0058152

DOE/RL-95-36
Revision 1

# Hanford Facility Dangerous Waste Permit Application, T Plant Complex



*Date Published*
September 2002

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

Project Hanford Management Contractor for the
U.S. Department of Energy under Contract DE-AC06-96RL13200

**United States**
**Department of Energy**
**P.O. Box 550**
**Richland, Washington 99352**

Chris Willingham 9/5/02
Release Approval Date

# HANFORD FACILITY DANGEROUS WASTE PERMIT APPLICATION, T PLANT COMPLEX

## FOREWORD

The *Hanford Facility Dangerous Waste Permit Application* is considered to be a single application organized into a General Information Portion (document number DOE/RL-91-28) and a Unit-Specific Portion. The scope of the Unit-Specific Portion is limited to Part B permit application documentation submitted for individual, 'operating' treatment, storage, and/or disposal units, such as the T Plant Complex (this document, DOE/RL-95-36).

Both the General Information and Unit-Specific portions of the Hanford Facility Dangerous Waste Permit Application address the content of the Part B permit application guidance prepared by the Washington State Department of Ecology (Ecology 1996) and the U.S. Environmental Protection Agency (40 Code of Federal Regulations 270), with additional information needs defined by the Hazardous and Solid Waste Amendments and revisions of Washington Administrative Code 173-303. For ease of reference, the Washington State Department of Ecology alpha-numeric section identifiers from the permit application guidance documentation (Ecology 1996) follow, in brackets, the chapter headings and subheadings. A checklist indicating where information is contained in the T Plant Complex permit application documentation, in relation to the Washington State Department of Ecology guidance, is located in the Contents Section.

Documentation contained in the General Information Portion is broader in nature and could be used by multiple treatment, storage, and/or disposal units (e.g., the glossary provided in the General Information Portion). Wherever appropriate, the T Plant Complex permit application documentation makes cross-reference to the General Information Portion, rather than duplicating text.

Information provided in this T Plant Complex permit application documentation is current as of September 2002.

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# DOCUMENT CONTENT



## APPENDICES

## APPENDICES (cont)

# GLOSSARY

| | |
|---|---|
| ACT | atmospheric cleanup train |
| ALARA | as low as reasonably achievable |
| ASME | American Society of Mechanical Engineers |
| | |
| °C | degrees Centigrade |
| CERCLA | *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* |
| CFR | Code of Federal Regulations |
| | |
| DOE-RL | U.S. Department of Energy, Richland Operations Office |
| DP | differential pressure |
| DST | double-shell tank |
| DW | dangerous waste |
| DWTP | dangerous waste training plan |
| | |
| ECO | environmental compliance officer |
| Ecology | Washington State Department of Ecology |
| EPA | U.S. Environmental Protection Agency |
| ETF | 200 Area Effluent Treatment Facility |
| | |
| HEPA | high-efficiency particulate air |
| HF | Hanford Facility |
| HFD | Hanford Fire Department |
| HNF- | document identifier |
| HVAC | heating, ventilation, and air conditioning |
| | |
| ICBO | International Conference of Building Officials |
| | |
| LDR | land disposal restrictions |
| | |
| NOI | notice of intent |
| | |
| OU | operable unit |
| | |
| PWR | Pressurized Water Reactor |
| | |
| RCRA | *Resource Conservation and Recovery Act of 1976* |
| | |
| SAP | sampling and analysis plan |
| SSC | systems, structures, and components |
| | |
| T Plant | T Plant Complex |
| Tri-Party Agreement | Hanford Federal Facility Agreement and Consent Order |
| TSD | treatment, storage, and/or disposal |
| | |
| UBC | Uniform Building Code |

## GLOSSARY (cont)

| | |
|---|---|
| WAC | Washington Administrative Code |
| WHC | Westinghouse Hanford Company |
| WIDS | Waste Information Data System |
| WIPP | Waste Isolation Pilot Plant |

# METRIC CONVERSION CHART

| Into metric units | | | Out of metric units | | |
|---|---|---|---|---|---|
| If you know | Multiply by | To get | If you know | Multiply by | To get |
| **Length** | | | **Length** | | |
| inches | 25.40 | millimeters | millimeters | 0.03937 | inches |
| inches | 2.54 | centimeters | centimeters | 0.393701 | inches |
| feet | 0.3048 | meters | meters | 3.28084 | feet |
| yards | 0.9144 | meters | meters | 1.0936 | yards |
| miles (statute) | 1.60934 | kilometers | kilometers | 0.62137 | miles (statute) |
| **Area** | | | **Area** | | |
| square inches | 6.4516 | square centimeters | square centimeters | 0.155 | square inches |
| square feet | 0.09290304 | square meters | square meters | 10.7639 | square feet |
| square yards | 0.8361274 | square meters | square meters | 1.19599 | square yards |
| square miles | 2.59 | square kilometers | square kilometers | 0.386102 | square miles |
| acres | 0.404687 | hectares | hectares | 2.47104 | acres |
| **Mass (weight)** | | | **Mass (weight)** | | |
| ounces (avoir) | 28.34952 | grams | grams | 0.035274 | ounces (avoir) |
| pounds | 0.45359237 | kilograms | kilograms | 2.204623 | pounds (avoir) |
| tons (short) | 0.9071847 | tons (metric) | tons (metric) | 1.1023 | tons (short) |
| **Volume** | | | **Volume** | | |
| ounces (U.S., liquid) | 29.57353 | milliliters | milliliters | 0.033814 | ounces (U.S., liquid) |
| quarts (U.S., liquid) | 0.9463529 | liters | liters | 1.0567 | quarts (U.S., liquid) |
| gallons (U.S., liquid) | 3.7854 | liters | liters | 0.26417 | gallons (U.S., liquid) |
| cubic feet | 0.02831685 | cubic meters | cubic meters | 35.3147 | cubic feet |
| cubic yards | 0.7645549 | cubic meters | cubic meters | 1.308 | cubic yards |
| **Temperature** | | | **Temperature** | | |
| Fahrenheit | subtract 32 then multiply by 5/9ths | Celsius | Celsius | multiply by 9/5ths, then add 32 | Fahrenheit |
| **Energy** | | | **Energy** | | |
| kilowatt hour | 3,412 | British thermal unit | British thermal unit | 0.000293 | kilowatt hour |
| kilowatt | 0.94782 | British thermal unit per second | British thermal unit per second | 1.055 | kilowatt |
| **Force/Pressure** | | | **Force/Pressure** | | |
| pounds (force) per square inch | 6.894757 | kilopascals | kilopascals | 0.14504 | pounds per square inch |

06/2001

Source: *Engineering Unit Conversions*, M. R. Lindeburg, PE., Third Ed., 1990, Professional Publications, Inc., Belmont, California.

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# Application Checklist

Complete this checklist by providing the facility name and indicating where the listed material has been placed in the application. This is particularly important when the application does not closely follow the outline of the checklist and guidance.

Include the completed checklist with the Dangerous Waste Permit application.

Facility name T Plant Complex

Date Application Received ______________________________

## State of Washington
## Part B Permit Application Review Checklist for Treatment and Storage in Tanks and Containers

| | | Technically Adequate? | Location in Application |
|---|---|---|---|
| A. | Part A Form | | Chapter 1.0 |
| B. | Facility Description and General Provisions | | 2.0 |
| B-1 | General Description | | 2.1 |
| B-1(a) | Facility Description | | 2.1 |
| B-1(b) | Construction Schedule | N/A | Not Applicable (N/A) |
| B-2 | Topographic Map | | 2.2 |
| B-2a | General Requirements | | 2.2 |
| B-2b | Additional Requirements for Land Disposal Facilities | N/A | N/A |
| B-3 | Seismic Consideration | | 4.6.1.1.2 |
| B-4 | Traffic Information | | 2.3 |
| C. | Waste Analysis | | 3.0 |
| C-1 | Chemical, Biological and Physical Analyses | | 3.1 |
| C-1a<br>C-1b<br>C-1c | Waste In Piles<br>Landfilled Wastes<br>Wastes Incinerated and Wastes Used in Performance Tests | N/A | N/A |
| C-2 | Waste Analysis Plan | | 3.2 and Appendix 3A |
| C-2a | Detailed Chemical, Physical, and/or Biological Analysis | | Appendix 3A |
| C-2a(1) | Parameters and Rationale | | Appendix 3A |
| C-2a(2) | Analytical Methods | | Appendix 3A |
| C-2a(3) | Generator-Supplied Analyses | | Appendix 3A |
| C-2b | Additional Requirements for Wastes Generated Off-site | | Appendix 3A |
| C-2b(1) | Parameters and Rationale to Confirm Identity of Off-site Waste | | Appendix 3A |
| C-2b(2) | Analytical Methods to Confirm Identity of Off-site Waste | | Appendix 3A |
| C-2b(3) | Representative Sampling of Incoming Off-site Wastes | | Appendix 3A |
| C-2c | Methods for Collecting Samples for Detailed and Confirming Analyses | | Appendix 3A |
| C-2d | Frequency of Analyses | | Appendix 3A |
| C-3 | Manifest System | | Appendix 3A |
| | | | |
| C-3a | Procedures for Receiving Shipments | | Appendix 3A |

| | | Technically Adequate? | Location in Application |
|---|---|---|---|
| C-3b | Response to Significant Discrepancies | | Appendix 3A |
| C-3c | Provisions for Non-acceptance of Shipment | | Appendix 3A |
| C-3c(1) | Non-acceptance of Undamaged Shipment | | Appendix 3A |
| C-3c(2) | Activation of Contingency Plan for Damaged Shipment | | Appendix 3A |
| C-4 | Tracking System | | Appendix 3A |
| D. | Process Information | | 4.0 |
| D-1 | Containers | | 4.1 |
| D-1a | Description of Containers | | 4.1.1.1 |
| D-1b | Container Management Practices | | 4.1.1.2 |
| D-1c | Container Labelling | | 4.1.1.3 |
| D-1d | Containment Requirements for Storing Containers | | 4.1.2 |
| D-1d(1) | Secondary Containment System Design | | 4.1.2.1 |
| D-1d(1)(a) | System Design | | 4.1.2.1 |
| D-1d(1)(b) | Structural Integrity of Base | | 4.1.2.1 |
| D-1d(1)(c) | Containment System Capacity | | 4.1.2.2 |
| D-1d(1)(d) | Control of Run-on | | 4.1.2.3 |
| D-1d(2) | Removal of Liquids from Containment System | | 4.1.3 |
| D-1e | Demonstration that Containment Is Not Required Because Containers Do Not Contain Free Liquids, Wastes That Exhibit Ignitability or Reactivity, or Wastes Designated F020 - 023, F026, or F027 | | 4.2 |
| D-1f | Prevention of Reaction of Ignitable, Reactive, and Incompatible Wastes in Containers | | 4.3 |
| D-1f(1) | Management of Certain Reactive Wastes in Containers | | 4.3.1 |
| D-1f(2) | Management of Ignitable and Certain Other Reactive Wastes in Containers | | 4.3.2 |
| D-1f(3) | Design of Areas to Manage Incompatible Wastes | | 4.3.3 |
| D-2 | Tank Systems | | 4.4 |
| D-2a | Design, Installation and Assessment of Tanks Systems | | 4.4.1 |
| D-2a(1) | Design Requirements | | 4.4.4.1 |
| D-2a(2) | Integrity Assessments | | 4.4.2 |
| D-2a(3) | Additional Requirements for Existing Tanks | N/A | N/A |
| D-2a(4) | Additional Requirements for New Tanks | | 4.4.3 |
| D-2a(5) | Additional Requirements for New On-ground or Underground Tanks | N/A | N/A |
| N/A D-2b | Secondary Containment and Release Detection for Tank Systems | | 4.4.4 |

| | | Technically Adequate? | Location in Application |
|---|---|---|---|
| N/A D-2b(1) | Requirements for All Tank Systems | | 4.4.4 |
| D-2b(2) | Additional Requirements for Specific Types of Systems | N/A | N/A |
| D-2b(2)(a) | Vault Systems | N/A | N/A |
| D-2b(2)(b) | Double-walled Tanks | N/A | N/A |
| D-2b(2)(c) | Ancillary Equipment | | 4.4.4.1 |
| D-2c | Variances from Secondary Containment Requirements | N/A | N/A |
| D-2d | Tank Management Practices | | 4.4.5 |
| D-2e | Labels or Signs | | 4.4.6 |
| D-2f | Air Emissions | | 4.4.7 |
| D-2g | Management of Ignitable or Reactive Wastes in Tank Systems | | 4.4.8 |
| D-2h | Management of Incompatible Wastes in Tank Systems | | 4.4.8 |
| D-3<br>D-4<br>D-5<br>D-6<br>D-7 | Waste Piles<br>Surface Impoundments<br>Incinerators<br>Landfills<br>Land Treatment | N/A | N/A |
| D-8 | Air Emissions Control | | 4.5 |
| D-8a | Process Vents | N/A | N/A |
| D-8a(1) | Applicability of Subpart AA Standards | N/A | N/A |
| D-8a(1)(a) | Process Vents Subject to Subpart AA Standards | N/A | N/A |
| D-8a(1)(b) | Process Vents Not Subject to Subpart AA Standards | N/A | N/A |
| D-8a(1)(c) | Re-evaluating Applicability of Subpart AA Standards | N/A | N/A |
| D-8a(2) | Process Vents - Demonstrating Compliance | N/A | N/A |
| D-8a(2)(a) | The Basis for Meeting Limits/Reductions | N/A | N/A |
| D-8a(2)(b) | Demonstrating Compliance via Selected Method | N/A | N/A |
| D-8a(2)(c) | Design Information and Operating Parameters for Closed Vent Systems and Control Devices | N/A | N/A |
| D-8a(2)(d) | Re-evaluating Compliance with Subpart AA Standards | N/A | N/A |
| D-8b | Equipment Leaks | | 4.5.1 |
| D-8b(1) | Applicability of Subpart BB Standards | | 4.5.1 |
| D-8b(1)(a) | Equipment Subject to Subpart BB | | 4.5.1 |
| D-8b(1)(b) | Re-evaluating Applicability of Subpart BB Standards | | 4.5.1 |
| D-8b(2) | Equipment Leaks - Demonstrating Compliance | | 4.5.1 |

| | | Technically Adequate? | Location in Application |
|---|---|---|---|
| D-8b(2)(a) | Procedures for Identifying Equipment Location and Method of Compliance, Marking Equipment, and Ensuring Records are Up-to-date | | 4.5.1 |
| D-8b(2)(b) | Demonstrating Compliance with D-8b(1)(a) and (2)(a) Procedures | | 4.5.1 |
| D-8b(2)(c) | Closed Vent Systems or Control Devices: Showing Compliance with Emission Reduction Standards | | 4.5.1 |
| D-8c | Tanks and Containers | | 4.5.2 |
| D-8c(1) | Applicability of Subpart CC Standards | | 4.5.2 |
| D-8c(2) | Tank Systems and Container Areas - Demonstrating Compliance | | 4.5.2 |
| D-9 | Waste Minimization | | 10.0 |
| D-10 | Groundwater Monitoring for Land-based Units | N/A | N/A |
| E. | Releases from Solid Waste Management Units | | 2.4 |
| E-1 | Solid Waste Management Units and Known and Suspected Releases of Dangerous Wastes or Constituents | | 2.4 |
| E-1a | Solid Waste Management Units | | 2.4 |
| E-1b | Releases | | 2.4 |
| E-2 | Corrective Actions Implemented | N/A | N/A |
| F. | Procedures to Prevent Hazards | | 6.0 |
| F-1 | Security | | 6.1 |
| F-1a | Security Procedures and Equipment | | 6.1.1 |
| F-1b | Waiver | | 6.1.2 |
| F-2 | Inspection Plan | | 6.2 |
| F-2a | General Inspection Requirements | | 6.2.1 |
| F-2b | Inspection Log | | 6.2.1 |
| F-2c | Schedule for Remedial Action for Problems Revealed | | 6.2.2 |
| F-2d | Specific Process or Waste Type Inspection Requirements | | 6.2.3 |
| F-2d(1) | Container Inspections | | 6.2.3.1 |
| F-2d(2) | Tank System Inspections and Corrective Actions | | 6.2.3.2 |
| F-2d(2)(a) | Tank System Inspections | | 6.2.3.2 |
| F-2d(2)(b) | Tank Systems - Corrective Actions | | 6.2.3.2.1 |
| F-2d(3) | Storage of Ignitable or Reactive Wastes | | 6.5 |
| F-2d(4) | Air Emissions Control and Detection - Inspections, Monitoring, and Corrective Actions | N/A | N/A |
| F-2d(4)(a) | Process Vents | N/A | N/A |
| F-2d(4)(b) | Equipment Leaks | N/A | N/A |
| F-2d(4)(c) | Tanks and Containers | N/A | N/A |

| | | Technically Adequate? | Location in Application |
|---|---|---|---|
| F-2d(5)<br>F-2d(6)<br>F-2d(7)<br>F-2d(8)<br>F-2d(9) | Waste Pile Inspection<br>Surface Impoundment Inspection<br>Incinerator Inspection<br>Landfill Inspection<br>Land Treatment Facility Inspection | N/A | N/A |
| F-3 | Preparedness and Prevention Requirements | | 6.3 |
| F-3a | Equipment Requirements | | 6.3.1 |
| F-3b | Aisle Space Requirement | | 6.3.2 |
| F-4 | Preventive Procedures, Structures, and Equipment | | 6.4 |
| F-5 | Prevention of Reaction of Ignitable, Reactive, and/or Incompatible Wastes | | 6.5 |
| F-5a | Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Waste | | 6.5 |
| F-5b | Precautions for Handling Ignitable or Reactive Waste and Mixing Incompatible Wastes | | 6.5 |
| F-5b(1) | Ignitable or Reactive Wastes In Tanks | N/A | N/A |
| F-5b(2) | Incompatible Wastes In Containers or Tanks | | 6.5 |
| G. | Contingency Plan | | 7.0 |
| G-1 | General Information | | Appendix 7A |
| G-2 | Emergency Coordinators | | Appendix 7A |
| G-3 | Circumstances Prompting Implementation | | Appendix 7A |
| G-4 | Emergency Response Procedures | | Appendix 7A |
| G-4a | Notification | | Appendix 7A |
| G-4b | Identification of Dangerous Materials | | Appendix 7A |
| G-4c | Hazard Assessment and Report | | Appendix 7A |
| G-4d | Prevention of Recurrence or Spread of Fires, Explosions, or Releases | | Appendix 7A |
| G-4f | Post-Emergency Actions | | Appendix 7A |
| G-5 | Emergency Equipment | | Appendix 7A |
| G-6 | Coordination Agreements | | Appendix 7A |
| G-7 | Evacuation Plan | | Appendix 7A |
| G-8 | Required Reports, Recordkeeping, and Certifications | | Appendix 7A |
| G-8a | General Requirements | | Appendix 7A |
| G-8a | Requirements for Tank Systems | | Appendix 7A |
| H. | Personnel Training | | 8.0 |
| H-1 | Job Title/Job Description | | 8.0 |
| H-2 | Outline of Training Program | | 8.0 |
| H-3 | Implementation of Training Program | | 8.0 |
| I. | Closure and Financial Assurance | | 11.0 |
| I-1 | Closure Plan/Financial Assurance for Closure | | 11.1 |
| I-1a | Closure Performance Standard | | 11.2 |

| | | Technically Adequate? | Location in Application |
|---|---|---|---|
| I-1b | Closure Activities | | 11.3 |
| I-1b(1) | Maximum Extent of Operation | | 11.3.1 |
| I-1b(2) | Removing Dangerous Wastes | | 11.3.2 |
| I-1b(3) | Decontaminating Structures, Equipment, and Soil | | 11.3.3 through 11.3.7 |
| I-1b(4) | Sampling and Analysis to Identify Extent of Decontamination/ Removal and to Verify Achievement of Closure Standard | | 11.3.4 through 11.3.8 |
| I-1b(4)(a) | Sampling to Confirm Decontamination of Structures and Soils | | 11.3.4 through 11.3.8 |
| I-1b(5) | Other Activities | | N/A |
| I-1c | Maximum Waste Inventory | | 11.1.3 |
| I-1d<br><br><br>I-1e | Closure of Waste Piles, Surface Impoundments, Incinerators, Land Treatment, and Miscellaneous Units<br><br>Closure of Landfill Units | N/A | N/A |
| I-1f | Schedule for Closure | | 11.4 |
| I-1g | Extension for Closure Time | | 11.4.1 |
| I-1h | Closure Cost Estimate | | 11.5 |
| I-1i | Financial Assurance Mechanism for Closure | N/A | N/A |
| I-2 | Notice in Deed of Already Closed Disposal Units | N/A | N/A |
| I-3 | Post-Closure Plan | N/A | N/A |
| I-4 | Liability Requirements | N/A | N/A |
| I-4a | Coverage for Sudden Accidental Occurrences | N/A | N/A |
| I-4b | Coverage for Nonsudden Accidental Occurrences | N/A | N/A |
| I-4c | Request for Variance | N/A | N/A |
| J. | Other Federal and State Laws | | 13.0 |
| K. | Part B Certification | | 14.0 |

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# CONTENTS

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# 1.0 PART A PERMIT APPLICATION [A]

The following is the T Plant Complex Part A, Form 3, history.

- Revision 0 of the Part A, Form 3, was submitted November 25, 1987 as the T Plant Treatment Tank.

- Revision 1 of the Part A, Form 3, submitted June 30, 1993, addressed the addition of waste storage and treatment capacity for tanks and containers and containment of waste piles on the canyon deck and in cells as part of the expanded waste management mission, and to change the name from 'T Plant Treatment Tank' to 'T Plant Complex.' A Notice of Intent (NOI) was sent to the Washington State Department of Ecology (Ecology) on December 14, 1992, informing Ecology of the intent to permit T Plant Complex as a storage and treatment unit for decontamination activities. An Addendum to the NOI was sent to Ecology on April 6, 1993, addressing the need for the addition of container storage and treatment capability. Revision 1 added: (1) 36 new dangerous waste numbers for previously unidentified waste with the potential of being stored and/or treated in the tank systems or treated during decontamination activities, (2) 373 new dangerous waste numbers for previously unidentified waste with the potential of being stored and/or treated in various sized containers, and (3) 37 new dangerous waste numbers for previously unidentified waste with the potential for containment building storage.

- Revision 2, submitted August 30, 1993, addressed the addition of language in Section III "Processes" that included various support structures and/or storage pads and site boundaries for container storage within the T Plant Complex. A drawing was added to show the site boundary of T Plant Complex indicating the location of container storage areas. A review of Washington Administrative Code (WAC) 173-303 showed that U241 never had been included with the WAC-173-303-9903 "Discarded Chemical Products List", therefore, U241 was deleted.

- Revision 3, submitted November 4, 1994, added dangerous waste number F039 (multi-source leachate) as waste derived from nonspecific source waste F001 through F005 to correspond with dangerous waste numbers from the Double-Shell Tank (DST) System, deleted dangerous waste number WC02 (state-only carcinogenic), and added discarded chemical products dangerous waste numbers P057, P116, P118 through P123, U248, U249, U328, U353, and U359.

- Revision 4, submitted May 25, 1995, addressed the liquid mixed waste storage capacities of the 2706-T railroad sump, 211-T sump, and 221-T Building tank 6-1. These sumps and tank are used for storage of liquid mixed waste generated during decontamination operations. 32 new dangerous waste numbers were added for previously unidentified waste with the potential of being stored and/or treated in containers at T Plant Complex.

- Revision 5, submitted December 19, 1995, more accurately described where waste is transferred after treatment and/or storage and increased the estimated annual quantity of waste from 4,536 kilograms to 4,535,924 kilograms because of a typographical error in Revision 4.

- Revision 6, submitted on September 30, 1996, indicated the Project Hanford Management Contract with Fluor Daniel Hanford, Inc., as the integrating contractor.

- Revision 7, submitted on December 23, 1998, increased the process design capacities for tank treatment, container storage and treatment, and other (miscellaneous) treatment. A NOI for interim status expansion was submitted for public review on October 14, 1997. This revision removed three dangerous waste numbers, added 61 dangerous waste numbers that have been added to the federal and state regulations, increased the estimated annual quantities of waste, updated site drawings, and deleted and added new photographs. This revision removed discussion in Section III.C. for process codes S01, "storage-container," S02 "tank storage, "and T01 "tank treatment," and all discussion in Section IV.E. because discussions of these process codes are not required by the Part A, Form 3, instructions.

- Revision 8, submitted February 2001, was revised to add 372 new dangerous waste numbers to S06 'containment building,' deleted 27 dangerous waste numbers from S01/T04 in accordance with Federal Registers (FR) 50 FR 51125 and 62 FR 32977. An administrative error on Revision 7 was corrected; the word "through" was missing between dangerous waste numbers D001 and D011 for S06. Site drawings were updated, deleted old photographs, and added new photographs. In addition, Section III.C., 'Processes' was revised to add in descriptions for 'S01' containers storage, 'S02' tank storage, and 'T01' tank treatment.

- Revision 9, submitted September 2002, added Section III.C discussion of new process code X99 "miscellaneous unit storage/treatment" to permit operations in 2706-T and 2706-TA under miscellaneous unit provisions in lieu of containment building provisions. This, in turn, required decreasing Section III.B, S06 "containment building" design capacity. Section III.C, S06, discussion was revised to identify portions of the 221-T Building certified for containment building operations. Section III.C discussion of process code S02 "tank storage" was revised to reflect removal of the 221-T Tank System from service. This revision added all 'U,' 'P,' and additional 'F' dangerous waste numbers to tank treatment and storage in support of future decontamination and treatment capabilities.

| FORM 3 | DANGEROUS WASTE PERMIT APPLICATION | I. EPA/State I.D. No. W A 7 8 9 0 0 0 8 9 6 7 |
|---|---|---|

**FOR OFFICIAL USE ONLY**

| Application Approved | Date Received (month/ day / year) | Comments |
|---|---|---|
| | | |

## II. FIRST OR REVISED APPLICATION

Place an "X" in the appropriate box in A or B below (mark one box only) to indicate whether this is the first application you are submitting for your facility or a revised application. If this is your first application and you already know your facility's EPA/STATE I.D. Number, or If this is a revised application, enter your facility's EPA/STATE I.D. Number in Section I above.

**A. First Application** (place an "X" below and provide the appropriate date)

☐ 1. **Existing Facility** (See instructions for definition of "existing" facility. Complete item below.)

| MO | DAY | YEAR |
|---|---|---|
| 03 | 22 | 1943 |

*For existing facilities, provide the date (mo/day/yr) operation began or the date construction commenced. (use the boxes to the left)
*The date construction of the Hanford Facility commenced

☐ 2. **New Facility** (Complete item below.)

| MO | DAY | YEAR |
|---|---|---|
| | | |

For new facilities, provide the date (mo/day/yr) operation began or is expected to begin

**B. Revised Application** (Place an "X" below and complete Section I above)

☒ 1. **Facility has an Interim Status Permit**

☒ 2. **Facility has a Final Permit**

## III. PROCESSES – CODES AND DESIGN CAPACITIES

**A. Process Code** – Enter the code from the list of process codes below that best describes each process to be used at the facility. Ten lines are provided for entering codes. If more lines are needed, enter the codes(s) in the space provided. If a process will be used that is not included in the list of codes below, then describe the process (including its design capacity) in the space provided on the (Section III-C).

**B. Process Design Capacity** – For each code entered in column A enter the capacity of the process.

1. Amount – Enter the amount.
2. Unit of Measure – For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.

| PROCESS | PROCESS CODE | APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY |
|---|---|---|
| **STORAGE:** | | |
| Container (barrel, drum, etc.) | S01 | Gallons or liters |
| Tank | S02 | Gallons or liters |
| Waste pile | S03 | Cubic yards or cubic meters |
| Surface impoundment | S04 | Gallons or liters |
| Containment building storage* | S06 | Cubic yards or cubic meters* |
| **DISPOSAL:** | | |
| Injection well | D80 | Gallons or liters |
| Landfill | D81 | Acre-feet (the volume that would cover one acre to a Depth of one foot) or hectare-meter |
| Land application | D82 | Acres or hectares |
| Ocean disposal | D83 | Gallons per day or liters per day |
| Surface impoundment | D84 | Gallons or liters |
| **TREATMENT:** | | |
| Tank | T01 | Gallons per day or liters per day |
| Surface impoundment | T02 | Gallons per day or liters per day |
| Incinerator | T03 | Tons per hour or metric tons per hour; gallons per hour or liters per hour |
| Other (use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundments or | T04 | Gallons per day or liters per day |
| incinerators. Describe the processes in the space provided; Section III-C.) | X99 | Cubic meters |

| Unit of Measure | Unit of Measure Code | Unit of Measure | Unit of Measure Code | Unit of Measure | Unit of Measure Code |
|---|---|---|---|---|---|
| Gallons | G | Liters Per Day | V | Acre-Feet | A |
| Liters | L | Tons Per Hour | D | Hectare-Meter | F |
| Cubic Yards | Y | Metric Tons Per Hour | W | Acres | B |
| Cubic Meters | C | Gallons Per Hour | E | Hectares | Q |
| Gallons Per Day | U | Liters Per Hour | H | | |



*Add per request of Washington State Department of Ecology (01/2001)

**III. PROCESSES – CODES AND DESIGN CAPACITIES** (continued)

**Example for Completing Section III** (shown in line numbers X-1 and X-2 below): A facility has two storage tanks; one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.

| Line No. | A. Process Code *(from list above)* | | | B. Process Design Capacity | | | | For Official Use Only | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1. Amount *(Specify)* | 2. Unit of Measure *(enter code)* | | | | | | |
| X-1 | S | 0 | 2 | 600 | | G | | | | | |
| X-2 | T | 0 | 3 | 20 | | E | | | | | |
| 1 | S | 0 | 2 | 292,990 | | L | | | | | |
| 2 | T | 0 | 1 | 204,412 | | V | | | | | |
| 3 | T | 0 | 4 | 150 | | S | | | | | |
| 4 | S | 0 | 1 | 946,352 | | L | | | | | |
| 5 | S | 0 | 6 | 8,792 | | C | | | | | |
| 6 | X | 9 | 9 | 26,377 | | C | | | | | |
| 7 | | | | | | | | | | | |
| 8 | | | | | | | | | | | |
| 9 | | | | | | | | | | | |
| 10 | | | | | | | | | | | |

**C. Space for additional process codes or for describing other process (code "T04"). For each process entered here include design capacity.**

The T Plant Complex (T Plant) was constructed in 1943 and began decontamination operations in 1957.

**S02**

Liquid mixed waste from T Plant treatment activities is currently being stored in the 2706-T tank system consisting of tanks 220 and 221 and associated ancillary equipment. The waste is stored until transfer to an onsite treatment, storage, and/or disposal (TSD) unit or offsite TSD facility capable of managing the waste. The maximum process design capacity for the volume of liquid mixed waste that will be stored in the existing 270 T tank system tanks at any time is 79,512 liters (21,005 gallons). The T Plant tank systems will be managed in a manner that ensures that the proce design capacity is not exceeded.

The 221-T tank system consists of six tanks located in the 221-T Building that are out of service and awaiting closure: tank 5-6, tank 5-7, tank 5-9, tank 6-1, tank 11-R, and tank 15-1. In addition, the associated 211-T Sump, located between the 2706-T and the 221-T Building, has been isolated and is awaiting closure. This system, although currently containing waste and/or waste residues, is isolated from further waste additions and is, by agreement with Washington State Department of Ecology, considered nonoperating.

**T01**

Liquid mixed waste that is treated in the 2706-T tank system is transferred to an onsite TSD unit or offsite TSD facility that is capable of managing this waste. This treatment process makes the liquid mixed waste more amenable for transfer and/or storage. The maximum tank treatment process design capacity is 204,412 liters per day (54,000 gallons) per day.

**T04**

Within T Plant, dangerous and/or mixed waste treatment and storage activities can occur in the 2706-T building, 221-T Canyon, and in other support facilities and units. Types of treatment that could be required to make the dangerous and/or mixed waste more amenable for storage and/or disposal include those identified in Washington Administrative Code 173 303-380. Treatment of dry and liquid dangerous and/or mixed waste in various sized containers, including railroad cars, could take place in the 221-T canyon, 221-T railroad tunnel, 2706-T building, 214-T storage building, and in other support structures and storage units located within T Plant's TSD unit boundary. Treatment associated with dry and liquid dangerous and/or mixed waste could include, but is not limited to sorting, segregation, repackaging, neutralization, absorption, macroencapsulation, and compaction. Treatment capability at T Plant can consist of: (1) complete laboratory analysis and characterization of dangerous and/or mixed waste before transferring the waste to an approved onsite TSD unit or offsite TSD facility; or (2) absorb, neutralize, immobilize, encapsulate, or otherwise stabilize the contents of some containers before transfer; (3) sort and segregate mixed waste from low-level waste; (4) prepare the mixed waste to be acceptable for transfer to an onsite TSD unit or offsite TSD facility; and/or (5) meet land disposal restriction requirements for disposal.

**III. PROCESSES – CODES AND DESIGN CAPACITIES** (continued)

Dangerous and/or mixed waste treatment methods could incorporate a variety of technologies to remove mixed waste contamination. The technologies include, but are not limited to, immersion treatment; spray batch treatment; and steam, water, ice, carbon dioxide, chemical, or abrasive blasting. Various types of equipment (e.g., tools, railroad equipment, buses, trucks, automobiles, cranes, earth *moving equipment, other large and small pieces of process equipment, or other equipment and debris)* can be decontaminated and treated in 2706-T, 221-T, and other support structures within T Plant as needed. Liquid mixed waste generated from the decontamination processes is collected and transferred to the 2706-T tank system or transferred directly to a tanker truck. From this tank system, waste is transferred to an onsite TSD unit or offsite TSD facility capable of accepting this waste. The maximum process design capacity for treatment is 150 metric tons (165 tons) per day. ["S" equates to "metric tons" in accordance with WAC 173-303-380(2)(c).]

**S01**

Storage of dry and liquid mixed and dangerous waste in various sized containers, including railroad cars, could take place in the 221-T canyon, 221-T railroad tunnel, 2706-T, 214-T storage building, and in other support structures and storage units located within the boundaries of T Plant. The containers are stored until transferred to an onsite TSD unit or offsite facility. The maximum container storage process design capacity is 946,352 liters (250,000 gallons).

**S06**

The designation S06 (containment building/storage) indicates mixed waste is stored in the portions of the 221-T Building that include the canyon deck, railroad tunnel and canyon process cells 7L, 13R and 17R. This waste is considered to be stored in a containment building subject to the requirements of 40 Code of Federal Regulations (CFR) 265, Subpart DD. The mixed waste consists of waste containers, uncontainerized process equipment, jumpers, and various other items awaiting decontamination, treatment, or repackaging before final disposition. The maximum process design capacity for containment building storage is 8,792 cubic meters (11,500 cubic yards).

**X99**

The designation X99 (miscellaneous unit storage/treatment) indicates that containerized and uncontainerized dangerous and/or mixed waste is stored on the floors of operational areas of the 2706-T and 2706-TA Buildings subject to the requirements of this permit and in accordance with WAC-173-303-680. The mixed waste consists of waste containers, uncontainerized waste, and various items potentially containing free liquids awaiting decontamination, treatment, or repackaging before final disposition. Decontamination or treatment using free liquids can occur directly on building operational area floors. The maximum process design capacity for miscellaneous unit storage/treatment is 26,377 cubic meters (34,500 cubic yards).

## IV. DESCRIPTION OF DANGEROUS WASTES

**A. Dangerous Waste Number** – Enter the digit number from Chapter 173-303 WAC for each listed dangerous waste you will handle. If you handl dangerous wastes which are not listed in Chapter 173-303 WAC, enter the four-digit number(s) that describes the characteristics and/or the toxic contaminants of those dangerous wastes.

**B. Estimated Annual Quantity** - For each listed waste entered in column A, estimate the quantity of that waste that will be handled on an annual basis. For each characteristic or toxic contaminant entered in column A, estimate the total annual quantity of all the non-listed waste(s) that will be handled which possess that characteristic or contaminant.

**C. Unit of Measure** - For each quantity entered in column B enter the unit of measure code. Units of measure which must be used and the appropriate odes are:

| ENGLISH UNIT OF MEASURE | CODE | METRIC UNIT OF MEASURE | CODE |
|---|---|---|---|
| Pounds | P | Kilograms | K |
| Tons | T | Metric Tons | M |

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure taking into account the appropriate density or specific gravity of the waste.

**D. Processes**

1. Process Codes:

For listed dangerous waste: For each listed dangerous waste entered in column A select the code(s) from the list of process codes contained in Section III to indicate how the waste will be stored, treated, and/or disposed of at the facility.

For non-listed dangerous wastes: For each characteristic or toxic contaminant entered in Column A, select the code(s) from the list of process codes contained in Section III to indicate all the processes that will be used to store, treat, and/or dispose of all the non-listed dangerous wastes that possess that characteristic or toxic contaminant.

Note: Four spaces are provided for entering process codes. If more are needed: (1) Enter the first three as described above; (2) Enter "000" in the extreme right box of item IV-D(1); and (3) Enter in the space provided on page 4, the line number and the additional code(s).

2. Process Description: If a code is not listed for a process that will be used, describe the process in the space provided on the form.

NOTE: DANGEROUS WASTES DESCRIBED BY MORE THAN ONE DANGEROUS WASTE NUMBER - Dangerous wastes that can be described by more than one Waste Number shall be described on the form as follows:

1. Select one of the Dangerous Waste Numbers and enter it in column A. On the same line complete columns B, C, and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.
2. In column A of the next line enter the other Dangerous Waste Number that can be used to describe the waste. In column D(2) on that line enter "Included with above" and make no other entries on that line.
3. Repeat step 2 for each other Dangerous Waste Number that can be used to describe the dangerous waste.

Example for completing Section IV (shown in line numbers X-1, X-2, X-3, and X-4 below) - A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operation. In addition, the facility will treat and dispose of three non-listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste.

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | | | D. Processes | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 1. Process Codes *(enter)* | | | | 2. Process Description *(if a code is not entered in D(1))* |
| X-1 | K | 0 | 5 | 4 | 900 | | P | | T03 | D80 | | | |
| X-2 | D | 0 | 0 | 2 | 400 | | P | | T03 | D80 | | | |
| X-3 | D | 0 | 0 | 1 | 100 | | P | | T03 | D80 | | | |
| X-4 | D | 0 | 0 | 2 | | | | | T03 | D80 | | | *Included with above* |

Photocopy this page before completing if you have more than 26 wastes to list.

| I.D. Number *(enter from page 1)* |
|---|
| W A 7 8 9 0 0 0 8 9 6 7 |

## IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | D. Processes 1. Process Codes *(enter)* | | | | D. Processes 2. Process Description *(if a code is not entered in D(1))* |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | D | 0 | 0 | 1 | 181,788,195 | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other (Decontamination Activities) |
| 2 | D | 0 | 0 | 2 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 3 | D | 0 | 0 | 3 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 4 | D | 0 | 0 | 4 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 5 | D | 0 | 0 | 5 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 6 | D | 0 | 0 | 6 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 7 | D | 0 | 0 | 7 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 8 | D | 0 | 0 | 8 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 9 | D | 0 | 0 | 9 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 10 | D | 0 | 1 | 0 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 11 | D | 0 | 1 | 1 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 12 | D | 0 | 1 | 2 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 13 | D | 0 | 1 | 3 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 14 | D | 0 | 1 | 4 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 15 | D | 0 | 1 | 5 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 16 | D | 0 | 1 | 6 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 17 | D | 0 | 1 | 7 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 18 | D | 0 | 1 | 8 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 19 | D | 0 | 1 | 9 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 20 | D | 0 | 2 | 0 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 21 | D | 0 | 2 | 1 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 22 | D | 0 | 2 | 2 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 23 | D | 0 | 2 | 3 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 24 | D | 0 | 2 | 4 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 25 | D | 0 | 2 | 5 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 26 | D | 0 | 2 | 6 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 27 | D | 0 | 2 | 7 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 28 | D | 0 | 2 | 8 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 29 | D | 0 | 2 | 9 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 30 | D | 0 | 3 | 0 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 31 | D | 0 | 3 | 1 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 32 | D | 0 | 3 | 2 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 33 | D | 0 | 3 | 3 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 34 | D | 0 | 3 | 4 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 35 | D | 0 | 3 | 5 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 36 | D | 0 | 3 | 6 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 37 | D | 0 | 3 | 7 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 38 | D | 0 | 3 | 8 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 39 | D | 0 | 3 | 9 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 40 | D | 0 | 4 | 0 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 41 | D | 0 | 4 | 1 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 42 | D | 0 | 4 | 2 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 43 | D | 0 | 4 | 3 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 44 | W | T | 0 | 1 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 45 | W | T | 0 | 2 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |

Photocopy this page before completing if you have more than 26 wastes to list.

| I.D. Number *(enter from page 1)* | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| W | A | 7 | 8 | 9 | 0 | 0 | 0 | 8 | 9 | 6 | 7 |

## IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | D. Processes 1. Process Codes *(enter)* | | | | D. Processes 2. Process Description *(if a code is not entered in D(1))* |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 46 | W | P | 0 | 1 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 47 | W | P | 0 | 2 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 48 | W | P | 0 | 3 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 49 | W | 0 | 0 | 1 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 50 | W | S | C | 2 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 51 | F | 0 | 0 | 1 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 52 | F | 0 | 0 | 2 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 53 | F | 0 | 0 | 3 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 54 | F | 0 | 0 | 4 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 55 | F | 0 | 0 | 5 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 56 | F | 0 | 0 | 6 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 57 | F | 0 | 0 | 7 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 58 | F | 0 | 0 | 8 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 59 | F | 0 | 0 | 9 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 60 | F | 0 | 1 | 0 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 61 | F | 0 | 1 | 1 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 62 | F | 0 | 1 | 2 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 63 | F | 0 | 1 | 9 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-O |
| 64 | F | 0 | 2 | 0 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 65 | F | 0 | 2 | 1 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 66 | F | 0 | 2 | 2 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 67 | F | 0 | 2 | 3 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 68 | F | 0 | 2 | 6 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 69 | F | 0 | 2 | 7 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 70 | F | 0 | 2 | 8 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 71 | F | 0 | 3 | 9 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 72 | U | 0 | 0 | 1 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 73 | U | 0 | 0 | 2 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 74 | U | 0 | 0 | 3 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 75 | U | 0 | 0 | 4 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 76 | U | 0 | 0 | 5 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 77 | U | 0 | 0 | 6 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 78 | U | 0 | 0 | 7 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 79 | U | 0 | 0 | 8 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 80 | U | 0 | 0 | 9 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 81 | U | 0 | 1 | 0 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 82 | U | 0 | 1 | 1 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 83 | U | 0 | 1 | 2 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 84 | U | 0 | 1 | 4 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 85 | U | 0 | 1 | 5 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 86 | U | 0 | 1 | 6 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Oth |
| 87 | U | 0 | 1 | 7 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-O |
| 88 | U | 0 | 1 | 8 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 89 | U | 0 | 1 | 9 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 90 | U | 0 | 2 | 0 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 91 | U | 0 | 2 | 1 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |

Photocopy this page before completing if you have more than 26 wastes to list.

| I.D. Number *(enter from page 1)* | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| W | A | 7 | 8 | 9 | 0 | 0 | 0 | 8 | 9 | 6 | 7 |

## IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | | | D. Processes | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 1. Process Codes *(enter)* | | | | 2. Process Description *(if a code is not entered in D(1))* |
| 92 | U | 0 | 2 | 2 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 93 | U | 0 | 2 | 3 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 94 | U | 0 | 2 | 4 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 95 | U | 0 | 2 | 5 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 96 | U | 0 | 2 | 6 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 97 | U | 0 | 2 | 7 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 98 | U | 0 | 2 | 8 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 99 | U | 0 | 2 | 9 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 100 | U | 0 | 3 | 0 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 101 | U | 0 | 3 | 1 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 102 | U | 0 | 3 | 2 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 103 | U | 0 | 3 | 3 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 104 | U | 0 | 3 | 4 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 105 | U | 0 | 3 | 5 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 106 | U | 0 | 3 | 6 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 107 | U | 0 | 3 | 7 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 108 | U | 0 | 3 | 8 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 109 | U | 0 | 3 | 9 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 110 | U | 0 | 4 | 1 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 111 | U | 0 | 4 | 2 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 112 | U | 0 | 4 | 3 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 113 | U | 0 | 4 | 4 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 114 | U | 0 | 4 | 5 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 115 | U | 0 | 4 | 6 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 116 | U | 0 | 4 | 7 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 117 | U | 0 | 4 | 8 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 118 | U | 0 | 4 | 9 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 119 | U | 0 | 5 | 0 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 120 | U | 0 | 5 | 1 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 121 | U | 0 | 5 | 2 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 122 | U | 0 | 5 | 3 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 123 | U | 0 | 5 | 5 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 124 | U | 0 | 5 | 6 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 125 | U | 0 | 5 | 7 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 126 | U | 0 | 5 | 8 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 127 | U | 0 | 5 | 9 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 128 | U | 0 | 6 | 0 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 129 | U | 0 | 6 | 1 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 130 | U | 0 | 6 | 2 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 131 | U | 0 | 6 | 3 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 132 | U | 0 | 6 | 4 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 133 | U | 0 | 6 | 6 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 134 | U | 0 | 6 | 7 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 135 | U | 0 | 6 | 8 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 136 | U | 0 | 6 | 9 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 137 | U | 0 | 7 | 0 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |

Photocopy this page before completing if you have more than 26 wastes to list.

| I.D. Number *(enter from page 1)* |
|---|
| W A 7 8 9 0 0 0 8 9 6 7 |

**IV. DESCRIPTION OF DANGEROUS WASTES *(continued)***

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | | | D. Processes 1. Process Codes *(enter)* | | | | D. Processes 2. Process Description *(if a code is not entered in D(1))* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 138 | U | 0 | 7 | 1 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 139 | U | 0 | 7 | 2 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 140 | U | 0 | 7 | 3 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 141 | U | 0 | 7 | 4 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 142 | U | 0 | 7 | 5 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 143 | U | 0 | 7 | 6 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 144 | U | 0 | 7 | 7 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 145 | U | 0 | 7 | 8 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 146 | U | 0 | 7 | 9 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 147 | U | 0 | 8 | 0 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 148 | U | 0 | 8 | 1 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 149 | U | 0 | 8 | 2 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 150 | U | 0 | 8 | 3 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 151 | U | 0 | 8 | 4 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 152 | U | 0 | 8 | 5 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 153 | U | 0 | 8 | 6 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 154 | U | 0 | 8 | 7 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 155 | U | 0 | 8 | 8 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-O |
| 156 | U | 0 | 8 | 9 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 157 | U | 0 | 9 | 0 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 158 | U | 0 | 9 | 1 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 159 | U | 0 | 9 | 2 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 160 | U | 0 | 9 | 3 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 161 | U | 0 | 9 | 4 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 162 | U | 0 | 9 | 5 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 163 | U | 0 | 9 | 6 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 164 | U | 0 | 9 | 7 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 165 | U | 0 | 9 | 8 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 166 | U | 0 | 9 | 9 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 167 | U | 1 | 0 | 1 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 168 | U | 1 | 0 | 2 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 169 | U | 1 | 0 | 3 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 170 | U | 1 | 0 | 5 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 171 | U | 1 | 0 | 6 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 172 | U | 1 | 0 | 7 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 173 | U | 1 | 0 | 8 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 174 | U | 1 | 0 | 9 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 175 | U | 1 | 1 | 0 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 176 | U | 1 | 1 | 1 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 177 | U | 1 | 1 | 2 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 178 | U | 1 | 1 | 3 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Oth |
| 179 | U | 1 | 1 | 4 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-O |
| 180 | U | 1 | 1 | 5 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 181 | U | 1 | 1 | 6 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 182 | U | 1 | 1 | 7 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 183 | U | 1 | 1 | 8 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |

Photocopy this page before completing if you have more than 26 wastes to list.

| I.D. Number *(enter from page 1)* |
|---|
| W A 7 8 9 0 0 0 8 9 6 7 |

## IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | | | D. Processes 1. Process Codes *(enter)* | | | | D. Processes 2. Process Description *(if a code is not entered in D(1))* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 184 | U | 1 | 1 | 9 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 185 | U | 1 | 2 | 0 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 186 | U | 1 | 2 | 1 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 187 | U | 1 | 2 | 2 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 188 | U | 1 | 2 | 3 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 189 | U | 1 | 2 | 4 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 190 | U | 1 | 2 | 5 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 191 | U | 1 | 2 | 6 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 192 | U | 1 | 2 | 7 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 193 | U | 1 | 2 | 8 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 194 | U | 1 | 2 | 9 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 195 | U | 1 | 3 | 0 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 196 | U | 1 | 3 | 1 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 197 | U | 1 | 3 | 2 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 198 | U | 1 | 3 | 3 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 199 | U | 1 | 3 | 4 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 200 | U | 1 | 3 | 5 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 01 | U | 1 | 3 | 6 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 202 | U | 1 | 3 | 7 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 203 | U | 1 | 3 | 8 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 204 | U | 1 | 4 | 0 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 205 | U | 1 | 4 | 1 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 206 | U | 1 | 4 | 2 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 207 | U | 1 | 4 | 3 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 208 | U | 1 | 4 | 4 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 209 | U | 1 | 4 | 5 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 210 | U | 1 | 4 | 6 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 211 | U | 1 | 4 | 7 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 212 | U | 1 | 4 | 8 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 213 | U | 1 | 4 | 9 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 214 | U | 1 | 5 | 0 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 215 | U | 1 | 5 | 1 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 216 | U | 1 | 5 | 2 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 217 | U | 1 | 5 | 3 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 218 | U | 1 | 5 | 4 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 219 | U | 1 | 5 | 5 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 220 | U | 1 | 5 | 6 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 221 | U | 1 | 5 | 7 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 222 | U | 1 | 5 | 8 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 223 | U | 1 | 5 | 9 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 224 | U | 1 | 6 | 0 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 25 | U | 1 | 6 | 1 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 226 | U | 1 | 6 | 2 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 227 | U | 1 | 6 | 3 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 228 | U | 1 | 6 | 4 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 229 | U | 1 | 6 | 5 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |

Photocopy this page before completing if you have more than 26 wastes to list.

| I.D. Number *(enter from page 1)* | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W | A | 7 | 8 | 9 | 0 | 0 | 0 | 8 | 9 | 6 | 7 | |

## IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | | | D. Processes 1. Process Codes *(enter)* | | | | D. Processes 2. Process Description *(if a code is not entered in D(1))* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 230 | U | 1 | 6 | 6 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 231 | U | 1 | 6 | 7 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 232 | U | 1 | 6 | 8 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 233 | U | 1 | 6 | 9 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 234 | U | 1 | 7 | 0 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 235 | U | 1 | 7 | 1 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 236 | U | 1 | 7 | 2 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 237 | U | 1 | 7 | 3 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 238 | U | 1 | 7 | 4 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 239 | U | 1 | 7 | 6 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 240 | U | 1 | 7 | 7 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 241 | U | 1 | 7 | 8 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 242 | U | 1 | 7 | 9 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 243 | U | 1 | 8 | 0 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 244 | U | 1 | 8 | 1 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 245 | U | 1 | 8 | 2 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 246 | U | 1 | 8 | 3 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 247 | U | 1 | 8 | 4 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-O |
| 248 | U | 1 | 8 | 5 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 249 | U | 1 | 8 | 6 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 250 | U | 1 | 8 | 7 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 251 | U | 1 | 8 | 8 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 252 | U | 1 | 8 | 9 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 253 | U | 1 | 9 | 0 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 254 | U | 1 | 9 | 1 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 255 | U | 1 | 9 | 2 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 256 | U | 1 | 9 | 3 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 257 | U | 1 | 9 | 4 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 258 | U | 1 | 9 | 6 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 259 | U | 2 | 0 | 0 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 260 | U | 2 | 0 | 1 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 261 | U | 2 | 0 | 2 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 262 | U | 2 | 0 | 3 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 263 | U | 2 | 0 | 4 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 264 | U | 2 | 0 | 5 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 265 | U | 2 | 0 | 6 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 266 | U | 2 | 0 | 7 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 267 | U | 2 | 0 | 8 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 268 | U | 2 | 0 | 9 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 269 | U | 2 | 1 | 0 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 270 | U | 2 | 1 | 1 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 271 | U | 2 | 1 | 3 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-O |
| 272 | U | 2 | 1 | 4 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 273 | U | 2 | 1 | 5 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 274 | U | 2 | 1 | 6 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 275 | U | 2 | 1 | 7 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |

Photocopy this page before completing if you have more than 26 wastes to list.

| I.D. Number *(enter from page 1)* | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| W | A | 7 | 8 | 9 | 0 | 0 | 0 | 8 | 9 | 6 | 7 |

## IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | D. Processes | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 1. Process Codes *(enter)* | | | | 2. Process Description *(if a code is not entered in D(1))* |
| 276 | U | 2 | 1 | 8 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 277 | U | 2 | 1 | 9 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 278 | U | 2 | 2 | 0 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 279 | U | 2 | 2 | 1 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 280 | U | 2 | 2 | 2 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 281 | U | 2 | 2 | 3 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 282 | U | 2 | 2 | 5 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 283 | U | 2 | 2 | 6 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 284 | U | 2 | 2 | 7 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 285 | U | 2 | 2 | 8 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 286 | U | 2 | 3 | 4 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 287 | U | 2 | 3 | 5 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 288 | U | 2 | 3 | 6 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 289 | U | 2 | 3 | 7 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 290 | U | 2 | 3 | 8 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 291 | U | 2 | 3 | 9 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 292 | U | 2 | 4 | 0 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 293 | U | 2 | 4 | 3 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 294 | U | 2 | 4 | 4 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 295 | U | 2 | 4 | 6 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 296 | U | 2 | 4 | 7 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 297 | U | 2 | 4 | 8 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 298 | U | 2 | 4 | 9 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 299 | U | 2 | 7 | 1 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 300 | U | 2 | 7 | 8 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 301 | U | 2 | 7 | 9 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 302 | U | 2 | 8 | 0 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 303 | U | 3 | 2 | 8 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 304 | U | 3 | 5 | 3 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 305 | U | 3 | 5 | 9 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 306 | U | 3 | 6 | 4 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 307 | U | 3 | 6 | 7 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 308 | U | 3 | 7 | 2 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 309 | U | 3 | 7 | 3 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 310 | U | 3 | 8 | 7 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 311 | U | 3 | 8 | 9 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 312 | U | 3 | 9 | 4 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 313 | U | 3 | 9 | 5 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 314 | U | 4 | 0 | 4 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 315 | U | 4 | 0 | 9 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 316 | U | 4 | 1 | 0 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 317 | U | 4 | 1 | 1 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 318 | P | 0 | 0 | 1 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 319 | P | 0 | 0 | 2 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 320 | P | 0 | 0 | 3 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 321 | P | 0 | 0 | 4 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |

Photocopy this page before completing if you have more than 26 wastes to list.

| I.D. Number *(enter from page 1)* |
|---|
| W A 7 8 9 0 0 0 8 9 6 7 |

## IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | D. Processes 1. Process Codes *(enter)* | | | | D. Processes 2. Process Description *(if a code is not entered in D(1))* |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 322 | P | 0 | 0 | 5 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 323 | P | 0 | 0 | 6 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 324 | P | 0 | 0 | 7 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 325 | P | 0 | 0 | 8 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 326 | P | 0 | 0 | 9 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 327 | P | 0 | 1 | 0 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 328 | P | 0 | 1 | 1 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 329 | P | 0 | 1 | 2 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 330 | P | 0 | 1 | 3 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 331 | P | 0 | 1 | 4 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 332 | P | 0 | 1 | 5 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 333 | P | 0 | 1 | 6 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 334 | P | 0 | 1 | 7 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 335 | P | 0 | 1 | 8 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 336 | P | 0 | 2 | 0 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 337 | P | 0 | 2 | 1 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 338 | P | 0 | 2 | 2 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 339 | P | 0 | 2 | 3 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-C |
| 340 | P | 0 | 2 | 4 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 341 | P | 0 | 2 | 6 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 342 | P | 0 | 2 | 7 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 343 | P | 0 | 2 | 8 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 344 | P | 0 | 2 | 9 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 345 | P | 0 | 3 | 0 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 346 | P | 0 | 3 | 1 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 347 | P | 0 | 3 | 3 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 348 | P | 0 | 3 | 4 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 349 | P | 0 | 3 | 6 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 350 | P | 0 | 3 | 7 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 351 | P | 0 | 3 | 8 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 352 | P | 0 | 3 | 9 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 353 | P | 0 | 4 | 0 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 354 | P | 0 | 4 | 1 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 355 | P | 0 | 4 | 2 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 356 | P | 0 | 4 | 3 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 357 | P | 0 | 4 | 4 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 358 | P | 0 | 4 | 5 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 359 | P | 0 | 4 | 6 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 360 | P | 0 | 4 | 7 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 361 | P | 0 | 4 | 8 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 362 | P | 0 | 4 | 9 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Oth |
| 363 | P | 0 | 5 | 0 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-C |
| 364 | P | 0 | 5 | 1 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 365 | P | 0 | 5 | 4 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 366 | P | 0 | 5 | 6 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 367 | P | 0 | 5 | 7 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |

Photocopy this page before completing if you have more than 26 wastes to list.

| I.D. Number *(enter from page 1)* | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| V | A | 7 | 8 | 9 | 0 | 0 | 0 | 8 | 9 | 6 | 7 |

## IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | | | D. Processes | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 1. Process Codes *(enter)* | | | | 2. Process Description *(if a code is not entered in D(1))* |
| 368 | P | 0 | 5 | 8 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 369 | P | 0 | 5 | 9 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 370 | P | 0 | 6 | 0 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 371 | P | 0 | 6 | 2 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 372 | P | 0 | 6 | 3 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 373 | P | 0 | 6 | 4 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 374 | P | 0 | 6 | 5 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 375 | P | 0 | 6 | 6 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 376 | P | 0 | 6 | 7 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 377 | P | 0 | 6 | 8 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 378 | P | 0 | 6 | 9 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 379 | P | 0 | 7 | 0 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 380 | P | 0 | 7 | 1 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 381 | P | 0 | 7 | 2 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 382 | P | 0 | 7 | 3 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 383 | P | 0 | 7 | 4 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 384 | P | 0 | 7 | 5 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 85 | P | 0 | 7 | 6 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 386 | P | 0 | 7 | 7 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 387 | P | 0 | 7 | 8 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 388 | P | 0 | 8 | 1 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 389 | P | 0 | 8 | 2 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 390 | P | 0 | 8 | 4 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 391 | P | 0 | 8 | 5 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 392 | P | 0 | 8 | 7 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 393 | P | 0 | 8 | 8 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 394 | P | 0 | 8 | 9 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 395 | P | 0 | 9 | 2 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 396 | P | 0 | 9 | 3 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 397 | P | 0 | 9 | 4 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 398 | P | 0 | 9 | 5 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 399 | P | 0 | 9 | 6 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 400 | P | 0 | 9 | 7 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 401 | P | 0 | 9 | 8 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 402 | P | 0 | 9 | 9 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 403 | P | 1 | 0 | 1 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 404 | P | 1 | 0 | 2 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 405 | P | 1 | 0 | 3 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 406 | P | 1 | 0 | 4 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 407 | P | 1 | 0 | 5 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 408 | P | 1 | 0 | 6 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 09 | P | 1 | 0 | 7 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 410 | P | 1 | 0 | 8 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 411 | P | 1 | 0 | 9 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 412 | P | 1 | 1 | 0 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 413 | P | 1 | 1 | 1 | | | K | | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |

Photocopy this page before completing if you have more than 26 wastes to list.

| I.D. Number *(enter from page 1)* |
|---|
| W A 7 8 9 0 0 0 8 9 6 7 |

## IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | D. Processes 1. Process Codes *(enter)* | | | | D. Processes 2. Process Description *(if a code is not entered in D(1))* |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 414 | P | 1 | 1 | 2 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 415 | P | 1 | 1 | 3 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 416 | P | 1 | 1 | 4 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 417 | P | 1 | 1 | 5 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 418 | P | 1 | 1 | 6 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 419 | P | 1 | 1 | 8 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 420 | P | 1 | 1 | 9 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 421 | P | 1 | 2 | 0 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 422 | P | 1 | 2 | 1 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 423 | P | 1 | 2 | 2 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 424 | P | 1 | 2 | 3 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 425 | P | 1 | 2 | 7 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 426 | P | 1 | 2 | 8 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 427 | P | 1 | 8 | 5 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 428 | P | 1 | 8 | 8 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 429 | P | 1 | 8 | 9 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 430 | P | 1 | 9 | 0 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 431 | P | 1 | 9 | 1 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-O |
| 432 | P | 1 | 9 | 2 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 433 | P | 1 | 9 | 4 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 434 | P | 1 | 9 | 6 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 435 | P | 1 | 9 | 7 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 436 | P | 1 | 9 | 8 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 437 | P | 1 | 9 | 9 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 438 | P | 2 | 0 | 1 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 439 | P | 2 | 0 | 2 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 440 | P | 2 | 0 | 3 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 441 | P | 2 | 0 | 4 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 442 | P | 2 | 0 | 5 | | K | S02 | T01 | T04 | | Storage - Tank/Treatment - Tank-Other |
| 443 | D | 0 | 0 | 1 | 40,831,030 | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 444 | D | 0 | 0 | 2 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 445 | D | 0 | 0 | 3 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 446 | D | 0 | 0 | 4 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 447 | D | 0 | 0 | 5 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 448 | D | 0 | 0 | 6 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 449 | D | 0 | 0 | 7 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 450 | D | 0 | 0 | 8 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 451 | D | 0 | 0 | 9 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 452 | D | 0 | 1 | 0 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 453 | D | 0 | 1 | 1 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 454 | D | 0 | 1 | 2 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 455 | D | 0 | 1 | 3 | | K | S01 | T04 | | | Storage - Container/Treatment - Ot |
| 456 | D | 0 | 1 | 4 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 457 | D | 0 | 1 | 5 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 458 | D | 0 | 1 | 6 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 459 | D | 0 | 1 | 7 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |

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| I.D. Number *(enter from page 1)* |
|---|
| W A 7 8 9 0 0 0 8 9 6 7 |

## IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | D. Processes 1. Process Codes *(enter)* | | | | D. Processes 2. Process Description *(if a code is not entered in D(1))* |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 460 | D | 0 | 1 | 8 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 461 | D | 0 | 1 | 9 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 462 | D | 0 | 2 | 0 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 463 | D | 0 | 2 | 1 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 464 | D | 0 | 2 | 2 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 465 | D | 0 | 2 | 3 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 466 | D | 0 | 2 | 4 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 467 | D | 0 | 2 | 5 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 468 | D | 0 | 2 | 6 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 469 | D | 0 | 2 | 7 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 470 | D | 0 | 2 | 8 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 471 | D | 0 | 2 | 9 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 472 | D | 0 | 3 | 0 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 473 | D | 0 | 3 | 1 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 474 | D | 0 | 3 | 2 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 475 | D | 0 | 3 | 3 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 476 | D | 0 | 3 | 4 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 477 | D | 0 | 3 | 5 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 478 | D | 0 | 3 | 6 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 479 | D | 0 | 3 | 7 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 480 | D | 0 | 3 | 8 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 481 | D | 0 | 3 | 9 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 482 | D | 0 | 4 | 0 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 483 | D | 0 | 4 | 1 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 484 | D | 0 | 4 | 2 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 485 | D | 0 | 4 | 3 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 486 | W | T | 0 | 1 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 487 | W | T | 0 | 2 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 488 | W | P | 0 | 1 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 489 | W | P | 0 | 2 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 490 | W | P | 0 | 3 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 491 | W | 0 | 0 | 1 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 492 | W | S | C | 2 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 493 | F | 0 | 0 | 1 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 494 | F | 0 | 0 | 2 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 495 | F | 0 | 0 | 3 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 496 | F | 0 | 0 | 4 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 497 | F | 0 | 0 | 5 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 498 | F | 0 | 0 | 6 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 499 | F | 0 | 0 | 7 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 500 | F | 0 | 0 | 8 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 501 | F | 0 | 0 | 9 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 502 | F | 0 | 1 | 0 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 503 | F | 0 | 1 | 1 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 504 | F | 0 | 1 | 2 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 505 | F | 0 | 1 | 9 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |

Photocopy this page before completing if you have more than 26 wastes to list.

| I.D. Number *(enter from page 1)* |
|---|
| W A 7 8 9 0 0 0 8 9 6 7 |

## IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | D. Processes 1. Process Codes *(enter)* | | | | 2. Process Description *(if a code is not entered in D(1))* |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 506 | F | 0 | 2 | 0 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 507 | F | 0 | 2 | 1 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 508 | F | 0 | 2 | 2 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 509 | F | 0 | 2 | 3 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 510 | F | 0 | 2 | 6 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 511 | F | 0 | 2 | 7 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 512 | F | 0 | 2 | 8 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 513 | F | 0 | 3 | 9 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 514 | U | 0 | 0 | 1 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 515 | U | 0 | 0 | 2 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 516 | U | 0 | 0 | 3 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 517 | U | 0 | 0 | 4 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 518 | U | 0 | 0 | 5 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 519 | U | 0 | 0 | 6 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 520 | U | 0 | 0 | 7 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 521 | U | 0 | 0 | 8 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 522 | U | 0 | 0 | 9 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 523 | U | 0 | 1 | 0 | | K | S01 | T04 | | | Storage - Container/Treatment - C |
| 524 | U | 0 | 1 | 1 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 525 | U | 0 | 1 | 2 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 526 | U | 0 | 1 | 4 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 527 | U | 0 | 1 | 5 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 528 | U | 0 | 1 | 6 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 529 | U | 0 | 1 | 7 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 530 | U | 0 | 1 | 8 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 531 | U | 0 | 1 | 9 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 532 | U | 0 | 2 | 0 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 533 | U | 0 | 2 | 1 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 534 | U | 0 | 2 | 2 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 535 | U | 0 | 2 | 3 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 536 | U | 0 | 2 | 4 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 537 | U | 0 | 2 | 5 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 538 | U | 0 | 2 | 6 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 539 | U | 0 | 2 | 7 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 540 | U | 0 | 2 | 8 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 541 | U | 0 | 2 | 9 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 542 | U | 0 | 3 | 0 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 543 | U | 0 | 3 | 1 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 544 | U | 0 | 3 | 2 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 545 | U | 0 | 3 | 3 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 546 | U | 0 | 3 | 4 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 547 | U | 0 | 3 | 5 | | K | S01 | T04 | | | Storage - Container/Treatment - C |
| 548 | U | 0 | 3 | 6 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 549 | U | 0 | 3 | 7 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 550 | U | 0 | 3 | 8 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 551 | U | 0 | 3 | 9 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |

Photocopy this page before completing if you have more than 26 wastes to list.

| I.D. Number *(enter from page 1)* | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| W | A | 7 | 8 | 9 | 0 | 0 | 0 | 8 | 9 | 6 | 7 |

## IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | | | D. Processes 1. Process Codes *(enter)* | | | | D. Processes 2. Process Description *(if a code is not entered in D(1))* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 552 | U | 0 | 4 | 1 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 553 | U | 0 | 4 | 2 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 554 | U | 0 | 4 | 3 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 555 | U | 0 | 4 | 4 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 556 | U | 0 | 4 | 5 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 557 | U | 0 | 4 | 6 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 558 | U | 0 | 4 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 559 | U | 0 | 4 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 560 | U | 0 | 4 | 9 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 561 | U | 0 | 5 | 0 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 562 | U | 0 | 5 | 1 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 563 | U | 0 | 5 | 2 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 564 | U | 0 | 5 | 3 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 565 | U | 0 | 5 | 5 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 566 | U | 0 | 5 | 6 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 567 | U | 0 | 5 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 568 | U | 0 | 5 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 569 | U | 0 | 5 | 9 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 570 | U | 0 | 6 | 0 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 571 | U | 0 | 6 | 1 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 572 | U | 0 | 6 | 2 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 573 | U | 0 | 6 | 3 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 574 | U | 0 | 6 | 4 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 575 | U | 0 | 6 | 6 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 576 | U | 0 | 6 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 577 | U | 0 | 6 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 578 | U | 0 | 6 | 9 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 579 | U | 0 | 7 | 0 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 580 | U | 0 | 7 | 1 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 581 | U | 0 | 7 | 2 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 582 | U | 0 | 7 | 3 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 583 | U | 0 | 7 | 4 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 584 | U | 0 | 7 | 5 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 585 | U | 0 | 7 | 6 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 586 | U | 0 | 7 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 587 | U | 0 | 7 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 588 | U | 0 | 7 | 9 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 589 | U | 0 | 8 | 0 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 590 | U | 0 | 8 | 1 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 591 | U | 0 | 8 | 2 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 592 | U | 0 | 8 | 3 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 593 | U | 0 | 8 | 4 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 594 | U | 0 | 8 | 5 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 595 | U | 0 | 8 | 6 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 596 | U | 0 | 8 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 597 | U | 0 | 8 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |

Photocopy this page before completing if you have more than 26 wastes to list.

| I.D. Number (enter from page 1) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| W | A | 7 | 8 | 9 | 0 | 0 | 0 | 8 | 9 | 6 | 7 |

## IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | | | D. Processes | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 1. Process Codes *(enter)* | | | | 2. Process Description *(if a code is not entered in D(1))* |
| 598 | U | 0 | 8 | 9 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 599 | U | 0 | 9 | 0 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 600 | U | 0 | 9 | 1 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 601 | U | 0 | 9 | 2 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 602 | U | 0 | 9 | 3 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 603 | U | 0 | 9 | 4 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 604 | U | 0 | 9 | 5 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 605 | U | 0 | 9 | 6 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 606 | U | 0 | 9 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 607 | U | 0 | 9 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 608 | U | 0 | 9 | 9 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 609 | U | 1 | 0 | 1 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 610 | U | 1 | 0 | 2 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 611 | U | 1 | 0 | 3 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 612 | U | 1 | 0 | 5 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 613 | U | 1 | 0 | 6 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 614 | U | 1 | 0 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 615 | U | 1 | 0 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 616 | U | 1 | 0 | 9 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 617 | U | 1 | 1 | 0 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 618 | U | 1 | 1 | 1 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 619 | U | 1 | 1 | 2 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 620 | U | 1 | 1 | 3 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 621 | U | 1 | 1 | 4 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 622 | U | 1 | 1 | 5 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 623 | U | 1 | 1 | 6 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 624 | U | 1 | 1 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 625 | U | 1 | 1 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 626 | U | 1 | 1 | 9 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 627 | U | 1 | 2 | 0 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 628 | U | 1 | 2 | 1 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 629 | U | 1 | 2 | 2 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 630 | U | 1 | 2 | 3 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 631 | U | 1 | 2 | 4 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 632 | U | 1 | 2 | 5 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 633 | U | 1 | 2 | 6 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 634 | U | 1 | 2 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 635 | U | 1 | 2 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 636 | U | 1 | 2 | 9 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 637 | U | 1 | 3 | 0 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 638 | U | 1 | 3 | 1 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 639 | U | 1 | 3 | 2 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 640 | U | 1 | 3 | 3 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 641 | U | 1 | 3 | 4 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 642 | U | 1 | 3 | 5 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 643 | U | 1 | 3 | 6 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |

