.0	0.0	8.31E-01
276-U	0.0	1.80E+00	2.96E-04	1.76E+00	1.89E-06	0.0	0.0	0.0	0.0	9.99E-01
2904-S$S6-3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
296-$S6-7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
296-A-13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
299-E24-111	0.0	1.00E-02	2.38E-06	1.10E-02	5.87E-09	0.0	0.0	0.0	0.0	1.12E+02
300_RLWS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300_RRLWS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300-2	0.0	2.46E-01	8.72E-05	3.18E-01	3.56E-07	0.0	6.21E-04	0.0	0.0	1.90E+02
300-214	0.0	1.22E+01	4.93E-03	1.67E+01	1.37E-05	0.0	8.17E-02	0.0	0.0	1.14E+04
300-224	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300-24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table A-16. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2000.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
300-25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300-264	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300-265	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
307_RB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
316-1	0.0	1.33E+04	5.30E+00	1.37E+04	1.30E-02	0.0	3.33E+01	0.0	0.0	1.00E+07
316-2	0.0	1.14E+04	4.77E+00	1.35E+04	1.22E-02	0.0	3.19E+01	0.0	0.0	1.00E+07
316-3	0.0	1.11E+02	4.68E-02	1.21E+02	1.08E-04	0.0	2.94E-01	0.0	0.0	9.09E+04
316-4	0.0	2.31E-02	1.12E-05	2.56E-02	2.71E-08	0.0	7.11E-05	0.0	0.0	2.22E+01
316-5	0.0	5.35E+03	1.61E+00	5.82E+03	3.24E-03	0.0	2.64E+00	0.0	0.0	2.52E+07
331_LSLDF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4843	1.61E+02	1.28E+06	6.68E+02	3.82E+06	1.27E+00	0.0	3.45E+01	0.0	0.0	7.01E+00
600-111	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
600-118	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
600-148	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
600-211	1.97E+02	9.04E-01	3.11E-03	1.59E+01	5.73E-06	0.0	0.0	0.0	0.0	1.41E+05
600-259	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
600-262	0.0	0.0	0.0	4.32E-07	0.0	0.0	0.0	0.0	0.0	9.99E-04
618-$R6-10	0.0	1.46E+04	9.05E+00	1.65E+04	1.91E-02	1.62E-01	5.30E+01	0.0	0.0	1.24E+05
618-10	0.0	9.21E+01	2.47E-04	9.85E+01	8.99E-05	1.93E+01	1.85E-03	0.0	0.0	1.42E+04
618-11	0.0	2.15E+04	7.54E+00	2.06E+04	1.56E-02	4.30E+02	4.16E+01	0.0	0.0	2.12E+04
B_PLANT_FILTER	0.0	1.40E+05	1.19E+01	6.81E+04	1.95E-02	3.06E-01	0.0	0.0	0.0	1.10E+01
HSVP	0.0	4.56E-04	0.0	4.59E-04	0.0	0.0	0.0	0.0	0.0	1.79E+03
ILAW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RMWSF	5.82E+01	2.57E+06	6.82E+02	3.83E+06	1.30E+00	6.11E+03	4.50E+00	6.49E+02	6.11E+03	1.17E+04
UPR-100-D$D6-5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UPR-100-F$F6-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UPR-100-F$F6-3	0.0	2.07E-05	6.12E-09	2.12E-05	1.54E-11	1.01E-06	0.0	0.0	0.0	6.44E+01
UPR-100-K-1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UPR-100-N$N6-12	6.60E-03	2.89E+03	7.89E-01	3.15E+03	1.49E-03	5.75E-04	5.56E-11	0.0	0.0	2.99E+03
UPR-200-E$A3-5	0.0	1.13E+04	3.57E+00	1.27E+04	8.59E-03	4.47E-02	2.68E-01	0.0	0.0	1.47E+02
UPR-200-E$A6-2	0.0	0.0	0.0	3.08E-07	0.0	0.0	0.0	0.0	0.0	9.98E-04
UPR-200-E$A6-6	0.0	0.0	0.0	0.0	0.0	0.0	3.25E+00	0.0	0.0	2.08E-01

Table A-16. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2000.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
UPR-200-E$B3-12	0.0	2.53E+02	7.49E-02	2.73E+02	1.84E-04	5.04E-03	4.54E+00	0.0	0.0	1.64E+02
UPR-200-E$B6-9	5.25E-02	7.82E+00	2.50E-03	8.74E+00	1.10E-04	4.07E+00	3.13E-05	4.11E-04	0.0	8.73E+02
UPR-200-E-101	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UPR-200-E-50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UPR-200-W$S3-7	2.46E+00	1.23E+04	7.39E+00	1.68E+04	1.41E-02	1.41E-01	6.10E-03	0.0	0.0	1.21E+02
UPR-200-W$S5-5	0.0	5.91E+02	1.50E-04	5.80E+02	3.51E-07	3.63E+00	0.0	0.0	0.0	7.50E+03
UPR-200-W$S6-5	0.0	3.98E-01	1.55E-04	3.87E-01	3.85E-07	6.63E-02	4.97E-02	0.0	0.0	6.90E+01
UPR-200-W$T3-9	5.23E+02	2.90E+05	5.98E+02	1.20E+06	1.17E+00	1.53E+02	3.59E+01	1.34E+00	0.0	1.14E+04
UPR-200-W$T6-5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UPR-200-W-113	0.0	0.0	0.0	0.0	0.0	7.57E-01	0.0	0.0	0.0	9.99E-01
UPR-200-W-130	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UPR-200-W-8	0.0	5.74E-02	4.50E-05	7.13E-02	7.43E-08	0.0	0.0	0.0	0.0	1.00E+00
UPR-300-$R5-7	0.0	0.0	0.0	0.0	0.0	0.0	3.42E-05	0.0	0.0	3.79E-02
UPR-300-$R6-13	0.0	1.25E+01	2.96E-03	1.07E+01	6.40E-06	7.84E-02	0.0	0.0	0.0	1.77E+01
UPR-300-$R6-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UPR-300-$R6-4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
US_Ecology	2.96E+05	2.88E+04	6.28E+01	8.26E+04	5.68E+00	6.65E+03	1.32E+04	0.0	0.0	3.89E+05
Totals	**8.69E+05**	**1.52E+07**	**6.19E+03**	**2.39E+07**	**4.96E+01**	**7.02E+05**	**1.68E+04**	**1.83E+07**	**1.68E+06**	

[a]Entries are mean (i.e., average) values of 25 realizations of site-specific inventory. The site-specific data in the database are approximately 43% record based, approximately 14% model based, and 43% estimates.

Table A-17. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2050.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
Atmosphere	1.76E+02	7.00E+04	5.68E+01	7.91E+04	3.31E+00	2.19E+00	2.00E-09	4.88E-04	6.37E+05	1.28E+05
Store	0.0	2.30E+07	1.84E+04	2.91E+07	0.0	5.36E+04	2.50E+02	0.0	0.0	1.19E+04
100-B-10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-B-5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-B-8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-C-3	0.0	0.0	0.0	1.07E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
100-C-6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-D-18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-D-19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-D-20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-D-21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-D-23	0.0	0.0	0.0	1.04E-07	0.0	0.0	0.0	0.0	0.0	9.99E-04
100-D-24	0.0	0.0	0.0	1.08E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
100-D-4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-D-48	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-D-49	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-D-52	0.0	0.0	0.0	8.66E-08	0.0	0.0	0.0	0.0	0.0	1.00E-03
100-D-57	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-F-10	0.0	0.0	0.0	9.46E-08	0.0	0.0	0.0	0.0	0.0	9.98E-04
100-F-11	0.0	0.0	0.0	1.12E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
100-F-12	0.0	0.0	0.0	1.00E-07	0.0	0.0	0.0	0.0	0.0	9.99E-04
100-F-16	0.0	0.0	0.0	1.06E-07	0.0	0.0	0.0	0.0	0.0	9.99E-04
100-F-19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-F-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-F-23	0.0	0.0	0.0	1.79E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
100-F-25	0.0	0.0	0.0	2.76E-06	0.0	0.0	0.0	0.0	0.0	2.00E-02
100-F-29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-F-4	0.0	0.0	0.0	1.07E-07	0.0	0.0	0.0	0.0	0.0	9.98E-04
100-F-9	0.0	0.0	0.0	1.09E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
100-H-10	0.0	0.0	0.0	8.93E-08	0.0	0.0	0.0	0.0	0.0	9.99E-04
100-H-12	0.0	0.0	0.0	9.38E-08	0.0	0.0	0.0	0.0	0.0	1.00E-03
100-H-13	0.0	0.0	0.0	1.07E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03

Table A-17. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2050.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
100-H-21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-H-30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-H-7	0.0	0.0	0.0	1.16E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
100-H-8	0.0	0.0	0.0	1.05E-07	0.0	0.0	0.0	0.0	0.0	9.99E-04
100-H-9	0.0	0.0	0.0	8.80E-08	0.0	0.0	0.0	0.0	0.0	1.00E-03
100-K-1	0.0	0.0	0.0	1.01E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
100-K-4	0.0	0.0	0.0	1.26E-06	0.0	0.0	0.0	0.0	0.0	1.00E-02
100-K-42	9.90E+02	1.39E+06	1.43E+03	1.96E+06	3.23E+00	1.67E+05	8.50E+02	0.0	0.0	9.33E+01
100-K-43	9.93E+02	1.39E+06	1.44E+03	1.98E+06	3.25E+00	1.70E+05	8.42E+02	0.0	0.0	9.32E+01
100-K-46	0.0	0.0	0.0	1.07E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
100-K-5	0.0	0.0	0.0	1.13E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
100-K-55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-K-56	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-K-57	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-N-1	0.0	0.0	0.0	5.66E-06	0.0	0.0	0.0	0.0	0.0	2.90E-02
100-N-54	0.0	0.0	0.0	1.51E-07	0.0	0.0	0.0	0.0	0.0	9.99E-04
100-N-58	0.0	0.0	0.0	1.17E-06	0.0	0.0	0.0	0.0	0.0	6.00E-03
100-N-60	8.67E-06	7.36E-06	3.57E-08	3.57E-05	1.13E-10	0.0	2.92E-06	8.30E-01	0.0	2.84E-01
100-N-62	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-N-63	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-N-64	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100-N-66	1.72E+03	3.18E+00	2.02E-03	9.75E+00	1.37E-05	1.00E+00	0.0	0.0	0.0	1.60E+03
116-B-1	1.38E-03	1.33E-02	7.34E-05	6.50E-02	1.80E-07	1.52E-02	3.00E-02	5.95E+01	0.0	6.01E+04
116-B-10	1.27E-01	7.50E-02	6.56E-04	5.68E-01	1.75E-06	0.0	5.56E-02	1.57E+04	0.0	5.00E+03
116-B-11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
116-B-12	2.65E-01	1.11E-05	2.03E-08	2.12E-05	5.31E-11	0.0	1.05E-03	0.0	0.0	4.20E+02
116-B-13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
116-B-14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
116-B-15	2.74E-04	8.32E-04	3.27E-06	4.82E-03	8.15E-09	0.0	1.32E-03	0.0	0.0	5.67E+02
116-B-2	1.93E-04	2.19E-03	1.93E-05	1.39E-02	5.53E-08	3.25E-03	2.18E-03	0.0	0.0	4.00E+03
116-B-3	7.23E-03	3.47E-03	3.73E-05	2.69E-02	1.01E-07	8.08E-03	9.54E-04	4.21E-03	0.0	4.00E+00
116-B-4	9.40E-03	5.52E-03	3.98E-05	3.88E-02	9.74E-08	6.50E-03	7.95E-04	1.04E+03	0.0	3.00E+02

Table A-17. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2050.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
116-B-5	5.18E+00	2.50E-04	5.49E-07	4.74E-04	1.39E-09	0.0	7.11E-03	0.0	0.0	1.00E+04
116-B-6A	0.0	1.93E-01	3.71E-05	3.37E-02	9.30E-08	2.27E-03	2.02E-03	5.22E+01	0.0	5.00E+00
116-B-6B	2.17E-04	3.71E-05	6.38E-08	5.22E-05	1.43E-10	0.0	2.42E-05	4.77E+01	0.0	5.00E+00
116-B-7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.87E+06	0.0	2.64E+09
116-B-9	8.39E-04	4.87E-04	5.31E-06	3.94E-03	1.33E-08	0.0	4.20E-04	1.20E+02	0.0	4.00E+01
116-C-1	2.23E-02	3.43E-01	1.54E-03	1.28E+00	3.66E-06	1.20E-01	8.30E-02	1.10E+02	0.0	4.42E+07
116-C-2A	7.95E-03	2.00E-01	1.99E-07	1.72E-04	5.22E-10	0.0	2.27E-03	5.11E+02	0.0	7.50E+03
116-C-2C	6.99E-03	4.09E-01	2.00E-03	1.77E+00	5.09E-06	1.27E-01	3.00E-01	0.0	0.0	7.50E+03
116-C-5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
116-C-6	4.52E-03	1.29E-02	2.05E-05	2.40E-02	3.75E-08	8.25E-04	1.53E-05	0.0	0.0	2.16E+03
116-D-10	4.90E-06	1.12E-05	3.40E-07	5.40E-04	8.19E-10	0.0	2.75E-05	4.04E-03	0.0	2.35E+03
116-D-1A	2.10E-02	2.85E-02	3.12E-04	2.58E-01	7.60E-07	1.85E-02	8.05E-03	1.07E+03	0.0	2.00E+02
116-D-1B	4.74E-03	3.56E-02	1.72E-04	1.14E-01	3.05E-07	6.34E-03	5.90E-03	7.09E+02	0.0	8.00E+03
116-D-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.75E-03	0.0	4.00E+00
116-D-3	0.0	7.36E-03	7.96E-05	7.49E-02	2.25E-07	0.0	0.0	2.91E-02	0.0	3.00E+01
116-D-4	0.0	8.29E-03	7.79E-05	6.96E-02	2.19E-07	0.0	0.0	2.99E-02	0.0	3.00E+01
116-D-5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.77E+06	0.0	2.67E+09
116-D-6	5.74E-08	2.89E-07	1.52E-08	1.28E-05	3.33E-11	0.0	1.28E-06	1.61E-04	0.0	1.00E+02
116-D-7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
116-D-9	0.0	1.26E-01	1.05E-03	1.20E+00	3.59E-06	0.0	0.0	3.92E-01	0.0	4.20E+02
116-DR-1#2	2.44E-02	1.28E-01	7.13E-03	5.36E+00	1.49E-05	7.01E-02	1.38E-01	8.40E+01	0.0	4.65E+07
116-DR-10	1.92E-06	4.43E-06	1.30E-07	2.05E-04	3.18E-10	0.0	1.06E-05	1.58E-03	0.0	9.09E+02
116-DR-3	5.90E-03	1.88E-02	9.71E-06	7.00E-03	2.12E-08	3.16E-03	0.0	0.0	0.0	4.00E+03
116-DR-4	0.0	9.90E-04	1.10E-05	8.30E-03	2.69E-08	1.08E-04	0.0	3.88E-03	0.0	4.00E+00
116-DR-5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.27E+06	0.0	1.83E+09
116-DR-6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.95E+00	0.0	7.00E+03
116-DR-7	0.0	8.26E-04	1.08E-05	8.02E-03	2.63E-08	0.0	0.0	3.36E-03	0.0	4.00E+00
116-DR-8	0.0	6.58E-02	6.51E-04	6.26E-01	1.58E-06	0.0	0.0	2.17E-01	0.0	2.40E+02
116-DR-9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
116-F-1	4.75E-03	1.22E-02	2.33E-04	2.04E-01	5.36E-07	6.78E-03	4.23E-02	9.83E-03	0.0	1.00E+05
116-F-10	9.03E-04	1.39E-05	2.12E-06	1.35E-03	4.46E-09	6.60E-05	7.53E-05	2.00E+03	0.0	4.00E+02
116-F-11	5.22E-04	6.67E-06	8.62E-07	7.25E-04	2.31E-09	0.0	1.47E-04	9.42E+02	0.0	2.00E+02

Table A-17. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2050.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
116-F-12	3.82E-07	1.06E-06	2.29E-08	1.87E-05	5.59E-11	0.0	1.98E-05	1.01E-06	0.0	1.00E+01
116-F-14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
116-F-2	8.87E-03	1.47E-02	2.05E-04	1.68E-01	5.14E-07	8.54E-03	3.72E-02	5.98E+01	0.0	6.00E+04
116-F-3	1.24E-05	7.05E-05	1.31E-07	8.54E-05	3.08E-10	0.0	0.0	4.15E+00	0.0	8.00E+03
116-F-4	2.68E-04	2.12E-01	4.71E-04	3.12E-01	1.28E-06	3.89E-02	4.44E-03	3.61E-03	0.0	4.00E+00
116-F-5	0.0	4.25E-06	1.03E-08	8.89E-06	2.65E-11	0.0	0.0	0.0	0.0	3.00E+00
116-F-6	3.80E-02	4.52E-02	1.28E-04	1.19E-01	3.21E-07	1.11E-02	1.56E-02	0.0	0.0	1.00E+02
116-F-7	0.0	4.67E-06	5.00E-09	4.56E-06	1.21E-11	2.76E-05	0.0	0.0	0.0	3.00E+02
116-F-8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.56E+06	0.0	2.26E+09
116-F-9	0.0	4.11E-01	1.89E-05	2.00E-02	4.29E-08	6.50E-03	0.0	0.0	0.0	3.00E+05
116-H-1	8.46E-04	1.59E-01	9.38E-04	9.02E-01	2.34E-06	6.43E-02	4.01E-01	1.00E+02	0.0	9.00E+04
116-H-2	5.17E-03	1.12E-01	6.99E-05	5.79E-02	1.53E-07	4.21E-04	1.30E-02	5.94E+02	0.0	6.00E+05
116-H-3	2.43E-05	2.87E-05	9.21E-06	6.87E-03	2.10E-08	8.13E-05	0.0	1.96E+03	0.0	4.00E+02
116-H-4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.44E-04	0.0	9.99E-01
116-H-5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.37E+06	0.0	2.02E+09
116-H-6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.95E+01	0.0	1.97E+04
116-H-7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
116-H-9	3.19E-06	5.37E-04	3.29E-06	2.96E-03	7.58E-09	0.0	5.73E-03	2.68E-01	0.0	3.00E+02
116-K-1	0.0	1.54E-01	6.40E-03	3.89E+00	1.10E-05	1.19E-01	0.0	4.19E+01	0.0	4.01E+04
116-K-2	3.93E-01	1.89E+00	3.85E-02	3.30E+01	8.29E-05	4.85E+00	7.24E-01	2.82E+05	0.0	3.00E+08
116-K-3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.85E+06	0.0	1.13E+10
116-KE-1	1.44E+00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.01E+02
116-KE-2	1.15E-02	4.37E-01	1.64E-04	1.49E-01	3.64E-07	1.83E-02	4.84E-03	0.0	0.0	3.00E+03
116-KE-3	0.0	0.0	0.0	2.16E-06	0.0	0.0	0.0	0.0	0.0	1.70E-02
116-KE-4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
116-KW-1	0.0	3.12E-03	9.90E-05	1.02E-01	2.40E-07	0.0	0.0	7.58E-01	0.0	8.01E+02
116-KW-2	0.0	0.0	0.0	2.06E-06	0.0	0.0	0.0	0.0	0.0	1.60E-02
116-KW-3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
116-N-1	3.03E+02	4.77E+02	5.80E-01	6.19E+02	1.29E-03	2.42E+01	1.59E-05	0.0	0.0	8.37E+07
116-N-2	1.47E-02	1.98E-02	2.31E-05	2.68E-02	5.22E-08	9.70E-04	1.60E-09	0.0	0.0	3.40E+03
116-N-3	1.85E+01	4.81E+01	7.23E-02	8.98E+01	1.33E-04	2.91E+00	5.36E-02	0.0	0.0	7.60E+06
116-N-4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table A-17. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2050.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
118-$C6-9	1.25E+03	1.18E-01	1.82E-04	1.53E-01	4.58E-07	0.0	0.0	0.0	0.0	2.11E+04
118-B-8	1.97E+02	6.14E+00	4.48E-03	9.10E+00	2.01E-05	3.21E+00	2.15E-02	0.0	0.0	1.03E+03
118-B-9	7.10E+02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.12E+01
118-C-3	2.02E+02	3.73E+00	2.77E-03	7.47E+00	1.53E-05	2.98E+00	9.78E-03	0.0	0.0	1.03E+03
118-D$D6-14	1.31E-01	2.91E-01	3.34E-04	2.82E-01	8.33E-07	0.0	0.0	0.0	0.0	2.06E+04
118-D-6	1.68E+02	2.71E+00	1.71E-03	6.37E+00	1.50E-05	9.93E-01	0.0	0.0	0.0	1.03E+03
118-DR-2	1.25E+02	1.97E+00	1.92E-03	6.18E+00	1.58E-05	8.91E-01	0.0	0.0	0.0	1.03E+03
118-F$F6-6	6.14E-02	1.58E-01	2.02E-04	1.67E-01	4.85E-07	5.44E-01	0.0	0.0	0.0	4.30E+04
118-F-4	2.31E-02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00E+01
118-F-8	1.36E+02	4.95E+00	5.22E-03	1.60E+01	2.45E-05	3.17E+00	2.14E-02	0.0	0.0	1.03E+03
118-H$H6-7	4.65E-02	9.15E-02	1.18E-04	9.89E-02	2.94E-07	0.0	0.0	0.0	0.0	1.07E+04
118-H-6	1.37E+02	4.98E+00	4.85E-03	1.34E+01	1.94E-05	3.13E+00	2.19E-02	0.0	0.0	1.03E+03
118-K$K6-2	1.50E-01	2.97E-01	4.38E-04	3.11E-01	9.14E-07	0.0	0.0	0.0	0.0	1.00E+04
118-KE-1	7.39E+02	3.36E+02	1.76E-01	2.77E+02	3.33E-04	4.04E+02	0.0	1.70E+01	0.0	1.65E+03
118-KW-1	6.72E+02	2.21E+00	2.16E-03	6.64E+00	1.40E-05	1.04E+00	0.0	0.0	0.0	1.60E+03
132-C-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.27E+06	0.0	3.09E+09
132-DR-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
141-C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1908-NE	1.55E+02	1.03E+01	1.01E-01	1.40E+00	2.53E-06	1.03E-01	0.0	0.0	0.0	2.70E+01
200-E-102	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200-E-14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200-E-30	0.0	6.03E+02	4.70E-01	7.72E+02	8.94E-04	9.58E-01	0.0	0.0	0.0	1.00E+00
200-E-4	0.0	0.0	0.0	3.64E-07	0.0	0.0	0.0	0.0	0.0	2.00E-03
200-W-16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200-W-40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200-W-42	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200-W-43	0.0	1.09E+03	2.05E+00	1.43E+03	4.43E-03	0.0	0.0	0.0	0.0	1.70E+01
200-W-44	0.0	3.10E+02	1.20E+00	2.40E+03	4.88E-04	4.02E+01	0.0	0.0	0.0	1.00E+00
200-W-45	0.0	6.04E+02	4.65E-01	9.52E+02	9.55E-04	7.44E-01	0.0	0.0	0.0	1.00E+00
200-W-52	0.0	2.99E-06	0.0	3.20E-06	0.0	0.0	0.0	0.0	0.0	1.90E+00
200-W-58	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200-W-59	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table A-17. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2050.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
200-W-69	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200-W-7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
202-A	0.0	9.18E+01	8.27E-02	1.44E+02	1.59E-04	7.36E+02	0.0	0.0	0.0	1.00E+00
202-S	0.0	1.23E+03	1.32E+00	1.59E+03	3.16E-03	0.0	0.0	0.0	0.0	9.98E-01
207-A-NORTH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
207-A-SOUTH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
207-B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
207-S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
207-SL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
207-T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
207-U	2.27E-04	2.59E-06	0.0	2.35E-04	7.39E-06	1.34E-04	9.93E-07	0.0	0.0	1.30E+01
207-Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
209-E-WS-1	0.0	0.0	0.0	1.04E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
209-E-WS-2	0.0	0.0	0.0	1.12E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
209-E-WS-3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-A-1	0.0	9.22E-03	1.28E-05	1.44E-02	2.87E-08	6.49E-03	7.84E+00	0.0	0.0	9.83E+01
216-A-10	3.20E+03	2.17E+01	1.77E+01	1.98E+01	2.92E-04	2.57E+01	2.78E+02	0.0	0.0	2.96E+06
216-A-11	5.41E-04	1.30E-05	0.0	1.21E-03	5.65E-05	1.53E-03	1.15E-05	0.0	0.0	9.99E+01
216-A-12	5.41E-04	1.30E-05	0.0	1.22E-03	5.65E-05	1.55E-03	1.22E-05	0.0	0.0	1.00E+02
216-A-13	6.02E-05	1.55E-06	0.0	1.25E-04	6.06E-06	9.77E-05	7.40E-07	0.0	0.0	9.80E+00
216-A-14	8.69E-06	1.59E-07	0.0	1.43E-05	5.35E-07	9.41E-06	7.27E-08	0.0	0.0	9.99E-01
216-A-15	4.78E-05	1.15E-06	0.0	1.08E-04	5.01E-06	1.39E-04	1.09E-06	0.0	0.0	8.83E+00
216-A-16	0.0	1.47E-03	1.74E-06	1.57E-03	4.59E-09	8.63E-04	4.80E-02	0.0	0.0	1.22E+02
216-A-17	0.0	1.14E-01	1.47E-04	1.20E-01	2.86E-07	5.80E-02	4.13E-03	0.0	0.0	6.00E+01
216-A-18	0.0	9.25E-03	3.18E-05	9.54E-03	4.15E-08	6.68E-03	1.21E+00	0.0	0.0	4.89E+02
216-A-19	0.0	9.17E-03	1.23E-05	9.94E-03	2.97E-08	7.05E-03	2.71E+01	0.0	0.0	1.10E+03
216-A-2	0.0	2.58E-01	9.66E-04	3.86E-01	9.41E-07	8.32E+00	6.67E-02	0.0	0.0	2.30E+02
216-A-20	0.0	8.60E-03	2.07E-05	8.99E-03	3.41E-08	6.67E-03	2.91E-01	0.0	0.0	9.58E+02
216-A-21	1.08E+02	2.22E+00	6.92E-03	1.96E+01	4.70E-05	9.93E+00	1.46E-01	3.07E+02	0.0	7.79E+04
216-A-22	3.18E-05	7.71E-07	0.0	7.18E-05	3.36E-06	9.29E-05	6.89E-07	0.0	0.0	5.90E+00
216-A-23A	4.25E-05	9.00E-07	0.0	8.18E-05	3.35E-06	6.11E-05	4.60E-07	0.0	0.0	5.98E+00
216-A-23B	5.16E-05	8.89E-07	0.0	7.91E-05	3.18E-06	5.94E-05	4.73E-07	0.0	0.0	5.98E+00

Table A-17. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2050.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
216-A-24	3.42E+01	4.60E+00	1.12E-02	6.74E+01	1.78E-04	3.59E-01	4.68E-02	0.0	0.0	8.21E+05
216-A-25	5.94E+00	5.42E+01	6.79E-01	5.10E+01	1.09E-04	3.14E+01	4.73E+02	0.0	0.0	2.85E+08
216-A-26	0.0	0.0	0.0	5.42E-06	0.0	0.0	0.0	0.0	0.0	2.70E-02
216-A-26A	7.30E-06	1.51E-07	0.0	1.75E-05	5.39E-07	1.07E-05	7.58E-08	0.0	0.0	1.00E+00
216-A-27	0.0	5.82E+00	4.65E-03	7.86E+00	1.80E-05	6.64E+00	1.55E+02	1.95E+02	0.0	2.31E+04
216-A-28	0.0	6.75E-02	8.46E-05	8.07E-02	3.38E-07	0.0	4.95E-01	0.0	0.0	3.00E+01
216-A-29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-A-3	0.0	3.40E-02	1.09E-04	3.39E-02	9.71E-08	1.25E-02	1.39E+00	0.0	0.0	2.87E+03
216-A-30	5.72E-01	2.49E+01	2.87E-02	2.64E+01	7.56E-05	5.53E+00	7.77E+00	0.0	0.0	7.68E+06
216-A-31	0.0	2.89E-02	0.0	9.62E-01	0.0	5.19E-01	3.66E-03	0.0	0.0	9.99E+00
216-A-32	3.62E-05	6.53E-07	0.0	5.88E-05	2.27E-06	3.89E-05	2.97E-07	0.0	0.0	3.92E+00
216-A-33	0.0	0.0	0.0	1.37E-06	0.0	0.0	0.0	0.0	0.0	1.00E-02
216-A-34	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-A-35	0.0	7.52E-01	7.16E-04	1.11E+00	1.90E-06	2.31E-01	4.47E-03	0.0	0.0	1.00E+01
216-A-36A	0.0	2.42E+02	4.62E-01	1.85E+02	5.16E-04	6.11E+00	1.06E-01	0.0	0.0	1.07E+03
216-A-36B	1.64E+01	8.14E+01	6.05E-01	8.75E+01	1.18E-03	1.24E+01	2.60E+01	0.0	0.0	3.15E+05
216-A-37-1	5.20E+01	2.11E-02	8.72E-01	2.35E-02	3.13E-03	2.02E-03	2.61E-02	0.0	0.0	3.71E+05
216-A-37-2	2.10E-01	8.13E-02	4.11E-03	6.49E-02	9.74E-08	7.70E-04	3.65E-02	0.0	0.0	1.07E+06
216-A-39	1.25E-04	1.69E-01	4.04E-03	4.03E+00	7.82E-06	5.44E-04	7.43E-06	8.12E-03	0.0	2.00E-02
216-A-4	0.0	1.20E+00	3.53E-04	1.57E+00	4.38E-06	9.73E+00	2.90E-01	1.01E+02	0.0	6.21E+03
216-A-40	1.01E-03	2.46E-05	5.62E-08	2.39E-03	1.08E-04	3.08E-03	4.59E-05	4.50E-04	0.0	9.49E+02
216-A-41	0.0	5.79E-03	0.0	2.37E-01	0.0	4.82E-01	2.80E-03	0.0	0.0	9.80E+00
216-A-42	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-A-45	8.08E+01	1.90E-03	2.08E+00	2.42E-03	3.50E-03	2.41E-04	5.59E-03	0.0	0.0	1.02E+05
216-A-5	1.29E+03	1.18E+01	8.84E-03	2.78E+00	1.05E-05	4.08E+00	2.17E-01	0.0	0.0	1.63E+06
216-A-524	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-A-6	0.0	1.23E+01	1.34E-02	2.90E+01	6.60E-05	2.19E+00	1.36E-01	0.0	0.0	3.36E+06
216-A-7	0.0	1.08E-01	5.86E-04	5.18E-01	1.52E-06	7.09E-02	4.90E-03	0.0	0.0	3.16E+02
216-A-8	1.20E-02	1.25E+01	2.46E-02	1.40E+02	3.54E-04	3.23E+00	2.60E-01	0.0	0.0	1.07E+06
216-A-9	9.50E+00	2.45E+00	6.12E-05	1.09E+00	3.10E-06	3.79E-02	1.65E-04	0.0	0.0	9.81E+05
216-B-10A	0.0	4.57E-01	8.89E-05	8.75E-02	3.19E-07	6.58E-01	1.00E-02	9.28E+01	0.0	1.00E+04
216-B-10B	0.0	4.50E-05	1.50E-08	1.86E-05	3.62E-11	0.0	0.0	0.0	0.0	1.44E+01

Table A-17. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2050.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
216-B-11A#B	5.33E-01	5.90E-01	7.15E-03	5.90E+00	2.35E-05	2.47E-01	1.02E-02	0.0	0.0	2.96E+04
216-B-12	0.0	2.11E+01	2.75E-02	1.63E+02	3.76E-04	2.35E+01	1.81E+01	0.0	0.0	5.20E+05
216-B-13	0.0	2.80E-05	2.63E-08	2.46E-05	6.42E-11	0.0	0.0	0.0	0.0	2.10E+01
216-B-14	1.81E+00	1.13E+03	4.25E+01	1.54E+03	7.97E-02	5.52E+00	3.93E-01	8.24E+02	0.0	8.71E+03
216-B-15	1.31E+00	1.09E+03	3.08E+01	1.01E+03	5.78E-02	4.02E+00	2.84E-01	5.79E+02	0.0	6.31E+03
216-B-16	1.16E+00	8.79E+02	2.72E+01	8.01E+02	5.14E-02	3.42E+00	2.54E-01	5.24E+02	0.0	5.60E+03
216-B-17	7.03E-01	4.74E+02	1.65E+01	5.80E+02	3.14E-02	2.16E+00	1.58E-01	3.15E+02	0.0	3.41E+03
216-B-18	1.77E+00	1.37E+03	4.16E+01	1.25E+03	7.82E-02	5.27E+00	3.96E-01	7.90E+02	0.0	8.52E+03
216-B-19	1.32E+00	1.06E+03	3.11E+01	1.14E+03	5.91E-02	4.21E+00	2.83E-01	5.93E+02	0.0	6.40E+03
216-B-20	9.60E-01	7.04E+02	2.29E+01	7.78E+02	4.25E-02	2.93E+00	2.16E-01	4.40E+02	0.0	4.68E+03
216-B-21	9.72E-01	6.23E+02	2.27E+01	8.55E+02	4.28E-02	3.08E+00	2.05E-01	4.32E+02	0.0	4.67E+03
216-B-2-1	0.0	1.02E+02	1.29E-04	7.65E-02	1.71E-07	0.0	0.0	0.0	0.0	1.00E-03
216-B-22	9.81E-01	6.10E+02	2.31E+01	7.48E+02	4.33E-02	2.83E+00	2.09E-01	4.39E+02	0.0	4.73E+03
216-B-2-2	0.0	3.55E+01	2.87E-05	8.15E-02	1.74E-07	2.88E-03	3.89E-05	0.0	0.0	4.98E+04
216-B-23	9.42E-01	7.88E+02	2.21E+01	5.96E+02	4.15E-02	2.99E+00	2.01E-01	4.22E+02	0.0	4.53E+03
216-B-2-3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-B-24	9.74E-01	5.89E+02	2.29E+01	6.60E+02	4.31E-02	3.03E+00	2.12E-01	4.37E+02	0.0	4.70E+03
216-B-25	7.86E-01	5.24E+02	1.83E+01	5.04E+02	3.46E-02	2.50E+00	1.68E-01	3.48E+02	0.0	3.76E+03
216-B-26	1.23E+00	8.61E+02	2.85E+01	9.72E+02	5.38E-02	3.80E+00	2.65E-01	5.55E+02	0.0	5.88E+03
216-B-27	9.15E-01	6.89E+02	2.15E+01	6.94E+02	4.10E-02	2.85E+00	2.00E-01	4.06E+02	0.0	4.42E+03
216-B-28	1.06E+00	7.19E+02	2.48E+01	9.27E+02	4.64E-02	3.17E+00	2.24E-01	4.61E+02	0.0	5.05E+03
216-B-29	9.98E-01	6.97E+02	2.36E+01	6.81E+02	4.48E-02	3.00E+00	2.18E-01	4.50E+02	0.0	4.85E+03
216-B-3	2.72E+01	2.33E+01	2.05E-01	2.52E+01	5.18E-05	1.93E+01	3.51E+01	0.0	0.0	2.67E+08
216-B-30	9.93E-01	7.43E+02	2.34E+01	8.72E+02	4.40E-02	2.99E+00	2.14E-01	4.42E+02	0.0	4.79E+03
216-B-31	9.88E-01	8.23E+02	2.31E+01	6.56E+02	4.38E-02	3.16E+00	2.20E-01	4.37E+02	0.0	4.74E+03
216-B-3-1	0.0	1.20E+00	1.38E-02	4.90E+00	1.48E-05	6.63E+00	2.62E+01	0.0	0.0	1.49E+08
216-B-32	9.85E-01	6.79E+02	2.32E+01	6.81E+02	4.38E-02	3.21E+00	2.16E-01	4.46E+02	0.0	4.77E+03
216-B-3-2	6.40E+02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.47E+08
216-B-33	9.82E-01	8.74E+02	2.29E+01	8.39E+02	4.36E-02	2.90E+00	2.13E-01	4.44E+02	0.0	4.75E+03
216-B-3-3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-B-34	1.01E+00	6.26E+02	2.38E+01	8.98E+02	4.47E-02	2.98E+00	2.16E-01	4.60E+02	0.0	4.88E+03
216-B-35	1.52E-01	2.14E+01	2.03E+00	1.19E+02	3.89E-03	1.85E-01	4.71E-02	1.39E+02	0.0	1.56E+03

Table A-17. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2050.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
216-B-36	1.88E-01	2.66E+01	2.55E+00	1.47E+02	4.82E-03	2.30E-01	5.97E-02	1.71E+02	0.0	1.94E+03
216-B-37	1.05E+00	2.29E+04	2.58E+01	1.81E+04	4.86E-02	4.19E+01	2.82E+00	2.05E+03	0.0	4.33E+03
216-B-38	1.39E-01	2.43E+01	1.87E+00	1.10E+02	3.54E-03	1.76E-01	4.39E-02	1.29E+02	0.0	1.43E+03
216-B-39	1.42E-01	2.04E+01	1.91E+00	1.14E+02	3.63E-03	1.78E-01	4.43E-02	1.31E+02	0.0	1.47E+03
216-B-3A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-B-3B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-B-3C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-B-4	0.0	1.01E-05	1.13E-08	8.16E-06	2.84E-11	0.0	0.0	0.0	0.0	1.00E+01
216-B-40	1.59E-01	2.64E+01	2.16E+00	1.30E+02	4.08E-03	1.96E-01	4.83E-02	1.44E+02	0.0	1.64E+03
216-B-41	1.39E-01	1.99E+01	1.88E+00	1.12E+02	3.58E-03	1.72E-01	4.43E-02	1.28E+02	0.0	1.44E+03
216-B-42	3.12E-01	1.98E+02	7.32E+00	2.14E+02	1.38E-02	9.59E-01	6.70E-02	1.39E+02	0.0	1.50E+03
216-B-43	4.36E-01	3.48E+02	1.02E+01	3.21E+02	1.93E-02	1.31E+00	1.01E-01	1.95E+02	0.0	2.10E+03
216-B-44	1.17E+00	8.36E+02	2.72E+01	1.01E+03	5.15E-02	3.33E+00	2.53E-01	5.19E+02	0.0	5.60E+03
216-B-45	1.02E+00	7.18E+02	2.38E+01	8.98E+02	4.52E-02	3.45E+00	2.15E-01	4.48E+02	0.0	4.91E+03
216-B-46	1.39E+00	9.00E+02	3.26E+01	9.68E+02	6.15E-02	4.47E+00	2.99E-01	6.28E+02	0.0	6.70E+03
216-B-47	7.65E-01	6.27E+02	1.81E+01	5.40E+02	3.43E-02	2.42E+00	1.67E-01	3.42E+02	0.0	3.70E+03
216-B-48	8.46E-01	6.28E+02	2.00E+01	6.51E+02	3.77E-02	2.58E+00	1.85E-01	3.78E+02	0.0	4.09E+03
216-B-49	1.39E+00	1.03E+03	3.26E+01	1.14E+03	6.16E-02	4.30E+00	3.01E-01	6.17E+02	0.0	6.70E+03
216-B-5	1.66E-01	3.59E+02	1.38E-01	4.07E+02	2.61E-04	8.58E-01	1.39E+00	5.70E+02	0.0	3.06E+04
216-B-50	2.21E+00	7.58E-01	4.43E-03	1.35E+01	3.59E-05	1.67E-02	2.14E-04	0.0	0.0	5.48E+04
216-B-51	2.06E-04	1.31E-01	4.85E-03	1.57E-01	9.20E-06	6.64E-04	4.53E-05	9.26E-02	0.0	9.98E-01
216-B-52	1.76E+00	1.54E+03	4.13E+01	1.17E+03	7.82E-02	5.59E+00	3.86E-01	7.87E+02	0.0	8.50E+03
216-B-53A	0.0	1.90E-02	1.22E-04	1.16E-02	3.01E-08	6.98E+00	1.80E-02	0.0	0.0	5.50E+02
216-B-53B	0.0	1.16E+00	8.75E-04	9.39E-01	2.21E-06	3.31E-01	9.06E-03	0.0	0.0	1.51E+01
216-B-54	0.0	1.24E-02	7.14E-03	1.12E-02	3.22E-08	3.42E-01	8.93E-03	0.0	0.0	9.99E+02
216-B-55	8.95E-02	1.74E+00	1.46E-03	3.28E+00	7.50E-06	4.49E-02	6.20E-02	0.0	0.0	1.20E+06
216-B-56	0.0	0.0	0.0	1.10E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
216-B-57	3.56E+00	4.26E-01	8.28E-03	5.31E+01	1.17E-04	1.31E-02	7.12E-04	0.0	0.0	8.44E+04
216-B-58	0.0	1.46E+00	9.64E-04	1.34E+00	3.24E-06	4.65E-01	6.96E-03	0.0	0.0	4.12E+02
216-B-59	1.04E-03	2.46E-05	2.98E-04	2.40E-03	1.08E-04	2.90E-03	3.02E-05	5.63E-03	0.0	4.80E+02
216-B-59B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-B-6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.35E+01	0.0	5.00E-03

Table A-17. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2050.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
216-B-60	0.0	4.31E+00	4.43E-03	1.16E+00	2.26E-06	4.59E-03	5.20E-01	0.0	0.0	1.89E+01
216-B-61	0.0	0.0	0.0	1.71E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
216-B-62	5.06E-01	1.42E+01	4.96E-02	3.04E+01	5.30E-05	5.44E-02	2.44E-02	0.0	0.0	2.63E+05
216-B-63	7.09E-02	5.91E-01	2.72E-04	1.71E-01	3.43E-07	4.07E-02	3.62E-01	0.0	0.0	7.99E+06
216-B-64	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-B-7A#B	0.0	5.19E+02	2.37E-03	9.81E+00	3.23E-05	2.98E+02	2.20E-01	0.0	0.0	4.34E+04
216-B-8	0.0	1.20E+00	1.63E-03	4.99E+00	1.78E-05	1.85E+00	3.40E-02	0.0	0.0	2.72E+04
216-B-9	3.11E-03	1.90E+01	7.81E-02	2.27E+01	1.49E-04	8.32E-03	1.43E+00	0.0	0.0	3.60E+04
216-BY-201	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-C-1	1.83E+00	1.81E+01	3.29E-02	1.28E+01	2.33E-05	5.43E-01	2.49E-01	0.0	0.0	2.34E+04
216-C-10	0.0	8.54E+00	6.33E-05	1.90E-02	4.76E-08	9.86E-03	2.03E-05	0.0	0.0	8.97E+02
216-C-2	0.0	3.77E-02	0.0	4.19E-02	0.0	0.0	0.0	0.0	0.0	3.39E+03
216-C-3	0.0	1.82E+00	4.55E-04	7.54E-02	2.35E-07	7.29E-02	3.43E-02	0.0	0.0	5.00E+03
216-C-4	0.0	2.53E+00	1.17E-04	1.16E-02	2.90E-08	5.99E-02	2.36E-03	0.0	0.0	5.31E+01
216-C-5	0.0	9.07E-01	2.54E-04	8.93E-03	3.54E-08	6.05E-02	5.00E-02	0.0	0.0	3.79E+01
216-C-6	0.0	7.38E+00	6.19E-03	3.87E-01	9.91E-07	6.74E-03	0.0	0.0	0.0	5.31E+02
216-C-7	0.0	1.48E-02	5.55E-05	1.36E-02	3.00E-08	7.35E-02	0.0	0.0	0.0	4.58E+01
216-C-8	0.0	7.58E-01	7.16E-04	6.24E-01	1.70E-06	2.66E-01	4.58E-03	0.0	0.0	1.00E+01
216-C-9	0.0	5.68E-01	3.77E-04	2.50E-01	6.49E-07	2.51E-02	6.96E-04	0.0	0.0	1.03E+06
216-N-1	0.0	1.82E-02	3.02E-05	2.36E-02	7.14E-08	6.30E-02	3.66E-03	0.0	0.0	9.45E+05
216-N-2	0.0	1.41E-02	3.41E-05	2.66E-02	6.42E-08	0.0	0.0	0.0	0.0	7.56E+03
216-N-3	0.0	1.82E-02	2.68E-05	2.01E-02	6.11E-08	0.0	0.0	0.0	0.0	7.57E+03
216-N-4	0.0	1.69E-02	2.95E-05	2.16E-02	6.73E-08	6.73E-02	3.44E-03	0.0	0.0	9.48E+05
216-N-5	0.0	1.83E-02	3.00E-05	1.99E-02	7.38E-08	0.0	0.0	0.0	0.0	7.56E+03
216-N-6	0.0	1.74E-02	3.25E-05	1.89E-02	6.79E-08	6.90E-02	3.25E-03	0.0	0.0	9.47E+05
216-N-7	0.0	1.55E-02	2.79E-05	2.70E-02	5.95E-08	0.0	0.0	0.0	0.0	7.58E+03
216-N-8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-S-1#2	1.07E+02	2.84E+02	2.90E+00	3.03E+02	8.15E-04	7.77E+01	1.60E+00	0.0	0.0	1.60E+05
216-S-10D	0.0	1.09E-03	4.59E-08	2.73E-03	3.77E-09	0.0	0.0	0.0	0.0	6.11E+05
216-S-10P	0.0	1.20E-01	1.43E-04	1.26E-01	3.55E-07	5.78E-03	1.93E-03	0.0	0.0	7.37E+05
216-S-11	3.19E-04	1.45E-01	1.47E-04	1.68E-01	4.16E-07	1.80E-02	1.82E-01	0.0	0.0	5.16E+06
216-S-12	0.0	8.95E-02	1.69E-04	9.35E-02	5.36E-07	7.79E-02	6.33E-03	0.0	0.0	6.81E+01

Table A-17. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2050.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
216-S-13	0.0	1.79E-01	1.39E-03	6.86E-01	1.68E-06	7.82E-01	8.67E-02	1.00E+04	0.0	5.00E+03
216-S-14	0.0	8.13E-02	9.91E-05	6.13E-02	2.12E-07	5.89E-03	0.0	0.0	0.0	7.60E+01
216-S-15	0.0	9.71E-03	1.11E-05	8.58E-03	3.12E-08	9.46E-04	0.0	0.0	0.0	1.00E+01
216-S-16D	0.0	3.90E-05	4.32E-08	4.49E-05	1.03E-10	0.0	0.0	0.0	0.0	4.00E+05
216-S-16P	0.0	1.10E+01	1.47E-03	7.05E+00	2.37E-05	2.37E+01	2.25E+00	0.0	0.0	4.07E+07
216-S-17	0.0	4.81E+00	2.96E-03	3.08E+00	8.81E-06	2.86E-01	1.09E-01	0.0	0.0	6.39E+06
216-S-172	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-S-18	0.0	9.56E-03	1.29E-05	9.47E-03	3.23E-08	6.76E-03	3.41E-05	0.0	0.0	9.82E+01
216-S-19	6.37E-03	3.14E-01	3.00E-04	3.01E-01	8.36E-07	1.34E+00	1.20E-01	0.0	0.0	1.18E+06
216-S-20	0.0	9.95E+00	2.44E-02	1.34E+01	3.66E-05	1.30E+01	2.99E-02	0.0	0.0	1.35E+05
216-S-21	5.39E+02	4.99E+00	5.61E-03	2.27E+01	5.32E-05	1.39E-01	3.21E-03	0.0	0.0	8.71E+04
216-S-22	0.0	9.71E-02	1.36E-04	1.45E-01	3.53E-07	8.27E-03	0.0	0.0	0.0	9.83E+01
216-S-23	0.0	2.68E-01	6.60E-04	8.51E-01	1.82E-06	6.63E-02	3.06E-04	0.0	0.0	3.41E+04
216-S-25	5.10E+00	9.91E-03	5.07E-03	1.58E-02	3.12E-08	3.29E-03	1.28E-01	0.0	0.0	2.88E+05
216-S-26	0.0	6.05E-04	5.34E-07	6.94E-04	1.06E-09	0.0	8.87E-05	0.0	0.0	2.00E+05
216-S-3	7.50E+01	1.07E-01	2.85E-04	5.89E+00	1.72E-05	3.29E-02	3.00E-04	1.86E+00	0.0	4.20E+03
216-S-4	4.42E+01	4.70E-02	9.35E-05	2.14E+00	5.88E-06	1.84E-02	1.60E-04	1.37E+00	0.0	1.00E+03
216-S-5	0.0	1.61E+01	1.88E-03	5.85E+00	1.92E-05	3.87E+01	2.10E-01	0.0	0.0	4.11E+06
216-S-6	0.0	5.21E+01	1.83E-02	2.92E+01	7.09E-05	3.16E+01	2.09E-01	0.0	0.0	4.47E+06
216-S-7	5.49E+02	3.20E+02	1.00E+00	1.72E+02	5.08E-04	3.19E+01	1.92E+00	0.0	0.0	3.90E+05
216-S-8	0.0	9.71E-02	4.64E-03	1.28E+00	4.69E-06	1.30E-01	3.23E-01	0.0	0.0	1.00E+04
216-S-9	1.48E+02	2.04E+01	2.47E-02	6.84E+01	1.52E-04	3.83E+00	2.53E-02	0.0	0.0	5.03E+04
216-SX-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-T-1	0.0	8.22E-03	1.23E-05	9.30E-03	4.93E-08	7.22E-03	2.95E-03	0.0	0.0	3.94E+02
216-T-12	0.0	4.82E-01	1.36E-05	8.98E-01	2.98E-06	5.86E-02	3.71E-02	0.0	0.0	4.99E+03
216-T-13	0.0	2.89E-05	0.0	3.62E-05	0.0	0.0	0.0	0.0	0.0	1.10E-02
216-T-14	9.66E-02	1.78E+01	1.31E+00	7.55E+01	2.48E-03	1.20E-01	2.95E-02	8.96E+01	0.0	1.00E+03
216-T-15	9.70E-02	1.69E+01	1.32E+00	7.85E+01	2.48E-03	1.21E-01	2.96E-02	8.89E+01	0.0	1.00E+03
216-T-16	9.59E-02	1.68E+01	1.31E+00	7.48E+01	2.51E-03	1.19E-01	2.96E-02	8.95E+01	0.0	9.98E+02
216-T-17	9.59E-02	1.70E+01	1.32E+00	7.60E+01	2.50E-03	1.20E-01	2.91E-02	8.92E+01	0.0	1.00E+03
216-T-18	5.69E-02	2.14E+03	1.27E+00	2.51E+03	2.41E-03	1.01E+01	1.78E-01	8.48E+01	0.0	9.99E+02
216-T-19	1.49E-01	6.53E+00	3.51E-03	4.72E+01	1.51E-04	1.05E+00	7.42E-03	0.0	0.0	4.55E+05

Table A-17. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2050.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
216-T-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.92E+02	0.0	6.00E-03
216-T-20	0.0	1.09E-01	2.40E-04	9.49E-02	3.66E-07	0.0	4.11E-03	0.0	0.0	1.89E+01
216-T-21	4.52E-02	7.93E+00	6.10E-01	3.65E+01	1.15E-03	5.51E-02	1.39E-02	4.15E+01	0.0	4.65E+02
216-T-22	1.48E-01	2.11E+01	2.00E+00	1.18E+02	3.79E-03	1.85E-01	4.82E-02	1.36E+02	0.0	1.53E+03
216-T-23	1.43E-01	1.98E+01	1.95E+00	1.13E+02	3.67E-03	1.81E-01	4.54E-02	1.30E+02	0.0	1.48E+03
216-T-24	1.46E-01	2.70E+01	2.01E+00	1.18E+02	3.78E-03	1.86E-01	4.49E-02	1.35E+02	0.0	1.53E+03
216-T-25	7.30E-01	1.57E+04	1.79E+01	1.25E+04	3.39E-02	2.92E+01	1.96E+00	1.42E+03	0.0	3.00E+03
216-T-26	6.79E-01	2.55E+04	1.53E+01	3.02E+04	2.89E-02	1.21E+02	1.89E+00	1.01E+03	0.0	1.20E+04
216-T-27	0.0	1.78E+01	3.97E-04	1.39E+01	4.11E-05	8.64E-01	7.06E-03	0.0	0.0	7.19E+03
216-T-28	0.0	2.43E+01	1.71E-01	4.38E+01	1.38E-04	4.38E+00	2.97E-01	0.0	0.0	4.23E+04
216-T-29	0.0	1.88E-03	2.71E-06	2.28E-03	7.67E-09	1.31E-03	6.76E-04	0.0	0.0	7.40E+01
216-T-3	1.70E-01	3.59E+02	9.85E-02	4.08E+02	1.86E-04	8.86E-01	6.43E-01	5.89E+02	0.0	1.13E+04
216-T-31	0.0	0.0	0.0	1.12E-06	0.0	0.0	0.0	0.0	0.0	9.00E-03
216-T-32	0.0	2.91E+00	4.62E-03	2.53E+00	8.05E-06	2.48E+02	2.03E-02	0.0	0.0	2.90E+04
216-T-33	0.0	5.85E-02	9.35E-05	7.35E-02	1.52E-07	3.12E-01	3.08E-03	0.0	0.0	1.90E+03
216-T-34	0.0	4.10E+01	8.43E-02	3.37E+01	8.73E-05	6.14E+00	3.30E-03	0.0	0.0	1.73E+04
216-T-35	0.0	2.71E+00	2.10E-03	2.57E+00	5.51E-06	4.91E+00	3.24E-02	0.0	0.0	5.72E+03
216-T-36	0.0	1.11E+00	3.18E-04	9.18E-01	2.14E-06	1.59E-01	8.20E-04	0.0	0.0	5.22E+02
216-T-4-1D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-T-4-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-T-4A	0.0	7.73E-01	1.78E-03	1.53E+00	3.57E-06	2.59E-01	5.65E-01	0.0	0.0	4.24E+07
216-T-4B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-T-5	1.22E-01	3.13E+00	2.40E-01	5.44E+00	4.52E-04	3.40E+00	1.22E-01	2.19E+02	0.0	2.60E+03
216-T-6	0.0	2.63E+01	5.30E-02	2.51E+01	9.12E-05	3.45E+01	1.60E-02	0.0	0.0	4.50E+04
216-T-7	0.0	5.27E+00	9.36E-03	4.90E+00	1.85E-05	9.70E+00	7.05E-03	0.0	0.0	1.10E+05
216-T-8	0.0	8.41E-02	2.84E-04	8.94E-02	3.70E-07	3.33E-01	3.68E-03	1.58E+01	0.0	4.99E+02
216-TY-201	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-U-1#2	0.0	5.51E-01	6.54E-04	1.07E+00	3.37E-06	3.08E+00	4.35E+00	0.0	0.0	1.59E+04
216-U-10	5.91E-02	2.67E+00	1.38E-03	3.16E+00	7.01E-06	5.32E+02	4.39E+00	0.0	0.0	1.62E+08
216-U-11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-U-12	4.19E-05	1.25E+01	1.71E-03	2.75E-01	5.54E-07	7.52E-02	1.47E+00	0.0	0.0	1.49E+05
216-U-13	0.0	6.01E-02	9.48E-05	7.28E-02	2.13E-07	6.42E-03	3.18E-04	0.0	0.0	1.14E+01

Table A-17. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2050.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
216-U-14	1.02E+01	1.00E-02	1.74E-02	2.26E-01	3.11E-07	2.28E-04	1.97E-01	0.0	0.0	4.43E+06
216-U-15	0.0	1.86E-01	0.0	6.58E+00	0.0	3.56E+00	2.61E-02	0.0	0.0	6.81E+01
216-U-16	0.0	2.18E-03	1.30E-05	4.01E-03	6.25E-09	9.98E-02	1.47E-02	0.0	0.0	4.10E+05
216-U-17	2.74E+00	5.73E-01	4.83E-04	6.50E-01	9.03E-07	0.0	2.68E-03	0.0	0.0	5.65E+05
216-U-3	0.0	1.01E-02	2.48E-04	9.16E-02	3.01E-07	6.53E-03	1.52E-02	0.0	0.0	7.90E+02
216-U-4	0.0	1.90E-03	3.25E-06	2.39E-03	8.17E-09	6.95E-03	2.28E-05	0.0	0.0	3.00E+02
216-U-4A	0.0	4.23E-03	5.15E-05	4.04E-02	1.19E-07	5.65E-04	6.87E-03	0.0	0.0	3.31E+02
216-U-4B	0.0	2.17E-03	6.05E-05	4.30E-02	1.13E-07	3.78E-03	0.0	0.0	0.0	3.30E+01
216-U-5	0.0	5.45E-03	5.80E-06	8.65E-03	1.67E-08	3.05E-03	2.44E-01	0.0	0.0	2.25E+03
216-U-6	0.0	4.48E-03	8.93E-06	4.76E-03	2.31E-08	2.95E-03	2.47E-01	0.0	0.0	2.25E+03
216-U-7	0.0	2.37E-02	5.78E-05	2.48E-02	8.11E-08	4.25E-03	2.16E-04	0.0	0.0	7.01E+00
216-U-8	7.38E+02	1.66E+00	9.64E-03	1.93E+00	5.90E-06	3.25E+01	1.87E+01	0.0	0.0	3.78E+05
216-U-9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-W-LWC	0.0	2.76E-02	6.93E-04	2.21E-01	2.63E-03	1.95E-02	2.26E-03	0.0	0.0	1.00E+06
216-Z-1#2	0.0	4.90E-02	9.88E-05	5.21E-02	1.71E-07	5.05E+02	6.05E-02	0.0	0.0	3.37E+04
216-Z-10	0.0	0.0	0.0	0.0	0.0	3.40E+00	0.0	0.0	0.0	1.00E+03
216-Z-11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-Z-12	0.0	3.31E-02	4.72E-05	3.74E-02	9.09E-08	1.79E+03	0.0	0.0	0.0	2.81E+05
216-Z-13	0.0	0.0	0.0	9.31E-08	0.0	0.0	0.0	0.0	0.0	9.99E-04
216-Z-14	0.0	0.0	0.0	8.10E-08	0.0	0.0	0.0	0.0	0.0	1.00E-03
216-Z-15	0.0	0.0	0.0	8.65E-08	0.0	0.0	0.0	0.0	0.0	1.00E-03
216-Z-16	0.0	4.58E-03	3.97E-06	4.50E-03	1.01E-08	5.05E+00	0.0	0.0	0.0	1.02E+05
216-Z-17	0.0	3.86E-03	4.45E-06	2.95E-03	6.67E-09	3.32E+00	0.0	0.0	0.0	3.68E+04
216-Z-18	0.0	0.0	0.0	0.0	0.0	1.62E+03	0.0	0.0	1.72E+05	3.86E+03
216-Z-19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-Z-1A	0.0	6.55E-02	6.19E-05	6.13E-02	1.52E-07	3.68E+03	1.86E-05	0.0	2.68E+05	6.20E+03
216-Z-1D	0.0	1.16E-03	1.86E-06	1.51E-03	4.56E-09	6.71E+02	0.0	0.0	8.67E+04	1.00E+03
216-Z-20	0.0	3.83E-02	7.11E-05	3.31E-02	5.14E-08	1.47E+00	0.0	0.0	0.0	4.53E+06
216-Z-21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
216-Z-3	0.0	1.56E-02	2.78E-05	1.90E-02	6.04E-08	3.90E+02	0.0	0.0	0.0	1.78E+05
216-Z-4	0.0	7.09E-03	2.69E-05	1.07E-02	2.90E-08	1.60E-01	5.30E-05	0.0	0.0	1.10E+01
216-Z-5	0.0	3.84E-01	7.16E-05	8.05E-01	3.09E-06	2.21E+01	0.0	0.0	0.0	3.10E+04