Photocopy this page before completing if you have more than 26 wastes to list.

| I.D. Number *(enter from page 1)* | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| W | A | 7 | 8 | 9 | 0 | 0 | 0 | 8 | 9 | 6 | 7 |

**IV. DESCRIPTION OF DANGEROUS WASTES *(continued)***

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | | | D. Processes 1. Process Codes *(enter)* | | | | D. Processes 2. Process Description *(if a code is not entered in D(1))* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 644 | U | 1 | 3 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 645 | U | 1 | 3 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 646 | U | 1 | 4 | 0 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 647 | U | 1 | 4 | 1 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 648 | U | 1 | 4 | 2 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 649 | U | 1 | 4 | 3 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 650 | U | 1 | 4 | 4 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 651 | U | 1 | 4 | 5 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 652 | U | 1 | 4 | 6 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 653 | U | 1 | 4 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 654 | U | 1 | 4 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 655 | U | 1 | 4 | 9 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 656 | U | 1 | 5 | 0 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 657 | U | 1 | 5 | 1 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 658 | U | 1 | 5 | 2 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 659 | U | 1 | 5 | 3 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 660 | U | 1 | 5 | 4 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 661 | U | 1 | 5 | 5 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 662 | U | 1 | 5 | 6 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 663 | U | 1 | 5 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 664 | U | 1 | 5 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 665 | U | 1 | 5 | 9 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 666 | U | 1 | 6 | 0 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 667 | U | 1 | 6 | 1 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 668 | U | 1 | 6 | 2 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 669 | U | 1 | 6 | 3 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 670 | U | 1 | 6 | 4 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 671 | U | 1 | 6 | 5 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 672 | U | 1 | 6 | 6 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 673 | U | 1 | 6 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 674 | U | 1 | 6 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 675 | U | 1 | 6 | 9 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 676 | U | 1 | 7 | 0 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 677 | U | 1 | 7 | 1 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 678 | U | 1 | 7 | 2 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 679 | U | 1 | 7 | 3 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 680 | U | 1 | 7 | 4 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 681 | U | 1 | 7 | 6 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 682 | U | 1 | 7 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 683 | U | 1 | 7 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 684 | U | 1 | 7 | 9 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 585 | U | 1 | 8 | 0 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 686 | U | 1 | 8 | 1 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 687 | U | 1 | 8 | 2 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 688 | U | 1 | 8 | 3 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 689 | U | 1 | 8 | 4 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |

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| I.D. Number *(enter from page 1)* |
|---|
| W A 7 8 9 0 0 0 8 9 6 7 |

## IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | | | D. Processes 1. Process Codes *(enter)* | | | | D. Processes 2. Process Description *(if a code is not entered in D(1))* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 690 | U | 1 | 8 | 5 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 691 | U | 1 | 8 | 6 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 692 | U | 1 | 8 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 693 | U | 1 | 8 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 694 | U | 1 | 8 | 9 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 695 | U | 1 | 9 | 0 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 696 | U | 1 | 9 | 1 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 697 | U | 1 | 9 | 2 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 698 | U | 1 | 9 | 3 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 699 | U | 1 | 9 | 4 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 700 | U | 1 | 9 | 6 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 701 | U | 2 | 0 | 0 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 702 | U | 2 | 0 | 1 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 703 | U | 2 | 0 | 2 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 704 | U | 2 | 0 | 3 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 705 | U | 2 | 0 | 4 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 706 | U | 2 | 0 | 5 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 707 | U | 2 | 0 | 6 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Ot |
| 708 | U | 2 | 0 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 709 | U | 2 | 0 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 710 | U | 2 | 0 | 9 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 711 | U | 2 | 1 | 0 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 712 | U | 2 | 1 | 1 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 713 | U | 2 | 1 | 3 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 714 | U | 2 | 1 | 4 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 715 | U | 2 | 1 | 5 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 716 | U | 2 | 1 | 6 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 717 | U | 2 | 1 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 718 | U | 2 | 1 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 719 | U | 2 | 1 | 9 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 720 | U | 2 | 2 | 0 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 721 | U | 2 | 2 | 1 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 722 | U | 2 | 2 | 2 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 723 | U | 2 | 2 | 3 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 724 | U | 2 | 2 | 5 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 725 | U | 2 | 2 | 6 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 726 | U | 2 | 2 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 727 | U | 2 | 2 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 728 | U | 2 | 3 | 4 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 729 | U | 2 | 3 | 5 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 730 | U | 2 | 3 | 6 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 731 | U | 2 | 3 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Ot |
| 732 | U | 2 | 3 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 733 | U | 2 | 3 | 9 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 734 | U | 2 | 4 | 0 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 735 | U | 2 | 4 | 3 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |

Photocopy this page before completing if you have more than 26 wastes to list.

| I.D. Number *(enter from page 1)* | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| W | A | 7 | 8 | 9 | 0 | 0 | 0 | 8 | 9 | 6 | 7 |

## IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | | | D. Processes: 1. Process Codes *(enter)* | | | | D. Processes: 2. Process Description *(if a code is not entered in D(1))* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 736 | U | 2 | 4 | 4 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 737 | U | 2 | 4 | 6 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 738 | U | 2 | 4 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 739 | U | 2 | 4 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 740 | U | 2 | 4 | 9 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 741 | U | 2 | 7 | 1 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 742 | U | 2 | 7 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 743 | U | 2 | 7 | 9 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 744 | U | 2 | 8 | 0 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 745 | U | 3 | 2 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 746 | U | 3 | 5 | 3 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 747 | U | 3 | 5 | 9 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 748 | U | 3 | 6 | 4 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 749 | U | 3 | 6 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 750 | U | 3 | 7 | 2 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 751 | U | 3 | 7 | 3 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 752 | U | 3 | 8 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 753 | U | 3 | 8 | 9 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 754 | U | 3 | 9 | 4 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 755 | U | 3 | 9 | 5 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 756 | U | 4 | 0 | 4 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 757 | U | 4 | 0 | 9 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 758 | U | 4 | 1 | 0 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 759 | U | 4 | 1 | 1 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 760 | P | 0 | 0 | 1 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 761 | P | 0 | 0 | 2 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 762 | P | 0 | 0 | 3 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 763 | P | 0 | 0 | 4 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 764 | P | 0 | 0 | 5 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 765 | P | 0 | 0 | 6 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 766 | P | 0 | 0 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 767 | P | 0 | 0 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 768 | P | 0 | 0 | 9 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 769 | P | 0 | 1 | 0 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 770 | P | 0 | 1 | 1 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 771 | P | 0 | 1 | 2 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 772 | P | 0 | 1 | 3 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 773 | P | 0 | 1 | 4 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 774 | P | 0 | 1 | 5 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 775 | P | 0 | 1 | 6 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 776 | P | 0 | 1 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 777 | P | 0 | 1 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 778 | P | 0 | 2 | 0 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 779 | P | 0 | 2 | 1 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 780 | P | 0 | 2 | 2 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 781 | P | 0 | 2 | 3 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |

Photocopy this page before completing if you have more than 26 wastes to list.

| I.D. Number *(enter from page 1)* | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| W | A | 7 | 8 | 9 | 0 | 0 | 0 | 8 | 9 | 6 | 7 |

## IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | | | D. Processes 1. Process Codes *(enter)* | | | | D. Processes 2. Process Description *(if a code is not entered in D(1))* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 782 | P | 0 | 2 | 4 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 783 | P | 0 | 2 | 6 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 784 | P | 0 | 2 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 785 | P | 0 | 2 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 786 | P | 0 | 2 | 9 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 787 | P | 0 | 3 | 0 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 788 | P | 0 | 3 | 1 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 789 | P | 0 | 3 | 3 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 790 | P | 0 | 3 | 4 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 791 | P | 0 | 3 | 6 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 792 | P | 0 | 3 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 793 | P | 0 | 3 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 794 | P | 0 | 3 | 9 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 795 | P | 0 | 4 | 0 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 796 | P | 0 | 4 | 1 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 797 | P | 0 | 4 | 2 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 798 | P | 0 | 4 | 3 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 799 | P | 0 | 4 | 4 | | | K | | S01 | T04 | | | Storage - Container/Treatment - C |
| 800 | P | 0 | 4 | 5 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 801 | P | 0 | 4 | 6 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 802 | P | 0 | 4 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 803 | P | 0 | 4 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 804 | P | 0 | 4 | 9 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 805 | P | 0 | 5 | 0 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 806 | P | 0 | 5 | 1 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 807 | P | 0 | 5 | 4 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 808 | P | 0 | 5 | 6 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 809 | P | 0 | 5 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 810 | P | 0 | 5 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 811 | P | 0 | 5 | 9 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 812 | P | 0 | 6 | 0 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 813 | P | 0 | 6 | 2 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 814 | P | 0 | 6 | 3 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 815 | P | 0 | 6 | 4 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 816 | P | 0 | 6 | 5 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 817 | P | 0 | 6 | 6 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 818 | P | 0 | 6 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 819 | P | 0 | 6 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 820 | P | 0 | 6 | 9 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 821 | P | 0 | 7 | 0 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 822 | P | 0 | 7 | 1 | | | K | | S01 | T04 | | | Storage - Container/Treatment - O |
| 823 | P | 0 | 7 | 2 | | | K | | S01 | T04 | | | Storage - Container/Treatment - O |
| 824 | P | 0 | 7 | 3 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 825 | P | 0 | 7 | 4 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 826 | P | 0 | 7 | 5 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 827 | P | 0 | 7 | 6 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |

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| I.D. Number *(enter from page 1)* | |
|---|---|
| W A 7 8 9 0 0 0 8 9 6 7 | |

## IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | | | D. Processes | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 1. Process Codes *(enter)* | | | | 2. Process Description *(if a code is not entered in D(1))* |
| 828 | P | 0 | 7 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 829 | P | 0 | 7 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 830 | P | 0 | 8 | 1 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 831 | P | 0 | 8 | 2 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 832 | P | 0 | 8 | 4 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 833 | P | 0 | 8 | 5 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 834 | P | 0 | 8 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 835 | P | 0 | 8 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 836 | P | 0 | 8 | 9 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 837 | P | 0 | 9 | 2 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 838 | P | 0 | 9 | 3 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 839 | P | 0 | 9 | 4 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 840 | P | 0 | 9 | 5 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 841 | P | 0 | 9 | 6 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 842 | P | 0 | 9 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 843 | P | 0 | 9 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 844 | P | 0 | 9 | 9 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 845 | P | 1 | 0 | 1 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 846 | P | 1 | 0 | 2 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 847 | P | 1 | 0 | 3 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 848 | P | 1 | 0 | 4 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 849 | P | 1 | 0 | 5 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 850 | P | 1 | 0 | 6 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 851 | P | 1 | 0 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 852 | P | 1 | 0 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 853 | P | 1 | 0 | 9 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 854 | P | 1 | 1 | 0 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 855 | P | 1 | 1 | 1 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 856 | P | 1 | 1 | 2 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 857 | P | 1 | 1 | 3 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 858 | P | 1 | 1 | 4 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 859 | P | 1 | 1 | 5 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 860 | P | 1 | 1 | 6 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 861 | P | 1 | 1 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 862 | P | 1 | 1 | 9 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 863 | P | 1 | 2 | 0 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 864 | P | 1 | 2 | 1 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 865 | P | 1 | 2 | 2 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 866 | P | 1 | 2 | 3 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 867 | P | 1 | 2 | 7 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 868 | P | 1 | 2 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 869 | P | 1 | 8 | 5 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 870 | P | 1 | 8 | 8 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 871 | P | 1 | 8 | 9 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 872 | P | 1 | 9 | 0 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |
| 873 | P | 1 | 9 | 1 | | | K | | S01 | T04 | | | Storage - Container/Treatment - Other |

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I.D. Number *(enter from page 1)*

W A 7 8 9 0 0 0 8 9 6 7

## IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | D. Processes | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 1. Process Codes *(enter)* | | | | 2. Process Description *(if a code is not entered in D(1))* |
| 874 | P | 1 | 9 | 2 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 875 | P | 1 | 9 | 4 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 876 | P | 1 | 9 | 6 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 877 | P | 1 | 9 | 7 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 878 | P | 1 | 9 | 8 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 879 | P | 1 | 9 | 9 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 880 | P | 2 | 0 | 1 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 881 | P | 2 | 0 | 2 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 882 | P | 2 | 0 | 3 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 883 | P | 2 | 0 | 4 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 884 | P | 2 | 0 | 5 | | K | S01 | T04 | | | Storage - Container/Treatment - Other |
| 885 | D | 0 | 0 | 1 | 4,535,924 | K | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 886 | D | 0 | 0 | 2 | | K | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 887 | D | 0 | 0 | 3 | | K | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 888 | D | 0 | 0 | 4 | | K | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 889 | D | 0 | 0 | 5 | | K | S06 | X99 | T04 | | Containment Building/Miscellaneo Unit-Storage/Treatment |
| 890 | D | 0 | 0 | 6 | | K | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 891 | D | 0 | 0 | 7 | | K | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 892 | D | 0 | 0 | 8 | | K | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 893 | D | 0 | 0 | 9 | | K | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 894 | D | 0 | 1 | 0 | | K | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 895 | D | 0 | 1 | 1 | | K | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 896 | D | 0 | 1 | 2 | | K | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 897 | D | 0 | 1 | 3 | | K | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 898 | D | 0 | 1 | 4 | | K | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 899 | D | 0 | 1 | 5 | | K | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 900 | D | 0 | 1 | 6 | | K | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 901 | D | 0 | 1 | 7 | | K | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 902 | D | 0 | 1 | 8 | | K | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 903 | D | 0 | 1 | 9 | | K | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 904 | D | 0 | 2 | 0 | | K | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 905 | D | 0 | 2 | 1 | | K | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 906 | D | 0 | 2 | 2 | | K | S06 | X99 | T04 | | Containment Building/Miscellaneou Unit-Storage/Treatment |
| 907 | D | 0 | 2 | 3 | | K | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 908 | D | 0 | 2 | 4 | | K | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |

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I.D. Number *(enter from page 1)*

| W | A | 7 | 8 | 9 | 0 | 0 | 0 | 8 | 9 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|---|---|---|

## IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | | | D. Processes | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 1. Process Codes *(enter)* | | | | 2. Process Description *(if a code is not entered in D(1))* |
| 909 | D | 0 | 2 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 910 | D | 0 | 2 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 911 | D | 0 | 2 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 912 | D | 0 | 2 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 913 | D | 0 | 2 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 914 | D | 0 | 3 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 915 | D | 0 | 3 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 916 | D | 0 | 3 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 917 | D | 0 | 3 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 918 | D | 0 | 3 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 919 | D | 0 | 3 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 920 | D | 0 | 3 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 921 | D | 0 | 3 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 922 | D | 0 | 3 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 923 | D | 0 | 3 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 924 | D | 0 | 4 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 925 | D | 0 | 4 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 926 | D | 0 | 4 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 927 | D | 0 | 4 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 928 | W | T | 0 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 929 | W | T | 0 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 930 | W | P | 0 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 931 | W | P | 0 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 932 | W | P | 0 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 933 | W | 0 | 0 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 934 | W | S | C | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 935 | F | 0 | 0 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 936 | F | 0 | 0 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 937 | F | 0 | 0 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 938 | F | 0 | 0 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 939 | F | 0 | 0 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |

Photocopy this page before completing if you have more than 26 wastes to list.

| I.D. Number *(enter from page 1)* |
|---|
| W A 7 8 9 0 0 0 8 9 6 7 |

## IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | | | D. Processes 1. Process Codes *(enter)* | | | | D. Processes 2. Process Description *(if a code is not entered in D(1))* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 940 | F | 0 | 0 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 941 | F | 0 | 0 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 942 | F | 0 | 0 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 943 | F | 0 | 0 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 944 | F | 0 | 1 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 945 | F | 0 | 1 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 946 | F | 0 | 1 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 947 | F | 0 | 1 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 948 | F | 0 | 2 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 949 | F | 0 | 2 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 950 | F | 0 | 2 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 951 | F | 0 | 2 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 952 | F | 0 | 2 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellan Unit-Storage/Treatment |
| 953 | F | 0 | 2 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 954 | F | 0 | 2 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 955 | F | 0 | 3 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 956 | U | 0 | 0 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 957 | U | 0 | 0 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 958 | U | 0 | 0 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 959 | U | 0 | 0 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 960 | U | 0 | 0 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 961 | U | 0 | 0 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 962 | U | 0 | 0 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 963 | U | 0 | 0 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 964 | U | 0 | 0 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 965 | U | 0 | 1 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 966 | U | 0 | 1 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 967 | U | 0 | 1 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 968 | U | 0 | 1 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellan Unit-Storage/Treatment |
| 969 | U | 0 | 1 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 970 | U | 0 | 1 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |

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| I.D. Number *(enter from page 1)* |
|---|
| W A 7 8 9 0 0 0 8 9 6 7 |

## IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | | | D. Processes 1. Process Codes *(enter)* | | | | 2. Process Description *(if a code is not entered in D(1))* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 971 | U | 0 | 1 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 972 | U | 0 | 1 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 973 | U | 0 | 1 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 974 | U | 0 | 2 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 975 | U | 0 | 2 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 976 | U | 0 | 2 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 977 | U | 0 | 2 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 978 | U | 0 | 2 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 979 | U | 0 | 2 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 980 | U | 0 | 2 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 981 | U | 0 | 2 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 982 | U | 0 | 2 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 983 | U | 0 | 2 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 984 | U | 0 | 3 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 985 | U | 0 | 3 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 986 | U | 0 | 3 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 987 | U | 0 | 3 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 988 | U | 0 | 3 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 989 | U | 0 | 3 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 990 | U | 0 | 3 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 991 | U | 0 | 3 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 992 | U | 0 | 3 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 993 | U | 0 | 3 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 994 | U | 0 | 4 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 995 | U | 0 | 4 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 996 | U | 0 | 4 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 997 | U | 0 | 4 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 998 | U | 0 | 4 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 999 | U | 0 | 4 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1000 | U | 0 | 4 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1001 | U | 0 | 4 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |

Photocopy this page before completing if you have more than 26 wastes to list.

| I.D. Number *(enter from page 1)* | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| W | A | 7 | 8 | 9 | 0 | 0 | 0 | 8 | 9 | 6 | 7 |

## IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | | | D. Processes 1. Process Codes *(enter)* | | | | D. Processes 2. Process Description *(if a code is not entered in D(1))* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1002 | U | 0 | 4 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1003 | U | 0 | 5 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1004 | U | 0 | 5 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1005 | U | 0 | 5 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1006 | U | 0 | 5 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1007 | U | 0 | 5 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1008 | U | 0 | 5 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1009 | U | 0 | 5 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1010 | U | 0 | 5 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1011 | U | 0 | 5 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1012 | U | 0 | 6 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1013 | U | 0 | 6 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1014 | U | 0 | 6 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellanec Unit-Storage/Treatment |
| 1015 | U | 0 | 6 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1016 | U | 0 | 6 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1017 | U | 0 | 6 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1018 | U | 0 | 6 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1019 | U | 0 | 6 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1020 | U | 0 | 6 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1021 | U | 0 | 7 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1022 | U | 0 | 7 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1023 | U | 0 | 7 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1024 | U | 0 | 7 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1025 | U | 0 | 7 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1026 | U | 0 | 7 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1027 | U | 0 | 7 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1028 | U | 0 | 7 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1029 | U | 0 | 7 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1030 | U | 0 | 7 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneo Unit-Storage/Treatment |
| 1031 | U | 0 | 8 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1032 | U | 0 | 8 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |

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| I.D. Number *(enter from page 1)* |
|---|
| W A 7 8 9 0 0 0 8 9 6 7 |

## IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | | | D. Processes 1. Process Codes *(enter)* | | | | 2. Process Description *(if a code is not entered in D(1))* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1033 | U | 0 | 8 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1034 | U | 0 | 8 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1035 | U | 0 | 8 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1036 | U | 0 | 8 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1037 | U | 0 | 8 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1038 | U | 0 | 8 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1039 | U | 0 | 8 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1040 | U | 0 | 8 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1041 | U | 0 | 9 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1042 | U | 0 | 9 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1043 | U | 0 | 9 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1044 | U | 0 | 9 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1045 | U | 0 | 9 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1046 | U | 0 | 9 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1047 | U | 0 | 9 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1048 | U | 0 | 9 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1049 | U | 0 | 9 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1050 | U | 0 | 9 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1051 | U | 1 | 0 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1052 | U | 1 | 0 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1053 | U | 1 | 0 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1054 | U | 1 | 0 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1055 | U | 1 | 0 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1056 | U | 1 | 0 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1057 | U | 1 | 0 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1058 | U | 1 | 0 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1059 | U | 1 | 1 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1060 | U | 1 | 1 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1061 | U | 1 | 1 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1062 | U | 1 | 1 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1063 | U | 1 | 1 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |

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| I.D. Number *(enter from page 1)* |
|---|
| W A 7 8 9 0 0 0 8 9 6 7 |

## IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | | | D. Processes 1. Process Codes *(enter)* | | | | 2. Process Description *(if a code is not entered in D(1))* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1064 | U | 1 | 1 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1065 | U | 1 | 1 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1066 | U | 1 | 1 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1067 | U | 1 | 1 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1068 | U | 1 | 1 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1069 | U | 1 | 2 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1070 | U | 1 | 2 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1071 | U | 1 | 2 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1072 | U | 1 | 2 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1073 | U | 1 | 2 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1074 | U | 1 | 2 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1075 | U | 1 | 2 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1076 | U | 1 | 2 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellane Unit-Storage/Treatment |
| 1077 | U | 1 | 2 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1078 | U | 1 | 2 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1079 | U | 1 | 3 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1080 | U | 1 | 3 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1081 | U | 1 | 3 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1082 | U | 1 | 3 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1083 | U | 1 | 3 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1084 | U | 1 | 3 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1085 | U | 1 | 3 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1086 | U | 1 | 3 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1087 | U | 1 | 3 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1088 | U | 1 | 4 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1089 | U | 1 | 4 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1090 | U | 1 | 4 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1091 | U | 1 | 4 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1092 | U | 1 | 4 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellane Unit-Storage/Treatment |
| 1093 | U | 1 | 4 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1094 | U | 1 | 4 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |

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I.D. Number *(enter from page 1)*

W A 7 8 9 0 0 0 8 9 6 7

## IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | | | D. Processes | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 1. Process Codes *(enter)* | | | | 2. Process Description *(if a code is not entered in D(1))* |
| 1095 | U | 1 | 4 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1096 | U | 1 | 4 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1097 | U | 1 | 4 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1098 | U | 1 | 5 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1099 | U | 1 | 5 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1100 | U | 1 | 5 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1101 | U | 1 | 5 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1102 | U | 1 | 5 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1103 | U | 1 | 5 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1104 | U | 1 | 5 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1105 | U | 1 | 5 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1106 | U | 1 | 5 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1107 | U | 1 | 5 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1108 | U | 1 | 6 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1109 | U | 1 | 6 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1110 | U | 1 | 6 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1111 | U | 1 | 6 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1112 | U | 1 | 6 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1113 | U | 1 | 6 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1114 | U | 1 | 6 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1115 | U | 1 | 6 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1116 | U | 1 | 6 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1117 | U | 1 | 6 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1118 | U | 1 | 7 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1119 | U | 1 | 7 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1120 | U | 1 | 7 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1121 | U | 1 | 7 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1122 | U | 1 | 7 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1123 | U | 1 | 7 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1124 | U | 1 | 7 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1125 | U | 1 | 7 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |

Photocopy this page before completing if you have more than 26 wastes to list.

| I.D. Number *(enter from page 1)* | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| W | A | 7 | 8 | 9 | 0 | 0 | 0 | 8 | 9 | 6 | 7 |

## IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | | | D. Processes 1. Process Codes *(enter)* | | | | D. Processes 2. Process Description *(if a code is not entered in D(1))* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1126 | U | 1 | 7 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1127 | U | 1 | 8 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1128 | U | 1 | 8 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1129 | U | 1 | 8 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1130 | U | 1 | 8 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1131 | U | 1 | 8 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1132 | U | 1 | 8 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1133 | U | 1 | 8 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1134 | U | 1 | 8 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1135 | U | 1 | 8 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1136 | U | 1 | 8 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1137 | U | 1 | 9 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1138 | U | 1 | 9 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellane Unit-Storage/Treatment |
| 1139 | U | 1 | 9 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1140 | U | 1 | 9 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1141 | U | 1 | 9 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1142 | U | 1 | 9 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1143 | U | 2 | 0 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1144 | U | 2 | 0 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1145 | U | 2 | 0 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1146 | U | 2 | 0 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1147 | U | 2 | 0 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1148 | U | 2 | 0 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1149 | U | 2 | 0 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1150 | U | 2 | 0 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1151 | U | 2 | 0 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1152 | U | 2 | 0 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1153 | U | 2 | 1 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1154 | U | 2 | 1 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaner Unit-Storage/Treatment |
| 1155 | U | 2 | 1 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1156 | U | 2 | 1 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |

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| I.D. Number (enter from page 1) |
|---|
| W A 7 8 9 0 0 0 8 9 6 7 |

## IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

| Line No. | A. Dangerous Waste No. (enter code) | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure (enter code) | | | D. Processes 1. Process Codes (enter) | | | | 2. Process Description (if a code is not entered in D(1)) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1157 | U | 2 | 1 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1158 | U | 2 | 1 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1159 | U | 2 | 1 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1160 | U | 2 | 1 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1161 | U | 2 | 1 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1162 | U | 2 | 2 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1163 | U | 2 | 2 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1164 | U | 2 | 2 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1165 | U | 2 | 2 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1166 | U | 2 | 2 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1167 | U | 2 | 2 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1168 | U | 2 | 2 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1169 | U | 2 | 2 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1170 | U | 2 | 3 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1171 | U | 2 | 3 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1172 | U | 2 | 3 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1173 | U | 2 | 3 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1174 | U | 2 | 3 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1175 | U | 2 | 3 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1176 | U | 2 | 4 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1177 | U | 2 | 4 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1178 | U | 2 | 4 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1179 | U | 2 | 4 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1180 | U | 2 | 4 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1181 | U | 2 | 4 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1182 | U | 2 | 4 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1183 | U | 2 | 7 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1184 | U | 2 | 7 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1185 | U | 2 | 7 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1186 | U | 2 | 8 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1187 | U | 3 | 2 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |

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I.D. Number *(enter from page 1)*

| W | A | 7 | 8 | 9 | 0 | 0 | 0 | 8 | 9 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|---|---|---|

## IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | | | D. Processes | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 1. Process Codes *(enter)* | | | | 2. Process Description *(if a code is not entered in D(1))* |
| 1188 | U | 3 | 5 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1189 | U | 3 | 5 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1190 | U | 3 | 6 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1191 | U | 3 | 6 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1192 | U | 3 | 7 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1193 | U | 3 | 7 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1194 | U | 3 | 8 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1195 | U | 3 | 8 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1196 | U | 3 | 9 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1197 | U | 3 | 9 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1198 | U | 4 | 0 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1199 | U | 4 | 0 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1200 | U | 4 | 1 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1201 | U | 4 | 1 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1202 | P | 0 | 0 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1203 | P | 0 | 0 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1204 | P | 0 | 0 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1205 | P | 0 | 0 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1206 | P | 0 | 0 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1207 | P | 0 | 0 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1208 | P | 0 | 0 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1209 | P | 0 | 0 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1210 | P | 0 | 0 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1211 | P | 0 | 1 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1212 | P | 0 | 1 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1213 | P | 0 | 1 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1214 | P | 0 | 1 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1215 | P | 0 | 1 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1216 | P | 0 | 1 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1217 | P | 0 | 1 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1218 | P | 0 | 1 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |

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| I.D. Number *(enter from page 1)* |
|---|
| W A 7 8 9 0 0 0 8 9 6 7 |

## IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | | | D. Processes: 1. Process Codes *(enter)* | | | | D. Processes: 2. Process Description *(if a code is not entered in D(1))* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1219 | P | 0 | 1 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1220 | P | 0 | 2 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1221 | P | 0 | 2 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1222 | P | 0 | 2 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1223 | P | 0 | 2 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1224 | P | 0 | 2 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1225 | P | 0 | 2 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1226 | P | 0 | 2 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1227 | P | 0 | 2 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1228 | P | 0 | 2 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1229 | P | 0 | 3 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1230 | P | 0 | 3 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1231 | P | 0 | 3 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1232 | P | 0 | 3 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1233 | P | 0 | 3 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1234 | P | 0 | 3 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1235 | P | 0 | 3 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1236 | P | 0 | 3 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1237 | P | 0 | 4 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1238 | P | 0 | 4 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1239 | P | 0 | 4 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1240 | P | 0 | 4 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1241 | P | 0 | 4 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1242 | P | 0 | 4 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1243 | P | 0 | 4 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1244 | P | 0 | 4 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1245 | P | 0 | 4 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1246 | P | 0 | 4 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1247 | P | 0 | 5 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1248 | P | 0 | 5 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1249 | P | 0 | 5 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |

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| I.D. Number *(enter from page 1)* |
|---|
| W A 7 8 9 0 0 0 8 9 6 7 |

## IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | | | D. Processes 1. Process Codes *(enter)* | | | | D. Processes 2. Process Description *(if a code is not entered in D(1))* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1250 | P | 0 | 5 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1251 | P | 0 | 5 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1252 | P | 0 | 5 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1253 | P | 0 | 5 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1254 | P | 0 | 6 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1255 | P | 0 | 6 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1256 | P | 0 | 6 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1257 | P | 0 | 6 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1258 | P | 0 | 6 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1259 | P | 0 | 6 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1260 | P | 0 | 6 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1261 | P | 0 | 6 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1262 | P | 0 | 6 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellane Unit-Storage/Treatment |
| 1263 | P | 0 | 7 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1264 | P | 0 | 7 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1265 | P | 0 | 7 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1266 | P | 0 | 7 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1267 | P | 0 | 7 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1268 | P | 0 | 7 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1269 | P | 0 | 7 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1270 | P | 0 | 7 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1271 | P | 0 | 7 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1272 | P | 0 | 8 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1273 | P | 0 | 8 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1274 | P | 0 | 8 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1275 | P | 0 | 8 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1276 | P | 0 | 8 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1277 | P | 0 | 8 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1278 | P | 0 | 8 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellane Unit-Storage/Treatment |
| 1279 | P | 0 | 9 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1280 | P | 0 | 9 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |

Photocopy this page before completing if you have more than 26 wastes to list.

| I.D. Number *(enter from page 1)* | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| W | A | 7 | 8 | 9 | 0 | 0 | 0 | 8 | 9 | 6 | 7 |

## IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | | | D. Processes | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 1. Process Codes *(enter)* | | | | 2. Process Description *(if a code is not entered in D(1))* |
| 1281 | P | 0 | 9 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1282 | P | 0 | 9 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1283 | P | 0 | 9 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1284 | P | 0 | 9 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1285 | P | 0 | 9 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1286 | P | 0 | 9 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1287 | P | 1 | 0 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1288 | P | 1 | 0 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1289 | P | 1 | 0 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1290 | P | 1 | 0 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1291 | P | 1 | 0 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1292 | P | 1 | 0 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1293 | P | 1 | 0 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1294 | P | 1 | 0 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1295 | P | 1 | 0 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1296 | P | 1 | 1 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1297 | P | 1 | 1 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1298 | P | 1 | 1 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1299 | P | 1 | 1 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1300 | P | 1 | 1 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1301 | P | 1 | 1 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1302 | P | 1 | 1 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1303 | P | 1 | 1 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1304 | P | 1 | 1 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1305 | P | 1 | 2 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1306 | P | 1 | 2 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1307 | P | 1 | 2 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1308 | P | 1 | 2 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1309 | P | 1 | 2 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1310 | P | 1 | 2 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1311 | P | 1 | 8 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |

Photocopy this page before completing if you have more than 26 wastes to list.

| I.D. Number *(enter from page 1)* | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| W | A | 7 | 8 | 9 | 0 | 0 | 0 | 8 | 9 | 6 | 7 |

## IV. DESCRIPTION OF DANGEROUS WASTES *(continued)*

| Line No. | A. Dangerous Waste No. *(enter code)* | | | | B. Estimated Annual Quantity of Waste | C. Unit of Measure *(enter code)* | | | D. Processes 1. Process Codes *(enter)* | | | | D. Processes 2. Process Description *(if a code is not entered in D(1))* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1312 | P | 1 | 8 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1313 | P | 1 | 8 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1314 | P | 1 | 9 | 0 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1315 | P | 1 | 9 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1316 | P | 1 | 9 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1317 | P | 1 | 9 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1318 | P | 1 | 9 | 6 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1319 | P | 1 | 9 | 7 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1320 | P | 1 | 9 | 8 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1321 | P | 1 | 9 | 9 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1322 | P | 2 | 0 | 1 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1323 | P | 2 | 0 | 2 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1324 | P | 2 | 0 | 3 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1325 | P | 2 | 0 | 4 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |
| 1326 | P | 2 | 0 | 5 | | | K | | S06 | X99 | T04 | | Containment Building/Miscellaneous Unit-Storage/Treatment |

**IV. DESCRIPTION OF DANGEROUS WASTES (continued)**

**E. Use this space to list additional process codes from Section D(1) on page 3.**

**V. FACILITY DRAWING** Refer to attached drawing(s).

All existing facilities must include in the space provided on page 5 a scale drawing of the facility (see instructions for more detail).

**VI. PHOTOGRAPHS** Refer to attached photograph(s).

All existing facilities must include photographs (aerial or ground-level) that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas (see instructions for more detail).

**VII. FACILITY GEOGRAPHIC LOCATION** This information is provided on the attached drawings and photos.

| LATITUDE *(degrees, minutes, & seconds)* | LONGITUDE *(degrees, minutes, & seconds)* |
|---|---|
| | |

**VIII. FACILITY OWNER**

☒ A. If the facility owner is also the facility operator as listed in Section VII on Form 1, "General Information," place an "X" in the box to the left and skip to Section IX below.

B. If the facility owner is not the facility operator as listed in Section VII on Form 1, complete the following items:

| 1. Name of Facility's Legal Owner | 2. Phone Number *(area code & no.)* |
|---|---|
| | |

| 3. Street or P.O. Box | 4. City or Town | 5. St. | 6. Zip Code |
|---|---|---|---|
| | | | |

**IX. OWNER CERTIFICATION**

*I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.*

| Name *(print or type)* | Signature | Date Signed |
|---|---|---|
| Keith A. Klein, Manager<br>U.S. Department of Energy,<br>Richland Operations Office | [signature] | 9/3/02 |

**X. OPERATOR CERTIFICATION**

*I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.*

| Name *(Print Or Type)* | Signature | Date Signed |
|---|---|---|
| See attachment | | |

## X. OPERATOR CERTIFICATION

**I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.**

9/3/02

**Owner/Operator**
**Keith A. Klein, Manager**
**U.S. Department of Energy,**
**Richland Operations Office**

**Date**

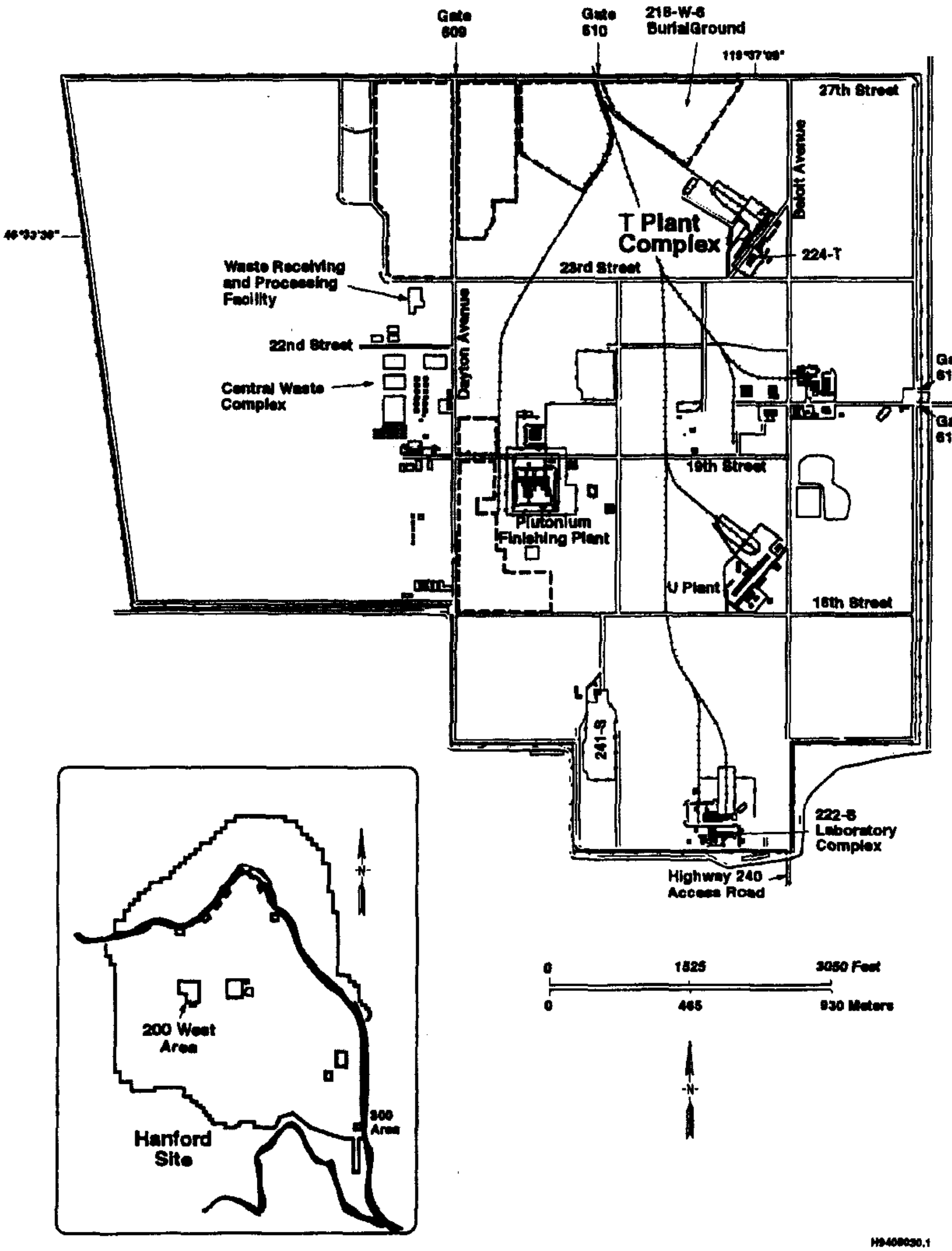
/FOR

8-7-02

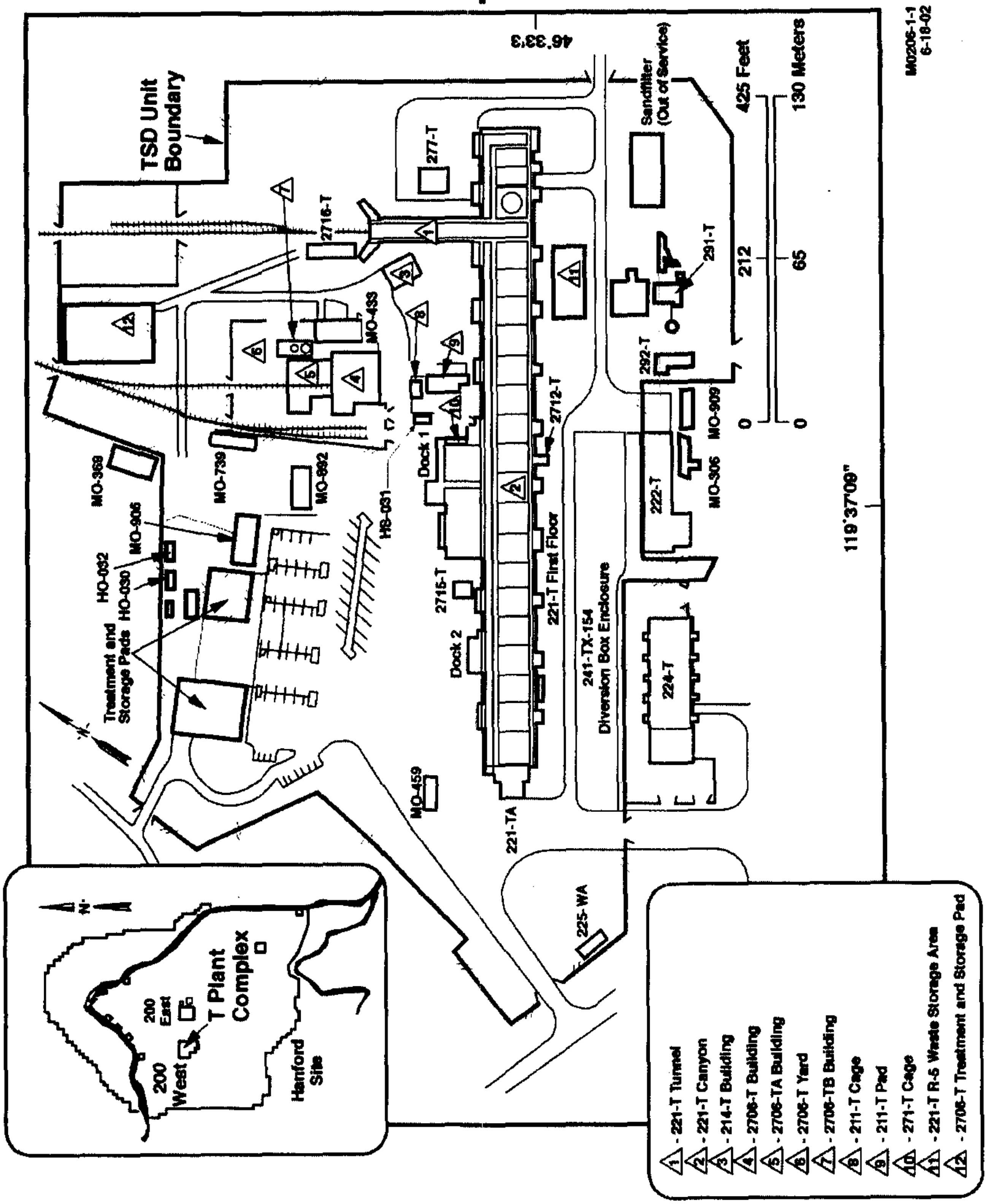
**Co-Operator**
**E. Keith Thomson**
**President and Chief Executive Officer**
**Fluor Hanford**

**Date**

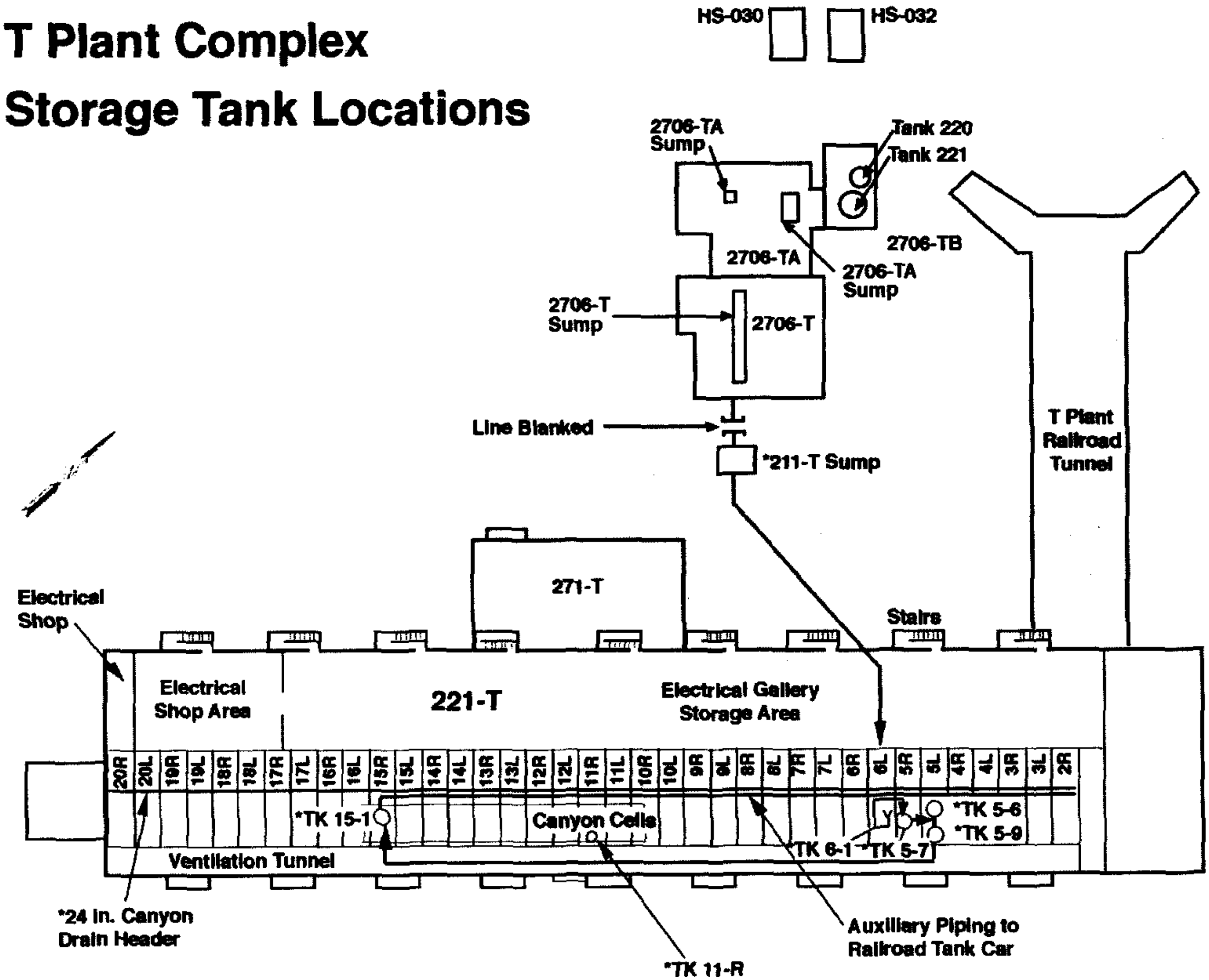
# 200 West Area Site Plan



# T Plant Complex Site Plan



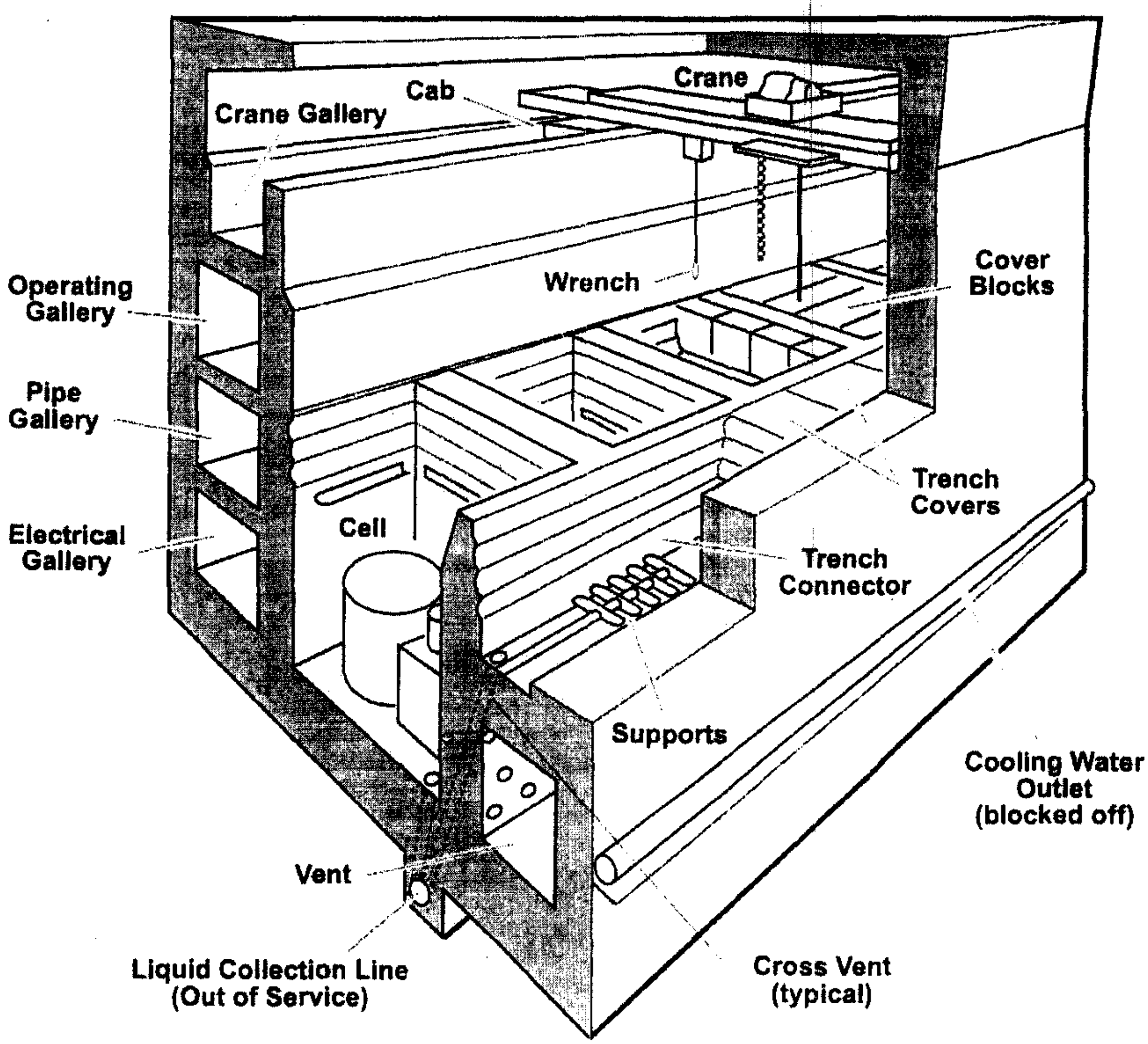
# T Plant Complex
# Storage Tank Locations




*Not to Scale*
* = Out of service

M0206-1.2
6-27-02

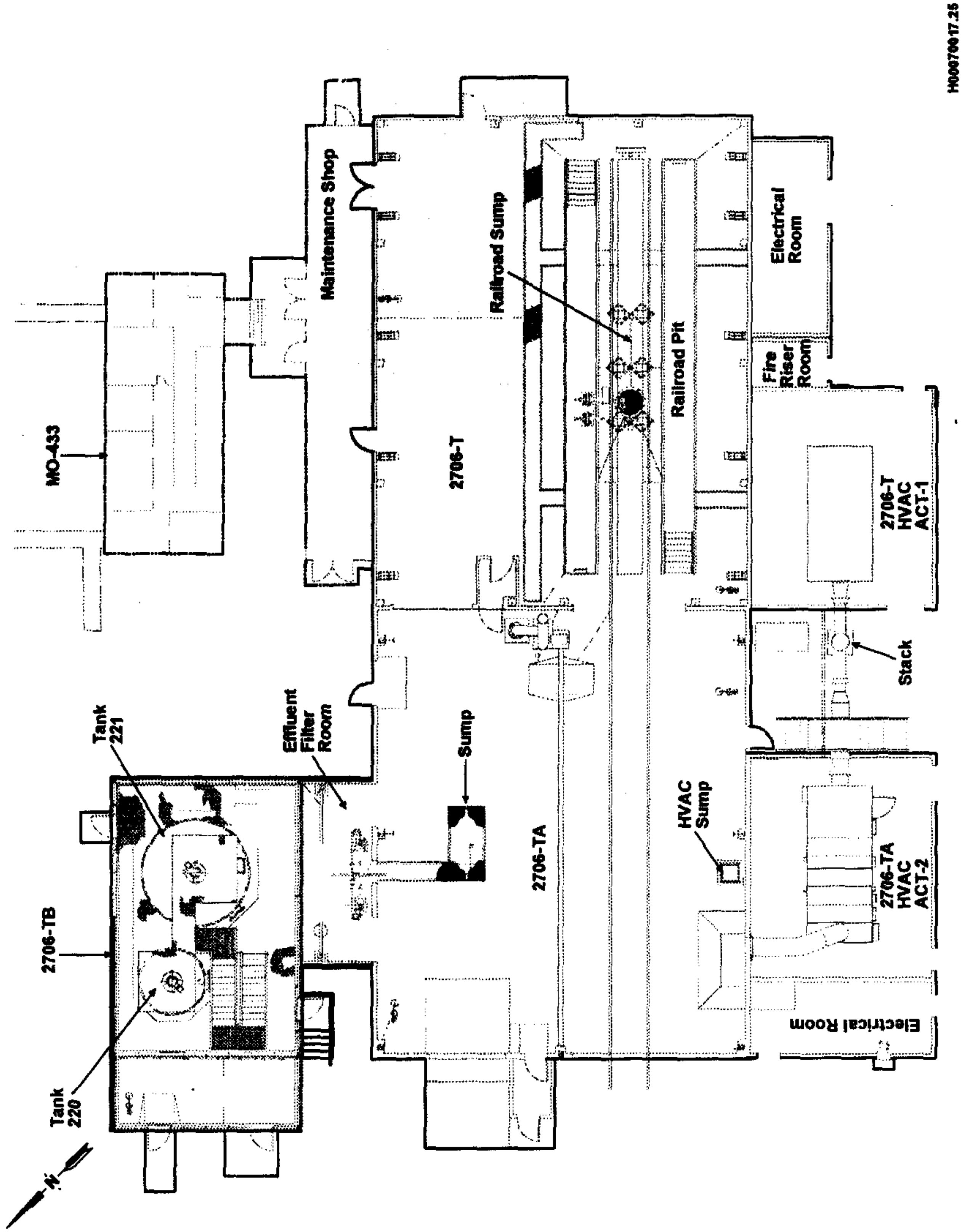
# T PLANT COMPLEX - 221-T CUTAWAY




(Not to Scale)

M0206-1.3
6-24-02

# T Plant Complex - 2706-T Site Plan



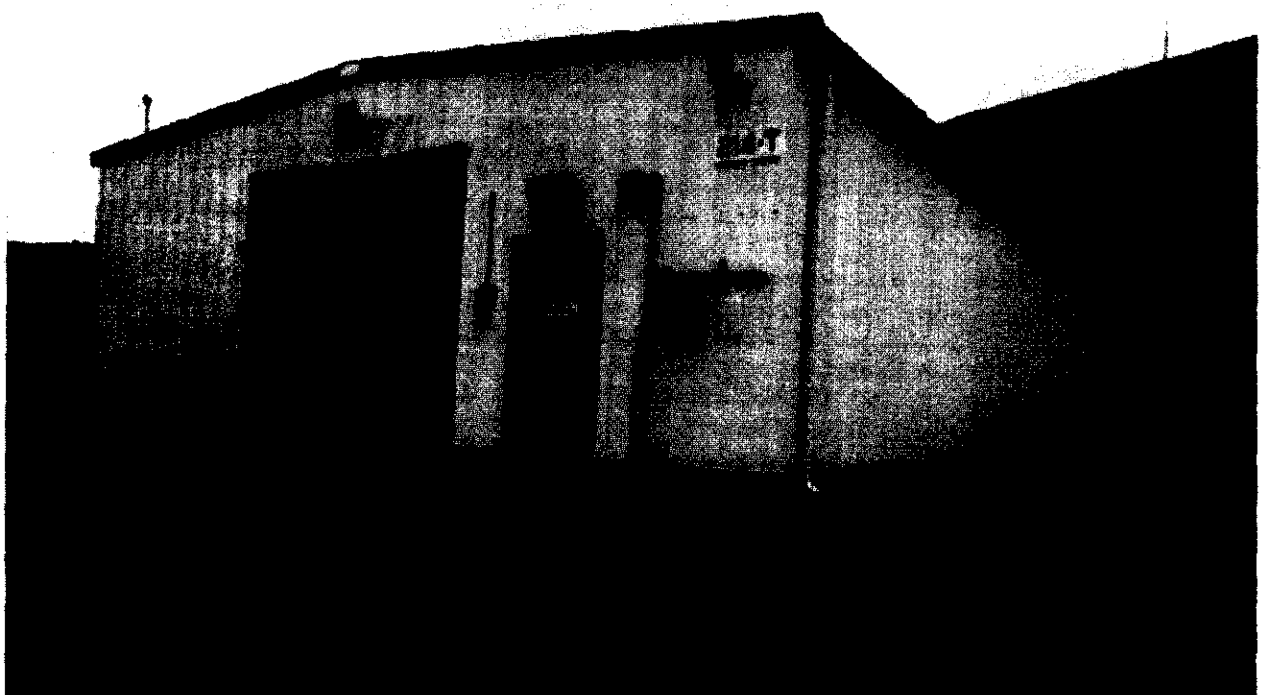
# T Plant Complex Aerial View

**T PLANT COMPLEX**

**46°30'38"**
**119°30'40"**

0207055-012df.jpg
(PHOTO TAKEN 2002)

# T Plant Complex
# 214-T Building




46°30'38"
119°30'40"

98030115-7CN
(PHOTO TAKEN 1998)

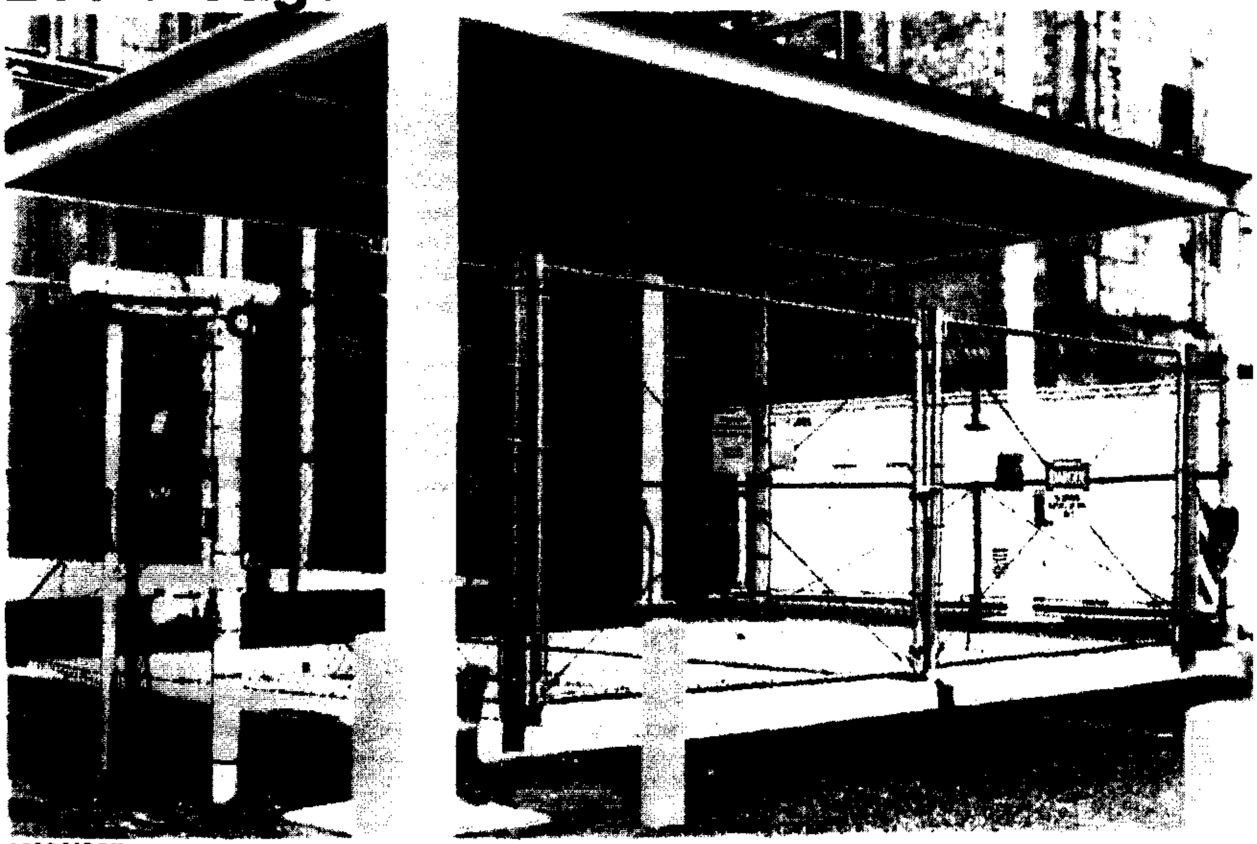
# T Plant Complex
# 214-T Building

**INTERNAL VIEW**

**46°30'38"**
**119°30'40"**

(PHOTO TAKEN 2002)

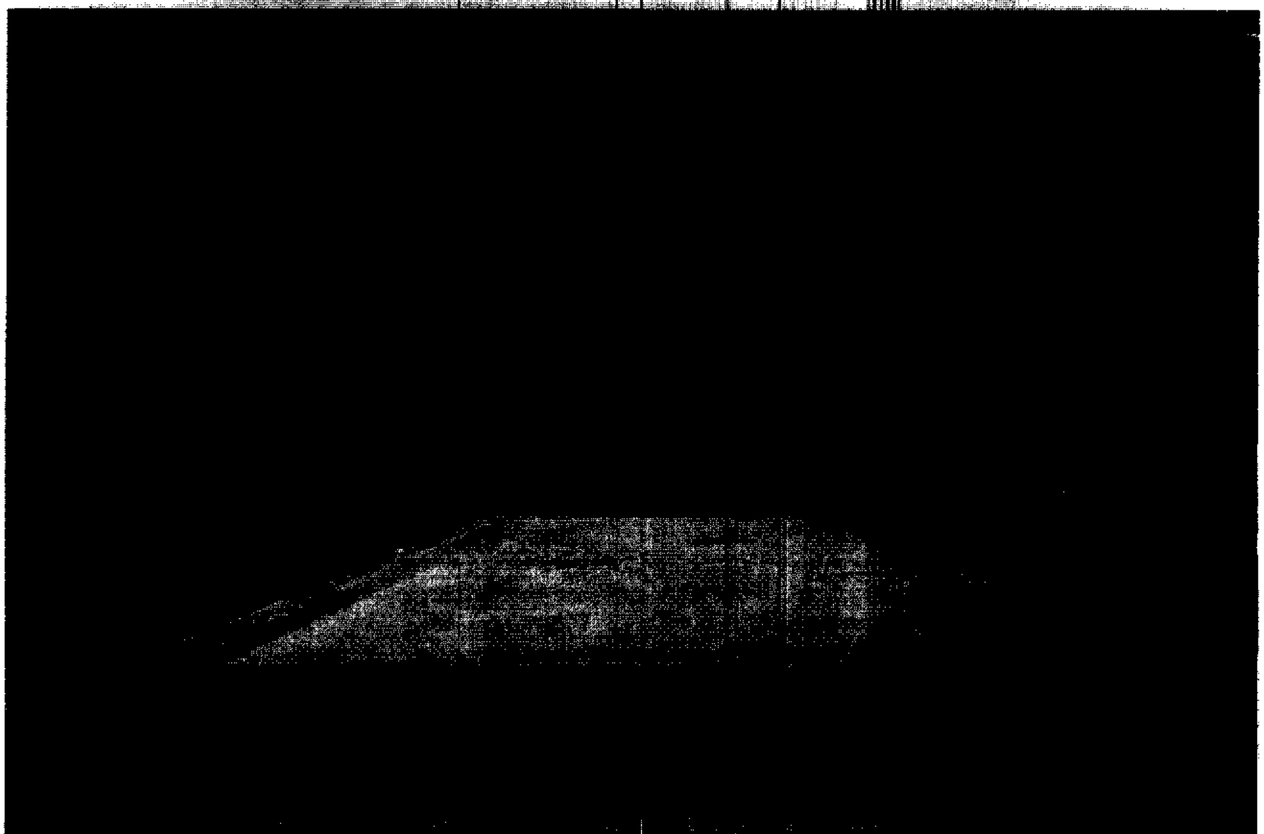
# T Plant Complex
## 211-T Cage



46°30'38"
119°30'40"

98030115-20CN
(PHOTO TAKEN 1998)

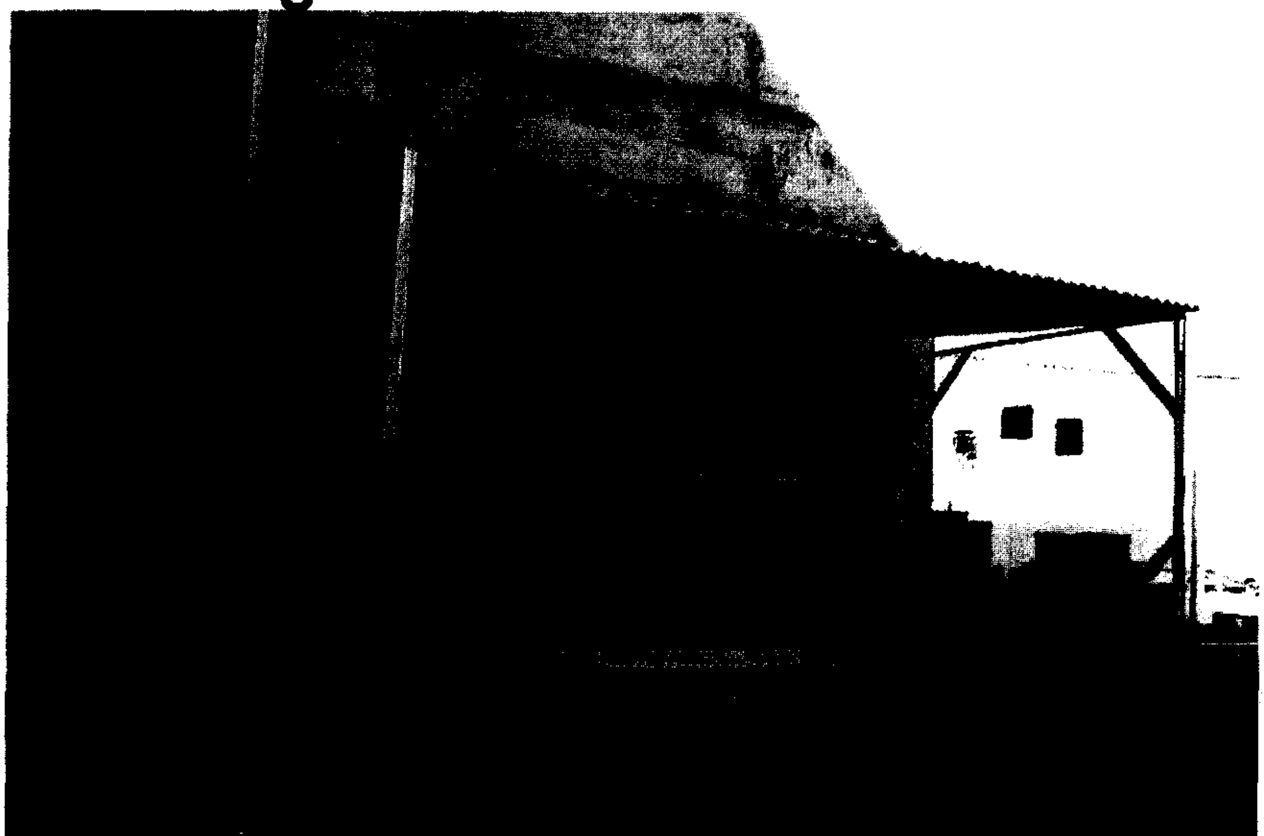
# T Plant Complex
# 211-T Pad



46°30'38"
119°30'40"

P0002688.jpg
(PHOTO TAKEN 2002)

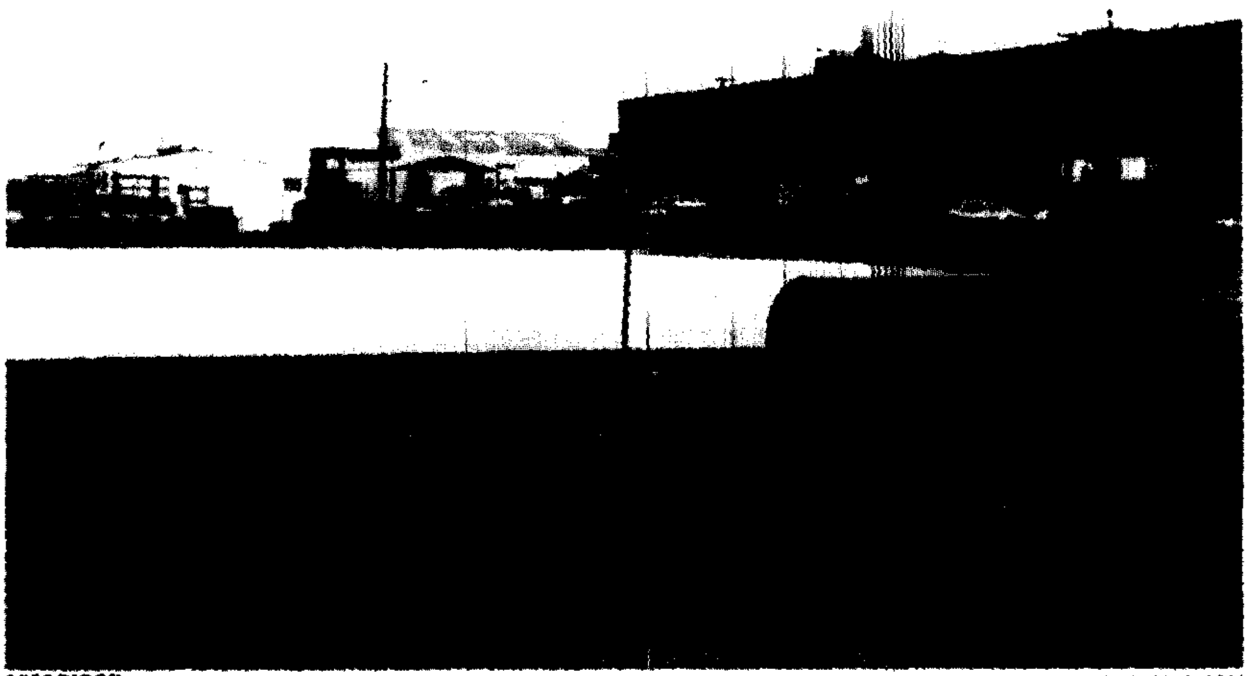
# T Plant Complex
# 271-T Cage



46°30'38"
119°30'40"