Table A-17. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2050.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
216-Z-6	0.0	7.12E-03	1.14E-05	7.88E-03	3.30E-08	3.08E-01	3.58E-05	0.0	0.0	9.82E+01
216-Z-7	0.0	4.34E+01	2.49E-03	7.27E+01	1.06E-04	1.32E+02	3.98E-03	0.0	0.0	8.00E+04
216-Z-8	0.0	0.0	0.0	0.0	0.0	3.17E+00	0.0	0.0	0.0	9.59E+00
216-Z-9	0.0	1.70E-02	1.85E-05	1.61E-02	7.12E-08	2.86E+03	0.0	0.0	5.13E+05	4.09E+03
218-E$B6-11	5.66E+02	1.90E+05	3.15E+01	2.36E+05	4.12E-01	1.71E+03	1.19E-01	2.06E+02	0.0	3.59E+05
218-E-14	0.0	1.86E+02	2.61E-01	2.33E+02	7.19E-04	1.65E+01	0.0	0.0	0.0	5.67E+02
218-E-15	0.0	1.79E+03	1.61E+00	2.04E+03	2.77E+01	5.38E+01	0.0	0.0	0.0	1.14E+03
218-W$A6-4	5.04E-01	2.29E-01	1.28E-02	3.01E-01	7.68E-07	9.42E+01	3.21E-04	0.0	0.0	5.59E+03
218-W$S6-3	1.52E+03	4.60E+04	4.48E+01	6.48E+04	8.67E-02	2.76E+04	1.03E+02	0.0	3.60E+02	1.65E+04
218-W$T6-12	1.93E+04	9.34E+05	4.60E+03	1.05E+06	6.61E+01	4.28E+04	2.09E+03	8.60E+01	7.19E+02	3.64E+05
218-W-7	0.0	2.07E-02	3.38E-05	2.21E-02	6.96E-08	3.03E+02	1.33E-05	0.0	0.0	1.59E+02
221-B	0.0	1.22E+04	1.42E+01	2.61E+04	2.77E-02	0.0	0.0	8.35E+02	0.0	1.00E+00
221-B_SDT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
221-T	0.0	4.93E+02	9.85E-01	1.84E+03	2.10E-03	7.90E+01	0.0	0.0	0.0	9.99E-01
221-T_CSTF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
221-T-11-R	6.63E-01	7.45E+02	9.00E-01	1.54E+03	1.74E-03	6.85E+01	1.95E+01	0.0	0.0	2.30E+00
221-U	0.0	7.15E+01	7.42E+00	9.11E+01	4.52E-04	1.46E+01	5.62E+01	0.0	0.0	1.00E+00
222-SD	0.0	9.99E+00	1.36E-02	1.08E+01	3.40E-05	9.32E-02	0.0	0.0	0.0	2.27E+02
224-B	0.0	4.35E+00	2.50E-03	2.18E-01	3.48E-07	2.55E+01	0.0	0.0	0.0	1.00E+00
224-T	0.0	6.14E+00	2.39E-03	2.40E-01	3.05E-07	2.89E+01	0.0	0.0	0.0	1.00E+00
224-U	0.0	8.68E+01	7.18E-02	9.64E+01	1.38E-04	0.0	3.34E-01	0.0	0.0	9.99E-01
231-W-151	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
231-Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
234-5Z	0.0	0.0	0.0	0.0	0.0	2.63E+05	0.0	0.0	0.0	4.81E+03
240-S-151	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240-S-152	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240-S-302	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-A-101	6.63E-02	2.41E+03	6.28E-01	3.77E+03	8.63E-04	3.36E+00	1.40E-02	1.82E+02	0.0	7.29E+01
241-A-102	1.33E+00	1.19E+04	4.97E+00	2.80E+03	1.85E-03	8.26E+01	3.85E-01	3.73E+02	0.0	7.28E+01
241-A-103	1.38E+00	2.11E+03	9.20E+00	4.47E+03	9.35E-03	6.82E+00	1.05E-01	1.49E+02	0.0	9.34E+01
241-A-104	1.20E-02	1.03E+05	1.35E+00	3.46E+03	2.61E-03	5.67E+01	6.60E-03	1.41E+01	0.0	8.01E+01
241-A-105	1.48E+00	1.44E+05	3.16E+01	3.13E+04	6.09E-02	4.91E+01	4.04E-02	1.12E+02	0.0	1.12E+03

Table A-17. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2050.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
241-A-106	7.42E-01	1.37E+04	4.41E+00	1.85E+03	8.05E-03	5.07E+01	8.98E-03	1.56E+02	0.0	7.28E+01
241-A-151	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-A-302A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-A-302B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-AN-101	5.24E-03	1.26E+01	1.69E-02	1.18E+01	3.17E-05	2.60E-02	1.75E-04	5.64E-01	0.0	3.78E-01
241-AN-102	5.40E-03	1.29E+01	1.69E-02	1.21E+01	3.28E-05	2.64E-02	1.79E-04	5.89E-01	0.0	3.79E-01
241-AN-103	5.20E-03	1.28E+01	1.70E-02	1.18E+01	3.15E-05	2.62E-02	1.78E-04	5.80E-01	0.0	3.79E-01
241-AN-104	2.91E-03	2.56E+00	9.99E-03	6.02E+00	1.93E-05	4.97E-03	5.23E-05	1.40E-01	0.0	3.78E-01
241-AN-105	4.59E-03	1.35E+01	2.39E-02	2.33E+01	9.23E-05	2.53E-02	1.84E-04	7.75E-01	0.0	3.78E-01
241-AN-106	1.58E-02	4.94E+01	4.49E-02	3.21E+01	1.02E-04	7.96E-03	9.46E-05	7.02E-01	0.0	3.79E-01
241-AN-107	5.24E-03	1.28E+01	1.72E-02	1.20E+01	3.16E-05	2.61E-02	1.78E-04	5.75E-01	0.0	3.78E-01
241-AP-101	5.21E-03	1.27E+01	1.73E-02	1.20E+01	3.22E-05	2.60E-02	1.81E-04	5.73E-01	0.0	3.79E-01
241-AP-102	3.88E-01	8.39E+01	7.98E+00	1.35E+04	2.50E-02	5.96E-03	1.45E-04	5.87E+01	0.0	9.48E+01
241-AP-103	2.61E-03	6.71E+00	8.97E-03	6.37E+00	1.69E-05	1.39E-02	9.60E-05	3.04E-01	0.0	3.78E-01
241-AP-104	5.16E-03	1.28E+01	1.72E-02	1.21E+01	3.19E-05	2.59E-02	1.77E-04	5.72E-01	0.0	3.78E-01
241-AP-105	4.98E-03	1.24E+01	1.60E-02	1.16E+01	3.07E-05	2.49E-02	1.71E-04	5.50E-01	0.0	3.78E-01
241-AP-106	5.17E-03	1.29E+01	1.71E-02	1.20E+01	3.20E-05	2.59E-02	1.78E-04	5.76E-01	0.0	3.78E-01
241-AP-107	5.24E-03	1.29E+01	1.70E-02	1.21E+01	3.14E-05	2.59E-02	1.77E-04	5.87E-01	0.0	3.79E-01
241-AP-108	4.21E-03	2.17E+02	2.10E-02	1.45E+01	2.62E-05	6.17E-02	2.14E-04	1.52E+00	0.0	3.79E-01
241-AW-101	4.87E-03	1.25E+01	1.70E-02	1.18E+01	3.16E-05	2.59E-02	1.76E-04	5.64E-01	0.0	3.78E-01
241-AW-102	3.92E-03	2.01E+02	1.11E-02	9.83E+00	2.34E-05	7.94E-03	1.02E-04	3.30E-01	0.0	3.78E-01
241-AW-103	5.21E-03	1.28E+01	1.68E-02	1.19E+01	3.17E-05	2.64E-02	1.79E-04	5.76E-01	0.0	3.79E-01
241-AW-104	5.21E-03	1.27E+01	1.69E-02	1.20E+01	3.16E-05	2.56E-02	1.81E-04	5.72E-01	0.0	3.78E-01
241-AW-105	5.15E-03	1.26E+01	1.69E-02	1.19E+01	3.12E-05	2.61E-02	1.78E-04	5.72E-01	0.0	3.78E-01
241-AW-106	1.40E-02	1.14E+02	3.57E-02	3.91E+01	8.72E-05	8.96E-02	5.99E-05	1.35E+00	0.0	3.78E-01
241-AX-101	8.15E-02	2.17E+03	5.84E-01	3.69E+03	1.11E-03	4.87E+00	8.99E-03	1.33E+02	0.0	7.29E+01
241-AX-102	1.45E+00	4.20E+04	1.12E+01	7.23E+03	2.23E-02	5.63E+01	8.63E-02	1.19E+02	0.0	8.41E+01
241-AX-103	1.09E+00	1.90E+04	9.46E+00	4.12E+03	4.98E-03	7.75E+00	8.07E-03	1.74E+02	0.0	7.30E+01
241-AX-104	1.39E-01	2.48E+05	1.93E+01	6.08E+03	1.76E-03	5.71E+01	1.10E-02	6.20E+00	0.0	7.26E+01
241-AY-101	9.61E-03	5.05E+01	2.96E-02	2.28E+01	6.94E-06	8.09E-02	2.55E-04	8.00E-01	0.0	3.78E-01
241-AY-102	3.82E-01	5.18E+05	1.78E+01	2.30E+04	3.39E-02	1.71E+02	1.17E-01	1.60E+02	0.0	1.43E+02
241-AZ-101	5.24E-03	1.27E+01	1.71E-02	1.19E+01	3.15E-05	2.58E-02	1.78E-04	5.74E-01	0.0	3.78E-01

Table A-17. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2050.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
241-AZ-102	3.23E-03	4.33E+02	5.58E-02	1.59E+02	8.04E-06	3.47E-01	3.06E-04	2.54E-01	0.0	3.79E-01
241-B-101	5.56E-02	2.47E+02	4.15E-01	2.74E+02	8.06E-04	4.35E+01	1.88E-01	2.03E+01	0.0	9.16E+01
241-B-102	2.78E-02	1.97E+02	2.46E-01	3.45E+02	2.91E-04	2.38E+00	7.50E-02	2.95E+01	0.0	7.28E+01
241-B-103	1.89E-02	4.51E+01	9.92E-02	3.15E+02	1.88E-04	9.35E+00	6.88E-02	2.11E+01	0.0	7.27E+01
241-B-104	1.30E-02	2.48E+02	1.27E-01	3.79E+02	2.22E-04	3.27E+00	4.81E-02	4.31E+01	0.0	7.27E+01
241-B-105	2.09E-02	2.12E+02	2.47E-01	5.52E+02	3.47E-04	1.51E+00	4.00E-02	6.21E+01	0.0	8.40E+01
241-B-106	4.43E-02	2.41E+03	2.33E-01	7.63E+02	4.31E-04	2.43E+00	3.20E-01	3.19E+01	0.0	7.30E+01
241-B-107	3.81E-02	7.48E+02	1.10E+00	7.80E+02	1.01E-03	2.27E+00	7.08E-02	2.14E+01	0.0	1.26E+02
241-B-108	1.49E-02	3.48E+02	1.32E-01	3.23E+02	2.52E-04	2.39E-01	8.81E-02	1.69E+01	0.0	7.29E+01
241-B-109	1.68E-01	2.13E+02	1.23E+00	5.41E+02	1.98E-03	1.73E+00	1.67E-01	6.22E+01	0.0	7.28E+01
241-B-110	4.09E-01	3.98E+03	1.48E+01	4.76E+03	2.89E-02	7.01E+00	1.14E-01	1.87E+02	0.0	1.67E+02
241-B-111	1.63E-01	7.41E+03	7.30E+00	4.76E+03	1.86E-03	7.20E+00	4.02E-03	7.11E+01	0.0	7.25E+01
241-B-112	7.52E-01	4.90E+03	4.10E+00	2.41E+03	2.00E-03	3.30E-01	9.11E-03	6.06E+01	0.0	7.26E+01
241-B-154	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-B-201	7.03E-03	3.85E+00	1.42E-02	2.02E+00	3.79E-06	2.14E+00	1.53E-03	1.17E+01	0.0	1.24E+01
241-B-202	5.80E-04	1.57E+01	4.52E-04	7.12E-01	8.58E-07	1.10E+00	1.22E-03	2.23E+01	0.0	8.14E+00
241-B-203	2.52E-04	1.46E+00	4.18E-03	1.23E+00	1.45E-06	1.18E+00	1.29E-03	1.82E+01	0.0	9.01E+00
241-B-204	8.45E-05	5.70E-01	1.02E-03	5.01E-01	4.72E-07	1.27E+00	2.85E-04	1.87E+01	0.0	9.37E+00
241-B-302B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-B-361	0.0	6.81E-03	1.78E-07	1.54E-02	5.63E-08	1.06E-03	6.92E-04	0.0	0.0	8.31E+01
241-BX-101	5.91E-02	2.12E+03	1.81E+00	8.05E+02	3.09E-03	5.80E+00	2.27E-01	1.24E+02	0.0	8.77E+01
241-BX-102	3.65E-01	1.24E+03	3.54E+00	1.12E+03	6.45E-03	4.18E+00	6.62E+00	8.91E+01	0.0	4.20E+02
241-BX-103	2.46E-02	1.36E+03	9.56E-01	5.96E+02	8.21E-04	5.74E+00	4.06E-02	2.04E+02	0.0	7.29E+01
241-BX-104	2.43E-01	2.17E+03	7.53E-01	7.07E+02	8.40E-04	6.25E+00	2.14E-01	1.09E+02	0.0	7.30E+01
241-BX-105	6.25E-02	1.23E+03	9.87E-01	6.02E+02	9.05E-04	6.89E+00	3.29E-02	1.92E+02	0.0	7.28E+01
241-BX-106	3.81E-01	1.34E+03	1.03E+00	5.28E+02	7.13E-04	7.88E+00	3.62E-02	2.01E+02	0.0	7.30E+01
241-BX-107	8.41E-03	3.46E+02	1.49E+00	3.29E+02	2.82E-04	3.18E+00	6.10E-02	4.02E+01	0.0	7.28E+01
241-BX-108	3.93E-03	2.93E+03	1.81E+00	3.67E+02	5.39E-05	1.83E+00	2.08E-01	2.41E+01	0.0	7.25E+01
241-BX-109	2.66E-02	6.82E+03	2.11E-01	5.41E+02	4.09E-04	1.28E+00	4.34E-01	1.56E+01	0.0	7.28E+01
241-BX-110	1.39E-01	3.01E+02	1.06E+00	1.03E+03	1.98E-03	2.92E+00	9.28E-02	1.75E+02	0.0	7.26E+01
241-BX-111	5.79E-01	3.30E+02	4.19E+00	1.46E+03	8.93E-03	1.37E+00	2.35E-02	8.52E+01	0.0	8.77E+01
241-BX-112	2.46E-02	1.43E+02	3.56E-01	9.68E+03	6.87E-04	7.14E+00	1.39E-02	5.67E+01	0.0	7.27E+01

Table A-17. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2050.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
241-BX-154	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-BX-155	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-BX-302B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-BX-302C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-BY-101	6.66E-01	2.05E+03	4.88E+00	2.68E+03	8.97E-03	1.77E+00	7.20E-02	9.67E+01	0.0	7.29E+01
241-BY-102	6.64E-01	2.97E+02	4.77E+00	1.42E+03	9.04E-03	1.78E+00	5.96E-03	6.47E+01	0.0	7.31E+01
241-BY-103	6.52E-01	6.56E+02	4.67E+00	1.74E+03	8.95E-03	3.02E+00	1.10E-02	9.41E+01	0.0	7.27E+01
241-BY-104	3.12E-01	7.05E+03	2.25E+00	1.80E+03	4.03E-03	2.98E+00	6.94E-02	1.71E+02	0.0	7.28E+01
241-BY-105	4.64E-01	1.20E+03	8.54E-01	9.55E+02	7.04E-03	4.75E+00	4.43E-02	2.28E+01	0.0	7.27E+01
241-BY-106	5.99E-01	2.70E+03	4.30E+00	2.74E+03	8.97E-03	1.13E+00	3.00E-03	5.26E+01	0.0	7.27E+01
241-BY-107	2.90E-01	3.10E+02	2.17E+00	2.20E+03	4.00E-03	7.47E-01	5.56E-02	1.28E+02	0.0	7.27E+01
241-BY-108	2.63E-01	6.59E+03	2.27E+00	6.59E+03	4.03E-03	3.26E+00	1.59E-01	1.30E+01	0.0	7.26E+01
241-BY-109	6.43E-01	2.19E+03	4.59E+00	1.61E+03	8.95E-03	1.14E+00	1.80E-01	8.41E+01	0.0	7.28E+01
241-BY-110	3.24E-01	1.93E+03	2.35E+00	1.55E+03	4.98E-03	1.06E+00	7.22E-02	1.10E+02	0.0	7.28E+01
241-BY-111	5.54E-01	3.72E+02	4.08E+00	1.40E+03	7.96E-03	1.73E+00	1.14E-01	7.31E+01	0.0	7.30E+01
241-BY-112	4.75E-01	1.13E+03	3.46E+00	1.35E+03	7.07E-03	6.67E-01	5.79E-02	4.66E+02	0.0	7.31E+01
241-C-101	5.52E-01	1.06E+04	4.13E+01	3.52E+04	7.76E-02	4.88E+01	2.01E-01	2.17E+02	0.0	1.48E+02
241-C-102	4.15E-03	1.14E+03	2.21E-02	3.98E+02	4.46E-05	7.65E+01	4.61E-02	1.24E+01	0.0	7.30E+01
241-C-103	2.12E-01	2.81E+04	6.49E+00	9.76E+02	5.62E-04	1.51E+02	2.41E-02	1.39E+01	0.0	7.28E+01
241-C-104	4.97E-03	1.47E+03	2.50E-01	3.00E+02	1.54E-04	5.14E+01	1.67E-01	1.38E+01	0.0	3.19E+01
241-C-105	3.78E-03	5.79E+03	2.31E+00	1.39E+03	1.96E-03	1.31E+01	5.93E-02	1.99E+01	0.0	7.27E+01
241-C-106	5.40E-01	1.58E+05	2.60E+01	1.17E+04	4.95E-02	4.13E+01	3.58E-02	6.12E+01	0.0	1.67E+02
241-C-107	4.47E-02	2.47E+04	3.39E+00	4.63E+02	2.64E-04	3.64E+01	4.09E-02	3.44E+01	0.0	7.30E+01
241-C-108	1.07E-02	3.53E+02	1.40E-01	3.31E+03	2.67E-04	2.60E-01	3.98E-03	9.20E+00	0.0	7.30E+01
241-C-109	2.38E-02	5.80E+03	1.73E+00	6.38E+03	8.72E-05	5.22E+00	6.99E-02	4.37E+00	0.0	7.29E+01
241-C-110	2.67E-02	2.01E+02	2.22E+00	4.94E+02	1.09E-03	3.93E+00	5.84E-02	3.28E+01	0.0	8.03E+01
241-C-111	2.36E-03	2.52E+04	5.96E-02	2.78E+02	1.11E-04	9.93E+00	7.25E-02	7.81E+00	0.0	9.33E+01
241-C-112	1.87E-01	2.07E+04	2.93E+00	4.15E+03	2.75E-04	2.43E+00	4.26E-01	1.01E+01	0.0	7.28E+01
241-C-154	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-C-201	1.17E-04	7.14E+01	7.63E-03	9.35E+00	1.55E-05	1.19E+01	1.39E-04	1.48E+00	0.0	9.99E+00
241-C-202	7.03E-04	1.42E+03	1.50E-01	6.22E+01	5.29E-05	6.69E+00	1.68E-04	2.59E+00	0.0	9.59E+00
241-C-203	1.87E-04	2.44E+02	6.70E-03	1.04E+01	1.41E-05	1.37E+00	5.18E-04	1.41E+00	0.0	9.43E+00

Table A-17. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2050.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
241-C-204	2.10E-04	7.17E+01	7.71E-03	9.10E+00	1.40E-05	2.64E-01	2.28E-04	1.15E+00	0.0	9.25E+00
241-CX-70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-ER-151	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-ER-152	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-ER-311	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-ER-311A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-S-101	6.57E-01	4.11E+03	2.88E+00	2.07E+03	5.00E-03	1.12E+01	4.79E-02	2.19E+02	0.0	7.28E+01
241-S-102	1.23E+00	1.22E+03	6.97E+00	2.58E+03	1.39E-02	3.15E+00	3.29E-02	1.28E+02	0.0	7.11E+01
241-S-103	1.09E+00	5.87E+02	6.02E+00	3.67E+03	1.19E-02	5.43E+00	9.90E-03	1.98E+02	0.0	7.30E+01
241-S-104	3.03E-01	4.03E+03	4.38E+00	3.63E+03	8.71E-03	6.35E+00	1.29E-01	8.25E+02	0.0	1.63E+02
241-S-105	1.02E+00	1.78E+03	4.28E+00	3.05E+03	9.05E-03	8.58E-01	8.92E-03	2.03E+02	0.0	7.13E+01
241-S-106	7.12E-01	3.09E+02	3.87E+00	2.12E+03	7.02E-03	7.31E-01	4.07E-03	2.15E+02	0.0	7.14E+01
241-S-107	3.41E-01	3.65E+03	1.67E+00	1.66E+03	3.99E-03	3.44E+01	1.10E-01	1.65E+02	0.0	7.31E+01
241-S-108	6.82E-01	4.90E+02	3.73E+00	2.59E+03	7.02E-03	7.21E+00	1.10E-02	2.03E+02	0.0	7.29E+01
241-S-109	5.45E-01	3.61E+02	3.01E+00	2.79E+02	5.99E-03	1.06E+00	2.02E-03	5.57E+01	0.0	7.30E+01
241-S-110	9.91E-01	2.94E+03	4.75E+00	2.26E+03	8.95E-03	1.11E+01	4.95E-02	2.97E+02	0.0	7.31E+01
241-S-111	5.36E-01	3.86E+03	2.88E+00	2.11E+03	4.99E-03	5.14E-01	3.02E-03	1.90E+02	0.0	7.29E+01
241-S-112	1.29E+00	5.04E+02	5.75E+00	2.50E+03	1.10E-02	1.38E+00	2.74E-02	2.07E+02	0.0	7.10E+01
241-S-151	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-S-302A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-SX-101	7.52E-01	2.15E+03	2.33E+00	1.94E+03	4.01E-03	1.30E+01	1.80E-02	4.37E+02	0.0	7.28E+01
241-SX-102	1.92E+00	2.08E+03	1.01E+01	3.15E+03	1.90E-02	4.56E+00	1.22E-02	2.34E+02	0.0	7.27E+01
241-SX-103	1.91E+00	5.70E+03	9.23E+00	3.96E+03	1.80E-02	4.68E+00	9.03E-03	1.93E+02	0.0	7.28E+01
241-SX-104	8.20E-01	4.32E+03	3.19E+00	2.87E+03	6.97E-03	1.53E+01	3.09E-02	1.90E+02	0.0	7.27E+01
241-SX-105	2.31E+00	2.08E+03	1.14E+01	3.51E+03	2.19E-02	9.43E+00	8.05E-03	1.16E+02	0.0	7.29E+01
241-SX-106	1.30E+00	1.31E+02	7.35E+00	3.66E+03	1.40E-02	4.92E+00	6.04E-03	1.88E+02	0.0	7.28E+01
241-SX-107	3.97E-01	5.28E+03	2.96E+00	3.28E+03	5.62E-03	1.35E+01	4.79E-02	3.40E+02	0.0	9.81E+01
241-SX-108	1.54E+00	3.05E+04	1.28E+01	1.31E+04	2.42E-02	1.46E+01	2.10E-01	1.44E+03	0.0	1.29E+02
241-SX-109	5.18E-01	3.59E+03	1.47E+00	1.73E+03	2.79E-03	6.81E+00	3.04E-02	1.60E+02	0.0	7.65E+01
241-SX-110	3.94E-01	5.43E+03	7.49E-01	8.16E+02	1.40E-03	8.41E+00	2.81E-02	6.32E+01	0.0	7.26E+01
241-SX-111	2.90E-01	5.36E+03	5.96E-01	8.15E+02	1.07E-03	7.19E+00	2.79E-02	6.27E+01	0.0	7.27E+01
241-SX-112	2.00E-01	5.37E+03	4.30E-01	8.18E+02	7.52E-04	5.80E+00	2.77E-02	6.18E+01	0.0	7.26E+01

Table A-17. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2050.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
241-SX-113	1.50E-01	9.80E+02	1.99E+00	1.60E+03	3.86E-03	1.06E+00	3.22E-02	3.98E+02	0.0	1.29E+02
241-SX-114	4.52E-01	3.58E+03	8.84E-01	1.20E+03	1.66E-03	7.00E+00	2.61E-02	1.01E+02	0.0	7.26E+01
241-SX-115	1.07E+00	7.69E+04	6.53E+00	8.27E+03	1.22E-02	5.83E+02	2.18E-01	8.45E+02	0.0	2.62E+02
241-SX-302	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-SY-101	1.04E-02	2.36E+00	2.20E-02	1.66E+01	6.61E-05	4.00E-03	8.90E-06	3.87E-01	0.0	3.78E-01
241-SY-102	2.15E-02	1.17E+01	4.97E-02	4.54E+01	1.80E-04	3.74E-01	1.06E-04	2.53E+00	0.0	1.61E+01
241-SY-103	2.95E-03	2.58E+00	9.97E-03	6.05E+00	1.97E-05	5.00E-03	5.19E-05	1.40E-01	0.0	3.79E-01
241-T-101	6.66E-02	1.36E+03	6.03E-01	1.38E+03	1.11E-03	1.64E+01	1.73E-01	2.85E+01	0.0	1.10E+02
241-T-102	1.13E-02	8.82E+02	1.68E-01	2.20E+02	2.83E-05	5.37E-01	1.18E-01	1.67E+01	0.0	7.29E+01
241-T-103	9.98E-02	8.74E+03	1.83E+00	4.55E+02	3.51E-03	1.85E+01	3.64E-02	4.05E+01	0.0	8.39E+01
241-T-104	3.29E-03	1.06E+02	3.70E-02	2.64E+01	4.78E-05	6.29E+00	1.70E-02	4.58E+01	0.0	7.29E+01
241-T-105	7.13E-02	3.46E+03	9.92E+00	4.41E+02	2.14E-04	6.41E+00	6.57E-02	2.64E+01	0.0	7.30E+01
241-T-106	1.94E+00	5.64E+03	6.04E+01	5.86E+03	1.17E-01	1.19E+01	3.17E-01	9.83E+02	0.0	5.08E+02
241-T-107	1.78E-03	2.02E+03	2.02E+00	2.37E+02	8.01E-05	6.41E+00	2.95E-01	1.42E+01	0.0	7.26E+01
241-T-108	7.40E-03	1.21E+02	8.39E-02	1.86E+02	8.09E-05	2.40E+00	2.32E-02	1.28E+01	0.0	7.26E+01
241-T-109	1.58E-02	2.31E+02	8.87E-02	6.63E+01	1.63E-04	1.97E+00	7.98E-03	2.22E+00	0.0	7.26E+01
241-T-110	1.80E-03	1.14E+03	7.74E-02	1.48E+03	2.53E-05	6.41E+00	3.60E-02	8.13E+01	0.0	7.28E+01
241-T-111	1.76E-03	1.38E+02	4.76E-01	2.17E+01	8.14E-05	6.99E+00	6.53E-02	1.10E+02	0.0	7.25E+01
241-T-112	2.26E-03	9.66E+02	3.75E-01	4.17E+01	4.60E-05	2.24E+01	4.99E-02	1.06E+02	0.0	7.26E+01
241-T-201	8.09E-03	1.16E+01	1.00E-03	1.22E+00	2.10E-06	1.35E+00	1.03E-03	1.53E+01	0.0	8.14E+00
241-T-202	1.65E-02	2.60E+00	1.93E-04	2.45E-01	3.72E-07	1.02E+00	4.54E-04	2.19E+01	0.0	8.13E+00
241-T-203	1.64E-02	3.13E+01	2.99E-03	3.22E+00	5.65E-06	6.48E-01	4.03E-03	2.04E+01	0.0	8.14E+00
241-T-204	1.72E-02	8.65E+01	8.06E-03	8.65E+00	1.55E-05	4.80E-01	1.02E-02	2.20E+01	0.0	8.15E+00
241-TX-101	1.14E-01	4.01E+03	4.36E-01	9.05E+02	8.49E-04	8.06E+00	2.61E-02	6.19E+01	0.0	7.29E+01
241-TX-102	7.88E-01	9.98E+02	3.88E+00	2.37E+03	6.94E-03	9.09E-01	1.40E-02	7.50E+01	0.0	7.28E+01
241-TX-103	3.57E-01	4.00E+02	1.81E+00	1.11E+03	3.03E-03	5.59E-01	1.29E-02	7.23E+01	0.0	7.28E+01
241-TX-104	8.48E-01	1.08E+03	4.19E+00	2.95E+03	8.10E-03	1.24E+01	1.81E-02	1.46E+02	0.0	7.28E+01
241-TX-105	7.78E-01	1.35E+03	3.99E+00	2.39E+03	7.01E-03	2.05E+00	1.30E-02	7.32E+01	0.0	7.26E+01
241-TX-106	7.42E-01	9.57E+02	3.83E+00	2.24E+03	7.03E-03	9.64E-01	2.48E-02	7.49E+01	0.0	7.29E+01
241-TX-107	3.17E-01	7.92E+02	5.27E+00	4.25E+03	1.02E-02	1.42E+00	1.63E-01	2.29E+02	0.0	1.03E+02
241-TX-108	5.77E-01	6.31E+02	2.91E+00	2.25E+03	5.01E-03	7.21E-01	2.09E-02	7.19E+01	0.0	7.28E+01
241-TX-109	7.74E-03	2.51E+02	4.76E+00	1.01E+03	9.52E-05	7.51E+00	5.85E-02	7.74E+01	0.0	7.27E+01

Table A-17. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2050.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
241-TX-110	2.44E-04	9.01E+02	3.23E+00	2.30E+03	6.97E-03	1.16E+00	1.49E-02	7.31E+01	0.0	7.25E+01
241-TX-111	7.20E-01	9.47E+02	3.58E+00	2.27E+03	7.03E-03	2.91E-01	1.59E-02	7.47E+01	0.0	7.29E+01
241-TX-112	7.50E-01	8.57E+02	3.81E+00	2.26E+03	6.92E-03	1.15E+00	1.42E-02	7.77E+01	0.0	7.29E+01
241-TX-113	7.25E-01	4.72E+01	4.19E+00	2.57E+02	8.02E-03	5.56E-01	1.21E-02	1.51E+01	0.0	7.26E+01
241-TX-114	6.82E-01	2.02E+03	3.38E+00	2.08E+03	7.01E-03	2.08E+00	1.20E-02	6.56E+01	0.0	7.26E+01
241-TX-115	7.83E-01	8.80E+02	3.87E+00	2.32E+03	6.99E-03	9.51E-01	1.30E-02	7.52E+01	0.0	7.27E+01
241-TX-116	3.52E-01	3.29E+02	2.03E+00	3.31E+02	4.01E-03	1.24E+00	9.93E-03	1.30E+01	0.0	7.25E+01
241-TX-117	3.75E-01	4.78E+02	1.93E+00	1.58E+03	3.98E-03	9.77E-01	1.09E-02	5.08E+01	0.0	7.25E+01
241-TX-118	5.81E-01	1.83E+03	3.41E+00	6.80E+02	7.01E-03	5.86E+01	1.10E-02	8.97E+01	0.0	7.28E+01
241-TX-152	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-TX-154	0.0	3.71E+00	9.09E-04	4.07E+00	1.61E-05	1.13E-01	4.38E-03	0.0	0.0	1.90E+01
241-TX-155	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-TX-302B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-TX-302BR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-TX-302C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-TY-101	2.48E-03	7.09E+01	1.07E-01	3.52E+00	6.49E-04	2.46E+00	1.10E-02	1.15E+02	0.0	7.26E+01
241-TY-102	3.44E-01	1.51E+02	7.63E-02	1.44E+02	7.71E-04	1.83E-01	4.00E-03	2.47E+00	0.0	7.29E+01
241-TY-103	2.54E-01	3.53E+03	2.04E+00	1.07E+03	4.48E-03	7.98E+00	3.12E-01	8.48E+01	0.0	8.40E+01
241-TY-104	4.48E-03	1.87E+03	1.14E+00	6.62E+02	8.12E-05	6.09E+00	2.41E-01	5.36E+01	0.0	7.26E+01
241-TY-105	5.84E-02	5.00E+03	2.45E+00	6.99E+02	3.03E-03	2.15E+00	1.27E-01	3.10E+01	0.0	2.05E+02
241-TY-106	1.93E-02	9.19E+02	1.98E+00	3.98E+02	7.48E-04	9.71E-01	5.30E-02	1.60E+01	0.0	1.48E+02
241-U-101	2.41E-01	6.60E+03	3.21E+00	3.32E+03	6.17E-03	1.71E+01	7.88E-02	7.04E+02	0.0	1.86E+02
241-U-102	8.84E-01	2.88E+03	5.08E+00	3.88E+03	9.94E-03	8.52E+00	1.59E-02	1.29E+02	0.0	7.29E+01
241-U-103	6.13E-01	5.90E+02	3.47E+00	2.35E+03	7.14E-03	2.86E+00	1.30E-02	1.09E+02	0.0	7.28E+01
241-U-104	3.82E-01	3.34E+03	2.09E+00	1.33E+03	3.50E-03	4.96E-01	3.35E-01	5.94E+01	0.0	5.74E+02
241-U-105	1.26E+00	2.40E+02	7.32E+00	3.83E+03	1.40E-02	1.05E+01	1.07E-01	1.05E+02	0.0	7.30E+01
241-U-106	2.21E+00	1.94E+03	1.17E+01	4.04E+03	2.31E-02	2.45E+01	1.20E-02	1.36E+02	0.0	7.28E+01
241-U-107	2.54E+00	5.93E+01	1.43E+01	2.84E+03	2.81E-02	5.77E+00	1.09E-02	9.51E+01	0.0	7.28E+01
241-U-108	1.75E+00	2.50E+02	9.10E+00	2.14E+03	1.80E-02	1.76E+00	1.90E-02	1.96E+02	0.0	7.28E+01
241-U-109	8.41E-01	2.54E+02	4.86E+00	2.39E+03	9.10E-03	1.04E+00	2.00E-03	1.45E+02	0.0	7.29E+01
241-U-110	3.09E-02	2.28E+03	7.20E-01	7.34E+02	1.24E-03	3.29E+00	6.47E-02	3.86E+01	0.0	9.74E+01
241-U-111	9.17E-01	7.65E+02	4.56E+00	2.99E+03	9.07E-03	1.07E+00	3.04E-02	1.99E+02	0.0	7.27E+01