(PHOTO TAKEN 2002)

# T Plant Complex
# Treatment and Storage Pad



**46°30'38"**
**119°30'40"**

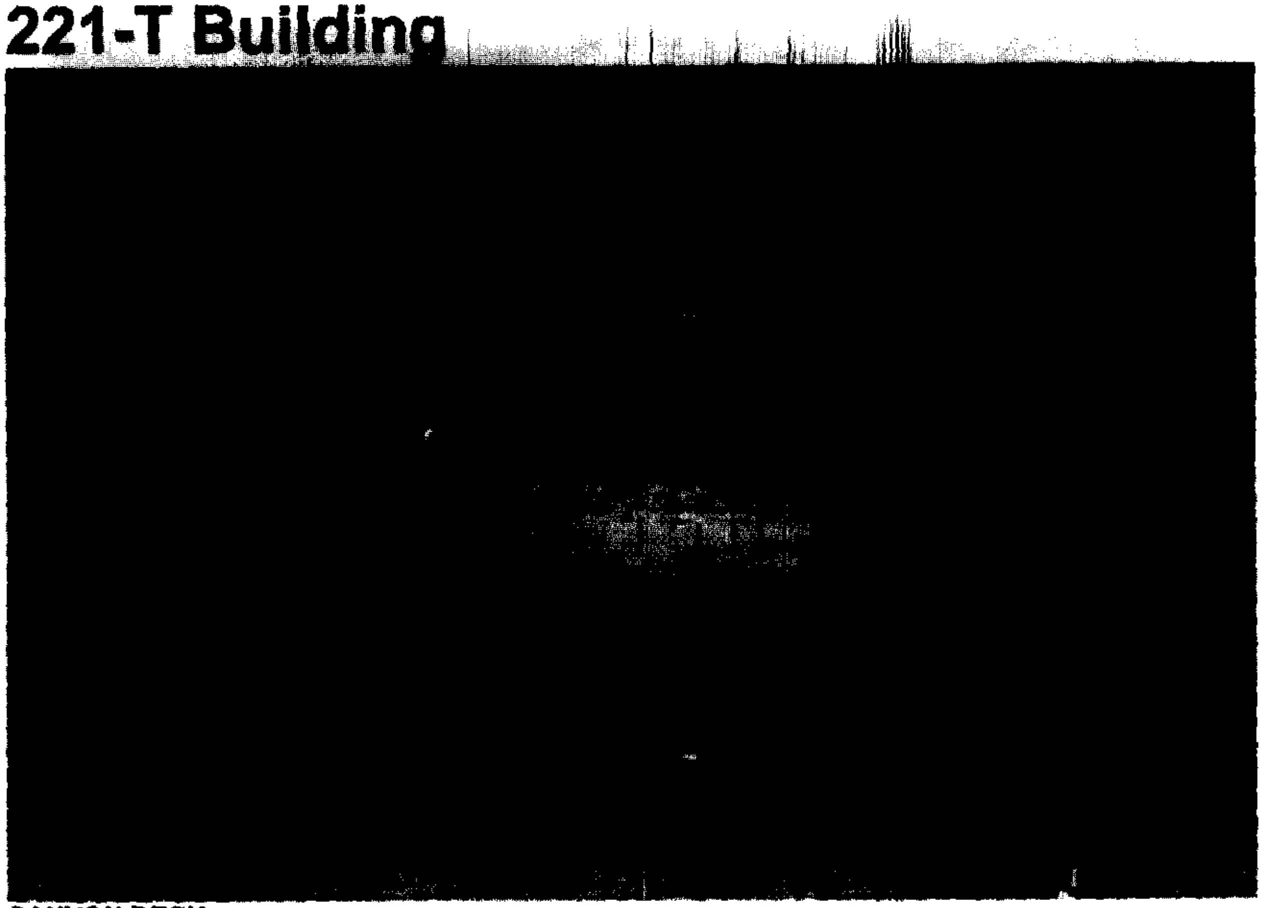
98030115-3CN
(PHOTO TAKEN 1998)

# T Plant Complex
# R-5 Waste Storage Area

46°30'38"
119°30'40"

98030115-23CN
(PHOTO TAKEN 1998)

# T Plant Complex
# 221-T Building

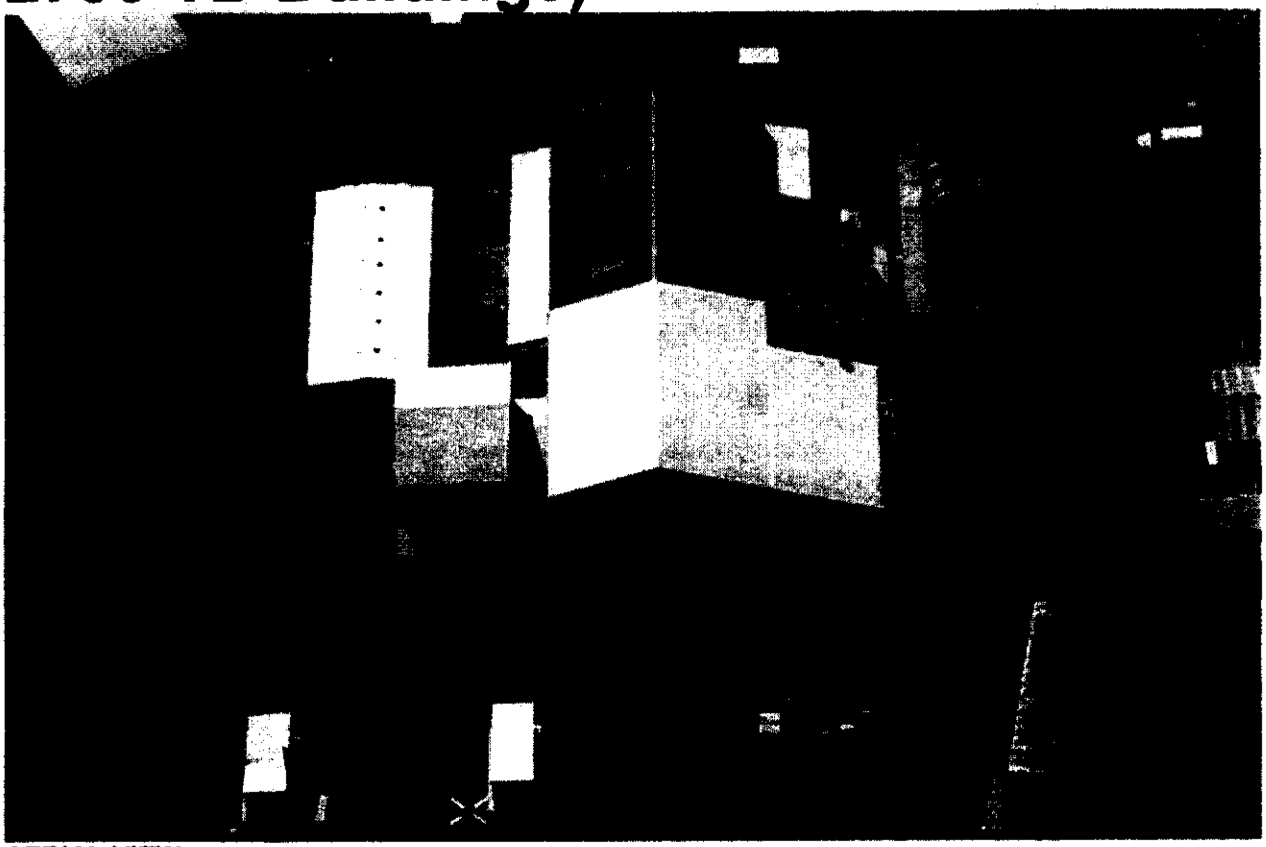


**CANYON DECK**

**46°30'38"**
**119°30'40"**

(PHOTO TAKEN 2002)

# T Plant Complex
# 2706-T Units (2706-T, 2706-TA and 2706-TB Buildings)

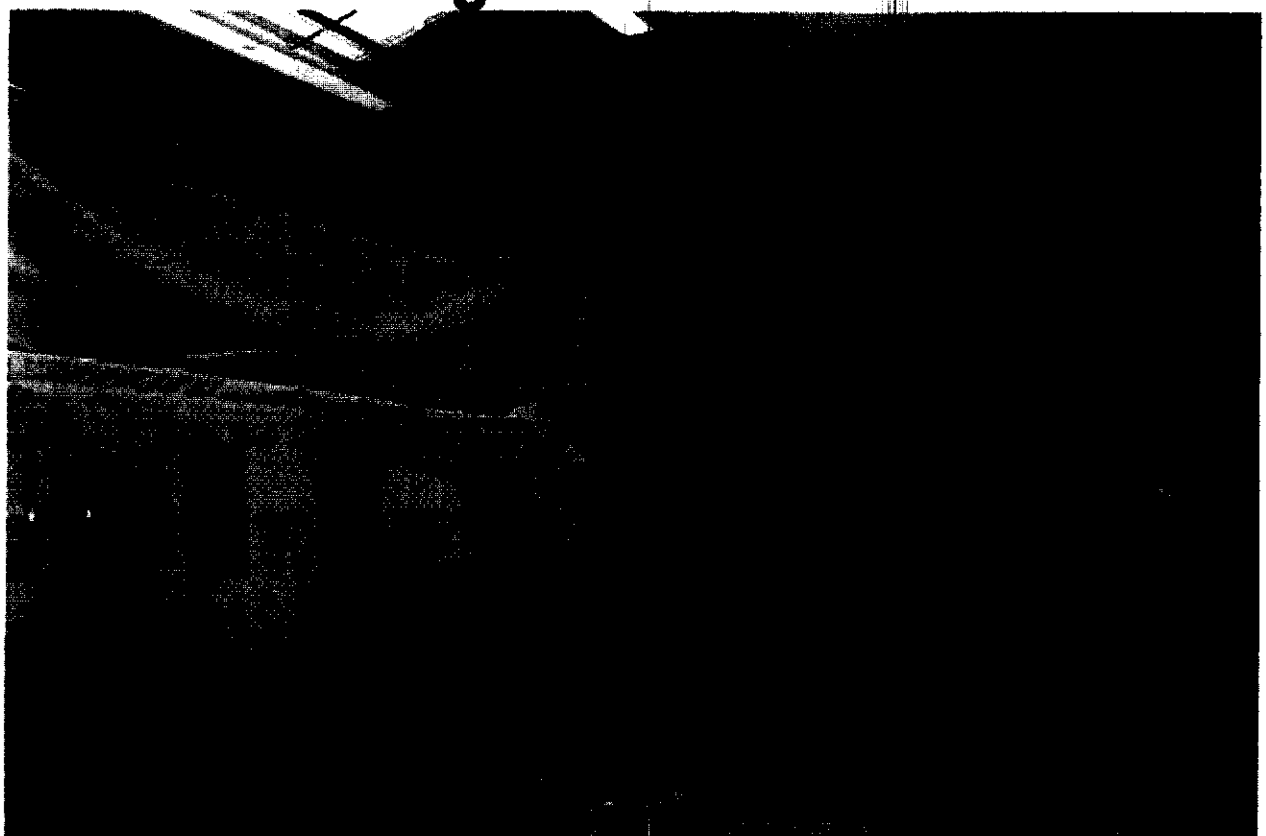


**AERIAL VIEW**

**46°30'38"**
**119°30'40"**

**99060225-12CN**
**(PHOTO TAKEN 1999)**

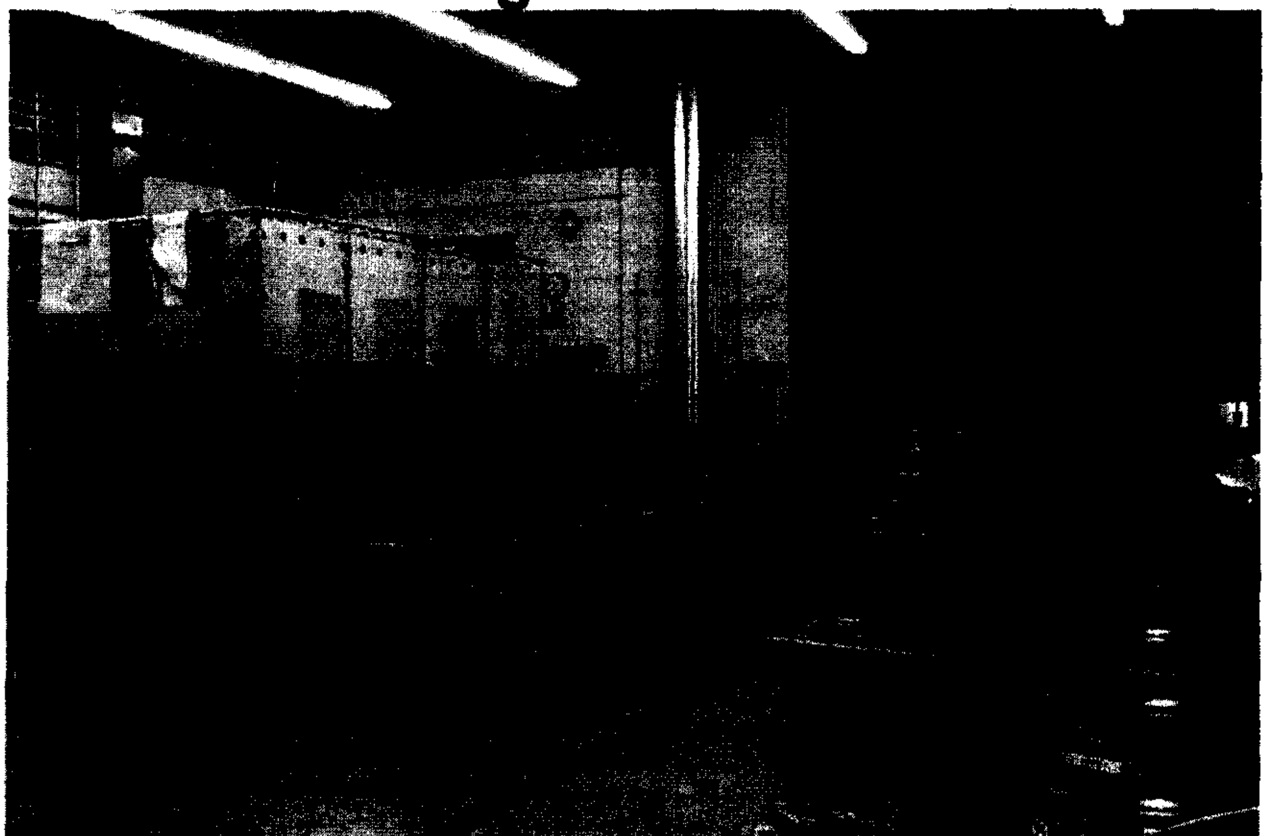
# T Plant Complex
# 2706-T Building



46°30'38"
119°30'40"

(PHOTO TAKEN 2002)

# T Plant Complex
# 2706-TA Building

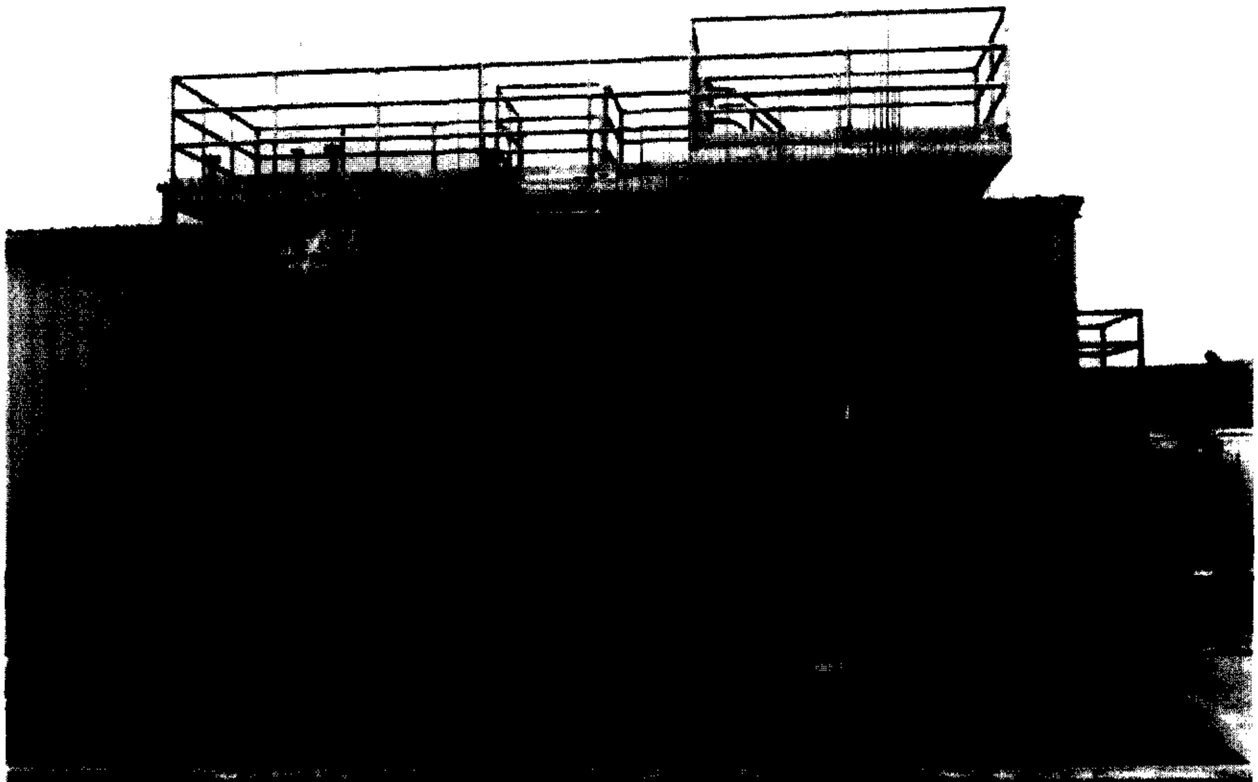


**INTERIOR VIEW**

**46°30'38"**
**119°30'40"**

**00100005-3DF**
**(PHOTO TAKEN 2000)**

# T Plant Complex
# 2706-TB Tanks



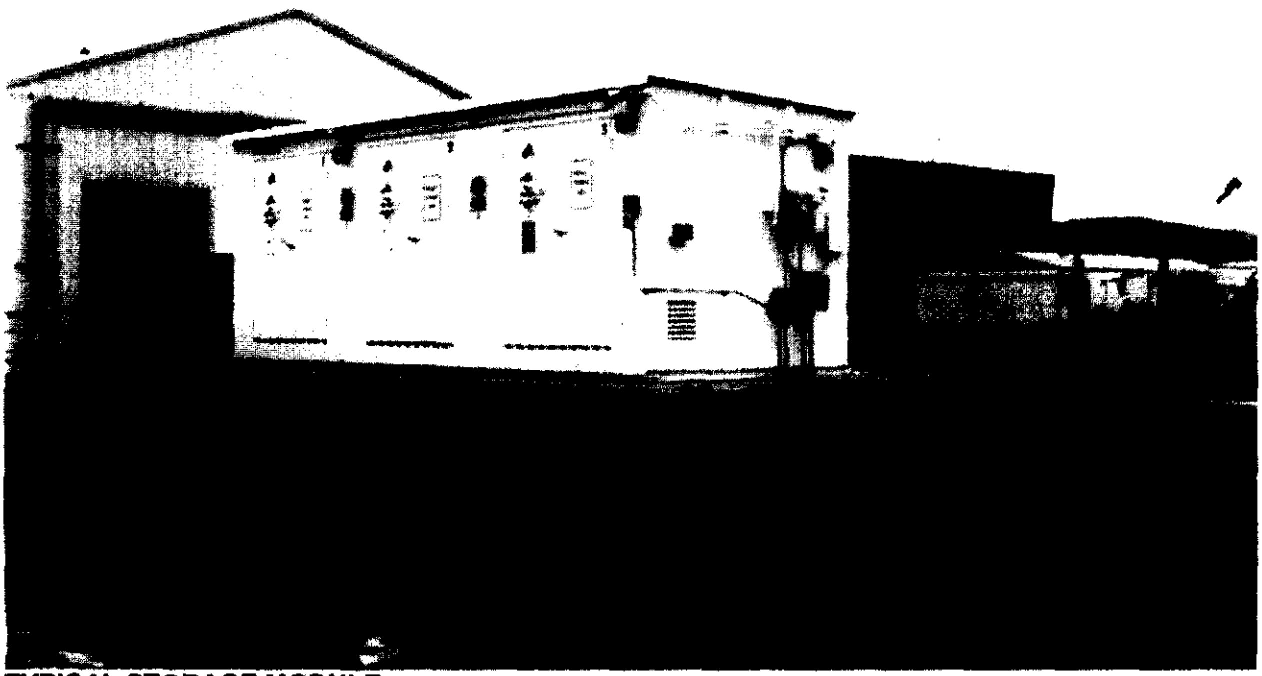
**TANK 221** **TANK 220**

**TREATMENT/STORAGE TANKS (BEFORE INSTALLATION OF 2706-TB BUILDING)**

**46°30'38"**
**119°30'40"**

98030115-9CN
(PHOTO TAKEN 1998)

# T Plant Complex
# Typical Conex Box Storage



**TYPICAL STORAGE MODULE**

**46°30'38"**
**119°30'40"**

98030115-15CN
(PHOTO TAKEN 1998)

# T Plant Complex
# 2706-T Treatment and Storage Pad

46°30'38"
119°30'40"

P0002498.JPG
(PHOTO TAKEN 2002)

# CONTENTS



# APPENDIX



# FIGURES

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# 2.0 FACILITY DESCRIPTION AND GENERAL PROVISIONS [B AND E]

The T Plant Complex is an existing treatment and storage unit for dangerous and/or mixed waste (Chapter 1.0, T Plant Complex Site Plan). The T Plant Complex is located in the 200 West Area of the Hanford Site (Chapter 1.0, 200 West Area Site Plan). The primary missions of T Plant Complex are treatment of dangerous and mixed waste and storage of noncontainerized and containerized dangerous and mixed waste. Additional missions include decontamination of equipment and debris; identification, verification, sampling, treatment, and repackaging of dangerous and mixed waste; repair and preparation of equipment to be returned to service; and demonstration of new treatment technologies. Chapter 4.0, Section 4.8, describes the process that provides regulators with the opportunity to review and evaluate new technology trials.

The 221-T Tank System, which includes the 211-T collection sump, tank 6-1 in canyon cell 6L, tank 5-7 in canyon cell 5R, tanks 5-6 and 5-9 in canyon cell 5L, tank 11-R in canyon cell 11R, and tank 15-1 in canyon cell 15R, is identified for closure (Chapter 11.0).

A more detailed discussion of the waste types treated and stored and the processes and equipment used are provided in Chapters 3.0 and 4.0, respectively. Although the treatment, storage, and/or disposal (TSD) of radioactive waste (i.e., source, special nuclear, and by-product materials as identified in the *Atomic Energy Act of 1954*) are not within the scope of RCRA or WAC 173-303, information is provided for general knowledge.

## 2.1 T PLANT COMPLEX DESCRIPTION [B-1]

The following sections describe the T Plant Complex waste management areas shown in Chapter 1.0, T Plant Complex Site Plan; however, treatment and storage activities can occur within the TSD unit boundary. Areas of T Plant Complex where waste treatment and storage activities occurred will be identified in the unit operating record in support of final T Plant Complex closure.

Past-practice waste, consisting of failed process equipment including pumps, jumpers, instruments, and containerized and noncontainerized waste, is being retained in some process cells of the 221-T Building. Because past-practice waste is subject to cleanup provisions of the Tri-Party Agreement (Ecology et al. 2001) and is not subject to permitting requirements (also refer to Chapter 4.0), 221-T Building cells that contain only past-practice waste are not TSD unit operational areas and are not addressed under this permit application.

### 2.1.1 221-T Building

The 221-T Building (Chapter 1.0, T Plant Complex Site Plan), the largest structure, is a canyon-type building that began operating in December 1944. The 221-T Building, constructed of reinforced concrete, is 260 meters long, 21 meters wide, and 23 meters high, and covers an area of 5,400 square meters. The floor of the 221-T Building is 1.8 meters thick, the northwest wall is approximately 0.9 meter thick, and the southeast wall is approximately 1.5 meters thick. The building consists of the 'canyon' that is divided into 20, 12.2 meter sections arranged in a single row running the length of the building; the railroad tunnel; three galleries (operating, pipe, and electrical); and a head-end area. There is an expansion joint between each section. Sections 2 through 20 are divided into cells, each section having a designated right (R) and left (L) cell. Cells within each section are separated by a 2.1-meter-thick reinforced concrete wall. All cells, except 2R, 5R, and the head-end cells, are 5.4 meters long, 4.0 meters wide, and 8.5 meters deep. The standard canyon cells normally are covered by four 1.83-meter-thick concrete cover blocks. Each cover block has a carbon steel lifting bail to allow access into the cells (Chapter 1.0, 221-T Cutaway). The area on top of the cover blocks is referred to as the 'canyon deck'. The canyon deck is approximately 12.2 meters below a 0.9 to 1.2-meter-thick concrete roof.

The 221-T Building is used for storing contaminated process equipment and containerized and noncontainerized waste. The 221-T tunnel, the 221-T canyon deck, and the 221-T head end are waste management areas within the 221-T Building. The 221-T tunnel is used for transporting equipment and waste into and out of the canyon. The 221-T tunnel provides the area for liquid waste transfer car certifications, repair, decontamination, container storage, and loading. The tunnel also is used for verification, treatment, sampling, and repackaging activities.

In the past, the 221-T Tank System stored, treated, and transferred liquid mixed waste generated during decontamination activities. The 221-T Tank System was isolated and permanently removed from service in June 1999 (99-EAP-425).

The 221-T Building is maintained at a negative differential pressure with respect to the ambient atmosphere. The main exhaust system (located near the 291-T Building) pulls canyon air past the cell cover blocks down into the cells, through high-efficiency particulate air (HEPA) filters, and out the 291-T stack.

### 2.1.1.1 221-T Building Container Management Areas

Waste containers can be stored in the 221-T Building on the canyon deck or in canyon cells, in the railroad tunnel, and in the head end. Liquid containers with portable secondary containment and non-liquid containers are placed on the canyon deck, including on cell cover blocks and in cells.

#### 2.1.1.1.1 221-T Building Canyon Deck

The canyon deck consists of the area formed by the canyon floor and by the cover blocks over the 37 cells.

#### 2.1.1.1.2 221-T Building Railroad Tunnel

The tunnel staging area is located within the railroad tunnel that enters the 221-T Building at cell 2L. The tunnel has a 4.9-meter wide by 6.7-meter high opening covered by a motor-driven rolling steel door. Waste and the equipment to be stored and/or treated in the 221-T Building are brought into the tunnel on railcars or vehicles. Materials are lifted by crane and placed in the desired storage location. Although normally used only as a transfer and staging area for waste, the tunnel also can be used for longer than 90-day waste storage.

#### 2.1.1.1.3 Head End

The head end of the 221-T canyon was partitioned off from the 221-T Building in 1964. A sheet-metal wall separates the head end from the majority of the 221-T Building. The head-end area consists of one large cell, a control room, laboratories, a change room, a maintenance shop, and a large high-bay work area. The cell is 9.8 meters long by 9.8 meters wide by 23 meters high. The head end is used for storage and treatment activities.

### 2.1.2 221-T R-5 Waste Storage Area

The 221-T R-5 waste storage area (Chapter 1.0, T Plant Complex Site Plan) is an uncovered asphalt storage area. The 221-T R-5 has no constructed secondary containment system. Any waste containers with free liquids are stored over portable secondary containment (Chapter 4.0). The 221-T R-5 waste storage area can store waste containers and equipment of various sizes and volumes. Years of operation have shown the asphalt pad to be thick enough to support the weight of waste and waste handling equipment.

### 2.1.3 2706-T Treatment and Storage Pad

The 2706-T treatment and storage pad (Chapter 1.0, T Plant Complex Site Plan) is an uncovered asphalt area for storage and treatment of waste in containers. This pad has no secondary containment system. Any waste containers with free liquids are stored over portable secondary containment (Chapter 4.0). This pad can store waste containers and equipment of various size and volume. Years of operation have shown the asphalt pad to be thick enough to support the weight of waste and waste handling equipment.

### 2.1.4 211-T Cage

The 211-T cage (Chapter 1.0, T Plant Complex Site Plan) is a storage and treatment area for containerized waste. The 211-T cage is constructed of concrete. The 211-T cage is split into two sections that are separated by a concrete berm. Each floor section slopes to a sump not connected to any piping system that provides containment. The cage has a roof, but no walls. Although not necessary, mixed waste containing free liquids typically is stored over portable secondary containment.

### 2.1.5 211-T Pad

The 211-T pad (Chapter 1.0, T Plant Complex Site Plan) generally is used as secondary containment for tanker trucks. Drums and boxes containing free or containerized liquids also could be stored on this pad. The pad is curbed and slopes into a sump not connected to any piping system, thus providing secondary containment for waste containing liquids. Although not necessary, waste containing free liquids typically is stored over portable secondary containment.

### 2.1.6 271-T Cage

The 271-T cage (Chapter 1.0, T Plant Complex Site Plan) stores dangerous waste and material for recycle. The cage has a concrete floor and secondary containment is provided using portable secondary containment. The cage has a roof and a south wall.

### 2.1.7 214-T Building Storage Area Description

The 214-T Building (Figure 2-1 and Chapter 1.0, T Plant Complex Site Plan) is located on the west side of the 221-T Building near the railroad tunnel. The 214-T Building has compliant secondary containment; therefore, containers with free liquids can be stored in this container storage area without portable secondary containment. The 214-T Building, enclosed totally to protect containers from precipitation or run-on, is 15 meters wide, 8.8 meters long, 3.7 meters high. The building is constructed of corrugated steel overlaying I-beams and has a concrete floor.

Containers stored in the 214-T Building generally are stored on pallets. The concrete floor is covered with a chemical-resistant coating and divided by a raised concrete berm separating incompatible waste types. The two floor areas are sloped to prevent mixing of incompatible materials and to direct any spills to separate floor sumps. The sumps are not connected to any piping system. Steel gratings cover the containment basins and provide an even flooring surface for the movement of containers. The containment basins are coated with material that is resistant to caustic, oxidizing, combustible, and flammable chemicals. Therefore, no compatibility problems are anticipated should waste stored in the 214-T Building contact the containment basins.

The 214-T Building secondary containment basins are designed to contain over 10 percent of the total volume of containers that can be stored over each containment basin. The west sump can contain up to 932 liters of liquid waste and the east sump can contain up to 449 liters of liquid waste. The maximum liquid container storage is 65, 208-liter containers. Calculations demonstrating storage and containment capacity are provided in Appendix 4B.

### 2.1.8 Treatment and Storage Pads

The areas designated as the treatment and storage pads (Chapter 1.0, T Plant Complex Site Plan) are two uncovered concrete areas for storage and treatment of mixed and low-level waste. These areas are separated by an asphalt area that itself could be used for container storage but typically is not. Any waste containers with free liquids are stored over portable secondary containment. This pad is located to the west of the 221-T Building.

### 2.1.9 Dangerous and Mixed Waste Storage Modules

Engineered metal storage modules can be used to store waste containers. The modules, also called conex boxes, are enclosed completely by wall, roof, and floor to protect containers from precipitation and run-on. Each storage structure, 7.2 meters long by 3.5 meters wide by 2.7 meters high, is divided into two separate compartments or cells (a total of six cells). Each cell has a door that opens onto a loading platform or ramp. Inside these modules, containers rest on a chemical resistant non-skid fiberglass grate above a steel secondary containment basin that is free of cracks and has a chemical resistant coating. The containment basin has a capacity of 3,142 liters. Each module can hold 46, 208-liter containers. Each storage structure has a roof that collects and sheds the precipitation to the rear of the building away from the doorways and loading platforms. Once the waste containers are placed on the loading platform, the containers are moved in and out of the storage cells using a dolly, handcart, or other approved methods.

### 2.1.10 2706-T Buildings

The 2706-T Buildings include the 2706-T, 2706-TA, and 2706-TB Buildings described in the following sections. An overhead schematic of the 2706-T Buildings is provided in Figure 2-2. In 1998, the 2706-T and 2706-TA Buildings were modified significantly and the 2706-TB Building was added. A fence surrounds the 2706-T Buildings.

#### 2.1.10.1 2706-T Building

The 2706-T Building is an 18-meter wide, 20-meter long, 7.6-meter high ground-level building constructed of prefabricated steel with 6-meter high sidewalls. The building has a concrete floor constructed to meet Uniform Building Code (UBC) design loads discussed in Chapter 4.0. The 2706-T Building contains one pit over which decontamination of railroad equipment, buses, trucks, automobiles, road building equipment, and process equipment is performed (Figure 2-3). Other activities, include segregation, repackaging, verification, and storage of transuranic, low-level, and mixed waste containers (boxes and drums). The 2706-T Building is the loadout point for all liquid waste generated in 2706-T and 2706-TA Buildings stored in 2706-TB tanks.

The 2706-T Building bay contains a railroad pit, approximately 17 meters long by 5.2 meters wide by 1.8 meters deep. Two stairways at opposite ends of the pit provide access to the pit floor. The pit floor is sloped to drain to a 378-liter below-grade sump. One emergency ladder is located at the east end of the pit. The pit area is covered completely with steel grating except at the center, where two solid concrete beams run the length of the pit to support railroad rolling stock.

The 2706-T Building has openings on the east and west ends (leading to 2706-TA Building) fitted with roll-up metal doors. The west side has two doors, the larger of which is 3.7 meters wide by 4.9 meters high and is the entrance to the railroad pit area from 2706-TA Building. The east side door and the other door on the west end, leading to the 2706-TA Building, are 2.7 meters wide by 4.3 meters high. An overhead crane is available for maintenance use and for moving equipment, and travels the length of the 2706-T Building. An exhaust stack on the southwest side has HEPA filtration and confirmatory sampling is provided. The inner building layout includes a maintenance and decontamination work area, an electrical room, and a fire suppression system control room.

The 2706-T Buildings contain a complete system, known as the 2706-T effluent collection system, used for the collection, filtration, transfer, storage, containment, and treatment of liquid mixed waste from treatment and decontamination activities in the 2706-T and 2706-TA Buildings and from direct additions of liquid mixed waste from other treatment and storage activities. This system includes the 2706-T railroad pit sump, 2706-TA sump, 2706-TA heating, ventilation, and air conditioning (HVAC) sump, 2706-TB sump, waste transfer piping and equipment, 2706-TB waste storage tanks; and a liquid waste loadout area above the railroad pit. The system is operated using a computer system to monitor, alarm, and control the level and transfer of waste at each sump collection transfer and storage location. The system also can be operated manually.

#### 2.1.10.2 2706-TA Building

The 2706-TA Building is used for equipment decontamination and dangerous and mixed waste treatment and storage activities. The 2706-TA Building, constructed of pre-fabricated steel, is approximately 15 meters wide and 7.6 meters high, with a concrete foundation and floor. The building meets UBC design loads similar to those of the 2706-T Building. The 2706-TA Building has an equipment roll-up door 3.5 meters wide by 4.6 meters high, and a larger door 5.4 meters wide by 6.1 meters high, located at the west end of the building along with the roll-up doors to the 2706-T Building.

The 2706-TA Building has independent and equal waste treatment and decontamination capabilities with secondary containment, leak detection, equipment (e.g., pumps, piping, utility extensions), and HEPA-filtered ventilation system. The building contains a sump to collect decontamination liquids and a second sump to collect HVAC condensate. Both sumps transfer the liquid waste to the 2706-TB tank system.

Sampling, treatment, verification, and waste repackaging (containers or boxes) are conducted in the 2706-TA Building. Verification, repackaging, and treatment activities include removal of prohibited items, puncturing of aerosol canisters, sampling, removal or collection of liquids, segregation or sorting, waste consolidation and solidification, neutralization, absorption or encapsulation, installation of filters, overpacking, and other treatment activities for further disposition. Liquid mixed waste generated by these processes is collected in the sumps and pumped to the 2706-T effluent collection system. Solid mixed waste generated by this process is containerized and stored until transferred to a TSD unit for further disposition.

The chemical addition room is located on the north side of the 2706-TA Building where NaOH or other suitable chemicals can be added to the liquid mixed waste stored in tanks T-XX-2706-220 and T-XX-2706-221 to adjust pH to meet the waste acceptance criteria of the receiving TSD unit.

#### 2.1.10.3 2706-TB Building

The 2706-TB Building (Figure 2-4) was constructed to manage liquid mixed waste generated in the 2706-T and 2706-TA Buildings. The building is 9.5 meters wide, 14.0 meters long, and 9.6 meters high. This building is constructed of prefabricated steel and has a concrete foundation and floor. The 2706-TB Building contains two storage and treatment tanks with secondary containment and a chemical addition room located at the north end of the building. The two storage tanks, T-XX-2706-220 and T-XX-2706-221, are stainless steel tanks that are a portion of the effluent collection system. These tanks are described in detail in Chapter 4.0. Also as described in Chapter 4.0, waste stored in these tanks can be treated to meet waste acceptance criteria of the receiving TSD unit.

The 2706-TB Building contains a secondary containment basin located beneath the floor grating to collect and contain leaks or spills as well as a 20-minute deluge from a sprinkler activation. This basin can hold 56,781 liters. The basin contains a collection sump with a pump to transfer liquids out of the secondary containment back into one or both of the tanks.

### 2.1.11 2706-T Yard

The 2706-T yard is a fenced, uncovered asphalt paved area for treatment and storage of containerized mixed and low-level waste. The 2706-T yard is located on the immediate north side of the 2706-TA and 2706-TB Buildings. Any waste containers with free liquids are stored over portable secondary containment.

### 2.1.12 Other Environmental Permits

Federal and state laws and local requirements applicable to T Plant Complex are listed in Chapter 13.0 and are discussed in the General Information Portion (DOE/RL-91-28), Chapter 13.0.

## 2.2 TOPOGRAPHIC MAP [B-2]

A topographic map (H-13-000080), showing a distance of at least 300 meters around T Plant Complex, is provided in Appendix 2A. This map is at a scale of 1 centimeter equals 20 meters. The contour interval (0.5-meter) shows the general pattern of surface water flow in the vicinity of T Plant Complex. The map contains the following information:

- Map scale
- Date
- Prevailing wind speed and direction
- A north arrow
- Surrounding land use
- Buildings
- Access road location
- Access control.

## 2.3 TRAFFIC INFORMATION [B-4]

General traffic information for the Hanford Facility is presented in the General Information Portion (DOE/RL-91-28). Access to T Plant Complex is provided by 23rd Street. This road is constructed of asphalt and provides sufficient all-weather access. Paved parking within the T Plant Complex fence is provided for T Plant Complex personnel.

The T Plant Complex receives contaminated equipment and dangerous and mixed waste by truck. Liquid mixed waste generated at T Plant Complex by decontamination and/or treatment activities is transferred to the DST System or 200 Area Effluent Treatment Facility (ETF) by tanker trucks. Containerized dangerous and/or mixed waste (generated either from treatment and/or decontamination activities or equipment that is not reusable after decontamination) is transferred to a TSD unit by truck.

The dangerous and/or mixed waste is transferred in accordance with applicable onsite requirements. Although onsite waste transfers are exempt from the manifest requirements of WAC 173-303-370, onsite waste tracking is applied as a matter of good management practice. These onsite transfer requirements are designed to ensure that personnel exposures are maintained as low as reasonably achievable (ALARA), that loss of contamination control is prevented, and that applicable transportation regulations are obeyed.

## 2.4 RELEASE FROM SOLID WASTE MANAGEMENT UNITS [E]

Information concerning releases from solid waste management units is discussed in the General Information Portion (DOE/RL-91-28).

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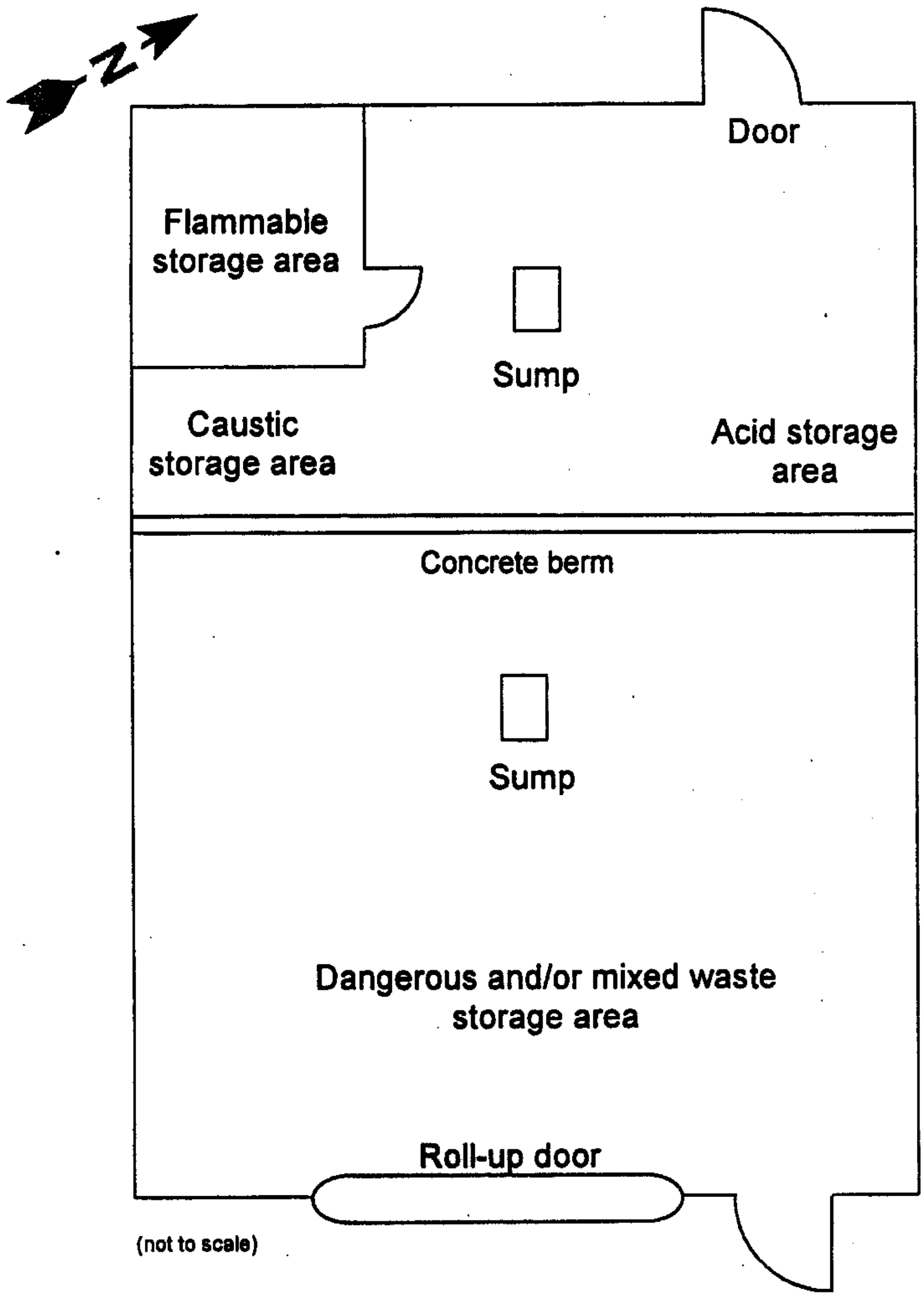


Figure 2-1. 214-T Building.

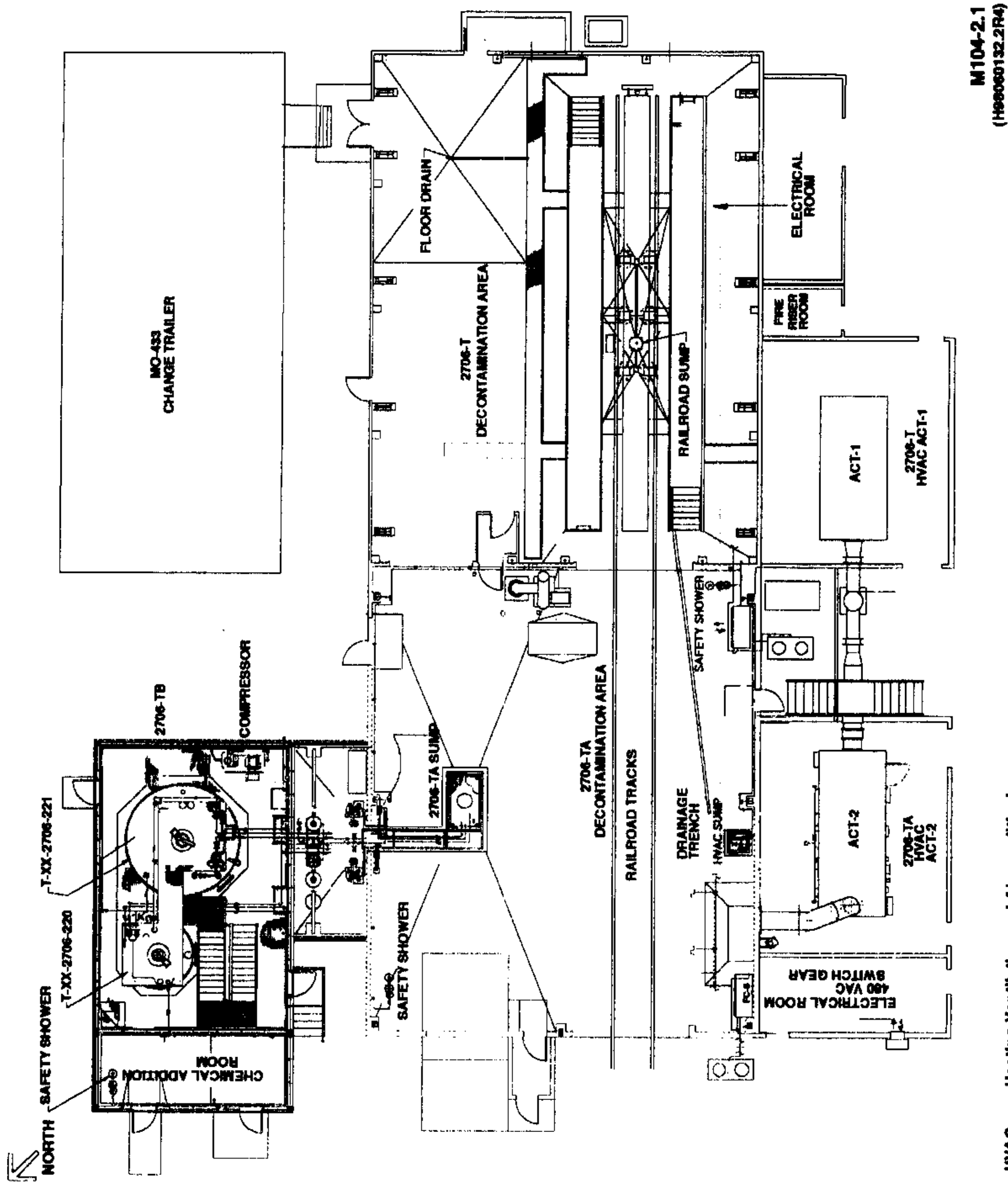


Figure 2-2. Overhead Schematic of the 2706-T Buildings.

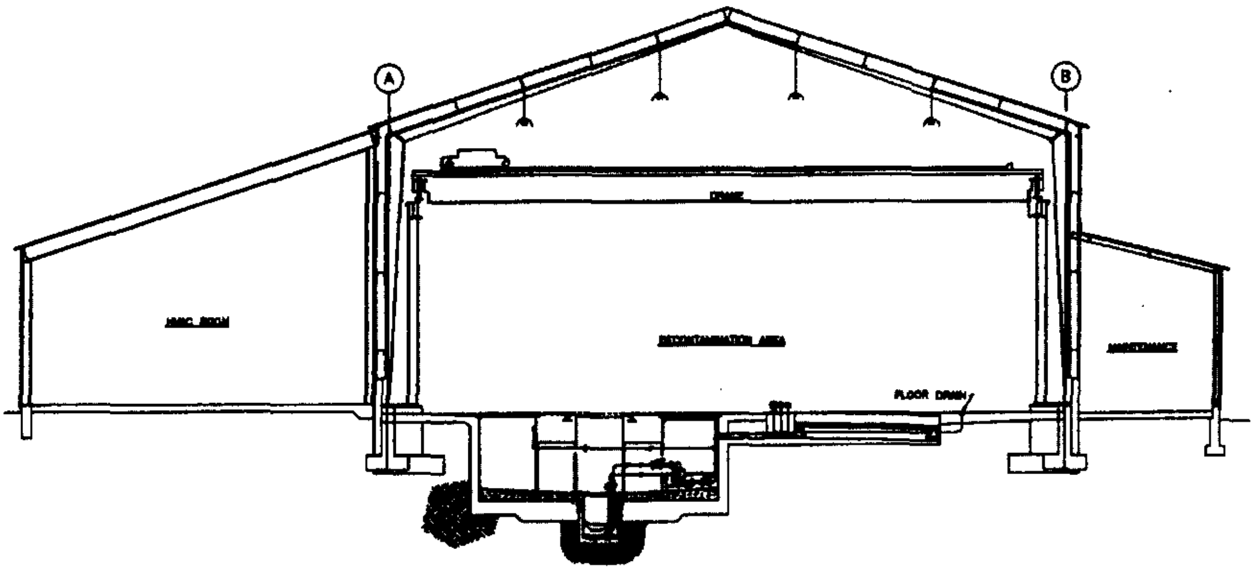


Figure 2-3. 2706-T Bay.

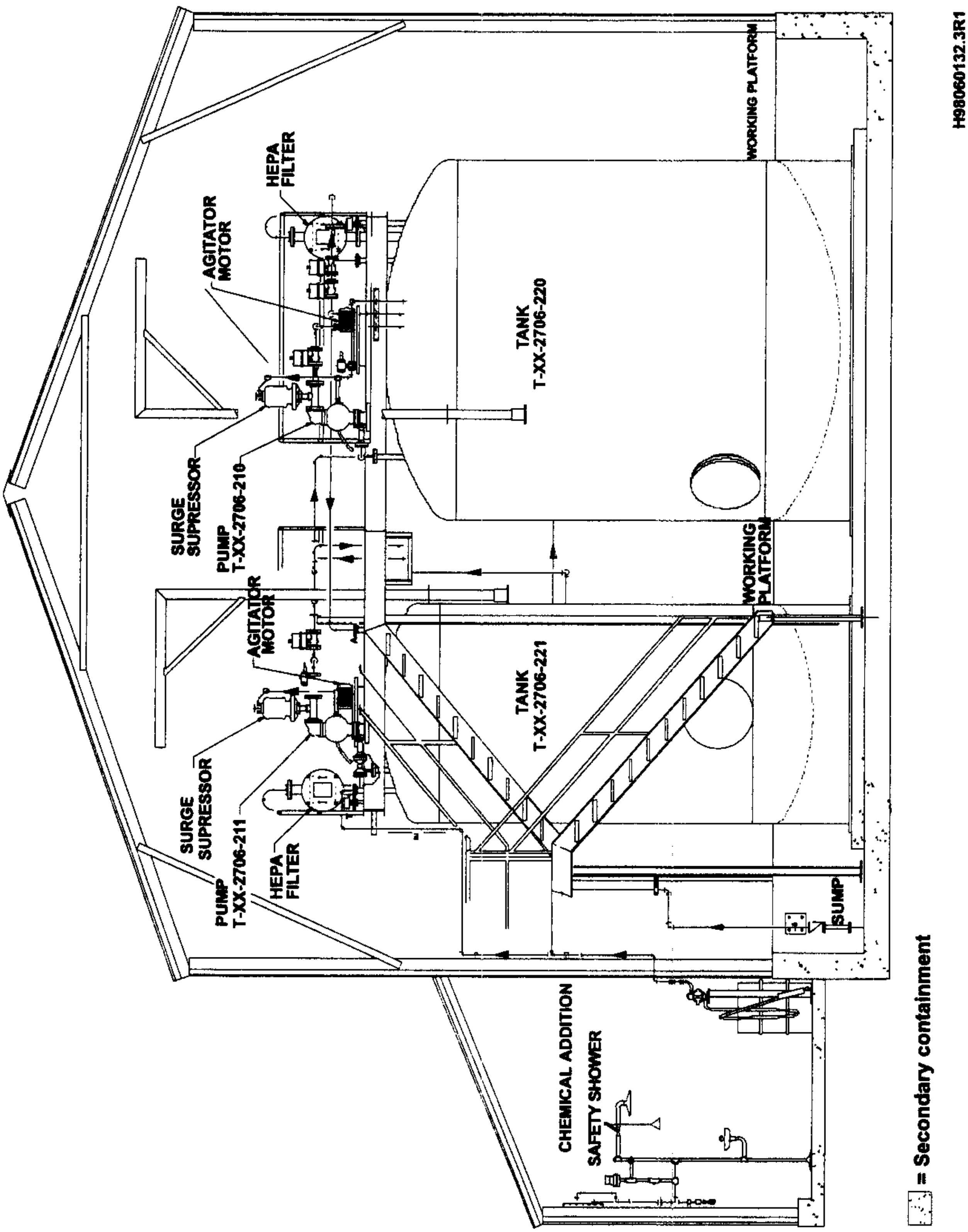


Figure 2-4. Elevation View of the 2706-TB Building and Storage Tanks.

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# APPENDIX

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# 3.0 WASTE ANALYSIS [C]

This chapter provides information on the chemical, biological, and physical characteristics of the waste treated and stored at T Plant Complex. The information includes descriptions required by WAC 173-303-300(5) contained in the *Waste Analysis Plan for T Plant Complex* (Appendix 3A).

## 3.1 CHEMICAL, BIOLOGICAL, AND PHYSICAL ANALYSIS [C-1]

This chapter addresses the chemical, biological, and physical analysis performed to ensure proper management of waste at T Plant Complex.

## 3.2 WASTE ANALYSIS PLAN [C-2]

The *Waste Analysis Plan for T Plant Complex* (Appendix 3A) summarizes waste acceptance processes and contains the following information: unit description, confirmation process, selection of waste analysis parameters, selection of sampling processes, selection of a laboratory, laboratory testing and analytical methods, selection of waste re-evaluation frequencies, special procedural requirements, and recordkeeping requirements.

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# APPENDICES



# FIGURES



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# 4.0 PROCESS INFORMATION [D]

This chapter discusses the processes used to treat and store waste at the T Plant Complex. Run-off and run-on control systems also are discussed.

Material placed in cells of the 221-T Canyon Building before August 19, 1987 is past-practice waste in accordance with the Tri-Party Agreement (Ecology et al. 2001) and is not subject to permitting requirements. On removal, such waste will be subject to waste designation and to meeting LDR requirements. Disposition of past-practice waste remaining in cells at the time of final canyon disposition would be coordinated with canyon disposition initiatives or with TSD unit closure activities as appropriate.

## 4.1 CONTAINERS [D-1]

All waste accepted for storage at the T Plant Complex is packaged in approved containers (U.S. Department of Transportation and/or U.S. Department of Energy), unless alternate packages are dictated by the size, shape, or form of waste (49 CFR 173). Container characteristics are described in Table 4-1.

### 4.1.1 Containers with Free Liquids

Containers with free liquids are discussed in the following sections.

#### 4.1.1.1 Description of Containers [D-1a]

Waste stored in T Plant Complex is packaged in approved containers in a double-packaging system. The inner containment can be either a 4-mil or heavier plastic liner or a 90-mil polyethylene liner.

The T Plant Complex also can store bulk liquid waste in 208-liter bung type containers or other approved containers. Exterior surfaces of 208-liter metal containers either are painted or galvanized in accordance with specifications. Protective coatings for waste packages other than 208-liter containers are specified on the waste tracking forms for individual waste streams. In addition, labpacks are accepted for storage. Sorbents are selected based on the following criteria: compatibility with the waste, no additional hazards created, and appropriateness for ultimate disposal/treatment strategy (e.g., nonbiodegradable sorbents for waste acceptable for onsite disposal). Waste with the potential to form condensate during storage contains sufficient sorbent in the bottom of the container to sorb any condensate formed.

Gas generation is controlled to prevent over-pressurization and buildup of combustible gas by use of vents such as Nucfil® vent clips or other approved devices.

#### 4.1.1.2 Container Management Practices [D-1b]

Before receipt at T Plant Complex, all containers are closed by the onsite generating unit or offsite generator to meet applicable U.S. Department of Transportation or U.S. Department of Energy packaging requirements. On receipt, each container or group of containers is inspected by T Plant Complex

Nucfil® is a registered trademark of Nuclear Filter Technology, Inc., Lakewood Colorado.

operations personnel for damage, proper closure, marking, and proper accompanying documentation before acceptance.

Each container can be handled individually or as a group on pallets. If handled individually, a hand-truck dolly, a forklift truck with 'barrel grabber', or a crane with a 'barrel tong', or other approved methods (all specifically designed for handling containers) could be used. The containers are placed on pallets that can be handled by a forklift vehicle. Aisle space requirements are provided in Chapter 6.0, Section 6.3.2.

The container packaging, construction, and container handling are designed to maintain containment of the waste, provide retrieval capability of damage-free and contamination-free containers, limit storage intrusion, and limit human exposure to dangerous waste. In addition, records of the waste provide process knowledge concerning the waste, which is used to identify the hazards. Appropriate labels are applied to the containers before acceptance at T Plant Complex.

#### 4.1.1.3 Container Labeling [D-1c]

Containers are labeled and marked to indicate the dangerous and radioactive characteristics of the waste. All waste containers received are marked in accordance with the requirements specified under 49 CFR 172. In addition to the 49 CFR 172 marking and labeling requirements, all waste containers must be marked, as appropriate, to adequately identify the major risk(s) associated with the contents of the containers, per WAC 173-303-630(3).

### 4.1.2 Containment Requirements for Storing Containers [D-1d]

The following sections describe secondary containment systems.

#### 4.1.2.1 Secondary Containment System Design and Operation [D-1d(1)(a) and (b)]

The 2706-T, 2706-TA, and 214-T Buildings have sloping floors and sumps that serve as liquid catch basins (Appendix 4A). In addition, containers generally are elevated (e.g., pallets, skids) to protect the containers from contacting accumulated liquids.

Calculations performed to verify containment capacity for the 214-T Building are detailed in Appendix 4B. Containers also are stored on portable secondary containment that could have a plastic covering ('shower cap') to prevent rainwater infiltration.

The floors of the various storage buildings were constructed from reinforced concrete sealed with a polyurethane enamel epoxy resin. When cured, this sealant has properties similar to glass. The polyurethane sealant chemically is resistant and inert with respect to acids, bases, oxidizers, combustibles, and flammables. Therefore, there are no compatibility problems with the base and the waste stored at T Plant Complex.

All piping penetrations and construction joints are grouted or caulked and sealed.

In addition, waste is stored at various other locations within the T Plant Complex at locations constructed of asphalt or gravel/soil. Containers at such locations are elevated (e.g., pallets) to prevent contact with accumulated liquids. Containers with free liquids are stored over portable secondary containment.

#### 4.1.2.2 Containment System Capacity [D-1d(1)(c)]

The 2706-T, 2706-TA, and the 214-T Building floors are designed to contain over 10 percent of the total volume of liquid in all containers that can be stored or 100 percent of the largest container, whichever is greater. Portable secondary containment systems are designed to provide similar containment capabilities (Appendix 4B).

#### 4.1.2.3 Control of Run-On [D-1d(1)(d)]

For storage buildings, the only major run-on or run-off foreseen would be an event such as a fire sprinkler activation or pipe break. The 2706-T, 2706-TA, 214-T Buildings and storage modules are roofed structures; therefore, run-on is prevented. For the 214-T Building, collected or contained liquid can be removed by hand pumps for large quantities and by sorbents for smaller quantities. The 2706-T and 2706-TA Buildings have a liquid effluent removal system.

In the event that contaminated water is released from any T Plant Complex structure resulting from flooding of a containment system by fire sprinkler activation or a pipe break (Section 4.1.3), the incident is treated as a spill.

When waste is stored on outdoor storage pads with containment systems or on portable secondary containment, the drain plug (if existing) is kept closed and locked. If water from a known source (e.g., rainwater, snowmelt) accumulates in the containment system/portable secondary containment, the following is performed before the system/pallet is drained.

- Liquid is inspected visually for signs of contamination (i.e., discoloration, etc.).

- If contamination is suspected, an analysis of pH and radioactive contamination is performed.

- The logbook is reviewed to identify any spills.

- If documented spills to the containment system occurred, cleanup reports are reviewed to confirm that the pad/portable secondary containment is clean and liquids were removed properly (Section 4.1.3).

- The T Plant Complex supervisor signs the logbook, indicating that these steps were completed and that the pad/portable secondary containment is clean.

- The T Plant Complex supervisor or designee unlocks the drain plug, or water is removed from the portable secondary containment and released to ground. Releases to the environment are recorded in the logbook.

- The T Plant Complex supervisor signs the logbook, indicating that the pad/portable secondary containment was drained.

Water accumulated in outdoor storage pads or portable secondary containment that cannot be confirmed to be free of contamination is containerized and stored in an area of T Plant Complex that is equipped with secondary containment or added to the 2706-T Buildings effluent collection system. The containerized water is handled in accordance with the provisions of the waste analysis plan, Chapter 3.0, Appendix 3A.

Actions to be taken in response to a spill or discharge are detailed in the building emergency plan, Chapter 7.0, Appendix 7A.

### 4.1.3 Removal of Liquids from Containment System [D-1d(2)]

In the event of a spill or release that results in the collection of liquid waste material in the containment system, the following is performed.

- Containers affected are inspected for signs of leakage. Leaking containers are repackaged and identified in the operating logbook.

- Inspection reports and operating logbook are reviewed to identify any waste releases in the waste storage areas for which remedial actions have not been completed.

- The equipment used for removal of large quantities of liquid normally is a hand-held pump or vacuum system. Sorbents are used for removal of small amounts of liquid. The waste material is placed in an approved container.

- The containerized waste is handled as follows.

  - If the waste has been altered during stabilization and cleanup actions (sorbed, mixed, diluted, etc.), the containerized waste is placed in storage and managed in accordance with the provisions of the waste analysis plan (Appendix 3A).

  - Inventory is updated to reflect the changes in waste description, volume, and storage locations.

  - If the waste was not altered during stabilization and cleanup activities, the containerized waste is placed in the appropriate storage area, and the inventory is altered to reflect any changes.

  - Waste added to the 2706-T effluent collection system is documented in the operations logbook.

- Documentation is approved indicating that the waste was removed from the containment system and cleanup activities are complete. Completion of this cleanup is documented in the logbook.

Specific actions to be taken in response to a spill or discharge are detailed in the building emergency plan (Appendix 7A).

In the event of a fire sprinkler activation or pipe break within T Plant Complex, the following is performed.

- Water in the containment system is inspected visually for signs of contamination.

- If contamination is suspected, an analysis of pH and radioactivity is performed.

- Containers in the storage building(s) affected by sprinkler activation or pipe break are inspected for signs of leakage.

- Inspection reports and the operating logbook are reviewed to identify any waste releases in the waste storage structure(s) for which remedial actions have not been completed.

- The T Plant Complex supervisor signs the operating logbook indicating that the previous steps were completed and that the storage structure(s) is clean.

Water accumulated in the containment system that is suspected of being contaminated is managed as follows.

- The water is removed from the containment system and managed in accordance with the waste analysis plan (Appendix 3A).

- Water accumulated in the containment system that can be verified to be free of contamination is released to ground or to the 2706-T effluent collection system.

- The T Plant Complex supervisor signs the operating logbook indicating that the water was removed from the containment system.

## 4.2 CONTAINERS WITHOUT FREE LIQUIDS [D-1e]

Containers without free liquids that do not exhibit ignitability or reactivity are discussed in the following sections.

### 4.2.1 Test For Free Liquids

A test for free liquids is not performed unless specific instructions are received because testing would increase the radiation exposure of personnel.

### 4.2.2 Description of Containers

The description of containers is the same as described in Section 4.1.1.1.

### 4.2.3 Container Management Practices

Container management practices are the same as described in Section 4.1.1.2.

### 4.2.4 Container Storage Area Drainage

The description of the storage area drainage is the same as described in Section 4.1.2. Areas inside the storage buildings and outside adjacent areas are sloped so that water flows away, presenting no danger of flooding.

## 4.3 PREVENTION OF REACTION OF IGNITABLE, REACTIVE, AND INCOMPATIBLE WASTE IN CONTAINERS [D-1f]

Ignitable, reactive, and incompatible waste stored in containers is packaged and managed in the manner described in Section 4.1.1 for containers with free liquids. Figure 4-1 shows a typical storage configuration for incompatible waste.

### 4.3.1 Management of Reactive Waste in Containers [D-1f(1)]

The T Plant Complex stores waste exhibiting the characteristics of reactivity as specified in Chapter 3.0. Precautions are taken to prevent any offnormal situations from occurring (Chapter 6.0, Section 6.5).

### 4.3.2 Management of Ignitable and Reactive Waste in Containers [D-1f(2)]

The following precaution is used for storing ignitable and reactive waste. All containers of waste with a flashpoint of less than 37.8°C or reactive waste are placed in the 214-T Building or other approved locations within the T Plant Complex.

### 4.3.3 Design of Areas to Manage Incompatible Wastes [D-1f(3)]

Packages containing incompatible waste are not permitted in the same container. However, part of the T Plant Complex mission is to repackage incompatible waste received in the same container (e.g., legacy containers, offsite shipments). All incompatible waste containers are stored in separate secondary containment systems. Incompatible mixtures include those that have the potential to generate a dangerous evolution of heat or gas or produce corrosive materials (49 CFR 173.21). Also, waste is not placed in an unwashed container that previously held an incompatible waste or material.

The onsite generating unit or offsite generator and the T Plant Complex operating organization are responsible for determining the regulatory status of each waste and for determining the incompatible compounds of the waste (Chapter 3.0). Status information determined by T Plant Complex operations is passed to the onsite generating unit or offsite generator. Onsite generating unit or offsite generator transportation personnel inspect the container for proper packaging, labeling, and marking, and review the completed waste manifest or onsite waste tracking form before transport to T Plant Complex. Containers are inspected at T Plant Complex to ensure that the waste is packaged properly, marked, and labeled, and that correct information is recorded on the manifest or waste tracking form (Chapter 3.0).

Each storage area contains one compatibility group that is segregated either by walls, curbs, or portable secondary containment.

## 4.4 TANK SYSTEM [D-2]

This section describes the design and operation of the 2706-T tank system for treatment and storage of mixed waste. Major topics discussed in this section include the following:

- Design, installation, and assessment of tanks and ancillary equipment
- Secondary containment system including leak detection
- Tank corrosion and erosion prevention

- Tank management practices
- Ventilation system to control air emissions.

This section describes the current tank system equipment. A general description of the 2706-T tank system is provided in Chapter 2.0. The liquid waste handling and transfer system is shown in Figure 4-2.

### 4.4.1 Design, Installation, and Assessment of Tank System [D-2a]

The 2706-T tank system includes two active tanks (T-XX-2706-220 and tank T-XX-2706-221) and ancillary equipment located in the 2706-T, 2706-TA, 2706-TB Buildings. Ancillary equipment is defined in WAC 173-303-040. The tanks are located in the 2706-TB Building. Secondary containment consists of a concrete berm with an external liner made of a high-density epoxy coating that is free of crack and gaps. The 2706-T and 2706-TA Buildings contain four sumps that provide primary and/or secondary containment for liquid decontamination waste and other compatible and accepted liquid mixed waste.

#### 4.4.1.1 Tank System Design Requirements [D-2a(1)]

The 2706-T and 2706-TA Buildings each have the capability to perform different treatment processes simultaneously. All vessels and piping systems are designed to meet operating conditions, to comply with the requirements of WAC 173-303-640 for tank system secondary containment and leak detection, and to meet applicable design standards.

Tanks, ancillary equipment, and floor coatings were designed and constructed to prevent degradation or failure because of exposure to chemical, physical, thermal, and radiological conditions. All vessels and associated piping systems have remote monitoring capability, overfill protection systems with automatic cutoff and manual override capability to prevent tank overfills, antifreeze protection for outdoor components (normal operations occur within temperatures of 7°C to 49°C), components to minimize the buildup of sludge materials, leak tested per American Society of Mechanical Engineers (ASME) codes, and all waste transport systems (piping, pumps and valves) have compliant secondary containment.

### 4.4.2 Tank System Integrity Assessments [D-2(a)(2)]

An integrity assessment for the 4706-T tank system that includes tanks, ancillary equipment, and secondary containment is provided in Appendix 4C. The assessment report was certified by an independent, qualified, registered professional engineer. The schedule for further tank system integrity assessments is discussed in Chapter 6.0.

### 4.4.3 Additional Requirements for New Tanks [D-2a(4)

The installation and inspection of T-XX-2706-220 and T-XX-2706-221 were certified by an independent, qualified, registered professional engineer. A copy of the document that provides this assurance, design, design acceptance, and installation is provided in Appendix 4C.

### 4.4.4 Description of Tanks, Sumps, and Ancillary Equipment [D-2b]

The design, materials, and secondary containment for tanks, sumps, and waste transfer tank system components are described in the following sections. Ancillary equipment includes piping, pumps, and valves of the effluent collection system. Ancillary equipment is inspected daily during operations (Chapter 6.0).

#### 4.4.4.1 Piping

Where not located over secondary containment structures, waste transfer piping is double contained using prefabricated pipe-in-pipe systems. The inner sleeve piping provides primary containment and the outer sleeve provides secondary containment. All piping, vessels, and associated equipment have corrosion protection as necessary. Waste transfer piping is 2-inch or less, Schedule 40, Type 304-L stainless steel selected based on waste characteristics and operating temperatures. Only the concrete-embedded drain piping from the 2706-TA HVAC sump to the 2706-TA sump and the 2706-T floor drain to the railroad pit is double-sleeved. Piping systems are sloped to prevent the accumulation of waste liquids within the pipes. Piping connections, flanges, and fittings are welded. The piping is installed at an elevation that does not interfere with normal operations. Figure 4-2 shows the piping flow.

Where it is not practical to provide pipe-in-pipe systems, valves and associated non-encased piping are placed above sealed secondary containment structures with leak detection systems. All valves and associated non-encased piping located above the storage tanks are inside a foundation with a special protective coating system that serves as the secondary containment.

Leak detection probes are located in the secondary pipes. The leak detection systems provide immediate operator notification, via visible and audible alarm annunciators, of liquid entering the secondary containment. All effluent collection system alarms are received at the computer monitoring system.

#### 4.4.4.2 Pumps

The effluent collection system waste transfer pumps, except for 215 and 216, are air-operated diaphragm pumps. Air-operated diaphragm pumps are designed to automatically turn on and off when waste transfers occur. Process air is provided by the compressed air system to operate pneumatic pumps and air spargers. The pumps within the pit and sumps provide the means to pump waste effluent from one sump to another or from a sump to the storage/treatment tanks. Pumps are stainless steel.

Pumps 203 and 204 pull liquid waste from the 2706-T railroad pit sump to the 2706-TA sump. Pumps 206 and 207 pull waste from the 2706-TA sump through T-XX-2706-208 or T-XX-2706-209 filters to T-XX-2706-220 or T-XX-2706-221. Pump 210 pulls liquid waste from T-XX-2706-220 through the recirculation loop or out to a tanker truck for transfer to an onsite TSD unit or offsite TSD facility. Pump 211 pulls waste effluent from T-XX-2706-221 through the recirculation loop or out to a tanker truck for transfer to an onsite TSD unit or offsite TSD facility. Pump 212 is located in the 2706-TB secondary containment sump. In the event of tank leakage or overfill, the pump can transfer the liquid back to the secondary containment sump to 2706-TA and/or back to T-XX-2706-220 and/or T-XX-2706-221. Pump T-XX-2706-215 is an air-operated hand pump located in the chemical addition room that is used to transfer caustic soda from the makeup drum to either T-XX-2706-220 or T-XX-2706-221. Pump 216 is a centrifugal pump that transfers condensate from the 2706-TA HVAC sump to the 2706-T railroad pit sump.

#### 4.4.4.3 2706-T Railroad Pit Sump

The railroad pit floor slopes to the railroad pit sump that measures 610 millimeters by 610 millimeters by 300 millimeters deep. The railroad pit sump acts as primary and secondary containment for liquid mixed waste from treatment activities in the 2706-TA Building. The railroad pit sump is a 400-liter belowgrade concrete containment sump. The sump is double lined with stainless steel to provide both primary and secondary containment for treatment solutions, is compatible with the waste, and does not undergo general corrosion because of exposure to waste. The primary liner for this sump is 0.79 centimeter thick and the secondary liner is 0.95 centimeter thick. The sump has a high- and low-level indicator, high-level alarm, and leak detection. The sump is equipped with an automatically activated sump pump that transfers liquid waste and sediment sludge to T-XX-2706-220 and T-XX-2706-221 located in the 2706-TB Building.

The base for the liner is the 2706-T floor that is structurally sound to support the load of the liner and the waste. In addition to dangerous waste regulations, the design considers protection against seismic events from the 2706-T seismic upgrades (ICBO 1991).

#### 4.4.4.4 2706-TA HVAC Sump

The 2706-TA HVAC sump collects condensate produced by the atmospheric cleanup train(ACT)-II ventilation system and HVAC units. The sump capacity is approximately 360 liters. Because of the small size of the HVAC sump, the collected condensate automatically is transferred to the railroad pit. The transfer is initiated by a high-level setpoint in the HVAC sump and stopped at a low-level setpoint. The sump is double lined with stainless steel to provide both primary and secondary containment for treatment solutions. The liner is compatible with the waste and undergoes general corrosion because of exposure to this waste. The primary liner is 0.64-centimeter thick and the secondary liner is 0.95-centimeter thick. The sump has a high- and low-level indicator, high-level alarm, and leak detection. The sump is equipped with an automatically activated sump pump that transfers liquid waste and sediment sludge to T-XX-2706-220 and T-XX-2706-221 located in the 2706-TB Building.

The base for the liner is the 2706-TA Building floor that is structurally sound to support the load of the liners and the waste. In addition to dangerous waste regulations, the design considers protection against seismic events from the 2706-TA seismic upgrades (ICBO 1991).

#### 4.4.4.5 2706-TA Sump

The 2706-TA sump provides primary and secondary containment for treatment wastewater generated in the 2706-TA Building. The floor is sloped to allow liquids to flow into the sump. The 2706-TA sump has a 2,000-liter capacity. The sump is double lined with stainless steel to provide both primary and secondary containment for decontamination solutions. The liner is compatible with the waste and does not undergo general corrosion because of exposure to this waste. The primary liner is 0.79-centimeter thick and the secondary liner is 0.95-centimeter thick. The sump has a high- and low-level indicator, high-level alarm, and leak detection. The sump is equipped with an automatically activated sump pump that transfers liquid waste and sediment sludge to T-XX-2706-220 and T-XX-2706-221 located in the 2706-TB Building.

The base for the liner is the 2706-TA Building floor that is structurally sound to support the load of the liner and the waste. In addition to dangerous waste regulations, the design considers protection against seismic events from 2706-TA seismic upgrades (ICBO 1991).

#### 4.4.4.6 2706-TB Building Basin and Sump

Secondary containment for T-XX-2706-220 and T-XX-2706-221 is provided by a basin and sump located below the grating in the 2706-TB Building. The floor of the building is a coated, curbed concrete basin free of cracks that acts as a liner system. This basin holds 63,600 liters, which is the maximum capacity of the largest storage tank (T-XX-2706-220 can hold 56,800 liters), plus a 20-minute deluge of water from the fire suppression system. The basin floor slopes to a smaller, similarly coated blind sump that holds 230 liters. There is direct leak detection in the sump. All releases of liquids are contained in the basin and sump and pumped back to either tank.

#### 4.4.4.7 T-XX-2706-220

T-XX-2706-220 is located in the 2706-TB Building and receives waste from the 2706-T and 2706-TA Buildings sumps and from tank T-XX-2706-221. The tank is made of 304-L stainless steel and is 5.3 meters high and 4.3 meters in diameter. The tank has a rounded top and bottom and a capacity of 56,800 liters. The top and bottom heads have a design wall thickness of 0.79 centimeter. The shell is divided into upper and lower halves with the bottom half being 0.79 centimeter and the top half being 0.64 centimeter. The tank acts as a standby for T-XX-2706-221 to prevent overfilling. The tank is supported on a cylindrical metal plate skirt bolted to a concrete support pad. This tank was leak tested per ASME codes. The tank is vented passively and requires no pressure control systems. Waste is pumped out of the tank by an externally mounted air-driven pump. The tank has overfill protection that uses automatic cutoff with manual override capability to prevent overflows during operations. The tank has a high- and low-level alarm. An agitator was installed to provide sludge mixing to prevent the buildup of sludge in T-XX-2706-220. The agitator is mounted at the top of the tank and positioned so that the blade has appropriate clearance from other tank internals.

#### 4.4.4.8 T-XX-2706-221

T-XX-2706-221, located in the 2706-TB Building, receives waste from 2706-T and 2706-TA Buildings sumps. All liquid waste generated in the 2706-T and 2706-TA Buildings ultimately is collected in T-XX-2706-221. The tank, 5.3 meters high and 2.9 meters in diameter, has a rounded top and bottom and a capacity of 22,712 liters. The tank is made of 304-L stainless steel. The tank is supported on a cylindrical metal plate skirt bolted to a concrete support pad. This tank was leak tested per ASME codes. The top and bottom heads have a design wall thickness of 0.95 centimeter. The shell is divided into upper and lower halves with the bottom half being 0.95 centimeter and the top half being 0.79 centimeter. The tank is vented passively and requires no pressure control systems. Waste is pumped out of the tank by an externally mounted air-driven pump. The tank has overfill protection that uses automatic cutoff with manual override capability to prevent overflows during operations. The tank has a high- and low-level alarm.

T-XX-2706-221 contains an agitator to prevent the buildup of sludge and to provide sludge mixing. The agitator is mounted at the top of the tank and positioned so that the blade has appropriate clearance from other tank internals. When the waste in the tank is to be transferred, the contents are characterized (Appendix 3A) and transferred through the waste offloading line to a tanker truck in the 2706-T Building.

### 4.4.5 Tank Management Practices [D-2d]

This section describes tank treatment, controls to prevent overfilling, and addresses controls to ensure that treatment agent(s) or waste are not placed in the system that could cause failure.

#### 4.4.5.1 Tank Treatment

Generally, waste treatment performed in 2706-TB Building tanks is limited to final pH adjustment or nitrite addition; however, other treatment could occur in the tanks. Adjustment of pH or nitrite levels could be required before transfer to a TSD unit. The chemical addition system provides the ability for chemical makeup and addition. The chemical addition system is located in the 2706-TB Building and consists of isolation valves, transfer pump, and fittings for adding chemical solution to the tanks. The need for treatment is determined by the results of waste sampling. The liquid sampling station is located within the confines of 2706-TA Building and is connected to the process piping. The sampling station contains pH monitoring of liquid flowing through the sample loop. The sample loop contains valve isolation and the capability for collecting a sample. The inline pH probe is located on the annunciator panel across the room on the south wall and shows the pH of the waste in the loop.

If it is determined that the pH of the material is too low (acidic), a caustic solution is added. The chemical addition system is used to introduce caustic (typically NaOH) to raise the pH of the waste to an acceptable level. A small air-operated diaphragm chemical transfer pump, T-XX-2706-215, draws a caustic solution from a container and pumps the solution to a recirculation tank. The chemical transfer pump is hand operated by a local air valve. Nitrite or other approved chemicals may be added to meet the receiving TSD unit waste acceptance criteria. Agitators are located in the tanks to mix the wastewater when chemicals are added, providing a homogeneous mixture so a representative sample can be taken. Agitation also helps prevent buildup of sludge in the tanks.

Instrumentation and control systems are designed to withstand normal and upset conditions including environmental fluctuations in temperature, humidity, wind, and airborne dust; and to withstand exposure to sunlight, radiation fields, and accumulated dose. There are separate system screens for each decontamination waste storage tank and sump, as well as for some subsystems that can be selected on the programmable logic controllers monitor. The screens provide a representation of system piping and component status as well as alarm and control functions. Alarms and status panels are provided in the 2706-TA and 2706-TB Buildings.

#### 4.4.5.2 Instrumentation and Controls to Prevent Overfilling

The distributed control system is a computer system that automatically monitors, alarms, and controls the level and transfer of waste for each sump collection, transfer, and storage location and provides operator interface with the effluent control system. The computer system allows operator access to all screens necessary for recording level readings and to control pumps and valves. The system is controlled from computer terminals located in 2706-T Building electrical room and in MO-433. Control systems use programmable logic controllers for control of pumps, valves, and switches as necessary to maintain safe operating conditions and to detect leaks in tanks, sumps, and piping. The programmable logic controls are located centrally in the 2706-TA electrical room to provide control, monitoring, and alarms for the 2706-T Building waste collection, storage, transfer systems, and ventilating system.

Effluent control system alarms are located in 2706-T Building and in MO-433. The leak detection system allows for detection within 24 hours of any accumulated waste. The unit is operated 24 hours a day ensuring that any alarm is observed and responded to within 24 hours. The programmable logic controllers control the tank overfill protection system that has automatic cutoff with manual override to prevent tank overfill during operations.

Tanks and sumps have high-level probes that are lighted and have audible alarms to indicate when liquid level limits are exceeded. Low-level setpoints are used to control the operation of air spargers in the sumps. The alarm sounds when the liquid level setpoint in a tank or sump is exceeded. Additionally, pumps, hydraulic valves, and agitators are controlled and monitored remotely. Calibration records for monitoring devices are maintained in the T Plant Complex operating files. If one tank is overfilling, an automatic bypass system transfers the waste to the other tank or stops the flow if levels are exceeded in both tanks.

#### 4.4.5.3 Prevention of Incompatible Waste

Operational and waste acceptance controls ensure that no reagents and/or incompatible waste are used or managed in the 2706-T Building that could lead to system failure due to rupture, leak, or corrosion.

#### 4.4.5.4 Tank Trailer Transfer

A tanker trailer is used for the transfer of waste from the 2706-T Building to a TSD unit. A waste transfer data sheet is used to initiate the transfer of the contents of T-XX-2706-220 or T-XX-2706-221 to the tank trailer. This data sheet summarizes the laboratory analytical results reported on the tank transfer record and records the amount of waste received in the tanker trailer and the receiving tank volume. This form also specifies the waste acceptance criteria that each transfer volume must meet before transfer. A land disposal restrictions notification also is completed before transfer.

### 4.4.6 Labels or Signs [WAC 173-303-640(5)(d)] [D-2e]

All access points to tank system areas are marked with labels and/or signs that read: "Danger Unauthorized Personnel Keep Out". In addition, the tanks are posted with labels identifying the major risks, with signs regarding the presence of radioactive waste, and signs identifying the area as a radiological access control location.

### 4.4.7 Air Emissions [D-2f]

Waste that is acutely or chronically toxic by inhalation is not managed in the 2706-TB tanks. The waste managed in the tanks and sumps typically is dilute aqueous waste and no acutely or chronically toxic vapors are emitted. Sumps are open and tanks are atmospheric tanks that are ventilated passively. Consequently, tank systems were not designed to prevent the escape of fumes, vapors, or other emissions. Air enters and leaves the tanks through vent lines. However, to mitigate the potential for radioactive releases, a 30-centimeter by 30-centimeter 99.97 percent efficient HEPA filter, designed to remove particulate matter greater than 0.3 micron from the air stream, is installed on each storage tank vent.

Because of the presence of radionuclides in tank waste, the 2706-T and 2706-TA Buildings ventilation systems operate on an as-needed basis at negative differential pressure to keep air flowing away from noncontaminated locations and toward potentially more contaminated locations. From there, the air passes through HEPA filters before discharge to the environment via regulated stacks.

### 4.4.8 Management of Ignitable, Reactive, and Incompatible Waste in Tank Systems [D-2g]

Ignitable, reactive, and incompatible waste is not managed in T Plant Complex tank systems. The tank systems provide storage for liquid mixed waste generated by decontamination and treatment operations in the 2706-T and 221-T Buildings. Liquid mixed waste managed in the tank systems is primarily aqueous, nonignitable, and nonreactive liquid with entrained solids (i.e., dirt and dust removed during decontamination operations). Highly disassociated acids and bases (pH $<3.0$ or pH $>11.0$) are not anticipated in the tank system waste. Ignitable solvents are not used in any decontamination or treatment activities carried out in T Plant Complex.

## 4.5 AIR EMISSIONS CONTROL [D-8]

This section addresses the T Plant Complex requirements of air emission standards under 40 CFR 264, Subpart BB (WAC 173-303-691) and Subpart CC (WAC 173-303-692).

### 4.5.1 Applicability of Subpart BB Standards [D-8b]

The air emission standards of 40 CFR 264, Subpart BB, apply to equipment that contains or contacts hazardous waste with organic concentrations of at least 10 parts per million by weight. Organic solvents are not used in decontamination processes that are the primary source of tank system waste.

The only equipment at T Plant Complex that is subject to the provisions of Subpart BB is the carbon canister associated with the aerosol can venting equipment. This equipment qualifies as a control device subject to the provisions of 40 CFR 264.1060. An exemption is provided in 40 CFR 264.1050(f) for equipment that contains or contacts hazardous waste with organic concentrations of at least 10 percent by weight for a period of less than 300 hours per calendar year. Because this equipment is managed in a manner that meets the requirements of this exemption, this equipment is exempt from the requirements of 40 CFR 264.1052 through 264.1060. As required by 40 CFR 264.1064(g)(6), the aerosol can venting equipment is identified in a log that is maintained as part of the operating record. This equipment is marked as required by 40 CFR 264.1050(d).

### 4.5.2 Applicability of Subpart CC Standards [D-8c]

The air emission standards of 40 CFR 264, Subpart CC, apply to tank, surface impoundment, and container storage units that manage waste with average volatile organic concentrations equal to or exceeding 500 parts per million by weight, based on the dangerous waste composition at the point of origination (61 FR 59972). However, containers that are used solely for management of mixed waste are exempt.

TSD owner/operators are not required to determine the concentration of volatile organic compounds in a dangerous waste if the waste is placed in waste management units that employ air emission controls that are in compliance with the Subpart CC standards. Therefore, the approach to Subpart CC compliance at T Plant Complex is to demonstrate that T Plant Complex meets the Subpart CC control standards (40 CFR 264.1084 - 264.1086) for containers of dangerous waste.

Container Level 1 and Level 2 standards are met at T Plant Complex by managing all dangerous waste in U.S. Department of Transportation containers [40 CFR 264.1086(f)]. Level 1 containers are those that store more than 0.1 cubic meter and less than or equal to 0.46 cubic meter. Level 2 containers are used to store more than 0.46 cubic meter of waste that are in 'light material service'. Light material service is defined where a waste in the container has one or more organic constituents with a vapor pressure greater than 0.3 kilopascal at 20°C, and the total concentration of such constituents is greater than or equal to 20 percent by weight.

The monitoring requirements for Level 1 and Level 2 containers include a visual inspection when waste initially is placed in a container at T Plant Complex, and at least once every 12 months when stored onsite for 1 year or more.

Container Level 3 standards apply when a container is used for the "treatment of a hazardous waste by a waste stabilization process" [40 CFR 264.1086(2)]. Treatment of dangerous waste in containers is provided at T Plant Complex and these standards apply.

## 4.6 CONTAINMENT BUILDINGS [40 CFR 264, Subpart DD]

The only T Plant Complex containment building is the 221-T Building that includes the railroad tunnel, canyon deck, and selected process cells (Chapter 1.0). The containment building acts as primary containment for stored waste and materials (generally equipment and debris) not in containers and not containing free liquids. The T Plant Complex containment building is designed and operated in accordance with WAC 173-303-695, which incorporates by reference the requirement of 40 CFR 264, Subpart DD, "Containment Buildings".

The maximum design storage capacity in the 221-T Building is 8,792 cubic meters (Chapter 1.0).

### 4.6.1 221-T Building Design [40 CFR 264.1101(a)]

Descriptions of the basic design, materials of construction, design standards, and demonstration of structural integrity of the 221-T Building are provided in the following sections.

#### 4.6.1.1 Description of 221-T Basic Design, Dimensions, and Construction Materials [40 CFR 264.1101(a)(1)]

The 221-T Building, constructed of reinforced concrete, is 260 meters long, 21 meters wide, and 23 meters high, and covers an area of 5,400 square meters. The floor of the 221-T Building is 1.8 meters thick, the northwest wall is approximately 0.9 meter thick, and the southeast wall is approximately 1.5 meters thick. The building consists of the canyon, three galleries (operating, pipe, and electrical), one craneway, one railroad tunnel, and a head-end area (Chapter 2.0).

The 221-T canyon consists of 37 cells grouped into 12-meter sections arranged in a single row running the length of the building. Each section is numbered according to building section and consists of two cells, one designated (R) and one (L). All cells, except 2R and 5R, and the head-end cells, are 5.4 meters long, 4.0 meters wide, and 8.5 meters deep. Each left and right pair is separated from the neighboring cell pair by a 2.1-meter-thick reinforced concrete wall. All cell floors except 5R slope to one corner, where a drain leads to a 610-millimeter liquid collection line running the length of the building that empties into tank 5-7 in cell 5R. This liquid collection system is no longer in service. The cell deck is about 12 meters below a 0.9- to 1.2-meter-thick concrete roof. Four 1.8-meter-thick reinforced concrete blocks cover a majority of the cells. Each cover block has a carbon steel lifting bail to allow access into the cells. Several cells partially or completely are uncovered.

Shielding walls made of 2.7-meter-thick reinforced concrete separate the cells from the electrical and pipe galleries. The operating gallery is separated from the canyon deck by a 2.1-meter-thick reinforced concrete wall. The crane cab is protected by a 1.5-meter-thick concrete wall that extends 2.7 meters above the floor level.

The railroad tunnel also is constructed of reinforced concrete and is used for transporting equipment and waste into and out of the canyon. The railroad tunnel enters the building at cell 2L (section 2). A 4.9-meter wide by 6.7-meter high opening, covered by a motor-driven rolling steel door, provides access to the railroad tunnel from the outside.

The canyon deck can be used for packaging, special decontamination services, repair, treatment, and storage. Equipment that requires decontamination for repair, reuse, recycle, storage, or disposal (e.g., pumps, motors, and resin columns) is stored on the canyon deck or in the canyon cells. The amount and type of equipment in the cells can vary with treatment and storage support requirements.

Sections 4 through 10 are the canyon service areas used as staging and storage areas for contaminated and decontaminated equipment. The primary staging and storage areas for pumps and agitators are located in sections 4 and 6. However, these locations within the canyon can change to support waste operations.

A 41-metric-ton-capacity master crane is in operation that moves parallel to the canyon, allowing access to the canyon deck area. This facilitates remote decontamination, maintenance, treatment, and storage activities. The crane maintenance platform, located in section 20, allows hands-on crane inspection and maintenance.

A 3.2-meter-square concrete exhaust air tunnel runs parallel to the canyon and provides exhaust for the canyon cells. The tunnel exits the 221-T Building at section 3, 6.7 meters below the deck level where the air tunnel narrows to a 1.2- by 2.1-meter duct. The duct runs approximately 61 meters underground to the HEPA filter system that discharges to the 291-T stack exhaust system located just southeast of the 221-T Building. Figure 4-3 identifies the 221-T Building air flow and exhaust pathway.

The head end of the 221-T Building is partitioned off by a sheet metal wall that separates the head end from the majority of the canyon area. The head-end area consists of one large cell, a control room, laboratories, a change room, and a large high-bay work area. The cell is 9.7 by 9.7 by 23 meters high. The roof is a 0.9- to 1.2-meter-thick concrete slab.

#### 4.6.1.2 221-T Design Standards and Demonstration of Structural Integrity [40 CFR 264.1101(a)(2)]

The 221-T Building was designed and built to codes and standards applicable in 1944. These standards included static, vertical, live, and dead loads, and lateral wind forces based on the projected building area (WHC-SD-CP-SAR-007). Although these codes had no seismic provisions and no requirements for tornado resistance, the tornado and seismic stress that the building can tolerate has been calculated (HNF-6033).

The structure of the 221-T Building can withstand a tornado having a maximum tangential wind speed of 240 kilometers per hour with a 40-kilometer-per-hour translational speed (or a resultant speed of 280 kilometers per hour). The building also can withstand a negative pressure loading that results from a 5.2-kilopascal ambient pressure decrease in 3 seconds to a constant held for 1 second and returned to ambient pressure at the same rate. Thus, the structure is able to survive a design-basis tornado.

An assessment of the capability of the 221-T Building to withstand a safe shutdown earthquake was conducted (HNF 6033). For the Hanford Facility, the safe shutdown earthquake is defined as a horizontal ground motion of 0.25 g with the vertical motion taken as two-thirds of the horizontal motion. Results of the first phase elastic analyses indicate that the canyon walls substantially would be overstressed near the roof (above the canyon crane rails) and at the canyon wall-gallery slab intersections. The primary load-bearing reinforced concrete of the canyon also would be damaged.

#### 4.6.2 221-T Primary Containment System [40 CFR 264.1101(b)(1) and (2)

The 221-T Building has the primary containment system for any noncontainerized radiologically or chemically contaminated equipment and waste while in the building. The T Plant Complex containment system was designed to restrict releases of radioactivity or other hazardous materials to the environment or into areas normally occupied by personnel. The following sections describe the primary containment system.

##### 4.6.2.1 221-T Primary Barrier Design [40 CFR 264.1101(b)(1) and (a)(4)]

The floor of the 221-T Building is 1.8- to 2.7-meter-thick reinforced concrete. The concrete is essentially an inert material with respect to oxidizing, combustible, and flammable materials. Operating history has demonstrated the ability of the building to withstand the movement of personnel, waste, and handling equipment. During the operational life of the containment building, there have been no indications that the building is unable to withstand the physical or chemical properties of the waste entering the building.

##### 4.6.2.2 221-T Liquids Collection, Removal System, Secondary Containment [40 CFR 264.1101(b)(2)].

As described in Section 4.1.2, portable secondary containment is provided for containers with free liquids. Therefore, secondary containment, leak detection, or liquid removal systems are not required or provided in the 221-T Building.

#### 4.6.3 221-T Operations to Ensure Containment [40 CFR 264.1101(a) through (d)]

The 221-T canyon is used primarily as a storage area for containerized and noncontainerized waste. The following sections describe the operation used to ensure containment of the noncontainerized waste.

##### 4.6.3.1 221-T Primary Barrier Integrity [40 CFR 264.1101(c)(1)(i)]

Controls and practices used to maintain the primary barrier could include daily surveillance (if personnel enter the 221-T canyon) for cracks, gaps, corrosion, or other deterioration that could cause release of waste. Should any problems be identified during surveillance, steps are taken to correct the identified problem.

Building differential pressure is monitored to ensure negative air pressure keeps contamination inside the building.

##### 4.6.3.2 221-T Incompatible Waste and/or Treatment Reagents [40 CFR 264.1101(a)(3)]

No incompatible waste or treatment reagents that could corrode or damage the containment area are brought into or used within the 221-T Building unless special precautions are taken to prevent commingling of incompatibles.

##### 4.6.3.3 221-T Level/Height of Waste Contained [40 CFR 264.1101(c)(1)(ii)]

The 221-T Building is a fully enclosed waste treatment and storage area. Reinforced concrete blocks cover most of the cells in the 221-T canyon. These cells can contain waste to a volume of 5.4 meters long by 4.0 meters wide by 8.5 meters high.

#### 4.6.3.4 221-T Prevention of Waste Track-Out [40 CFR 264.1101(c)(1)(iii)]

Extensive requirements are in place to prevent tracking out contamination, including administrative access controls and monitoring. Protective clothing is required for personnel inside the 221-T canyon. Exiting the canyon requires step pads to control where the contamination ends, removal of all protective clothing, and monitoring to determine if any contamination has reached the underlying clothing.

Waste tracked out by the movement of waste or equipment is prevented by monitoring all equipment or vehicles that exit the building and decontaminating as required. Waste to be removed from the building is containerized, wrapped in plastic, or transferred as self-containerized waste. The waste is screened for contamination before leaving the building, and could be withheld for treatment if necessary.

#### 4.6.3.5 221-T Control of Fugitive Dust Emissions [40 CFR 264.1101(c)(1)(iv)]

Fugitive dust emissions are controlled through the use of negative pressure differentials and filters. Contaminated areas are kept at a lower pressure than noncontaminated areas, resulting in airflow from the less contaminated area to the contaminated area, and effectively preventing the release of fugitive emissions. The 221-T canyon ventilation system consists of the 291-T exhaust system for exhausting the main canyon and 221-TA supply fans to supply air to the canyon. The HEPA filters on the 291-T exhaust system must each pass dioctyl salicylate aerosol testing requirements of 99.95 percent efficiency.

In addition to the equipment in the ventilation system, operational restrictions apply to the 221-T canyon. These include ensuring that the entry doors are closed when operations are in progress, and having at least one 291-T exhaust fan in operation during decontamination work that has a high potential to create airborne contamination.

#### 4.6.3.6 Detection and Repair of 221-T Problematic Conditions [40 CFR 264.1101(c)(3)]

Response methods for a release of dangerous waste in the 221-T Building and to any condition that could lead to a release of dangerous waste from the building are provided in the building emergency plan (Appendix 7A).

#### 4.6.3.7 221-T Building Inspection [40 CFR 264.1101(c)(4)]

Monitoring of building air differential pressure is used in lieu of visual inspections. Because of ALARA considerations, inspections of 221-T Building locations generally occur only when operations require entry into the operational areas. At that time, the 221-T Building concrete structure is surveyed visually and checked inside for liquid accumulations. Chapter 6.0 also describes containment building inspection.

## 4.7 MISCELLANEOUS UNITS

The 2706-T and 2706-TA Buildings are used to treat, store, and decontaminate railroad cars, buses, trucks, automobiles, heavy equipment, process equipment, etc. Noncontainerized and containerized waste segregation, sampling, treatment, verification, and/or repackaging of waste boxes and containers also are conducted. Under miscellaneous unit provisions of this permit, these buildings also are permitted to store noncontainerized waste that could contain free liquids and to perform waste treatment and decontamination activities using free liquids on operational area floors. The following sections address this function. The 2706-T and 2706-TA Buildings each have the capability to perform different treatment processes simultaneously.

The foundation and floor of these buildings were constructed at the same time. The location that was to become the 2706-TA Building was poured as a pad immediately adjacent to the 2706-T Building. The 2706-TA building meets the UBC design loads similar to the 2706-T Building (HNF-SD-WM-ISB-006) (ICBO 1991). In the 1990s, the 2706-TA Building was enclosed completely and upgraded to allow for decontamination operations similar to those occurring in the 2706-T Building.

### 4.7.1 2706-T and 2706-TA Building Design

Descriptions of the basic design, materials of construction, what is known of the design standards, and demonstration of structural integrity of the 2706-T and 2706-TA Buildings are provided in the following sections.

#### 4.7.1.1 Description of 2706-T Basic Design, Dimensions, and Construction Materials

The 2706-T Building is a ground-level building, 18 meters wide by 20 meters long by 7.6 meters high, constructed of prefabricated steel with 6.1-meter high sidewalls. The exterior walls of the 2706-T Building are 6 inches thick and consist of insulation sheathed in prefabricated steel. The 2706-T Building has openings on the west end that are fitted with rollup metal doors. The larger door, 3.7 meters wide by 4.9 meters high, is the entrance to the railroad pit area. Personnel access into the decontamination area is gained through an airlock between the railroad and automotive pit doors. Four doors allow for access through the maintenance and storage area. An overhead crane is available for maintenance use and can travel the length of the building. An exhaust stack on the west side provides HEPA filtration and radiation monitoring. The inner building layout provides a large maintenance and decontamination work area. A building extension to the south includes an electrical room and the controls for the fire suppression system. Heat pumps provide air conditioning.

The building was constructed to withstand wind design loads of not less than 73.2 kilograms per square meter ($kg/m^2$) for a vertical projection of the building and not less than 97.6 $kg/m^2$ for horizontal projection. The rigid frame of the building is capable of supporting a minimum of 2,490 kilograms at each load point, which enables the building to support the crane that travels the length of the building. The bridge crane only can be moved by a hand-operated pulley. The building loading foundation is based on an allowable soil-bearing load of 19,500 $kg/m^2$ (HNF-SD-WM-ISB-006).

The 2706-T Building has a fire detection and suppression system featuring both high- and intermediate-heat activated water sprinklers, as well as dry pendent sprinklers. The system also includes an alarm system complete with a radio fire alarm reporter unit. When a fire alarm is activated, the exhaust fan automatically turns off.

#### 4.7.1.2 Description of 2706-TA Basic Design, Dimensions, and Construction Materials

The 2706-TA Building was installed over the concrete pad located west of the 2706-T Building. The 2706-TA is a prefabricated steel structure measuring 15.2 meters wide by 18.3 meters long by 7.62 meters high. The building and foundation meet design loads equal to those of the 2706-T Building. The building has an equipment rollup door 3.66 meters wide by 4.88 meters high located at the west end of the building. Personnel access decontamination areas through airlocks at the 2706-T Building or the west end of the 2706-TA Building. The inner building has a filter room.

The 2706-TA Building has a fire detection and suppression system with a high- and intermediate-heat activated water sprinkler and a radio fire alarm reporter unit. When a fire alarm is activated, the exhaust fan automatically turns off.

#### 4.7.1.3 2706-T and TA Buildings Design Building Standards and Demonstration of Structural Integrity

The 2706-T and TA Buildings were designed and built to the applicable UBC requirements for Type IV buildings. The 2706-TA Building was designed to meet design loads equal to those of the 2706-T Building. Consequently, the 2706-T Building was built to withstand wind design loads of not less than 73.2 kgs/m$^2$ for a vertical projection of the building and not less than 97.6 kgs/m$^2$ for horizontal projection. The rigid frame of the building is capable of supporting a minimum of 2,490 kgs at each load point, which supports the crane that travels the length of the building. The bridge crane only can be moved by a hand-operated pulley. The building loading foundation is based on an allowable soil-bearing load of 19,500 kg/m$^2$ (HNF-SD-WM-ISB-006).

### 4.7.2 2706-T and 2706-TA Buildings Primary Containment System

The buildings act as the primary containment system for any noncontainerized waste treated or stored in the buildings. The 2706-T and 2706-TA containment system was designed to restrict releases of radioactivity or other hazardous materials to the environment. The following sections describe the primary containment system. The building floors meet secondary containment requirements for container management units and for tank systems.

### 4.7.3 2706-T and 2706-TA Buildings Primary Barrier Design

The buildings are roofed and fully enclosed. The floor is reinforced concrete, sealed with a durable chemical resistant epoxy coating. The concrete is an inert material with respect to oxidizing, combustible, and flammable materials. The floors are sloped toward the collection sumps to minimize the potential for standing liquids to be present.

### 4.7.4 2706-T and 2706-TA Buildings Liquid Collection, Removal, Secondary Containment

T Plant Complex noncontainerized waste generally contains no free liquids. Waste containing free liquids typically is managed in containers placed over portable secondary containment. However, miscellaneous unit operations allow storage of noncontainerized waste potentially containing free liquids and decontamination or treatment activities using free liquids on 2706-T and 2706-TA Building operational area floors. The effluent control system (Chapter 2.0) that provides secondary containment for tanks and containers also provides containment, leak detection, and liquid removal capability for noncontainerized waste containing free liquids and for liquids generated during treatment activities. Consequently, no concern exists for accumulation of liquids on the primary barrier.

### 4.7.5 2706-T and 2706-TA Buildings Operations to Ensure Containment

Operations to ensure containment in the 2706-T and 2706-TA Buildings are described in the following sections.

#### 4.7.5.1 2706-T and 2706-TA Buildings Primary Barrier Integrity

All of the concrete floors have been sealed with a durable chemical resistant coating. Periodic surveillances for cracks, gaps, corrosion, or other deterioration that could allow releases of waste are conducted. Floor surfaces are inspected before and after operations involving free liquids (Chapter 6.0). Surveillance results are recorded on data sheets and retained in the unit operating record. If any problems are identified, steps are taken to correct the problem and the actions recorded on data sheets.

Chapter 6.0 describes visual inspections performed to verify building structural integrity as the primary barrier for noncontainerized waste.

#### 4.7.5.2 2706-T and 2706-TA Buildings Incompatible Waste and/or Treatment Reagents

No treatment reagents that can corrode or damage the containment are brought into or used within 2706-T and 2706-TA Buildings unless additional containment is used.

### 4.7.6 2706-T and 2706-TA Buildings Level/Height of Waste Contained

The 2706-T and 2706-TA Buildings are roofed, fully enclosed waste storage areas and all operational areas can be used safely to store waste.

### 4.7.7 2706-T and 2706-TA Buildings Prevention of Waste Track-Out

Extensive requirements are in place to prevent the tracking out of contamination, including administrative access controls and monitoring. The minimum protective clothing requirements for personnel inside the 2706-T and TA Buildings include special work procedure clothing and a fitted, full-face respirator when needed. Exiting the 2706-T and 2706-TA Buildings requires step pads to control where the contamination ends, removal of protective clothing, and monitoring equipment to determine if any contamination has reached the underlying clothing.

Waste that could be tracked out by the movement of waste or equipment is prevented by monitoring all equipment or vehicles that exit the building, and decontaminating as required. Waste to be removed from the building is containerized, wrapped in plastic, or transferred as self-containerized waste. The waste is screened for contamination before leaving the building, and could be withheld for treatment if necessary. All waste that is removed from the building is transported in compliance with an approved safety analysis report for packaging.

### 4.7.8 Control of 2706-T and 2706-TA Buildings Fugitive Dust Emissions

Fugitive dust emissions are controlled through the use of negative pressure differentials and filters. Contaminated areas are maintained at a lower pressure than noncontaminated areas, resulting in airflow from the less contaminated area to the contaminated area. When operating, the HVAC systems provide constant airflow from clean areas toward areas of higher contamination. This 'negative' air pressure prevents contamination from entering clean areas and the environment. The systems are designed to filter any contamination that might be released during operations. The air is sampled, passed through HEPA filters, and exhausted to the 2706-T common stack for release. The filters have differential-pressure (DP) gauges that are monitored routinely. Air locks exist at personnel entries to maintain differential pressure. Within the 2706-T Building are four air locks. These air locks are necessary to maintain the 'negative' pressure within the building when the HVAC exhaust systems are operating.

The core of the 2706-TA Building air filtration system is the atmospheric cleanup train (ACT-2) unit, which is located in a separate HVAC room directly connected to the 2706-TA Building. A similar system currently exists and is used within the 2706-T Building (ACT-1). The two units share the existing exhaust stack on the southwest side where HEPA filtration and confirmatory sampling are provided. The HEPA filter bank has DP monitoring and alarm annunciation on the programmable logic controller system. The ACT-1 and ACT-2 systems essentially are identical. The systems are supplemented with various monitoring capabilities, DP monitoring, and temperature monitoring.

### 4.7.9 Detection and Repair of 2706-T and 2706-TA Buildings Problematic Conditions

Response methods for a release of dangerous waste in the 2706-T and 2706-TA Buildings and to any condition that could lead to a release of dangerous waste from the building are provided in the building emergency plan (Appendix 7A).

## 4.8 TECHNOLOGY DEMONSTRATION AND IMPLEMENTATION PROCESS

A variety of technologies are emerging for treating dangerous and/or mixed waste, minimizing waste generation, and achieving compliance with LDRs. Many of these technologies might lend themselves to application at T Plant Complex or to operations similar to those conducted at T Plant Complex. The T Plant Complex can serve as a major asset for technology demonstration because T Plant Complex offers a high degree of flexibility to test and implement technologies under safe, controlled conditions. The T Plant Complex operations are adequate for, or readily adaptable to, testing and implementing many of these technologies. However, it is not possible to fully anticipate and adequately describe in this permit application documentation all of the various technologies that could arise and be tested and implemented at the T Plant Complex.

Therefore, the purpose of this section is to establish a process that enables technologies that are not presently used at T Plant Complex to be more quickly implemented, with adequate controls and oversight. The process presented in this section describes how promising technologies will be tested and how successful technologies could be implemented.

### 4.8.1 Demonstration and Implementation of Technologies

The scope, process overview, and roles and responsibilities of implementing technologies are described in the following sections.

#### 4.8.1.1 Scope

The technologies included are those not described in Chapter 2.0 or other sections of this chapter. Such technologies could include, but are not limited to, any methods for treating waste; preparing waste for future treatment; minimizing waste volumes; reducing waste hazards; improving waste stability; and making waste easier or safer to manage, package, and transport. The scope does not include technologies when an equally or more expeditious process (e.g., treatability testing exclusion) already is allowed under applicable regulations.

#### 4.8.1.2 Process Overview

The process for enabling implementation and demonstration of technologies at T Plant Complex is depicted in Figure 4-4 and described in more detail in the remainder of this section. The process set forth is designed to encourage the deployment of technologies. In general, when a technology is identified for possible use and/or demonstration testing at T Plant Complex, the following could occur.

- Prepare a technology notice and submit to Ecology (Section 4.8.2). The notice would indicate that a demonstration project is proposed for the technology. If the technology already has been demonstrated successfully elsewhere, the notice also could indicate whether recommendations for implementation would be developed. No action would be necessary at this point. Ecology could provide comments in response to the notice.

- If a technology is proposed for testing in a demonstration project, a demonstration test plan and demonstration project report would be prepared and submitted to Ecology, as described in Section 4.8.3. The demonstration test plan would describe the proposed demonstration project, how the test would be conducted, and the expected outcome. Ecology could provide comments. The demonstration project report would summarize the results of demonstration testing, including empirical data, analyses, and other relevant observations.

- Technology recommendations, prepared as described in Section 4.8.4, would describe the actions proposed at T Plant Complex (e.g., implementation of the technology, additional demonstration testing) relative to the technology and would be submitted to Ecology for review.

- Recommendations to implement a technology would be accomplished as described in Section 4.8.5. If Ecology concurs with a recommendation to implement a technology on an interim basis, T Plant Complex would proceed with implementation.

#### 4.8.1.3 Roles and Responsibilities

T Plant Complex personnel would be responsible for developing and submitting the technology notice and demonstration test plan, performing demonstration projects, preparing reports, and developing appropriate recommendations.

### 4.8.2 Technology Notice

The technology notice (Figure 4-5) would describe briefly the type of technology identified for implementation and/or demonstration testing. A notice could serve either of the following purposes.

- Identify a technology for which T Plant Complex could recommend for implementation. In this case, the notice would include information indicating that the technology successfully has been demonstrated offsite, the circumstances under which the technology has been used, and such other information as would support a decision to proceed directly with recommendations for implementation of the technology.

- Identify a technology for which T Plant Complex could prepare a demonstration test plan. In this case, the notice would include information briefly describing the technology to be demonstrated and the general scope of the demonstration project.

The technology notice would be submitted to Ecology for review. Because the objective of the notice would be to encourage early consideration of potentially significant issues, reasonable timeframes would be allowed for review and comment. In general, the following schedules could be observed.

- If the notice were being submitted in support of technology recommendations (Section 4.8.4), the notice would be provided to Ecology at least 30 days before the recommendations were expected to be submitted to Ecology.

- If the notice were being submitted in support of a demonstration test plan (Section 4.8.3), the notice would be provided to Ecology at least 30 days before the demonstration test plan was expected to be submitted to Ecology.

- Ecology comments would be provided within 30 days after receipt of a technology notice.

These timeframes could be adjusted by mutual agreement to account for project-specific needs and priorities.

### 4.8.3 Demonstration Project

The demonstration test plan would provide sufficient information to identify and control circumstances that reasonably could be expected to result in hazards to human health or the environment, or noncompliance with the conditions of the Hanford Facility RCRA Permit (DW Portion). The demonstration test plan would provide a comprehensive overview of the equipment to be tested, methods to be used, analyses and data to be obtained, and demonstration-derived waste management methods. The demonstration test plan would include a discussion of how the proposed demonstration project could be performed to meet applicable regulatory requirements.

Where existing methods or documents are not adequate, the demonstration test plan would identify or include supplemental information as necessary. Figure 4-6 presents an example outline that might be used to identify and organize the types of information included in a demonstration test plan.

#### 4.8.3.1 Submittal and Review

The demonstration test plan would be submitted to Ecology for review. Because many activities associated with or necessary to support demonstration projects readily would not be predictable, some flexibility in timeframes for submitting, reviewing, and completing demonstration test plans would be necessary. In general, the following schedules could be observed:

- Submit a demonstration test plan to Ecology at least 60 days before the demonstration project is expected to begin.

- Ecology reviews and provides comments (if any) within 30 days after receiving a demonstration test plan.

These timeframes could be adjusted by mutual agreement to account for project-specific needs and priorities.

#### 4.8.3.2 Demonstration Project Performance

The demonstration project would include activities necessary to install and precondition the demonstration equipment; introduce waste, contaminated equipment, or contaminated material to the demonstration system; perform the treatment, decontamination, or other management methods being tested; obtain samples and make observations; complete equipment operation; remove and dispose of demonstration-derived waste; and disposition the demonstration equipment. A number of supporting activities also could occur, but these would be not formally within the scope of the demonstration project itself. Such activities could include identifying candidate technologies; developing arrangements with vendors; acquiring equipment; testing offsite at bench- or pilot-scale; preparing operating procedures, manuals, or equipment specifications; evaluating data after completion of the demonstration project; and preparing reports and recommendations.

A demonstration project would be performed in accordance with the demonstration test plan. The demonstration project activities would be inspected and monitored during performance to identify and prevent or correct circumstances that could result in a hazard to human health or the environment.

The following circumstances could require modification, temporary stoppage, or permanent termination of demonstration project activities:

- Determination that the project activities endangers human health or the environment

- Conclusion that sufficient demonstration and testing of the technology occurred and the technology was determined to be ineffective

- Noncompliance with existing permit conditions for T Plant Complex.

On completion (or termination) of demonstration project activities, any remaining demonstration-derived waste and equipment would be managed and dispositioned in accordance with the demonstration test plan.

The T Plant Complex independently could decide to terminate a demonstration project. The T Plant Complex would notify Ecology of such a decision and would provide an explanation of the basis for the decision.

#### 4.8.3.3 Demonstration Project Reports

Interim and final reports would be prepared in accordance with the demonstration test plan. In general, interim reports would be prepared when necessary to summarize and communicate important interim events during demonstration project activities. Interim reports might be prepared regularly to maintain a periodic record of project status and progress on long-term activities.

A final report would be prepared following completion (or termination) of a demonstration project. The final report would summarize and discuss the results of the demonstration project, including any difficulties or unanticipated circumstances that occurred. The final report would include or reference relevant analytical data, monitoring records, field observations, and other measurements useful in assessing the performance of the technology.

Interim and final reports presenting the results of a demonstration project would be submitted to Ecology in accordance with the schedule specified in the demonstration test plan.

#### 4.8.4 Technology Recommendations

Technology recommendations would be developed based on the results of each demonstration project conducted. In addition, recommendations could be developed based on the results of any tests, demonstrations, and other work performed on a technology that show that the technology could be implemented successfully at T Plant Complex.

Technology recommendations would address whether a technology feasibly could be implemented, under what circumstances implementation of the technology could safely and practicably occur, and whether the technology should be implemented. If the recommendations include implementation of a technology, the recommendations also should include the following:

- Benefits and advantages of implementation

- Schedule for implementation

- An implementation plan describing how changes in design and operations would be developed and instituted.

Technology recommendations would be submitted to Ecology. If implementation was recommended, Ecology would evaluate the recommendations as described in Section 4.8.5.

#### 4.8.5 Technology Implementation at T Plant Complex

Ecology would review and evaluate recommendations to implement a technology at T Plant Complex. Ecology could provide comments identifying areas of concern and issues to be addressed (if any) before the technology could be implemented. The recommendations (including, if necessary, implementation plan and schedule) would be modified or withdrawn, as appropriate, in response to Ecology's comments. Unless otherwise required by Ecology, implementation of a technology could proceed under any of the following circumstances.

- When Ecology concurs with recommendations to implement the technology.

- When Ecology does not respond to recommendations to implement a technology within 30 days after the recommendations are submitted.

- While Ecology is reviewing recommendations to implement a technology, but only if the technology was tested successfully under a demonstration project, performed in accordance with Section 4.8.3.

Timeframes could be adjusted by mutual agreement to account for project-specific needs and priorities.

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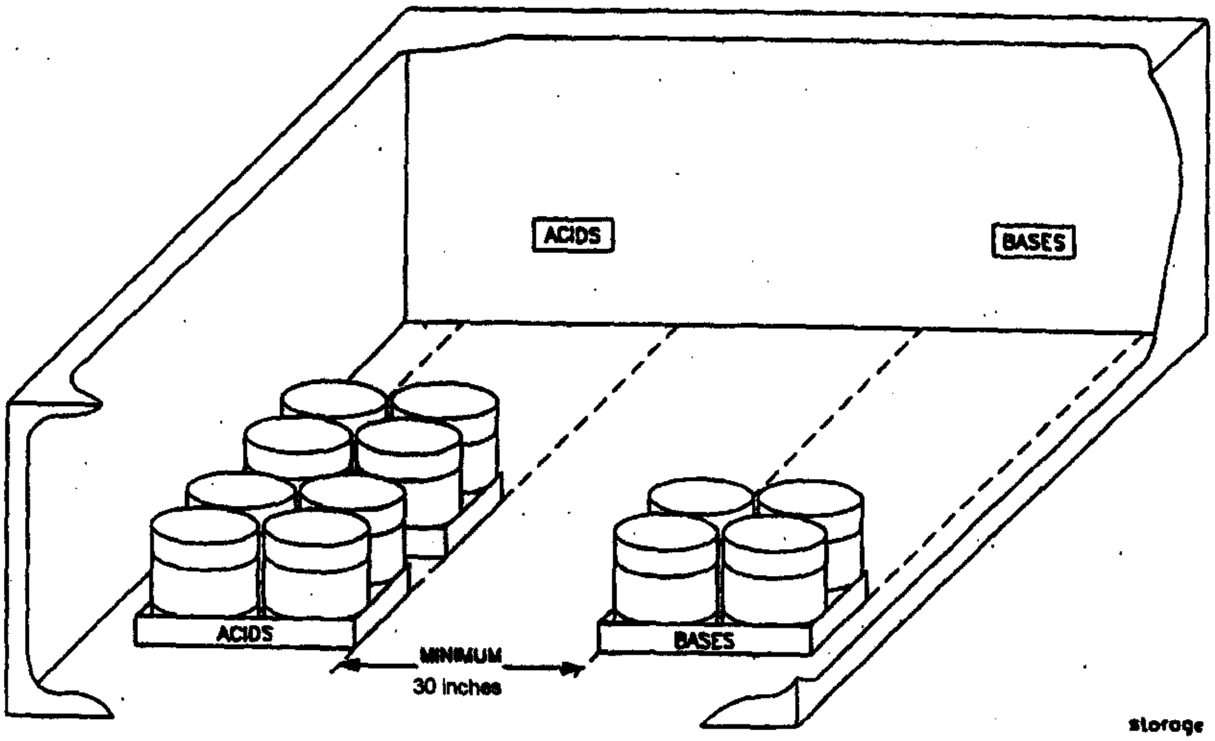


Not to Scale

Figure 4-1. Typical Storage Configuration for Incompatible Waste.

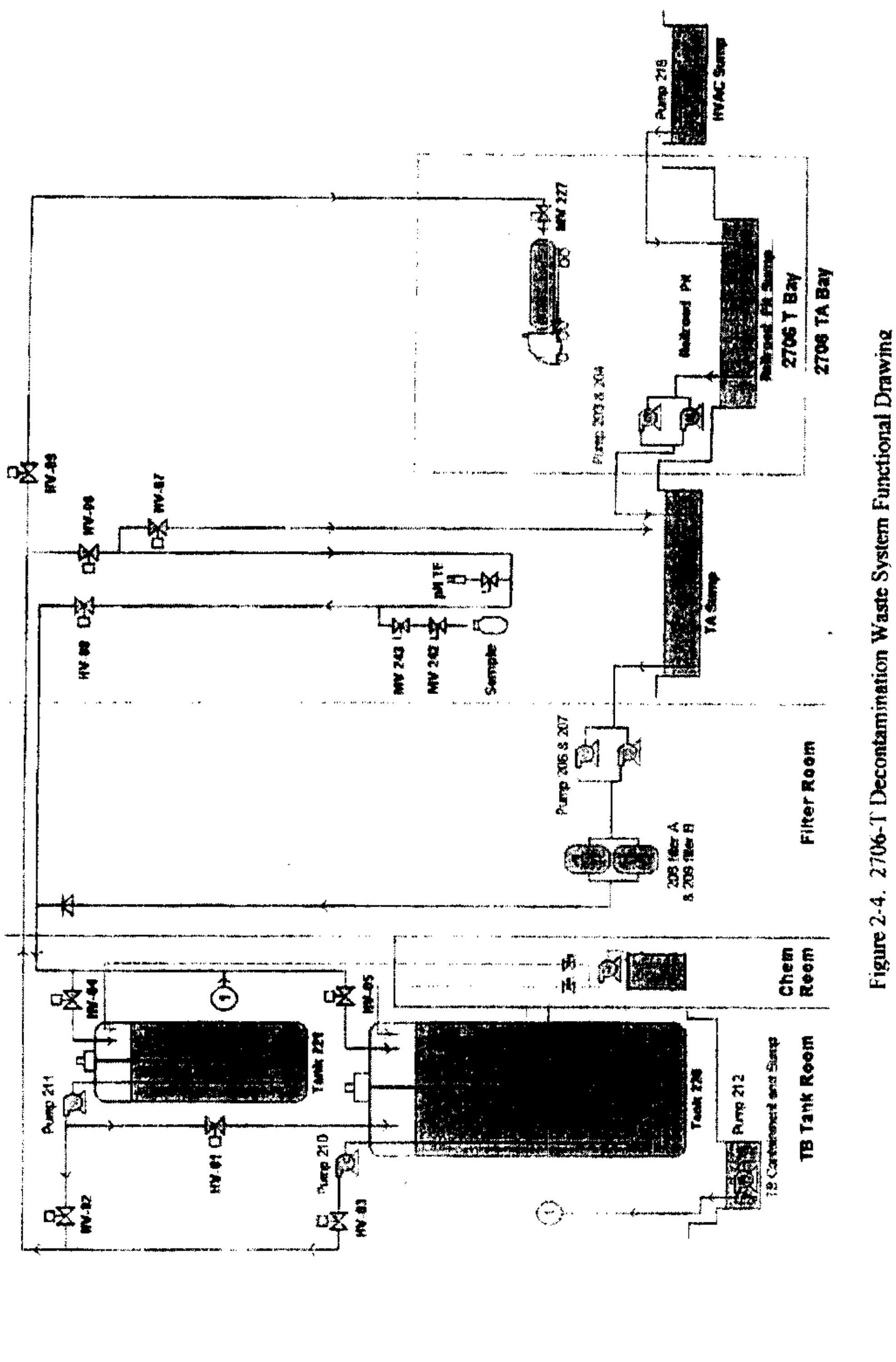


Figure 4-2. 2706-T Effluent Collection System Process Flow.

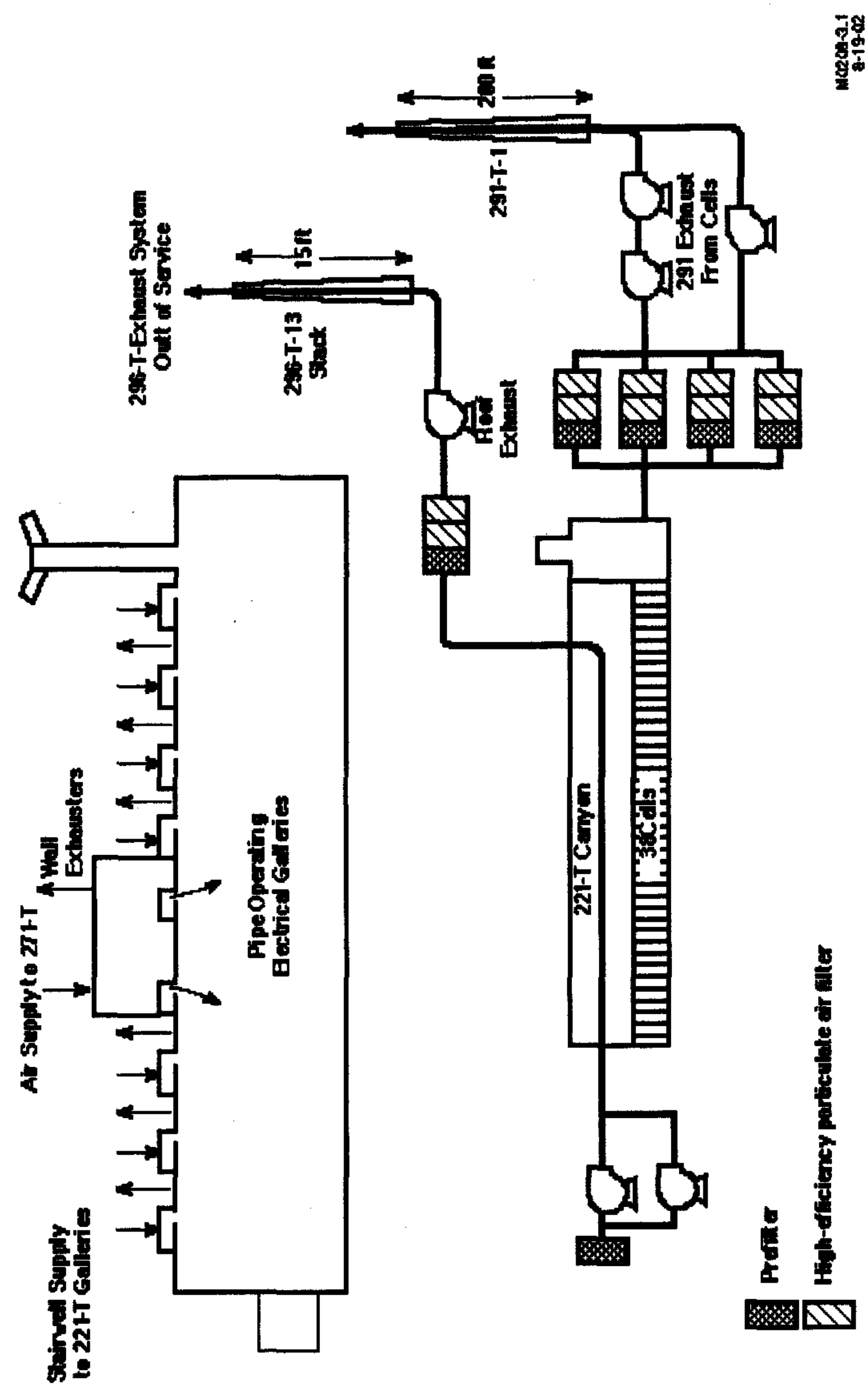


Figure 4-3. 221-T Building Air Flow and Exhaust.

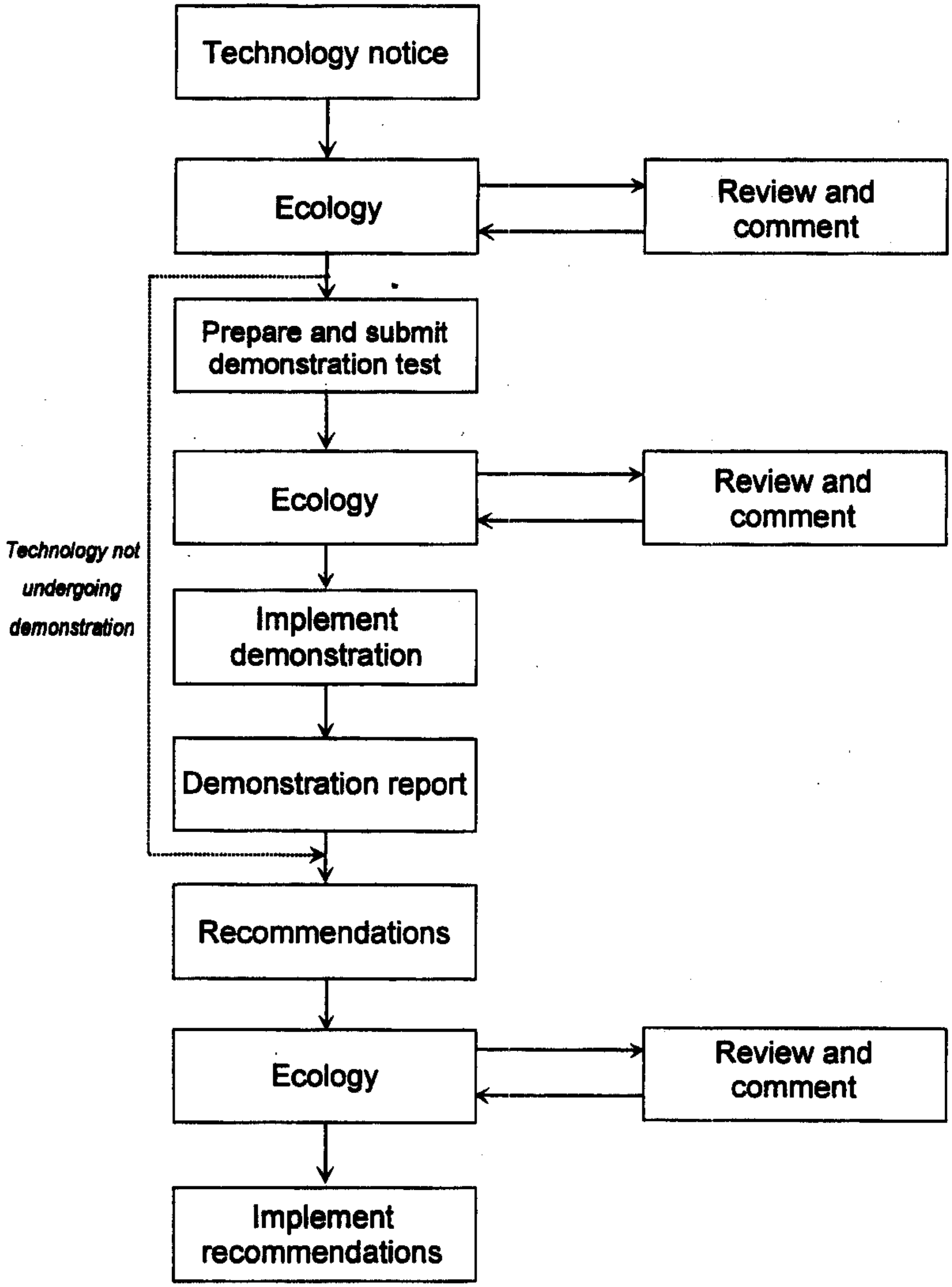


Figure 4-4. Process for Implementation and Demonstration of Technologies at T Plant Complex.

Technology Description
- Technology Type/Equipment
- Process Reagents (if any)
- Secondary Waste Streams
- Anticipated Effectiveness and Benefits

Demonstration Description (for demonstration project notice only)
- Waste To Be Tested
- Demonstration Location
- Process Operation
- Waste Management and Disposition
- Post-demonstration Equipment Disposition

Other Information (as appropriate or necessary)
- Previous Successful Demonstration of Technology
- Referenced/Supporting Documentation
- Attachments/Appendices

Figure 4-5. Information Requirements for Technology Notice.

EXECUTIVE SUMMARY

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Appendix A

Demonstration Test Sampling and Analysis Plan

Appendix B

Demonstration Test Quality Assurance Project Plan

Figure 4-6. Example Outline for Demonstration Test Plan.

Table 1. Container Characteristics.

| Inner Containers |
| --- |
| • Polyethylene bottles with liquid-tight screw-on lids<br>• Glass bottles with liquid-tight screw-on lids<br>• Polyethylene bags<br>• 5-centimeter-wide reinforced cloth tape<br>• Slip-lid cans |
| **Absorbent Materials** |
| • Absorbent pads (for organics): cotton batting woven into mesh, 1-liter capacity each<br>• Absorbent material (for aqueous or organics): gray polyethylene absorbent material, 1-liter capacity each<br>• Fine clay granular absorbent (for aqueous materials primarily)<br>• Diatomaceous earth (for inorganics, especially acids)<br>• Amorphous silicate (for organic or inorganic liquids other than acids)<br>• Fine-grained pillow (for inorganics)<br>• Nontreated clay-based absorbents (for inorganics) |
| **Outer Containers** |
| • DOT 17-C steel drums with solid lid, seal ring, locknut, and bolt<br>• DOT 17-H steel drums with solid lid, seal ring, locknut, and bolt<br>• 38-liter steel drums with lids and closures<br>• 114-liter steel drums with lids and closures<br>• 208-liter, 90-mil polyethylene liners |
| **Labels** |
| • Bottle identification labels<br>• DOT radioactive labels<br>• EPA hazardous waste labels<br>• DOT hazard class diamond-shaped labels |

DOT = U.S. Department of Transportation.
EPA = U.S. Environmental Protection Agency.

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# 5.0 GROUNDWATER MONITORING FOR LAND-BASED UNITS [D-10]

The T Plant Complex is not operated as a dangerous waste surface impoundment, waste pile, land treatment unit, or a landfill as defined in WAC 173-303-645(1)(a). Therefore, groundwater monitoring is not required.

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# TABLE

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# 6.0 PROCEDURES TO PREVENT HAZARDS [F]

This chapter discusses security; inspection schedules; preparedness and prevention requirements; preventive procedures, structures, and equipment; and prevention of reaction of ignitable, reactive, and incompatible waste at T Plant Complex.

The T Plant Complex is designed and operated to be protective of human health and the environment. Shielding, contamination control, control of toxic or dangerous material, and safety and security procedures are used to keep exposure ALARA.

## 6.1 SECURITY [F-1]

The following sections describe the security measures, equipment, and warning signs used to control entry to T Plant Complex. Hanford Facility security measures are discussed in the General Information Portion (DOE/RL-91-28).

### 6.1.1 Security Procedures and Equipment [F-1a]

The following sections describe the 24-hour surveillance system, barriers, and warning signs used to provide security and to control access to T Plant Complex.

#### 6.1.1.1 24-Hour Surveillance System

The entire Hanford Facility is a controlled-access area. For surveillance information, refer to the General Information Portion (DOE/RL-91-28).

#### 6.1.1.2 Barrier and Means to Control Entry

The T Plant Complex has a chain link fence surrounding the perimeter. Persons desiring entry to T Plant Complex are directed to pass through the main gate, which is posted with direction that personnel desiring access must check in at the main entrance (271-T Building). Personnel who have not attended the T Plant Complex orientation course must be escorted while within T Plant Complex. Personnel assigned to T Plant Complex monitor all persons entering T Plant Complex and notify the Hanford Patrol of any attempted unauthorized entry. Immediate response by protective force personnel maintains the necessary T Plant Complex security.

#### 6.1.1.3 Warning Signs

Signs bearing the legend "DANGER--UNAUTHORIZED PERSONNEL KEEP OUT," or an equivalent legend, are posted around the perimeter of each area managing dangerous and/or mixed waste. The signs are in English, legible from a distance of 7.6 meters, and are visible from all angles of approach. In addition to these signs, the fences around the 200 West Area are posted with signs, printed in English, warning against unauthorized entry. These signs also are visible from all angles of approach.

### 6.1.2 Waiver [F-1b, 1b(1), and 1b(2)]

Waiver of the security procedures and equipment requirements for T Plant Complex are not requested. Therefore, the waiver requirements outlined in WAC 173-303-310(1)(a) and (b) are not applicable to T Plant Complex.

## 6.2 INSPECTION PLAN [F-2]

This section describes the method and schedule for inspections of T Plant Complex treatment and storage areas. The purpose of inspections is to help ensure that situations do not exist that might cause or lead to the release of dangerous and/or mixed waste that could threaten human health and the environment. Problems or abnormal conditions identified by inspections are corrected on a schedule that prevents hazards to human health and the environment in accordance with the requirements of WAC 173-303-320(3).

### 6.2.1 General Inspection Requirements [F-2a and F-2c]

The content and frequency of inspections are described in this section. Inspections are performed by trained and authorized operations personnel. An inspection schedule is maintained in the 271-T Building. Inspections are documented on inspection data sheets. The T Plant Complex operations supervisor signs and dates the appropriate inspection sheet after corrections are completed of any deficiencies discovered during the inspections. The schedule and inspection records are retained in the T Plant Complex operating record for a minimum of 5 years and contain the following information:

- Date and time of inspection
- Printed name and the handwritten signature of the inspector
- Notation of the observations made
- An account of spills or discharges in accordance with WAC 173-303-145
- Date and nature of any repairs or remedial action taken.

#### 6.2.1.1 Types of Problems [F2a(2)]

The T Plant Complex treatment and storage areas are inspected to assess conditions including, but not limited to, the following.

- Condition of the containment building – Has the differential pressure between the building and atmosphere been maintained? Are the required warning signs present?

- Condition of tanks - Are the tanks free of defects, i.e., cracks? Is there any standing liquid present that might indicate a possible leak? Is the liquid level within operating specifications?

- Condition of containers - Are the containers in good condition? Are the containers properly labeled? Are all container lids properly secured? Are container inventories complete and accurate?

- Condition of the process control equipment - Are the chart recorders operating? Do the panel lights illuminate when tested?

- Condition of emergency equipment - Is the proper fire extinguisher nearby? Has the fire extinguisher been inspected and/or recharged within the applicable inspection period? Is the appropriate emergency spill cleanup equipment nearby?

- Condition of secondary containment - Is the secondary containment in good condition, e.g., free of cracks, holes, or chips? Is the sealant free of cracks and blisters? Is standing liquid present?

Refer to Table 6-1 for the types of problems looked for during an inspection.

#### 6.2.1.2 Frequency of Inspections [F-2a(3)]

The frequency of inspections is based on the condition of equipment and the probability of a human health or environmental incident. Refer to Table 6-1 for inspection frequencies. Inspections of containment building, tank systems, and container management areas are performed daily when in use except as noted on Table 6-1. Areas subject to spills also are inspected daily when in use. The floors of the 2706-T and 2706-TA Buildings are inspected before and after free liquid decontamination or waste treatment operations and daily when noncontainerized waste is being handled in a manner that has a potential to impact floor coating. Weekly inspections are performed at all container storage areas. Emergency response equipment, including spill response kits, eyewashes, safety showers, emergency communication systems, fire extinguishers, and water supplies, are inspected monthly. Operating and structural equipment including dry chemical fire protection system and primary water system are inspected per Hanford Site Fire Department schedules.

Security devices such as 'Danger Unauthorized Personnel Keep Out' signs are inspected weekly.

The routine inspections are performed by operations. Periodic oversight inspections are performed by management, the environmental compliance officer (ECO), or designee to ensure that problems with daily and weekly inspections are detected and corrected.

Annual inspections are performed on any ignitable and reactive waste storage areas by the Hanford Fire Department (HFD) or by authorized personnel. The following information is entered into the operating record.

- Date and time of the inspection
- Name of person who performed the inspection
- A notation of the observations made
- Any remedial actions taken as a result of this inspection.

### 6.2.2 Schedule for Remedial Action for Problems Revealed During Inspections [F-2c]

Correction of deficiencies found during inspections occurs within timeframes identified in applicable onsite methods. Other conditions that are not a threat to human health and the environment are dispositioned in a timeframe established by the ECO and/or facility management. Defects in floor coatings in the 2706-T and 2706-TA operational areas are corrected before resuming decontamination or waste treatment operations involving free liquids on the affected surfaces.

If inspections identify significant tank or container corrosion or leaks and/or spills in secondary containment, the resultant liquid is removed on a schedule that prevents hazards to human health and the environment. Correction of significant corrosion is pursued. Corrections occur as soon as possible, depending on the severity of the corrosion and the availability of materials and personnel to complete repairs. Further corrective actions are discussed in the building emergency plan (Chapter 7.0).

Tank system corrective action ensures that the flow of waste is stopped and waste is removed as necessary to prevent further release, to allow inspections, and to perform necessary repairs.

### 6.2.3 Specific Process Inspection Requirements

The following sections describe the specific process inspections performed at T Plant Complex. Additionally, management, the ECO, or designee perform periodic surveillance of all of T Plant Complex. This walkdown focuses on looking for atypical conditions such as orphan containers, unreported spills, unapproved waste accumulation areas, and other situations that could present a noncompliant condition. All findings and observations from this walkdown are documented according to the T Plant Complex corrective action management procedures.

#### 6.2.3.1 Container Inspection [F2d(1)]

Waste containers are inspected visually daily and weekly during waste handling operations where a potential for spills exists and before transfer or movement within T Plant Complex. Inspections are documented using inspection checklists and conditions are recorded that require corrective action. Inspectors look for the following items:

- Open or improperly sealed containers
- Condition of containers (e.g., bulging, cracks, dents, gouges, rust, etc.)
- Proper labeling and marking
- Leaks and spills (e.g., moisture, drops, stains, pooling on floor, etc.).