Table A-17. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2050.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
241-U-112	7.12E-02	3.30E+02	8.29E-01	9.29E+02	1.60E-03	1.94E+00	6.80E-02	1.69E+02	0.0	1.05E+02
241-U-151	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-U-152	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-U-201	6.18E-04	1.74E+01	6.49E-03	4.22E+01	1.20E-05	7.41E-01	1.08E-03	2.14E+00	0.0	8.31E+00
241-U-202	3.65E-04	1.36E+01	3.47E-03	4.19E+01	5.96E-06	2.90E-01	9.87E-04	2.20E+00	0.0	8.32E+00
241-U-203	9.52E-03	2.71E+01	2.88E-02	4.20E+01	5.41E-05	1.92E+00	1.21E-03	2.04E+00	0.0	8.31E+00
241-U-204	2.19E-04	2.50E+00	1.32E-03	7.32E+00	3.13E-06	1.96E-01	7.22E-04	8.90E-01	0.0	8.31E+00
241-U-361	0.0	5.10E-03	7.19E-06	6.20E-03	1.79E-08	1.71E-02	5.98E-05	0.0	0.0	7.28E+02
241-UX-154	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-UX-302A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-WR_VAULT	0.0	1.54E+01	4.98E-02	2.65E+01	6.23E-07	0.0	0.0	0.0	0.0	1.00E+00
241-Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-Z-361	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
241-Z-8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
244-S_DCRT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2704-C-WS-1	0.0	0.0	0.0	1.35E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
270-E-1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
270-W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2718-E-WS-1	0.0	0.0	0.0	1.16E-07	0.0	0.0	0.0	0.0	0.0	1.00E-03
276-S-141	0.0	5.77E-05	0.0	6.46E-05	0.0	0.0	0.0	0.0	0.0	8.31E-01
276-S-142	0.0	5.81E-05	0.0	6.19E-05	0.0	0.0	0.0	0.0	0.0	8.31E-01
276-U	0.0	5.48E-01	2.96E-04	5.53E-01	1.89E-06	0.0	0.0	0.0	0.0	9.99E-01
2904-S$S6-3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
296-$S6-7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
296-A-13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
299-E24-111	0.0	3.05E-03	2.38E-06	3.45E-03	5.87E-09	0.0	0.0	0.0	0.0	1.12E+02
300_RLWS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300_RRLWS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300-2	0.0	7.49E-02	8.72E-05	1.00E-01	3.56E-07	0.0	6.21E-04	0.0	0.0	1.90E+02
300-214	0.0	3.71E+00	4.92E-03	5.26E+00	1.37E-05	0.0	8.17E-02	0.0	0.0	1.14E+04
300-224	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300-24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table A-17. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2050.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
300-25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300-264	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300-265	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
307_RB	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
316-1	0.0	4.04E+03	5.30E+00	4.32E+03	1.30E-02	0.0	3.33E+01	0.0	0.0	1.00E+07
316-2	0.0	3.46E+03	4.77E+00	4.24E+03	1.22E-02	0.0	3.19E+01	0.0	0.0	1.00E+07
316-3	0.0	3.37E+01	4.68E-02	3.81E+01	1.08E-04	0.0	2.94E-01	0.0	0.0	9.09E+04
316-4	0.0	7.02E-03	1.12E-05	8.07E-03	2.71E-08	0.0	7.11E-05	0.0	0.0	2.22E+01
316-5	0.0	1.63E+03	1.61E+00	1.83E+03	3.24E-03	0.0	2.64E+00	0.0	0.0	2.52E+07
331_LSLDF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4843	9.70E+00	3.88E+05	6.68E+02	1.20E+06	1.27E+00	0.0	3.45E+01	0.0	0.0	7.01E+00
600-111	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
600-118	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
600-148	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
600-211	7.10E+02	3.25E-01	6.62E-01	5.03E+00	2.20E+00	1.00E-04	3.33E-04	3.82E-01	0.0	1.58E+06
600-259	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
600-262	0.0	0.0	0.0	1.36E-07	0.0	0.0	0.0	0.0	0.0	9.99E-04
618-$R6-10	0.0	4.44E+03	9.05E+00	5.19E+03	1.91E-02	1.62E-01	5.30E+01	0.0	0.0	1.24E+05
618-10	0.0	2.80E+01	2.47E-04	3.10E+01	8.99E-05	1.93E+01	1.85E-03	0.0	0.0	1.42E+04
618-11	0.0	6.55E+03	7.54E+00	6.47E+03	1.56E-02	4.30E+02	4.16E+01	0.0	0.0	2.12E+04
B_PLANT_FILTER	0.0	4.25E+04	1.19E+01	2.14E+04	1.95E-02	3.05E-01	0.0	0.0	0.0	1.10E+01
HSVP	0.0	1.39E-04	0.0	1.44E-04	0.0	0.0	0.0	0.0	0.0	1.79E+03
ILAW	0.0	7.11E+05	1.27E+04	1.19E+05	0.0	1.75E+03	1.32E+01	5.17E+05	0.0	1.47E+05
RMWSF	1.19E+02	7.88E+05	7.14E+02	1.22E+06	1.37E+00	2.01E+04	6.05E+00	4.08E+03	4.05E+04	8.92E+04
UPR-100-D$D6-5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UPR-100-F$F6-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UPR-100-F$F6-3	0.0	6.30E-06	6.12E-09	6.67E-06	1.54E-11	1.01E-06	0.0	0.0	0.0	6.44E+01
UPR-100-K-1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UPR-100-N$N6-12	3.99E-04	8.79E+02	7.89E-01	9.93E+02	1.49E-03	5.75E-04	5.56E-11	0.0	0.0	2.99E+03
UPR-200-E$A3-5	0.0	3.45E+03	3.57E+00	4.01E+03	8.59E-03	4.46E-02	2.68E-01	0.0	0.0	1.47E+02
UPR-200-E$A6-2	0.0	0.0	0.0	9.71E-08	0.0	0.0	0.0	0.0	0.0	9.98E-04
UPR-200-E$A6-6	0.0	0.0	0.0	0.0	0.0	0.0	3.25E+00	0.0	0.0	2.08E-01

Table A-17. Mean Inventories of Contaminants for Waste Sites at the End of Calendar Year 2050.[a] (23 Pages)

Site Name	H-3 (Ci)	Sr-90 (Ci)	Tc-99 (Ci)	Cs-137 (Ci)	I-129 (Ci)	Pu-239 (Ci)	U (Ci)	Cr (kg)	CCl_4 (kg)	Volume (m^3)
UPR-200-E$B3-12	0.0	7.70E+01	7.49E-02	8.60E+01	1.84E-04	5.03E-03	4.54E+00	0.0	0.0	1.64E+02
UPR-200-E$B6-9	3.17E-03	2.38E+00	2.50E-03	2.75E+00	1.10E-04	4.07E+00	3.13E-05	4.11E-04	0.0	8.73E+02
UPR-200-E-101	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UPR-200-E-50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UPR-200-W$S3-7	1.49E-01	3.75E+03	7.39E+00	5.28E+03	1.41E-02	1.41E-01	6.10E-03	0.0	0.0	1.21E+02
UPR-200-W$S5-5	0.0	1.80E+02	1.50E-04	1.83E+02	3.51E-07	3.63E+00	0.0	0.0	0.0	7.50E+03
UPR-200-W$S6-5	0.0	1.21E-01	1.55E-04	1.22E-01	3.85E-07	6.62E-02	4.97E-02	0.0	0.0	6.90E+01
UPR-200-W$T3-9	3.16E+01	8.83E+04	5.98E+02	3.78E+05	1.17E+00	1.53E+02	3.59E+01	1.34E+00	0.0	1.14E+04
UPR-200-W$T6-5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UPR-200-W-113	0.0	0.0	0.0	0.0	0.0	7.56E-01	0.0	0.0	0.0	9.99E-01
UPR-200-W-130	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UPR-200-W-8	0.0	1.75E-02	4.50E-05	2.24E-02	7.43E-08	0.0	0.0	0.0	0.0	1.00E+00
UPR-300-$R5-7	0.0	0.0	0.0	0.0	0.0	0.0	3.42E-05	0.0	0.0	3.79E-02
UPR-300-$R6-13	0.0	3.79E+00	2.96E-03	3.36E+00	6.40E-06	7.83E-02	0.0	0.0	0.0	1.77E+01
UPR-300-$R6-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UPR-300-$R6-4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
US_Ecology	3.86E+04	1.20E+04	6.71E+01	5.67E+04	6.03E+00	6.65E+03	1.32E+04	0.0	0.0	6.67E+05
Totals	**7.73E+04**	**3.09E+07**	**4.23E+04**	**3.80E+07**	**1.19E+02**	**7.73E+05**	**1.88E+04**	**1.88E+07**	**1.72E+06**	

[a]Entries are mean (i.e., average) values of 25 realizations of site-specific inventory. The site-specific data in the database are approximately 43% record based, approximately 14% model based, and 43% estimates.

Table A-18. Site-Specific Data Other than Inventory. (28 Pages)

Site	Site Type	Operation Area	Start	End	X Coordinate	Y Coordinate	GIS Feature Type	Length (m)	Width (m)	Diameter (m)	Area (m^2)	Depth/Height (m)
116-B-11	Retention basin	100B	1944	1968	565388.7	145262.4	poly	142.34	70.10		10126.431	6.096
116-C-5	Retention basin	100C	1952	1969	565390.2	145109.8	poly			100.58	7945.984	5[a]
116-DR-9	Retention basin	100D	1950	1967	573892.6	152241.2	poly	182.88	83.21		15217.518	
116-D-7	Retention basin	100D	1944	1967	573695.6	152302.3	poly	142.34	70.10		9978.716	7.3152
116-F-14	Retention basin	100F	1945	1965	581020.3	147797.5	poly	145.08	72.85		10569.021	3.6576
116-H-6	Retention basin	100H	1973	1985	577879.4	152851.3	poly	39.01	16.46		2452.640	5.0292
116-H-7	Retention basin	100H	1949	1965	578086.5	152649.4	poly	194.46	85.95		16714.743	7.3152
116-KE-4	Retention basin	100K	1955	1971	569096.8	146960.2	poly			76.20	27870.912	3.93192
116-KW-3	Retention basin	100K	1954	1970	568593.1	146668.1	poly			76.20	13759.312	3.93192
116-N-4	Retention basin	100N	1963	1973	571105.5	149501.5	poly	39.62	24.38		809.371	
116-N-2	Storage tank	100N	1964	1987	571411.3	149614.6	poly				277.339	
141-C	Laboratory	100F	1945	1976	580881.6	147843.2	poly				431.070	
100-F-2	Laboratory	100F	1952	1970	579694	146965.2	poly	24.38	9.14		222.967	
118-B-8	Reactor	100B	1968	1984	565288.2	144512.2	poly				3948.379	
118-C-3	Reactor	100C	1969	1984	565374.3	144004.1	poly				6038.698	
118-D-6	Reactor	100D	1967	1984	573763.4	151590.5	poly				3948.379	
118-DR-2	Reactor	100D	1964	1984	573771.7	151293.3	poly				3948.379	
118-F-8	Reactor	100F	1965	1984	580432.7	147600.2	poly				4112.500	
118-H-6	Reactor	100H	1965	1984	577773.1	152521.8	poly				5759.989	
118-KW-1	Reactor	100K	1970	1984	568644.3	146433.3	poly				4567.700	
118-KE-1	Reactor	100K	1971	1994	569184.3	146717	poly				5343.500	
100-N-66	Reactor	100N	1987	1987	571201.4	149489.5	poly	137.77	141.73		19526.361	21.336
118-B-9	Storage	100B			565293.2	144631	poly	7.32	3.66		26.756	3.048
100-K-43	Storage	100K	1999	1999	568631.8	146461.8	poly	41.45	21.34		884.437	6.7056
100-K-42	Storage	100K	1999	1999	569141.3	146726.4	point	41.45	21.34		884.437	6.7056
116-B-7	Outfall	100B	1944	1968	565257.4	145324.6	poly	8.23	4.27		36.697	6.4
132-C-2	Outfall	100B	1952	1969	565719.8	145481	point	16.00	8.20		131.179	
116-D-5	Outfall	100D	1944	1967	573502.2	152319.1	poly	18.29	7.32			
116-DR-5	Outfall	100D	1950	1964	573625.6	152441.5	poly	8.23	4.27			
116-F-8	Outfall	100F	1945	1965	580963.8	148107.7	poly	8.23	4.27			
116-H-5	Outfall	100H	1949	1965	578113.4	152821.3	poly	8.23	4.27			
116-K-3	Outfall	100K	1955	1971	568911.6	146964.9	poly	10.67	10.06			7.0104

Table A-18. Site-Specific Data Other than Inventory. (28 Pages)

Site	Site Type	Operation Area	Start	End	X Coordinate	Y Coordinate	GIS Feature Type	Length (m)	Width (m)	Diameter (m)	Area (m^2)	Depth/Height (m)
1908-NE	Outfall	100N	1972	1999	570870.8	149317.8	poly	30.48	24.38		743.224	
132-DR-2	Stack	100D	1950	1986	573757.8	151240.2	poly	60.96		5.05	20.400	
116-B-10	Sump	100B	1950	1968	565268.9	144691.9	point			0.91	0.657	2.1336
118-B-2	Burial ground	100B			565474	144578.4	poly	18.29	9.14		167.225	3.048
118-B-1	Burial ground	100B	1945	1967	564387.3	143945.2	poly	304.80	97.84		2982.188	6.096
100-B-3	Burial ground	100B	1952	1952	565290	144369	point				999.000	
118-B-5	Burial ground	100B			565391.4	144417.4	poly	15.24	15.24		232.258	6.096
118-B-4	Burial ground	100B			565365.6	144619.5	poly	15.24	9.14		139.355	4.572
118-B-3	Burial ground	100B			565549.7	144596.8	poly	106.68	83.82		8941.918	6.096
118-B-6	Burial ground	100B	1945	1967	565355.6	144637.7	poly	4.57	3.05		13.935	6.096
118-C-1	Burial ground	100C	1945	1967	565575.4	143911.3	poly	155.45	121.92		18952.220	6.096
118-DR-1	Burial ground	100D	1945	1967	573771.4	151102.5	poly	38.10	22.86		870.966	8.8392
100-D-6	Burial ground	100D	1953	1953	573894.4	151530.4	poly	42.06	17.07		717.955	
100-D-32	Burial ground	100D	1956	1956	573857.4	151432.5	poly	15.20	15.20		231.040	
100-D-43	Burial ground	100D	1950	1950	573852	151507.5	poly	21.34	7.62		162.580	4.572
100-D-47	Burial ground	100D	1956	1956	574000.1	151493.6	poly	57.00	69.49		3961.014	
100-D-3	Burial ground	100D	1953	1953	573818.6	151513.9	poly				999.000	
118-D-1	Burial ground	100D	1944	1967	573708.9	150968.2	poly	137.16	114.30		15677.388	6.096
118-D-2	Burial ground	100D	1945	1967	572949.1	150919.1	poly	304.80	109.73		33445.095	6.096
118-D-3	Burial ground	100D			573973.8	151317.5	poly	304.80	76.20		23225.761	6.096
118-D-4	Burial ground	100D	1953	1967	574093.8	151481.5	poly	182.88	60.96		11148.365	
118-D-5	Burial ground	100D			573784.4	151199.9	poly				148.645	3.048
100-D-42	Burial ground	100D	1955	1955	573848.8	151522.9	poly	28.00	13.00		276.548	
100-D-45	Burial ground	100D	1953	1953	573821.6	151500.8	poly	24.69	7.32		180.604	5.1816
100-D-40	Burial ground	100D	1953	1953	574039.1	151546	poly			12.19	116.900	6.1
118-F-1	Burial ground	100F	1945	1967	580146.1	147239.5	poly	182.88	152.40		2787.091	6.096
118-F-2	Burial ground	100F			579919.4	147512.5	poly	112.17	99.36		11148.365	6.096
118-F-3	Burial ground	100F			580328.4	147495.8	poly	53.34	15.24		812.902	4.572
118-F-5	Burial ground	100F	1945	1967	581341.8	147459.3	poly	152.40	45.72		6967.728	4.572
118-F-6	Burial ground	100F			580130.4	147112.3	poly	121.92	60.96		7432.243	5.4864
132-F-5	Burial ground	100F	1960	1965	580353.3	147622.6	poly	18.29	12.19		222.967	8.2296
118-H-1	Burial ground	100H	1945	1967	577566.1	152137	poly	213.36	106.68			6.096

Table A-18. Site-Specific Data Other than Inventory. (28 Pages)

Site	Site Type	Operation Area	Start	End	X Coordinate	Y Coordinate	GIS Feature Type	Length (m)	Width (m)	Diameter (m)	Area (m^2)	Depth/Height (m)
100-H-5	Burial ground	100H	1953	1953	578178.7	152578.9	poly	99.97	15.85		1584.554	4.572
118-H-2	Burial ground	100H			577338.5	152528	poly	42.67	15.24		650.321	
118-H-3	Burial ground	100H			577840.4	152238.6	poly	103.00	80.00		8210.000	6.096
118-H-4	Burial ground	100H			577676.8	152487.3	poly	45.72	9.14		418.064	3.048
100-H-2	Burial ground	100H	1953	1953	577757.1	152317.2	point	12.19			999.000	
118-H-5	Burial ground	100H			577751.3	152428.3	poly	9.14	0.61		5.574	3.048
118-K-1	Burial ground	100K	1945	1967	569452.3	146895.9	poly	365.76	182.88		66890.189	6.096
100-K-2	Burial ground	100K	1966	1966	569264.9	147015	poly	53.34	18.29		975.482	4.572
116-B-6A	Crib	100B	1951	1968	565387.6	144371	point	3.66	2.44		23.226	4.572
116-B-5	Crib	100B	1950	1968	565289.6	144761.8	poly	27.03	2.44		65.902	3.53568
116-B-6B	Crib	100B	1950	1953	565401	144344	point	3.66	2.44		7.897	4.572
116-B-12	Crib	100B	1961	1968	565386.6	144449.4	poly	28.04	18.90		529.919	3.048
116-B-3	Crib	100B	1951	1952	565356	144527.5	poly	3.05	3.05		23.226	6.096
116-C-2A	Crib	100C	1952	1969	565501.8	144030.4	poly	6.78	4.66		83.613	7.9248
116-DR-8	Crib	100D	1960	1964	573820.8	151127.9	poly	3.05	3.05		9.290	5.1816
116-D-4	Crib	100D	1951	1967	573803.9	151747.9	point	2.44	2.44		5.946	2.4384
116-DR-4	Crib	100D	1950	1956	573824.3	151227.7	point	3.05	3.05		9.290	6.096
116-D-2	Crib	100D	1950	1956	573819.4	151536.3	poly	3.05	3.05		120.774	6.096
100-D-57	Crib	100D	1949	1949	573842.6	151533.9		4.27	4.27		18.209	
116-D-9	Crib	100D	1960	1967	573842.6	151533.9	poly	3.05	3.05		9.290	5.1816
116-D-3	Crib	100D	1951	1967	573766.8	151767.7	point	2.44	2.44		5.946	2.4384
116-DR-7	Crib	100D	1953	1953	573781.5	151252.6	point	1.52	1.52		2.323	3
116-F-4	Crib	100F	1950	1952	580387.6	147524.3	poly	1.83	1.83		9.290	3.048
118-F-4	Crib	100F	1945	1967	580303.1	147533	point	3.05	3.05		9.290	4.572
116-F-5	Crib	100F	1954	1964	580378.8	147504.6	poly	3.05	3.05		9.290	2.7432
116-H-4	Crib	100H	1950	1952	577712.8	152482.7	point	3.05	3.05		9.290	3.048
116-H-9	Crib	100H	1960	1965	577628.5	152453	point	6.10	6.10		37.161	4.572
116-KW-1	Crib	100K	1955	1971	568718.1	146478.2	point			12.19	116.745	7.7724
116-KE-1	Crib	100K	1955	1971	569249.9	146744.3	point			12.19	116.746	7.7724
116-K-1	Crib	100K	1955	1956	569261.1	147222.5	poly	121.92	121.92		14864.486	6.096
116-KE-2	Crib	100K	1955	1971	569082.1	146636.1	poly	4.88	4.88		24.248	
116-N-1	Crib	100N	1963	1985	571534.2	149782	poly	38.10	88.39		13759.312	3.6576

Table A-18. Site-Specific Data Other than Inventory. (28 Pages)

Site	Site Type	Operation Area	Start	End	X Coordinate	Y Coordinate	GIS Feature Type	Length (m)	Width (m)	Diameter (m)	Area (m^2)	Depth/Height (m)
116-N-3	Crib	100N	1983	1991	571954.9	149610.3	poly	76.20	73.15		5574.182	
100-K-57	Ditch	100K	1967	1971	569030	147125	line	570.00	1.52		868.680	1.2192
116-B-9	French drain	100B	1952	1954	565267.1	144713	point			1.22	1.167	0.9144
116-B-4	French drain	100B	1957	1968	565368.8	144508.8	poly			1.22	6.039	4.572
100-C-3	French drain	100C	1960	1960	565392.5	143952	point			0.61	0.292	
116-D-6	French drain	100D	1953	1967	573782.9	151612	point			0.91	0.657	0.9144
100-D-24	French drain	100D	1959	1959	573745.6	151540.8	point				0.999	
100-D-23	French drain	100D	1959	1959	573751.2	151234.2	point				0.999	
100-D-52	French drain	100D	1950	1950	573797.1	151625.3	point	22.00	1.00		0.999	
100-F-10	French drain	100F	1952	1952	580490.2	147590.9	point			0.91	0.657	
100-F-11	French drain	100F	1954	1954	580583.4	147600.7	point			0.46	0.164	
100-F-12	French drain	100F	1956	1956	580460.4	147630	point			0.91	0.657	
100-F-4	French drain	100F	1960	1960	580594.1	147594.7	point			0.30	0.073	
100-F-9	French drain	100F	1962	1962	580490.2	147597.6	point			0.91	0.657	
116-F-11	French drain	100F	1953	1965	580450.9	147576	point			0.91		0.9144
116-F-12	French drain	100F	1944	1964	580983.3	147956.5	point			0.91		1.8288
100-F-25	French drain	100F	1956	1975	580925.1	148040.4	point			1.52	1.824	
100-F-23	French drain	100F	1975	1975	580871	147790.8	point				0.999	
100-F-16	French drain	100F	1958	1958	580613.2	147593.6	point			0.79	0.486	
116-F-10	French drain	100F	1948	1965	580453.4	147500.5	point			0.91	0.999	6.096
116-F-7	French drain	100F	1960	1965	580355.1	147450.8	point	6.10	6.10		0.999	5.1816
100-H-9	French drain	100H	1953	1953	577799.4	152560.4	poly			0.61	0.292	
100-H-8	French drain	100H	1953	1953	577825.6	152554.1	poly			0.91	0.657	
100-H-7	French drain	100H	1953	1953	577821.8	152540.8	poly			0.76	0.456	
116-H-3	French drain	100H	1950	1965	577859.1	152493.1	point			0.91	0.657	4.572
100-H-10	French drain	100H	1953	1953	577771.9	152560.8	poly			1.22	1.167	
100-H-12	French drain	100H	1953	1953	577798.4	152505.8	poly			0.76	0.456	
100-H-13	French drain	100H	1953	1953	577827.5	152514.7	poly			1.22	1.167	
100-K-5	French drain	100K	1959	1959	569216.9	146621.7	poly				2.988	
100-K-46	French drain	100K	1959	1959	569227.1	146745.6	point				0.999	
100-K-1	French drain	100K	1958	1958	568684.8	146464.5	poly			0.46	0.164	
100-N-54	French drain	100N	1964	1964	571315.6	149303.6	point			1.65	2.141	

Table A-18. Site-Specific Data Other than Inventory. (28 Pages)

Site	Site Type	Operation Area	Start	End	X Coordinate	Y Coordinate	GIS Feature Type	Length (m)	Width (m)	Diameter (m)	Area (m^2)	Depth/Height (m)
100-N-60	French drain	100N	1965	1965	571320	149335					0.999	
116-KW-2	Injection/reverse well	100K	1955	1970	568591.6	146470.5	point			6.10	5.388	
116-KE-3	Injection/reverse well	100K	1955	1971	569133.7	146750.8	point			6.10	24.248	
116-B-15	Pond	100B	1984	1985	565521.3	144531.2	poly	30.48	15.24		464.515	1.8288
116-C-6	Pond	100C	1984	1985	565577.3	144047.1	poly				2171.540	1.8288
116-D-10	Pond	100D	1984	1984	573947.4	151619.2	poly				185.304	
116-DR-10	Pond	100D	1984	1984	573954	151241.6	poly	24.38	15.24			
100-K-4	Pond	100K	1956	1965	569075.4	146719.1	poly	36.00	19.00		684.000	
100-N-58	Pond	100N	1977	1982	571271	149159.3	poly	33.53	15.24		510.967	4.572
100-N-1	Pond	100N	1965	1993	570914.4	149306.4	poly	30.48	12.19		371.612	
116-C-2C	Sand filter	100C	1952	1969	565478.1	144022.3	poly	12.65	5.49		34.188	5.4864
116-B-1	Trench	100B	1950	1968	565538.6	145293.6	poly	112.78	15.24		1718.706	4.572
116-B-13	Trench	100B	1952	1952	565457.4	145218.3	point	30.48	9.14		278.709	3[a]
116-B-14	Trench	100B	1948	1948	565428.8	145343.7	poly	36.58	3.05		121.703	3.048
116-B-2	Trench	100B	1946	1946	565413.2	144511.2	point	22.86	3.05		69.677	4.572
100-B-5	Trench	100B	1954	1956	565437	144568	point	30.48	3.05		92.903	3.048
116-C-1	Trench	100C	1952	1968	565849.1	145284.9	poly	152.40	15.24		2322.576	6.096
100-D-19	Trench	100D	1953	1953	573724	152357.8	poly	37.00	15.00		546.957	
116-DR-1&2	Trench	100D	1950	1967	574013.6	152328.5	poly	137.16	4.57		4856.228	6.1
116-DR-3	Trench	100D	1955	1955	573829.6	151207	poly	18.29	12.19		222.967	3.048
100-D-21	Trench	100D	1953	1953	573835.7	152317.6	poly	39.00	18.00		668.198	
100-D-20	Trench	100D	1953	1953	573749.3	152256	poly	37.00	15.00		543.755	
100-D-18	Trench	100D	1953	1953	573643.3	152357.8	poly	39.00	15.00		604.020	
100-D-4	Trench	100D	1955	1955	573969.4	152169.3	poly	48.00	48.00		2371.170	
116-D-1A	Trench	100D	1947	1952	573861.3	151588.9	poly	39.62	3.05		120.774	6.4008
116-D-1B	Trench	100D	1953	1967	573841.3	151613.7	poly	30.48	3.05		92.903	6.4008
116-DR-6	Trench	100D	1953	1965	573854.4	151290.8	poly	15.24	3.05		46.452	5
116-F-3	Trench	100F	1947	1951	580440.5	147530.7	poly	30.48	6.10		303.514	3.3528
116-F-6	Trench	100F	1952	1965	580482.5	147456.9	poly	91.44	30.48		2787.091	3.048
116-F-1	Trench	100F	1953	1965	579989.2	148050.4	poly	1744.00	6.10		10638.400	3.048
116-F-2	Trench	100F	1950	1965	581147.9	147681.1	poly	158.80	6.10		968.050	3.3528
116-F-9	Trench	100F	1963	1976	581095.6	147874.6	poly	154.53	3.05		696.773	3.048

Table A-18. Site-Specific Data Other than Inventory. (28 Pages)