#### 6.2.3.2 Tank Inspection [F2d(2), (2)a – (2)f]

The following sections describe the inspection of T Plant Complex tanks and secondary containment. An integrity assessment was performed at the time of installation and/or upgrade of currently operating tanks as a portion of Project W-259. Per *Functional Design Criteria T Plant Secondary Containment and Leak Detection Upgrades Project W-259,* WHC-SD-W259-FDC-001, Rev 3, this system has a 20-year design life. Following the requirements of WAC 173-303-640(2)(e), tanks installed or upgraded under Project W-259 require re-evaluation of integrity after 20 years of operations (2020).

##### 6.2.3.2.1 Tank System Components

The 2706-T Tank System is the only operating T Plant Complex tank system. The 2706-T Tank System is inspected daily when holding waste. Inspectors look for the following:

- Waste releases (i.e., any standing liquid present in secondary containment)

- Ancillary equipment including water, fire, waste transfer lines, pumps, and tanks for signs of damage or leakage around flanges, valves, and manways

- Tank cracks, corrosion, weld breaks, punctures, etc.

- Monitoring and leak detection equipment; annunciator panels and alarms; and overfill and air emissions control inspection devices and gauges working (e.g., level alarms, level sensing devices, automatic feed shutoff, bypass to standby tanks gauges)

- Condition of the seams, joints, corners, or areas where general deterioration occurs.

If ALARA considerations limit access to tank system locations, the daily inspection of data gathered from continuous leak detection monitoring equipment is sufficient to detect releases of dangerous waste. The tank system has extensive process controls and a process monitoring system linked to a computer control system equipped with automated alarms. Any leakage in the tanks or transfer lines drains to floor sumps. Each sump has a liquid level probe that when activated causes an alarm to sound on the corresponding alarm panel located in MO-433. Liquid collected in sumps is transferred back into the tanks. In addition, level probes in the tanks are set well below the maximum capacity of the tanks to prevent overflows (Chapter 4.0).

If inspections identify tank system deficiencies or releases, the flow of waste to the tanks is stopped. Waste is removed as necessary to prevent further releases, to allow repairs, and to allow inspections. Major repairs are certified before return to service.

#### 6.2.3.2.2 Sumps and Secondary Containment

The 2706-T Building railroad pit sump, the 2706-TA Building sump, the 2706-TA Building HVAC sump, and the 2706-TB Building sump are portions of the 2706-T Building secondary containment system. Sumps are double-lined with liquid detection systems. Because these sumps are used to collect liquid waste, standing liquid might be present at the time of inspections. Secondary containment is inspected to ensure that visible surfaces are in good condition, e.g., free of cracks, holes, blisters, or chips.

Following the inspection, an inspection data sheet is signed and dated by the inspector. Appropriate repair actions are noted, if needed, and repairs are completed before approval of operation. When repairs are completed, another inspection is performed to document adequacy of the repair action. A completed inspection log is reviewed and approved before operation of the sump is resumed.

#### 6.2.3.2.3 221-T Tank System

The 221-T Tank System is an unclosed, nonoperating tank system that is awaiting final closure (Chapter 11.0). The tank system contains a multiphasic waste comprised of liquids and sludges. The liquid portion is primarily rainwater mixed with dilute decontamination solutions. The sludge portion is highly radioactive solids that are primarily dirt, sandblasting grit, oil, and grease from T Plant Complex decontamination operations. Liquids naturally are evaporating from tank waste to the 221-T Building canyon atmosphere at a rate of approximately 30 liters per day (11,053 liters per year) and by year 2008, the tank system is anticipated to contain only dry waste residues.

Tank waste is considered an 'F-listed' mixed waste. Although tank system liquid waste does not designate as characteristic dangerous waste, as liquids evaporate from the system, the resulting sludges and residues could designate because of increased concentrations of heavy metal constituents. Tank waste does not contain ignitable, reactive, or incompatible waste constituents and is considered safe and stable for long-term retention in the tank system.

Tank liquid waste and/or dry waste residues will be allowed to remain in the system as long as the permittee continues to prevent threats to human health and the environment from the tank system and periodically evaluates viable treatment pathways for tank waste under the conditions described in the following sections.

**6.2.3.2.3.1 Prevention of 221-T Tank System Threats to Human Health and the Environment**

To the time of final closure, the 221-T Tank System will pose only minimal and declining risk to human health and the environment. The tanks are located within T Plant Complex, a controlled and secure operating TSD unit located within the remote 200 West Area of the Hanford Facility far from public access. Tanks and tank system components are located in process cells of the 221-T Building, a concrete canyon-type structure. Canyon atmosphere is controlled and monitored for radioactive air emissions. The tank system permanently is isolated from further liquid waste additions through administrative and engineering controls. Tank waste is considered safe and stable for long-term retention in the system. Because liquid is not being added, the risk of tank leaks is declining with liquid loss by natural evaporation.

The permittee will continue to take all steps necessary to prevent threats to human health and the environment from the tank system. The tank system will continue to be monitored for leaks until verified that liquids no longer exist in the tanks. Tank liquid-level indicating equipment now in use will continue to be maintained and monitored routinely for evidence of leaks, indicated by liquid loss above normal evaporation. Direct visual inspections by removal of cover blocks to identify leaks could occur when determined to be safe and appropriate by T Plant Complex management. Inspection information can be used to re-assess tank system monitoring in light of changing operating conditions.

**6.2.3.2.3.2 Periodic Assessments for a Viable Tank Waste Treatment Option**

As long as liquid waste and/or dry waste residues remain in the tank system, T Plant Complex management periodically will evaluate whether a viable treatment option exists for the waste. Treatment pathways for similar Hanford Facility mixed waste streams will be considered for viability and applicability to tank waste. Evaluation results will be made available to Ecology upon request. The first evaluation will occur by June 2008. Thereafter, evaluations will occur every 5 years or as negotiated with Ecology. When a viable treatment option is identified, Ecology will be notified and a schedule for implementing treatment will be developed.

T Plant Complex management could direct the evaluation to include tank waste characterization activities if waste conditions change that potentially could affect waste treatment requirements (e.g., after liquids are gone and only dry residues remain).

The 221-T Tank System remains the safest place to retain this waste until treatment or final tank system closure in conjunction with 221-T Canyon disposition (Chapter 11.0). However, the evaluation of tank waste treatment options also could consider removing waste from the tank system for storage at another TSD unit or offsite TSD facility if operating conditions change or if a significantly safer storage option is identified. When examining the option of removing waste for storage at another unit in lieu of allowing waste to remain in the tank system, T Plant Complex management would evaluate ALARA and cost considerations, and demonstrate added benefit to human health and the environment from such activities.

**6.2.3.3 Containment Building Inspection**

The 221-T Building is inspected weekly by monitoring the inside-to-atmosphere DP as an indicator of potential loss of containment and integrity of the building. Inspections are documented on surveillance data sheets.

In the event that the DP is lost, the following items are evaluated in lieu of maintaining the DP:

- Standing liquid
- Condition of building structure, interior and exterior, to verify that the structure is intact and is not damaged or deteriorated
- The entrances and exits to the building are surveyed radiologically.

Daily inspections are performed to identify spills and leaks when waste handling activities are taking place. Following the inspection, an inspection data sheet is signed and dated by the inspector. Inspection, monitoring, corrective action for containers and equipment are performed and documented. Abnormal conditions identified by the inspection are documented and corrected within timeframes identified in applicable onsite methods and in accordance with corrective action management methods to prevent hazards to human health and the environment.

#### 6.2.3.4 2706-T and 2706-TA Buildings Miscellaneous Unit Inspections

Miscellaneous unit operations consist of activities involving free liquids and/or storage of noncontainerized waste directly on 2706-T and 2706-TA Buildings operational area floors. Miscellaneous unit operations are subject to the requirements of this permit established to meet WAC 173-303-680 environmental performance standards for protection of human health and the environment during such operations. Environmental performance standards for 2706-T and 2706-TA Buildings miscellaneous unit operations are met through engineering and operational controls that exist for these locations as container management units (Chapter 4.0, Section 4.1.2) and tank systems (Chapter 4.0, Section 4.4) and through enhanced inspections and repair requirements.

Existing engineered controls include the floors of the 2706-T and 2706-TA Buildings that are sloped so that the potential for standing liquids to be present is minimized. The floors are coated with the same impermeable, tensile-tested, non-reactive material that lines the 2706-TB tank basin. The sloped floors drain to stainless steel lined sumps having leak detection and secondary containment.

The floors and sumps of 2706-T and 2706-TA Buildings operational areas provide secondary containment for the 2706-T Tank System and are inspected regularly as a requirement of tank system operations. Operational area floors also are inspected for degradation or damage to floor coatings before and after decontamination or treatment activities involving free liquids or storage of noncontainerized waste potentially containing free liquids. Any necessary floor or coating repairs are performed before commencement of further operations involving free liquids.

When noncontainerized dangerous and/or mixed waste is stored in the 2706-T and/or the 2706-TA Building, exterior building surfaces and the area immediately surrounding the building(s) will be inspected weekly. Inspection activities will include checking outside the building(s) for liquid accumulations or ground subsidence and visually surveying the various components of the exterior structure to verify that building(s) are intact and not damaged or deteriorated. Inspections are documented on surveillance data sheets.

### 6.2.4 Inspection Log [F-2b]

Observations, deficiencies, and corrective actions noted during an inspection are recorded on the inspection checklist. On completion, the checklist includes the inspector's printed name, signature, date, and time. The completed checklist is submitted for management review and approval. After approval, the checklist is kept in the T Plant Complex operating record. Problems identified during the inspections are prioritized and addressed in a timely fashion as appropriate to mitigate health risks to personnel, and to maintain integrity of waste management units.

## 6.3 PREPAREDNESS AND PREVENTION REQUIREMENTS [F-3]

The following sections document the preparedness and prevention measures taken at T Plant Complex.

### 6.3.1 Equipment Requirements [F-3a]

The following sections describe the internal and external communications systems and the emergency equipment required.

#### 6.3.1.1 Internal Communications [F-3a(1)]

T Plant Complex is equipped with an internal communication system to provide immediate emergency instructions to personnel. The communication system includes telephones, a public address system, and alarm systems. Telephones throughout T Plant Complex provide internal and external communication. Alarm systems exist to allow personnel to appropriately respond to various emergencies, including building evacuations, take-cover events, and fire and/or explosion (Appendix 7A).

Immediate emergency instruction to personnel is provided by a public address system using speaker horns and ceiling-mounted speakers located throughout the T Plant Complex.

#### 6.3.1.2 External Communications [F-3a(2)]

T Plant Complex is equipped with devices for summoning emergency assistance from the HFD, the Hazardous Materials Response Team, and/or local emergency response teams as necessary. External communication is made through the normal telephone system and/or two-way hand-held and vehicle-mounted radios. Crash alarm telephones are available in the 271-T Building on the first and second floors. In addition, the following external communication systems are available for notifying persons assigned to emergency response organizations:

- The crash alarm telephone system, with telephones available on the first and second floors in the 271-T Building, as well as in MO-369, for distribution of centralized emergency response instructions

- Fire alarm pull boxes and fire sprinkler flow monitoring devices, connected to a system monitored around the clock by the HFD

- Telephone number 911, contact point for the Hanford Facility; on notification, the Hanford Patrol Operations Center notifies and/or dispatches required emergency responders

- Telephone number 373-3800, single point of contact for the emergency duty officer; this number can be dialed from any Hanford Facility telephone

- Two-way radio system consisting of hand-held or vehicle radios; the system accesses the Hanford Site emergency network and can summon the HFD, Hanford Patrol, and/or any other assistance requested to handle emergencies.

#### 6.3.1.3 Emergency Equipment [F-3a(3)]

Emergency equipment is available for use throughout T Plant Complex (i.e., portable fire extinguishers, fire control equipment, spill control equipment, and decontamination equipment). A list of equipment is included in the building emergency plan (Appendix 7A).

The Hanford Facility relies primarily on the HFD to control fires. The HFD is capable of providing rapid response to fires within the 200 West Area. The 2706-T Building has a fire detection and suppression system featuring both ordinary, intermediate, and high-heat activated water sprinklers as well as dry sprinklers. Portable fire extinguishers, smoke detectors, fire bells, emergency lights, linear fire detectors, alarm sirens, fire pull boxes, private automatic exchange speakers, and self-contained breathing apparatus units are available at various locations in T Plant Complex.

Respirators, hazardous material protective gear, and special work procedure clothing for personnel are in the change rooms at T Plant Complex. Safety showers are located throughout T Plant Complex, and emergency eyewashes also are available for use. Water for these devices is supplied from the T Plant Complex sanitary water system. A detailed list of equipment is included in the building emergency plan (Appendix 7A).

Spill control equipment is available for use throughout T Plant Complex that could include spill control items such as the following:

- Spill cabinets could contain sorbents, spill pigs and pillows, and gloves (used to clean up most liquid spills and some solid spills); magnetic mats (for sealing floor drains for spill containment); nonsparking cleanup tools (for opening/closing containers and sweeping/shoveling ignitables); sampling containers and supplies (for sampling most liquids and solids); and pH test strips (for testing liquid pH)

- Overpack containers for packaging cleanup materials and leaking containers.

The T Plant Complex operations personnel are trained in the use of emergency equipment (Chapter 8.0). Additionally, the Hanford Facility maintains a sufficient inventory of heavy equipment (e.g., bulldozers, cranes, road graders) for emergency response.

#### 6.3.1.4 Water for Fire Control [F-3a(4)]

Water for fire protection is supplied from the 200 West Area raw water system. The water distribution system is sized to provide adequate volume and pressure to supply fire fighting needs under normal and emergency conditions. A fire hydrant is located approximately 35 meters south of the southwest corner of the 221-T Building.

In the event that water pressure is lost, the HFD can bring a supply of water in trucks.

### 6.3.2 Aisle Space Requirement [F-3b]

Aisle spacing in waste storage areas is sufficient to allow the movement of personnel and fire protection equipment in and around the containers. This storage arrangement also meets the requirements of the National Fire Protection Association for the protection of human health and the environment. A minimum 30-inch aisle space is maintained between rows of containers as required by WAC 173-303-630(5)(c) and WAC 173-303-340(3).

## 6.4 PREVENTIVE PROCEDURES, STRUCTURES, AND EQUIPMENT [F-4]

The following sections describe preventive procedures, structures, and equipment.

### 6.4.1 Spill Prevention and Control

This section discusses the prevention of dangerous and/or mixed waste spills or leaks during the loading and unloading of waste and during transfers into and out of T Plant Complex.

#### 6.4.1.1 Unloading Operations

Loading and unloading of waste containers entering or leaving T Plant Complex are carried out on asphalt or concrete surfaces. Operations personnel ensure the following before waste is unloaded at T Plant Complex.

- Necessary building access doors are open.
- Area from loading pad to appropriate storage location is clear of obstructions.
- Containers are not damaged or leaking.
- Methods are used to minimize the potential for puncturing or opening containers during waste unloading. Containers are handled by appropriate equipment during unloading. Organizations generating onsite waste or offsite generators are required to provide rigging and instructions for unloading packages requiring special handling.

#### 6.4.1.2 Waste Transfer Lines

The 2706-T Building tank system is a standalone liquid waste management system (Chapter 4.0, Figure 4-1). Liquid mixed waste generated in the 2706-T and in 2706-TA Buildings drains to the 2706-T and 2706-TA sumps. This waste is pumped through stainless steel transfer lines via sump pumps to the 2706-TB Building tanks for storage and treatment. Waste from these tanks is transferred to the 2706-T Building through stainless steel piping routed over compliant secondary containment to a tanker truck for transfer to a receiving facility.

### 6.4.2 Run-Off

All liquid waste handling occurs within tank system and/or containers provided with secondary containment. The roof prevents precipitation from entering the storage structures. The only run-off foreseen would be a break in the water main or from run-on from the 2706-T Yard. No floods are predicted to impact T Plant Complex. In the event that contaminated water is released because of flooding of the containment system (e.g., break in the water main), the incident would be treated as a spill. Spills would be cleaned up according to applicable methods. Actions to be taken in response to a spill or discharge are detailed in Appendix 7A.

### 6.4.3 Water Supplies

Raw water is supplied to T Plant Complex by way of underground (export) water lines that transport Columbia River water. The water is pumped by way of a 610-millimeter-diameter pipeline to the 200 Areas. Sanitary (potable) water also is derived from the Columbia River. Sanitary water is filtered and treated before being distributed for use in the 200 Areas.

Potential contamination of the raw water supply at T Plant Complex is prevented through the use of reduced pressure backflow devices, which ensure that contaminated water cannot flow back into the raw water system. The backflow preventers are installed on all raw water lines.

### 6.4.4 Equipment and Power Failure

A loss of electrical power could result in the loss of air balance affecting contamination control and the loss of alarms. The associated hazards are exposure to radiation and isolation in areas of darkness. Although dangerous and mixed waste remains contained, measures are taken to ensure that any affected buildings is kept closed until ventilation is restored to control the potential for radiological contamination spread. Emergency lamps are available to provide emergency lighting throughout various locations in the 221-T Building (galleries, stairwells, and canyon), in the 271-T Building stairwells, and in the 2706-T Building. Portable generator(s) are available to power emergency lighting that could be set up as necessary. Loss of power could make it necessary for personnel to evacuate affected areas. Steps to place utilities in a safe and secure condition when an emergency has been declared and to deal with the loss of power are identified in Chapter 7.

In the event of a loss of electricity, waste treatment activities are stopped. If transfer of waste is in progress, the tank level gauges are monitored to confirm that transfer operations are halted unless personnel safety is jeopardized.

### 6.4.5 Personnel Protection Equipment

All personnel are required to wear the personnel protective equipment required by the work authorization documentation when working in sections of T Plant Complex contaminated by dangerous and/or mixed waste. Personnel are directed to use a particular type of respiratory device, depending on the specific respiratory hazard that might exist. Chapter 7.0 identifies appropriate respiratory protective equipment. Chapter 8.0 identifies that personnel are required to be trained in the use of the various respiratory devices and must be checked routinely for mask fit.

Before the start of any operation that might expose personnel to the risk of injury or illness, a review of the operation is performed to ensure proper consideration of the hazards that might be encountered and appropriate selection of protective gear. Personnel are instructed to wear personal protective equipment in accordance with training, posting, and instructions.

## 6.5 PREVENTION OF REACTION OF IGNITABLE, REACTIVE, AND INCOMPATIBLE WASTE [F-5 through F-5b and F-2d(3)]

T Plant Complex receives waste containers that contain incompatible materials that require repackaging. At T Plant Complex, waste is managed to prevent the reaction of ignitable or reactive waste in the following ways.

The fire protection system is designed to prevent or detect the occurrence of fires and explosions and to minimize their effect. Structures, systems, and components are protected to ensure that emergency response activities are not hindered during a credible fire or explosion. In all cases, noncombustible or fire-resistant materials are used throughout T Plant Complex wherever practicable. Fire detection, alarm, and suppression systems (e.g., extinguishers) are compatible with the radiation, chemical, and temperature environments in which the systems are used.

It is possible to accidentally mix certain reagents together, either before use or during application that might react with each other to produce toxic or noxious fumes. The hazards presented to the operator by these fumes are mitigated by the ventilation systems. The possibility of inadvertent mixing is minimized by requiring that all containers or tanks used to mix or store these reagents be flushed before reusing and by only using one mixture at a time when decontaminating equipment.

Ignitable or reactive waste and mixing of incompatible waste are managed pursuant to WAC 173-303-395(1). In addition, the requirements of WAC 173-303-630(9) and -640(9) are met.

- Waste is packaged in containers in accordance with the overpack container requirements of WAC 173-303-161. Incompatible waste, as defined in WAC 173-303-040, is not placed within the same outer container.

- Containers with incompatible waste are separated from other containers and protected from other containers through the use of separated storage (i.e., separate spill pallet) and/or containment pads and a 760-millimeter minimum distance.

- Containers with ignitable or reactive waste are stored in covered storage areas. No smoking is permitted in these storage areas and signs reading "POSITIVELY NO SMOKING OR OPEN FLAMES ALLOWED" are posted. This prevents the exposure of the containerized waste to sources of ignition or reaction such as open flames, smoking, or welding operations.

Table 6-1. T Plant Complex Inspections.

| Requirement | Inspection frequency | Types of problems |
|---|---|---|
| **General Inspections [WAC 173-303-320(2)]** | | |
| Safety and emergency equipment: eyewash/shower station, fire extinguishers, spill cart/cabinet, spill cleanup equipment, first aid kits, and self-contained breathing apparatus. | Monthly | Equipment is present and functional. |
| Security devices: "Danger unauthorized personnel keep out" signs. | Weekly | Signs are posted and legible. |
| Operating and structural equipment: dry chemical fire protection system and primary water systems. | Per Hanford Site Fire Department schedule | Operability. |
| Areas subject to spills. | Daily when waste management activities could lead to spills | Evidence of spills. |
| **Container Storage Areas (WAC 173-303-630 and WAC 173-303-395)** | | |
| Containers/container storage areas. | Weekly[1] or daily[2] | Deterioration of containers, containment systems, or cracks in protective coating or foundations cause by corrosion, mishandling, or other factors.<br><br>Labels present and readable.<br><br>Minimum aisle space less than 30 inches.<br><br>Rows of drums more than two drums wide.<br><br>Leaks, spills, accumulated liquids, and open and improperly sealed containers. |
| -395(1)(d) - Ignitable or reactive waste. | Annual where ignitable or reactive waste is stored | Stored in compliance with Hanford Facility fire protection standards and WAC 173-303-630(8). |
| **2706-T Tank System (WAC 173-303-640)[3]** | | |
| High-level alarms. | Quarterly or daily[2] | Verify operation of instrumentation. |
| Data from leak detection monitoring equipment. | Daily | Observe 2706-T Building annunciator indicator lights. |
| Ancillary equipment. | Daily | Visual inspection for leaks. |

Table 6-1. T Plant Complex Inspections.

| Requirement | Inspection frequency | Types of problems |
| --- | --- | --- |
| **221-T Containment Building**[3] | | |
| Inside-to-atmosphere DP. | Weekly | Monitoring inside-to-atmosphere DP.<br>Response to loss of DP: The entrances and exits of the containment building are surveyed radiologically. |
| Building interior and exterior surfaces (including 221-T process cells). | When operations require entry into operational areas. | Building concrete structure is checked visually for liquid accumulations. |
| **Miscellaneous Unit (WAC 173-303-680)** | | |
| 2706-T and 2706-TA Buildings – Operational area floors. | Before and after free liquid decontamination or treatment activities.<br><br>When noncontainerized waste is being handled in a manner that could impact floor coatings. | Degradation or damage to floor coatings. |
| 2706-T and 2706-TA Building exterior surfaces and area immediately surrounding the building(s). | Weekly – when storage of noncontainerized waste occurs. | Area immediately surrounding the building(s) will be visually inspected for liquid accumulations and ground subsidence and building exterior(s) will be inspected to verify that the building is intact and not damaged or deteriorated. |

[1] In the 221-T Building: Only when operations require entry into operational areas (ALARA) and for process cells, only when cover blocks are opened.

[2] Daily for containers in buildings during waste handling operations where a potential for spills exist and before waste transfer or management within T Plant Complex (Section 6.2.3.1). Daily for tank systems when holding waste.

[3] Chapter 4.0, Section 4.6 indicates portions of the 221-T Building designated as operating under containment building provisions.

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# APPENDIX



# TABLE

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# 7.0 CONTINGENCY PLAN [G]

The WAC 173-303 requirements for contingency plans are satisfied in the following documents: the Building Emergency Plan for the T Plant Complex, (Appendix 7A) and the *Hanford Facility Contingency Plan,* DOE/RL-94-02 [Attachment 4 of the Hanford Facility RCRA Permit (DW Portion)].

The unit-specific contingency plan document also serves to satisfy a broad range of other requirements [e.g., Occupational Safety and Health Administration standards (29 CFR 1910) and U.S. Department of Energy Orders]. Therefore, revisions made to portions of this contingency plan document that are not governed by the requirements of WAC 173-303 will not be considered as a modification subject to review or approval by Ecology.

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Table 7-1. Hanford Facility Documents Containing Contingency Plan Requirements of WAC 173-303-350(3).

| Requirement | Hanford Emergency Management Plan DOE/RL-94-02: Attachment 4 of the HF RCRA Permit (DW Portion) | Building Emergency Plan[1] |
|---|---|---|
| -350(3)(a) - A description of the actions which facility personnel must take to comply with this section and WAC 173-303-360. | X[2]<br>Section 1.3.4 | X[2]<br>Section 7.1, 7.2 through 7.2.5, and 7.3[3]<br>Sections 4.0 (first paragraph), 8.2, 8.3, 8.4, 11.0 |
| -350(3)(b) - A description of the actions which shall be taken in the event that a dangerous waste shipment, which is damaged or otherwise presents a hazard to the public health and the environment, arrives at the facility, and is not acceptable to the owner or operator, but cannot be transported pursuant to the requirements of WAC 173-303-370(5), Manifest system, reasons for not accepting dangerous waste shipments. | X[2]<br>Section 1.3.4 | X[2,4]<br>Section 7.2.5.1 |
| -350(3)(c) - A description of the arrangements agreed to by local police departments, fire departments, hospitals, contractors, and state and local emergency response teams to coordinate emergency services as required in WAC 173-303-340(4). | X<br>Sections 3.2.3, 3.3.1, 3.3.2, 3.4, 3.4.1.1, 3.4.1.2, 3.4.1.3, 3.7, and Table 3-1 | |
| -350(3)(d) - A current list of names, addresses, and phone numbers (office and home) of all persons qualified to act as the emergency coordinator required under WAC 173-303-360(1). Where more than one person is listed, one must be named as primary emergency coordinator, and others must be listed in the order in which they will assume responsibility as alternates. For new facilities only, this list may be provided to the department at the time of facility certification (as required by WAC 173-303-810 (14)(a)(i)), rather than as part of the permit application. | | X[5]<br>Section 3.1, 13.0 |
| -350(3)(e) - A list of all emergency equipment at the facility (such as fire extinguishing systems, spill control equipment, communications and alarm systems, and decontamination equipment), where this equipment is required. This list must be kept up to date. In addition, the plan must include the location and a physical description of each item on the list, and a brief outline of its capabilities. | X<br>Hanford Fire Department: Appendix C | X<br>Section 9.0 |

Table 7-1. Hanford Facility Documents Containing Contingency Plan Requirements of WAC 173-303-350(3).

| Requirement | Hanford Emergency Management Plan DOE/RL-94-02: Attachment 4 of the HF RCRA Permit (DW Portion) | Building Emergency Plan[1] |
|---|---|---|
| -350(3)(f) - An evacuation plan for facility personnel where there is a possibility that evacuation could be necessary. This plan must describe the signal(s) to be used to begin evacuation, evacuation routes, and alternate evacuation routes. | X[6] Figure 7-3 and Table 5-1 | X[7] Section 1.5 |

An "X" in the column of Table 7-1 indicates requirement applies.

[1] Portions of the *Hanford Emergency Management Plan* not enforceable through Appendix A of that document are not made enforceable by reference in the Building Emergency Plan.

[2] The *Hanford Emergency Management Plan* contains descriptions of actions relating to the Hanford Site Emergency Preparedness System. No additional description of actions are required at the site level. If other credible scenarios exist or if emergency procedures at the unit are different, the description of actions contained in the Building Emergency Plan are used during an event by a Building Emergency Director.

[3] Sections 7.1, 7.2 through 7.2.5, and 7.3 of the Building Emergency Plan are those sections subject to the Class 2 "Changes in emergency procedures (i.e., spill or release response procedures)" described in WAC 173-303-830, Appendix I, Section B.6.a.

[4] This requirement only applies to TSD units that receive shipments of dangerous or mixed waste defined as offsite shipments in accordance with WAC 173-303.

[5] Emergency Coordinator names and home telephone numbers are maintained separate from any contingency plan document, on file in accordance with Hanford Facility RCRA Permit, DW Portion, General Condition II.A.4. and are updated, at a minimum, monthly.

[6] The Hanford Facility (sitewide) signals are provided in this document. No unit/building signal information is required unless unique devices are used at the unit/building.

[7] An evacuation route for the TSD unit must be provided. Evacuation routes for occupied buildings surrounding the TSD unit are provided through information boards posted within buildings.

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## TABLE

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# 8.0 PERSONNEL TRAINING [H]

This chapter discusses personnel training requirements based on WAC 173-303 and the HF RCRA Permit (DW Portion). In accordance with WAC 173-303-806(4)(a)(xii), the *Hanford Facility Dangerous Waste Part B Permit Application* must contain two items: (1) "an outline of both the introductory and continuing training programs by owners or operators to prepare persons to operate or maintain the TSD facility in a safe manner as required to demonstrate compliance with WAC 173-303-330" and (2) "a brief description of how training will be designed to meet actual job tasks in accordance with the requirements in WAC 173-303-330(1)(d)". The HF RCRA Permit (DW Portion), Condition II.C (Personnel Training), contains training requirements applicable to Hanford Facility personnel and non-Hanford Facility personnel.

Compliance with these requirements at the T Plant Complex is demonstrated by information contained both in Chapter 8.0 of DOE/RL-91-28, Attachment 33 of the HF RCRA Permit, and this chapter. This chapter supplements Chapter 8.0 of DOE/RL-91-28.

## 8.1 OUTLINE OF INTRODUCTORY AND CONTINUING TRAINING PROGRAMS

The introductory and continuing training programs are designed to prepare personnel to manage and maintain the TSD unit in a safe, effective, and environmentally sound manner. In addition to preparing personnel to manage and maintain TSD units under normal conditions, the training programs ensure that personnel are prepared to respond in a prompt and effective manner should abnormal or emergency conditions occur. Emergency response training is consistent with the description of actions contained in Chapter 7.0, Contingency Plan. The introductory and continuing training programs contain the following objectives:

- Teach Hanford Facility personnel to perform their duties in a way that ensures the Hanford Facility's compliance with WAC 173-303

- Teach Hanford Facility personnel dangerous waste management procedures (including implementation of the contingency plan) relevant to the job titles/positions in which they are employed

- Ensure Hanford Facility personnel can respond effectively to emergencies.

### 8.1.1 Introductory Training

Introductory training includes general Hanford Facility training and TSD unit-specific training. General Hanford Facility training is described in DOE/RL-91-28, Section 8.1, and is provided in accordance with the HF RCRA Permit (DW Portion), Condition II.C.2. TSD unit-specific training is provided to Hanford Facility personnel allowing those personnel to work unescorted, and in some cases is required for escorted access. Hanford Facility personnel cannot perform a task for which they are not properly trained, except to gain required experience while under the direct supervision of a supervisor or coworker who is properly trained. Hanford Facility personnel must be trained within 6 months after their employment at or assignment to the Hanford Facility, or to a new job title/position on the Hanford Facility, whichever is later.

General Hanford Facility training: Refer to description in DOE/RL-91-28, Section 8.1.

Contingency Plan training: Hanford Facility personnel receive training on applicable portions of the *Hanford Emergency Management Plan* [Attachment 4 of the HF RCRA Permit (DW Portion)] in general Hanford Facility training. In addition, Hanford Facility personnel receive training on content of the description of actions contained in contingency plan documentation in Chapter 7.0 and Appendix 7A to be able to effectively respond to emergencies.

Emergency Coordinator training: Hanford Facility personnel who perform emergency coordinator duties in WAC 173-303-360 (e.g., Building Emergency Director) in the Hanford Incident Command System receive training on implementation of the contingency plan and fulfilling the position within the Hanford Incident Command System. These Hanford Facility personnel also must become thoroughly familiar with applicable contingency plan documentation, operations, activities, location, and properties of all waste handled, location of all records, and the unit/building layout.

Operations training: Dangerous waste management operations training (e.g., waste designation training, shippers training) is determined on a unit-by-unit basis and considers the type of waste management unit (e.g., container management unit) and the type of activities performed at the waste management unit (e.g., sampling). For example, training provided for management of dangerous waste in containers is different than the training provided for management of dangerous waste in a tank system. Common training required for compliance within similar waste management units can be provided in general training and supplemented at the TSD unit. Training provided for TSD unit-specific operations is identified in the training plan documentation based on: (1) whether a general training course exists, (2) the training needs to ensure waste management unit compliance with WAC 173-303, and (3) training commitments agreed to with Ecology.

### 8.1.2 Continuing Training

Continuing training meets the requirements for WAC 173-303-330(1)(b) and includes general Hanford Facility training and TSD unit-specific training.

General Hanford Facility training: Annual refresher training is provided for general Hanford Facility training; refer to description in DOE/RL-91-28, Section 8.1.

Contingency plan training: Annual refresher training is provided for contingency plan training; refer to description in Section 8.1.1.

Emergency coordinator training: Annual refresher training is provided for emergency coordinator training; refer to description in Section 8.1.1.

Operations training: Refresher training occurs on many frequencies (i.e., annual, every other year, every 3 years) for operations training. When justified, some training will not contain a refresher course and will be identified as a one-time only training course. The TSD unit-specific training plan documentation specifies the frequency for each training course; refer to description in Section 8.1.1.

## 8.2 DESCRIPTION OF TRAINING DESIGN

Proper design of a training program ensures personnel who perform duties on the Hanford Facility related to WAC 173-303-330(1)(d) are trained to perform their duties in compliance with WAC 173-303. Actual job tasks, referred to as duties, are used to determine training requirements. The first step taken to ensure Hanford Facility personnel have received the proper training is to determine and document the waste management duties by job title/position. The second step compares waste management duties to general waste management unit training curriculum. If general waste management unit training curriculum does not address the waste management duties, the training curriculum is supplemented and/or on-the-job training is provided. The third step summarizes the content of a training course necessary to ensure that the training provided to each job title/position addresses associated waste management duties. The last step is to assign training curriculum to Hanford Facility personnel based on the previous evaluation. The training plan documentation contains this process.

Waste management duties include those specified in Section 8.1 as well as those contained in WAC 173-303-330(1)(d). Training elements of WAC 173-303-330(1)(d) applicable to the T Plant Complex operations include the following:

- Procedures for using, inspecting, repairing, and replacing emergency and monitoring equipment
- Communications or alarm systems
- Response to fires or explosions
- Key parameters for automatic waste feed cut-off systems
- Shutdown of operations.

Hanford Facility personnel who perform these duties receive training pertaining to their duties. The training plan documentation described in Section 8.3 contains specific information regarding the types of training Hanford Facility personnel receive based on the outline in Section 8.1.

## 8.3 DESCRIPTION OF TRAINING PLAN

In accordance with HF RCRA Permit (DW Portion), Condition II.C.3, the unit-specific portion of the *Hanford Facility Dangerous Waste Permit Application* must contain a description of the training plan. Training plan documentation is maintained outside of the *Hanford Facility Dangerous Waste Part B Permit Application* and the HF RCRA Permit. Therefore, changes made to the training plan documentation are not subject to the HF RCRA Permit modification process. However, the training plan documentation is prepared to comply with WAC 173-303-330(2).

Documentation prepared to meet the training plan consists of hard copy and/or electronic media as provided by HF RCRA Permit (DW Portion), Condition II.C.1. The training plan documentation consists of one or more documents and/or a training database with all the components identified in the core document.

A description of how training plan documentation meets the three items in WAC 173-303-330(2) is as follows:

1. -330(2)(a): "The job title, job description, and name of the employee filling each job. The job description must include requisite skills, education, other qualifications, and duties for each position."

   Description: The specific Hanford Facility personnel job title/position is correlated to the waste management duties. Waste management duties relating to WAC 173-303 are correlated to training courses to ensure training properly is assigned.

   Only names of Hanford Facility personnel who carry out job duties relating to TSD unit waste management operations at the T Plant Complex are maintained. Names are maintained within the training plan documentation. A list of Hanford Facility personnel assigned to the T Plant Complex is available upon request.

Information on requisite skills, education, and other qualifications for job titles/positions is addressed by providing a reference where this information is maintained (e.g., human resources). Specific information concerning job title, requisite skills, education, and other qualifications for personnel can be provided upon request.

2. -330(2)(b): "A written description of the type and amount of both introductory and continuing training required for each position."

   Description: In addition to the outline provided in Section 8.1, training courses developed to comply with the introductory and continuing training programs are identified and described in the training plan documentation. The type and amount of training are specified in the training plan documentation as shown in Table 8-1.

3. -330(2)(c): "Records documenting that personnel have received and completed the training required by this section. The Department may require, on a case-by-case basis, that training records include employee initials or signature to verify that training was received."

   Description: Training records are maintained consistent with DOE/RL-91-28, Section 8.4.

Table 8-1. T Plant Complex Training Matrix.

| | **Training Category*** | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| DOE/RL-91-28 Chapter 8.0 Training Category | General Hanford Facility Training | Contingency Plan Training | Emergency Coordinator Training | Operations Training | | | | |
| T Plant Complex DWTP implementing category | Orientation Program | Emergency Response (contingency plan) | Emergency Coordinator Training | General Waste Management | Container Management | Tank System Management | Containment Building | Miscellaneous Unit |
| Job title/position | | | | | | | | |
| Nuclear Chemical Operator | X | X | | X | X | X | X | X |
| Shift Operations Manager | X | X | X | X | | | | |
| Operations Manager | X | X | | X | | | | |
| Environmental Compliance Officer | X | | | X | | | | |
| Resident Waste Service Provider | X | | | X | X | | | |
| Non-Resident Waste Service Provider | X | | | X | | | | |

* Refer to the T Plant Complex Dangerous Waste Training Plan for a complete description of coursework in each training category.
DWTP = dangerous waste training plan.

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# 9.0 EXPOSURE INFORMATION REPORT

The T Plant Complex does not treat, store, or dispose of hazardous waste in a surface impoundment or a landfill as defined in 40 CFR 270.10 and RCRA, Section 3019. Therefore, exposure information is not required.

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# 10.0 WASTE MINIMIZATION [D-9]

To fulfill the requirements of 40 CFR 264.73(b)(9), a certification form that T Plant Complex has a waste minimization/pollution prevention program in place is entered annually into the T Plant Complex operating record.

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# FIGURE

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# 11.0 CLOSURE AND FINANCIAL ASSURANCE [I]

This chapter describes the planned activities and performance standards for closure of the T Plant Complex in accordance with the requirements of WAC 173-303-610. The date for T Plant Complex closure has not been established. Closure will begin when T Plant Complex waste management units are no longer managing regulated waste.

## 11.1 CLOSURE PLAN/FINANCIAL ASSURANCE FOR CLOSURE [I-1]

T Plant Complex closure will not occur until well into the future (Section 11.4). Consequently, a closure method for this unit (i.e., clean closure, 'modified' closure, or landfill closure) has not been determined. Clean closure as a *possible* closure option might be pursued for some or all of the T Plant Complex waste management units. In support of TSD unit closure, the T Plant Complex operating record will identify locations where dangerous waste operations occurred.

This chapter presents the performance standards and general closure activities for clean closure. Where pursued, clean closure would be with respect to dangerous waste contamination from RCRA TSD unit operations. For clean closing waste management unit(s), postclosure activities would not be applicable or required. Any portion of a unit unable to clean close before T Plant Complex decommissioning (e.g., 221-T Building canyon, Section 11.3.5) would be placed in a safe and stable condition protective of human health and the environment and closed during T Plant Complex decommissioning.

As described in Condition II.H.3 of the Hanford Facility RCRA Permit (DW Portion), federal facilities are not required to comply with financial assurance requirements of WAC 173-303-620.

Past-practice waste is subject to cleanup provisions of the Tri-Party Agreement (Ecology et al. 2001) and is not subject to permitting requirements (Chapter 4.0). 221-T Building cells that have contained only past-practice waste during the period of T Plant Complex TSD unit operations will not require closure under this permit.

## 11.2 CLOSURE PERFORMANCE STANDARD [I-1a]

Clean closure would eliminate future maintenance and be protective of human health and the environment. Clean closure as defined by the Hanford Facility RCRA Permit (Condition II.K.1) requires decontamination or removal and disposal of all dangerous waste, waste residue, or contaminated equipment, soil, or other material to clean closure performance standards of WAC 173-303-610(2). Clean closure would be achieved for soil and structures when removal and decontamination standards prescribed by WAC 173-303-610(2)(b) visually or analytically were verified.

### 11.2.1 Clean Closure Standard for Structures and Components

The clean closure removal and decontamination standard for metal or concrete materials (e.g., tanks, ancillary equipment, secondary containment, and storage area structures) remaining after closure would be a 'clean debris surface'. This standard meets clean closure requirements for containment buildings of WAC 173-303-695, for tank systems of WAC 173-303-640(8), and for container management areas of WAC 173-303-630(10). The standard is a visually verifiable standard established in accordance with alternative treatment standards for hazardous debris of 40 CFR 268.45, Table 1. This standard is as prescribed in WAC 173-303-610(2)(b)(ii). When the visual standard is met, the materials would be considered clean. The clean debris surface standard is as follows: "A clean debris surface means the surface, when viewed without magnification, shall be free of all visible contaminated soil and dangerous waste, except that residual staining from soil and waste consisting of light shadows, slight streaks, and minor discoloration; and soil and waste in cracks, crevices, and pits shall be limited to no more that 5 percent of each square inch of surface area" (40 CFR 268.45).

Initially, structures and components would be inspected visually to identify surfaces that meet the clean debris surface standard as is (i.e., without decontamination). Surfaces shown by initial inspections to be potentially contaminated would be decontaminated to meet the clean debris surface standard. Decontamination could use appropriate physical or chemical extraction technology for hazardous debris (40 CFR 268.45 Table 1). Chemical extraction methods would not be subject to residence time requirements. Physical extraction methods used to meet this standard for concrete would not be required to remove 0.6 centimeter of the concrete surface. Asphalt pads are not used as secondary containment for waste containing free liquids and so are not anticipated to have dangerous and/or mixed waste contamination. However, dangerous and/or mixed waste spill(s) to asphalt would be cleaned up by removal at the spill location of 0.6 centimeter of the asphalt surface and would be inspected visually.

Clean closure of decontaminated surfaces would be verified by testing decontamination rinsate instead of through visual inspections. Using this method, decontamination rinsate would be sampled to verify that constituents of concern in the rinsate did not exceed health-based action levels. Constituents of concern would be identified from Chapter 1.0 and their action levels in rinsate would be determined at the time of closure.

### 11.2.2 Clean Closure of Soil

Clean closure of soil would be with regard to contamination from TSD unit operations. Soil would be clean closed if no cracks or openings existed in containment that could have provided a pathway to soil for dangerous waste *and* if no other potential source of soil contamination from TSD operations was identified. Material surfaces would be inspected for cracks or openings and for evidence of dangerous and/or mixed waste contamination at such openings. Operating records would be checked for possible leaks to the location of openings. Cracks, if any, would be mapped and investigated to determine if these were through the thickness of the concrete. Seams and expansion joints would be considered when identifying potential contamination pathways. Soil beneath concrete surfaces that are not accessible for crack inspection could not be clean closed in this manner (e.g., the 221-T Building).

Soil beneath cracks or openings would be sampled only to verify the absence of contamination above clean closure levels. Clean closure would be met when constituents of concern in soil were verified through analytical sampling and analysis to exist at or below health-based action levels as defined by the Hanford Facility RCRA Permit (Condition II.K.1) and as specified in WAC 173-303-610(2)(b)(i). The constituents of concern to this unit and their cleanup levels would be identified at the time of closure.

To minimize duplication of RCRA and *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA) *of 1980* unit sampling efforts and to ensure consistency of Hanford Site soil cleanup actions, soil characterization sampling and soil remediation would not occur under this chapter. Information regarding contaminated soil would be entered into the Waste Identification Data System (WIDS) for future characterization and remediation in conjunction with facility decommissioning processes and with the appropriate CERCLA operable unit (OU) remedial action for soil. The results of operable unit activities in support of TSD unit closure would be documented in a later revision to this chapter.

## 11.3 CLOSURE ACTIVITIES [I-1b]

This section identifies methods that could be used to achieve clean closure of the various T Plant Complex waste management units. At the time of closure, this chapter will be reviewed and closure activities modified as necessary to reflect current regulations, interagency agreements, and use of up-to-date closure methods.

Access to locations undergoing closure will be controlled during the closure period. Access will be limited to personnel required to support unit closure activities. All closure activities will be performed to keep personnel exposure ALARA.

### 11.3.1 Maximum Extent of Operation [I-1b(1)] and Maximum Waste Inventory [I-1c]

The maximum extent of TSD unit operations of tank systems, container management areas, miscellaneous units, and a containment building requiring closure under this plan is identified in Chapter 1.0. Section 11.3.4.2 identifies that the 221-T Tank System did not operate under this permit but would be closed under this chapter.

The maximum waste inventory for T Plant Complex waste management units would be based on information contained in Chapter 1.0, latest revision.

### 11.3.2 Removing Dangerous Waste [I-1b(2)]

At the beginning of closure, all dangerous waste inventories (including liquid waste in tank systems, containerized waste in container management areas, and noncontainerized waste in containment buildings) would be removed and transferred to an appropriate receiving unit. Where required, noncontainerized waste would be packaged for transfer. Designation of waste and debris, including that generated during closure activities, would meet the requirements of WAC 173-303 and disposal would meet the land disposal notification and certification requirements of WAC 173-303-140.

### 11.3.3 Closure Activities [1b(3)]

Clean closure of T Plant Complex waste management units would be as follows:

- Remove and dispose of dangerous and/or mixed waste inventory

- Remove contaminated process equipment and components for reuse or disposal

- Review operating records and interview personnel to determine spill history

- Inspect structures and components to:
  - Identify surfaces that already meet the clean debris surface standard and clean close
  - Identify surfaces requiring removal or decontamination to meet the clean closure standard
  - Identify cracks or openings that could have allowed the escape of contamination to soil and if none, clean close soil if no other sources of contamination exist.

- Remove and dispose of potentially contaminated structures or decontaminate structures and components that remain after closure to meet clean closure standards

- Re-inspect decontaminated surfaces for a clean debris surface or sample decontamination rinsate as described in Section 11.2.1 and clean close

- Sample soil beneath through-thickness cracks (if any) and clean close soil *or*, if contaminated, document soil contamination for disposition in conjunction with facility decommissioning processes and with the appropriate CERCLA OU remedial action for soil

- Decontaminate or dispose of closure waste and equipment

- Certify that closure activities were completed in accordance with the approved closure plan (this chapter).

Operating records for each waste management unit within T Plant Complex would be reviewed and cognizant operations personnel could be interviewed to obtain spill history. Spill history would be necessary to help determine the need for and extent of decontamination necessary for clean closure. A records review would entail a review of all available records related to RCRA operations. The records review would include operations logbooks, RCRA weekly inspection records, a search for 'offnormal' event reports, and WIDS. Where the records review identified spills during RCRA operations that were not cleaned up completely, affected surfaces would be inspected closely.

### 11.3.4 Closure of Tank Systems

Closure of the 2706-T Building Tank System and the 221-T Building Tank System (that did not operate under this permit) would be within the scope of T Plant Complex closure. Tank system closure would occur in accordance with WAC 173-303-610 and WAC 173-303-640. Where clean closure is the selected level of closure, all waste residues, contaminated containment system components, contaminated tanks and equipment, and contaminated soils must be decontaminated or removed and managed as dangerous waste [WAC 173-303-640(8)]. Piping beyond the unit boundary or that did not manage dangerous waste under RCRA permitted operations is outside the scope of this chapter.

#### 11.3.4.1 2706-T Tank System Closure

The following tanks, ancillary equipment, and containment comprise the 2706-T Building Tank System that would be closed under this chapter:

- 2706-T railroad pit and sump
- 2706-TA sump
- 2706-TA HVAC sump
- 2706-TB Tank System (T-XX-2706-220 and T-XX-2706-221)
- 2706-TB sump
- Pumps - 203, 204, 206, 207, 210, 211, 212, 215, 216.

##### 11.3.4.1.1 Tanks and Ancillary Equipment

Tanks and ancillary equipment (including pumps, piping, stainless steel liners) would be removed as debris, designated, and transported to an appropriate TSD unit for disposal. Tanks and equipment that would remain at the unit after closure would be decontaminated to meet clean closure performance standards from Section 11.2.1. Decontamination would be by hand, using brushes, scouring pads, rags and nonregulated cleaners, or high pressure/low-volume steam or water spray. As appropriate, decontamination solutions could be a combination of water and approved cleaners or chemicals (e.g., nitric acid, citric acid). Decontamination would be conducted to minimize the quantity of rinsates generated. Rinsate and decontamination waste would be collected, designated, and managed accordingly. Decontamination would be documented on a checklist similar to the *T Plant Complex Closure Decontamination and Inspection Checklist,* Figure 11-1. The decontaminated surfaces would be inspected visually as described in Section 11.2.1 and acceptance documented on the checklist used to document the decontamination. Copies of completed visual inspection checklist(s) would be filed in the Hanford Facility Operating Record.

Alternately, as described in Section 11.2.1, clean closure of decontaminated surfaces could be analytically verified by collecting and sampling decontamination rinsate instead of through visual inspections.

#### 11.3.4.1.2 Secondary Containment

The 2706-T Building Tank System secondary containment consists of sealed or lined concrete floors and sumps of the 2706-T, 2706-TA, and 2706-TB Buildings. The 2706-T and 2706-TA Buildings are also 40 CFR Subpart DD containment buildings. Clean closure activities for tank system secondary containment also would meet the requirements for clean closure of containment buildings. Concrete surfaces would be removed *or* if remaining after closure would be inspected for a clean debris surface (Section 11.2.1). Radiation surveys and/or chemical field screening could be used to assist locating contamination. Acceptance would be documented on an inspection checklist.

Surfaces that do not meet clean closure standards would be decontaminated. Decontamination could be by hand using mops, rags, brushes, water, and appropriate nonregulated detergent or by mechanical means using a power scrubber or high-pressure/low-volume steam or water spray. Extreme contamination could be removed using more aggressive physical extraction technologies such as abrasive blasting, grinding, or scarification. Cleaning would be conducted so as to minimize the quantity of rinsates or residues generated. Sumps used as rinsate collection areas would be cleaned and inspected last. Rinsate and decontamination waste would be collected, designated, and managed accordingly. Decontamination and visual acceptance would be documented on a checklist and the checklist filed as described in Section 11.3.4.1.1.

Alternately, as described in Section 11.2.1, clean closure of decontaminated surfaces could be analytically verified by collecting and sampling decontamination rinsate instead of through visual inspections.

#### 11.3.4.1.3 Closure of Underlying Soils

No pathway to soil is anticipated to exist for 2706-T Building Tank System contaminants. Engineered secondary containment of the 2706-T, TA, and TB Buildings was designed to prevent escape of waste to the environment and is maintained to ensure integrity (Chapter 4.0). Nevertheless, the 2706-T Building Tank System concrete secondary containment surfaces would be inspected for cracks or openings. Acceptance would be documented on an inspection checklist. Cracks or other openings (if any) would be mapped and investigated. If found to be through-thickness of the concrete, the underlying soil would be sampled as described in Section 11.2.2 for clean closure.

Sample data would be evaluated and sample results compared to clean closure action levels for soil (Section 11.2.2). No further soil sampling would occur under this plan. Constituents of concern that exceed the regulatory cleanup levels would be identified and the location documented for disposition outside the scope of this closure plan as described in Section 11.2.2.

#### 11.3.4.2 221-T Tank System

The 221-T Building Tank System stored and treated liquid mixed waste generated during decontamination activities in the 2706-T and the 221-T Buildings. Except for the 211-T collection sump and associated buried piping, 221-T tank system tanks and components are located in the 221-T Building. The following tanks systems and structures comprising the 221-T Tank System currently remain in place at the unit.

- Piping from 2706-T Building to the 211-T collection sump
- 211-T (belowgrade) concrete collection sump, including piping to the 221-T Building
- Tank 6-1, including cell 6L
- Tank 5-7, including containment sump 5-8 in cell 5R and the 610-millimeter liquid collection system
- Tanks 5-6 and 5-9, including transfer piping and cell 5L
- Tank 11-R, including cell 11R and transfer piping
- Tank 15-1, including cell 15R and transfer piping.

##### 11.3.4.2.1 221-T Tank System Closure Agreement

Final closure of the 221-T Tank System would occur in conjunction with disposition of the 221-T canyon.

In accordance with TPA milestone M-32-03-T03 (Ecology et al. 2001), the 221-T Tank System received its final volume of dangerous and/or mixed waste in June 1999 initiating the need to begin closure activities. In August 1999, a demonstration to delay closure in accordance with WAC 173-303-610 (4)(c) was submitted to Ecology identifying constraints to beginning and completing tank system closure that still exist (99-EAP-425, Appendix 11-A). The basis for this demonstration was that closure activities could not begin at that time and if begun, could not be completed until the time of 221-T 'Canyon' Building disposition. Closure could not, and still cannot, begin because tank waste, that is also radioactive PCB remediation waste for which no reasonable treatment or disposal path currently exists, cannot be removed from the system. If begun, tank system closure cannot be completed until the time of canyon disposition because the canyon, in which the tank system is located, presents significant structural and radiological (ALARA) constraints to closure. Such constraints include the need for significant physical activities to fully address contaminated surfaces, including structure demolition activities, that would disrupt and therefore be incompatible with continued canyon operations (e.g., storage of K-Basins sludge). Under the provisions of WAC 173-303-610 (4)(b)(ii)(C), because 221-T Tank System closure activities would be incompatible with continued TSD unit operations, the tank system closure period will be extended to the time of 221-T canyon disposition. Until final tank system closure, the conditions under which the tank system will be managed and under which waste can remain in the system are described in Chapter 6.0.

##### 11.3.4.2.2 211-T Sump, Piping, and Soil

The 211-T collection sump of the 221-T Tank System includes the sump and buried, abandoned piping located between the 221-T and 2706-T Buildings, and potentially impacted soils. Because the sump is located outside of the 221-T Building and can be isolated physically from the tanks located in the 221-T canyon, sump materials and media could be closed separately from portions of the tank system located in the 221-T Building that would be dispositioned under future canyon initiatives outside the current scope of this closure plan.

The 211-T concrete collection sump could be excavated and disposed as debris or could be inspected, decontaminated (as necessary), and clean closed in-place as described in Sections 11.2.1 and 11.3.4.1.2.

Buried, abandoned tank system piping would be excavated, designated, and disposed accordingly. Buried piping had no secondary containment but was tested regularly to ensure integrity (Chapter 4.0). Consequently, soil contamination from tank system operations is not anticipated. During excavation activities, radiation surveys and/or chemical field screening could be used to identify potential dangerous and/or mixed waste soil contamination. Because the excavation would be occurring within a CERCLA OU and therefore on a CERCLA site, contaminated soil would be returned to the excavation and the location documented for future disposition as described in Section 11.2.2.

### 11.3.5 Containment Building Closure

The only T Plant Complex containment building requiring closure under this permit is the 221-T Building that includes the railroad tunnel, canyon deck, and selected canyon cells (Chapter 1.0).

Closure of the containment building structure with regard to contamination from containment building storage operations will occur in accordance with WAC 173-303-610 and with WAC 173-303-695 that incorporates the requirements of 40 CFR 264.1102 by reference. If clean closure is the final closure method, all waste residues, contaminated containment system components, subsoil, structures, and equipment must be decontaminated or removed and managed as hazardous waste [40 CFR 264.1102(a)]. However, the 221-T Building is a canyon structure. The final closure method for this structure has not been identified. This structure has been identified in the *Long-Term Facility Decommissioning Plan* (DOE/RL-96-0046) as part of the 'T Plant facility complex' and as a "Candidate Key Facility" for decommissioning under the *Facility Decommissioning Process* of Section 8.0 of the Tri-Party Agreement (Ecology et al. 2001). The *Facility Decommissioning Process* is intended to coordinate disposition of this structure with other similar Hanford Site structures and, where appropriate, with future disposition initiatives (e.g., Canyon Disposal Initiative). Because of the size and design of such structures, clean closure is not possible without significant demolition to gain access to potentially contaminated structure surfaces or underlying soils. If, as indicated in the *Long-Term Facility Decommissioning Plan,* this structure formally is declared a key facility at the time of shutdown, the *Facility Decommissioning Process* could define a decommissioning pathway other than demolition and clean closure. If the 221-T Building cannot clean close, 40 CFR 264.1102(b) requires that closure of the containment building as a landfill be considered that could invoke postclosure requirements of WAC 173-303-610(8). At that time, this chapter will be modified to identify a final closure method and to address any required postclosure activities.

### 11.3.6 2706-T and 2706-TA Building Miscellaneous Unit Closure

Because the 2706-T and 2706-TA Buildings are attached structurally and are of similar design and perform similar operations, their closures will be considered together and can follow the same general steps. Operational areas of these buildings have engineered secondary containment and leak detection systems meeting the tank system requirements of WAC 173-303-640 (Chapter 4.0). These buildings also meet the miscellaneous unit requirements identified in Chapters 4.0 and 6.0. As described in Section 11.3.4.1.3, soil beneath these buildings is expected to be clean closed.

At closure, any noncontainerized waste will be containerized, as necessary and practicable, for transport to an onsite TSD unit or offsite TSD facility. Operating records will be reviewed and personnel interviewed to obtain spill history. Containment building storage area surfaces already not clean closed as a portion of 2706-T Tank System secondary containment closure (Section 11.3.4.1.2) will be inspected to identify surfaces that already meet clean closure standards. The inspection will look for cracks or openings that could harbor contamination or could have provided a pathway to soil for contamination. Radiation surveys and/or chemical field screening could be used as needed to assist locating contamination. Contaminated containment storage surfaces would be decontaminated, reinspected for a clean debris surface, and the inspections documented as described in Section 11.3.4.1.2. Rinsate and decontamination waste would be collected, designated, and managed as described in Section 11.3.2.

Alternately, rinsate from the decontaminated surfaces could be sampled to verify clean closure standards as described in Section 11.2.1.

### 11.3.7 Closure of Container Management Areas

The container management areas requiring closure under this plan are as follows:

- 221-T tunnel
- 221-T canyon deck
- 2706-T Building (includes 2706-T, 2706-TA, 2706-T pad, and 2706-T yard)
- 214-T Building
- 271-T Cage
- 211-T Cage
- 211-T Pad
- 221-T R-5
- Treatment/Storage Pad
- 221-T head end.

Clean closure of container management areas would occur in accordance with WAC 173-303-610 and WAC 173-303-630(10). Clean closure would require removal of all dangerous waste and dangerous waste residues from the containment system and remaining containers, liners, bases, and contaminated soil must be removed or decontaminated.

The following activities would be performed to clean close container management areas:

- Remove any remaining containers of dangerous and/or mixed waste to an appropriate receiving unit

- Review operating records and interview personnel for spill history

- Perform initial visual inspection of container management area surfaces to identify surfaces that already meet the clean debris surface standard and clean close

- Identify cracks or openings that could have allowed the escape of contamination to soil

- Remove, *or* decontaminate as described in Section 11.3.4.1.2, storage area pads/floors having visible evidence of contamination (e.g., discoloration, material degradation, wetness, and odor) or where a history of unremediated spills exists. Radiation surveys and/or chemical field screening could be used to assist in locating contamination. Potentially contaminated asphalt surfaces would be addressed as described in Section 11.2.1.

- Visually inspect decontaminated surfaces or sample rinsate from decontaminated surfaces as described in Section 11.2.1 to verify the achievement of clean closure standards

- Investigate soil contamination pathways and, if necessary, sample soil to clean close the soil *or* disposition potentially contaminated soil as described in Section 11.2.2.

- Collect rinsate and decontamination waste and designate and manage as described in Section 11.3.2.

### 11.3.8 Closure of Containers

Operation of the T Plant Complex involves the storage and/or treatment of dangerous and/or mixed waste in various containers. Such containers can be constructed of wood, metal, cardboard, or fiberglass in the form of boxes, drums, and secondary containment pans. Pumps are herein considered containers with regard to decontamination of internals for clean closure.

Containers that held dangerous and/or mixed waste could be removed and transported to a permitted unit for disposition or rendered 'empty' at the T Plant Complex in accordance with WAC 173-303-160(2). Containers could be rendered empty by being triple rinsed following the requirements of WAC 173-303-160(2)(b). Container liners and container decontamination solutions or waste residues generated onsite would be collected, designated, and managed as described in Section 11.3.2.

### 11.3.9 Sampling Quality Control [I-1b(4)]

Laboratory sampling and analysis of soil or rinsate could be required. Sampling would be in accordance with an approved sampling and analysis plan (SAP). The SAP would document the type and quality of data and the number and location of samples appropriate to demonstrate the achievement of action levels.

To ensure data quality, sampling and analytical procedures would be conducted in accordance with standard EPA methods described in the most recent edition of *Test Methods for the Evaluation of Solid Waste: Physical/Chemical Methods*, SW-846, or equivalent methods (EPA 1986). The appropriate field quality control would be ensured through use of field quality control samples.

### 11.3.10 Decontamination of Equipment

Potentially contaminated closure equipment or materials could be decontaminated for reuse or disposal or could be managed as dangerous waste.

Closure equipment could be decontaminated using high-pressure, low-volume steam or water sprays and appropriate cleaners. Equipment that was not reusable would be designated and managed as described in Section 11.3.2. Portable pumps and waste transfer lines used to collect decontamination rinsate would be triple rinsed for nonregulated reuse or disposal.

## 11.4 SCHEDULE FOR CLOSURE [I-1f]

Closure of the T Plant Complex is not anticipated to occur within the next 25 years (i.e., not before 2025). When a more definite closure date is established, a revised closure chapter and closure schedule would be submitted to Ecology that contains detailed information regarding specific activities and the implementation timeframes.

For partial closure of the TSD unit, Ecology will be notified in writing that partial closure activities are beginning. The written notification will identify those portions of the TSD unit being closed.

### 11.4.1 Extension of Closure Time [I-1g]

A revised closure plan would be prepared before the beginning of closure that provides a detailed schedule for closure activities. The schedule would be expected to identify closure activities that would exceed 180 days from the start of closure activities.

### 11.4.2 Certification of Closure and Survey Plat

Within 60 days of final closure, the DOE-RL will submit to Ecology a certification of closure in accordance with General Information Portion, Chapter 11.0 (DOE/RL-91-28). When certification of closure is submitted, the requirements for corrective action in accordance with HF RCRA Permit, Section II.Y.2.c. will be satisfied.

## 11.5 CLOSURE COST ESTIMATE [I-1h]

An annual report updating projections of anticipated closure and postclosure costs is submitted in accordance with General Information Portion, Chapter 11.0 (DOE/RL-91-28).

# EXAMPLE

## T PLANT COMPLEX CLOSURE DECONTAMINATION AND INSPECTION CHECKLIST

This checklist is intended to document a 'clean debris surface'[1] for the following T Plant Complex components, structures, and/or materials.

1. Building/location: ________________
2. Component(s)/area(s) ________________
3. Material (e.g., concrete metal, plastic): ________________
4. No cracks or openings are visible that could have provided a pathway to soil for contamination. ________________

Signature ________________ Date ________________

5. The above materials have been inspected visually and have attained a clean debris surface[1].

Signature ________________ Date ________________

6. Decontamination:
   A. Method (NA 6C if no decontamination performed): ________________
   B. Parameters (check appropriate parameters):
      - ☐ Temperature ________________
      - ☐ Propellant ________________
      - ☐ Solid media (e.g., shot, grit, beads) ________________
      - ☐ Pressure ________________
      - ☐ Surfactant(s) ________________
      - ☐ Detergents ________________
      - ☐ Grinding/striking media (e.g., wheels, piston heads). ________________
      - ☐ Depth or surface layer removal ________________
      - Other ________________

   C. Decontamination (steps 6A and B) is complete.

   Signature ________________ Date ________________

7. The identified materials have been inspected visually and have attained a clean debris surface[1].
   Authorized Representative:

Signature ________________ Date ________________

[1] Definition of 'clean debris surface' from Table 1, Alternative Treatment Standards for Hazardous Debris (40 CFR 268.45): "'Clean debris surface' means the surface, when viewed without magnification, shall be free of all visible contaminated soil and hazardous waste except that residual staining from soil and waste consisting of light shadows, slight streaks, or minor discoloration's, and soil and waste in cracks, crevices, and pits, may be present provided that such staining and waste and soil in cracks, crevices, and pits shall be limited to no more than 5% of each square inch of surface area".

Figure 11-1. Example Decontamination and Inspection Checklist for T Plant Complex Closure.

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# CONTENTS

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# 12.0 REPORTING AND RECORDKEEPING

Reporting and recordkeeping requirements that could be applicable to the Hanford Facility are described in Chapter 12.0 of the General Information Portion (DOE/RL-91-28). Not all of these requirements and associated reports and records identified in Chapter 12.0 of the General Information Portion are applicable to T Plant Complex. Those reporting and recordkeeping requirements determined to be applicable to T Plant Complex are summarized as follows:

- Contingency plan and incident records (as identified in the General Information Portion):

  - Immediate reporting
  - Written reporting.

- Unit-specific Part B permit application documentation and associated plans

- Personnel training records

- Inspection records (unit)

- Land disposal restriction records

- Waste minimization and pollution prevention.

In addition, the following reports prepared for the Hanford Facility contain input, when appropriate, from T Plant Complex:

- Quarterly HF RCRA Permit modification report
- Anticipated noncompliance
- Required annual reports.

Annual reports updating projections of anticipated costs for closure and postclosure are submitted as required by the HF RCRA Permit.

The T Plant Complex Operating Record 'records contact' is kept on file in the General Information File of the Hanford Facility Operating Record (refer to DOE/RL-91-28, Chapter 12.0).

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# CONTENTS

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# 13.0 OTHER FEDERAL AND STATE LAWS [J]

Federal, state, and local laws applicable to the T Plant Complex are discussed in Chapter 13.0 of the General Information Portion (DOE/RL-91-28). Generally, the laws applicable to the T Plant Complex include, but might not be limited to, the following:

- *Atomic Energy Act of 1954*
- *Federal Facility Compliance Act of 1992*
- *Clean Air Act of 1977*
- *Safe Drinking Water Act of 1974*
- *Emergency Planning and Community Right-to-Know Act of 1986*
- *Toxic Substances Control Act of 1976*
- *National Historic Preservation Act of 1966*
- *Endangered Species Act of 1973*
- *Fish and Wildlife Coordination Act of 1934*
- *Federal Insecticide, Fungicide, and Rodenticide Act of 1975*
- *Hazardous Materials Transportation Act of 1975*
- *National Environmental Policy Act of 1969*
- *Washington Clean Air Act of 1967*
- *Washington Water Pollution Control Act of 1945*
- *Washington Pesticide Control Act of 1971*
- *Benton Clean Air Authority Regulation I*
- *State Environmental Policy Act of 1971.*

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# CONTENTS

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# 14.0 CERTIFICATION [K]

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

(for) — 9/24/02

Owner/Operator — Date
Keith A. Klein, Manager
U.S. Department of Energy,
Richland Operations Office

/for — 9-5-02

Co-operator — Date
E. Keith Thomson,
President and Chief Executive Officer
Fluor Hanford

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# CONTENTS

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# 15.0 REFERENCES

99-EAP-425, August 2, 1999, *Request to Extend the time for Waste Removal and Closure of the 221-T Tank System, as per Washington Administrative Code (WAC) 173-303-610(4)(c)*, James R. Rasmussen, DOE-RL to R. J. Julian, Washington State Department of Ecology.

DOE, 1988, *Site Characterization Plan*, Consultation Draft, DOE/RW-0164, Vol. 1, U.S. Department of Energy, Washington, D.C.

DOE/RL-91-28, *Hanford Facility Dangerous Waste Permit Application, General Information Portion*, U.S. Department of Energy, Richland Operations Office, Richland, Washington, updated periodically.

DOE/RL-91-51, *224-T Transuranic Waste Storage and Assay Facility Dangerous Waste Permit Application*, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE/RL-91-27, *222-S Laboratory Complex Dangerous Waste Permit Application*, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE/RL-93-70, *Waste Analysis Plan for Confirmation of Tank Farm Backlog Waste Designation*, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE/RL-93-75, *Hanford Facility Contingency Plan*, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE/RL-94-02, *Hanford Facility Contingency Plan*, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE/RL-96-0046, *Long-Term Facility Decommissioning Plan*, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Ecology, 1996, *State of Washington Part B Permit Application Requirements*, Washington State Department of Ecology, Olympia, Washington.

Ecology, EPA, and DOE, 2001, *Hanford Federal Facility Agreement and Consent Order*, Washington State Department of Ecology, U.S. Environmental Protection Agency, and U.S. Department of Energy, Olympia, Washington, updated periodically.

EPA, 1986, *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*, SW-846, 3rd edition, as amended, U.S. Environmental Protection Agency, Washington, D.C.

HNF-6033, *Seismic Evaluation of the T Plant 221-T Building for Interim Storage of K Basin Sludge.*

HNF-SD-WM-ISB-006, *Interim Safety Basis for Solid Waste Facilities (T Plant)*, June 2002, Fluor Hanford, Richland, Washington.

HPS-SDC-4.1, "Design Load for Structures", *Hanford Plant Standards*, Rev. 11, Kaiser Engineers Hanford, Richland, Washington.

ICBO, 1991, "Earthquake Regulations," *Uniform Building Code*, UBC Section 2312, International Conference of Building Officials, Whittier, California.

NFPA, 1989, *National Fire Protection Code*, National Fire Protection Association, Quincy, Massachusetts.

NUREG-0892, *Safety Evaluation Report (Related to the Operation of WPPSS Nuclear Project) No. 2*, Supplement No. 1, U.S. Nuclear Regulatory Commission, Washington, D.C.

WHC-IP-0933, 1993, *T Plant Complex Dangerous and Mixed Waste Inspection Plan*, Rev. 0, Westinghouse Hanford Company, Richland, Washington.

WHC-MR-0386, 1992, *Integrity Assessment Plan for the T-Plant Decontamination Facility Tank Systems*, Westinghouse Hanford Company, Richland, Washington.

WHC-SD-CP-SAR-007, *T Plant Safety Analysis Report*, Rev. 1, Westinghouse Hanford Company, Richland, Washington.

WHC-SD-W259-FDC-001, Rev. 3, *Functional Design Criteria T Plant Secondary Containment and Leak Detection Upgrades Project W-259,* Westinghouse Hanford Company, Richland, Washington.