Site	Site Type	Operation Area	Start	End	X Coordinate	Y Coordinate	GIS Feature Type	Length (m)	Width (m)	Diameter (m)	Area (m^2)	Depth/Height (m)
116-H-1	Trench	100H	1952	1965	578088.7	152305	line	245.97	20.12		4948.202	4.572
116-H-2	Trench	100H	1953	1965	577734.4	152407.9	point	9.14	3.05		27.871	1.8288
116-K-2	Trench	100K	1955	1971	569797.5	147715.9	poly	1249.68	17.22		21520.989	5.334
100-B-10	Unplanned release	100B	1949	1949	565538.6	145293.6	line				0.999	
UPR-100-D-3	Unplanned release	100D	1951	1951	573899	152131.6	poly	42.00	27.00		1208.920	
UPR-100-D-4	Unplanned release	100D	1950	1950	573690.8	152306	point				0.999	
100-D-29	Unplanned release	100D	1951	1951	573832.4	152132.5	poly	69.00	11.00		740.075	
UPR-100-D-2	Unplanned release	100D	1951	1951	573798.8	152185.2	poly	40.00	27.50		1088.350	
100-D-25	Unplanned release	100D	1951	1951	573892.6	152247.1	point				0.999	
100-F-33	Unplanned release	100F	1960	1960	580913.9	148056.2	poly	49.00	19.00		889.310	
UPR-100-F-1	Unplanned release	100F	1971	1971	580915	147862	point	12.19	12.19		148.645	
UPR-100-F-2	Unplanned release	100F	1955	1955	581175	147915	line	142.04	0.91		129.878	4.572
100-H-22	Unplanned release	100H	1956	1956	578120.3	152767.7	point				0.999	
100-H-14	Unplanned release	100H	1953	1953	577790.1	152471.4	poly	16.00	14.00		251.077	
UPR-100-K-1	Unplanned release	100K	1953	1953	569152.2	146725.7	point				0.999	
UPR-100-N-7	Unplanned release	100N	1985	1985	571112	149535	line				0.999	
100-N-29	Unplanned release	100N	1963	1963	571082.3	149472.3	point				0.999	
UPR-100-N-12	Unplanned release	100N	1979	1979	571142.9	149537.8	point	0.61	0.91		0.557	18.288
UPR-100-N-25	Unplanned release	100N			571411.7	149614.8	point				0.999	
UPR-100-N-30	Unplanned release	100N			571068.3	149543.9	poly	15.24	15.24		232.258	
UPR-100-N-31	Unplanned release	100N			571410.9	149699.4	point				0.999	
UPR-100-N-35	Unplanned release	100N	1986	1986	571182.2	149521.2	point				0.999	
UPR-100-N-1	Unplanned release	100N			571079.3	149536.1	point				1858.061	
UPR-100-N-8	Unplanned release	100N	1975	1975	571398.6	149671.2	point				2.323	
100-N-59	Unplanned release	100N	1967	1967	571200	149500					0.999	
UPR-100-N-10	Unplanned release	100N	1975	1975	571142.9	149537.8	point	3.05	3.05		9.290	
UPR-100-N-5	Unplanned release	100N			571397.1	149628.2	point				0.999	18.288
100-B-8	Radioactive process sewer	100B	1944	1968	565342.2	144504.9	line				99.900	
100-C-6	Radioactive process sewer	100C	1952	1969	565387.8	143991.5	line				99.900	
100-D-48	Radioactive process sewer	100D	1944	1967	573800	152000	line				99.900	
100-D-49	Radioactive process sewer	100D	1950	1967	573900	151800	line				99.900	
100-F-19	Radioactive process sewer	100F	1945	1965	581000	147700	line	2214.68			99.900	

Table A-18. Site-Specific Data Other than Inventory. (28 Pages)

Site	Site Type	Operation Area	Start	End	X Coordinate	Y Coordinate	GIS Feature Type	Length (m)	Width (m)	Diameter (m)	Area (m^2)	Depth/Height (m)
100-F-29	Radioactive process sewer	100F	1945	1976	580600	147600	line				99.900	
100-H-21	Radioactive process sewer	100H	1949	1965	0	0		306.63		0.52		
100-H-21	Radioactive process sewer	100H	1949	1965	578100	152500		893.67		1.52	99.900	4.23672
100-H-21	Radioactive process sewer	100H	1949	1965	0	0		1244.50				2.4384
100-K-56	Radioactive process sewer	100K	1955	1971	569100	146850	line	1902.87			99.900	4.572
100-K-55	Radioactive process sewer	100K	1955	1970	569000	146900	line	3906.93			99.900	5.1816
100-N-63	Radioactive process sewer	100N	1963	1987	571500	149500					99.900	
100-N-64	Radioactive process sewer	100N	1963	1987	571050	149400					99.900	
100-N-62	Radioactive process sewer	100N	1963	1987	571320	149520					99.900	
241-B-302B	Catch tank	200E	1945	1985	573807.2	136452.8	point	10.94	2.74		30.017	
241-ER-311A	Catch tank	200E	1950	1954	573219.6	136264.5	point	12.19		2.74	5.910	
241-ER-311	Catch tank	200E	1954	1991	573219.4	136260.3	point	12.19		2.90	6.585	
241-BX-302B	Catch tank	200E	1948	1985	573493.9	136444.9	point	5.49	3.05		16.723	
241-BX-302C	Catch tank	200E	1948	1985	573679.4	136954.3	point	5.49	3.05		16.723	
241-A-302B	Catch tank	200E	1985	1985	575463.7	136056.9	point	9.14		2.44	4.670	
241-A-302A	Catch tank	200E	1956	1956	575189.2	135595.5	point	4.88		2.90	6.585	
240-S-302	Catch tank	200W	1950	1987	567382.7	134036.5	point	10.97		2.74	73.490	6.7056
241-S-302A	Catch tank	200W	1949	1991	566924.2	134336.6	poly	10.90	2.69		29.327	7.9248
241-TX-302B	Catch tank	200W	1949	1982	567110.3	136114.4	point	10.97		2.74	5.910	8.8392
241-TX-302BR	Catch tank	200W	1950	1954	567108.6	136104.5	point	10.00		2.44	4.670	
241-TX-302C	Catch tank	200W	1949	1949	567587.2	136820.8	point	11.99		2.74	5.910	8.9916
200-W-7	Catch tank	200W	1957	1957	566720.5	134667.4	point	3.00	3.00		9.000	
241-UX-302A	Catch tank	200W	1949	1949	567592.3	135167.5	point	10.90	2.69		29.327	
241-SX-302	Catch tank	200W	1954	1983	566864.1	134306.5	point	12.14		2.74	116.780	9.622536
241-AW-102	Double-shell tank	200E	2034	2034	575371.3	135890.8	poly			22.86	410.433	16.764
241-AP-104	Double-shell tank	200E	2034	2034	575577.7	135847.2	poly			22.86	410.433	16.764
241-AP-108	Double-shell tank	200E	2034	2034	575577.9	135764	poly			22.86	410.433	16.764
241-AP-107	Double-shell tank	200E	2034	2034	575537.8	135763.8	poly			22.86	410.433	16.764
241-AP-106	Double-shell tank	200E	2034	2034	575577.9	135796.6	poly			22.86	410.433	16.764
241-AP-105	Double-shell tank	200E	2034	2034	575537.6	135796.5	poly			22.86	410.433	16.764
241-AP-102	Double-shell tank	200E	2034	2034	575577.6	135879.8	poly			22.86	410.433	16.764
241-AP-103	Double-shell tank	200E	2034	2034	575537.5	135847	poly			22.86	410.433	16.764

Table A-18. Site-Specific Data Other than Inventory. (28 Pages)

Site	Site Type	Operation Area	Start	End	X Coordinate	Y Coordinate	GIS Feature Type	Length (m)	Width (m)	Diameter (m)	Area (m^2)	Depth/Height (m)
241-AW-101	Double-shell tank	200E	2034	2034	575338.7	135890.7	poly			22.86	410.433	16.764
241-AN-101	Double-shell tank	200E	2034	2034	575412.3	136389.3	poly			22.86	410.433	16.764
241-AY-102	Double-shell tank	200E	2034	2034	575312.3	136171.7	poly			22.86	410.433	16.764
241-AZ-101	Double-shell tank	200E	2034	2034	575412.4	136310.2	poly			22.86	410.433	16.764
241-AZ-102	Double-shell tank	200E	2034	2034	575379.8	136310.1	poly			22.86	410.433	16.764
241-AW-106	Double-shell tank	200E	2034	2034	575371.5	135825.5	poly			22.86	410.433	16.764
241-AW-105	Double-shell tank	200E	2034	2034	575338.9	135825.5	poly			22.86	410.433	16.764
241-AP-101	Double-shell tank	200E	2034	2034	575537.4	135879.7	poly			2.29	4.104	16.764
241-AW-103	Double-shell tank	200E	2034	2034	575338.8	135858.1	poly			22.86	410.433	16.764
241-AN-107	Double-shell tank	200E	2034	2034	575346.8	136454.3	poly			22.86	410.433	16.764
241-AN-102	Double-shell tank	200E	2034	2034	575379.6	136389.2	poly			22.86	410.433	16.764
241-AN-103	Double-shell tank	200E	2034	2034	575347	136389.1	poly			22.86	410.433	16.764
241-AN-104	Double-shell tank	200E	2034	2034	575412.1	136421.9	poly			22.86	410.433	16.764
241-AN-105	Double-shell tank	200E	2034	2034	575379.6	136421.8	poly			22.86	410.433	16.764
241-AN-106	Double-shell tank	200E	2034	2034	575346.9	136421.7	poly			22.86	410.433	16.764
241-AY-101	Double-shell tank	200E	2034	2034	575312.2	136204.3	poly			22.86	410.433	16.764
241-AW-104	Double-shell tank	200E	2034	2034	575371.4	135858.2	poly			22.86	410.433	16.764
241-SY-102	Double-shell tank	200W	2034	2034	566866.4	134557.7	poly			22.86	410.433	16.383
241-SY-101	Double-shell tank	200W	2034	2034	566899	134557.8	poly			22.86	410.433	16.383
241-SY-103	Double-shell tank	200W	2034	2034	566899.1	134525.1	poly			22.86	410.433	16.383
270-E-1	Neutralization tank	200E	1952	1957	573212.8	136446	point			2.74	5.910	2.7432
270-W	Neutralization tank	200W	1952	1960	567615.4	135058.6	point	2.74		2.74	5.910	
241-Z	Neutralization tank	200W	1948	1948	566522.3	135532	point	28.96	7.32		211.819	6.7056
244-S_DCRT	Receiver tank	200W	1987	1987								
207-A-SOUTH	Retention basin	200E	1977	1989	575568.4	135975.2	poly	16.76	3.05		51.097	2.1336
207-A-NORTH	Retention basin	200E	1977	1977	575568.3	136024	poly	16.76	3.05		51.097	2.1336
207-B	Retention basin	200E	1945	1997	573876.8	137079.1	poly	74.98	37.49		2811.060	2
216-A-40	Retention basin	200E	1968	1968	575172.1	136187.2	poly	121.92	6.10		743.224	3.6576
216-A-42	Retention basin	200E	1978	1997	575681.6	135694.7	poly	104.24	9.14		953.185	6.096
216-B-59B	Retention basin	200E	1974	1997	573828	136645.9	poly	40.00	30.00		1200.000	3
216-B-64	Retention basin	200E	1974	1997	573253.9	136482.7	poly	50.90	12.80		651.622	4.572
207-SL	Retention basin	200W	1952	1952	567513.8	133906.4	poly	15.24	15.24		232.258	

Table A-18. Site-Specific Data Other than Inventory. (28 Pages)

Site	Site Type	Operation Area	Start	End	X Coordinate	Y Coordinate	GIS Feature Type	Length (m)	Width (m)	Diameter (m)	Area (m^2)	Depth/Height (m)
207-T	Retention basin	200W	1944	1995	566969.1	136705	poly	74.98	37.49		2811.060	
207-Z	Retention basin	200W	1949	1959	566574.7	135522.6	poly	15.24	12.19		185.806	3.048
207-S	Retention basin	200W	1951	1954	566978.4	133891.9	poly	39.62	39.62		1570.061	
207-U	Retention basin	200W	1952	1994	566973.3	135044	poly	74.98	37.49		2832.800	1.9812
241-B-361	Settling tank	200E	1945	1947	573770.4	136707.7	point	5.79		6.10	29.186	
216-BY-201	Settling tank	200E	1960	1960	573608	137594.5	poly	12.60	1.93		24.305	2.77368
221-B_SDT	Settling tank	200E	1945	1945								
241-Z-8	Settling tank	200W	1955	1962	566638.9	135652.7	point	12.19		2.44	4.670	
216-TY-201	Settling tank	200W	1953	1966	566946	136417	point	7.10	3.05		21.674	2.8956
241-Z-361	Settling tank	200W	1949	1976	566547.8	135514.9	point	8.53	4.57		39.019	6.4004876562
241-U-361	Settling tank	200W	1951	1957	567297.1	135008.3	point			6.10	29.186	7.62
241-BY-112	Single-shell tank	200E			573566.3	137530.6	poly			22.86	410.433	11.2776
241-BY-105	Single-shell tank	200E			573628.6	137499.7	poly			22.86	410.433	11.2776
241-BY-111	Single-shell tank	200E			573566.4	137499.5	poly			22.86	410.433	11.2776
241-BY-110	Single-shell tank	200E			573566.5	137468.4	poly			22.86	410.433	11.2776
241-BY-109	Single-shell tank	200E			573597.4	137530.7	poly			22.86	410.433	11.2776
241-BY-108	Single-shell tank	200E			573597.5	137499.6	poly			22.86	410.433	11.2776
241-C-101	Single-shell tank	200E			575161.4	136504.3	poly			22.86	410.433	11.7348
241-BY-106	Single-shell tank	200E			573628.5	137530.8	poly			22.86	410.433	11.2776
241-C-106	Single-shell tank	200E	2034	2034	575182.8	136569	poly			22.86	410.433	11.7348
241-BY-104	Single-shell tank	200E			573628.6	137468.6	poly			22.86	410.433	11.2776
241-BY-103	Single-shell tank	200E			573659.6	137530.9	poly			22.86	410.433	11.2776
241-BY-102	Single-shell tank	200E			573659.6	137499.8	poly			22.86	410.433	11.2776
241-BY-107	Single-shell tank	200E			573597.6	137468.5	poly			22.86	410.433	11.2776
241-C-110	Single-shell tank	200E			575096.6	136568.7	poly			22.86	410.433	11.7348
241-B-106	Single-shell tank	200E			573841.3	137328.9	poly			22.86	410.433	9
241-C-204	Single-shell tank	200E			575155.7	136638.9	poly			6.10	29.186	11.548872
241-C-203	Single-shell tank	200E			575166.5	136628.2	poly			6.10	29.186	11.545824
241-C-202	Single-shell tank	200E			575177.3	136617.5	poly			6.10	29.186	11.545824
241-C-201	Single-shell tank	200E			575188.1	136606.7	poly			6.10	29.186	11.545824
241-C-104	Single-shell tank	200E			575139.8	136525.8	poly			22.86	410.433	11.7348
241-C-111	Single-shell tank	200E			575118.1	136590.3	poly			22.86	410.433	11.7348

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Site	Site Type	Operation Area	Start	End	X Coordinate	Y Coordinate	GIS Feature Type	Length (m)	Width (m)	Diameter (m)	Area (m^2)	Depth/Height (m)
241-C-102	Single-shell tank	200E			575182.9	136525.9	poly			22.86	410.433	9.525
241-C-109	Single-shell tank	200E			575161.2	136590.5	poly			22.86	410.433	11.7348
241-C-108	Single-shell tank	200E			575139.7	136568.9	poly			22.86	410.433	11.7348
241-C-107	Single-shell tank	200E			575118.3	136547.3	poly			22.86	410.433	11.7348
241-BX-111	Single-shell tank	200E			573567.8	137347.2	poly			22.86	410.433	9.5
241-C-105	Single-shell tank	200E			575161.3	136547.4	poly			22.86	410.433	11.7348
241-C-103	Single-shell tank	200E			575204.4	136547.5	poly			22.86	410.433	11.7348
241-C-112	Single-shell tank	200E			575139.6	136612	poly			22.86	410.433	11.7348
241-B-105	Single-shell tank	200E			573841.4	137298.4	poly			22.86	410.433	9
241-BY-101	Single-shell tank	200E			573659.7	137468.7	poly			22.86	410.433	11.2776
241-B-201	Single-shell tank	200E			573818.4	137359.4	poly			6.10	29.186	11.5
241-B-112	Single-shell tank	200E			573780.3	137328.7	poly			22.86	410.433	9
241-B-111	Single-shell tank	200E			573780.4	137298.2	poly			22.86	410.433	9
241-B-110	Single-shell tank	200E			573780.5	137267.8	poly			22.86	410.433	9
241-B-109	Single-shell tank	200E			573810.8	137328.8	poly			22.86	410.433	9
241-B-203	Single-shell tank	200E			573787.9	137359.3	poly			6.10	29.186	11.5
241-B-107	Single-shell tank	200E			573811	137267.8	poly			22.86	410.433	9
241-B-204	Single-shell tank	200E			573772.6	137359.4	poly			6.10	29.186	11.5
241-A-106	Single-shell tank	200E			575384.5	136074.5	poly			22.86	410.433	15.24
241-B-103	Single-shell tank	200E			573871.8	137329	poly			22.86	410.433	9
241-B-102	Single-shell tank	200E			573871.8	137298.5	poly			22.86	410.433	9
241-B-101	Single-shell tank	200E			573871.9	137268	poly			22.86	410.433	9.0678
241-AX-101	Single-shell tank	200E			575422.2	136203.9	poly			22.86	410.433	15.24
241-AX-102	Single-shell tank	200E			575422.3	136172.8	poly			22.86	410.433	15.24
241-AX-103	Single-shell tank	200E			575394.8	136203.8	poly			22.86	410.433	15.24
241-B-108	Single-shell tank	200E			573810.9	137298.3	poly			22.86	410.433	9
241-A-103	Single-shell tank	200E			575384.6	136043.5	poly			22.86	410.433	15.24
241-AX-104	Single-shell tank	200E			575394.9	136172.7	poly			22.86	410.433	15.24
241-BX-110	Single-shell tank	200E			573567.8	137316.7	poly			22.86	410.433	9.5
241-BX-109	Single-shell tank	200E			573598.1	137377.7	poly			22.86	410.433	9.5
241-BX-108	Single-shell tank	200E			573598.2	137347.3	poly			22.86	410.433	9.5
241-BX-107	Single-shell tank	200E			573598.3	137316.8	poly			22.86	410.433	9.5

Table A-18. Site-Specific Data Other than Inventory. (28 Pages)

Site	Site Type	Operation Area	Start	End	X Coordinate	Y Coordinate	GIS Feature Type	Length (m)	Width (m)	Diameter (m)	Area (m^2)	Depth/Height (m)
241-BX-106	Single-shell tank	200E			573628.6	137377.8	poly			22.86	410.433	9.5
241-B-202	Single-shell tank	200E			573803.1	137359.4	poly			6.10	29.186	11.5
241-A-102	Single-shell tank	200E			575353.5	136043.4	poly			22.86	410.433	15.24
241-BX-112	Single-shell tank	200E			573567.6	137377.6	poly			22.86	410.433	9.5
241-BX-105	Single-shell tank	200E			573628.7	137347.3	poly			22.86	410.433	9.5
241-BX-104	Single-shell tank	200E			573628.8	137316.9	poly			22.86	410.433	9.5
241-BX-103	Single-shell tank	200E			573659.1	137377.9	poly			22.86	410.433	9.5
241-BX-102	Single-shell tank	200E			573659.1	137347.4	poly			22.86	410.433	9.5
241-BX-101	Single-shell tank	200E			573659.3	137316.9	poly			22.86	410.433	9.5
241-A-104	Single-shell tank	200E			575322.3	136074.4	poly			22.86	410.433	15.24
241-A-105	Single-shell tank	200E			575353.4	136074.5	poly			22.86	410.433	15.24
241-A-101	Single-shell tank	200E			575322.4	136043.3	poly			22.86	410.433	15.24
241-B-104	Single-shell tank	200E			573841.4	137267.9	poly			22.86	410.433	9
241-TX-109	Single-shell tank	200W			566804.9	136218.1	poly			22.86	410.433	14.26464
241-TY-101	Single-shell tank	200W			566773.3	136446.6	poly			22.86	410.433	13.62456
241-TX-118	Single-shell tank	200W			566742.6	136280.1	poly			22.86	410.433	14.26464
241-TX-117	Single-shell tank	200W			566774.3	136280.2	poly			22.86	410.433	14.26464
241-TX-116	Single-shell tank	200W			566804.8	136280.3	poly			22.86	410.433	13.95984
241-TX-115	Single-shell tank	200W			566742.7	136249	poly			22.86	410.433	14.20368
241-TX-114	Single-shell tank	200W			566774.4	136249.1	poly			22.86	410.433	14.20368
241-TX-113	Single-shell tank	200W			566804.9	136249.2	poly			22.86	410.433	14.1732
241-TX-112	Single-shell tank	200W			566711.7	136217.9	poly			22.86	410.433	14.41704
241-S-110	Single-shell tank	200W			566835.4	134409.8	poly			22.86	410.433	13.185648
241-TX-110	Single-shell tank	200W			566774.4	136218	poly			22.86	410.433	14.50848
241-TY-104	Single-shell tank	200W			566742.3	136415.4	poly			22.86	410.433	13.62456
241-TX-108	Single-shell tank	200W			566711.8	136186.8	poly			22.86	410.433	14.69136
241-S-101	Single-shell tank	200W			566835.1	134503	poly			22.86	410.433	13.185648
241-S-102	Single-shell tank	200W			566804.1	134503	poly			22.86	410.433	13.185648
241-S-103	Single-shell tank	200W			566772.9	134502.9	poly			22.86	410.433	13.185648
241-S-104	Single-shell tank	200W			566835.2	134472	poly			22.86	410.433	13.185648
241-S-105	Single-shell tank	200W			566804.1	134471.9	poly			22.86	410.433	13.185648
241-S-107	Single-shell tank	200W			566835.3	134440.9	poly			22.86	410.433	13.185648

Table A-18. Site-Specific Data Other than Inventory. (28 Pages)

Site	Site Type	Operation Area	Start	End	X Coordinate	Y Coordinate	GIS Feature Type	Length (m)	Width (m)	Diameter (m)	Area (m^2)	Depth/Height (m)
241-S-109	Single-shell tank	200W			566773.1	134440.7	poly			22.86	410.433	13.185648
241-TX-111	Single-shell tank	200W			566742.8	136217.9	poly			22.86	410.433	14.44752
241-U-106	Single-shell tank	200W			566781.1	135073.3	poly			22.86	410.433	11.7348
241-U-204	Single-shell tank	200W			566752.4	135004.6	poly			6.10	29.186	11.548872
241-U-203	Single-shell tank	200W			566752.3	135019.8	poly			6.10	29.186	11.548872
241-U-202	Single-shell tank	200W			566752.3	135035.1	poly			6.10	29.186	11.548872
241-U-201	Single-shell tank	200W			566752.3	135050.3	poly			6.10	29.186	11.548872
241-U-112	Single-shell tank	200W			566781.3	135012.3	poly			22.86	410.433	11.7348
241-U-111	Single-shell tank	200W			566811.8	135012.4	poly			22.86	410.433	11.7348
241-U-110	Single-shell tank	200W			566842.3	135012.5	poly			22.86	410.433	11.7348
241-U-109	Single-shell tank	200W			566781.3	135042.8	poly			22.86	410.433	11.7348
241-TY-102	Single-shell tank	200W			566742.3	136446.5	poly			22.86	410.433	13.59408
241-U-107	Single-shell tank	200W			566842.2	135042.9	poly			22.86	410.433	11.7348
241-TY-103	Single-shell tank	200W			566773.4	136415.5	poly			22.86	410.433	13.59408
241-U-105	Single-shell tank	200W			566811.6	135073.3	poly			22.86	410.433	11.7348
241-U-104	Single-shell tank	200W			566842.1	135073.4	poly			22.86	410.433	11.7348
241-U-103	Single-shell tank	200W			566781.1	135103.7	poly			22.86	410.433	11.7348
241-U-102	Single-shell tank	200W			566811.6	135103.8	poly			22.86	410.433	11.7348
241-U-101	Single-shell tank	200W			566842	135103.9	poly			22.86	410.433	11.7348
241-TY-106	Single-shell tank	200W			566742.4	136384.3	poly			22.86	410.433	14.0208
241-TY-105	Single-shell tank	200W			566773.4	136384.4	poly			22.86	410.433	13.59408
241-S-108	Single-shell tank	200W			566804.2	134440.8	poly			22.86	410.433	13.185648
241-U-108	Single-shell tank	200W			566811.7	135042.8	poly			22.86	410.433	11.7348
241-T-110	Single-shell tank	200W			566838.1	136673.3	poly			22.86	410.433	11.64336
241-TX-105	Single-shell tank	200W			566805.1	136187	poly			22.86	410.433	14.66088
241-S-106	Single-shell tank	200W			566773.1	134471.8	poly			22.86	410.433	13.185648
241-T-101	Single-shell tank	200W			566837.9	136764.8	poly			22.86	410.433	11.5824
241-T-102	Single-shell tank	200W			566807.4	136764.7	poly			22.86	410.433	11.5824
241-T-103	Single-shell tank	200W			566776.9	136764.6	poly			22.86	410.433	11.70432
241-T-104	Single-shell tank	200W			566837.9	136734.3	poly			22.86	410.433	11.70432
241-T-105	Single-shell tank	200W			566807.5	136734.2	poly			22.86	410.433	11.70432
241-T-106	Single-shell tank	200W			566777	136734.1	poly			22.86	410.433	11.76528

Table A-18. Site-Specific Data Other than Inventory. (28 Pages)

Site	Site Type	Operation Area	Start	End	X Coordinate	Y Coordinate	GIS Feature Type	Length (m)	Width (m)	Diameter (m)	Area (m^2)	Depth/Height (m)
241-T-107	Single-shell tank	200W			566838.1	136703.8	poly			22.86	410.433	11.70432
241-S-111	Single-shell tank	200W			566804.3	134409.7	poly			22.86	410.433	13.185648
241-T-109	Single-shell tank	200W			566777.1	136703.7	poly			22.86	410.433	11.94816
241-TX-106	Single-shell tank	200W			566774.5	136186.9	poly			22.86	410.433	14.66088
241-T-111	Single-shell tank	200W			566807.6	136673.3	poly			22.86	410.433	11.61288
241-T-112	Single-shell tank	200W			566777.2	136673.2	poly			22.86	410.433	11.70432
241-T-201	Single-shell tank	200W			566746.6	136711.2	poly			6.10	29.186	11.545824
241-T-202	Single-shell tank	200W			566746.6	136696	poly			6.10	29.186	11.393424
241-T-203	Single-shell tank	200W			566746.7	136680.7	poly			6.10	29.186	11.548872
241-T-204	Single-shell tank	200W			566746.7	136665.5	poly			6.10	29.186	11.548872
241-TX-101	Single-shell tank	200W			566805.1	136155.9	poly			22.86	410.433	14.3256
241-TX-103	Single-shell tank	200W			566742.9	136155.8	poly			22.86	410.433	14.72184
241-TX-102	Single-shell tank	200W			566774.6	136155.9	poly			22.86	410.433	14.682216
241-T-108	Single-shell tank	200W			566807.6	136703.7	poly			22.86	410.433	11.67384
241-S-112	Single-shell tank	200W			566773.2	134409.6	poly			22.86	410.433	13.185648
241-SX-105	Single-shell tank	200W			566804.6	134266.5	poly			22.86	410.433	15.3924
241-SX-106	Single-shell tank	200W			566773.6	134266.4	poly			22.86	410.433	15.3924
241-TX-104	Single-shell tank	200W			566711.9	136155.7	poly			22.86	410.433	14.6304
241-SX-103	Single-shell tank	200W			566773.5	134297.5	poly			22.86	410.433	15.3924
241-SX-115	Single-shell tank	200W			566773.8	134173.2	poly			22.86	410.433	15.3924
241-SX-102	Single-shell tank	200W			566804.6	134297.6	poly			22.86	410.433	15.3924
241-SX-104	Single-shell tank	200W			566835.8	134266.6	poly			22.86	410.433	15.3924
241-TX-107	Single-shell tank	200W			566742.9	136186.9	poly			22.86	410.433	14.7828
241-SX-107	Single-shell tank	200W			566835.8	134235.5	poly			22.86	410.433	15.3924
241-SX-108	Single-shell tank	200W			566804.8	134235.4	poly			22.86	410.433	15.3924
241-SX-109	Single-shell tank	200W			566773.6	134235.3	poly			22.86	410.433	15.3924
241-SX-110	Single-shell tank	200W			566835.9	134204.4	poly			22.86	410.433	15.3924
241-SX-111	Single-shell tank	200W			566804.8	134204.3	poly			22.86	410.433	15.3924
241-SX-112	Single-shell tank	200W			566773.7	134204.2	poly			22.86	410.433	15.3924
241-SX-113	Single-shell tank	200W			566835.9	134173.3	poly			22.86	410.433	15.3924
241-SX-114	Single-shell tank	200W			566804.9	134173.2	poly			22.86	410.433	15.3924
241-SX-101	Single-shell tank	200W			566835.6	134297.6	poly			22.86	410.433	15.3924

Table A-18. Site-Specific Data Other than Inventory. (28 Pages)

Site	Site Type	Operation Area	Start	End	X Coordinate	Y Coordinate	GIS Feature Type	Length (m)	Width (m)	Diameter (m)	Area (m^2)	Depth/Height (m)
200-E-14	Storage tank	200E	1956	1957	573641.2	134443	point	8.23	3.89		31.982	
241-CX-70	Storage tank	200E	1952	1957	574610.6	136298.7	point	4.57		6.10	29.186	
276-S-141	Storage tank	200W	1951	1969	567285.3	134039.9	point	8.53		3.51	9.650	
276-S-142	Storage tank	200W	1951	1969	567285.2	134033.9	point	8.53		3.51	9.650	
221-T-11-R	Storage tank	200W	1999	1999	567558.1	136823	point				9.990	4.3
200-W-16	Storage tank	200W	1970	1970	567658.8	136831.8	point	2.40	2.40	0.60	5.700	0.9
200-W-40	Laboratory	200W	1960	1960	567654.9	136838.4	poly	15.24	7.01		106.838	
221-T_CSTF	Laboratory	200W	1964	1990								
200-W-69	Laboratory	200W	1951	1951	567419.1	133882		99.93	48.69		4865.590	
221-B	Process unit/plant	200E	1978	1978	573270	136630					5590.000	
B_PLANT_FILTER	Process unit/plant	200E	1944	1977	573422.8	136465.2	point			0.79	0.493	
224-B	Process unit/plant	200E	1957	1957	573411.4	136393.4	poly	60.05	18.29		1098.114	21.336
202-A	Process unit/plant	200E	1956	1998	575100	135650					11378.000	
224-T	Process unit/plant	200W	1957	1957	567555.8	136724.8		60.05	18.29		1098.114	18.288
276-U	Process unit/plant	200W	1959	1959	567470.9	135066.9	poly	20.12	16.46		330.800	2.4384
234-5Z	Process unit/plant	200W	1955	1996	566472.8	135657.2	poly	150.00	53.50		8025.000	
202-S	Process unit/plant	200W	1968	1968	567379.1	133972.8	poly	142.34	49.07		6985.101	24.9936
231-Z	Process unit/plant	200W	1945	1945	566483.4	135886.5	poly	83.75	58.71		4916.960	
221-U	Process unit/plant	200W	1959	1959	567558.6	135170.7	poly	246.89	20.12		4966.597	23.4696
221-T	Process unit/plant	200W	1944	1999	567568.3	136849.7	poly	254.00	21.00		5334.000	
224-U	Process unit/plant	200W	1989	1989	567549.9	135056.7		60.04	18.28		1097.530	
222-SD	Storage	200W	1945	1960	567408.3	133903.7	poly	5.79	4.88		27.840	2.62128
RMWSF	Storage	200W	1985	2046	565673.5	136024.5	poly				56345.000	
216-A-524	Control structure	200E	1957	1966	575596.9	136377.8	point	4.88	2.44		11.892	3.3528
2904-S-160	Control structure	200W	1954	1976	566502.6	133654.5	poly	3.05	3.05		9.290	2.7432
216-S-172	Control structure	200W	1956	1976	566478	133640.7	poly	4.18	2.23		9.291	2.1336
2904-S-170	Control structure	200W	1954	1976	567259.6	133948	point	4.88	1.52		7.432	3.3528
2904-S-171	Control structure	200W	1954	1976	566217.3	133638.3	poly	3.96	3.05		12.077	2.5908
241-BX-155	Diversion box	200E	1948	1984	573670.4	136957.7	poly	6.10	2.74		16.723	3.9624
241-B-154	Diversion box	200E	1945	1984	573806.1	136445.4	poly	10.97	2.74		30.101	5
241-ER-152	Diversion box	200E	1945	1945	573361.1	136305.1	poly	3.66	3.66		13.378	4.572
241-ER-151	Diversion box	200E	1945	1945	573222.3	136276.6	poly	13.11	3.05		39.948	5.1816