# APPENDICES

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# APPENDIX 2A

# TOPOGRAPHIC MAP FOR T PLANT COMPLEX

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METERS

AUG 29 2002
DATE:
STA: 15
HANFORD
RELEASE
ID:
26

| EDT | 145760 |
|---|---|

| | DATE |
|---|---|
| DRAWN CJ Bryant | 7-1-92 |
| CHECKED G TILLEY | 10-12-92 |
| DFTG APVD JT SAMS | 10-13-92 |
| COG ENGR J.F. WILLIAMS JR | 10-13-92 |
| QA | |
| OTHER | |
| OTHER | |
| OTHER | |

APVD FOR IMPLEMENTATION

BY

FOR DATE

U.S. DEPARTMENT OF ENERGY
Richland Operations Office
Fluor Hanford

# TOPOGRAPHIC MAP
# T PLANT COMPLEX

| SIZE | BLDG NO | INDEX NO | DWG NO | REV |
|---|---|---|---|---|
| F | 221T 2706T | 0110 | H-13-000080 | 3 |

SCALE SHOWN SHEET 1 OF 1

2

CHK PRINT DATE

COMMENT PRINT DATE

1977

1

A

DWG NO H-13-000080 SH 1 OF 1 REV 3

# APPENDIX 3A

# WASTE ANALYSIS PLAN FOR T PLANT COMPLEX

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# CONTENTS

## CONTENTS (cont)



## FIGURES



## TABLES

# GLOSSARY

| | |
|---|---|
| AOAC | Association of Official Analytical Chemists |
| APHA | American Public Health Association |
| ASTM | American Society for Testing and Materials |
| CAP | corrective action plan |
| CCW | constituent concentration in waste |
| CCWE | constituent concentration in waste extracts |
| CFR | Code of Federal Regulations |
| COLIWASA | composite liquid waste sampler |
| CWC | Central Waste Complex |
| DST | double-shell tank |
| Ecology | Washington State Department of Ecology |
| EPA | U.S. Environmental Protection Agency |
| ETF | 200 Area Effluent Treatment Facility |
| LDR | land disposal restriction |
| LERF | Liquid Effluent Retention Facility |
| LLBG | Low-Level Burial Grounds |
| NDE | nondestructive examination |
| PCB | polychlorinated biphenyl |
| PES | Performance Evaluation System |
| PPE | personal protective equipment |
| QA | quality assurance |
| QC | quality control |
| RCRA | *Resource Conservation and Recovery Act of 1976* |
| RCW | Revised Code of Washington |
| SWITS | Solid Waste Information Tracking System |
| T Plant | T Plant Complex |
| TCLP | toxicity characteristics leaching procedure |
| TRU | transuranic |
| TSCA | *Toxic Substances Control Act of 1976* |
| TSD | treatment, storage, and/or disposal |
| WAC | Washington Administrative Code |
| WAP | waste analysis plan |
| WRAP | Waste Receiving and Processing Facility |

## METRIC CONVERSION CHART

Into metric units / Out of metric units

| If you know | Multiply by | To get | If you know | Multiply by | To get |
|---|---|---|---|---|---|
| **Length** | | | **Length** | | |
| inches | 25.40 | millimeters | millimeters | 0.03937 | inches |
| inches | 2.54 | centimeters | centimeters | 0.393701 | inches |
| feet | 0.3048 | meters | meters | 3.28084 | feet |
| yards | 0.9144 | meters | meters | 1.0936 | yards |
| miles (statute) | 1.60934 | kilometers | kilometers | 0.62137 | miles (statute) |
| **Area** | | | **Area** | | |
| square inches | 6.4516 | square centimeters | square centimeters | 0.155 | square inches |
| square feet | 0.09290304 | square meters | square meters | 10.7639 | square feet |
| square yards | 0.8361274 | square meters | square meters | 1.19599 | square yards |
| square miles | 2.59 | square kilometers | square kilometers | 0.386102 | square miles |
| acres | 0.404687 | hectares | hectares | 2.47104 | acres |
| **Mass (weight)** | | | **Mass (weight)** | | |
| ounces (avoir) | 28.34952 | grams | grams | 0.035274 | ounces (avoir) |
| pounds | 0.45359237 | kilograms | kilograms | 2.204623 | pounds (avoir) |
| tons (short) | 0.9071847 | tons (metric) | tons (metric) | 1.1023 | tons (short) |
| **Volume** | | | **Volume** | | |
| ounces (U.S., liquid) | 29.57353 | milliliters | milliliters | 0.033814 | ounces (U.S., liquid) |
| quarts (U.S., liquid) | 0.9463529 | liters | liters | 1.0567 | quarts (U.S., liquid) |
| gallons (U.S., liquid) | 3.7854 | liters | liters | 0.26417 | gallons (U.S., liquid) |
| cubic feet | 0.02831685 | cubic meters | cubic meters | 35.3147 | cubic feet |
| cubic yards | 0.7645549 | cubic meters | cubic meters | 1.308 | cubic yards |
| **Temperature** | | | **Temperature** | | |
| Fahrenheit | subtract 32 then multiply by 5/9ths | Celsius | Celsius | multiply by 9/5ths, then add 32 | Fahrenheit |
| **Energy** | | | **Energy** | | |
| kilowatt hour | 3,412 | British thermal unit | British thermal unit | 0.000293 | kilowatt hour |
| kilowatt | 0.94782 | British thermal unit per second | British thermal unit per second | 1.055 | kilowatt |
| **Force/Pressure** | | | **Force/Pressure** | | |
| pounds (force) per square inch | 6.894757 | kilopascals | kilopascals | 0.14504 | pounds per square inch |

06/2001

Source: *Engineering Unit Conversions*, M. R. Lindeburg, PE., Third Ed., 1990, Professional Publications, Inc., Belmont, California.

# T PLANT COMPLEX WASTE ANALYSIS PLAN

## 1.0 INTRODUCTION

The purpose of this waste analysis plan (WAP) is to document the waste acceptance process, sampling methodologies, analytical techniques, and overall processes that are undertaken for treatment and/or storage of dangerous and mixed waste managed at the T Plant Complex (T Plant), a treatment, storage, and/or disposal (TSD) unit. T Plant is located in the 200 West Area of the Hanford Facility, Richland, Washington (Figure 1-1). Because dangerous waste does not include the source, special nuclear, and by-product material components of mixed waste, radionuclides are not within the scope of this documentation. The information on radionuclides is provided only for general knowledge. The term 'TSD unit' is used throughout this WAP to refer to T Plant. Activities could be performed by the T Plant operating organization or its delegated representative.

### 1.1 DESCRIPTION OF UNIT PROCESSES AND ACTIVITIES

T Plant was constructed in 1943 and began waste management operations in January of 1957. T Plant consists of two main structures, 221-T Building (221-T) and the 2706-T/2706-TA Buildings (2706-T), and various support structures and units. Figure 1-2 provides a site plan.

Treatment of containerized and non-containerized dangerous and/or mixed waste could take place in the 221-T canyon, 221-T railroad tunnel, 2706-T Building, 214-T storage building, and in other support area and treatment/storage units located within the TSD unit boundary. Modular buildings also could be set up within the T Plant TSD unit boundary for treatment and/or storage of waste. Types of treatments that could be implemented include those identified in Washington Administrative Code (WAC) 173-303-380, "Dangerous Waste Regulations", and described in the *Hanford Facility Dangerous Waste Portion of the Resource Conservation and Recovery Act Permit for the Treatment, Storage, and Disposal of Dangerous Waste* (Hanford Facility RCRA Permit), T Plant, Chapter 4.0 (Permit No. WA7890008967).

A variety of technologies are emerging for treating dangerous and/or mixed waste, minimizing waste generation, and achieving compliance with land disposal restrictions (LDR) [40 Code of Federal Regulations (CFR) 268] (refer to this document, Sections 2.1.3.2 and 7.4). Many of these technologies could lend themselves to application at T Plant or to operations similar to those conducted at T Plant. This TSD unit can serve as a major asset for technology demonstration because T Plant offers a high degree of flexibility to test and implement technologies under safe, controlled conditions. T Plant operations are adequate for, or readily adaptable to, testing and implementing many of these technologies. The process presented in the Hanford Facility RCRA Permit, T Plant, Chapter 4.0, describes how technologies are tested and how successful technologies could be implemented.

In addition to treatment, this TSD unit also processes dangerous and/or mixed waste in the 221-T canyon, 221-T railroad tunnel, 2706-T Building, 214-T storage building, and in other support area structures and treatment/storage units. Types of processing could include, but are not limited to, sorting, inspection, sampling, and repackaging. Processing capability at T Plant is required to (1) complete laboratory analysis and/or characterization before transferring the waste to another approved onsite TSD unit or offsite TSD facility; (2) perform verification activities; and/or (3) sort, segregate, treat, or repackage mixed waste to meet onsite TSD unit or offsite TSD facility waste acceptance criteria.

T Plant also performs decontamination activities using a variety of technologies. Equipment and other components (e.g., tools, railroad equipment, buses, trucks, automobiles, cranes, earth-moving equipment, and other large and small pieces of process equipment) are decontaminated in the 2706-T Building, 221-T canyon, and other support structures. Decontamination technologies include, but are not limited to, immersion treatment; spray batch treatment; and steam, water, ice, carbon dioxide, chemical, or abrasive blasting. Liquid mixed waste generated from various decontamination and/or treatment processes is collected and transferred to the 2706-T Building tank system. This waste is transferred to an onsite TSD unit capable of accepting this waste.

Future missions for this TSD unit include the storage and/or processing of K Basin sludge, transuranic (TRU) waste, and high-level waste.

## 1.2 IDENTIFICATION, CLASSIFICATION, AND QUANTITIES OF DANGEROUS WASTE GENERATED OR MANAGED AT T PLANT

Waste is accepted for treatment (mixed waste) and/or storage (mixed and dangerous) except for the following waste types:

- Explosive waste
- Shock sensitive waste
- Class IV oxidizer waste
- Infectious waste.

This TSD unit manages, but is not limited to managing, the following waste types:

- Labpack liquids
- Solids/debris
- Sludges/soils
- Bulk liquids in tanker trucks and container(s)
- Bulk solids/debris/sludges in trucks and roll-off boxes.

These waste types could be classified as TRU, TRU-mixed, low-level, mixed, and/or dangerous. The Hanford Facility RCRA Permit, T Plant, Chapter 1.0, identifies dangerous waste numbers, quantities, and design capacity. Dangerous and/or mixed waste with dangerous waste numbers not identified in Chapter 1.0 are not managed at this TSD unit until the Part A, Form 3, is modified. T Plant also can manage *Toxic Substances Control Act* (TSCA) *of 1976* polychlorinated biphenyl (PCB) waste [40 CFR 761, "Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions"]. T Plant has the capability to receive ignitable, reactive, and incompatible waste (refer to Section 7.0 and the Hanford Facility RCRA Permit, T Plant, Chapter 4.0, for special process requirements when managing this waste).

## 1.3 MANAGEMENT OF WASTE

Dangerous and mixed waste is accepted at T Plant for treatment and storage. Additionally, dangerous and mixed waste is generated during normal T Plant operations.

The onsite generating units, onsite TSD units, and offsite generators transferring/shipping waste to this TSD unit hereafter are referred to as the 'generator' unless otherwise denoted in this WAP. T Plant accepts dangerous and mixed waste from other onsite solid waste project TSD units [i.e., Central Waste Complex (CWC), Waste Receiving and Processing (WRAP) Facility, and Low-Level Burial Grounds (LLBG)] and onsite generating units and offsite generators. The differences in the waste acceptance process for transfers from onsite solid waste project TSD units (Figure 1-3) and onsite generating units/offsite generators (Figure 1-4) are discussed in detail in Section 2.0.

The TSD unit maintains written waste tracking procedures to ensure that the waste received at the TSD unit matches the manifests or transfer papers, to ensure that the waste is tracked through the TSD unit to final disposition, and to maintain the information required in WAC 173-303-380. Waste is tracked through such processes as segregation, repackaging, treatment, and/or intra-TSD unit transfers. The waste tracking process (Figure 1-5) provides a mechanism to track waste through a uniquely identified container. The unique identifier is a barcode (or equivalent) that is recorded in the solid waste information tracking system. This mechanism encompasses the waste acceptance process, the movement of waste, the processing of waste, and management of the waste. If necessary, new container identification numbers are assigned and maintained as the waste moves through the TSD unit. The container identification number allows the TSD unit to link to hard copy records that are maintained as part of the operating record to maintain information on the location, quantity, and physical and chemical characteristics of the waste. Field screening and sampling are performed in accordance with this WAP and occur at the point of waste generation, where the waste materials are stored, or another appropriate location.

The following sections describe the process for waste acceptance and the different types of information and knowledge reviewed/required during the acceptance process. The process for management of waste is described in the Hanford Facility RCRA Permit, T Plant, Chapter 4.0.

### 1.3.1 Waste Generated Within T Plant

This TSD unit generates dangerous and mixed waste as a result of normal operational activities. These activities include treatment, storage, and transfer functions along with inspection, sampling, decontamination, cleanup, maintenance, repackaging, and size reduction tasks. This waste material consists of such items as personal protective equipment (PPE), rags, spent equipment contaminated with dangerous cleaning agents, lubricants, paints, or other dangerous materials. Process knowledge, field screening, and/or sampling and analysis are used, as appropriate, to characterize these waste materials.

### 1.3.2 Waste Acceptance Process for Newly Generated Waste

The TSD unit acceptance process for containerized waste consists of the following activities.

- Waste Stream Approval. The onsite generating unit/offsite generator provides information concerning each waste stream on a waste profile sheet. The waste stream information is reviewed against the TSD unit waste acceptance criteria. If the waste stream information is sufficient and meets the applicable waste acceptance criteria, the waste stream is approved. In addition, the initial verification frequency for the waste is determined in accordance with the requirements found in the Performance Evaluation System (PES) (Section 2.3). For a more complete description of the waste stream approval process, refer to Section 2.1.1.

- Waste Transfer/Shipment Approval. The onsite generating unit/offsite generator provides specific data for each waste. The container data are reviewed against the waste profile sheet data and the TSD unit waste acceptance criteria before being approved for transfer/shipment. In addition, the TSD unit determines if any of the containers require verification based on the verification frequency as determined by the PES. For a more complete description of the waste transfer/shipment approval process, refer to Section 2.1.2.

- Verification. All waste transfers/shipments are subject to receipt inspection during the waste acceptance process. The percentage of the waste transfer/shipment selected for physical and/or chemical screening is determined in accordance with the requirements found in the PES (Section 2.4). Containers are opened and verified visually or by nondestructive examination (NDE). Of those containers subjected to physical screening, a percentage of containers is subject to chemical screening via field or laboratory analysis. All information and data are evaluated to confirm that the waste matches the waste profile and container data/information supplied by the onsite generating unit/offsite generator. For a more complete description of the verification process, refer to Section 2.2.

### 1.3.3 Waste Acceptance Process for Transfers Among Solid Waste Project TSD Units

Waste transfers from CWC, WRAP, or LLBG TSD units to this TSD unit could be necessary to support Hanford Site goals. In these instances, a waste stream profile already developed and approved for one of the mentioned TSD units could be used. A technical review for container transfers is performed to confirm that the waste meets the TSD unit waste acceptance criteria. All waste transfers are subject to receipt inspection. For waste that has not been accepted at CWC, WRAP, LLBG, or T Plant, physical and/or chemical screening is completed as described in Sections 3.1 and 3.2. All information and data are evaluated to confirm that the waste matches the container data information. For a more complete description of the transfer process, refer to Section 2.3.

### 1.3.4 Waste Acceptance Process for 2706-T Tank System

Liquid waste is managed at T Plant in the 2706-T, 2706-TA, and 2706-TB Buildings. The acceptance process consists of waste profile development, approval, and confirmation before acceptance and management at T Plant. All waste profiles are reviewed for chemical compatibility with the tank contents and equipment. Section 2.5 provides a complete description of the acceptance process.

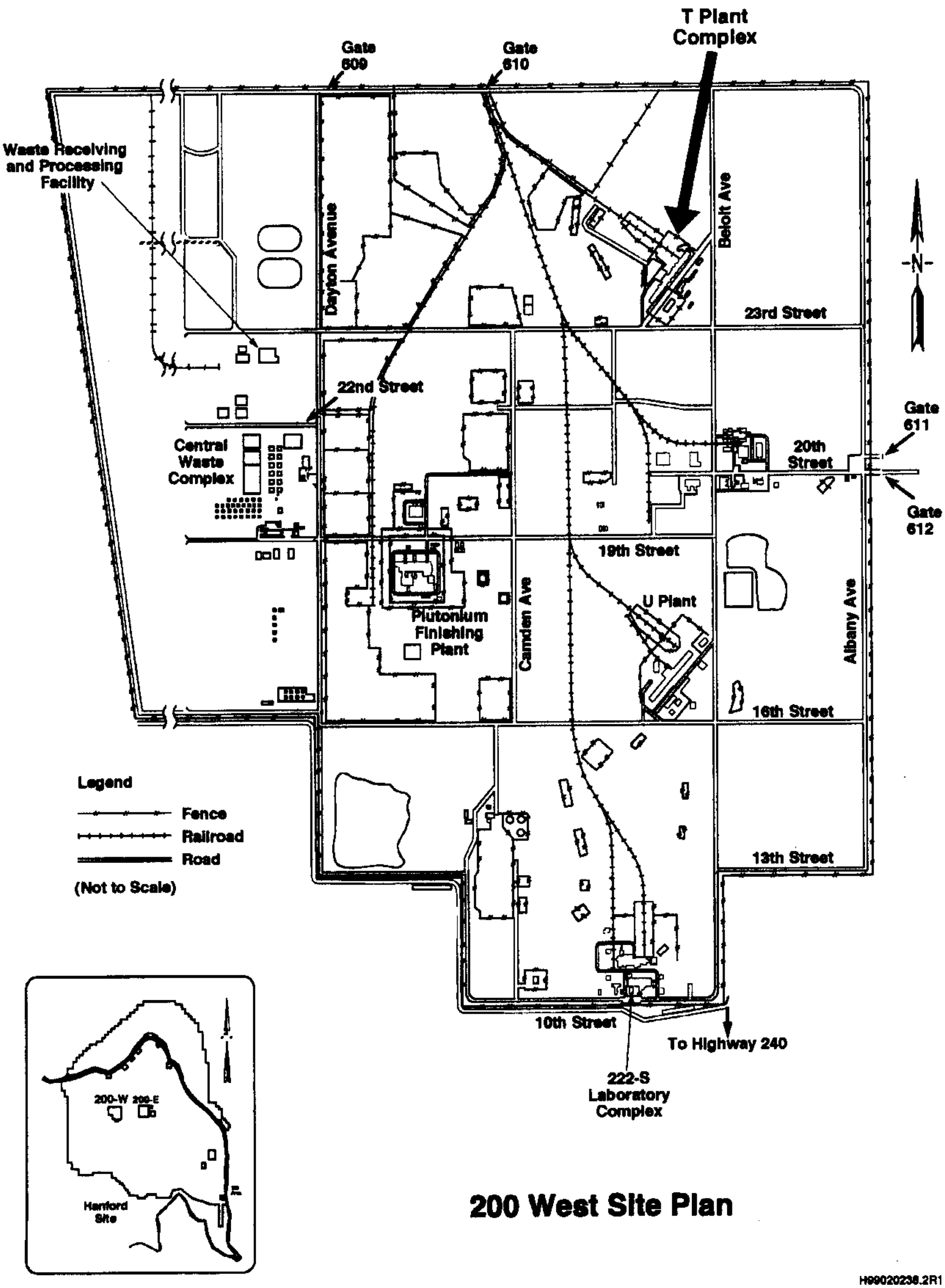


Figure 1-1. 200 West Area Site Plan.

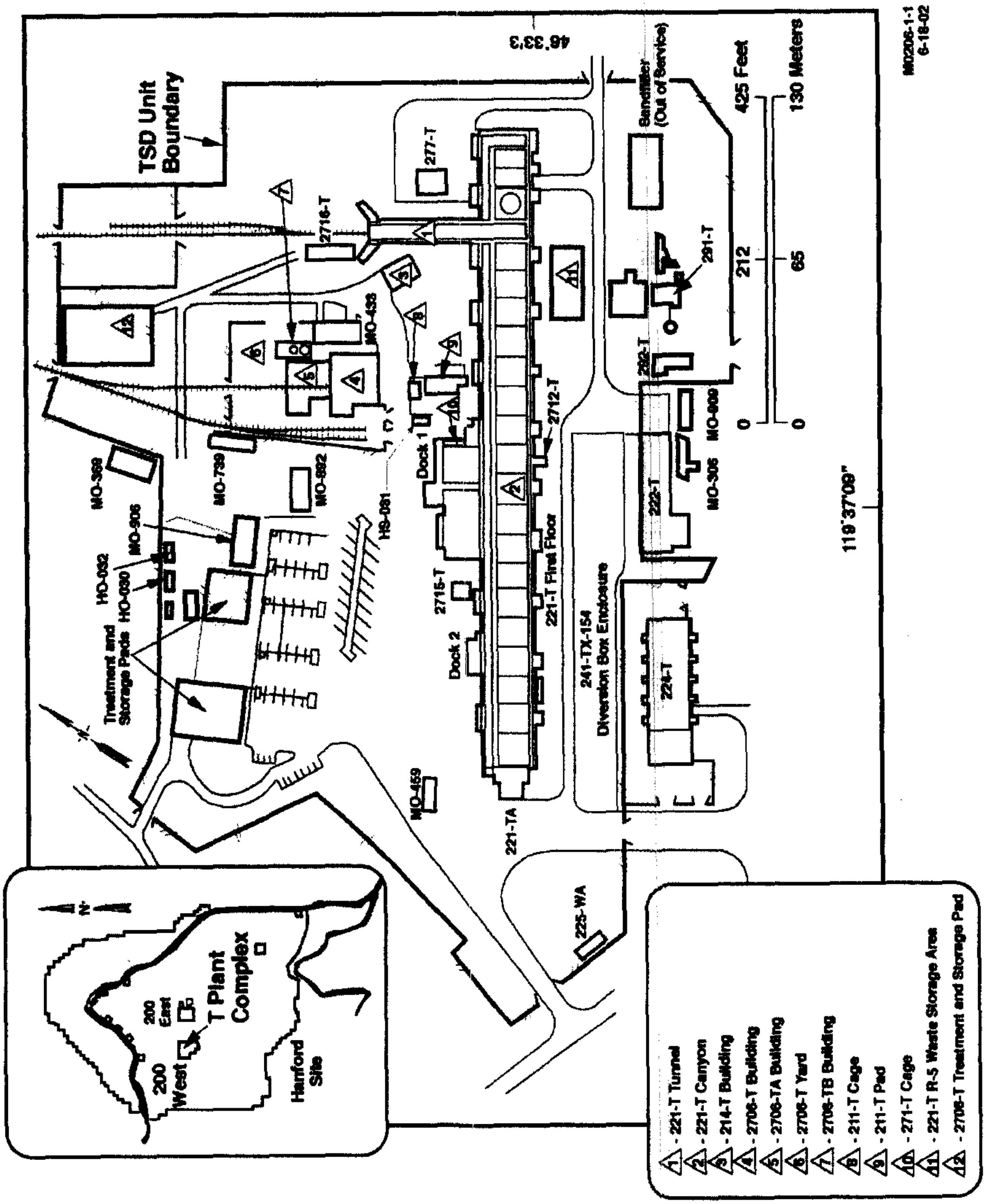


Figure 1-2. T Plant Complex Site Plan.

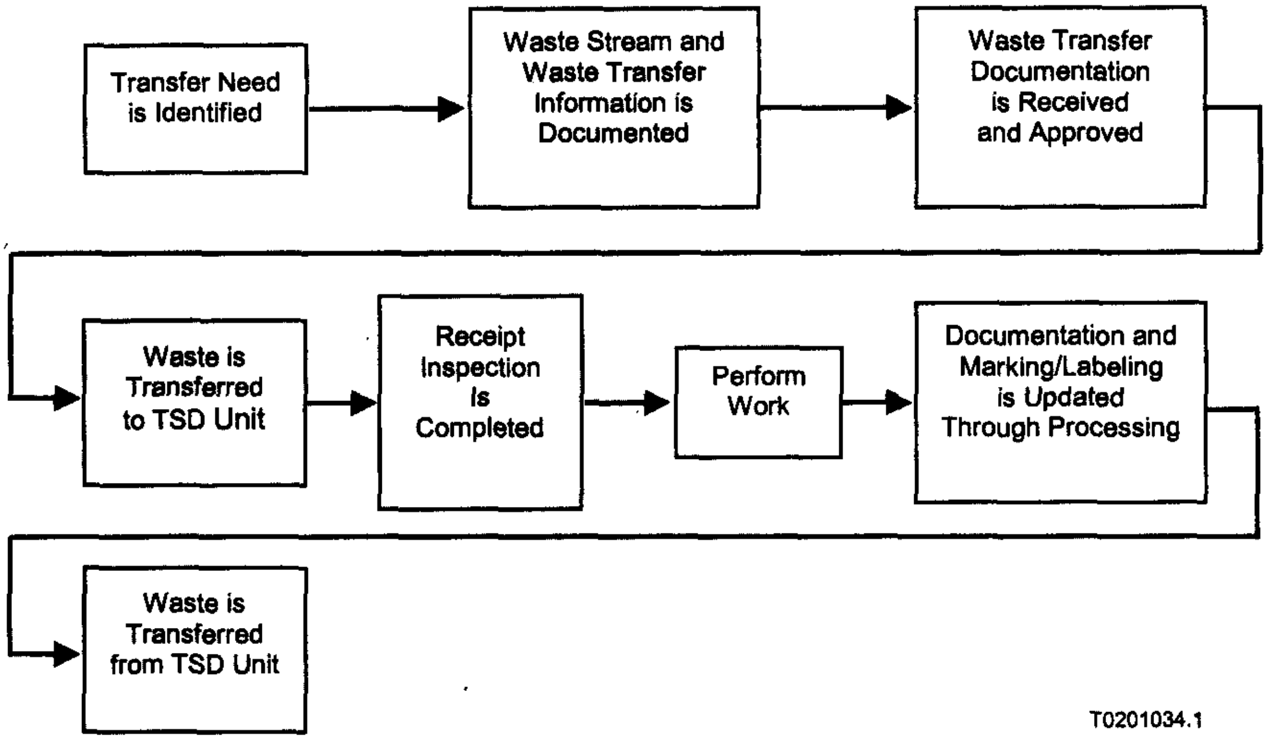


Figure 1-3. Waste Transfers Among Solid Waste Project TSD Units.

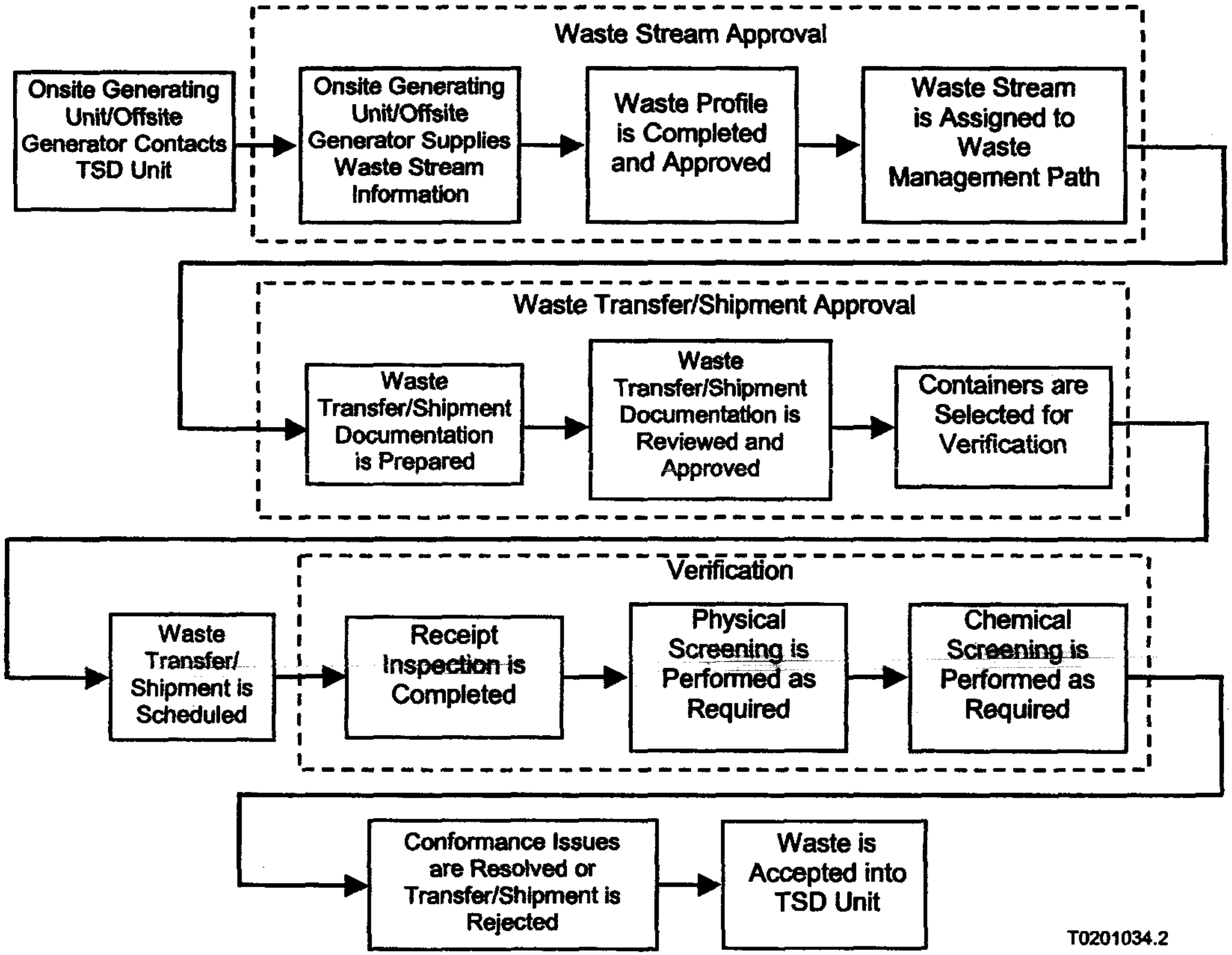


Figure 1-4. Waste Confirmation and Acceptance Process for Newly Generated Waste.



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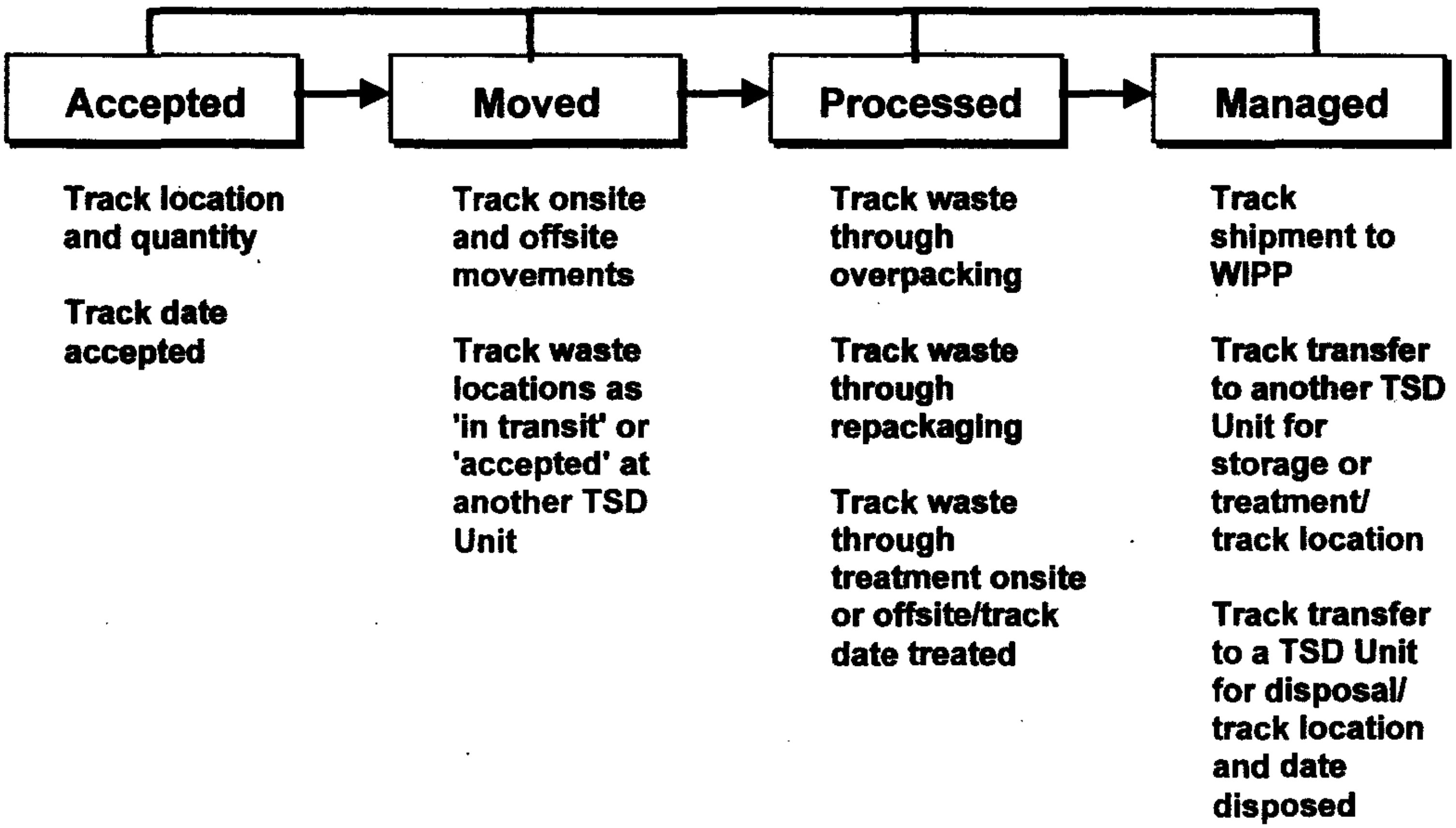


WIPP = Waste Isolation Pilot Plant.

Figure 1-5. Waste Tracking.

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# 2.0 CONFIRMATION PROCESS

WAC 173-303-300(1) requires confirmation on mixed and/or dangerous waste before acceptance of waste into a waste management unit. Confirmation is not required for transfer of waste within T Plant waste management units. The confirmation process consists of two parts, pre-transfer/shipment review and verification. Confirmation activities are performed in accordance with TSD unit-specific governing documentation. Differences in the confirmation process for liquid waste generated at T Plant and onsite generating unit/offsite generator waste acceptance and transfers from other solid waste project TSD units are discussed. T Plant performs an integrated technical review to ensure acceptance of waste streams or transfers of waste. The confirmation process is detailed in Figure 2-1.

## 2.1 PRE-TRANSFER/SHIPMENT REVIEW

Pre-transfer/shipment review takes place before waste can be scheduled for transfer or shipment to this TSD unit. The review focuses on whether the waste stream is defined accurately, meets the TSD unit waste acceptance criteria, and the LDR status is determined correctly. Only waste determined to be acceptable for treatment and/or storage is scheduled. This determination is based on the information provided by the generator. The pre-transfer/shipment review consists of the waste stream approval and waste transfer/shipment approval process. Waste being transferred from one solid waste project TSD unit to another is discussed in Section 2.3. The following sections discuss the pre-transfer/shipment review process. The information obtained during the pre-transfer/shipment review, at a minimum, includes all information necessary to safely treat and/or store the waste. The pre-transfer/shipment review ensures that the waste has been characterized and the data provided qualify as 'acceptable knowledge' (Section 2.1.3).

### 2.1.1 Waste Stream Approval Process

The waste stream approval process consists of reviewing stream information supplied on a waste stream profile and supporting documentation, which could consist of container drawings, process flow information, analytical data, etc. The waste stream profile requires the following supporting documentation:

- Generator information (e.g., name, address, point-of-contact, telephone number)
- Waste stream name
- Waste generating process description
- Chemical characterization information [e.g., characterization method(s), chemicals present, concentration ranges]
- Designation information
- LDR information, including identification of underlying hazardous constituents if applicable
- Waste type information (e.g., physical state, sorbents used, inert materials, stabilizing agents used)
- Packaging information (e.g., container type, maximum weight, size).

When applicable, detailed information is gathered during the waste transfer/shipment approval process. This information is reviewed against the TSD unit waste acceptance criteria to ensure the waste is acceptable for receipt. If conformance issues are found during this review, additional information is requested that could include analytical data or the collection of a sample to be analyzed. If the waste cannot be received, the TSD unit pursues acceptance of the waste at an alternative onsite TSD unit or requests the generator to pursue acceptance at an offsite facility.

The TSD unit assigns the waste stream profile to a waste management path (waste specification record), and establishes a waste verification frequency based on the process outlined in Section 2.4 when the waste is determined to be acceptable.

For liquid waste, an integrated technical review is made of the information contained on the waste profile sheet to ensure the waste is compatible with current system contents, tank and ancillary equipment materials, and in compliance with the acceptance criteria.

### 2.1.2 Waste Transfer/Shipment Approval Process

The process described here primarily applies to containerized waste. Section 2.1.4 provides additional requirements for management of liquid waste. For each waste transfer or shipment that is a candidate for treatment and/or storage, the onsite generating unit/offsite generator generally provides the following information:

- Container identification number
- Profile number (except for waste transfers/shipments of previously accepted waste)
- Waste description
- Generating unit/generator information (e.g., name, address, point-of-contact, telephone number)
- Container information (e.g., type, size, weight)
- Waste numbers
- Extremely hazardous waste or dangerous waste
- Waste composition
- Packaging materials and quantities.

The pertinent information is entered into a solid waste information system.

Where potential conformance issues exist in the information provided (i.e., waste characteristics do not match the waste profile information or TSD unit waste acceptance criteria, or additional constituents are expected to be present that do not appear on the documentation), the onsite generating unit/offsite generator is contacted by the TSD unit for resolution. Section 6.0 provides discussion on repeat and review frequency.

For each container, a technical review, physical screening determination, and chemical screening determination are performed. Individual container data are compared to the waste profile data to ensure the waste is as described on the waste profile. Screening provides a means to minimize the potential for acceptance of incorrectly identified waste.

- **Technical review.** Every transfer or shipment is reviewed to ensure the waste meets the TSD unit waste acceptance criteria. Based on waste identification information provided, the waste designation is reviewed to ensure consistency with waste designations per WAC 173-303-070, as well as for technical accuracy to ensure the waste meets the T Plant waste acceptance criteria.

If the transfer or shipment information is found to be acceptable, the TSD unit determines if any of the waste containers are required to be physically or chemically screened.

- **Physical and chemical screening determination.** Written procedures are maintained describing the process for selecting containers for chemical screening. Authoritative/directive means of selecting containers for physical/chemical screening are used based on the pre-transfer/shipment review process. The selection is based on the contents listed in the associated transfer/shipment documentation, the variation within the transfer/shipment, and experience with the specific waste type.

  Two criteria are used in making the selection. The first criterion is based on whether pre-transfer/shipment review activities (document and characterization review) identify areas of potential concern. The second criterion is reviewing the current physical screening percentage (calculated using the following method) of containers received from said stream from said generator that have been received over the past 12 months or the date of the last physical screening adjustment, whichever occurs first. The rate is applied as compared to those that physically have been screened. This criterion ensures that the minimum physical screening confirmation rates required by this WAP are met.

  The number of containers selected for physical screening in transfer/shipments is determined by multiplying the total number of containers received during the previous 12 months for that stream including the containers identified in the transfer/shipment by the applicable verification percentage, rounded up to the next integer. This selected group of containers constitutes a sample set.

### 2.1.3 Acceptable Knowledge Requirements

The TSD unit ensures that all information used to make waste management decisions is based on characterization data as described in the following sections. For information determined to be 'acceptable knowledge', the TSD unit determines that the information is adequate for management of the waste.

#### 2.1.3.1 General Acceptable Knowledge Requirements

When collecting documentation on a waste stream or container, the TSD unit determines if the information provided is acceptable knowledge. Acceptable knowledge requirements are met by either sampling and analysis or process knowledge. Process knowledge consists of using detailed information from existing published or documented waste analysis data or studies on processes similar to those that generated the waste, including, but not limited to, the following:

- Mass balance from a controlled process that has a specified input for a specified output
- Material safety data sheets (MSDSs) on unused chemical products
- Test data from a surrogate sample
- Analytical data on the waste or a waste from a similar process
- Interview information
- Logbooks
- Procurement records
- Qualified analytical data
- Radiation work package
- Procedures and/or methods

- Process flow charts
- Inventory sheets.

If the information is sufficient to quantify the constituents of regulatory concern and to determine waste characteristics as required by the regulations and TSD unit waste acceptance criteria, the information is considered acceptable knowledge. Adequate acceptable knowledge includes (1) general waste knowledge requirements, (2) LDR waste knowledge requirements, and/or (3) waste knowledge exceptions.

(1) **General waste knowledge requirements**. At a minimum, the onsite generating unit/offsite generator supplies enough information for the waste to be treated and/or stored at this TSD unit. The minimum level of acceptable knowledge consists of designation data where the constituents causing a dangerous waste number to be assigned are quantified and that data address any T Plant operational parameters necessary for proper management of the waste.

When process knowledge indicates that constituents, which if present in the waste might cause the waste to be regulated, are input to a process but not expected to be in the waste, sampling and analysis must be performed to ensure the constituents do not appear in the waste above applicable regulatory levels. This requirement can be met through chemical screening. Sampling and analysis are required only for initial characterization of the waste stream.

When the available information does not qualify as acceptable knowledge or is not sufficient to characterize a waste for management, the sampling and testing methods outlined in WAC 173-303-110 are used to determine whether a waste designates as ignitable, corrosive, reactive, and/or toxic and whether the waste contains free liquids as applicable. If analysis is performed to complete characterization after acceptance of the waste by the TSD unit, this WAP governs the sampling and testing requirements.

(2) **LDR waste knowledge**. Waste might be stored in this TSD unit while awaiting analytical results for LDR requirements. The T Plant operating record contains all information required to document that the appropriate treatment standards have been met or will be met after the waste is treated unless otherwise excepted in this section.

For the purposes of this WAP, a representative sample is required to demonstrate compliance with a concentration-based treatment standard (refer to Section 4.5). Corroborative testing for the sample could be accomplished in the following manner.

- Generators could use onsite laboratories or other laboratories to certify that the waste meets LDR requirements. For waste that does not meet LDR requirements, information must be supplied on the treatment methods necessary to meet LDR requirements and in accordance with WAC 173-303-380(1) (j), (k), (n), and (o).

- The T Plant operating organization uses these analytical data to ensure that the applicable requirements found in 40 CFR 268.7 and WAC 173-303-140(4) are met.

(3) **Waste knowledge exceptions.** This TSD unit is designed to provide information necessary to further disposition the waste (e.g., repackage, designate, segregate, sample, analyze, treat). The TSD unit ensures sufficient information is available or operational safeguards are in place to safely process waste.

#### 2.1.3.2 Methodology to Ensure Compliance with LDR Requirements

Generators are subject to LDR requirements and are required to submit all information, notifications, and certifications described in WAC 173-303-380(1) (j), (k), (n), and (o). Mixed waste not meeting the treatment standards, but meeting the TSD unit waste acceptance criteria, can be stored at the TSD unit. The following are general requirements for offsite notifications or onsite information and supporting documentation.

- The waste is subject to LDR, and the waste has been treated. The onsite generating unit/offsite generator supplies the appropriate LDR certification information (40 CFR 268).

- The waste is subject to LDR, and the onsite generating unit and/or offsite generator has determined that the waste meets LDR for disposal. The onsite generating unit/offsite generator develops the certification based on process knowledge and/or analytical data and supplies the appropriate LDR certification information necessary to demonstrate compliance with the LDR treatment standards of 40 CFR 268 and WAC 173-303-140. State-only LDRs do not require this type of certification.

- The waste is subject to LDR and requires further treatment to meet the applicable treatment standard.

  – Generator supplies additional information concerning the waste and details any treatment necessary to meet applicable treatment standards.

  – If waste is treated to meet state-only or federal LDRs at this TSD unit, this TSD unit prepares information necessary to meet WAC 173-303-380(1)(k) (refer to Section 7.4).

When demonstrating that a concentration-based LDR treatment standard has been met, a representative sample of the waste must be submitted for analysis. This sample could be taken by this TSD unit or the onsite generating unit/offsite generator and is required to comply with the LDR treatment standards contained in 40 CFR 268.40 and .48 for underlining hazardous constituents.

### 2.1.4 Additional Requirements for Tank System Pre-Transfer/Shipment Review

Additions to the 2706-T Building tank system are evaluated by the TSD unit using technical assessments, sampling, and characterization to ensure chemical compatibility and to ensure that the waste acceptance criteria for the tank system are satisfied.

#### 2.1.4.1 Tank Waste Assessment

Assessments are performed during the work planning stage on liquid waste added directly and chemicals expected to be associated with the equipment/material for decontamination, as well as the decontamination agents expected to be added to the 2706-T Building tank system. These assessments address the following compatibility issues.

- Additions are compatible with the tank system.
- Additions do not create a chemical reaction with waste currently in the tank system.
- Additions do not exceed any of the maximum limits in the current waste stream profile sheet.
- Additions are consistent with the acceptance criteria of the receiving facility.

Additions that involve dangerous waste are, and will be, identified in the Hanford Facility RCRA Permit, T Plant, Chapter 1.0.

#### 2.1.4.2 Sampling and Characterization

Characterization of substances before addition to the 2706-T Building tank system is required to ensure that an accurate chemical compatibility assessment can be performed. The characterization is obtained through process knowledge provided by the generator of the waste/materials/equipment being received and/or analysis of samples.

For purposes of 2706-T Building tank waste characterization, samples of the waste are taken as necessary. The data obtained are used for evaluating operational systems and to prepare for transfer of waste. The frequency of sampling varies depending on the volumes and types of liquid entering the 2706-T Building tank system and established operational controls. The physical and chemical parameters for verification are chosen based on the waste profile sheet, tank contents, and the waste acceptance criteria of the receiving facility.

#### 2.1.4.3 Additional Acceptable Knowledge for 2706-T Building Tank System

In addition to the process described previously, pre-transfer/shipment review characterization information requirements for the 2706-T Building tank system must meet the acceptance criteria of the receiving facility. Because waste managed in the TSD unit could be transferred to LERF, ETF, DST System, or other receiving facility, waste introduced into the 2706-T Building tank system must not jeopardize the transfer of waste to the receiving TSD units. Acceptable knowledge must be obtained on waste accepted in the 2706-T Building tank system to facilitate the transfer of waste to a receiving facility.

## 2.2 VERIFICATION

Verification is an assessment performed by the TSD unit to substantiate that the waste received is the same as represented by the analysis supplied by the generator for the pre-transfer/shipment review. Verification is performed on waste received by this TSD unit. Verification includes container receipt inspection, physical screening, and chemical screening. Waste is not accepted by this TSD unit for treatment and/or storage until required elements of verification have been completed, including evaluation of any data obtained from verification activities. All conformance issues identified during the verification process are resolved in accordance with Section 2.4.3. Verification activities for liquid waste to be managed in the 2706-T Building are addressed in Section 2.1.4.

### 2.2.1 Container Receipt Inspection

Container receipt inspection is a mandatory element of the confirmation process. Therefore, 100 percent of each transfer/shipment is inspected at the TSD unit for possible damage or leaks, complete labeling, and intact tamper seals as required per Sections 2.2.2 and 2.2.3. This ensures that the transfer/shipment (1) is received at the TSD unit in good condition, (2) has the waste indicated on the transfer or shipping papers, (3) has not been opened after physical and/or chemical screening was performed, and (4) is complete. When a conformance issue exists, a case-by-case determination is performed, and the appropriate action is taken based on the severity of the issue. One of the following actions occurs:

- Implementation of the contingency plan in accordance with the Hanford Facility RCRA Permit, T Plant, Chapter 7.0

- Conformance issues resolved where additional information is needed to safely manage the waste before verification continues

- Continuation of verification for waste with conformance issues not meeting the criteria.

### 2.2.2 Physical Screening Process

Physical screening is a verification element. This section describes the requirement pertaining to methods, frequency, and exceptions concerning the use of the physical screening process as a verification activity. Physical screening could be performed before the waste is transferred/shipped to this TSD unit. When screening is performed at a location not within the solid waste project TSD units, tamper-resistant seals are applied to each container examined and, on receipt at this TSD unit, verified as acceptable to ensure that no changes could have occurred to the waste content. Written procedures are maintained by the TSD unit detailing the requirements for adding and/or removing tamper-resistant seals. Documentation is maintained in the TSD unit operating record.

#### 2.2.2.1 Physical Screening Methods

The following physical screening methods, listed in order of preference, comply with the requirement to verify a waste:

1. Visual inspection (opening the container)
2. NDE.

Quality control (QC) pertaining to physical screening is discussed in Section 2.2.5.1. Section 3.1 provides the rationale for choosing a physical screening method.

#### 2.2.2.2 Physical Screening Frequency

The minimum physical screening frequency is 5 percent for onsite generating units, applied per waste stream per subcontractor per year. For offsite generators, the minimum physical screening frequency is 10 percent per waste stream per generator per year. The TSD unit adjusts the physical screening frequency for offsite generators based on objective performance criteria (refer to Section 2.3.1).

In the event that one of the containers in the original sample set fails, a second sample set of equal size, or a minimum of three additional containers, is selected from the transfer/shipment. First and second sample sets are selected using the rationale described in the pre-transfer/shipment review text (Section 2.1). A second failure in either the first or the second sample set constitutes failure of the transfer/shipment. If the second sample set passes inspection, the single failed container is considered an anomaly, and the remainder of the transfer/shipment passes verification. All failed containers and transfers/shipments are dispositioned via PES, as described in Section 2.3.

#### 2.2.2.3 Physical Screening Exceptions

The following are exceptions to the physical screening process outlined previously.

- Shielded, classified TRU retrieved waste and remote-handled mixed waste are not required to be screened physically; however, this TSD unit performs a more rigorous documentation review and obtains the raw data used to characterize the waste (less than 1 percent of current waste receipts). For classified waste, it is necessary to have an appropriate U.S. Department of Energy security clearance and a need to know the information as defined by the classifying organization or agency.

- Waste that physically cannot be screened at this TSD unit or an associated screening facility must be screened physically at the generator location (e.g., large components, containers that cannot be opened, are greater than 20 mrem per hour, contain greater than 10 nanocuries per gram of TRU radionuclides, or does not fit into a NDE unit). If no location can be found to perform the physical screening, no screening is required.

- Waste that is packaged by this TSD unit is considered to have met the physical screening requirements denoted in this WAP (e.g., T Plant operating organization packaged waste that is transferred to CWC, LLBG, and WRAP). On closure of the container, a tamper-resistant seal is applied to ensure content integrity.

### 2.2.3 Chemical Screening Process

Chemical screening is a verification element. This section describes methods, frequency, and exceptions for chemical screening. Chemical screening could be performed by this TSD unit before the waste is transferred. When screening is performed at a location not within the solid waste project TSD units (i.e., CWC, WRAP, LLBG), tamper-resistant seals are applied to each container examined and, on receipt at this TSD unit, verified as acceptable to ensure that no changes could have occurred to the waste content. Written procedures are maintained by this TSD unit detailing the requirements for adding and/or removing tamper-resistant seals. Documentation is maintained in the TSD unit operating record.

Selection and interpretation of the appropriate chemical screening method(s) are conducted and performed by qualified personnel. Unless otherwise noted, tests are qualitative, not quantitative. The objective of chemical screening is to obtain reasonable assurance that the waste received by the TSD unit generally is consistent with the description of the waste on the waste profile and to provide information that is used to safely manage the waste at the TSD unit. A minimum of three listed screening tests, including pH screening, are conducted on each sample. The following tests are selected depending on the waste matrix and the applicability of the method:

- pH
- Peroxide
- Oxidizer
- Water reactivity
- Halogenated organic carbons (chlor-n-oil/water/soil)
- Ignitability/headspace screening for volatile compounds
- Sulfide
- Cyanide
- Paint filter test.

Section 2.2.5.2 provides QC information pertaining to chemical screening.

#### 2.2.3.1 Chemical Screening Frequency

At a minimum, 10 percent of the mixed waste containers verified by physical screening (Section 2.2.2.2) must be screened chemically. The TSD unit obtains a representative sample, which could be a grab sample.

Small containers of waste (labpacks), not otherwise identified in the exceptions and packaged in accordance with 40 CFR 264.316, 40 CFR 265.316, and WAC 173-303-161, are screened chemically in accordance with the chemical screening frequency of the waste stream as determined by PES (Section 2.4). Inner containers are segregated by physical appearance (e.g., color, physical state). At least one container from each group (or three containers if all are similar) are screened chemically.

#### 2.2.3.2 Chemical Screening Exceptions

The following are cases in which chemical screening is not required:

- Small containers of waste in overpacked containers (labpacks) packaged in accordance with WAC 173-303-161 and not prohibited under LDR specified in WAC 173-303-140

- Waste exempted from the physical screening requirements (Section 2.2.2.3)

- Commercial chemical products in the original product container(s) (e.g., off-specification, outdated, or unused products)

- Chemical-containing equipment removed from service (e.g., ballasts, batteries)

- Waste containing asbestos

- Waste, environmental media, and/or debris from the cleanup of a spill or release of a single substance or commercial product or otherwise known material (e.g., material for which a MSDS can be provided)

- Confirmed noninfectious waste (e.g., xylene, acetone, ethyl alcohol, isopropyl alcohol) generated from laboratory tissue preparation, slide staining, or fixing processes

- Hazardous debris as defined in WAC 173-303-040.

Other special cases could be exempted on a case-by-case basis with prior approval from the Washington State Department of Ecology (Ecology).

### 2.2.4 Sampling for Confirmation Screening

Sampling is performed in accordance with WAC 173-303-110(2). A representative sample is obtained for chemical screening. The chemical screening methods described in Section 3.0 do not require any sample preservation methods because the screening tests are performed at the time and location of sampling or as soon as possible thereafter. When a delay is required, the samples are stored in a manner that maintains chain of custody and protects the sample composition. The equipment requirements in Section 4.0, Table 4-1, apply to sampling for chemical screening.

### 2.2.5 Quality Assurance and Quality Control for Confirmation Process

The following quality assurance (QA) and QC elements are used by this TSD unit to ensure confirmation activities provide sufficient data to provide an indication that waste received is as described in the transfer/shipping documentation.

Screening methods have sufficient performance levels to yield valid decisions when considering method variability (precision and accuracy).

#### 2.2.5.1 Physical Screening Quality Control

This section describes the QC used by this TSD unit to ensure that quality data are obtained when performing physical screening methods identified in Section 2.2.2, except visual inspection. Physical screening QC is used only to ensure that quality data are obtained when performing NDE. Visual inspection does not consist of the use of instrumentation or chemical tests. QC objectives for visual inspection are obtained through the appropriate training.

The following QC elements apply to NDE used for physical screening.

- A penetration test is performed when image data generating components are changed to document system capability has not changed.

- A resolution test is performed at the beginning of a shift. A shift ends when shutdown activities are performed. A shift can be up to 24 hours.

- A radiographer is qualified per SNI-TC-1A, *Personnel Qualification and Certification in Nondestructive Testing*, Level II certification of American Society for Nondestructive Testing training.

- Examination must cover 100 percent of the waste in the container.

- Five percent per year of the containers that have been nondestructively examined are opened to ensure the method is providing accurate data. Containers opened for other reasons, such as chemical screening or to investigate inconsistencies, could be used to meet this requirement. This requirement is based on the total number of containers reviewed, not on a transfer/shipment or general waste stream basis. The TSD unit is required, at a minimum, to meet this requirement over a running 3-month average, with a minimum of one container being opened for every month NDE is operated.

- At least annually, a capability demonstration is performed on a training drum.

#### 2.2.5.2 Chemical Screening Quality Control

The following QC elements are used when performing chemical screening.

- Appropriate sample containers and equipment are used. Containers and equipment of the appropriate size that are chemically compatible with the waste and testing reagents are used.

- Reagent checks are used.

  - Water that is reagent grade and from a documented source is used.

  - Chemicals and test kits are labeled so that these are traceable and documented in the TSD unit operating record.

  - QC checks are performed on each test kit and associated reagents and documented in the TSD unit operating record unless a more frequent period is specified in the test kit instructions.

## 2.3 WASTE TRANSFERS AMONG SOLID WASTE PROJECT TSD UNITS

Transfers from the CWC, WRAP, or LLBG TSD units to this TSD unit might be necessary to perform verification, to obtain additional knowledge to support treatment/disposal, to make the waste amenable for long-term storage, or to perform treatment. A technical review is required to ensure compliance with the T Plant Part A, Form 3, and waste acceptance criteria. For waste that is being transferred from CWC, WRAP, or LLBG to this TSD unit, the following requirements apply.

### 2.3.1 Waste Stream Approval Process

The waste stream already must have been approved using the process described in Section 2.1.1. Waste knowledge exceptions could apply as described in Section 2.1.3.1.

For retrieval of suspect TRU waste streams from the LLBG, precautions are necessary to ensure that sufficient information is available to further disposition the waste. TRU waste containers are transferred out of the LLBG to CWC or another TSD unit and ultimately received at this TSD unit for packaging and/or treatment. The amount and type of data that exist for a given waste package vary widely and depend on the documentation requirements in effect when the waste was generated. The onsite generating unit is required to supply specific information concerning the waste package contents on a solid waste storage/disposal form. A technical review of the records is performed, as described in Section 2.3.2, and suspect dangerous waste items are identified. Suspect mixed waste is managed assuming a worst-case basis until a waste designation can be completed. Additionally, a visual inspection to confirm integrity is performed on the containers before transfer.

### 2.3.2 Waste Transfer Approval Process

A technical review of documentation associated with each waste container in the transfer is performed to ensure the waste meets the TSD unit waste acceptance criteria. The individual container data, inclusive of all knowledge obtained on the container, are compared to T Plant waste acceptance requirements. If necessary, the waste management path (waste specification record) previously assigned to the waste stream is updated, and relabeling/remarking is completed before the transfer. Waste is tracked through processing at this TSD unit in accordance with Section 1.3. As new information is obtained on the waste, the container is managed to any new requirements. Updates to container data during transfer and subsequent processing activities are reflected in SWITS, documented, and maintained in accordance with Section 8.0.

### 2.3.3 Verification

For container receipt inspection, 100 percent of each transfer is inspected for damage and to ensure the waste containers are those indicated on the documentation. This activity is a mechanism for identifying any document conformance issues or damaged containers before receipt/acceptance. Conformance issues identified during receipt are managed as described in Section 2.2.1.

For physical and chemical screening, waste that has not been accepted at WRAP, CWC, T Plant, or LLBG, physical and/or chemical screening is completed as described in Sections 2.2.2 and 2.2.3.

### 2.3.4 Performance Evaluation System

The performance of the onsite generating unit is evaluated and documented in accordance with the PES as described in Section 2.4. The PES is used to determine physical screening frequency and to determine corrective actions for conformance issues. The performance evaluation considers all newly generated waste accepted at CWC, WRAP, LLBG, and T Plant TSD units.

## 2.4 DESCRIPTION OF PERFORMANCE EVALUATION SYSTEM

The PES is used to determine the initial physical screening frequency of each waste stream. The PES provides a periodic status of performance of the generator for waste received. Also, the PES provides a mechanism for addressing corrective actions, resolving waste acceptance issues, and adjusting physical screening frequency.

### 2.4.1 Initial Physical Screening Frequency Determination

The initial physical screening frequency is determined based on the following process.

- The TSD unit reviews the waste profile information to determine the relative potential for misdesignation or inappropriate segregation based on all relevant information including any previous experience with the generator. Based on this review, the TSD unit identifies any concerns associated with the following criteria:

  - Documented waste management program
  - Waste stream characterization information
  - Potential for inappropriate segregation.

- Based on the identification of concerns during the review, the TSD unit establishes the initial physical screening frequency for the new waste stream based on the following criteria.

  - Initial physical screening frequency of, at a minimum, 20 percent: No concerns identified; e.g., cleanup of contaminated soil where the soil has been well characterized and no other waste generation processes are occurring at that location.

  - Initial physical screening frequency of, at a minimum, 50 percent: Concern(s) identified in one criterion (e.g., a facility that generates debris from many different processes and with the potential for many different management paths).

  - Initial physical screening frequency of 100 percent: Concerns identified in two or more criteria (e.g., a facility with many different processes and minimal segregation controls).

### 2.4.2 Performance Evaluation

A performance evaluation is used to trend the waste acceptance performance of the generator and is used to adjust the overall physical screening frequency. This evaluation, identified as an integral part of the QA program, is objective and considers the conformance issues documented during the pre-transfer/pre-shipment review and verification functions. The TSD unit maintains written procedures to (1) perform evaluations based on conformance issues identified, (2) evaluate unsatisfactory performance for corrective actions, and (3) adjust physical screening rates accordingly.

The performance evaluation is conducted and subsequently accepted by the PES team and is documented and maintained in accordance with Section 8.0. Performance evaluation frequency is based on frequency of transfer/shipments and generator performance.

### 2.4.3 Conformance Issue Resolution

Conformance issues could result in a waste container that does not meet waste acceptance criteria of this TSD unit. A conformance issue is any discrepancy identified during the confirmation process with waste package documentation, a waste package, or a transfer/shipment. Conformance issues can be identified during pre-transfer/shipment reviews of waste streams or during the verification process. If a possible conformance issue is identified, the following actions are taken to resolve the issue.

- The TSD unit compiles all information concerning the possible conformance issue(s).
- The generator is notified and requested to supply additional knowledge that could assist in the resolution of the concern(s). If information is supplied that resolves the concern(s) identified, no further action is required.
- On determination that a conformance issue has been identified during verification, the TSD unit personnel and the generator discuss the conformance issue and identify the appropriate course of action to resolve the container/transfer/shipment in question; i.e., pick another sample set, return the container/transfer/shipment, divert the container/transfer/shipment to another TSD unit that can accept the container/transfer/shipment and resolve the issue, or the generator resolves the issue at the TSD unit. If the conformance issue(s) results in the failure of a transfer/shipment, the physical screening frequency for the stream is adjusted to 100 percent. Other streams from the same onsite generator with the potential to exhibit the same failure also are adjusted to 100 percent until the issue(s) can be addressed adequately.
- For transfer/shipment failures, the TSD unit requests the generator to provide a corrective action plan (CAP) that clearly states the reason for the failure and describes the actions to be completed to prevent recurrence. The generator could request a reduction in verification of unaffected streams. This request must be accompanied by a justification that identifies why this stream(s) would not exhibit the same conformance issue.
- The TSD unit reviews the CAP and stream justification for adequacy. If the CAP is inadequate, the generator remains at a physical screening rate of 100 percent. If the stream justification is adequate, the TSD unit could provide an alternative frequency as denoted in Section 2.4.2.

### 2.4.4 Process for Reducing the Physical Screening Frequency

Screening rate frequencies and changes to those frequencies could be applied to a specific waste stream or to a specific onsite generating unit/offsite generator based on the circumstances surrounding the conformance issue. After the initial screening frequency for a given waste stream has been established or increased, the physical screening frequency can be reduced in accordance with the following process.

The physical screening frequency is reduced in three steps. Reduction for all steps is based on the ability to demonstrate that five containers from the waste stream in question pass verification. In addition, reduction to the minimum frequency requires that the TSD unit documents an acceptable evaluation of the CAP. At no time will the physical screening frequency be reduced below 5 percent for waste generated onsite or below 10 percent for offsite generators.

- Step 1. Reduce frequency by up to 66 percent after five containers from the waste stream in question pass verification.

- Step 2. Reduce frequency established in Step 1 by up to 50 percent or to the minimum allowable, whichever results in a greater frequency, after five containers from the waste stream in question pass verification.

- Step 3. Reduce frequency established in Step 2 to the minimum allowable after five containers from the waste stream in question pass verification. The TSD unit documents an acceptable evaluation of the CAP.

The screening rate reduction is established during periodic PES team evaluations and the documentation is maintained according to Section 8.0 of this WAP. The percentage of the reduction is based on the evaluation of the relative severity of the original conformance issue, the status of the CAP, any interim actions taken by the onsite generating unit/offsite generator, the performance of the onsite generating unit/offsite generator for this waste stream before this reduction, and/or other factors deemed relevant.

## 2.5 WASTE ACCEPTANCE

Initial acceptance of waste occurs only after the confirmation process is complete. Conformance issues identified during the confirmation process are documented and managed in accordance with Section 2.4. Conformance issues that must be corrected before waste acceptance include the following:

- Waste not matching approved profile documentation
- Designation, physical, and/or chemical characterization discrepancy
- Incorrect LDR paperwork
- Packaging discrepancy
- Manifest discrepancies as described in WAC 173-303-370(4)(a).

For waste transfers/shipments with unresolved conformance issue(s) that exceed 90 days, this TSD unit contacts Ecology at least once per calendar quarter.

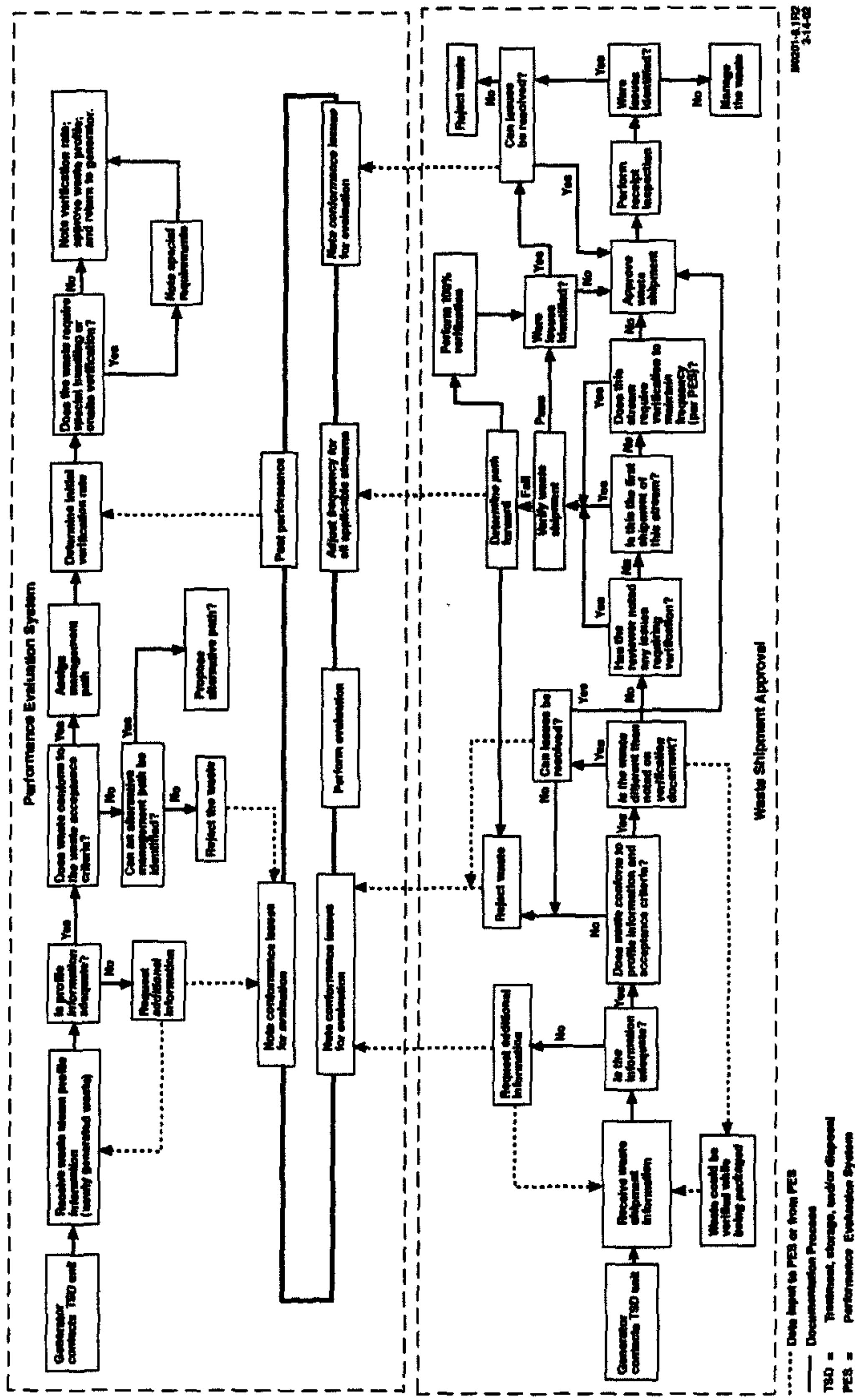

Figure 2-1. Confirmation and Waste Acceptance Process.

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# 3.0 SELECTING WASTE ANALYSIS PARAMETERS

Physical and chemical screening parameters for verification must be chosen from those in Sections 3.1 and 3.2. Other sampling and analysis parameters are addressed in Section 3.3. Waste analysis screening parameters are selected to demonstrate that the waste matches the transfer/shipping documentation. Parameters, methods, and rationale for physical and chemical screening parameters are provided in Table 3-1.

## 3.1 PHYSICAL SCREENING PARAMETERS

The following methods are approved for use in performing physical screening.

(1) Visual inspection (preferred method for physical screening)

**Rationale:** This method meets the requirement to ensure consistency among waste containers and the accompanying transfer/shipment documentation.

**Method:** The container is opened and the contents are removed, as needed, for visual examination. Homogenous loose solids are probed to determine the presence of material not documented on the transfer/shipment documentation or for improperly absorbed liquids. Visual observations are compared to the applicable profile information and the container-specific information on the transfer/shipment documentation.

**Failure Criteria:** A container fails inspection for any of the following reasons: (a) undocumented or improperly packaged waste; (b) discovery of prohibited articles or materials listed in Section 1.2; (c) discovery of material not consistent with the applicable waste stream profile; and (d) variability greater than 25 percent by volume in listed constituents (e.g., paper, plastic, cloth, metal).

(2) NDE

**Rationale:** This method meets the requirement to ensure consistency among waste containers and the accompanying transfer/shipment documentation. This method is subject to the QC requirements in Section 2.2.5.1. Containers that easily are not amenable to visual inspection because of physical or radiological content or facility availability can be examined safely and economically.

**Method:** The container is scanned with a NDE system. Data are observed on a video monitor and captured on video tape. Personnel experienced with the interpretation of NDE imagery record their observations. These observations are compared to the contents listed on the accompanying transfer/shipment documentation.

**Failure Criteria:** A container does not meet inspection criteria for any of the following reasons: (a) undocumented or improperly packaged waste; (b) discovery of prohibited articles as listed in Section 1.2; (c) image data not consistent with the applicable waste stream profile; and (d) variability greater than 25 percent by volume in listed constituents (e.g., paper, plastic, cloth, metal).

## 3.2 CHEMICAL SCREENING PARAMETERS

The following methods are approved for use in performing chemical screening test. Chemical screening is used to verify that incoming waste is consistent with documentation. Failure of a chemical screening test is defined as a chemical screening result that is inconsistent with the associated documentation.