Table A-18. Site-Specific Data Other than Inventory. (28 Pages)

Site	Site Type	Operation Area	Start	End	X Coordinate	Y Coordinate	GIS Feature Type	Length (m)	Width (m)	Diameter (m)	Area (m^2)	Depth/Height (m)
241-C-154	Diversion box	200E	1946	1985	574609.6	136336.8	point	2.44	2.44		5.946	2.4384
241-A-151	Diversion box	200E	1956	1956	575208.8	135597.8	poly	17.98	9.60		172.660	
241-BX-154	Diversion box	200E	1948	1985	573506.4	136440.9	point	6.71	2.74		18.395	3.9624
200-W-58	Diversion box	200W	1966	1966	566546	135500.7	poly	2.10	2.10		4.410	2.8
241-S-151	Diversion box	200W	1952	1952	566913.9	134322.9	poly	17.07	7.16		122.260	5.54736
240-S-151	Diversion box	200W	1950	1987	567368.5	134030.8	poly	17.07	3.05		52.026	5.1816
240-S-152	Diversion box	200W	1977	1980	567365.6	134098.3	poly	4.27	3.05		13.006	2.630424
241-U-152	Diversion box	200W	1946	1946	566912.6	134982.7	poly	8.53	2.74		23.412	5.068824
241-TX-152	Diversion box	200W	1949	1949	567088.6	136105.3	poly	3.20	2.44		7.804	3.6576
241-TX-154	Diversion box	200W	1953	1953	567598.8	136835.4	poly	10.97	3.05		33.445	5.4864
241-UX-154	Diversion box	200W	1946	1946	567608.3	135187.9	poly	14.63	6.10		89.187	4.776216
241-TX-155	Diversion box	200W	1949	1980	567096.5	136102.3	poly	17.07	6.10		104.051	5.385816
241-U-151	Diversion box	200W	1946	1946	566921.8	134995.5	poly	6.10	2.74		16.723	5.065776
200-W-59	Diversion box	200W	1966	1966	566364.6	135493.1	poly	2.10	2.10		4.410	5.2
241-WR_VAULT	Receiving vault	200W	1959	1959								
231-W-151	Receiving vault	200W	1948	1974	566547.9	135896.9	poly	5.18	5.18		26.849	
296-A-13	Stack	200E	1966	1966	575230	136100					13.000	
296-S-12	Stack	200W	1954	1954	567288.9	134014.4	point	1.06	1.06		1.124	
296-S-1	Stack	200W	1950	1976	567432.4	133963.2	point	19.51		0.36	0.100	
296-U-10	Stack	200W	1976	1976	567523.7	135197.8	point	3.05		7.32	42.028	
296-S-21	Stack	200W	1954	1954	567451	133838.2	point				1.124	
296-S-16	Stack	200W	1954	1954	567474.3	133926.1	point				1.124	
296-S-13	Stack	200W	1954	1954	567463.6	133879.8	point				1.124	
291-S-1	Stack	200W	1952	1965	567531.6	134029.6	poly	60.96		4.27	14.301	
209-E-WS-3	Valve pit	200E	1960	1989	574454.4	136304.3	point	2.13	1.52		3.252	2.1336
HSVP	Valve pit	200E	1951	1986	574604.1	136341.3	point			1.68	2.207	
291-C-1	Burial ground	200E	1949	1987	574631.9	136385.9	point	60.96	2.00		121.920	
218-E-12A	Burial ground	200E	1953	1967	574938.1	136803.2	poly	362.10	12.19		4414.753	
218-E-12B	Burial ground	200E	1967	2016	574796.3	137446.5	poly	1258.82	697.99		878649.081	4.8768
218-E-1	Burial ground	200E	1945	1953	574754.7	135574.9	poly	148.13	88.39		7440.512	
218-C-9	Burial ground	200E	1985	1989	574657.6	136464.7	poly	86.26	86.26		16982.676	
218-E-10	Burial ground	200E	1960	2046	572944.8	137267.6	poly	716.28	617.22		442102.342	4.8768

Table A-18. Site-Specific Data Other than Inventory. (28 Pages)

Site	Site Type	Operation Area	Start	End	X Coordinate	Y Coordinate	GIS Feature Type	Length (m)	Width (m)	Diameter (m)	Area (m^2)	Depth/Height (m)
ILAW-glass	Burial ground	200E	2008	2034								
218-E-9	Burial ground	200E	1985	1989	573584.3	137078.2	poly	130.15	30.48		3966.960	
218-E-8	Burial ground	200E	1958	1959	575115.8	137224.7	poly	121.92	35.05		4273.540	
218-E-7	Burial ground	200E	1947	1952	573500.4	136362.2	point				27.000	
218-E-5A	Burial ground	200E	1956	1959	573355.9	137087.6	poly	36.58	30.48		1114.837	
218-E-5	Burial ground	200E	1954	1956	573417.1	137079.6	poly	101.96	63.09		6432.746	
218-E-4	Burial ground	200E	1955	1956	573497	136890.7	poly	237.74	60.96		14492.875	
218-E-2A	Burial ground	200E	1945	1950	573544.6	136989.9	poly	97.54	14.02		1367.533	
GTFL	Burial ground	200E	1986	1991	576440.2	135888	poly	38.10	15.24		580.644	10.3632
218-E-2	Burial ground	200E	1945	1953	573510.5	137077.9	poly	164.90	134.42		22164.901	
218-W-2A	Burial ground	200W	1954	1985	566424.9	136890.8	poly	535.86	340.04		182213.800	
218-W-5	Burial ground	200W	1985	2046	565869.7	137164.6	poly	1012.68	360.06		364625.560	
218-W-7	Burial ground	200W	1952	1960	567484.5	133865.4	poly			3.66	10.507	
218-W-4C	Burial ground	200W	1978	2000	566458.1	135086.1	poly	774.14	299.54		231885.890	
218-W-4A	Burial ground	200W	1961	1968	566227.8	136490.9	poly	274.32	267.92		73495.595	
218-W-3AE	Burial ground	200W	1981	2046	566616.4	137391.3	poly	500.00	453.00		226500.000	
218-W-3	Burial ground	200W	1957	1960	566165.6	136745	poly	218.24	155.45		33924.475	
218-W-2	Burial ground	200W	1953	1956	566205.4	136062	poly	179.53	158.80		28509.064	
218-W-1A	Burial ground	200W	1945	1953	567059.8	137184.3	poly	184.40	139.29		25686.297	
218-W-11	Burial ground	200W	1960	1960	566204.9	136318.6	poly	152.40	60.96		9290.304	4.572
218-W-1	Burial ground	200W	1944	1952	566205.1	136221.5	poly	158.80	139.60		22168.338	
218-W-3A	Burial ground	200W	1970	2000	566226.4	137282.4	poly	746.76	283.46		211676.580	
218-W-8	Burial ground	200W	1945	1952	567637.7	136775.3	poly	24.60	13.15	2.44	323.490	
218-W-9	Burial ground	200W	1954	1954	567188.6	134306.6	poly	42.67	29.87		1274.630	
200-W-4	Burial ground	200W	1992	1992	566884.3	134982.8	point				999.000	
218-W-4B	Burial ground	200W	1968	1990	566190.6	135880.5	poly	188.98	158.50		29951.940	
216-B-50	Crib	200E	1965	1974	573582.1	137691.5	point	22.86	22.86		522.580	4.2672
216-B-49	Crib	200E	1956	1957	573582.2	137665.6	point	22.86	22.86		522.580	4.2672
216-B-48	Crib	200E	1956	1957	573582.2	137639.8	point	22.86	22.86		522.580	4.2672
216-B-47	Crib	200E	1955	1955	573582.3	137613.9	point	22.86	22.86		522.580	4.2672
216-B-15	Crib	200E	1956	1957	573607.1	134432.2	point	24.38	24.38		594.579	3.9624
216-B-43	Crib	200E	1954	1954	573624.9	137614	point	22.86	22.86		522.580	4.2672

Table A-18. Site-Specific Data Other than Inventory. (28 Pages)

Site	Site Type	Operation Area	Start	End	X Coordinate	Y Coordinate	GIS Feature Type	Length (m)	Width (m)	Diameter (m)	Area (m^2)	Depth/Height (m)
216-B-57	Crib	200E	1968	1973	573498.5	137578.5	poly	105.00	64.00		6720.000	15
216-B-19	Crib	200E	1957	1957	573558.6	134347.3	point	24.38	24.38		594.579	3.9624
216-B-18	Crib	200E	1955	1955	573600.7	134323.1	point	24.38	24.38		594.579	3.9624
216-B-17	Crib	200E	1955	1955	573582.8	134389.8	point	24.38	24.38		594.579	3.9624
216-B-16	Crib	200E	1956	1956	573624.9	134365.5	point	24.38	24.38		594.579	3.9624
216-B-45	Crib	200E	1954	1954	573624.8	137665.8	point	22.86	22.86		522.580	4.2672
216-B-9	Crib	200E	1949	1951	573852.3	136850	poly	59.13	19.51		1618.743	
216-C-7	Crib	200E	1961	1983	574447	136281.1	poly	6.10	6.10		37.161	3.6576
216-C-6	Crib	200E	1955	1964	574632.2	136288.2	poly	6.10	3.05		18.581	4.8768
216-C-5	Crib	200E	1955	1955	574542.7	136292.4	point	6.10	3.05		18.581	4.8768
216-C-4	Crib	200E	1955	1964	574521.7	136304.6	poly	6.10	3.05		18.581	4.8768
216-C-3	Crib	200E	1953	1954	574533.5	136300	poly	15.24	3.05		46.452	3.048
216-B-55	Crib	200E	1967	1990	573091.5	136495.4	poly	228.60	3.05		696.773	
216-C-1	Crib	200E	1952	1957	574580.1	136303.6	poly	8.23	3.66		30.101	3.9624
216-B-56	Crib	200E	1956	1956	573860	136561	line	21.34	3.05		65.032	
216-B-8	Crib	200E	1948	1953	573807.9	137504.9	poly	3.66	3.66		13.378	2.1336
216-B-7A&B	Crib	200E	1946	1967	573799	137392.9	point	3.66	3.66		13.378	1.2192
216-B-62	Crib	200E	1973	1986	573074.9	136814.7	poly	152.40	3.05		464.515	
216-B-61	Crib	200E	1968	1968	573349.6	137697	poly	53.34	3.05		162.580	
216-B-60	Crib	200E	1967	1967	573380	136480	line	4.88		2.44	4.670	12.192
216-B-44	Crib	200E	1954	1954	573624.9	137639.9	point	22.86	22.86		522.580	4.2672
216-C-10	Crib	200E	1964	1967	574697.8	136313.1	poly	9.75	1.52		14.864	2.1336
216-A-39	Crib	200E	1965	1965	575431.5	136253.8	poly	28.00	22.00		616.000	
216-A-6	Crib	200E	1955	1970	575591.4	135648	poly	30.48	30.48		929.030	
216-A-5	Crib	200E	1955	1966	575047.5	135492.7	poly	10.67	10.67		113.806	8.8392
216-A-45	Crib	200E	1987	1989	574908.3	135161.3	poly	94.49	18.29		1727.997	
216-B-46	Crib	200E	1955	1955	573624.8	137691.6	point	22.86	22.86		522.580	4.2672
216-A-4	Crib	200E	1955	1958	575216.8	135528.7	poly	6.10	6.10		37.161	7.9248
216-B-14	Crib	200E	1955	1955	573649.3	134404.9	point	24.38	24.38		594.579	3.9624
216-A-37-2	Crib	200E	1985	1991	576170.4	135525.7	poly	426.72	3.05		1300.643	
216-A-37-1	Crib	200E	1977	1989	575842.1	135678.9	poly	213.36	3.05		1011.714	
216-A-36B	Crib	200E	1966	1987	575105.1	135294.9	poly	152.40	3.35		510.967	

Table A-18. Site-Specific Data Other than Inventory. (28 Pages)

Site	Site Type	Operation Area	Start	End	X Coordinate	Y Coordinate	GIS Feature Type	Length (m)	Width (m)	Diameter (m)	Area (m^2)	Depth/Height (m)
216-A-36A	Crib	200E	1965	1966	575106.5	135396	poly	30.48	3.35		809.371	
216-A-32	Crib	200E	1959	1972	575325.6	135730.8	poly	21.34	2.44		52.026	3.6576
216-A-31	Crib	200E	1963	1964	575166.4	135483.8	poly	21.34	3.05		65.032	
216-A-30	Crib	200E	1961	1991	575980.9	135507.8	poly	426.72	3.05		1300.643	
216-A-3	Crib	200E	1956	1981	575099.5	135819.5	poly	6.10	6.10		37.161	4.8768
216-B-10A	Crib	200E	1949	1952	573473.4	136339.7	point	4.27	4.27		809.371	
216-A-41	Crib	200E	1968	1974	575237.4	136108.5	poly	3.05	3.05		40.599	
216-A-28	Crib	200E	1962	1962	575082.6	135779	point			6.10	29.190	3.3528
216-B-12	Crib	200E	1952	1973	573128	136600.1	poly	48.77	15.24		743.224	
216-B-10B	Crib	200E	1969	1973	573450.6	136339.6	point	4.27	4.27		18.209	
216-A-9	Crib	200E	1956	1969	575108.9	136025	poly	128.02	6.10		780.386	
216-A-1	Crib	200E	1955	1955	575521.7	136081.8	poly	9.14	9.14		83.613	4.572
216-A-10	Crib	200E	1956	1987	574978.3	135439.9	poly	83.82	13.72		1149.675	
216-A-24	Crib	200E	1958	1967	575832.9	136395.8	poly	426.72	6.10		2601.285	
216-A-21	Crib	200E	1957	1965	575214.6	135462.4	poly	18.29	4.88		89.187	
216-A-8	Crib	200E	1955	1985	575779.7	136194	poly	259.08	6.10		1579.352	
216-A-7	Crib	200E	1955	1966	575506.2	136043.5	poly	3.05	3.05		9.290	4.8768
216-A-22	Crib	200E	1956	1956	575093.1	135778.2	point			4.88	18.674	3.048
216-A-2	Crib	200E	1956	1960	575180.1	135528.7	poly	6.10	6.10		37.161	8.2296
216-A-27	Crib	200E	1965	1970	575197.4	135400.7	poly	60.96	3.05		185.806	
216-S-6	Crib	200W	1954	1972	566216.8	133595.8	poly	64.01	64.01		4097.024	4.572
216-S-7	Crib	200W	1956	1965	567168.3	134176.5	poly	30.48	15.24		464.515	6.64464
216-S-9	Crib	200W	1965	1969	567175.9	134481	poly	91.44	9.14		836.127	
216-T-18	Crib	200W	1953	1953	566949.4	136460.2	poly	9.14	9.14		83.613	4.572
216-T-27	Crib	200W	1965	1965	566932.5	136372.8	poly	9.14	9.14		83.613	4.572
216-T-26	Crib	200W	1956	1956	566932.1	136398.7	poly	9.14	9.14		83.613	4.572
216-S-5	Crib	200W	1954	1957	566430.4	133440.2	poly	64.01	64.01		4097.024	4.572
216-S-13	Crib	200W	1951	1972	567154.8	134011.1	poly	12.19	12.19		148.645	9.906
216-T-19	Crib	200W	1951	1976	566849.4	135974	poly	118.87	25.91		3079.736	
216-SX-2	Crib	200W	1952	1965	566704.1	134161.4	poly	19.00	8.00		152.000	
216-S-26	Crib	200W	1984	1995	567594.9	133759.8	poly	128.02	3.05		390.193	
216-S-3	Crib	200W	1953	1956	566893.4	134438.1	poly	30.48	3.05		92.903	1.8288

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Site	Site Type	Operation Area	Start	End	X Coordinate	Y Coordinate	GIS Feature Type	Length (m)	Width (m)	Diameter (m)	Area (m^2)	Depth/Height (m)
216-S-23	Crib	200W	1969	1972	567113.6	134692.3	poly	109.73	3.05		334.451	8.5344
216-S-22	Crib	200W	1957	1959	567608.4	133989	poly	30.48	1.07		32.516	2.977896
216-S-21	Crib	200W	1954	1970	566611.4	134409.2	poly	15.24	15.24		232.258	6.73608
216-T-28	Crib	200W	1960	1966	566932.5	136347.2	poly	9.14	9.14		83.613	4.572
216-S-1&2	Crib	200W	1952	1956	566979.9	134260.2	poly	27.43	12.19		334.451	10.668
200-W-52	Crib	200W	1963	1963	566741.3	136656.9		3.66	3.66		13.378	7.9248
216-S-20	Crib	200W	1952	1973	567553.7	133916.8	poly	27.43	12.19		334.451	9.144
216-Z-16	Crib	200W	1968	1977	566430.1	135991.3	poly	54.86	3.05		167.225	4.8768
216-S-25	Crib	200W	1973	1985	566569.7	134287.2	poly	175.26	3.05		534.192	
216-T-6	Crib	200W	1946	1947	567188.3	136663.2	poly	39.46	16.91		667.260	7.62
216-T-7	Crib	200W	1948	1955	566685	136659.6	poly	94.49	25.60		2419.195	
216-T-8	Crib	200W	1950	1951	567650.8	136726.9	poly	35.19	11.11		390.960	
216-Z-5	Crib	200W	1945	1947	566555.2	135949.2	poly	4.27	4.27		18.209	5.4864
216-U-1&2	Crib	200W	1951	1967	567243.2	135001.9	poly	23.77	8.53		202.900	
216-Z-6	Crib	200W	1945	1945	566579.1	135875.8	poly	15.85	2.59		41.063	2.4384
216-Z-7	Crib	200W	1947	1967	566700.6	135926.9	poly	64.01	13.41		858.424	2.1336
216-Z-20	Crib	200W	1981	1995	566607.8	135230.8	line	462.99	3.05		1411.197	
216-Z-3	Crib	200W	1952	1959	566576.8	135459.2	poly	20.12	8.42	1.22	169.320	7.62
216-Z-18	Crib	200W	1969	1973	566440.1	135286.5	poly	63.09	3.05		192.309	5.4864
216-T-35	Crib	200W	1967	1968	567168.4	137107.8	poly	137.16	3.05		418.064	4.572
216-U-16	Crib	200W	1984	1985	567235.6	134861.3	poly	79.86	58.22		4649.054	
216-U-17	Crib	200W	1988	1994	567839.4	134903.3	poly	45.72	3.05		139.355	
216-Z-12	Crib	200W	1959	1973	566365.1	135422.8	poly	91.44	6.10		557.418	5.7912
216-Z-1&2	Crib	200W	1949	1969	566547.4	135469.2	poly	4.27	4.27		18.209	6.4008
216-W-LWC	Crib	200W	1981	1993	567916.1	135885.3	poly	126.49	65.84		8327.829	
216-T-34	Crib	200W	1966	1967	567265.3	137110.9	poly	60.96	9.14		557.418	4.572
216-T-33	Crib	200W	1963	1963	567461.5	136898.1	poly	9.14	1.52		13.935	3.2766
216-T-32	Crib	200W	1946	1952	566719.3	136696.1	poly	20.73	4.27		88.444	7.9248
216-U-12	Crib	200W	1960	1988	567592.3	134501.5	poly	30.48	3.05		92.903	4.572
216-U-8	Crib	200W	1952	1960	567615.9	134697.4	poly	48.77	15.24		743.224	
216-T-36	Crib	200W	1967	1969	566702	136596	poly	48.77	3.05		148.645	4.572
216-B-3-2	Ditch	200E	1964	1970	576130	136660	line	1127.76	4.57		5156.119	2.4384

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Site	Site Type	Operation Area	Start	End	X Coordinate	Y Coordinate	GIS Feature Type	Length (m)	Width (m)	Diameter (m)	Area (m^2)	Depth/Height (m)
216-B-2-1	Ditch	200E	1970	1970	574584.4	137061.5	line	1066.80	4.57		4877.410	
216-B-63	Ditch	200E	1970	1992	574235	137190	line	426.72	1.22		520.257	
216-B-2-2	Ditch	200E	1970	1970	574416.8	137088.9	line	1097.28	4.57		5016.764	
216-B-2-3	Ditch	200E	1970	1987	574515.8	137011.9	line	1219.20	6.10		7432.243	
216-A-34	Ditch	200E	1955	1957	575647.9	136210.2	poly	85.34			607.028	
216-B-3-3	Ditch	200E	1970	1994	575824.9	136691.3	poly	1127.76		6.10	6879.656	
216-A-29	Ditch	200E	1955	1991	575657.7	135885	poly	1219.20	1.83		26304.567	
216-B-3-1	Ditch	200E	1945	1964	576130	136830	line	975.36	1.83		1783.738	
216-Z-1D	Ditch	200W	1944	1959	566644.1	135258.1	line	1295.40	1.22		1579.352	0.6096
216-S-10D	Ditch	200W	1985	1989	566690.8	133566.2	line	685.80	1.83		1255.010	
216-U-14	Ditch	200W	1985	1994	567033.2	135347.1	line	1731.26	2.44		4224.270	
216-Z-19	Ditch	200W	1971	1981	566598.9	135099.7	line	842.77	1.22		1027.508	0.6096
216-Z-11	Ditch	200W	1959	1971	566628	135126.9	line	797.05	1.22		971.766	0.6096
216-U-9	Ditch	200W	1952	1975	565976.2	134005.7	line	1066.80	1.83		1952.240	
216-S-16D	Ditch	200W	1957	1975	565674	133546.6	poly	914.40	1.22		1114.837	
216-T-4-2	Ditch	200W	1972	1995	566758.4	137042	line	533.40	2.44		1300.643	1.2192
216-U-11	Ditch	200W	1944	1957	565805.9	134729.9	line	1374.65	1.52		2094.964	1.8288
216-T-1	Ditch	200W	1945	1970	567551.3	137102.7	poly	556.26	0.91		2162.783	3.048
216-T-4-1D	Ditch	200W	1944	1972	566762.1	136960	line	259.08	2.44		631.741	
216-Z-1A	Drain/tile field	200W	1949	1969	566549	135418.9	poly	84.00	35.00		2940.000	5.8
216-A-16	French drain	200E	1956	1969	575432.4	136039.2	point			1.07	0.894	5.1816
216-A-26	French drain	200E	1965	1991	575200.7	135533.9	point			0.91	1.167	4.572
216-A-12	French drain	200E	1956	1956	575110.6	135608.3	point			0.76	0.456	5.4864
216-A-23B	French drain	200E	1957	1969	575423.6	136025.2	point			1.07		1.8288
216-C-8	French drain	200E	1962	1965	575210.3	136475.6	point			2.44	4.670	4.8768
216-A-23A	French drain	200E	1957	1969	575426.6	136025.2	point			1.07		1.8288
209-E-WS-1	French drain	200E	1955	1955	574485.9	136347.2	poly			1.22	1.167	2.4384
216-A-13	French drain	200E	1956	1962	574954.5	135616.6	point			0.91	0.657	
216-A-14	French drain	200E	1956	1972	575095.9	135596.7	point			0.76	0.456	8.8392
216-A-15	French drain	200E	1956	1956	575064.1	135527.7	point			1.01	0.795	13.4112
216-A-17	French drain	200E	1956	1969	575429.4	136036.2	point	1.83		1.07	0.894	
216-B-51	French drain	200E	1956	1957	573866.3	137611.9	point			1.52	1.824	4.2672

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Site	Site Type	Operation Area	Start	End	X Coordinate	Y Coordinate	GIS Feature Type	Length (m)	Width (m)	Diameter (m)	Area (m^2)	Depth/Height (m)
216-A-26A	French drain	200E	1959	1965	575200.7	135538.5	point			1.22	1.167	4.572
216-B-11A&B	French drain	200E	1951	1954	573851	137419.3	point	9.14		2.44	4.670	
209-E-WS-2	French drain	200E	1960	1960	574467.1	136308.9	poly			1.22	1.167	
216-B-13	French drain	200E	1945	1976	573571.5	136392.3	point			1.22	1.167	5.4864
216-A-33	French drain	200E	1955	1964	575169.5	135558.8	point			1.83	2.626	3.6576
2718-E-WS-1	French drain	200E	1955	1955	574435.4	136305.8	line				0.999	
2704-C-WS-1	French drain	200E	1965	1965	574572.9	136394.6	point				0.999	
216-A-35	French drain	200E	1963	1966	574958.5	135613.7	point			1.83	404.686	
200-E-4	French drain	200E	1958	1959	574450.2	136348.5	point			1.22	1.167	
216-A-11	French drain	200E	1956	1956	575248.6	135608.7	point			0.76	0.456	9.144
216-Z-14	French drain	200W	1949	1949	566479.8	135583.5	point			0.91	0.657	4.572
216-T-31	French drain	200W	1954	1962	566868.4	136145	point			0.91	0.657	
216-Z-8	French drain	200W	1957	1961	566654.2	135652.8	point			0.91	0.657	4.572
216-Z-13	French drain	200W	1949	1949	566498.1	135582	point			0.91	0.657	4.572
216-S-4	French drain	200W	1953	1956	566549.3	134456.6	poly		0.76	0.76	0.456	6.096
216-U-7	French drain	200W	1952	1957	567611.4	135203.8	point			0.76	0.456	5.1816
216-Z-15	French drain	200W	1949	1949	566483.4	135625.3	point			0.91	0.657	6.7056
216-U-3	French drain	200W	1954	1955	566844.8	134927.9	poly			1.83	2.627	3.6576
216-T-29	French drain	200W	1949	1964	567705.3	136914	point	1.07		0.15	0.018	
216-U-4B	French drain	200W	1960	1968	567615.3	135121.2	point			0.91	0.657	3.048
216-U-4A	French drain	200W	1955	1970	567580.3	135111	point			1.30	1.318	2.7432
216-B-4	Injection/reverse well	200E	1945	1949	573554.1	136391.1	point	33.53		0.20	0.033	33
299-E24-111	Injection/reverse well	200E	1980	1981	574830.1	135418.8	point			0.15	0.018	18.287107589
216-B-5	Injection/reverse well	200E	1945	1947	573781.1	136732.1	point	92.05		0.20	0.033	92
216-C-2	Injection/reverse well	200E	1953	1988	574652.1	136375	point			0.30	0.073	12.192
216-B-6	Injection/reverse well	200E	1945	1949	573472.6	136403	point	48.77		0.15	0.018	23
216-T-2	Injection/reverse well	200W	1945	1950	567588.9	136781.9	point			0.15	0.018	22.86
216-Z-10	Injection/reverse well	200W	1945	1945	566566.5	135897.3	point			0.15	0.018	45.72
216-T-3	Injection/reverse well	200W	1945	1946	567260.9	136670.6	point			0.25	0.050	62.7888
216-U-4	Injection/reverse well	200W	1947	1955	567579.4	135109.2	point			0.08	0.005	22.86
216-B-3A	Pond	200E	1983	1995	577255.8	136578.5	point				40468.564	
216-B-3B	Pond	200E	1983	1995	577486.9	136463	point				40468.564	

Table A-18. Site-Specific Data Other than Inventory. (28 Pages)

Site	Site Type	Operation Area	Start	End	X Coordinate	Y Coordinate	GIS Feature Type	Length (m)	Width (m)	Diameter (m)	Area (m^2)	Depth/Height (m)
216-B-3C	Pond	200E	1985	1997	577755.3	135957.5	point				165921.114	
216-B-3	Pond	200E	1945	1997	576898.7	136687	poly				161874.258	
216-A-25	Pond	200E	1957	1985	574970.9	139650.4	poly	1423.72	243.84		347160.080	1.524
216-C-9	Pond	200E	1953	1969	574585.4	136478.1	poly	243.84	30.48		7432.243	7.62
216-Z-21	Pond	200W	1980	1995	566842.1	135523.4	poly	41.57	41.57		1728.060	
216-S-15	Pond	200W	1951	1952	566909.5	134468.6	point	10.67	1.52		16.258	1.524
216-S-11	Pond	200W	1954	1984	566473.2	133269.6	poly	152.40	60.96		6082.827	3.048
216-U-10	Pond	200W	1944	1984	566346.8	134604.4	poly				121405.693	
216-S-19	Pond	200W	1952	1984	567692.4	133274.7	poly				14164.000	
216-T-4B	Pond	200W	1972	1995	566522.6	137271.3	point				6100.000	
216-T-4A	Pond	200W	1944	1976	566533	137099.1	point	548.64	182.88		100335.286	
216-S-17	Pond	200W	1951	1954	565991.3	133248.4	poly	292.00	292.00		84983.990	3.048
216-S-16P	Pond	200W	1957	1972	565032.8	133253.5	poly				125452.550	
216-S-10P	Pond	200W	1954	1991	566402.8	133308.6	poly				20234.282	
200-E-30	Sand filter	200E	1950	1950	573630.4	136389	poly	33.53	15.24		510.967	4.8768
200-W-45	Sand filter	200W	1950	1950	567690.6	136911.8		33.53	15.24		510.967	4.8768
200-W-43	Sand filter	200W	1951	1967	567481.8	133973.4		26.00	26.00		676.000	4
200-W-44	Sand filter	200W	1959	1959	567688.1	135206.7	poly	29.26	29.26		856.194	6.7056
218-E-15	Storage tunnel	200E	1967	1988	575277.3	135225.6	poly	514.50	10.36		5331.891	6.7056
218-E-14	Storage tunnel	200E	1960	1964	575259.1	135486.9	poly	109.12	5.79		631.926	6.858
216-B-27	Trench	200E	1956	1956	573283.2	134112.5	line	152.40	3.05		464.515	3.048
216-B-21	Trench	200E	1956	1956	573378.9	134373.1	line	152.40	3.05		464.515	3.048
216-A-20	Trench	200E	1955	1955	575707	136248.5	poly	7.62	7.62		58.064	4.572
216-B-22	Trench	200E	1956	1956	573343.7	134373.1	line	152.40	3.05		464.515	3.048
216-B-23	Trench	200E	1956	1956	573283.2	134234.4	line	152.40	3.05		464.515	3.048
216-A-19	Trench	200E	1955	1955	575665.3	136277.8	poly	7.62	7.62		58.064	4.572
216-B-24	Trench	200E	1956	1956	573283.2	134204	line	152.40	3.05		464.515	3.048
216-B-25	Trench	200E	1956	1956	573283.2	134173.5	line	152.40	3.05		464.515	3.048
216-A-18	Trench	200E	1955	1955	575580.2	136235.7	poly	24.38	24.38		594.579	
216-B-26	Trench	200E	1956	1956	573283.2	134143	line	152.40	3.05		464.515	3.048
216-B-38	Trench	200E	1954	1954	573441.1	137344.3	line	76.81	3.05		234.116	
216-B-20	Trench	200E	1956	1956	573414	134373.1	line	152.40	3.05		464.515	3.048