(1) Ignitability and/or headspace volatile organic compound screening

**Rationale:** To determine the potential ignitability and the presence or absence of volatile organic compounds in waste and to ensure personnel are protected adequately. This method is used when containers are opened for inspection. This method can be applied to any matrix.

**Method:** A sample of the headspace gases in a container is analyzed by one or more of the following types of portable instrumentation: organic vapor monitor, colorimetric gas sampling tubes, or a lower explosive level meter.

**Failure criteria:** High organic vapor readings in matrices not documented as having volatile organic content constitute failure.

(2) Peroxide screening

**Rationale:** To determine the presence of organic peroxides in solvent waste, to alert personnel to potential hazards, to ensure safe segregation and storage of incompatible waste, and to confirm consistency with the transfer/shipment documentation. The test is sensitive to low parts-per-million ranges.

**Method:** A peroxide test strip is dampened with a pipette sample of liquid waste. Solids are tested by first wetting the test strip with water and contacting a small sample of the waste. A blue color change indicates a positive reaction. The color change can be compared with a chart on the packaging to determine an approximate organic peroxide concentration.

**Failure criteria:** Peroxide concentrations greater than 20 parts per million in liquid waste constituents that are known organic peroxide formers not documented as having been stabilized constitute failure.

(3) Paint Filter Test

**Rationale:** To verify the presence or absence of free liquid in solid or semisolid material.

**Method:** To a standard paint filter, 100 cubic centimeters or 100 grams of waste are added and allowed to settle for 5 minutes. Any liquid passing through the filter signifies failure of the test. The required method for the paint filter test is Method 9095 in the U.S. Environmental Protection Agency (EPA) SW-846, *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods* (the most recently promulgated version).

**Failure criteria:** Failure of the test in waste matrices not documented as having free liquids constitutes failure of the container. Small quantities of condensate trapped in inner plastic liner folds are acceptable.

(4) pH screen

**Rationale:** To identify the pH and corrosive nature of an aqueous or solid waste, to ensure safe segregation and storage of incompatible waste, and to confirm consistency with the transfer/shipment documentation.

**Method:** pH measurement is performed in accordance with written methods maintained by the TSD unit or by manufacturer's suggested methodology that conforms with the requirements of Section 2.2.5.

**Failure criteria:** If the pH of a matrix exceeds regulatory limits (less than or equal to 2.0 or greater than or equal to 12.5) in waste not documented as being regulated for this property, the container fails verification.

(5) Oxidizer screen

**Rationale:** To determine if a waste exhibits oxidizing properties, to ensure safe segregation and storage of incompatible waste, and to confirm consistency with the transfer/shipment documentation. This test can be applied to waste liquids, solids, and semisolids.

**Method:** Acidified potassium iodide (KI) test paper is used to measure the oxidizing properties of solid or liquid waste in accordance with written methods maintained by this TSD unit or by manufacturer's suggested methodology that conforms with the requirements of Section 2.2.5.

**Failure criteria:** A positive indication in a waste that is not consistent with documented constituents fails verification.

(6) Water reactivity screen

**Rationale:** To determine if the waste has the potential to vigorously react with water or to form gases or other reaction products. This information is used to ensure safe segregation and storage of incompatible waste and to confirm consistency with the transfer/shipment documentation.

**Method:** Water reactivity screen is performed in accordance with written methods maintained by this TSD unit or by manufacturer's suggested methodology that conforms with the requirements of Section 2.2.5.

**Failure criteria:** A positive indication in a waste that is not consistent with documented constituents fails verification.

(7) Cyanide screen

**Rationale:** To indicate if waste could release hydrogen cyanide on acidification near pH 2. This information is used to ensure safe segregation and storage of incompatible waste and to confirm consistency with the transfer/shipment documentation.

**Method:** A cyanide screen is performed in accordance with written methods maintained by this TSD unit or by manufacturer's suggested methodology that conform with the requirements of Section 2.2.5.

**Failure criteria:** A positive indication in a waste that is not consistent with documented constituents fails verification.

(8) Sulfide screen

**Rationale:** To indicate if the waste could release hydrogen sulfide on acidification near pH 2. This information is used to ensure safe segregation and storage of incompatible waste and to confirm consistency with the transfer/shipment documentation.

**Method:** A sulfide screen is performed in accordance with written methods maintained by this TSD unit or by manufacturer's suggested methodology that conform with the requirements of Section 2.2.5.

**Failure criteria:** A positive indication in a waste that is not consistent with documented constituents fails verification.

(9) Halogenated organic carbon screen

**Rationale:** To indicate whether PCBs or other chlorinated solvents are present in the waste. This information is used to confirm consistency with the transfer/shipment documentation and to determine if additional information/data are needed to properly store and treat the waste.

**Methods:** Field organic chlorine tests appropriate to the matrix, such as those offered by the Dexsil Corporation (e.g., chlor-n-oil, chlor-n-soil), are used. These screening tests are available with several detection limits that enable verification to be performed in the concentration range applicable to the proposed management path of the waste.

**Failure criteria:** A positive indication of chlorinated organics in a waste that is not documented as having chlorinated organic content constitutes failure.

## 3.3 OTHER ANALYSIS PARAMETERS

Parameters needed to meet designation, characterization, and LDR requirements for waste stored and/or treated at this TSD unit are identified in Table 3-2.

In determining the characteristic of ignitability (flashpoint), either the Pensky-Martens (Method 1010) or the Setaflash (Method 1020) must be employed when testing. The characteristic of corrosivity also requires a specific test method. When testing the pH of a given waste stream, Method 9040 or Method 9045 must be used in accordance with WAC 173-303-090(6).

Compliance with LDR for waste that has a treatment standard expressed as constituent concentrations in waste (40 CFR 268.40) can be shown using any appropriate method. If the waste treatment standard is expressed as constituent concentrations in waste extracts (40 CFR 268.40), the toxicity characteristic leaching procedure (TCLP), which is referenced specifically in 40 CFR 268.41(a), must be performed. Following that, however, any appropriate method could be used to determine concentrations of hazardous constituents in the extract and to show compliance with LDR. Both cyanides (total) and cyanides (amenable) for nonwastewaters are to be analyzed using Method 9010 or 9012, as incorporated by reference in 40 CFR 260.11.

For other parameters or methods not otherwise specified, the following are acceptable sources of testing methods (standard methods):

- Analytical methods cited in WAC 173-303
- The most recently promulgated version of SW-846
- Other current EPA methods, as applicable to the matrix under evaluation
- *Standard Methods for the Examination of Water and Wastewater, American Public Health Association* (APHA), American Water Works Association, Water Environment Federation
- *Annual Book of ASTM Standards, American Society for Testing and Materials*
- *AOAC Official Methods of Analysis*, AOAC (Association of Official Analytical Chemists), International.

Appropriate QA/QC documentation is required to be maintained per Section 5.0, regardless of the method used.

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Table 3-1. Parameters and Rationale for Physical and Chemical Screening.

| Parameter | Method* | Rationale for selection |
|---|---|---|
| Physical screening | | |
| Visual inspection | Field method - observe phases, presence of solids in waste | Confirm consistency between waste and transfer/shipping documentation. |
| Nondestructive examination | Field method | Confirm consistency between waste and transfer/shipping documentation. |
| Chemical screening | | |
| Ignitability and/or headspace volatile organic compound screening | Organic vapor monitor, colorimetric gas sampling tubes, or a lower explosive level meter | Confirm consistency between waste and transfer/shipping documentation; ensure compliance with WAC 173-303-395(1)(b). |
| Peroxide | Field peroxide test paper | Confirm consistency between waste and transfer/shipping documentation; ensure compliance with WAC 173-303-395(1)(b). |
| Liquids | SW-846, Method 9095, Paint Filter Test | Confirm consistency between waste and transfer/shipping documentation. |
| pH | Field pH screen (pH paper method) | Confirm consistency between waste and transfer/shipping documentation; ensure compliance with WAC 173-303-395(1)(b). |
| Oxidizer | Field potassium iodide test paper | Confirm consistency between waste and transfer/shipping documentation; ensure compliance with WAC 173-303-395(1)(b). |
| Water reactivity | Field water mix screen | Confirm consistency between waste and transfer/shipping documentation; ensure compliance with WAC 173-303-395(1)(b). |
| Cyanides | Field cyanide screen | Confirm consistency between waste and transfer/shipping documentation; ensure compliance with WAC 173-303-395(1)(b). |
| Sulfides | Field sulfide screen | Confirm consistency between waste and transfer/shipping documentation; ensure compliance with WAC 173-303-395(1)(b). |
| Halogenated organic carbons | Screening test method for PCBs in transformer oil(SW-846, Method 9079 Oil) | Determine if polychlorinated biphenyls or other chlorinated solvents are present in the waste to confirm consistency between waste and transfer/shipping documentation. |

*Procedures based on manufacturer's recommended methodology unless otherwise noted. When regulations require a specific method, the method is followed.

SW-846, *Test Methods for Evaluating Solid Waste,* latest edition, U.S. Environmental Protection Agency, Washington, D.C.

WAC 173-303, "Dangerous Waste Regulations".

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Table 3-2. Analytical Parameters, Methods, and Rationale for Waste Received at T Plant. (4 sheets total)

| Parameter | Analytical method[a] | Media type | Rationale for selection of waste acceptance parameters | Rationale for analysis |
|---|---|---|---|---|
| **General chemistry** | | | | |
| Flashpoint | 1010/1020 | Liquid | To provide documentation for safe storage conditions. | To determine regulatory status as D001 waste and to provide proper waste designation and applicability of LDR requirements. |
| pH — Liquid | 9040 | Liquid, sludge | To indicate the degree of corrosivity for safe handling, to provide for proper waste designation, and to identify waste that might compromise container integrity. | To determine regulatory status as D002 waste, to provide proper waste designation, and applicability of LDR requirements and state-only requirements. |
| pH — Solid | 9045c | Solid | | |
| Hydroxide | 9040 | Liquid | To provide documentation for safe treatment and storage conditions and to comply with DST System waste acceptance criteria. | To provide proper waste designation and applicability of LDR requirements. |
| Water reactivity | Field method | Liquid, sludge | To determine whether the waste has a potential to violently react with water to form gases or generate heat, to provide documentation for safe treatment and/or storage conditions for waste designation, and to comply with TSD unit waste acceptance criteria. | To provide proper waste designation for safe storage and management. |
| Free liquids | 9095A | Liquid, sludge, solid | To determine applicability of LDRs and for characterization of appropriate treatment. | To determine appropriate state-only LDR status of waste. |
| Cyanide | 9010B/9012A | Liquid, sludge, solid | For safe storage, for proper waste designation, applicability of LDR, and characterization of appropriate treatment. | To provide proper waste designation and applicability of LDR requirements. |
| Sulfide | 9030B | Liquid, sludge, solid | For safe storage, for proper waste designation, applicability of LDR, and characterization of appropriate treatment. | To provide proper waste designation and applicability of LDR requirements. |

Table 3-2. Analytical Parameters, Methods, and Rationale for Waste Received at T Plant. (4 sheets total)

| Parameter | Analytical method[a] | Media type | Rationale for selection of waste acceptance parameters | Rationale for analysis |
|---|---|---|---|---|
| Organic analyses | | | | |
| Polychlorinated biphenyls | 8081A/8082 | Liquid, sludge, solid | To determine proper waste designation for management of waste in accordance with TSCA and WAC 173-303. | To provide proper waste designation and to meet TSCA and LDR requirements. |
| Total organic carbons | 9060 | Liquid, sludge, solid | To determine applicability of LDR and applicability to state-only requirements. | To provide proper waste designation and applicability to state-only requirements, to meet LDR requirements, and to meet DST System waste acceptance criteria. |
| Total organic halides | 9020B/9021/9022 | Liquid, sludge | To determine proper waste designation and applicability to state-only requirements. | To provide proper waste designation and applicability to state-only requirements. |
| Persistent constituents | 9075/9076/9077/ 9211/9212/9214/ 9250/9251/9253 | | | |
| Total suspended solids | 160.2[b] | Liquid, sludge | To determine applicability of LDR and status as a wastewater. | To provide applicability of LDR and status as a wastewater. |
| Volatile organic compounds | 1311/8260B | Liquid, sludge, solid | To determine proper waste designation, applicability of LDRs, and characterization of appropriate treatment. | To provide proper waste designation, regulatory status, and applicability of LDR requirements. |
| Semi-volatile organic compounds | 1311/8270A | Liquid, sludge, solid | To determine proper waste designation, applicability of LDRs, and characterization of appropriate treatment. | To provide proper waste designation, regulatory status, and applicability of LDR requirements. |
| Chlorinated herbicides | 8151A | Liquid | Not applicable | To provide proper waste designation and applicability to state-only requirements. |

Table 3-2. Analytical Parameters, Methods, and Rationale for Waste Received at T Plant. (4 sheets total)

| Parameter | Analytical method[a] | Media type | Rationale for selection of waste acceptance parameters | Rationale for analysis |
|---|---|---|---|---|
| Inorganic analyses | | | | |
| Arsenic | 1311/6010B | Liquid, sludge, solid | To provide for proper waste designation, applicability of LDRs, and for characterization of appropriate treatment. | To determine proper waste designation, regulatory status as a toxic characteristic waste, and applicability of LDR requirements. |
| Barium | 1311/6010B | Liquid, sludge, solid | To provide for proper waste designation, applicability of LDRs, and for characterization of appropriate treatment. | To determine proper waste designation, regulatory status as a toxic characteristic waste, and applicability of LDR requirements. |
| Cadmium | 1311/6010B | Liquid, sludge, solid | To provide for proper waste designation, applicability of LDRs, and for characterization of appropriate treatment. | To determine proper waste designation, regulatory status as a toxic characteristic waste, and applicability of LDR requirements. |
| Chromium | 1311/6010B | Liquid, sludge, solid | To provide for proper waste designation, applicability of LDRs, and for characterization of appropriate treatment. | To determine proper waste designation, regulatory status as a toxic characteristic waste, and applicability of LDR requirements. |
| Lead | 1311/6010 | Liquid, sludge, solid | To provide for proper waste designation, applicability of LDRs, and for characterization of appropriate treatment. | To determine proper waste designation, regulatory status as a toxic characteristic waste, and applicability of LDR requirements. |
| Mercury | 1311/7470 | Liquid, sludge, solid | To provide for proper waste designation, applicability of LDRs, and for characterization of appropriate treatment. | To determine proper waste designation, regulatory status as a toxic characteristic waste, and applicability of LDR requirements. |
| Silver | 1311/6010 | Liquid, sludge, solid | To provide for proper waste designation, applicability of LDRs, and for characterization of appropriate treatment. | To determine proper waste designation, regulatory status as a toxic characteristic waste, and applicability of LDR requirements. |

Table 3-2. Analytical Parameters, Methods, and Rationale for Waste Received at T Plant. (4 sheets total)

| Parameter | Analytical method[a] | Media type | Rationale for selection of waste acceptance parameters | Rationale for analysis |
|---|---|---|---|---|
| Selenium | 1311/6010 | Liquid, sludge, solid | To provide for proper waste designation, applicability of LDRs, and for characterization of appropriate treatment. | To determine proper waste designation, regulatory status as a toxic characteristic waste, and applicability of LDR requirements. |
| Nickel | 6010 | Liquid, sludge, solid | To determine applicability of LDRs and for characterization of appropriate treatment. | To meet LDR requirements. |

[a] SW-846 unless otherwise noted.
[b] EPA-600/4-7-020 unless otherwise noted.
DST = Double-Shell Tank (System).
LDR = land disposal restrictions.

EPA-600/4-79-020, *Methods for Chemical Analysis of Water and Wastes*, U.S. Environmental Protection Agency, Cincinnati, Ohio.

SW-846, *Test Methods for Evaluating Solid Waste: Physical/Chemical Method*, latest edition, Office of Solid Waste, U.S. Environmental Protection Agency, Washington, D.C.

WAC 173-303, "Dangerous Waste Regulations".

# 4.0 SELECTING SAMPLING METHODS

Specific sampling methods and techniques depend on both the nature of the material and the type of packaging. Waste samples are treated and preserved, as necessary, to protect the sample. Recommended treatment, preservation techniques, and holding times are used as stated in SW-846. This section describes the sampling methodology used to obtain representative samples.

## 4.1 SAMPLING STRATEGIES

Table 4-1 shows waste forms and sample equipment used to sample referenced waste. Sampling of these waste forms is performed in accordance with Table 4-1.

## 4.2 SAMPLING METHODS

The appropriate personnel are responsible for arranging all sampling and laboratory support for sample analysis. Samples are processed at one of several qualified laboratories (refer to Section 5.0). Sampling methods are those described in WAC 173-303 110(2).

Sampling typically includes the following:

- Obtain a unique sample number and complete the sample tag before sampling
- Obtain a precleaned sampler and sample bottles
- Attach sample label to sample bottles
- For sampling liquid waste, use a sampler or pipette to sample for two-phase liquids; pour homogeneous liquids in small containers into a sample bottle
- For sampling solid waste, use a scoop, trier, or hand auger to obtain a sample of the waste. For large containers of waste, composite several augers or scoops to ensure samples are representative
- Fill sample containers in the following sequence: volatile organics, semi-volatile organics, metals, ignitability, pH (corrosivity)
- For solid waste, wipe the exterior surfaces of the sample bottles with a dry rag
- Place samples in an appropriate receptacle for transfer to the laboratory
- Complete chain-of-custody forms
- Seal and mark the receptacle in accordance with WAC 173-303-071(3)(1)
- Transfer receptacle to the analytical laboratory, as appropriate, to meet sample holding times
- Properly clean and decontaminate nondisposable sampling equipment or package for return to central sampling equipment decontamination area according to onsite requirements.

## 4.3 SELECTING SAMPLING EQUIPMENT

Sampling equipment selection is detailed in Table 4-1. Sampling equipment needed to sample waste is maintained and decontaminated as necessary.

## 4.4 SAMPLE PRESERVATION

Waste samples are treated and preserved, as necessary, to protect the sample. Sample preservation follows SW-846 protocol except as amended by the Hanford Facility RCRA Permit, T Plant.

## 4.5 ESTABLISHING QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES FOR SAMPLING

The TSD unit sampling procedures ensure that all samples are labeled with a unique identifier.

Sample collectors prepare a permanent log of sampling activities. The log of sampling activities is maintained in accordance with SW-846, Chapter 9.0. Log entries include, as appropriate: date of collection, time of collection, location, batch number, sample number, tank number, copy of the chain-of-custody form, sampling methodology, container description, waste matrix (liquid), description of generating process (e.g., decontamination activities), number and volume of samples, field observations, field measurements (e.g., pH, percent lower explosive limit), laboratory destination and laboratory number, and signature. These log entries are made while sampling is performed. The logs or copies of logs are maintained by appropriate personnel after completion of sampling activities.

A chain-of-custody record accompanies samples at all times. The TSD unit maintains written chain-of-custody methods to ensure accountability of waste sample handling and to ensure sample integrity.

During all sampling activities, strict compliance with applicable industrial hygiene and safety standards is mandatory. If samplers accidentally contact waste material and sampling personnel, decontamination of sampling personnel is performed immediately. Transportation of samples is performed in accordance with all applicable Hanford Site and U.S. Department of Transportation requirements.

The following QA/QC elements are used to ensure sampling activities for designation purposes result in acceptable laboratory data:

- Representative sampling methods as defined by WAC 173-303-110(2); 40 CFR 261, Appendix I; and/or SW-846, Chapter 9.0

- Appropriate sample containers and equipment

- Samples numbered

- Traceable labeling system

- Field QA/QC samples (applicable sampling and analysis plan)

- Equipment calibration (current as applicable)
- Chain of custody.

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Table 4-1. T Plant Chemical Screening Sampling Equipment.

| Waste form | Reference in SW-846, Chapter 9.0 | |
|---|---|---|
| | Waste | Equipment* |
| Liquids | Free-flowing liquids and slurries | COLIWASA, glass thief or pipette |
| Solidified liquids | Sludges | Trier, scoops, and shovels |
| Sludges | Sludges | Trier, scoops, and shovels |
| Soils | Sand or packed powders and granules | Auger, scoops, and shovels |
| Absorbents | Large-grained solids | Large trier, scoops, and shovels |
| Wet absorbents | Moist powders or granules | Trier, scoops, and shovels |
| Process solids and salts | Moist powders or granules | Trier, scoops, and shovels |
| | Dry powders or granules | Thief, scoops, and shovels |
| | Sand or packed powders and granules | Auger, scoops, and shovels |
| | Large-grained solids | Large trier, scoops, and shovels |
| Ion exchange resins | Moist powders or granules | Trier, scoops, and shovels |
| | Dry powders or granules | Thief, scoops, and shovels |
| | Sand or packed powders and granules | Auger, scoops, and shovels |

COLIWASA = composite liquid waste sampler.
*Other ASTM-approved equipment could be used to collect samples. The equipment requirements of Table 4-1, as amended by any Hanford Facility RCRA Permit conditions, apply to sampling for chemical screening. In addition, the following sampling equipment could be used in sampling for chemical screening: (1) for liquids and slurries: dip, tank, bomb, and bailer samplers as well as tube-type samplers (e.g., thin-walled Shelby tubes, split spoons, probes) and (2) for sludges and solids: tube-type samplers (as stated) and augers; for small containers, a spoon could be used in place of a scoop.

SW-846, *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*, U.S. Environmental Protection Agency, Washington, D.C.

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# 5.0 SELECTING A LABORATORY AND QUALITY ASSURANCE/QUALITY CONTROL

The QA and QC requirements outlined in this section are applicable to laboratory activities governed by this WAP. The selection of any laboratory is based on the ability of the laboratory to demonstrate compliance to this section with experience and capability in the following major categories:

- Comprehensive written QA/QC program
- Technical analytical expertise
- Effective information management systems.

## 5.1 EVALUATION OF LABORATORIES

All laboratories providing analytical support to the TSD unit are required to have a laboratory QA plan. The laboratory QA plan is submitted to the TSD unit for review before the commencement of analytical work. The QA plan, at a minimum, addresses the following elements:

- Sample custody and management practices (also refer to Section 4.0)
- Sample preservation protocols
- Sample preparation and analytical procedure requirements
- Instrument maintenance and calibration requirements
- Internal QC measures, e.g. method blanks, spikes.

Each laboratory is audited periodically to evaluate the effective implementation of the QA/QC program. QA personnel and a technical expert evaluate the laboratory through onsite observations and/or reviews of the following documentation: copies of the QA/QC documents, records of surveillances/inspections, audits, nonconformances, and corrective actions.

## 5.2 QUALITY ASSURANCE/QUALITY CONTROL OBJECTIVES

The overriding goal of the analytical program is to support the accurate designation of waste and/or to demonstrate compliance to LDR standards. Laboratory QA/QC programs are designed to meet the following objectives.

- Minimize errors. Errors could be introduced during preparative, analytical, and/or reporting phases of work. QC programs enable the source(s) of error to be identified and enable appropriate precautions to be taken to minimize the errors.

- Provide information. The designation of waste relies on a combination of knowledge and data. The use of analytical laboratories with QA/QC programs ensures accurate, reliable analytical data are available to support proper waste management.

QC program elements include analysis of samples to written and approved procedures and certification of the laboratory. Key QA program elements are designed to provide objective evidence that waste testing meets the performance specifications of the TSD unit. QA activities and implementation responsibilities are as follows.

- Activity based laboratory inspections. Inspections are performed by the TSD unit. Inspections verify that specific guidelines, specifications, or procedures for the activities are completed successfully.

- Laboratory analysis. Analyses are performed by onsite or offsite laboratories on samples of waste using written and approved procedures.

- Development of inspection checklists. Checklists are required for laboratory inspections and are designed to ensure that the inspected activity consistently is addressed. Checklists are completed during the inspection to document results.

- Instrument calibration and calibration verification. These activities are performed by the laboratory, and are required for ensuring data of known accuracy and precision. Calibration data are maintained and stored to ensure tractability to reported results.

## 5.3 LABORATORY QUALITY ASSURANCE/QUALITY CONTROL

All analytical work is defined and controlled by a statement of work, work order, or other work authorizing documentation. Samples are handled according to approved laboratory procedures. The accuracy, precision, and limitations of analytical data are determined by QC performance.

As needed, the TSD unit conducts analyses to determine completeness of information and whether waste meets the waste acceptance criteria for TSD at one of the Hanford Facility TSD units or those of a chosen offsite TSD facility. Testing and analytical methods depend on the type of analysis sought and the reason for needing the information. For parameters or methods, refer to Section 3.0.

## 5.4 DATA ASSESSMENT

The acquired data need to be scientifically sound, of known quality, and thoroughly documented. Data validation is not required; however, the TSD unit is responsible to ensure that data assessment or evaluation is completed. Data are assessed to determine compliance with quality standards approved by Ecology and this WAP, which are as follows.

**Precision** – The overall precision is the agreement between the collected samples (duplicates) for the same parameters, at the same location, subjected to the same preparative and analytical techniques. Analytical precision is the agreement between individual test portions taken from the same sample, for the same parameters, subjected to the same preparative and analytical techniques.

**Accuracy** – Accuracy of the measurement system is evaluated by use of various kinds of QA samples, including, but not limited to, certified standards, in-house standards, and performance evaluation samples.

**Representativeness** – Representativeness addresses the degree to which the data accurately and precisely represent a real characterization of the waste stream, parameter variation at a sampling point, sampling conditions, and the environmental condition at the time of sampling. The issue of representativeness is addressed for the following points.

- Based on the generating process, the waste stream, and its volume, an adequate number of sampling locations are selected.

- The representativeness of selected media has been defined accurately.

- The sampling and analytical methodologies are appropriate.

- The environmental conditions at the time of sampling are documented.

**Completeness** – Completeness is the amount of usable data obtained from a measurement system compared to the total amount of data requested.

**Comparability** – Comparability is the confidence with which one data set can be compared to another. This usually is accomplished by using standard methods.

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# 6.0 RE-EVALUATION OF WASTE PROFILES

The frequency to re-evaluate the waste profile and supporting data and documentation is each 12 months at a minimum or more often if the onsite generating unit/offsite generator has informed the TSD unit of a change in the waste generation process, or if the TSD unit has identified that the waste received at the TSD unit or the description on the manifest or transfer papers does not match the waste profile. If the onsite generating unit/offsite generator has informed the TSD unit of a change in the waste generation process, the waste re-enters the waste stream approval process described in Section 2.1.1. The TSD unit evaluates verification data against the waste profile to identify any waste streams for which a change in waste generation process is suspect. If a waste stream is suspect, that waste stream also will re-enter the approval process described in Section 2.1.1.

When a waste profile is re-evaluated, TSD unit personnel could request the organization generating the waste to do one of the following:

- Verify the current waste profile documentation is accurate
- Supply new waste profile documentation
- Submit a sample for parameter testing.

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# 7.0 SPECIAL PROCEDURAL REQUIREMENTS

This section discusses any special process requirements for receiving mixed waste at T Plant.

## 7.1 PROCEDURES FOR RECEIVING WASTE GENERATED ONSITE

In general, mixed waste received from onsite generating units is managed the same as waste received from offsite generators. Differences include, but are not limited to, the following: (1) physical and chemical screening frequencies for verification (minimum percentages of 5 percent for waste from onsite generating units and 10 percent for waste from offsite generators (note that chemical screening frequency depends on the physical screening frequency); (2) transfer/shipping documentation (Uniform Hazardous Waste Manifests are used for waste from offsite generators, and waste tracking forms are used for waste from onsite generating units); and (3) LDR documentation requirements (notification for waste from offsite generators and the information contained in the notice for waste from onsite generating units).

## 7.2 PROCEDURES FOR RECEIVING WASTE GENERATED OFFSITE

Waste received from offsite is handled in the same manner as mixed waste received from onsite except as denoted in Section 7.1.

## 7.3 PROCEDURES FOR IGNITABLE, REACTIVE, AND INCOMPATIBLE WASTE

This TSD unit accepts ignitable, reactive, or incompatible waste (refer to Section 1.2). The following precautions are taken before ignitable, reactive, or incompatible waste is accepted at this TSD unit.

- Pre-transfer/shipment review and/or chemical screening identifies whether the waste is ignitable, reactive, or incompatible.

- The TSD unit waste acceptance criteria identify storage requirements for ignitable, reactive, and incompatible waste, ensuring the waste is stored in a safe manner.

The types of prohibited waste are listed in Section 1.2.

## 7.4 PROVISIONS FOR COMPLYING WITH FEDERAL AND STATE LAND DISPOSAL RESTRICTION REQUIREMENTS

State-only and federal LDR requirements restrict the land disposal of certain types of waste subject to RCRA and RCW 70.105, *Hazardous Waste Management*, as amended. Waste managed on the Hanford Facility falls within the purview of these LDRs per 40 CFR 268 and WAC 173-303-140. Waste constituents that are subject to LDRs are identified in 40 CFR 268.40 and referenced by WAC 173-303-140. Waste must meet certain treatment standards, as specified in 40 CFR 268.40 and WAC 173-303-140, if the waste is to be land disposed.

Generators (as defined in the regulation) determine if LDRs apply to the waste based on knowledge or testing [40 CFR 268.7(a)]. Each waste is analyzed for those LDR constituents contained in the listed and characteristic waste numbers identified by the onsite generating unit/offsite generator if the knowledge of the onsite generating unit or offsite generator is not sufficient to make a determination. If the LDR waste does not meet the applicable treatment standards, the onsite generating unit/offsite generator provides waste information with each transfer/shipment stating so in accordance with WAC 173-303-380(1)(j),-(k),-(l),-(m),-(n) or -(o). If the waste meets the standards, the onsite generating unit/offsite generator must send a certification that the waste meets the treatment standards.

### 7.4.1 Waste Treatment

Waste is treated to meet LDR as specified in 40 CFR 268.40 and WAC 173-303-140 with the exception of TRU mixed waste. TRU mixed waste is treated to the applicable standards required by the Waste Isolation Pilot Plant or other TSD unit requirements. This TSD unit potentially can pre-treat certain waste before shipment to a permitted offsite facility that could perform full treatment of the specific waste to meet full LDR. Waste requiring treatment other than what this TSD unit can provide is repackaged, labeled, and transferred for storage within this TSD unit, or transferred/shipped to another onsite TSD unit or offsite TSD facility pending identification or development of an appropriate treatment.

LDR requirements apply to all mixed waste except a small class of state-only waste. When evaluating the treatability of certain characteristic waste, consideration is given to any additional underlying hazardous constituents that might be found in the waste. The treatment standards, for the most part, are concentration-based. If the constituent concentrations for the waste fall below those specified in 40 CFR 268.40 and/or 268.48 for underlying hazardous constituents and in WAC 173-303-140, the waste can be land disposed without being treated. If the concentrations exceed these limits, the waste must be treated before disposal.

Specific treatments performed within this TSD unit include deactivation, encapsulation, stabilization, and amalgamation.

Deactivation is used to remove the hazardous characteristics of the waste due to ignitability (D001), corrosivity (D002), solid corrosive acid (WSC2), and/or reactivity (D003). Treatment techniques include, but are not limited to, neutralization, absorption, cementing, controlled reaction with water, and macroencapsulation.

- Neutralization is the primary method of treatment for corrosive waste that has a pH less than or equal to 2.0 and/or greater than or equal to 12.5. Examples of bases that could be used as neutralizing agents include sodium hydroxide, calcium hydroxide, or calcium carbonate. Examples of acids that could be used to neutralize bases are hydrochloric acid and sulfuric acid.

- Absorption is the primary method of treatment for ignitable waste, which includes waste that is liquid and has a low total organic carbon content (less than 10 percent). Absorbent material that could be used includes polyacrylates, polypropylene, polymer type, superabsorbent polymer, cellulose, or other absorbent materials meeting various disposal requirements.

- Cementing or grouting is the primary method of treatment for ignitables, consisting of metal fines or other corrosive materials. These types of waste are deactivated by mixing and binding the waste with an inert cementacious material.

- Controlled reaction with water is the primary method of treatment for reactive materials, such as sodium metal. This process deactivates the material and allows for further disposition.

- Macroencapsulation with polyethylene plastic containers is the primary treatment for debris. For elemental lead, macroencapsulation is performed in accordance with Table 1 of 40 CFR 268.42.

Stabilization methods used at this TSD unit include cementing or grouting, sealing, and absorption. Particulates and/or liquid waste containing hazardous constituents could be cemented or grouted in this TSD unit to meet either RCRA LDR, Waste Isolation Pilot Plant waste acceptance criteria, and/or the disposal criteria of other onsite TSD units and/or offsite TSD facilities. These types of waste are stabilized by mixing and binding the waste with an inert material. The inert material generally used is Portland cement. When dealing with some waste streams, such as sludges that might contain an inconsistent or excess liquid content, absorbent could be added to the waste to provide a drier matrix to allow identification of the proper combination of ingredients to ensure a successful stabilization effort.

Amalgamation of liquid elemental mercury (D009) is achieved using inorganic reagents, such as copper, zinc, nickel, gold, and sulfur. The resultant matrix is a nonliquid, solid, or semi-solid visually inspected to verify compliance.

Treatment of state-only extremely hazardous waste (WT01, WP01, and WP03) is performed in accordance with RCW 70.105.050(2) and/or WAC 173-303-140(4)(a) as applicable.

Waste managed in this TSD unit is treated to meet either concentration-based treatment standards or technology-based standards. When dealing with underlying dangerous constituents or mixtures, both standards could apply, requiring a treatment train for ultimate compliance to LDR. In most cases, stabilization treatment is at the end of the treatment train. In some instances, as with the cementing process, treatability studies could be performed to ensure that when the waste is treated, LDR requirements are met.

Grab samples are collected on each batch of concentration-based treated waste to ensure that the treatment process was successful. Methods used to ensure compliance include visual inspection, pH, and toxicity characteristic leaching procedure. For specified technologies, the TSD unit operating record contains information to demonstrate the treatment process is well designed and well operated.

### 7.4.2 Sampling and Analytical Methods

Waste sampled and analyzed for the purpose of demonstrating compliance with LDR treatment standards must use SW-846 methods. It is recognized that radiological concerns might warrant modifications to the methods to ensure appropriate protection of personnel health and safety without impact to the method and sample integrity. Waste analyzed using SW-846 methods modified to address radiological protection concerns are considered acceptable provided applicable data quality objectives are met.

Samples of waste are transferred to the sample management area for packaging and transferred to an onsite laboratory or shipped offsite to a laboratory for analysis. Samples are collected and analyzed in accordance with SW-846 and as described in Section 4.0. Storage is provided for waste containers while waiting laboratory analytical results.

### 7.4.3 Land Disposal Restriction Certification of Treatment

When LDR treatment has been completed and analytical results (if applicable per 40 CFR 268.40 and WAC 173-303-140) have verified the LDR treatment is successful, certification of the LDR treatment is required. The certification statement is prepared by the TSD unit in accordance with 40 CFR 268.7. A copy of the certification is placed in the TSD unit operating record.

When a LDR waste does not meet the applicable treatment standards set forth in 40 CFR 268.40 and WAC 173-303-140 or exceeds the application prohibition levels set forth in 40 CFR 268.32 or

Section 3004(d) of RCRA, this information is placed in the TSD unit operating record in accordance with WAC 173-303-380(1)(k),-(n),-(o).

# 8.0 RECORDKEEPING

Recordkeeping requirements applicable to this WAP are described in Hanford Facility RCRA Permit, Attachment 33, General Information Portion, Table 12-1 and within this WAP.

This TSD unit maintains the waste stream profile, supporting documentation, and any associated QA/QC data described in Section 2.0 of the WAP in accordance with the requirements in Hanford Facility RCRA Permit, Attachment 33, General Information Portion, Table 12-1.

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# 9.0 REFERENCES

AOAC, 2000, *Official Methods of Analysis of AOAC International*, Vols. I and II, 17th Edition, Association of Official Analytical Chemists, Gaithersburg, Maryland.

APHA, 1998, *Standard Methods for the Examination of Water and Wastewater*, 20th Edition, American Public Health Association, American Water Works Association, and Water Environment Federation, Washington, D.C.

ASTM, 2002, *Annual Book of ASTM Standards*, American Society for Testing and Materials, Philadelphia, Pennsylvania.

DOE/RL-91-28, latest revision, *Hanford Facility Dangerous Waste Permit Application, General Information Portion,* U.S. Department of Energy, Richland Operations Office, Richland, Washington.

EPA-600/4-79-020, *Methods for Chemical Analysis of Water and Wastes*, U.S. Environmental Protection Agency, Cincinnati, Ohio.

SNI-TC-1A, 2001, *Personnel Qualification and Certification in Nondestructive Testing*, American Society for Nondestructive Testing, Columbus, Ohio.

SW-846, *Test Methods for Evaluating Solid Waste: Physical/Chemical Method* , latest edition, Office of Solid Waste, U.S. Environmental Protection Agency, Washington, D.C.

WA7890008967, latest revision, *Hanford Facility Dangerous Waste Portion of the Resource Conservation and Recovery Act Permit for the Treatment, Storage, and Disposal of Dangerous Waste*, Washington State Department of Ecology, Olympia, Washington.

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# APPENDIX 4A

# AS-BUILT DRAWINGS

As-built drawings are as follows:

H-2-826532 sheet 3
H-2-826533 sheets 2-5
H-2-826553 sheet 2
H-2-826554 sheet 1
H-2-826560 sheet 1
H-2-826562 sheets 2 and 3

DETAIL
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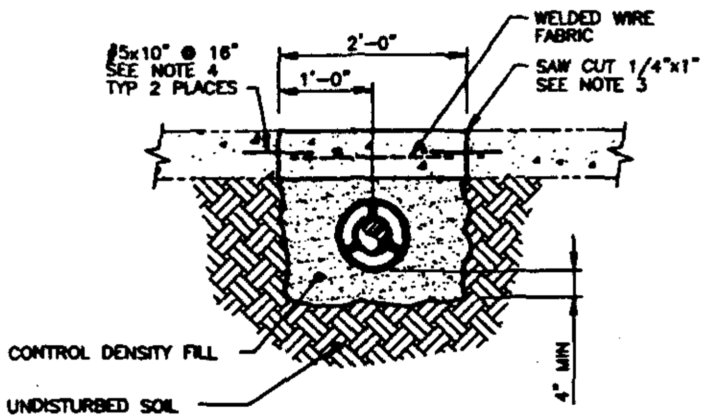


B SECTION
SCALE: 1"=1'-0"

# NOTES:

1. SEE STRUCTURAL NOTES ON DWG H-2-826516 SH 2 FOR DESIGN LOADS, DESIGN DATA, AND SPECIFICATION W-259-C1 FOR ADDITIONAL DESIGN DATA.
2. BREAK ALL SHARP EDGES AND REMOVE ALL BURRS.
3. INSTALL BACKING ROD AND SEALANT AT SAW CUT PER DRAWING H-2-826529.
4. INSTALL DOWELS WITH "HILTI" C-100 SYSTEM ADHESIVE OR "HILTI" HEA 5/8"X5" ADHESIVE CAPSULES AS RECOMMENDED BY MANUFACTURER OR AN APPROVED SUBSTITUTE.
5. FABRICATE, EXAMINE, TEST AND CLEAN PIPE TO CONSTRUCTION SPECIFICATION W-259-C1, SECTION 15493. MATERIALS TO BE IN ACCORDANCE WITH PIPE CODE M9.
6. DELETED
7. WRAP EXTERNAL SURFACE OF 4 SST PIPE WITH TAPE. TOTAL CHLORIDE CONTENT NOT TO EXCEED 150 PPM, TOTAL LEACHABLE CHLORIDE NOT TO EXCEED 10 PPM, 3M COMPANY PRESERVATION SEALING TAPE NO. 481, 9 MIL THICK, OR KENDALL COMPANY POLYKEN DIVISION NO. 226.

MIANA HAO
PROFESSIONAL ENGINEER
STATE OF WASHINGTON
FOR FIELD VERIFICATION ONLY

## CONFIDENCE LEVEL C

PHYSICAL VERIFICATION OF VISUAL OBSERVATIONS ONLY THAT DEPICTED ITEMS ARE PHYSICALLY INSTALLED IN THEIR RELEVANT LOCATIONS

| REF NUMBER | TITLE |
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| NEXT USED ON | H-2-826516 SH 1 |

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| 1 | ASBUILT FOR PROJECT W-259 AND FIELD VERIFIED PER ECN W-259-131 a) ECN W-259-67 Z B,C1-2 D,E1-2 | KRA 9/98 |
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R DAVIDSON
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TA CARLSON
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U.S. DEPARTMENT OF ENERGY
Richland Operations Office
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STRUCTURAL
RAIL & AUTO PITS
FLOOR DRAIN TO TRENCH

W-259, T-PLANT SECONDARY CONTAINMENT UPGRADES

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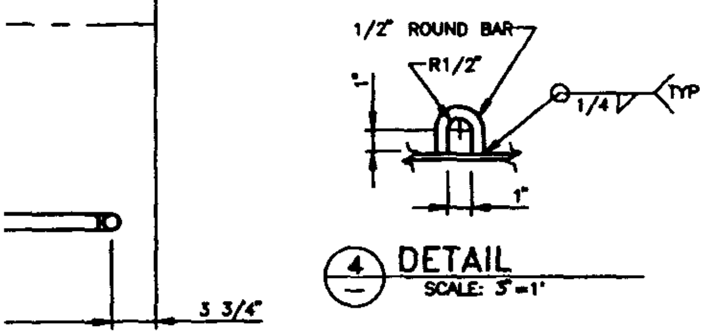


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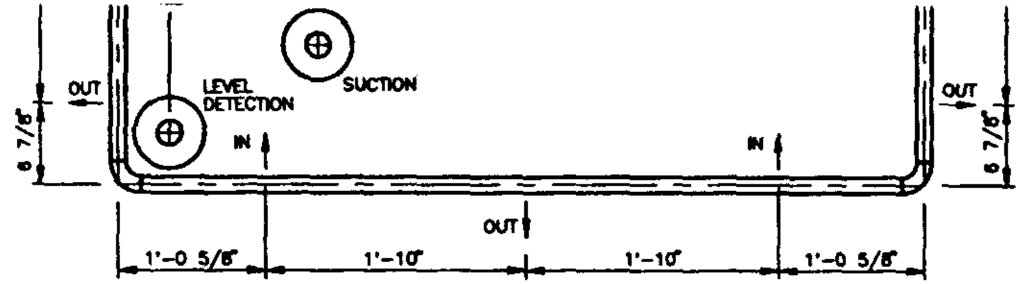


5 DETAIL - AIR HOLES
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NOTES:

1. FOR SPECIFICATION SEE SHEET 1.

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-1 TA LINER

DAVID STEPHEN McKINNIS
STATE OF WASHINGTON
REGISTERED PROFESSIONAL ENGINEER
EXPIRES 10.06/96

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W-259, T-PLANT SECONDARY CONTAINMENT UPGRADES

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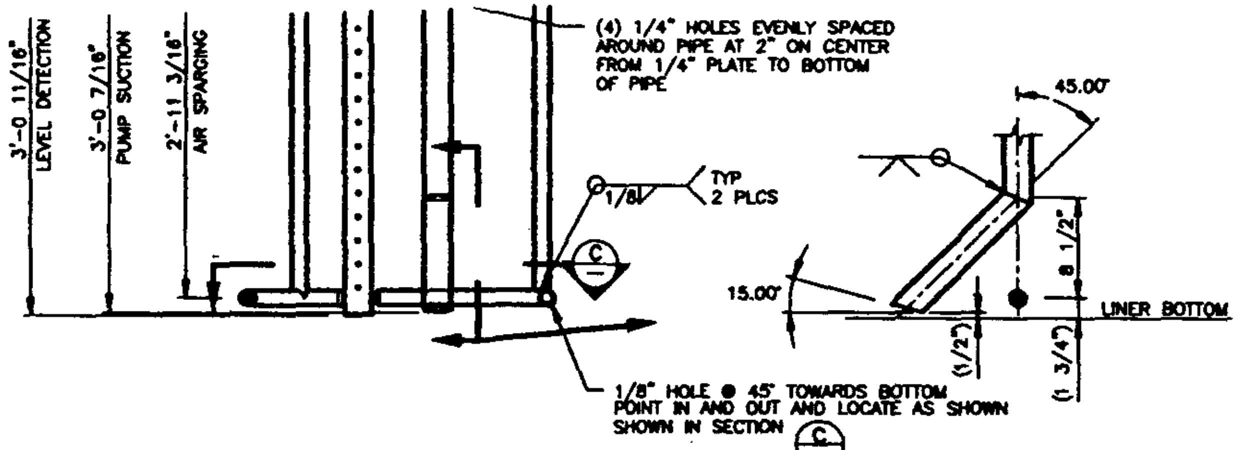


B SECTION
SCALE: 1 1/2"=1'

## NOTES:

1. FOR SPECIFICATION SEE SHEET 1.
2. WELD LINER WITH FULL PENETRATION WELDS, EXCEPT AS NOTED. BACKING BARS MAY BE USED AS REQUIRED.
3. FOR SPECIAL PROTECTIVE COATING SEE SPECIFICATION W-259-C1 SECTION 09885 AND DWG H-2-826527.

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## CONFIDENCE LEVEL C

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STRUCTURAL
SUMP LINERS
-3 T RAIL LINER

RS CHRISTENSEN
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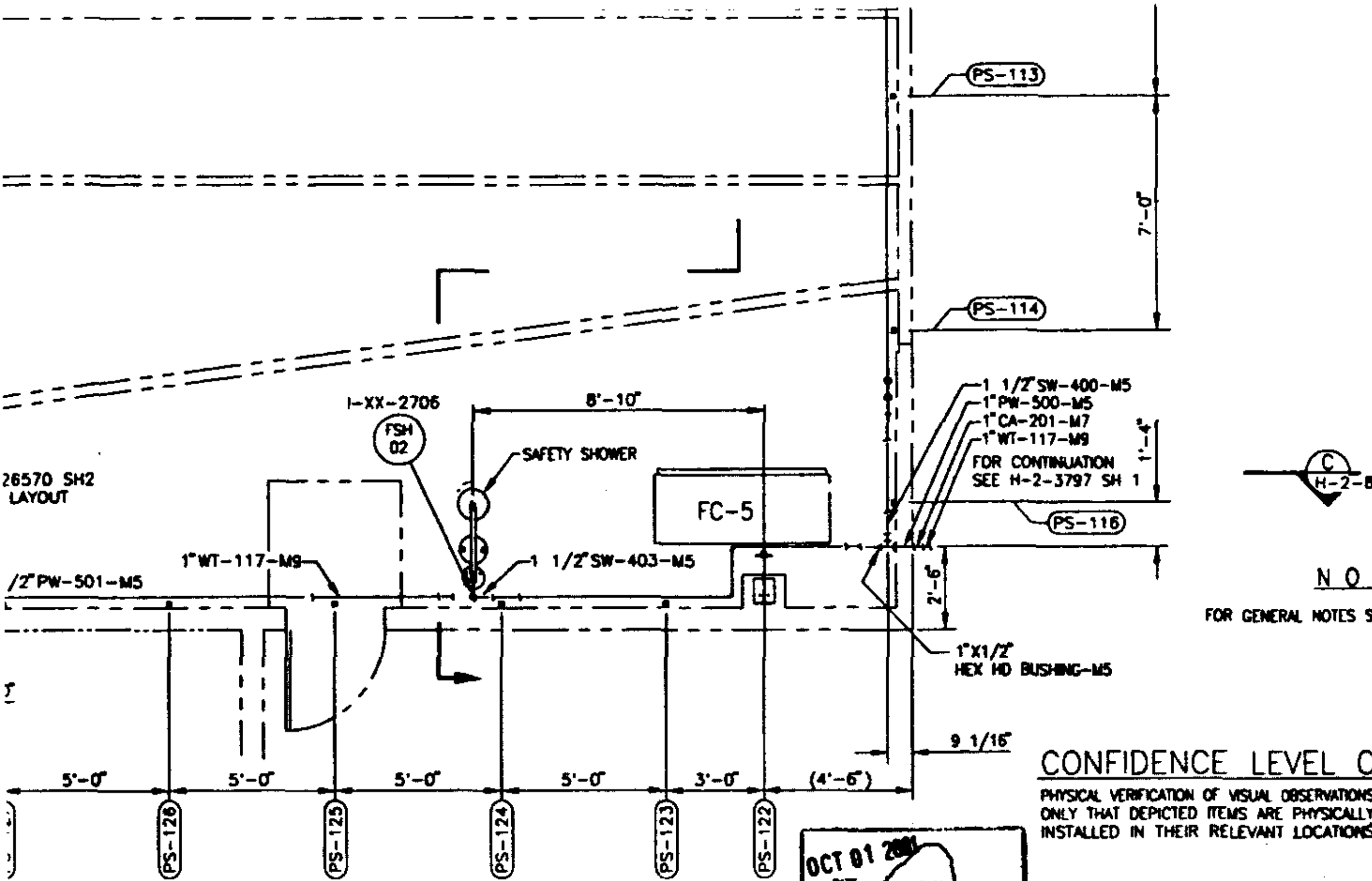


NOTES

FOR GENERAL NOTES SEE DRAWING H-2-826552

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PIPING
PLAN
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R MOSSBRUCKER
HONG L CHANG
Wm ZICKUHR
SEE DR/AT FORM
SEE DR/AT FORM
SEE DR/AT FORM
HONG L CHANG
TA CARLSON
WHC

W-259, T-PLANT SECONDARY CONTAINMENT UPGRADES

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SCALE 3/8"=1'-0" | 618955 | SHEET 1 OF 2

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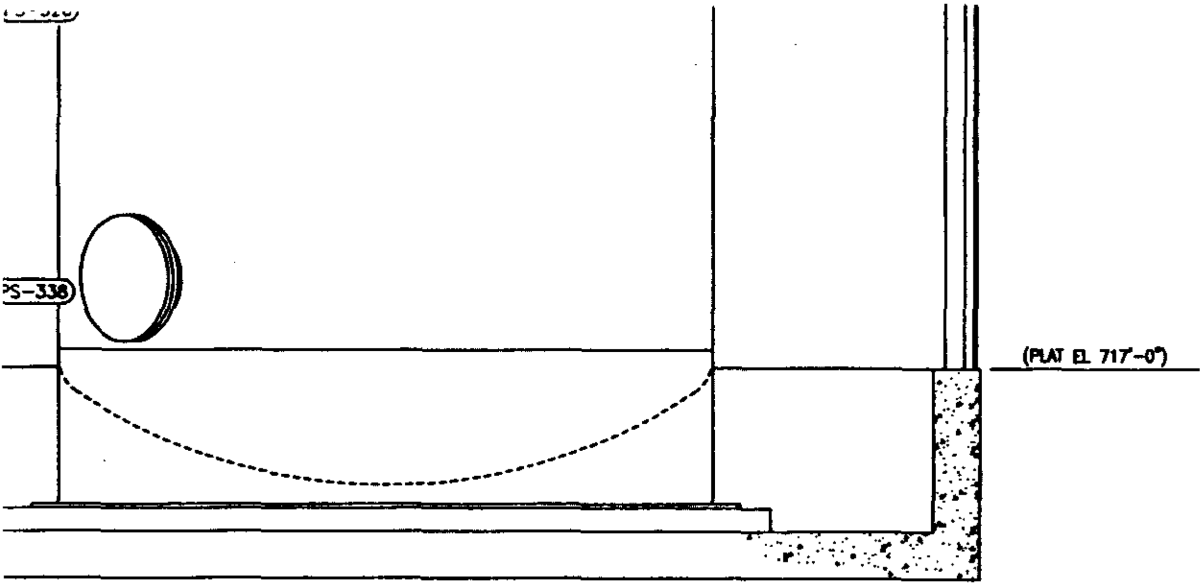


SECTION
561

## NOTES

1. FOR GENERAL NOTES SEE DRAWING H-2-826552

CONFIDENCE LEVEL C

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SCOTT D. ELLINGSON — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER

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| HONG L CHANG | 8/25/98 |
| Wm ZICKUHR | 8/25/98 |
| SEE DR/AT FORM | |
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| HONG L CHANG | 8/25/98 |
| TA CARLSON | 8/27/98 |
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SECTIONS
HOLDING TANKS

PROJECT W-259, T-PLANT SECONDARY CONTAINMENT UPGRADES

| SIZE | BLDG NO | INDEX NO | DWG NO | REV |
|---|---|---|---|---|
| F | 2706-TB | 8510 | H-2-826562 | 1 |

SCALE 1/2"=1'-0" — 618955 — SHEET 2

| REV | | DESCRIPTION | | |
|---|---|---|---|---|
| 1 | | AS-BUILT FOR PROJECT W-259 AND FIELD VERIFIED PER ECN W-259-133 a)INCORPORATE ECN W-259-5: b)INCORPORATE ECN W-259-36 | PDR 9/1/98 | |

REVISIONS

| REF NUMBER | TITLE |
|---|---|
| | |

REFERENCES

NEXT USED ON H-2-826516

CADFILE B826562B — CADCODE WIN95:ACD2:14.0:SS

4 — 3 — 2 PLOT SCALE: 1=24 — 1

GTITLE.DWG (1/96)
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A

H-2-826562 — 2 — 1

# APPENDIX 4B

# CONTAINMENT CALCULATIONS

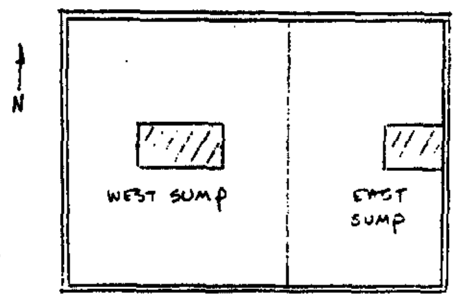
## SECONDARY CONTAINMENT CAPACITY - 214-7 BUILDING

REQUIREMENT: 10% OF VOLUME OF ALL CONTAINERS OR VOLUME OF LARGEST CONTAINER, WHICHEVER IS GREATER.

STATED BUILDING STORAGE CAPACITY = 80 DRUMS

$= 80 \times 208\ \ell = 16,640\ \ell$

REQUIRED SECONDARY CONTAINMENT CAPACITY = $1,664\ \ell$




214 BLDG - Not to scale

### WEST SUMP

DIMENSIONS: $97\frac{1}{4}'' \times 20'' \times 29\frac{1}{4}''$ DEEP

VOLUME = $L \times W \times H = 247\,cm \times 51\,cm \times 74\,cm$

$= 932,178\ cm^3 = 932\ \ell$

MAXIMUM DRUM STORAGE = $\dfrac{932\ \ell \times 10}{208\ \ell}$ = 44 DRUMS

### EAST SUMP

DIMENSIONS: $46\frac{3}{4}'' \times 20'' \times 29''$ DEEP

VOLUME = $L \times W \times H = 119\,cm \times 51\,cm \times 74\,cm$

$= 449,106\ cm^3 = 449\ \ell$

MAXIMUM DRUM STORAGE = $\dfrac{449\ \ell \times 10}{208\ \ell}$ = 21 DRUMS

∴ MAXIMUM LIQUID DRUM STORAGE IN 214-7 IS 65 DRUMS.

SAIC®

P. JENKINS, TE

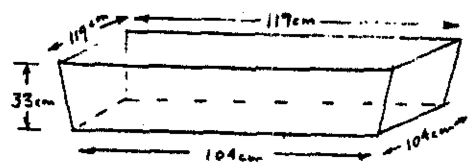
## SECONDARY CONTAINMENT CAPACITY

PORTABLE CONTAINMENT PALLETS

REQUIREMENT : 10% OF VOLUME OF ALL CONTAINERS OR VOLUME OF LARGEST CONTAINER, WHICHEVER IS GREATER.

### TYPE 1 PALLET

AVG W = 44" = 112 cm
AVG L = 44" = 112 cm
H = 13" = 33 cm




VOLUME = W × L × H

= 112 cm × 112 cm × 33 cm

= 413,725 cm³ = 414 ℓ

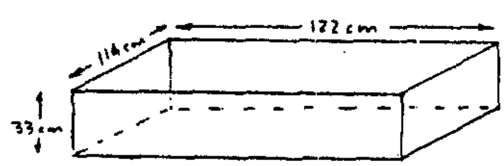
STORAGE CAPACITY OF DRUMS ON PALLET = 4 × 208 ℓ = 832 ℓ

REQUIRED SECONDARY CONTAINMENT CAPACITY = VOLUME OF 1 DRUM = 208 ℓ

∴ TYPE 1 PALLET IS ADEQUATE

### TYPE 2 PALLET

W = 48" = 122 cm
L = 45" = 114 cm
H = 13" = 33 cm




VOLUME = W × L × H

= 122 cm × 114 cm × 33 cm

= 458,964 cm³ = 459 ℓ

REQUIRED SECONDARY CONTAINMENT CAPACITY = 208 ℓ

∴ TYPE 2 PALLET IS ADEQUATE

SAIC

T. JENKINS PE

# APPENDIX 4C

# INTEGRITY ASSESSMENT REPORT

S

HNF - 4970, Rev. 0

# T Plant Complex Secondary Containment and Leak Detection Upgrade, Project W-259, Design and Installation Assessment Report

W. J. Geuther
Waste Management Hanford, Inc., Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-96RL13200

EDT/ECN: 619471  UC: N/A
Org Code: R3110000  Charge Code: 101645
B&R Code: EW3130020  Total Pages: 34

Key Words: T Plant, 2706-T, Secondary Containment, W-259, Independent Inspection, Certification, Leak Detection

Abstract: This assessment report attests to, and certifies, the proper design and installation of Project W-259, "T Plant Secondary Containment and Leak Detection Upgrade". The report was prepared and certified by an Independent Qualified Registered Professional Engineer (IQRPE) in accordance with 40 CFR 265.192(g) and 270.11(d). The design assessment is based upon review of project design documents (calculations, drawings, specifications) and the installation assessment is based upon field inspections performed by Fluor Daniel Northwest Quality Control Inspectors, Fluor Daniel Hanford Quality Assurance Acceptance Inspections, and IQRPE field walkthroughs/inspections.

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A-6400-073 (01/97) GEF321

# T PLANT COMPLEX SECONDARY CONTAINMENT AND LEAK DETECTION UPGRADE

# PROJECT W-259

# DESIGN AND INSTALLATION ASSESSMENT REPORT

Approved by

**James R Divine, PE**

ChemMet, Ltd., PC
West Richland, WA 99353

for the

U. S. Department of Energy

August 26, 1999

# Table of Contents

# 1.0 INTRODUCTION

## 1.1 General Comments

This assessment report attests to, and certifies, the proper design and installation of Project W-259, "T Plant Secondary Containment and Leak Detection Upgrade". It also satisfies the "design and installation of new tank systems or components" requirements of Title 40, Code of Federal Regulations (40 CFR), Subpart J, Section 265.192 for interim status facilities as directed by Washington Administrative Code (WAC) 173-303-400(3).

Project W-259 has two purposes:

- to upgrade the 2706-T Facility, a part of the Hanford Site T Plant Complex, so that it complies with Resource Conservation and Recovery Act (RCRA) regulations on tank system secondary containment and leak detection and
- to meet the needs of the 2706-T Facility's mission.

The T Plant Complex currently operates under interim status and is the Hanford Site's primary decontamination facility. In addition, the T Plant Complex also performs treatment on radioactive and mixed waste. The T Plant Complex consists of several subsidiary buildings such as the 2706-T Facility. The 2706-T Facility consists of the 2706-T, 2706-TA, and the 2706-TB Buildings.

This report is organized around the two assessments required by the regulations. The first assessment (Section 2.1) specifically addresses the design integrity assessment of the Project W-259 upgrades as required by 40 CFR 265.192(a). The second assessment (Section 2.2) addresses the proper installation assessment of the project as required by 40 CFR 265.192(b) through (f). The remaining portions of the report (Sections 1.0, 3.0, 4.0 and 5.0) provide information on the report, the 2706-T Facility, the assessment's conclusions, the report's certification, and the references. Finally, the certification statement provided by this report satisfies the requirement of 40 CFR 265.192(g).

## 1.2 System Description

The 2706-T Facility is a part of the T Plant Complex, in the 200 West Area of the Hanford Site in south central Washington State. The 2706-T Facility function includes equipment and material decontamination, waste treatment, and verification activities. The 2706-T Facility was recently modified by Project W-259. The 2706-T Facility consists of three separate, but adjacent buildings. The 2706-T Building was constructed in 1959. Project W-259 enhanced the 2706-TA Building by providing electrical, waste transfer, heating, ventilation, and air conditioning services. The 2706-TA Building connects with the 2706-T Building via two large roll-up doors and a personnel door. The 2706-TB Building, also provided by Project W-259, is adjacent to the 2706-TA Building.

The 2706-T Building contains a coated railroad pit over which low-level decontamination activities are performed on equipment and railcars/vehicles. The railroad pit is located under a steel grating platform. The railroad pit floor slopes to the railroad sump located in the center of the pit. The railroad sump is located under steel grating, is equipped with a level indicator, and is double-lined with stainless steel. The sump liner is equipped with leak detection. Decontamination, waste treatment, and repackaging and verification activities are also performed in the 2706-TA Building. The 2706-TA Building has a coated floor that slopes to one of two double-lined stainless steel sumps. Both sumps are located under steel grating and have level indicators. Both sump liners are equipped with leak detection. Liquid removal systems from the 2706-T railroad sump and the two 2706-TA sumps transfer liquid to two new RCRA-compliant tanks, T-XX-2706-220 and T-XX-2706-221. These new RCRA-compliant tanks are housed in the 2706-TB Building. Secondary containment for the tanks, consisting of a coated curbed concrete liner system with a floor that slopes to a coated sump, is located below a steel grated platform that surrounds the tanks.

The collection, filtration, transfer, and storage of mixed decontamination waste upgrades within the 2706-T Facility also include the following:

- a microprocessor-based system to monitor, alarm, and control the level and transfer of waste for each tank,
- various valve stations for connection to decontamination agents from the existing systems,
- a 13.8 kV electrical service utility transformer with metering capabilities,
- various transfer pumps and process piping that have flushing capabilities, and
- an upgraded leak detection system for the transfer piping, storage tanks, sumps, and sump liners.

See Appendix I for the Site Map and Process & Instrumentation Drawings (P&IDs).

### 1.3 Scope

This report is based on the design and installation assessments performed in accordance with 40 CFR 265.192(a) and 40 CFR 265.192(b) through (f), respectively. It was prepared for the new waste transfer piping, leak detection, sumps, sump liners, atmospheric tanks, and secondary containment systems provided in the 2706-T Facility by Project W-259.

### 1.4 Comments on Certification

Section 4.0 contains a certification statement attesting to the accuracy of the information presented in this report. The certificate is signed and sealed by an Independent Qualified Registered Professional Engineer (IQRPE) in accordance with 40 CFR 265.192(g) and 270.11(d).

## 2.0 ASSESSMENTS

Section 2.1 discusses specific aspects of Project W-259 for the design integrity assessment. Section 2.2 discusses additional material associated with the proper installation assessment.

## 2.1 *Design Assessment*

The new systems described above, in Section 1.2, are adequately designed to prevent failure caused:

- by corrosion, provided proper operational and maintenance controls are placed into effect, and
- by structural loads imposed by the system's intended service

Refer to Project W-259's Functional Design Criteria report (Reference 1) and Engineering Evaluation report (Reference 2) for a complete description of the system and intended service.

The rest of the system design complies with the requirements of 40 CFR 265.193, "Containment and detection of releases". These conclusions are based on the applicable codes, standards, design, and construction documents. These include the Functional Design Criteria report (Reference 1), the Engineering Evaluation report (Reference 2), the design calculations (Appendix II), the construction drawings, and the procurement specification W-259-P1 (Reference 3). Procurement specification, W-259-P1, specifies the design and fabrication requirements for the two 304L stainless steel tanks (T-XX-2706-220 & -221) in accordance with American Society of Mechanical Engineers (ASME) Section VIII, Section UG-115. A code stamp was provided based on the requirements of W-259-P1.

### 2.1.1 *Codes and Standards Used as a Basis for Design*

"Boiler and Pressure Vessels", ASME Sec. VIII, Div. 1, 1992

"Chemical Plant and Petroleum Refinery Piping", ASME B31.3, 1993.

"Pipe Flanges and Flanged Fittings", ASME B16.5, 1988.

"Factory-Made Wrought Steel Buttwelding Fittings", ASME B16.9, 1993.

"Forged Fittings, Socket-Weld and Threaded", ASME B 16.11, 1991.

"Forged or Rolled Alloy-Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High Temperature Service", ASTM A 182, 1995.

"Seamless and Welded Austenitic Stainless Steel Pipes", ASTM A 312, 1994.

"Wrought Austenitic Stainless Steel Piping Fittings", ASTM A 403, 1995

"Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service", ASTM A193, 1995.

"Carbon and Alloy Steel Nuts for Bolts for High-Pressure and High-Temperature Service", ASTM A194, 1995.

### 2.1.2 *Waste Characteristics*

The Functional Design Criteria for this project contains a list of hazardous wastes used at the T Plant Complex. This list of chemicals plus others that may be processed, as well as other sources of information, are listed in Appendix III.

Chemicals to be used during cleaning, decontamination, and treatment could include, but are not limited to, alkaline washes, alkaline oxidants, alkaline detergents, and organic solvents. The waste stream will also contain low-level radioactive materials, solids, and chemicals washed from the vehicles and railroad equipment during the decontamination process. After waste transfer, the pH will be controlled so that it will remain within a range of 7 to 14.

The chemicals proposed are generally compatible with the system. Specific details and limitations are provided in 2.2.5 below.

None of the wastes listed are susceptible to ignition or are unstable. They do not react violently with water nor are the aqueous mixtures explosive.

### 2.1.3 *Potential for Corrosion Failure*

The requirements of 40 CFR 265.192(a)(3) specifically focus on a corrosion determination for situations where the external shell of a metal tank or metal component contact soil or water. While this condition does not occur within the 2706-T Facility, the following discussion is offered on corrosion in general.

The materials used for the new waste carrier piping, piping encasements, sumps, sump liners, and atmospheric tanks are 304L stainless steel. Based on the waste characteristics, and experience with 304L, it is concluded the potential for failure due to *uniform* corrosion, either internally or externally, is very low. Nevertheless, collection of solids on wetted surfaces can lead to *pitting* and/or *crevice* corrosion. Therefore, the surfaces of the various stainless steel components must be kept sufficiently clean to mitigate this problem. Further, the interiors of the tanks should be inspected, if practicable, to ensure crevices do not exist.

Galvanized gratings are located above the stainless steel tanks. Care must be taken during all construction work to ensure that molten zinc, the galvanizing coating, does not touch the tank surface. Further, the tanks must be protected in case of fire to prevent zinc, with its low melting temperature, 419.5°C, from touching the tanks. Austenitic stainless steel is susceptible to *liquid metal embrittlement.*

Some transfer lines are not designed with a sufficient incline, or slope, to preclude the possibility of water pooling within the carrier pipes. Other lines are equipped with check valves, which will maintain a stagnant head of water in them. All such lines must be flushed or kept filled with solids-free, sterilized water to prevent microbial influenced corrosion, pitting corrosion, and/or crevice corrosion.

The sodium hydroxide transfer system uses small diameter piping and a high flow rate pump. Cavitation is possible at joints and elbows, particularly in the summer. Trace heating should be controlled to not exceed 60°C to prevent caustic cracking. Though the chemical room is heated, the room temperature should not be allowed to fall below about 10°C because commercial solutions of NaOH, typically about 50%, solidify at that temperature.

### *2.1.4 Effects of Vehicular Traffic*

The concrete wall and steel grating that surrounds the new sumps and liners are designed to withstand a vehicle load of 500 lb/ft$^2$. Below-grade, embedded secondary containment piping is protected by 4000 psi concrete. Therefore, it can be concluded the potential for the sumps, sump liners, and embedded piping being damaged from vehicle traffic is very low.

### *2.1.5 Foundation Loading*

The site is structurally adequate to support the fully loaded tanks that are inside the building.

### *2.1.6 Flotation or Dislodgment*

The requirements of 40 CFR 265.192(a)(5)(ii) address prevention of flotation and/or dislodgment of a tank system due to placement within a saturated zone or a seismic fault zone. This section of the assessment report addresses flotation and dislodgment along with a discussion on the effects of the tank system's pressure and thermal loads.

Flotation is not a concern for this project. The water table is approximately 200-ft. below grade and will not affect the buildings. The tanks are within the facility and are anchored.

The piping stress calculations performed for Project W-259 included an evaluation of the effects of a Safety Class 3 seismic event as defined in Hanford Plant Standards, Standard Design Criteria 4.1, Rev. 12 (Reference 4), and the Uniform Building Code (UBC) (Reference 5). The analysis indicates that the piping design is satisfactory for service in the Hanford seismic zone. The design stresses of the 15,000 and 6,000 gallon tanks were specified to meet an UBC Zone 2B seismic event in accordance with the tanks' procurement specification, W-259-P1 (Reference 3), along with gravity and thermal loads. The tank calculations (Reference 6) do not indicate whether UBC requirements were considered during design. The combined stresses (seismic, gravity, and thermal) on both tanks at several locations reach the material yield strength. The UBC Section 1632, paragraph 1632.1.2 states "The minimum design lateral forces prescribed in this section are at a service level (rather than yield or ultimate level)". Additional information is provided in Appendix IV.

Design stress calculations were also performed to evaluate the pressure and thermal effects to be experienced by the new piping system. Calculations are based on a total line pressure of 90 psig for the carrier piping and atmospheric pressure for the encasement piping and on the effect of heating the pipe from ambient to an operating temperature of 120°F. Based on these analyses, the piping system is designed with sufficient support and flexibility to withstand operating conditions.

The tanks will be operated at atmospheric pressure but were designed for 20 psig. The vent-line filtration system will serve for pressure relief requirements.

### 2.1.7 *Effects of Frost Heave*

The piping, sumps, sump liners and tanks are contained inside a heated building, therefore, it is unlikely frost heave will occur. The footings for the basin in 2706-TB are located at depths greater then 30 inches, which is below the accepted lower limit for the frost zone. The rest of the 2706-T Facility has been in operation for approximately 40 years with no problems caused by frost heave and no change in performance is expected.

## 2.2 *Installation Assessment*

The construction assessment was based upon inspections performed by qualified Fluor Daniel Northwest (FDNW) Quality Control (QC) Inspectors. The FDNW QC inspectors functioned as the IQRPE's representative at the construction site. In addition, Fluor Daniel Hanford Quality Assurance Acceptance Inspection (AI) provided acceptance inspection for the government; their records were made available to the IQRPE. The IQRPE performed walk-throughs and discussed the construction with the inspection staff. Construction documents include the construction specification W-259-C1 (Reference 7), the inspection plan (Reference 8), the procurement specification W-259-P1 (Reference 3), and vendor submittal No. 4.A/V3 (Reference 6).