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Site	Site Type	Operation Area	Start	End	X Coordinate	Y Coordinate	GIS Feature Type	Length (m)	Width (m)	Diameter (m)	Area (m^2)	Depth/Height (m)
216-B-28	Trench	200E	1956	1956	573283.2	134082	line	152.40	3.05		464.515	3.048
216-B-58	Trench	200E	1965	1967	573235.7	134347.8	line	60.96	3.05		185.806	
216-B-59	Trench	200E	1968	1968	573833	136617.6	poly	121.92	6.10		743.224	3.6576
216-B-53A	Trench	200E	1965	1965	573214.3	134439.3	line	18.29	3.05		55.742	
216-B-53B	Trench	200E	1962	1963	573234.8	134425.4	line	45.72	3.05		139.355	
216-B-41	Trench	200E	1954	1954	573440	137430	line	76.81	3.05		234.116	
216-B-40	Trench	200E	1954	1954	573440	137403	line	76.81	3.05		234.116	
216-B-52	Trench	200E	1957	1957	573293.6	134269.5	line	176.78	3.05		538.838	
216-B-39	Trench	200E	1954	1954	573441.1	137377.8	line	76.81	3.05		234.116	
216-B-42	Trench	200E	1954	1954	573345	137060	line	76.81	3.05		234.116	
216-B-37	Trench	200E	1954	1954	573441.1	137316.9	line	76.81	3.05		234.116	
216-B-29	Trench	200E	1957	1957	573083.3	134439.3	line	152.40	3.05		464.515	
200-E-102	Trench	200E	1959	1959	575220	135520		20.00	2.00		40.000	
216-B-36	Trench	200E	1953	1953	573441.1	137289.5	line	76.81	3.05		234.116	
216-B-35	Trench	200E	1953	1953	573441.1	137274.2	line	76.81	3.05		234.116	
216-B-34	Trench	200E	1957	1957	573083.3	134248.8	line	152.40	3.05		464.515	
216-B-33	Trench	200E	1957	1957	573083.3	134286.9	line	152.40	3.05		464.515	
216-B-30	Trench	200E	1957	1957	573083.3	134401.2	line	152.40	3.05		464.515	
216-B-31	Trench	200E	1957	1957	573083.3	134363.1	line	152.40	3.05		464.515	
216-B-54	Trench	200E	1963	1965	573235.7	134378.3	line	60.96	3.05		185.806	
216-B-32	Trench	200E	1957	1957	573083.3	134325	line	152.40	3.05		464.515	
216-T-13	Trench	200W	1954	1964	566776.3	136520.4	poly	6.10	6.10		37.161	3.048
216-T-23	Trench	200W	1954	1954	566555.2	136173.6	line	73.15	3.05		222.967	3.048
216-T-17	Trench	200W	1953	1953	567018.3	136836.2	poly	83.82	3.05		255.483	
216-T-22	Trench	200W	1954	1954	566555.3	136146.1	line	73.15	3.05		222.967	3.048
216-T-12	Trench	200W	1954	1954	566992.6	136737	poly	4.57	3.05		13.935	2.4384
216-T-14	Trench	200W	1953	1953	566948.1	136839	poly	83.82	3.05		255.483	
216-T-21	Trench	200W	1954	1954	566555.3	136118.7	line	73.15	3.05		222.967	3.048
216-T-16	Trench	200W	1953	1953	567003	136836.1	poly	83.82	3.05		255.483	
216-T-20	Trench	200W	1952	1952	567119.2	136074.4	point	3.05	3.05		9.290	
216-T-15	Trench	200W	1953	1953	566975.6	136836	poly	83.82	3.05		255.483	
216-S-8	Trench	200W	1951	1952	566925.6	134222.9	poly	30.48	18.29		557.418	7.62

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216-T-24	Trench	200W	1954	1954	566555	136201	line	73.15	3.05		222.967	3.048
216-T-25	Trench	200W	1954	1954	566545.9	136228.5	line	54.86	3.05		167.225	3.048
216-U-5	Trench	200W	1952	1952	567672.9	135359.3	poly	12.19	12.19		148.645	3.048
216-Z-17	Trench	200W	1967	1968	566603.4	135862.6	poly	60.96	7.92		483.096	2.4384
216-Z-9	Trench	200W	1955	1962	566758	135610.6	poly	36.58	27.43		1003.353	6.4008
216-T-5	Trench	200W	1954	1954	566666.5	136727.1	poly	15.24	3.05		46.452	3.6576
216-S-18	Trench	200W	1954	1954	567065.9	134407.9	poly	38.10	4.57		174.193	1.8288
216-Z-4	Trench	200W	1945	1945	566586.3	135920.7	poly	3.05	3.05		9.290	4.572
216-S-14	Trench	200W	1951	1952	567430.2	133541.1	poly	30.48	2.44		74.322	
216-U-13	Trench	200W	1952	1956	566722.6	135067.8	poly	60.96	6.10		371.612	5.4864
216-S-12	Trench	200W	1954	1954	567531.3	134120.3	point	27.43	6.10		167.225	3.048
216-U-6	Trench	200W	1952	1952	567624.2	135369.8	poly	22.86	3.05		69.677	
216-U-15	Trench	200W	1956	1957	567410.6	135116	poly	6.10	6.10		37.161	4.572
200-E-28	Unplanned release	200E			573395.7	136446.9	point				9.140	9.144
UPR-200-E-86	Unplanned release	200E	1971	1971	575034.3	136505.6	point	6.10	6.10		37.161	6.096
UPR-200-E-7	Unplanned release	200E			573682.4	136648	point				2.787	
UPR-200-E-73	Unplanned release	200E	1960	1960	573763.6	137188.3	point				0.999	
UPR-200-E-79	Unplanned release	200E	1953	1953	573857.5	137180.4	point	60.96	7.62		464.515	
UPR-200-E-80	Unplanned release	200E	1946	1946	573594.4	136441.9	point	152.40	30.48		4645.152	
UPR-200-E-81	Unplanned release	200E			575121.3	136467.7	point	12.19	1.83		22.297	
UPR-200-E-82	Unplanned release	200E			575032.6	136543.7	point				0.999	
UPR-200-E-85	Unplanned release	200E	1972	1972	573488.3	136443.8	point	15.24	15.24		232.258	4.572
UPR-200-E-87	Unplanned release	200E	1945	1945	573439.2	136379.2	point	4.50	4.57		20.555	
UPR-200-E-9	Unplanned release	200E			573608.3	137603.3	point				925.278	
UPR-200-E-135	Unplanned release	200E	1960	1960	573597.3	137499.6	point				0.999	
UPR-200-E-145	Unplanned release	200E	1993	1993	575491	136125	line	12.19	1.83		22.297	
200-E-56	Unplanned release	200E	1949	1957								
UPR-200-E-84	Unplanned release	200E	1953	1953	573232.9	136266.2	point				0.999	
UPR-200-E-56	Unplanned release	200E	1979	1979	575699.3	136431.5	poly	30.48	30.48		929.030	
UPR-200-E-21	Unplanned release	200E	1959	1959	575568.5	135640.1	point				0.999	
UPR-200-E-3	Unplanned release	200E	1951	1951	573501.6	136446	point				0.999	
UPR-200-E-17	Unplanned release	200E	1959	1959	575093.1	135778.2	point				0.999	

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UPR-200-E-16	Unplanned release	200E	1959	1959	575166.7	136559.3	point	15.24	6.10		92.903	
UPR-200-E-44	Unplanned release	200E	1972	1972	573423.7	136422.1	point				0.999	
UPR-200-E-50	Unplanned release	200E	1974	1974	575230.6	136925.6	point	137.16	22.86		3135.478	
UPR-200-E-141	Unplanned release	200E	1984	1984	574440.9	136294.2	point				0.999	
UPR-200-E-134	Unplanned release	200E	1955	1955	573659.3	137530.9	point				0.999	
UPR-200-E-117	Unplanned release	200E	1972	1972	575241.6	135518.6	point				0.999	
UPR-200-E-116	Unplanned release	200E	1948	1948	573597.6	137499.6	point				0.999	
UPR-200-E-1	Unplanned release	200E	1946	1946	573499.9	136443.3	point				0.999	
UPR-200-E-52	Unplanned release	200E	1975	1975	573596.4	136472.3	point	1.22	1.22		1.486	
UPR-200-E-110	Unplanned release	200E	1955	1955	573566.3	137519	point				0.999	
UPR-200-E-29	Unplanned release	200E	1961	1961	575568.5	135640.1	point				0.999	
UPR-200-E-100	Unplanned release	200E	1985	1991	575172	136305.9	poly	200.00	45.00		8500.000	
UPR-200-E-133	Unplanned release	200E	1974	1974	573597.9	137347.3	point				0.999	
UPR-200-E-38	Unplanned release	200E	1968	1968	573753.7	137203.6	point				0.999	
UPR-200-E-101	Unplanned release	200E	1985	1985	573853	137240.6	point				0.999	
UPR-200-E-103	Unplanned release	200E	1972	1972	573423.2	136421	point				0.999	
UPR-200-E-108	Unplanned release	200E	1953	1953	573758.3	137256.3	point				0.999	
UPR-200-W-19	Unplanned release	200W	1953	1953	567280.4	134983.8	point				4.645	
UPR-200-W-97	Unplanned release	200W	1966	1966	566902.8	136595.4	point				0.999	0.9144
UPR-200-W-35	Unplanned release	200W	1955	1955	567230.6	134152.6	point				0.999	
UPR-200-W-21	Unplanned release	200W	1953	1953	567577.8	136822.8	point	48.77	27.43		1337.804	
UPR-200-W-24	Unplanned release	200W	1953	1953	566801.4	135162.5	point	305.00	150.00		45750.000	
UPR-200-W-29	Unplanned release	200W	1954	1954	566907.9	136595.6	poly	30.48	22.86		696.773	
UPR-200-W-30	Unplanned release	200W			567531.3	134120.3	point	27.43	6.10		167.225	3.048
UPR-200-W-2	Unplanned release	200W	1947	1947	567520	136745	point				0.999	3.3528
UPR-200-W-36	Unplanned release	200W	1955	1955	566990	134255	point				334.451	
UPR-200-W-38	Unplanned release	200W	1954	1955	567603	136840.6	point				371.612	
UPR-200-W-5	Unplanned release	200W	1950	1950	567064.3	136088	point				0.999	
UPR-200-W-52	Unplanned release	200W	1958	1958	566944.9	133852.2	point				0.999	
UPR-200-W-8	Unplanned release	200W	1950	1950	567819	135066.2	poly	129.54	30.48		3948.379	
UPR-200-W-98	Unplanned release	200W	1945	1945	567510.7	136736.7	point				0.999	
200-W-9	Unplanned release	200W	1994	1994	567467.2	136676.9	point				0.999	1.8288

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UPR-200-W-150	Unplanned release	200W	1973	1973	566773.4	136415.6	point				0.999	
UPR-200-W-62	Unplanned release	200W	1966	1966	566895.3	136633.2	point	36.58	1.83		66.890	
UPR-200-W-125	Unplanned release	200W	1956	1956	567411.5	135115.3	point	6.10	6.10		37.161	4.572
UPR-200-W-163	Unplanned release	200W	1964	1964	567615.4	134842.2	line				4046.856	
UPR-200-W-151	Unplanned release	200W			566742.3	136415.5	point				0.999	
UPR-200-W-101	Unplanned release	200W	1957	1957	567558.6	135170.7	line	27.43	19.81		543.483	
UPR-200-W-108	Unplanned release	200W	1969	1969	567186.4	134413.6	point				0.999	6.096
UPR-200-W-113	Unplanned release	200W	1980	1980	567064.3	136095.6	point				0.999	
UPR-200-W-127	Unplanned release	200W	1980	1980	566862.2	134647.6	point				0.999	
UPR-200-W-130	Unplanned release	200W	1967	1967	566553.1	135896.6	point				0.999	
UPR-200-W-134	Unplanned release	200W	1975	1975	566241.2	136258.2	point				0.999	
UPR-200-W-143	Unplanned release	200W			566805	134204.1	point				410.433	
UPR-200-W-109	Unplanned release	200W	1969	1969	567201.9	134306	point				0.999	
UPR-200-W-144	Unplanned release	200W	1959	1959	566773.9	134204	point				410.433	
UPR-200-W-135	Unplanned release	200W			567119.2	136074.4	point	12.19			0.999	
UPR-200-W-141	Unplanned release	200W			566804.9	134235.2	point				410.433	
UPR-200-W-140	Unplanned release	200W			566836	134235.3	point				410.433	
UPR-200-W-14	Unplanned release	200W	1952	1952	566938.3	136540.3	point				0.999	
UPR-200-W-138	Unplanned release	200W	1953	1953	567603	135235	point				0.456	
200-W-42	Radioactive process sewer	200W	1952	1988	567616.2	134858.8	line	646.00	8.00		5168.000	
307_RB	Retention basin	300	1953	1953								
300-264	Laboratory	300	1953	1953	593975	115955		70.00	40.00		2800.000	
300-25	Laboratory	300	1966	1966	594247.4	115784.8	point	71.48	61.87		4422.510	13.7
331_LSLDF	Drain/tile field	300	1970	1974								
316-1	Pond	300	1945	1967	594283.6	116106.1	poly	182.88	114.30		32000.000	
316-2	Pond	300	1945	1967	594238.7	116566.4	poly	188.98	182.88		40000.000	
316-3	Trench	300			594273.6	115861.6	poly	182.88	3.05		557.418	6.096
300-2	Trench	300	1965	1966	594192.2	115607.5	point	22.86	15.24		348.386	
316-5	Trench	300	1975	1994	594083.8	116715.6	poly	467.87	3.05		1426.062	3.6576
300-224	Trench	300	1960	1988	593950	116200		243.84	0.50		121.920	
300-262	Unplanned release	300	1943	1975	5962180	116100					0.999	
300-256	Unplanned release	300	1958	1958	594038.3	116124.1					3730.982	

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300-48	Unplanned release	300	1949	1970	593833.1	116062.5	poly	14.68	8.69		126.813	
300-28	Unplanned release	300	1948	1948	593926.2	116092.3	line	168.00	6.50		1055.000	
300-33	Unplanned release	300	1960	1960	593978.4	116125	poly	115.82	48.77		5648.505	
300-24	Unplanned release	300	1945	1945	593739.6	116114.2	poly				2571.830	
300-255	Unplanned release	300	1950	1950	594153	115710		23.00	20.00		460.000	
300-16	Unplanned release	300	1992	1992	593775.4	116075.9	point				0.999	
UPR-300-37	Unplanned release	300	1972	1972	594290.1	116037.1	point				3124.040	
300-40	Unplanned release	300	1980	1980	593900.7	116121	point				0.030	
300-251	Unplanned release	300	1943	1943	593805	116120		30.00	25.00		450.000	
UPR-300-10	Unplanned release	300	1977	1977	593949.3	115795.9	point				0.999	
UPR-300-36	Unplanned release	300	1973	1973	594290.1	116037.1	point				0.999	
UPR-300-48	Unplanned release	300	1991	1991	594000	115760	point				0.999	
UPR-300-38	Unplanned release	300	1954	1954	593848.8	116106.3	point				12.917	
UPR-300-40	Unplanned release	300	1974	1974	593891.7	116112	poly				25.948	
UPR-300-4	Unplanned release	300	1945	1955	593794.6	115857	poly	30.48	30.48		929.030	6.096
UPR-300-2	Unplanned release	300	1954	1954	594176.5	115935.4	poly				240.686	
UPR-300-34	Unplanned release	300	1973	1973	594290.1	116037.1	point				0.999	
UPR-300-11	Unplanned release	300	1977	1977	594171	115929.6	point	0.61	0.91		0.557	7.62
UPR-300-32	Unplanned release	300	1974	1974	594290.1	116037.1	point				0.999	
UPR-300-45	Unplanned release	300	1985	1985	593895.9	116107.5	point				0.999	
UPR-300-1	Unplanned release	300	1969	1969	594171.3	115927.1	point			3.66		
UPR-300-5	Unplanned release	300	1973	1973	594161.9	115662.4	point	1.22	6.10		7.432	0.4572
UPR-300-FF-1	Unplanned release	300	1954	1954	594152.1	116283.7	point				0.999	
300-4	Unplanned release	300	1990	1990	593785.5	116261.4	poly	19.50	21.30		415.000	
UPR-300-12	Unplanned release	300			594024.8	115789.3	poly	12.19	0.30		3.716	
300-265	Radioactive process sewer	300	1953	1953	594150	115843		350.00	1.00		350.000	
300-214	Radioactive process sewer	300	1953	1953	594100	115850		274.32	0.30		82.296	
300_RRLWS	Radioactive process sewer	300	1954	1975								
300_RLWS	Radioactive process sewer	300	1979	1998								
4843	Storage	400	1999	1999	587150.4	123340.5	poly	12.19	12.19		148.645	
600-148	Landfill (lined)	600			568866.1	134533.9	poly	432.82	228.60		98941.738	
600-259	Laboratory	600	1984	1994	591500	121500		25.00	25.00		625.000	

Table A-18. Site-Specific Data Other than Inventory. (28 Pages)

Site	Site Type	Operation Area	Start	End	X Coordinate	Y Coordinate	GIS Feature Type	Length (m)	Width (m)	Diameter (m)	Area (m^2)	Depth/Height (m)
618-3	Burial ground	600	1955	1955	593961.8	116367.6	poly	121.92	51.21		6243.084	4.572
618-13	Burial ground	600	1950	1950	592879.6	116237.9	poly	38.10	15.24		580.644	7.62
618-2	Burial ground	600	1951	1953	594020.6	116360.8	poly	106.68	65.53		6990.954	
618-9	Burial ground	600	1950	1955	592821.5	116325	poly	56.39	12.19		687.483	4.572
US_Ecology	Burial ground	600	1965	2050								
618-7	Burial ground	600	1961	1973	593222.9	116585.2	poly	216.10	202.39		43736.522	
618-4	Burial ground	600	1956	1960	593929.3	117011.7	poly	178.67	68.13		12172.846	
618-12	Burial ground	600	1949	1964	594248.6	116433.5	poly	121.92	60.96		7432.243	2.4384
618-11	Burial ground	600	1963	1967	588977.3	127263.4	poly	304.80	114.30		34838.641	
600-33	Burial ground	600	1963	1963	565368.9	143846.8	point	6.10	6.10		37.210	
618-8	Burial ground	600	1954	1954	593820.1	116409.6	poly	182.88	30.48		5574.183	
618-5	Burial ground	600	1945	1962	594184.1	116830	poly	96.00	56.00		5376.000	
618-1	Burial ground	600	1945	1950	594020.9	116233.8	poly	97.54	45.72			
618-10	Burial ground	600	1954	1962	590834	121723.2	poly	152.40	152.40		23225.761	
600-111	Crib	600	1949	1951	582272.9	142763	point	2.44	2.44		5.946	
316-4	Crib	600			590974.4	121671.4	point	7.92	7.92		62.802	
600-262	Crib	600	1959	1959	572900	141300					99.900	
600-118	Ditch	600	1952	1952	574195.7	140414.7	poly	200.00	100.00		7996.000	
600-211	Drain/tile field	600	1996	1998	566437.6	138090.1	line	60.96	35.36		2155.351	
216-N-1	Pond	600	1944	1952	569885.6	140044.6	point	152.40	30.48		4645.152	1.8288
216-N-4	Pond	600	1944	1952	570754.4	139933.2	poly	152.40	60.96		9290.304	0.9144
216-N-6	Pond	600	1944	1952	571642.6	139894.8	poly	152.40	45.72		6967.728	
216-N-8	Pond	600	1947	1947	573191.9	141319.2	poly	85.04	85.04		7231.666	
216-N-5	Trench	600	1952	1952	570635.2	140373.5	poly	24.38	4.57		111.484	1.8288
216-N-3	Trench	600	1952	1952	569818.3	140371.3	poly	15.24	6.10		92.903	1.8288
216-N-2	Trench	600	1947	1947	569829.1	140379.9	point	15.24	3.05		46.452	2.1336
216-N-7	Trench	600	1952	1952	571433.7	140383.5	poly	24.38	4.57		111.484	1.8288
UPR-600-12	Unplanned release	600			577060.4	134662.3	poly				0.999	

[a]Estimated depth to base of structure.

Table A-19. Past Tank Leaks and Unplanned Releases Simulated by the Science and Technology Inventory Task.

Site Code	Site Type	Year	Past Leak Volume (m^3)
241-A-103	Single-shell tank	1981	20.8175
241-A-104	Single-shell tank	1975	7.57
241-A-105	Single-shell tank	1966	1048.445
241-AX-102	Single-shell tank	1981	11.355
241-B-101	Single-shell tank	1974	18.925
241-B-105	Single-shell tank	1968	11.355
241-B-107	Single-shell tank	1966	52.99
241-B-110	Single-shell tank	1971	94.625
241-B-201	Single-shell tank	1966	4.542
241-B-203	Single-shell tank	1966	1.1355
241-B-204	Single-shell tank	1966	1.514
241-BX-101	Single-shell tank	1973	15.14
241-BX-102	Single-shell tank	1951	347.0845
241-BX-111	Single-shell tank	1965	15.14
241-C-101	Single-shell tank	1966	75.7
241-C-110	Single-shell tank	1974	7.57
241-C-111	Single-shell tank	1966	20.8175
241-C-201	Single-shell tank	1966	2.08175
241-C-202	Single-shell tank	1966	1.70325
241-C-203	Single-shell tank	1966	1.514
241-C-204	Single-shell tank	1958	1.32475
241-S-104	Single-shell tank	1966	90.84
241-SX-107	Single-shell tank	1964	25.3595
241-SX-108	Single-shell tank	1966	56.775
241-SX-109	Single-shell tank	1966	3.785
241-SX-113	Single-shell tank	1958	56.775
241-SX-115	Single-shell tank	1965	189.25
241-T-101	Single-shell tank	1969	37.85
241-T-103	Single-shell tank	1974	11.355
241-T-106	Single-shell tank	1973	435.275
241-TX-107	Single-shell tank	1977	30.28
241-TY-103	Single-shell tank	1971	11.355
241-TY-105	Single-shell tank	1960	132.475
241-TY-106	Single-shell tank	1958	75.7
241-U-101	Single-shell tank	1959	113.55
241-U-104	Single-shell tank	1956	499.62
241-U-110	Single-shell tank	1975	24.79175
241-U-112	Single-Shell Tank	1968	32.1725

Table A-20. Past Practice Liquid Discharge Sites Simulated by the Science and Technology Inventory Task. (2 Pages)

SiteCode	Start Year	End Year	Total Volume Discharged (m^3)
216-A-11	1956	1956	100
216-A-12	1956	1956	100
216-A-15	1956	1956	8.84
216-A-22	1956	1956	5.9
216-A-31	1963	1964	10
216-A-39	1965	1965	0.02
216-A-40	1968	1968	950
216-B-14	1955	1955	8710
216-B-15	1956	1957	6320
216-B-16	1956	1956	5600
216-B-17	1955	1955	3410
216-B-18	1955	1955	8520
216-B-19	1957	1957	6400
216-B-20	1956	1956	4680
216-B-21	1956	1956	4670
216-B-22	1956	1956	4740
216-B-23	1956	1956	4520
216-B-24	1956	1956	4700
216-B-25	1956	1956	3760
216-B-26	1956	1956	5880
216-B-27	1956	1956	4420
216-B-28	1956	1956	5050
216-B-29	1957	1957	4840
216-B-30	1957	1957	4780
216-B-31	1957	1957	4740
216-B-32	1957	1957	4770
216-B-33	1957	1957	4740
216-B-34	1957	1957	4870
216-B-35	1953	1953	1560
216-B-36	1953	1953	1940
216-B-37	1954	1954	4320
216-B-38	1954	1954	1430
216-B-39	1954	1954	1470
216-B-40	1954	1954	1640
216-B-41	1954	1954	1440
216-B-42	1954	1954	1500
216-B-43	1954	1954	2100
216-B-44	1954	1954	5600
216-B-45	1954	1954	4900
216-B-46	1955	1955	6700
216-B-47	1955	1955	3700
216-B-48	1956	1957	4100

Table A-20. Past Practice Liquid Discharge Sites Simulated by the Science and Technology Inventory Task. (2 Pages)

SiteCode	Start Year	End Year	Total Volume Discharged (m^3)
216-B-49	1956	1957	6700
216-B-5	1945	1947	30600
216-B-51	1956	1957	1
216-B-52	1957	1957	8530
216-B-59	1968	1968	480
216-B-9	1949	1951	36000
216-T-14	1953	1953	1000
216-T-15	1953	1953	1000
216-T-16	1953	1953	1000
216-T-17	1953	1953	1000
216-T-18	1953	1953	1000
216-T-21	1954	1954	465
216-T-22	1954	1954	1530
216-T-23	1954	1954	1480
216-T-24	1954	1954	1530
216-T-25	1954	1954	3000
216-T-26	1956	1956	12000
216-T-3	1945	1946	11300
216-T-5	1954	1954	2600
216-U-15	1956	1957	68.1
UPR-200-W-29	1954	1954	3.785
UPR-200-W-38	1954	1955	19

Table A-21. Aggregate Site and Aggregated Sites Mappings – 201 Waste Sites Map to 30 Aggregate Sites. (3 Pages)

Aggregate Site	Aggregated Sites	Aggregate Site	Aggregated Sites
118-$C6-9	100-B-3	118-D$D6-14	100-D-3
	118-B-1		100-D-32
	118-B-2		100-D-40
	118-B-3		100-D-42
	118-B-4		100-D-43
	118-B-5		100-D-45
	118-B-6		100-D-47
	118-C-1		100-D-6
	600-33		118-D-1
			118-D-2
118-F$F6-6	118-F-1		118-D-3
	118-F-2		118-D-4
	118-F-3		118-D-5
	118-F-5		118-DR-1
	118-F-6		
	132-F-5	118-H$H6-7	100-H-2
			100-H-5
118-K$K-6-2	100-K-2		118-H-1
	118-K-1		118-H-2
			118-H-3
218-E$B6-11	218-E-10		118-H-4
	218-E-12A		118-H-5
	218-E-12B		
	218-E-2	218-W$A6-4	218-C-9
	218-E-2A		218-E-1
	218-E-4		291-C-1
	218-E-5		GTFL
	218-E-5A		
	218-E-7	218-W$S6-3	200-W-4
	218-E-8		218-W-4C
	218-E-9		218-W-9
218-W$T6-12	218-W-1		
	218-W-11	2904-S$S6-3	2904-S-160
	218-W-1A		2904-S-170
	218-W-2		2904-S-171
	218-W-2A		
	218-W-3	296-$S6-7	291-S-1
	218-W-3A		296-S-1
	218-W-3AE		296-S-12
	218-W-4A		296-S-13
	218-W-4B		296-S-16

Table A-21. Aggregate Site and Aggregated Sites Mappings – 201 Waste Sites Map to 30 Aggregate Sites. (3 Pages)

Aggregate Site	Aggregated Sites	Aggregate Site	Aggregated Sites
	218-W-5		296-S-21
	218-W-8		296-U-10
618-$R6-10	618-1	UPR-100-D$D6-5	100-D-25
	618-12		100-D-29
	618-13		UPR-100-D-2
	618-2		UPR-100-D-3
	618-3		UPR-100-D-4
	618-4		
	618-5	UPR-100-F$F6-3	100-F-33
	618-7		UPR-100-F-1
	618-8		UPR-100-F-2
	618-9		
		UPR-100-F$F6-2	100-H-14
UPR-100-N$N6-12	100-N-29		100-H-22
	100-N-59		
	UPR-100-N-1	UPR-200-E$A3-5	UPR-200-E-16
	UPR-100-N-10		UPR-200-E-56
	UPR-100-N-12		UPR-200-E-81
	UPR-100-N-25		UPR-200-E-82
	UPR-100-N-30		UPR-200-E-86
	UPR-100-N-31		
	UPR-100-N-35	UPR-200-E$A6-2	UPR-200-E-100
	UPR-100-N-5		UPR-600-12
	UPR-100-N-7		
	UPR-100-N-8	UPR-200-E$A6-6	UPR-200-E-117
			UPR-200-E-141
UPR-200-E$B3-12	UPR-200-E-110		UPR-200-E-145
	UPR-200-E-116		UPR-200-E-17
	UPR-200-E-133		UPR-200-E-21
	UPR-200-E-134		UPR-200-E-29
	UPR-200-E-135		
	UPR-200-E-3	UPR-200-E$B6-9	200-E-28
	UPR-200-E-38		UPR-200-E-1
	UPR-200-E-7		UPR-200-E-103
	UPR-200-E-73		UPR-200-E-108
	UPR-200-E-79		UPR-200-E-44
	UPR-200-E-84		UPR-200-E-52
	UPR-200-E-9		UPR-200-E-80
			UPR-200-E-85
UPR-200-W$S3-7	UPR-200-W-140		UPR-200-E-87
	UPR-200-W-141		

Table A-21. Aggregate Site and Aggregated Sites Mappings – 201 Waste Sites Map to 30 Aggregate Sites. (3 Pages)

Aggregate Site	Aggregated Sites	Aggregate Site	Aggregated Sites
	UPR-200-W-143	UPR-200-W$S5-5	UPR-200-W-101
	UPR-200-W-144		UPR-200-W-108
	UPR-200-W-19		UPR-200-W-109
	UPR-200-W-24		UPR-200-W-163
	UPR-200-W-52		UPR-200-W-36
UPR-200-W$6-5	UPR-200-W-125	UPR-200-W$T3-9	UPR-200-W-135
	UPR-200-W-127		UPR-200-W-150
	UPR-200-W-138		UPR-200-W-151
	UPR-200-W-30		UPR-200-W-21
	UPR-200-W-35		UPR-200-W-29
			UPR-200-W-38
UPR-200-W$T6-5	200-W-9		UPR-200-W-5
	UPR-200-W-134		UPR-200-W-97
	UPR-200-W-14		UPR-200-W-98
	UPR-200-W-2		
	UPR-200-W-62	UPR-300-$R6-2	300-251
			300-4
UPR-300-$R6-13	300-16		
	300-255	UPR-300-$R6-4	300-33
	300-262		300-28
	300-40		300-256
	300-48		UPR-300-FF-1
	UPR-300-1		
	UPR-300-10	UPR-300-$R5-7	UPR-300-32
	UPR-300-11		UPR-300-34
	UPR-300-12		UPR-300-36
	UPR-300-2		UPR-300-37
	UPR-300-4		UPR-300-38
	UPR-300-48		UPR-300-40
	UPR-300-5		UPR-300-45

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Appendix B

Summary of the Disposition Resulting from the SAC Evaluation of all Sites Initially Considered in the Assessment

Table B.1. Summary of the Disposition Resulting from the SAC Evaluation of all Sites Initially Considered in the Assessment

Site Name	Operating Area	Site Type	Retained for Analysis?	Duplicate?	French Drains Below Criteria?	Aggregated?	UPR Removed?	Material Non-rad? (CCl4, CrVI)	UPR Deleted?	Never Used?	Remarks
216-N-1	600	Pond	X								
UPR-600-12	600	Unplanned Release	X								
218-E-2A	200E	Burial Ground	X								
216-A-22	200E	Crib	X								
216-A-32	200E	Crib	X								
216-A-41	200E	Crib	X								
216-B-3-1	200E	Ditch	X								
216-B-3-2	200E	Ditch	X								
216-A-11	200E	French Drain	X								
216-A-12	200E	French Drain	X								
216-A-13	200E	French Drain	X								
216-A-14	200E	French Drain	X								
216-A-15	200E	French Drain	X								
216-A-26A	200E	French Drain	X								
216-A-35	200E	French Drain	X								
216-B-13	200E	French Drain	X								
216-B-51	200E	French Drain	X								
216-B-4	200E	Injection/Reverse Well	X								
216-B-6	200E	Injection/Reverse Well	X								
216-C-2	200E	Injection/Reverse Well	X								
299-E24-111	200E	Injection/Reverse Well	X								
216-C-9 Pond Diversion Box	200E	Pond	X								
202-A-WS-1	200E	Process Unit/Plant	X								
221-B-WS-2	200E	Process Unit/Plant	X								
224-B	200E	Process Unit/Plant	X								
B PLANT FILTER	200E	Process Unit/Plant	X								
216-A-40	200E	Retention Basin	X								
200-E-30	200E	Sand Filter	X								
218-E-14	200E	Storage Tunnel	X								
218-E-15	200E	Storage Tunnel	X								
UPR-200-E-141	200E	Unplanned Release	X								
UPR-200-E-7	200E	Unplanned Release	X								

Table B.1. (contd)

Site Name	Operating Area	Site Type	Retained for Analysis?	Duplicate?	French Drains Below Criteria?	Aggregated?	UPR Removed?	Material Non-rad? (CCl4, CrVI)	UPR Deleted?	Never Used?	Remarks
UPR-200-E-80	200E	Unplanned Release	X								
UPR-200-E-84	200E	Unplanned Release	X								
UPR-200-E-85	200E	Unplanned Release	X								
UPR-200-E-87	200E	Unplanned Release	X								
UPR-200-E-9	200E	Unplanned Release	X								
HSVP	200E	Valve Pit	X								
216-W-LWC	200W	Crib	X								
216-S-16D	200W	Ditch	X								
216-U-14	200W	Ditch	X								
216-Z-1D	200W	Ditch	X								
241-TX-154	200W	Diversion Box	X								
216-S-4	200W	French Drain	X								
216-T-29	200W	French Drain	X								
216-T-2	200W	Injection/Reverse Well	X								
216-U-4	200W	Injection/Reverse Well	X								
216-S-10P	200W	Pond	X								
216-T-4A	200W	Pond	X								
202-S	200W	Process Unit/Plant	X								
221-U	200W	Process Unit/Plant	X								
224-U HWSA	200W	Process Unit/Plant	X								
276-U	200W	Process Unit/Plant	X								
200-W-43	200W	Sand Filter	X								
200-W-44	200W	Sand Filter	X								
UPR-200-W-140	200W	Single-Shell Tank	X								
UPR-200-W-141	200W	Single-Shell Tank	X								
276-S-TK-141	200W	Storage Tank	X								
276-S-TK-142	200W	Storage Tank	X								
216-S-14	200W	Trench	X								

Table B.1. (contd)

Site Name	Operating Area	Site Type	Retained for Analysis?	Duplicate?	French Drains Below Criteria?	Aggregated?	UPR Removed?	Material Non-rad? (CCl4, CrVI)	UPR Deleted?	Never Used?	Remarks
216-S-18	200W	Trench	X								
216-T-13	200W	Trench	X								
UPR-200-W-101	200W	Unplanned Release	X								
UPR-200-W-108	200W	Unplanned Release	X								
UPR-200-W-113	200W	Unplanned Release	X								
UPR-200-W-125	200W	Unplanned Release	X								
UPR-200-W-135	200W	Unplanned Release	X								
UPR-200-W-138	200W	Unplanned Release	X								
UPR-200-W-29	200W	Unplanned Release	X								
UPR-200-W-30	200W	Unplanned Release	X								
UPR-200-W-36	200W	Unplanned Release	X								
UPR-200-W-38	200W	Unplanned Release	X								
UPR-200-W-8	200W	Unplanned Release	X								
UPR-200-W-98	200W	Unplanned Release	X								
241-WR VAULT	200W		X								
234-52	200W	Process Unit/Plant	X								
221-T	200W	Process Unit/Plant	X								
224-T	200W	Process Unit/Plant	X								
270-E CNT	600	Neutralization Tank				X					
270-W	600	Neutralization Tank				X					
216-B-64	600	Retention Basin				X					
UPR-200-E-89	600	Unplanned Release							X		Air releases
UPR-200-E-90	600	Unplanned Release							X		Spread of UPR-200-E-80
UPR-200-W-87	600	Unplanned Release					X				Removed
UPR-200-W-88	600	Unplanned Release					X				Removed
UPR-200-W-89	600	Unplanned Release					X				Removed
UPR-200-W-90	600	Unplanned Release					X				Removed

Table B.1. (contd)

Site Name	Operating Area	Site Type	Retained for Analysis?	Duplicate?	French Drains Below Criteria?	Aggregated?	UPR Removed?	Material Non-rad? (CCl4, CrVI)	UPR Deleted?	Never Used?	Remarks
UPR-200-W-91	600	Unplanned Release							X		Removed
UPR-600-16	600	Unplanned Release							X		Plutonium - fire
UPR-600-18	600	Unplanned Release						X			Non-radiological release
UPR-600-19	600	Unplanned Release						X			Non-radiological release
UPR-600-20	600	Unplanned Release							X		Biological transport
UPR-600-21	600	Unplanned Release							X		Biological transport
291-C-1	200E	Burial Ground				X					
200-W-7	200E	Catch Tank				X					
240-S-302	200E	Catch Tank				X					
241-A-302A	200E	Catch Tank				X					
241-A-302B	200E	Catch Tank				X					
241-B-302B	200E	Catch Tank				X					
241-BX-302B	200E	Catch Tank				X					
241-BX-302C	200E	Catch Tank				X					
216-A-524	200E	Control Structure				X					
2904-S-160	200E	Control Structure				X					
2904-S-170	200E	Control Structure				X					
2904-S-171	200E	Control Structure				X					
216-A-38-1	200E	Crib						X			Non-radiological release
216-B-56	200E	Crib								X	
216-B-61	200E	Crib								X	
200-E PD	200E	Ditch						X			Non-radiological release
216-A-29	200E	Ditch				X					
216-A-34	200E	Ditch				X					

Table B.1. (contd)

Site Name	Operating Area	Site Type	Retained for Analysis?	Duplicate?	French Drains Below Criteria?	Aggregated?	UPR Removed?	Material Non-rad? (CCl4, CrVI)	UPR Deleted?	Never Used?	Remarks
216-B-3-3	200E	Ditch				X					
240-S-151	200E	Diversion Box				X					
240-S-152	200E	Diversion Box				X					
241-A-151	200E	Diversion Box				X					
241-B-154	200E	Diversion Box				X					
241-BX-154	200E	Diversion Box				X					
241-BX-155	200E	Diversion Box				X					
241-C-154	200E	Diversion Box				X					
241-Z Diversion Box No. 2	200E	Diversion Box				X					
CTFN 2703-E	200E	Drain/Tile Field						X			Non-radiological release
600-25	200E	Dumping Area						X			Non-radiological release
200-E-4	200E	French Drain			X						
209-E-WS-1	200E	French Drain			X						
209-E-WS-2	200E	French Drain			X						
216-A-26	200E	French Drain			X						
216-A-33	200E	French Drain			X						
2704-C-WS-1	200E	French Drain			X						
2718-E-WS-1	200E	French Drain			X						
2101-M POND	200E	Pond						X			Non-radiological release
216-B-3A	200E	Pond				X					
216-B-3B	200E	Pond				X					
216-B-3C	200E	Pond				X					
207-SL	200E	Retention Basin				X					
207-T	200E	Retention Basin				X					
207-Z	200E	Retention Basin				X					

Table B.1. (contd)

Site Name	Operating Area	Site Type	Retained for Analysis?	Duplicate?	French Drains Below Criteria?	Aggregated?	UPR Removed?	Material Non-rad? (CCl4, CrVI)	UPR Deleted?	Never Used?	Remarks
216-A-42	200E	Retention Basin				X					
200-E-14	200E	Storage Tank				X					
241-CX-TK-70	200E	Storage Tank				X					
200-E-26	200E	Unplanned Release						X			Non-radiological release
200-W-9	200E	Unplanned Release				X					
241-C Waste Line Unplanned Release No. 2	200E	Unplanned Release							X		Duplicate of 4272
UPR-200-E-1	200E	Unplanned Release				X					
UPR-200-E-10	200E	Unplanned Release					X				Removed
UPR-200-E-103	200E	Unplanned Release				X					
UPR-200-E-11	200E	Unplanned Release							X		Near burial ground
UPR-200-E-110	200E	Unplanned Release				X					
UPR-200-E-112	200E	Unplanned Release					X				Removed
UPR-200-E-114	200E	Unplanned Release							X		Removed
UPR-200-E-117	200E	Unplanned Release				X					
UPR-200-E-12	200E	Unplanned Release					X				Removed
UPR-200-E-13	200E	Unplanned Release		X			X				Removed
UPR-200-E-138	200E	Unplanned Release				X					
UPR-200-E-14	200E	Unplanned Release				X					
UPR-200-E-140	200E	Unplanned Release					X	X			Non-radiological release
UPR-200-E-142	200E	Unplanned Release					X	X			Non-radiological release
UPR-200-E-143	200E	Unplanned Release							X		Animal feces
UPR-200-E-144	200E	Unplanned Release							X		241-B Tank Farm air releases
UPR-200-E-145	200E	Unplanned Release				X					
UPR-200-E-15	200E	Unplanned Release				X					

Table B.1. (contd)

Site Name	Operating Area	Site Type	Retained for Analysis?	Duplicate?	French Drains Below Criteria?	Aggregated?	UPR Removed?	Material Non-rad? (CCl4, CrVI)	UPR Deleted?	Never Used?	Remarks
UPR-200-E-17	200E	Unplanned Release				X					
UPR-200-E-18	200E	Unplanned Release							X		Very small release
UPR-200-E-19	200E	Unplanned Release							X		Very small release
UPR-200-E-2	200E	Unplanned Release							X		Air releases
UPR-200-E-20	200E	Unplanned Release							X		Very small release
UPR-200-E-21	200E	Unplanned Release				X					
UPR-200-E-22	200E	Unplanned Release							X		Air releases
UPR-200-E-24	200E	Unplanned Release							X		Air releases in burial grounds
UPR-200-E-25	200E	Unplanned Release							X		Air releases near PUREX
UPR-200-E-26	200E	Unplanned Release							X		Steam / air release
UPR-200-E-28	200E	Unplanned Release							X		Air releases
UPR-200-E-29	200E	Unplanned Release				X					
UPR-200-E-3	200E	Unplanned Release				X					
UPR-200-E-30	200E	Unplanned Release							X		Within burial ground
UPR-200-E-31	200E	Unplanned Release							X		Steam / air release
UPR-200-E-32	200E	Unplanned Release				X					
UPR-200-E-33	200E	Unplanned Release					X				Removed
UPR-200-E-34	200E	Unplanned Release				X					
UPR-200-E-35	200E	Unplanned Release							X		Pipe leak - small inventory
UPR-200-E-36	200E	Unplanned Release					X				Removed
UPR-200-E-37	200E	Unplanned Release							X		Air particulate of Sr-90
UPR-200-E-39	200E	Unplanned Release							X		Very small release
UPR-200-E-40	200E	Unplanned Release				X					
UPR-200-E-41	200E	Unplanned Release		X							

Table B.1. (contd)

Site Name	Operating Area	Site Type	Retained for Analysis?	Duplicate?	French Drains Below Criteria?	Aggregated?	UPR Removed?	Material Non-rad? (CCl4, CrVI)	UPR Deleted?	Never Used?	Remarks
UPR-200-E-42	200E	Unplanned Release							X		Diverter station
UPR-200-E-44	200E	Unplanned Release				X					
UPR-200-E-45	200E	Unplanned Release					X				Removed
UPR-200-E-49	200E	Unplanned Release					X				Removed
UPR-200-E-50	200E	Unplanned Release				X					
UPR-200-E-51	200E	Unplanned Release				X		X			Non-radiological release
UPR-200-E-52	200E	Unplanned Release				X					
UPR-200-E-53	200E	Unplanned Release							X		Within burial ground
UPR-200-E-54	200E	Unplanned Release					X				Removed
UPR-200-E-55	200E	Unplanned Release					X				Removed
UPR-200-E-56	200E	Unplanned Release				X					
UPR-200-E-58	200E	Unplanned Release					X				Removed
UPR-200-E-59	200E	Unplanned Release							X		Removed
UPR-200-E-60	200E	Unplanned Release					X				Removed
UPR-200-E-61	200E	Unplanned Release					X				Removed
UPR-200-E-62	200E	Unplanned Release					X				Removed
UPR-200-E-63	200E	Unplanned Release					X				Removed
UPR-200-E-64	200E	Unplanned Release							X		Very small release
UPR-200-E-65	200E	Unplanned Release							X		Air releases
UPR-200-E-66	200E	Unplanned Release							X		Air releases
UPR-200-E-67	200E	Unplanned Release							X		Removed
UPR-200-E-69	200E	Unplanned Release							X		221-B tunnel
UPR-200-E-77	200E	Unplanned Release							X		Combine inventory with 1384
UPR-200-E-78	200E	Unplanned Release							X		Combine inventory with 1384

Table B.1. (contd)

Site Name	Operating Area	Site Type	Retained for Analysis?	Duplicate?	French Drains Below Criteria?	Aggregated?	UPR Removed?	Material Non-rad? (CCl4, CrVI)	UPR Deleted?	Never Used?	Remarks
UPR-200-E-83	200E	Unplanned Release							X		Animal feces
UPR-200-E-88	200E	Unplanned Release							X		Equipment storage
UPR-200-W-158	200E	Unplanned Release							X		Air releases in burial grounds
UPR-200-W-95	200E	Unplanned Release				X					
UPR-200-W-96	200E	Unplanned Release							X		Very small plutonium
209-E-WS-3	200E	Valve Pit				X					
241-C Waste Line Unplanned Release No. 1	200E					X					
600 NSTFUT	200E							X			Non-radiological release
WBL	200E							X			Non-radiological release
200-W CSLA	200W	Burial Ground						X			Non-radiological release
241-ER-311	200W	Catch Tank				X					
241-ER-311A	200W	Catch Tank				X					
241-S-302A	200W	Catch Tank				X					
241-SX-302	200W	Catch Tank				X					
241-TX-302B	200W	Catch Tank				X					
241-TX-302BR	200W	Catch Tank				X					
241-TX-302C	200W	Catch Tank				X					
241-U-302	200W	Catch Tank				X					
216-S-172	200W	Control Structure				X					
216-T-4-1D	200W	Ditch				X					
216-T-4-2	200W	Ditch				X					
216-U-11	200W	Ditch				X					
216-U-9	200W	Ditch				X					

Table B.1. (contd)

Site Name	Operating Area	Site Type	Retained for Analysis?	Duplicate?	French Drains Below Criteria?	Aggregated?	UPR Removed?	Material Non-rad? (CCl4, CrVI)	UPR Deleted?	Never Used?	Remarks
216-Z-11	200W	Ditch				X					
216-Z-19	200W	Ditch				X					
241-ER-151	200W	Diversion Box				X					
241-ER-152	200W	Diversion Box				X					
241-S-151	200W	Diversion Box				X					
241-TX-152	200W	Diversion Box				X					
241-TX-155	200W	Diversion Box				X					
241-U-151	200W	Diversion Box				X					
241-U-152	200W	Diversion Box				X					
241-UX-154	200W	Diversion Box				X					
241-Z Diversion Box No. 1	200W	Diversion Box				X					
216-T-31	200W	French Drain			X						
216-Z-13	200W	French Drain			X						
216-Z-14	200W	French Drain			X						
216-Z-15	200W	French Drain			X						
241-Z-TK-D5	200W	Neutralization Tank				X					
200-W PP	200W	Pond						X			Non-radiological release
216-N-8	200W	Pond				X					
216-Z-21	200W	Pond				X					
231-W-151	200W	Receiving Vault				X					
207-A-NORTH	200W	Retention Basin				X					
207-A-SOUTH	200W	Retention Basin				X					
207-B	200W	Retention Basin				X					
207-S	200W	Retention Basin				X					
216-BY-201	200W	Settling Tank				X					
216-TY-201	200W	Settling Tank				X					
200-W-16	200W	Storage Tank				X					

Table B.1. (contd)

Site Name	Operating Area	Site Type	Retained for Analysis?	Duplicate?	French Drains Below Criteria?	Aggregated?	UPR Removed?	Material Non-rad? (CCl4, CrVI)	UPR Deleted?	Never Used?	Remarks
216-T-10	200W	Trench						X			Non-radiological release
216-T-11	200W	Trench						X			Non-radiological release
216-T-9	200W	Trench						X			Non-radiological release
200-E-8	200W	Unplanned Release					X	X			Removed
UN-200-E-161	200W	Unplanned Release							X		Spotty - 241-T tank nearby
UPR-200-E-92	200W	Unplanned Release							X		Tumbleweeds
UPR-200-E-93	200W	Unplanned Release							X		Duplicate of 1404
UPR-200-E-95	200W	Unplanned Release							X		Beta & gamma (very small)
UPR-200-E-96	200W	Unplanned Release							X		PUREX - low-level
UPR-200-E-97	200W	Unplanned Release					X				Removed
UPR-200-E-98	200W	Unplanned Release							X		Duplicate of 1347?
UPR-200-N-1	200W	Unplanned Release							X		Rail spur - cooling water in casks
UPR-200-N-2	200W	Unplanned Release							X		No contamination?
UPR-200-W-102	200W	Unplanned Release							X		Removed
UPR-200-W-103	200W	Unplanned Release							X		Excavated
UPR-200-W-104	200W	Unplanned Release				X					
UPR-200-W-105	200W	Unplanned Release				X					
UPR-200-W-106	200W	Unplanned Release				X					
UPR-200-W-107	200W	Unplanned Release				X					
UPR-200-W-109	200W	Unplanned Release				X					
UPR-200-W-11	200W	Unplanned Release		X							
UPR-200-W-110	200W	Unplanned Release							X		Z-plant cooling water in proper ditch

Table B.1. (contd)

Site Name	Operating Area	Site Type	Retained for Analysis?	Duplicate?	French Drains Below Criteria?	Aggregated?	UPR Removed?	Material Non-rad? (CCl4, CrVI)	UPR Deleted?	Never Used?	Remarks
UPR-200-W-111	200W	Unplanned Release							X		207-U basin sludge buried close by
UPR-200-W-112	200W	Unplanned Release							X		207-U basin sludge buried close by
UPR-200-W-114	200W	Unplanned Release							X		Particulates - SX tank farm
UPR-200-W-115	200W	Unplanned Release							X		No contamination?
UPR-200-W-116	200W	Unplanned Release							X		Air pathway
UPR-200-W-117	200W	Unplanned Release							X		No contamination?
UPR-200-W-118	200W	Unplanned Release							X		Air releases
UPR-200-W-123	200W	Unplanned Release							X		Removed
UPR-200-W-124	200W	Unplanned Release							X		In REDOX Pond inventory
UPR-200-W-127	200W	Unplanned Release				X					
UPR-200-W-13	200W	Unplanned Release				X					
UPR-200-W-130	200W	Unplanned Release				X					
UPR-200-W-131	200W	Unplanned Release						X			Non-radiological release
UPR-200-W-132	200W	Unplanned Release							X		Removed
UPR-200-W-134	200W	Unplanned Release				X					
UPR-200-W-137	200W	Unplanned Release		X							
UPR-200-W-139	200W	Unplanned Release				X					
UPR-200-W-14	200W	Unplanned Release				X					
UPR-200-W-15	200W	Unplanned Release				X					
UPR-200-W-159	200W	Unplanned Release							X		Wrong contaminants
UPR-200-W-16	200W	Unplanned Release							X		Air pathway
UPR-200-W-161	200W	Unplanned Release							X		Air pathway

Table B.1. (contd)

Site Name	Operating Area	Site Type	Retained for Analysis?	Duplicate?	French Drains Below Criteria?	Aggregated?	UPR Removed?	Material Non-rad? (CCl4, CrVI)	UPR Deleted?	Never Used?	Remarks
UPR-200-W-162	200W	Unplanned Release							X		Air pathway
UPR-200-W-163	200W	Unplanned Release				X					
UPR-200-W-164	200W	Unplanned Release		X			X				Removed
UPR-200-W-165	200W	Unplanned Release					X				Removed
UPR-200-W-166	200W	Unplanned Release							X		Spotty - 241-T tank nearby
UPR-200-W-167	200W	Unplanned Release							X		241-TY tank nearby
UPR-200-W-18	200W	Unplanned Release		X							
UPR-200-W-19	200W	Unplanned Release				X					
UPR-200-W-2	200W	Unplanned Release				X					
UPR-200-W-20	200W	Unplanned Release					X				Removed
UPR-200-W-21	200W	Unplanned Release				X					
UPR-200-W-23	200W	Unplanned Release							X		Plutonium - fire
UPR-200-W-26	200W	Unplanned Release							X		Burial ground release
UPR-200-W-27	200W	Unplanned Release		X							
UPR-200-W-28	200W	Unplanned Release							X		Diversion box
UPR-200-W-3	200W	Unplanned Release							X		In 200 W burial ground?
UPR-200-W-32	200W	Unplanned Release							X		Non-rad status
UPR-200-W-33	200W	Unplanned Release							X		Very small release
UPR-200-W-34	200W	Unplanned Release				X					
UPR-200-W-35	200W	Unplanned Release				X					
UPR-200-W-37	200W	Unplanned Release					X				Removed
UPR-200-W-39	200W	Unplanned Release					X				Removed
UPR-200-W-4	200W	Unplanned Release					X				Removed
UPR-200-W-41	200W	Unplanned Release							X		Removed
UPR-200-W-42	200W	Unplanned Release							X		Removed

Table B.1. (contd)

Site Name	Operating Area	Site Type	Retained for Analysis?	Duplicate?	French Drains Below Criteria?	Aggregated?	UPR Removed?	Material Non-rad? (CCl4, CrVI)	UPR Deleted?	Never Used?	Remarks
UPR-200-W-43	200W	Unplanned Release							X		Air pathway
UPR-200-W-44	200W	Unplanned Release					X				Removed
UPR-200-W-45	200W	Unplanned Release							X		Wrong contaminants
UPR-200-W-46	200W	Unplanned Release							X		Wrong contaminants
UPR-200-W-47	200W	Unplanned Release				X					
UPR-200-W-48	200W	Unplanned Release							X		Contaminated equipment
UPR-200-W-49	200W	Unplanned Release							X		241-SX Tank farm
UPR-200-W-5	200W	Unplanned Release				X					
UPR-200-W-50	200W	Unplanned Release		X							
UPR-200-W-51	200W	Unplanned Release					X				Removed
UPR-200-W-52	200W	Unplanned Release				X					
UPR-200-W-53	200W	Unplanned Release							X		Wrong contaminants
UPR-200-W-55	200W	Unplanned Release					X				Removed
UPR-200-W-56	200W	Unplanned Release							X		Localized releases
UPR-200-W-57	200W	Unplanned Release							X		Plutonium - fire
UPR-200-W-58	200W	Unplanned Release							X		Removed
UPR-200-W-59	200W	Unplanned Release				X					
UPR-200-W-60	200W	Unplanned Release							X		Removed
UPR-200-W-61	200W	Unplanned Release							X		Removed
UPR-200-W-63	200W	Unplanned Release							X		Localized releases
UPR-200-W-65	200W	Unplanned Release							X		Rail spur by facility
UPR-200-W-67	200W	Unplanned Release							X		Contaminated equipment
UPR-200-W-68	200W	Unplanned Release					X				Removed
UPR-200-W-69	200W	Unplanned Release					X				Removed

Appendix C

Preparers

Appendix C

Preparers

MAIN REPORT:

MARCEL P. BERGERON, Program Manager, Hydrology Group, Pacific Northwest National Laboratory.

B.A.	Geology, University of Vermont	1975
M.A.	Geology, Indiana University	1979

Mr. Bergeron joined Pacific Northwest National Laboratory in May 1985 as a research hydrogeologist and has 21 years of experience in a wide variety of groundwater investigations and studies at hazardous waste and contaminated groundwater sites. Since joining the Laboratory, Mr. Bergeron has devoted his attention to a variety of roles in hydrologic studies and investigations including technical contributions, project and task management, and line management roles. Technically, he has specialized in the area of hydrogeologic investigations with specific emphasis on applying groundwater flow and transport modeling. Mr. Bergeron was the task manager of the both the original Composite Analysis and led and oversaw this supporting addendum analysis.

EUGENE J. FREEMAN, Hydrogeologist, Hydrology Group, Pacific Northwest National Laboratory.

B.S.	Geology, Montana State University	1986
M.S.	Hydrology, University of Idaho	1995

Mr. Freeman has 10 years of experience in the field of hydrogeology. He has experience as a field hydrogeologist and numerical modeler. Mr. Freeman has performed work for both saturated and unsaturated systems and has spent the past 8 years analyzing and modeling moisture and contaminant distribution within the unsaturated sediments beneath the Hanford Site. He performed the source-term release and vadose zone modeling used to support this addendum analysis..

SIGNE K. WURSTNER, Senior Research Scientist, Hydrology Group, Pacific Northwest National Laboratory.

B.S.	Geology, Indiana University	1986
M.S.	Geology, Indiana University	1989

Ms. Wurstner joined Battelle as a full-time scientist October 1989. Her primary interests include numerical modeling of groundwater flow and transport processes and geographic information systems (GIS). Ms. Wurstner has been primarily involved in modeling groundwater flow and contaminant transport at the Hanford Site in two and three dimensions. She was a major contributor to the development of an interface between the CFEST groundwater modeling software library and the commercial GIS package, ARC/INFO. She assisted in the groundwater flow and transport modeling used to support the original Composite Analysis and was a major contributor to all groundwater analysis supporting this addendum.

APPENDIX A PREPARERS:

ROSANNE AABERG, Risk Analysis and Health Protection Group, Pacific Northwest National Laboratory.

BS	Chemical Engineering, University of Washington	1976

Ms. Aaberg has been a contributor to several Environmental Impact Statements, including the Yucca Mountain EIS and the Hanford K-Basin EIS, has done risk-related work through the Center for Risk Excellence with Bob Stenner, and provided revised dose calculations and safety analysis for the 325 Building at Hanford. She has been a member of the EP&RA Group for the last 12 years. Her support to this addendum analysis was in compiling information concerning disposal sites and site inventory used in the initial assessment of System Assessment Capability.

MIKE M. COONY, Principal Engineer, Technical Integration and Planning Group, Fluor Hanford

BS	Chemical Engineering, University of California Davis, 1972	1972
MS	Environmental Engineering, California State University at Sacramento	1979

Mike Coony was the principal lead for the collection of inventory data. The scope covers identification of data sources, extraction of data from data sources, interpretation of the data, and processing the data into the SAC inventory format. Issues related to the data interpretation and non-published data were resolved through solicitation of technical experts through a workshop forum. Data collection includes continual checks of data to ensure consistency and verification of mass balances. Mr. Coony has 18 years of Hanford experience that covers multiple projects, and has a very deep knowledge of historical and projected waste management practices for all waste types.

PAUL ESLINGER, Staff Scientist , Risk Analysis and Health Protection Group, Pacific Northwest National Laboratory.

B.S.	Mathematics, George Fox College, Newberg, Oregon	1976
M.A	Mathematics, Washington State University	1978
Ph.D.	Statistics, Southern Methodist University	1983

Dr. Eslinger is the lead statistical analyst and the team leader for developing the computational ability for the Systems Assessment Capability project. He led the development of the environmental accumulation and dose codes for the Hanford Environmental Dose Reconstruction project. He has managed the Columbia River Comprehensive Impact Assessment project at Battelle. In addition, he has been a lead technical contributor in the area of performance assessment for environmental impact statements for the Waste Isolation Pilot Plant and the proposed Yucca Mountain Repository, and managed the Performance Assessment Scientific Support project that analyzed Yucca Mountain performance for three years. He has been the technical group leader for the Probabilistic Analysis Group. His support to this addendum analysis was a technical consultant and contributor to Appendix A.

CHARLES T. KINCAID, Staff Scientist, Hydrology Group, Pacific Northwest National Laboratory.

B.S.	Civil Engineering, Humboldt State College	1970
Ph.D.	Engineering (Hydraulics), Utah State University	1979

Dr. Kincaid was the technical manager and key contributor to the *Performance Assessment of the Grouted Double-Shell Tank Waste Disposal at Hanford* and the *Composite Analysis for the Low-Level Waste Disposal in the 200 Area Plateau of the Hanford Site*. He has been the technical group leader of the Soil Physics Group and the Subsurface Transport Group. He was a key contributor in the development of contaminant transport codes and has contributed to various Performance Assessments at the Hanford Site. Dr. Kincaid was the principal investigator and the lead author of the original composite analysis. His support to this addendum analysis was as technical consultant, peer reviewer of this document, and the lead on Appendix A.

DENNIS STRENGE, Staff Scientist, Risk Analysis and Health Protection Group, Pacific Northwest National Laboratory.

B.S.	Chemical Engineering, University of Washington	1966
M.S.	Chemical Engineering, University of Minnesota	1968

Mr. Strenge was responsible for the human exposure and dosimetry calculations for the composite analysis. He has been responsible for developing models and methods for assessing human exposure to chemicals and radionuclides released to the atmosphere and waterborne systems. He has been responsible for analyses of environmental exposure pathways for several projects, including the Hanford Solid Waste Environmental Impact Statement, Pantex Baseline Risk Assessment; Environmental Restoration at Eielson Air force Base; Waste Isolation Pilot Plant SEIS, Whitewood Creek Exposure Assessment (EPA), and others.

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