### 2.2.1 *General Inspections*

Inspections were performed during the installation phase of the project to determine if any structural damage occurred and to assess the quality of workmanship. Inspection personnel also were present to verify that correct materials and procedures were used.

Based on the installation inspection performed, no structural damage or inadequate construction was evident.

#### 2.2.1.1 *Weld Breaks*

Based on discussions with inspection staff and review of the records, no weld breaks are present.

#### 2.2.1.2 *Punctures*

Based on tests and inspections performed, punctures were not apparent in either the tanks, piping, sumps, or sump liners.

#### 2.2.1.3 *Damage to Protective Coatings*

The coatings were inspected and found acceptable. Adhesion tests, performed in accordance with the acceptance procedure, done and found acceptable.

#### 2.2.1.4 *Cracks*

Based on the inspections performed, cracks were not apparent in the concrete structure, sumps, sump liners, tanks, coated concrete liner system, or ancillary equipment.

#### 2.2.1.5 *Corrosion*

The tank system was adequately installed to prevent failure caused by corrosion, provided proper operational and maintenance controls are placed into effect.

### 2.2.2 *Backfill Material*

Not applicable as the tank system is housed within the 2706-T Facility.

### 2.2.3 *Tightness Testing*

Tightness testing was performed in the shop and in the field in accordance with the Acceptance and Operating Test Procedures and were found to be satisfactory.

### 2.2.4 *Ancillary Equipment Support*

All ancillary equipment has been adequately supported and protected to prevent physical damage and excessive stresses due to settlement, vibration, expansion, and contraction.

### 2.2.5 *Corrosion Protection*

Not applicable as the requirements of 40 CFR 265.192(f) apply only to situations where the external shell of metal tanks or metal components comes in contact with soil or water.

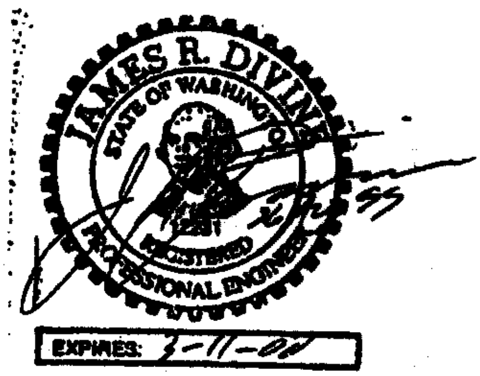
Based on the proposed waste composition, failure from uniform corrosion is not expected. If, however, corrosion induced failures were to occur, they would be due to localized corrosion - pitting, cracking, or crevice corrosion. Because non-destructive examination techniques for localized corrosion have large uncertainties when applied to stainless steel, daily walk-around inspections and surveillance performed by facility operators could satisfactorily serve as back-up to the leak detection system for the tanks and piping. When visually monitoring for leaks, the sidewalls of the tanks and the weld joints of the piping should receive particular attention. There are no anti-corrosion "protective" measures such as cathodic protection that need be applied.

## 3.0 CONCLUSIONS

The 2706-T Facility tank system, Project W-259 upgrade, has been adequately designed, has sufficient structural integrity, is compatible with the waste to be handled, and has needed corrosion surveillance to ensure that it will not collapse, rupture, or fail. Furthermore, proper installation procedures were followed to prevent damage to the tank system during installation.

## 4.0 CERTIFICATION

*I certify under penalty of law that this document and all attachments were prepared or collected under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*



# 5.0 REFERENCES

Project W-259

1. Functional Design Criteria for "Project W-259, T-Plant Secondary Containment and Leak Detection Upgrade", WHC-SD-W259-FDC-001, Rev. 3.

2. Engineering Evaluation Report for "Project W259, T-Plant Secondary Containment and Leak Detection Upgrade", SD-W259-ER-001, Rev. 0.

3. W-259-P1 - Procurement Specification - Atmospheric Tanks

4. Hanford Plant Standards, Design Criteria, SDC-4.1, Design loads for Facilities.

5. "Uniform Building Code", 1994 Edition.

6. Vendor Submittal No. 4.A/V3, Atmospheric Tanks, dated 12/8/97.

7. Construction Specification for "T-Plant Secondary Containment Upgrade", W-259-C1, Rev. 0.

8. Acceptance Inspection Plan for Project W-259, IP-W259-C1-1

# Appendix I - Site Map and P&IDs

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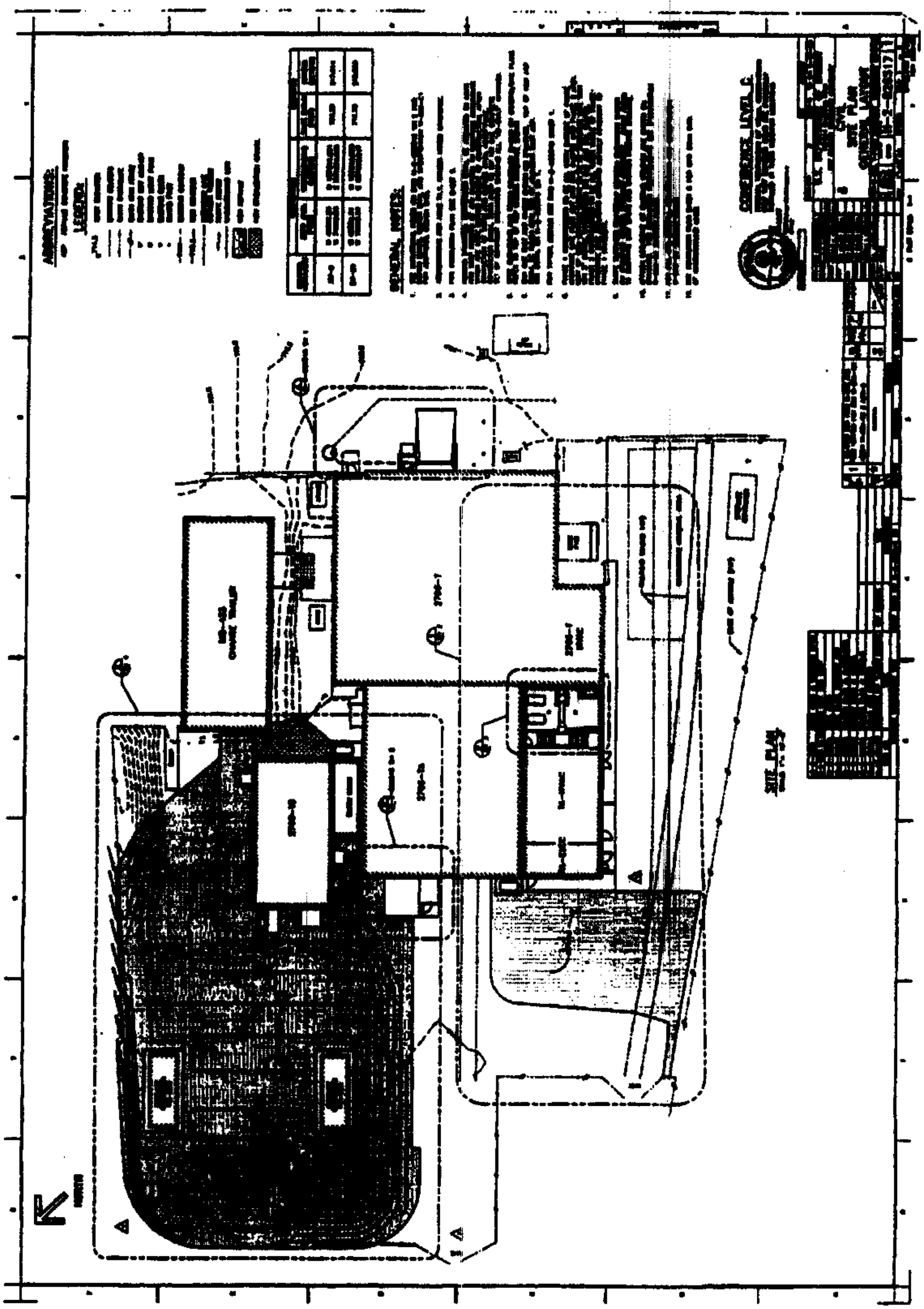

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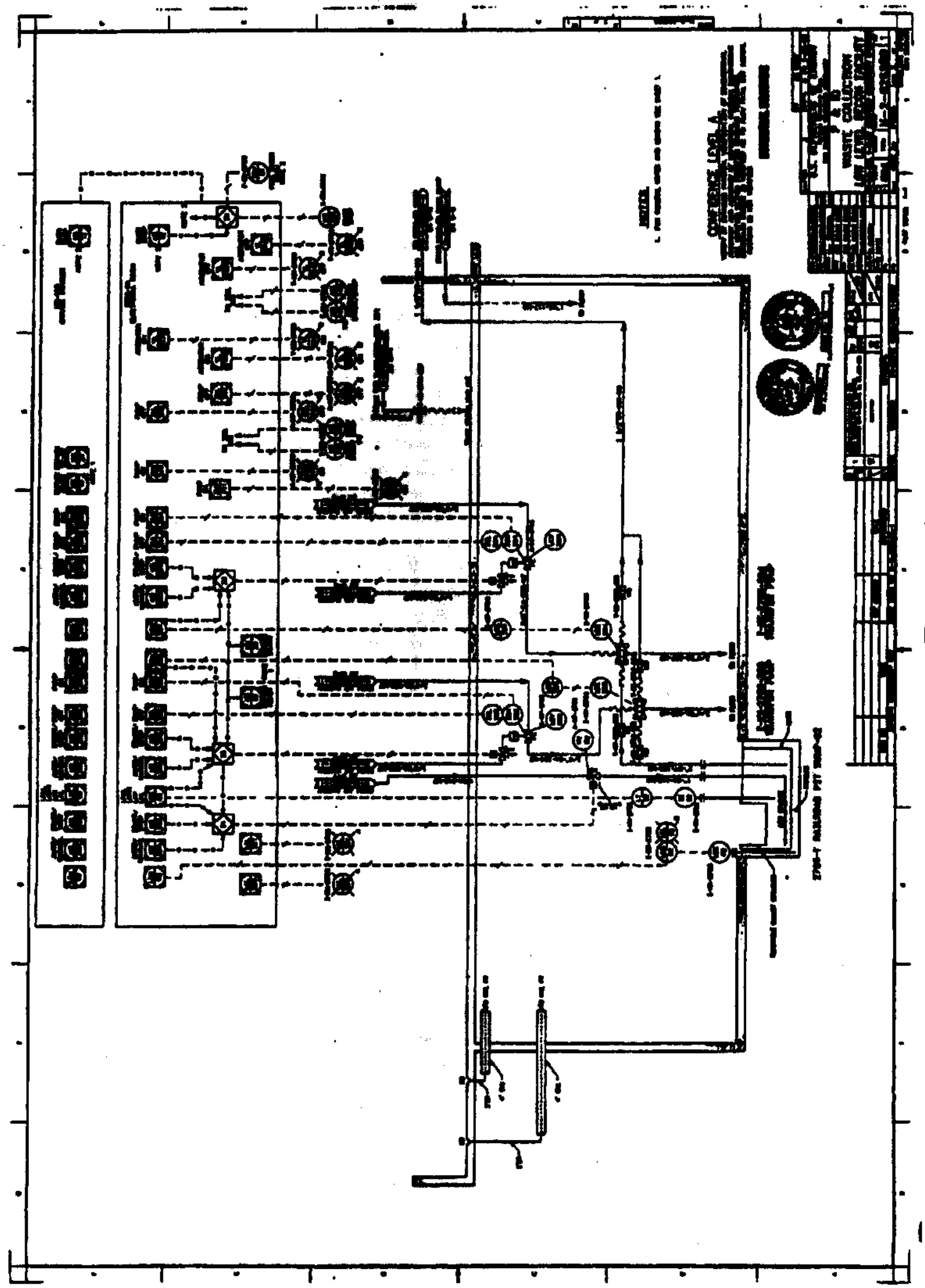

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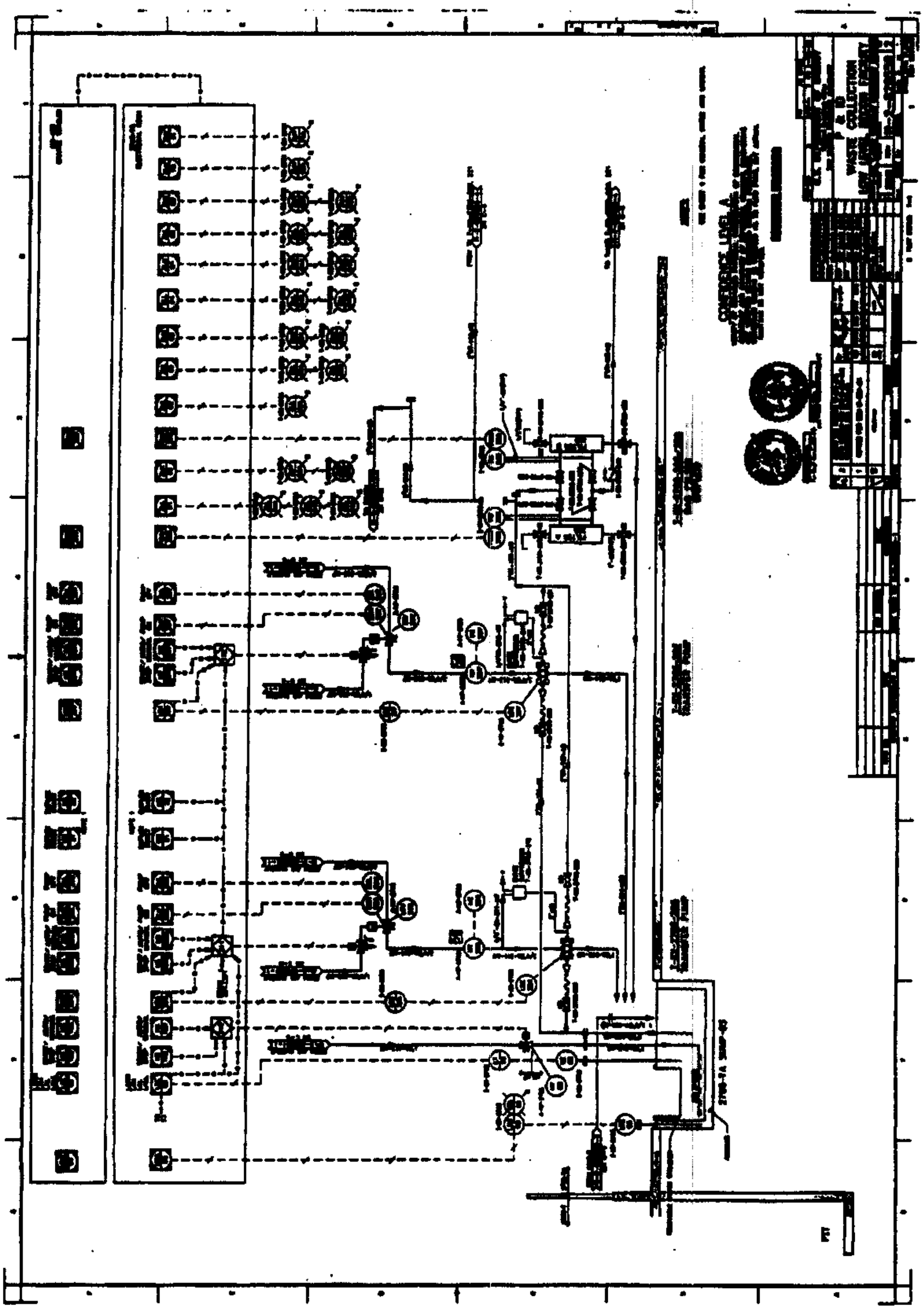

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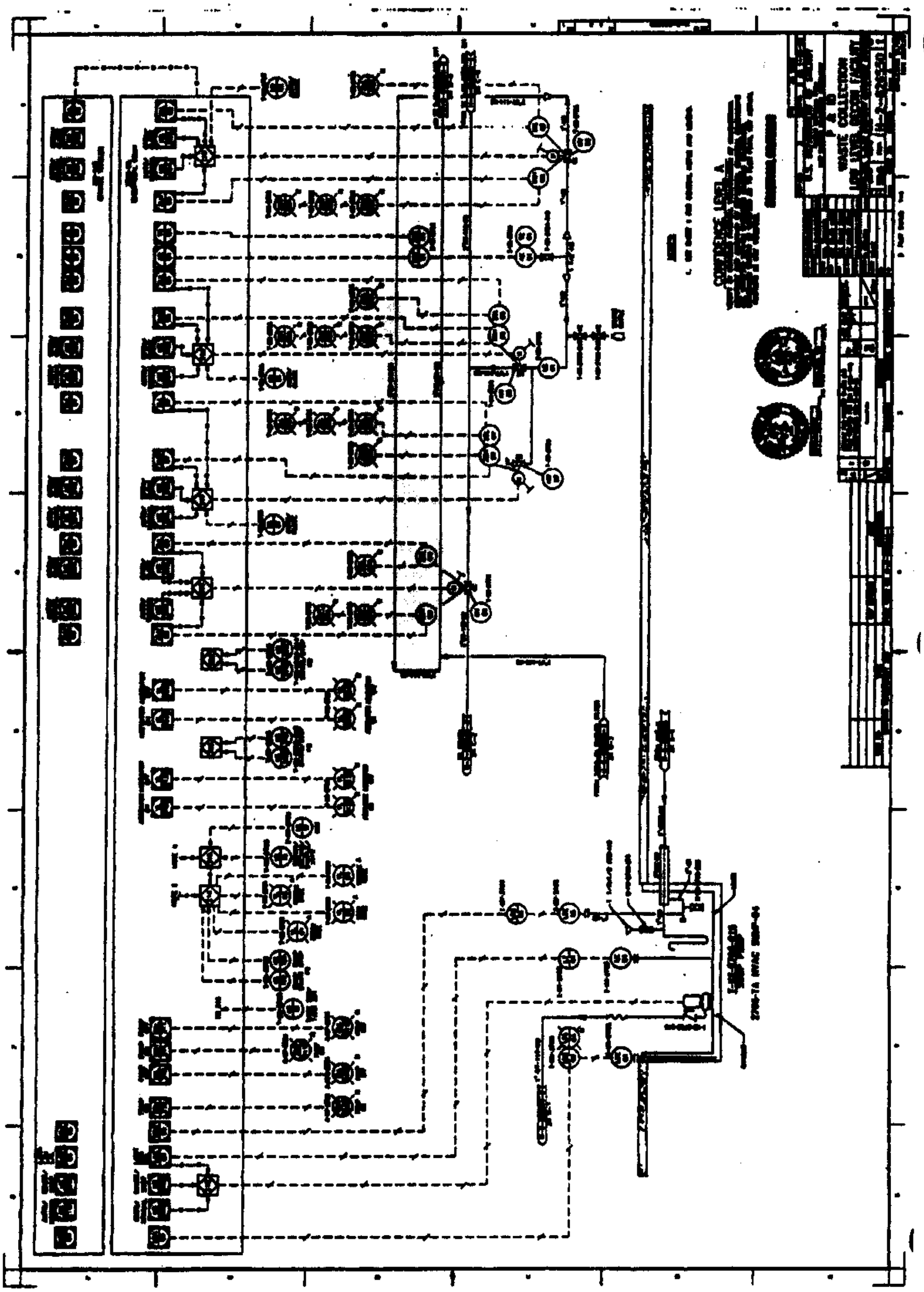

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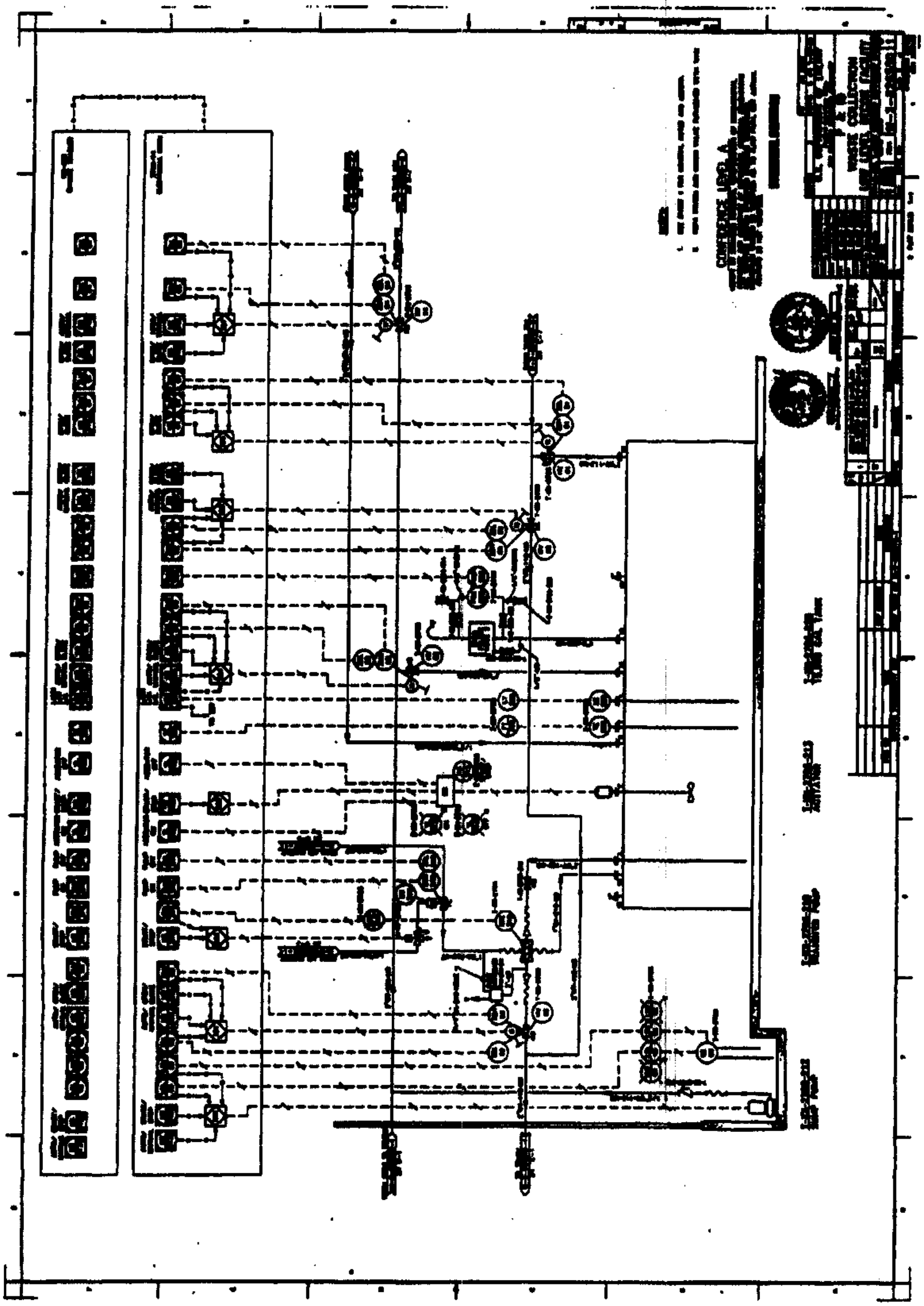

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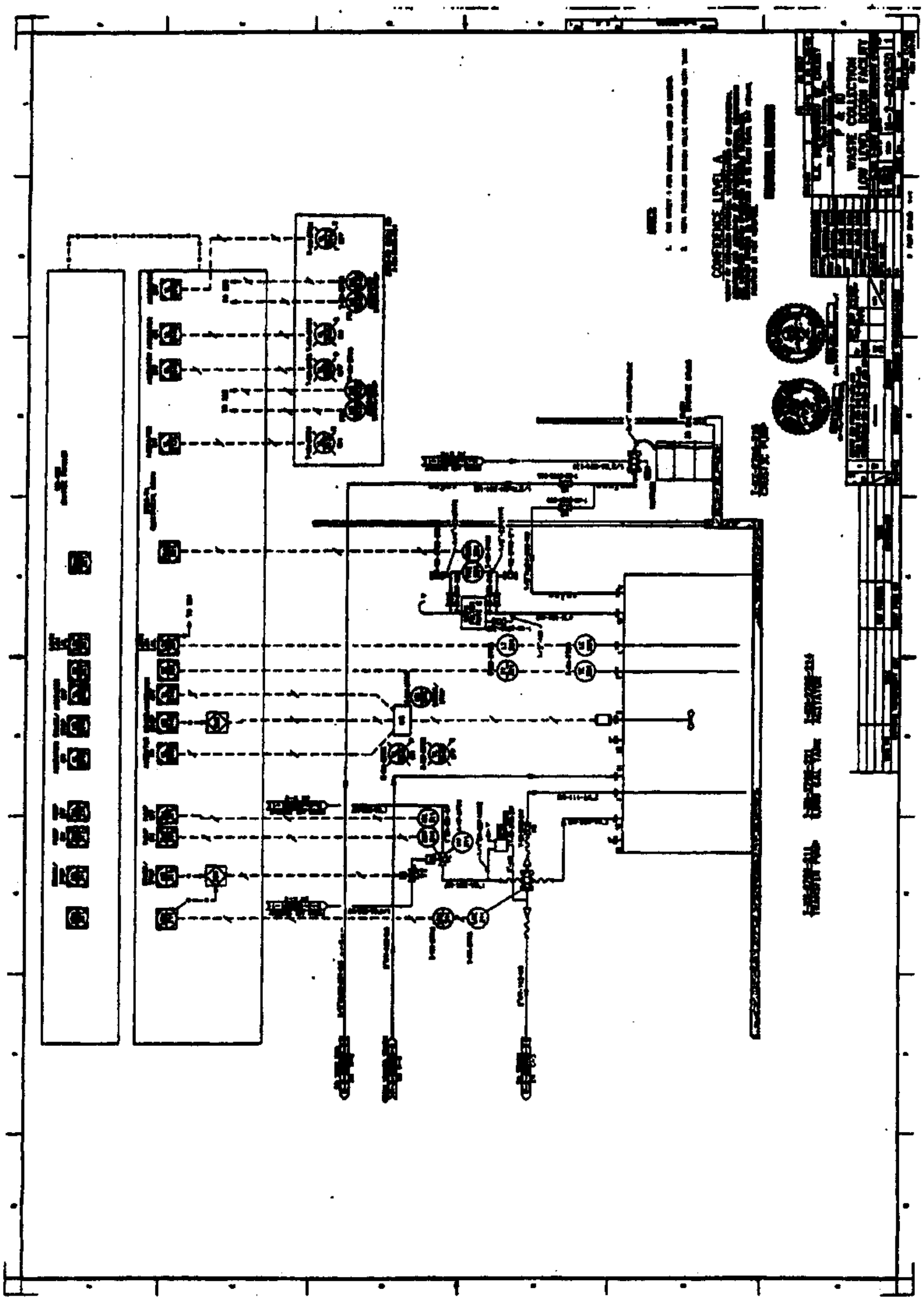

# Appendix II - Design Calculations

**Design Calculations**

| | |
|---|---|
| W259-C-002, Rev. 0 - | "2706-TB Building, Containment, Foundation, Grating, Stairway, Hoist and Handrails" |
| W259-C-005, Rev. 0 - | "Waste Water Sumps and SS Liners" |
| W259-C-009, Rev. 0 - | "Review Piping Support Loads on Structural Building" |
| W259-M-002, Rev. 0 - | "Pipe Stress Analysis" |
| W259-M-003, Rev. 0 - | "Pipe Support Analysis" |
| W259-M-004, Rev. 0 - | "2706-T Railroad Pit Sump and Truck Pit Sump Pumps" |
| W259-M-005, Rev. 0 - | "2706-TB Transfer Pumps" |
| W259-M-006, Rev. 0 - | "2706-TA Transfer Pumps" |

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# Appendix III - Waste Characteristics

Approval Date: ___________

WASTE STREAM PROFILE SHEET

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PAGE ~~24~~ 23 OF 33

# I. WASTE SHIPPER INFORMATION

1. DST Customer(shipper/generator): 221-T Environmental Engineering
2. Contact: E. R. Koetje
3. Phone: 373-4395
4. Mail Stop: T3-28

# II. GENERAL WASTE INFORMATION

1. DST customer: 221-T Facility
2. Waste stream name: 221-T Radioactive Liquid Waste System
3. Process generating waste: T Plant's tank waste consists of approximately 90% waste water, 5% dissolved metal salts, (including NaOH & $KMnO_4$) and 5% solids. The majority of the waste water was generated during decontamination activities in the 2706-T facility and storm water that collects in the 2706-T sump. Other liquid waste was generated during canyon decontamination of Tank Farm's sampling augers.
4. Anticipated volume including any flush water: Upper planning case 163,500 liters (43,200 gallons) per year.
5. Anticipated shipping frequency: As needed (approximately semi-annually)
6. Method of shipment: Railcar or truck
7. Was analytical data used to fill out this profile sheet? Yes. Historical analytical data was used to determine expected ranges of waste constituents. This document will be amended if analysis results are beyond the expected ranges.

   If yes, cite which document was used as the basis for sampling and analysis (i.e. sampling or waste analysis plan) and attach a complete copy of the latest results.
   The waste is sampled and characterized prior to each railcar shipment. A new Sampling Authorization Form (SAF) is generated for each sampling event. The SAF specifies methods, protocol, and target analytes. The analyte list is derived from requirements in WHC-SD-WM-EV-053 (DST WAP) and from knowledge of wastes received in the 221T Canyon tank system. The waste was sampled in accordance with T Plant procedure DO-080-001. The analytical results are provided to Tank Farms prior to each shipment and are not enclosed with this document.

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PAGE 25 [illegible] OF 33
[illegible]

**III. WASTE STREAM COMPOSITION**
**(all constituents that are greater than 1000 mg/kg)**

| [illegible] | [illegible] | [illegible] | [illegible] |
|---|---|---|---|
| Solvent (water) | 85 to 98% | 90% | Process Knowledge |
| Cations | 1% to 6% | 2.4% | Process Knowledge |
| Anions/Salts | 1% to 6% | 2.4% | Process Knowledge |
| Organics | 0% to 1% | 0.2% | Process Knowledge |
| Solids | 0% to 15% | 5% | Sample Results |

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[illegible]

| Waste Code REF | WASTE DESCRIPTION | WASTE CATEGORY | [illegible] | [illegible] | [illegible] |
|---|---|---|---|---|---|
| D040 | Trichloroethylene | wastewater | Trichloroethylen | 0.054 mg/L | 100 |
| D043 | Vinyl chloride | wastewater | Vinyl chlorid | 0.27 mg/L | 1 |
| F001 | Spent halogenated solvents used in degreasing | wastewater | ------------------ | ---------- | 10 |
| | | | Carbon tetrachlorid | 0.057 mg/L | 10 |
| | | | Methylene chlorid | 0.089 mg/L | 1,000 |
| | | | Tetrachlorethylen | 0.056 mg/L | 100 |
| | | | 1,1,1-Tetrachloroethan | 0.054 mg/L | 1,000 |
| | | | Trichlorethylen | 0.054 mg/L | 100 |
| | | | 1,1,2-Trichlo-1,2,2-trifluoroethan | 0.057 mg/L | 5,000 |
| | | | Trichlorofluoromethan | 0.020 mg/L | 5,000 |
| F002 | Spent halogenated solvents | wastewater | ------------------ | ---------- | 10 |
| | | | Chlorobenzen | 0.057 mg/L | 100 |
| | | | o-Dichlorobenzen | 0.088 mg/L | 100 |
| | | | Methylene Chlorid | 0.056 mg/L | 1,000 |
| | | | 1,1,1-Trichloroethan | 0.054 mg/L | 1,000 |
| | | | 1,1,2-Trichloroethan | 0.054 mg/L | 100 |
| | | | Trichloroethylen | 0.054 mg/L | 100 |
| | | | 1,1,2-Trichloro-1,2,2 trifluoroethan | 0.057 mg/L | 5,000 |
| | | | Trichlorofluoromethan | 0.020 mg/L | 5,000 |
| F003 | Spent non-halogenated solvents | wastewater | ------------------ | ---------- | 100 |
| | | | Aceton | 0.28 mg/L | 5,000 |
| | | | n-Butyl alcoho | 5.6 mg/L | 5,000 |
| | | | Cyclohexan | 0.36 mg/L | 5,000 |
| | | | Ethyl acetat | 0.057 mg/L | 5,000 |
| | | | Ethyl benzen | 0.12 mg/L | 1,000 |
| | | | Ethyl ethe | 0.12 mg/L | 100 |
| | | | Methano | 5.6 mg/L | 5,000 |
| | | | Methyl isobutyl keton | 0.14 mg/L | 5,000 |
| | | | Xylenes-mixed isomer | 0.32 mg/L | 1,000 |
| F004 | Spent non-halogenated solvents | wastewater | ------------------ | ---------- | 1,000 |

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| Waste Code/ REF # | WASTE DESCRIPTION | WASTE CATEGORY | REGULATED HAZARDOUS CONSTITUENTS | TREATMENT STANDARD | RQ (lb) |
|---|---|---|---|---|---|
| | | | o-Creso | 0.11 mg/L | 1,000 |
| | | | m-Creso | 0.77 mg/L | 1,000 |
| | | | p-Creso | 0.77 mg/L | 1,000 |
| | | | Cresol-mixed isomers (Cresylic acid | 0.88 mg/L | 1,000 |
| | | | Nitrobenzen | 0.068 mg/L | 1,000 |
| F005 | Spent non-halogenated solvents | wastewater | ------------------------ | -------- | 100 |
| | | | Benzen | 0.14 mg/L | 100 |
| | | | Carbon disulfid | 3.8 mg/L | 100 |
| | | | 2-Ethoxyethane | BIODG or INCIN | 100 |
| | | | Isobutyl alcoho | 5.6 mg/L | 5,000 |
| | | | Methyl ethyl keton | 0.28 mg/L | 5,000 |
| | | | 2-Nitropropan | (WETOX or CHOX) followed by CARBN or INCIN | 100 |
| | | | Pyridin | 0.014 | 1,000 |
| | | | Toluen | 0.080 | 1,000 |

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## IX. SUPPLEMENTAL INFORMATION & ACCOUNTABILITY STATEMENT

**32.** **Is there an attachment containing additional information?** No

**33.** **I hereby certify that, to the best of my knowledge, all information submitted in this and all attached documents contains true and accurate descriptions of this waste. Any sample which was analyzed or submitted was representative as defined in 40 CFR 261 Appendix I or by using an equivalent method. All relevant information regarding known or suspected hazards in the possession of the generator and/or waste shipper has been disclosed.**

______________________
**Authorized Signature**

E. R. Koetje, Process Engineer
**Name and Title** ____ **Date**

## IV. PHYSICAL PROPERTIES

1. Physical state at 70°F — Liquid
2. Viscosity at 70°F — < 10 mPa/s
3. Is waste multilayered? — No
3.d. Suspended Solids: — 1% to 10%
3.e. Flash Point: — > 200 °F
3.f. Color: — Light Brown/Orange with Visible Solids
4. Does the waste contain polychlorinated biphenyls (PCB)? NO.
5. Does the waste contain organics? Yes, approximately 0% to 1%.

## V. SPECIFIC ANALYSIS OF WASTE

| PARAMETER (unit) | MINIMUM | MAXIMUM | AVERAGE | [illegible] |
|---|---|---|---|---|
| Chloride (Mol/l) | 0.0E+00 | 1.0E-02 | 8.0E-03 | Sample Results |
| Energetics (DSC/TGA) | No Exotherms | No Exotherms | No Exotherms | Sample Results |
| Hydroxide (Mol/l) | 0.0E+00 | 7.0E-01 | 2.0E-02 | Process Knowledge |
| Moisture | 85% | 98% | 90% | Process Knowledge |
| Nitrate (Mol/l) | 0.0E+00 | 1.0E+00 | 2.0E-01 | Sample Results |
| Nitrite (Mol/l) | 0.0E+00 | 1.0E+00 | 2.0E-01 | Sample Results |
| Organics, separable (visible or non-visible organic layer) | None | Trace | None | Process Knowledge |
| pH | 7.0 | 13.5 | 12.5 | Sample Results |
| Plutonium 239/240 (μCi/ml) | 0.0E+00 | 7.22E-05 | 3.61E-05 | Sample Results |
| Solids (volume %) | 0 | 15 | 5 | Sample Results |
| Specific Gravity | 9.5E-01 | 1.15E+00 | 1.0E+00 | Sample Results |

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[illegible] 9/17/99

## VI. REACTIVITY AND STABILITY

1. What are the Reactivity Group Number(s) for this waste? (See Design and Development of Hazardous Waste Reactivity Testing Protocol, "EPA Document No. EPA-600/2-84-057, February 1984.)

   The reactivity group numbers for this waste are #106 and #10 - Caustics

2. Is this material stable? <u>Yes</u>

3. Is this material shock sensitive? <u>No</u>

## VII. DANGEROUS WASTE INFORMATION

1. Is this waste a dangerous waste as defined by WAC 173-303? Yes

| [illegible] | [illegible] |
|---|---|
| D002 | pH of waste may be >12.5 at the point of generation. |
| D004,D005, D006, D007, D008, D009, D010, D011 | May contain Ba, Cd, Cr, Pb, Hg, Se, and/or Ag in excess of WAC 173-303-090 limits |
| D018, D019, D022, D028, D029, D030, D033, D034, D035, D038, D039, D040, D043 | Waste may contain these chemicals in excess of TCLP threshold values; or, wastes from analysis of SST/DST, which are designated by process, knowledge result in these codes |
| F001, F002, F003, F004, F005 | These solvents are no longer used in decontamination operations but are included because the waste tanks once contained these solvents. |
| WT01/WT02 | Waste may exceed WAC 173-303-100 criteria |
| WP01, WP02 | Waste may exceed WAC 173-303-100 criteria |

3. Is this waste a mixed waste? <u>Yes</u>

4. List any CERCLA reportable quantities applicable to the waste.

| CONSTITUENT | [illegible] |
|---|---|
| Various Radionuclides | 1 to 1000 Ci |

## VIII. LAND DISPOSAL RESTRICTION INFORMATION

**The waste covered by this profile may contain any one or a combination of the following dangerous waste codes.**

| WASTE CODE [illegible] | WASTE DESCRIPTION | [illegible] | [illegible] | [illegible] | [illegible] |
|---|---|---|---|---|---|
| D002 | Corrosive | wastewater | | DEACT | 100 |
| D004 | Arsenic | wastewater | Arseni | 5.0 mg/L | 1 |
| D005 | Barium | wastewater | Bariu | 100 mg/: | 1.000 |
| D006 | Cadmium | wastewater | Cadmiu | 1.0 mg/L | 10 |
| D007 | Chromium | wastewater | Chromiu | 5.0 mg/L | 10 |
| D008 | Lead | wastewater | Lea | 5.0 mg/L | 10 |
| D009 | Mercury | wastewater | Mercur | 0.20 mg/L | 1 |
| D010 | Selenium | wastewater | Seleniu | 1.0 mg/L | 10 |
| D011 | Silver | wastewater | Silve | 5.0 mg/L | 1 |
| D018 | Benzene | wastewater | Benzen | 0.14 mg/L | 10 |
| D019 | Carbon Tetrachloride | wastewater | Carbon tetrachlorid | 0.057 mg/L | 10 |
| D021 | Clorobensene | wastewater | Clorobenzen | 0.057 mg/L | 100 |
| D022 | Chloroform | wastewater | Chlorofor | 0.046 mg/L | 10 |
| D027 | 1,4-Dichlorobenzene | wastewater | 1,4-Dichlorobenzen | 0.090 mg/L | 100 |
| D028 | 1,2Dichloroethane | wastewater | 1,2 Dichloroethan | 0.21 mg/L | 100 |
| D029 | 1,1 Dichloroethylene | wastewater | 1,1-Dichloroethylen | 0.025 mg/L | 100 |
| D035 | Methyl ethyl ketone | wastewater | Methyl ethyl keton | 0.28 mg/L | 5,000 |
| D038 | Pyridine | wastewater | Pyridin | 0.014 mg/L | 1,000 |
| D039 | Tetrachloroethylene | wastewater | Tetrachloroethylen | 0.56 mg/L | 100 |

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**Parameters For Operational Decisions**

Fill in the following chart giving maximum, minimum, or averages for each specific analyte. Also state whether this information is based on process knowledge or actual analytical data. This information suplements the information on the Waste Stream Profile Sheet which is required by the DST Waste Analysis Plan.

| PARAMETER (moles/liter) | MINIMUM (specify units) | MAXIMUM (specify units) | AVERAGE (specify units) | BASIS (Process Knowledge or Analysis) |
|---|---|---|---|---|
| Aluminum | 0.0E+00 | 2.0E-02 | 4.0E-5 | Analysis |
| Americium 241 | 0.0E+00 | 9.38E-05 | 4.69E-05 | Analysis |
| Carbonate | 0.0E+00 | 2.0E-02 | 8.0E-03 | Analysis |
| Cesium 137 | 0.0E+00 | 3.45E-02 | 1.77E-02 | Analysis |
| Cyanide | 0.0E+00 | 4.0E-03 | 2.0E-03 | Analysis |
| Flouride | 0.0E+00 | 3.0E-03 | 1.2E-03 | Analysis |
| Phosphate | 0.0E+00 | 5.0E-01 | 2.0E-01 | Analysis |
| Plutonium 239/240 | 0.0E+00 | 7.22E-05 | 3.61E-05 | Analysis |
| Sodium | 0.0E+00 | 2.2E+00 | 6.5E-01 | Analysis |
| Total Dissolved Solids, % | 0.0E+00 | 1.5E+01 | 5.4E+00 | Analysis |
| Strontium 90 | 0.0E+00 | 6.14E-02 | 3.07E-02 | Analysis |
| Sulphate | 0.0E+00 | 5.0E-02 | 1.3E-02 | Analysis |
| Total alpha | 0.0E+00 | 1.64E-04 | 8.3E-05 | Analysis |
| Total Fuel content | NO EXOTHERMS | NO EXOTHERMS | NO EXOTHERMS | Analysis |
| Organic Carbon | 0.0E+00 | 1.0E+03 | 6.0E+02 | Analysis |

# Appendix IV - W-259 Integrity Assessment Findings

EPT-620571 3/3

**DON'T SAY IT — *Write It!***

TO: Gary Kad
cc: John Gauther T3-30

DATE: February 2, [illegible]
FROM: C. R. Zook S4-30
Telephone: 372-3725

SUBJECT: W-259 Integrity Assessment Findings

The Integrity Assessment stated that "Tank vendor did not indicate whether UBC requirements were considered during design." This particular statement was referring to nozzle loads and stresses.

In response refer to calculation W-259-m-02 which calculates the loads applied on to the nozzles be the pipe. This is an Autopipe computer analysis, which considers gravity, thermal growth and seismic loads. It was modeled such that each nozzle was treated as an anchor so any load from the pipe in transmitted into the tank nozzles.

Upon examining the various nozzles loads I find that the largest loads transmitted to the piping nozzles are 135-lbs. force and 78 ft-lbs. This happens to be a 2" inlet pipe in the large tank.

The tank vendor's analysis is based on conservative loads we imposed in the procurement specification. The vendor was to design all piping nozzles 2" and larger to take a 500 lb. Force and a 750 ft-lb. moment. These are the loads used in the analysis when stresses approaching yield were calculated.

I do not consider this a problem because of the conservatism in the calculation. They do not have to consider UBC as it was considered when the design loads were established.

February 4, 1999

The above response is satisfactory and responds to my concerns.

James Divine, PhD, PE
Chief Engineer
ChemMet, Ltd., PC
West Richland, WA 99353

EXPIRES 01/11/02

A-3000-723 (01/98)

# APPENDIX 7A

# BUILDING EMERGENCY PLAN FOR T PLANT COMPLEX

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This plan covers the following buildings and structures: T Plant Complex, including 211-T, 214-T, 221-T, 221-TA, 221-TB, 271-T, 277-T, 291-T, 292-T, 2706-T, 2706-TA, 2706-TB, 2712-T, 2715-T, 2716-T, MO-739, M0-892, MO-433, MO-906, MO-369, 225-WA, MO-459, and various conex boxes.

Approved:

Facility Management — Date 8/20/02

Environmental Compliance Officer — Date 8/20/02

Hanford Fire Department — Date 8/21/02

Fluor Hanford Emergency Preparedness — Date 8-22-02

This document will be reviewed at least annually and updated if necessary by Facility Management unless Hanford Facility RCRA Permit coordination requirements provide otherwise. The Building Emergency Director has the authority to carry out the provisions in this plan.

TABLE OF CONTENTS

## 1.0 GENERAL INFORMATION

The T Plant Complex is located on the Hanford Site, a 560-square-mile (1,450-square kilometer) U.S. Department of Energy (DOE) site in southeastern Washington State. The T Plant Complex is located in the 200 West Area near the center of the Hanford Site. The Hanford Site Emergency Preparedness Program is based on the incident command system that allows a graded approach for response to emergency events. This plan contains a description of facility-specific emergency planning and response and is used in conjunction with DOE/RL-94-02, *Hanford Emergency Management Plan*. Response to events is performed using facility-specific and/or Hanford Site level emergency procedures.

### 1.1 Facility Name:

U.S. Department of Energy
Hanford Site
T Plant Complex

### 1.2 Facility Location:

Benton County, Washington within the 200 West Area.

Buildings/facilities covered by this plan are:

| | |
|---|---|
| 211-T | Waste Storage Area |
| 214-T | Chemical/Waste Storage Facility |
| 221-T | Building |
| 221-TA | Ventilation Supply |
| 221-TB | Vacant Storage Trailer |
| 271-T | Office Annex |
| 277-T | Material Storage Facility |
| 291-T | Ventilation Stack Complex (stack, HEPA filter banks, and sand filters) |
| 292-T | Vacant (former Fission Products Release Lab) |
| 2706-T | Building |
| 2706-TA | Building |
| 2706-TB | Waste Storage Tank Building |
| 2712-T | Compressor Building |
| 211T-52 | Building |
| 2715-T | Material Storage |
| 2716-T | Tunnel Change Facility |
| MO-739 | Change Facility |
| MO-892 | Incident Command Post and Training |

| | |
|---|---|
| MO-433 | 2706-T Change Facility |
| MO-459 | Women's Change Facility |
| MO-906 | Construction Trailer |
| *MO-369 | Mobile Office |
| 225-WA | Liquid Lift Station |

* Although not residing within the Treatment, Storage, and Disposal (TSD) unit boundary, this trailer is included due to its close proximity to the TSD unit and associated hazards.

The T Plant Complex maintains the following Portable Storage Modules, which store waste, laundry, equipment, chemicals, etc.:

| | |
|---|---|
| HS-030 | Chemical Storage Module |
| HS-031 | Chemical Storage Module |
| HS-032 | Waste Storage Module |
| CC2W0128 | Equipment Storage Module |
| CC2W0129 | Equipment Storage Module |
| CC2W0130 | Maintenance Support Module |
| CC2W0131 | Equipment Storage Module |
| CC2W0132 | Maintenance Storage Module |
| CC2W0133 | Equipment Storage Module |
| CC2W0135 | Storage Module |
| CC2W0136 | Equipment Storage Module |
| CC2W0137 | Equipment Storage Module |
| CC2W0140 | Laundry/Material Storage Module |
| CC2W0141 | Laundry Storage Module |
| CC2W0142 | Equipment Storage Module |
| MO-573 | Temporary Construction Support Trailer |
| MO-972 | Temporary Construction Support Trailer |

**1.3 Owner:**

U.S. Department of Energy
Richland Operations Office
825 Jadwin Avenue
Richland, Washington 99352

**Facility Manager:**

Fluor Hanford
P.O. Box 1000
Richland, Washington 99352-1000

## 1.4 Description Of The Facility And Operations

The T Plant Complex is located in the 200 West Area of the Hanford Facility and consists of two main structures, the 221-T Building (221-T) and the 2706-T Complex (2706-T, -TA, -TB). The 221-T Building and 2706-T Complex are used for the storage (tank, container, and miscellaneous) and treatment (tank, container, macroencapsulation, solidification, neutralization, repackaging, and decontamination activities) of mixed, dangerous waste, low-level waste, and transuranic (TRU) waste before transfer to a permitted treatment, storage, and disposal (TSD) unit. The storage buildings and pads located outside the 2706-T Complex also are used to store, sample, and treat containerized, mixed, dangerous, low-level, and TRU waste until transferred to a permitted TSD unit. Waste can be stored and treated anywhere within the TSD unit boundary.

A general description of the primary functions of T Plant Complex follows.

- 221-T Building

The 221-T Building is the largest structure in the T Plant Complex. The 221-T Building, a concrete, canyon-type building, is 260 meters long, 21 meters wide, and 23 meters high. The 221-T canyon deck and cells store contaminated process equipment (including pumps, jumpers, , etc.). Other cells contain the 221-T RCRA Tank System. This tank system was used to collect liquid waste generated as a result of decontamination activities, rainwater infiltration, or collection of other liquid waste (e.g., sample returns). These tanks have been engineered and administratively isolated to prevent any additions to this tank system. One cell (2R) has been converted to store the Pressurized Water Reactor (PWR) Core II spent fuel blanket assemblies. At a future date, these fuel assemblies will be removed from the spent fuel pool, loaded into a Shippingport Spent Fuel Canister, dried, purged, and relocated to the Canister Storage Building.

The 221-T canyon and railroad tunnel are maintained at a negative differential pressure. The main exhaust system (291-T stack) consists of two fans in series (20,000 cubic feet per minute each) and one redundant (40,000 cubic feet per minute) fan that pull canyon air past the cell cover blocks down into the cells thorough HEPA filtration and out the 291-T stack. Controls for the three exhaust fans are located on the west side of 291-T.

The railroad tunnel is used for transporting equipment and material into and out of the 221-T canyon. The railroad tunnel provides the area for liquid waste transfer car (LWTC) certifications, repair, decontamination, loading, treatment, storage, sampling, and repackaging of low-level and mixed waste. Final disposition of the PWR Core II blanket fuel assemblies will require this area to be accessible.

The 221-T head end was partitioned off from the 221-T Building by a sheet-metal wall. The head end area consists of one large cell, a control room, laboratories, change room, maintenance shops, a high bay work area, and a vehicle access ramp. The head end is used for treatment, storage, sampling, repackaging, and decontamination activities.

- 221-T R-5 Storage Pad

The 221-T R-5 Storage Pad is an uncovered asphalt storage area located on the northeast side of the 221-T Building. The 221-T R-5 Storage Pad has no secondary containment system with the exception of portable secondary containment systems. The 221-T R-5 Storage Pad stores waste (e.g., low-level, mixed, dangerous) and equipment of various sizes and volumes.

- 211-T Cage and 221-T Pad

The 211-T Cage consists of a concrete floor split into two sections separated by a concrete berm. Each floor section slopes to a sump. The cage has a roof, but no walls. The 211-T Pad, constructed of concrete, is curbed on three sides and slopes to a sump.

- 214-T Storage Building

The 214-T Storage Building is located on the west side of the 221-T Building near the railroad tunnel. This building is used to store chemicals and waste (low-level mixed and dangerous) in segregated areas. The floor is covered with a chemical-resistant coating and divided by a raised berm. The 214-T Storage Building fire detectors are connected to the 2706-T Building fire alarm.

- 271-T Cage

The 271-T Cage is used for the storage of dangerous waste, including non radioactive PCB's, as well as recyclable materials. The 271-T Cage has a roof, but no walls.

- 2706-T Building

The 2706-T Complex consists of the 2706-T Building, 2706-TA Building, -2706-TB Tank Waste Storage Building, 2706-T Storage Pad, other storage pads, and conex boxes. A fence surrounds the 2706-T Complex and the 2706-T yard that is paved and is used as outdoor waste container storage. The 2706-T Building has openings on the east and west ends (leading to 2706-TA) fitted with roll-up metal doors. An overhead crane is available for maintenance use and for moving equipment, and travels the length of 2706-T Building. An exhaust stack on the southwest side has HEPA filtration and confirmatory sampling is provided. The chemical addition room is located on the north side of 2706-TA where chemicals are added to the liquid mixed waste stored in tanks T-XX-2706-220 and T-XX-2706-221 to adjust pH to meet receiving TSD unit waste acceptance criteria. The 2706-T and TA Buildings are used for decontamination, treatment and storage activities (e.g., removal or reduction of radionuclides and dangerous waste). The 2706-T and TA Buildings are used to decontaminate railroad equipment, buses, trucks, automobiles, cranes, earth moving equipment, and large pieces of plant process equipment by using air, steam, water, chemicals, abrasive blasting, ice blasting, and/or other methods to remove the contamination. The liquid waste generated by this process is collected in the railroad sump, or in the 2706-TA sump. Liquid collected in the railroad sump is transferred to the 2706-TA sump. Liquid waste in the 2706-TA sump is transferred to two waste storage tanks in the 2706-TB Building through parallel in-line cartridge filters. Liquid waste from the decontamination waste storage tanks is pumped to tanker trucks for transfer to a permitted TSD unit. The 2706-T and TA Buildings are also used to treat waste (e.g., macroencapsultion, solidification, neutralization, absorption, repackaging, puncturing of aerosol cans, etc.), sample, characterize, and repackage waste. Mixed, low-level, or TRU waste generated by treatment and decontamination processes is placed in approved containers for storage until transferred to a permitted TSD unit. The HVAC drains are collected in a sump that is pumped to the 2706-T sump. Floors and rails in 2706-TA are sloped to drain to the 2706-T railroad pit. 2706-TA contains a sump, pumps, and filters for liquid transfers to 2706-TB, as well as recirculation lines and sampling stations for the decontamination waste storage tanks.

The 2706-T Storage Pad is located west of the 2706-T Complex. The pad is asphalt covered with no secondary containment system with the exception of portable secondary containment systems. This pad can store containerized waste and equipment of various sizes. This pad can store mixed, low-level, and TRU waste.

The 2706-TB Tank Storage Building contains two waste treatment and storage tanks of 56,800 liter and 22,700 liter capacity. A chemical addition room is on the west side. The 2706-TB contains a secondary containment basin located beneath the floor grating to collect and contain leaks or spills as well as a 20 minute deluge from a sprinkler activation. The basin can hold 56,781 liters. The basin contains a collection sump with a pump to transfer liquids out of secondary containment back into one or both of the tanks.

- Treatment and Storage Pad

The Treatment and Storage Pad is an uncovered concrete area for storage and treatment of mixed and low-level waste. This pad has no secondary containment system with the exception of portable secondary containment systems. This pad can store various sizes of containerized waste and equipment. This pad is located to the southwest of 221-T Building.

### 1.5 Building Evacuation Routing

Figure 1 provides identification of the primary and secondary staging areas and a general layout of the T Plant Complex. Alternate evacuation routes will be used on a case-by case basis, based on meteorological conditions at the time of the event.

**T Plant Complex**
**Emergency/Event Response Layout**

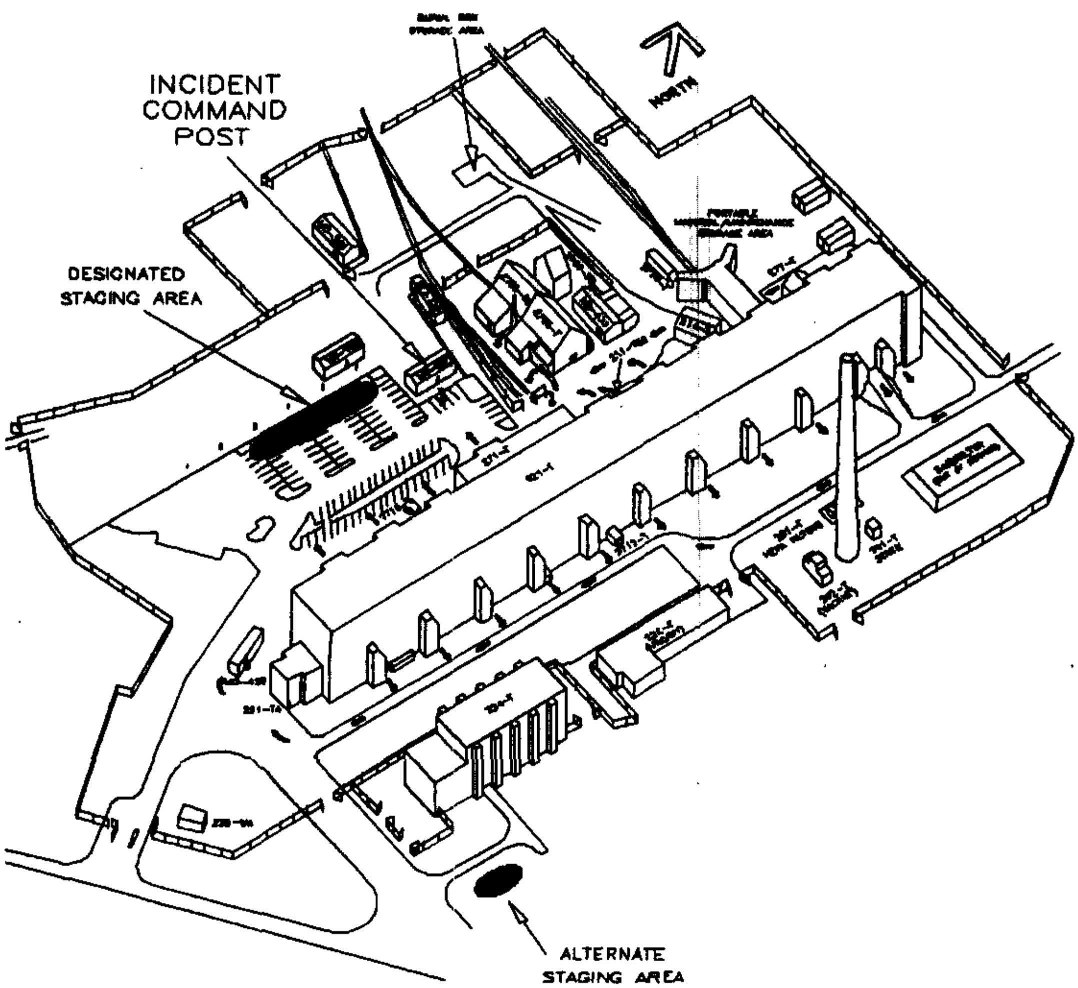


**Figure1. T Plant Complex Routes and Staging Areas**

## 2.0 PURPOSE

This plan describes both the facility hazards and the basic responses to upset and/or emergency conditions within the T Plant Complex. These events may include spills or releases caused by processing, fires and explosions, transportation activities, movement of materials, packaging, storage of hazardous materials, and natural and security contingencies. When used in conjunction with DOE/RL-94-02, this plan meets the requirements for contingency planning as required by WAC 173-303.

## 3.0 FACILITY/BUILDING EMERGENCY RESPONSE ORGANIZATION

The T Plant Complex maintains a weekly on-call list for technical expert notification. On notification, the on-call person notifies the primary or alternate Building Emergency Director (BED) to respond to the scene in person as necessary. The on-call technical expert maintains contact with the on-scene Incident Commander (IC) until T Plant Complex personnel arrive.

### 3.1 Building Emergency Director

Emergency response will be directed by the BED until the IC arrives. The incident command system (ICS) and staff, with supporting on-call personnel, fulfill the responsibilities of the Emergency Coordinator as discussed in WAC 173-303-360. During events, T Plant Complex personnel perform response duties under the direction of the BED. The Incident Command Post (ICP) is managed by either the senior Hanford Fire Department member present or senior Hanford Patrol member present on the scene (security events only). These individuals are designated as the IC and as such have the authority to request and obtain any resources necessary for protecting people and the environment.

The BED becomes a member of the ICP and functions under the direction of the IC. In this role, the BED continues to manage and direct T Plant Complex operations.

A listing of BEDs by title, work location and work telephone number is contained in Section 13.0 of this plan. The BED is on the premises or is available through an "on-call" list 24-hours-a-day. Names and home telephone numbers of the BEDs are available from the Patrol Operations Center (POC), in accordance with *Hanford Facility RCRA Permit*, Dangerous Waste Portion, General Condition II.A.4.

### 3.2 Other Members

As a minimum, Facility Management appoints and ensures training is provided to individuals to perform as Personnel Accountability Aides and Staging Area Managers. The Personnel Accountability Aides are responsible for facilitating the implementation of protective actions (evacuation or take cover) and for facilitating the accountability of personnel after the protective actions have been implemented. Staging Area Managers are responsible for coordinating and conducting activities at the Staging Area. In addition, the BED can identify additional support personnel (Radiological Control, Maintenance, Engineering, Hazardous Material Coordinators, etc.) to be part of the Facility/Building Emergency Response Organization.

The complete Facility/Building Emergency Response Organization listing of positions, names, work locations, and telephone numbers for the T Plant Complex is maintained in a separate location in a format determined appropriate by T Plant Complex management. Copies are distributed to appropriate T Plant Complex locations and to Emergency Preparedness.

## 4.0 IMPLEMENTATION OF THE PLAN

The BED ensures that trained personnel identify the character, source, amount and areal extent of the release, fire, or explosion to the extent possible. Identification of waste can be made by activities that can include, but are not limited to, visual inspection of involved containers, sampling activities in the field, reference to inventory records, or by consulting with facility personnel. Samples of materials involved in an emergency might be taken by qualified personnel and analyzed as appropriate. These activities must be performed with a sense of immediacy and shall include available information.

The BED shall use the following guidelines to determine if an event has met the requirements of WAC 173-303-360(2)(d):

1. The event involved an unplanned spill, release, fire, or explosion,

AND

2.a The unplanned spill or release involved a dangerous waste, or the material involved became a dangerous waste as a result of the event (e.g., product that is not recoverable), or

2.b The unplanned fire or explosion occurred at the T Plant Complex or transportation activity subject to RCRA contingency planning requirements,

AND

3. Time-urgent response from an emergency services organization was required to mitigate the event, or a threat to human health or the environment exists.

As soon as possible, after stabilizing event conditions, the BED shall determine, in consultation with the FH Site contractor environmental single-point-of-contact, if notification to Ecology is needed to meet WAC-173-303-360 (2)(d) reporting requirements. If all of the conditions under 1, 2, and 3 are met, notifications are to be made to Ecology. Additional information is found in DOE/RL-94-02, Section 4.2.

If review of all available information does not yield a definitive assessment of the danger posed by the incident, a worst-case condition will be presumed and appropriate protective actions and notifications will be initiated. The BED is responsible for initiating any protective actions based on their best judgement of the incident.

The BED must assess each incident to determine the response necessary to protect the personnel, facility, and the environment. If assistance from Hanford Patrol, Hanford Fire Department, or ambulance units is required, the Hanford Emergency Response Number 911 must be used to contact the POC and request the desired assistance. To request other resources or assistance from outside the T Plant Complex, the POC business number is used (373-3800).

## 5.0 FACILITY HAZARDS

### 5.1 Hazardous Materials

Hazardous materials are stored and used throughout the T Plant Complex. The T Plant Complex maintains a variety of chemicals (greases, lubricants, oils, solvents, detergents, paint products, etc.) used primarily for maintenance and decontamination operations (degreasing agents, caustic and acidic agents). Primary storage areas are located in the 211-T, 214-T, 221-T, 2706-T Buildings, 221 T R-5, treatment and storage pad, and 271-T. The primary areas where hazardous materials for decontamination operations are in use are the 221-T and 2706-T Buildings. Maintenance chemicals are used throughout the T Plant Complex.

Hazardous material inventories are maintained at each of the chemical storage areas. A master inventory of hazardous chemicals is maintained by the Environmental Compliance Officer/Chemical Inventory Coordinator. Material safety data sheets are maintained by the Project Operations group for reference by personnel.

The acidic and caustic solutions stored and used are corrosive and could cause chemical burns. Uncontrolled chemical reactions from potentially reactive materials could lead to fire, explosion, and release of radioactive and dangerous constituents.

Asbestos materials are found in older structures in the T Plant Complex. A release of friable asbestos to the environment or within these older structures would pose a respiratory health hazard.

### 5.2 Industrial Hazards

Hazards associated with industrial accidents can include injuries from accidents with moving equipment (e.g., railcars, cranes, hoists), falls, and radiological or chemical exposure from spilled waste or chemicals.

### 5.3 Dangerous/Mixed Waste

The T Plant Complex is permitted by Ecology as a treatment and storage unit and thus manages various types of dangerous and mixed waste. T Plant Complex-generated waste includes, but is not limited to, maintenance wastes, paint waste, decontamination waste, excess chemicals, and step-off pad waste. These waste types are managed in storage areas throughout the T Plant Complex. In addition, waste verification, repackaging, and treatment activities for the Hanford Site as well as offsite generators are performed. Liquid waste is accumulated in the active tank system. Liquid waste from 2706-T and

-TA decontamination and waste treatment activities is accumulated in the 2706-TB waste storage tanks. T Plant Complex Waste Operations is primarily responsible for maintaining the waste management areas. Liquid waste additions to the 221-T RCRA Tank System have been eliminated through administrative and engineering controls. Liquid and sludge waste remaining in the 221-T RCRA Tank System is monitored daily.

### 5.4 Radioactive Materials

Radioactive materials are removed during the decontamination process of contaminated equipment, and are generated from areas of unconfined or unencapsulated radioactive material.

The equipment to be decontaminated or treated is potentially contaminated with alpha and beta-gamma-emitting radionuclides.

Equipment, waste tanks, and the PWR Pool contain fissile materials.

### 5.5 Criticality

Approximately 139 kilograms of plutonium and 16,466 kilograms of depleted uranium distributed throughout 16,605 kilograms of fuel are stored in Section 2, Cell 4 of the 221-T Canyon. These fuel elements have been loaded into storage racks and totally submerged in water. The water periodically is run through an ion exchange column to remove radioactive contamination that is present.

The 221-T Canyon decontamination and repair area is classified as a limited control facility. This is defined as a facility that can contain more than one third of a minimum critical mass of fissionable material; however, the form and distribution of the material precludes a criticality accident.

Upon approval by DOE-RL, the 2706-T Complex and up to two adjacent areas could be designated as Isolated Facilities or Areas, which could contain a maximum of one third of a minimum critical mass, equivalent to 177 fissile grams equivalent (FGE).

Other buildings or areas (e.g., storage pads) are maintained as Exempt Facilities, which could contain a maximum of 3 percent of a minimum critical mass, equivalent to 15 FGE.

## 6.0 POTENTIAL EMERGENCY CONDITIONS

Potential emergency conditions, under both WAC 173-303 and the DOE, may include one of three basic categories: 1) operations ( process upsets, fires and explosions, loss of utilities, spills, and releases), 2) natural phenomena (e.g., earthquakes), and 3) security contingencies (bomb threat, hostage situation, etc.). The following are conditions that may lead to an emergency at the T Plant Complex.

### 6.1 Facility Operations Emergencies

#### 6.1.1 Loss of Utilities

**Loss of Electricity**

A loss of electrical power could include the loss of air balance affecting contamination control and the loss of complex alarms. The associated hazard is exposure to radiation hazards, loss of radiological and other monitoring capabilities, and personnel isolated in areas of darkness.

**Loss of Water**

Water loss will cause the loss of safety showers, decontamination showers, and the fire suppression system also are possible results of a water loss. Inability to add water to the PWR pool system could result in an unacceptable low water level over the fuel assemblies. Scaling back of activities may be appropriate as directed by facility management.

**Loss of Ventilation**

Ventilation loss could result in the loss of contamination control, potentially producing a radiological exposure hazard and contamination spread.

#### 6.1.2 Major Process Disruption/Loss of Plant Control

During PWR Core II fuel assembly movement, a partially or completely dropped or immobilized fuel element could result in an operational upset condition.

#### 6.1.3 Pressure Release

Pressure hazards include uncontrolled releases of process and compressed air and exposure to hot surfaces.

#### 6.1.4 Fire and/or Explosion

A fire or explosion could result in the release of dangerous and/or radioactive constituents to the air or ground. Fire associated with flammable materials could cause smoke damage to electronic devices and other containment controls, resulting in a release of hazardous materials. Flame impingement could weaken structural components and result in failure of a containment system.

#### 6.1.5 Hazardous Material Spill

Hazards associated with a spill include potential exposure to radioactive, corrosive, and toxic material, as well as environmental damage.

#### 6.1.6 Dangerous/Mixed Waste Spill

An uncontrolled release of stored mixed waste could produce airborne radioactive contamination, as well as pose a risk to human health or the environment.

#### 6.1.7 Transportation and/or Packaging Incidents

Hazardous, low-level, and mixed waste is received and transferred/shipped in various U.S. Department of Transportation-approved containers or other approved containers. Damaged shipping containers could result in chemical and/or radiological releases to the environment and exposure to personnel.

#### 6.1.8 Radiological Material Release

**Gaseous Effluent Discharges (Stack Releases)**

Hazards associated with stack releases include personnel and environmental exposure to airborne radioactive contamination, and downwind contamination by surface deposition.

**Liquid Effluent Discharges**

The Waste Water System is a fully automated liquid collection and transfer system designed to collect waste water generated from floor drains. Collected wastewater is pumped automatically to a lift station located within the T Plant Complex where the effluent is pumped to the 200 Area Treated Effluent Disposal Facility. The system is made up of three major parts: Head End Catch Tank and Pump, Electrical Gallery Catch Tanks and Pumps, and the 225-WA Lift Station.

**Significant Contamination Spread/Releases**

Significant contamination spread or release poses inhalation hazards and could involve hazards including exposure to radioactive, toxic, corrosive, or flammable materials, depending on the nature of the release.

#### 6.1.9 Criticality

A criticality could result in an increased personnel exposure to radiation with a possible release of radionuclides from the T Plant Complex. However, a criticality safety evaluation shows that a criticality is an incredible event. Criticality safety depends on controlling the form, amount, and distribution of fissionable material and limiting fissionable quantities to exempt or isolated limits in other areas.

Approximately 139 kilograms of plutonium and 16,466 kilograms of depleted uranium distributed throughout 16,605 kilograms of reactor fuel are stored in Section 2, Cell 4 of the 221-T Canyon. These fuel elements have been loaded into storage racks and are totally submerged in water.

The PWR Core II blanket assemblies in a flood condition have an infinite multiplication factor ($k_{eff}$) for a total of 0.89. The most reactive single blanket assembly has a $k_{eff}$ of 0.91. Subcriticality of the blanket assemblies is assured under these circumstances.

## 6.2 Natural Phenomena

Natural phenomena are discussed in the following sections.

### 6.2.1 Seismic Event

Depending on the magnitude of the event, severe structural damage can occur resulting in serious injuries or fatalities and the release of hazardous materials to the environment. Damaged electrical circuits and wiring could result in the initiation of fires.

### 6.2.2 Volcanic Eruption/Ash fall

Though not expected to cause structural damage, the ash resulting from a volcanic eruption could cause shorts in electrical equipment and plug ventilation system filters.

### 6.2.3 High Winds/Tornados

High winds or tornados may cause structural damage to systems containing hazardous materials, resulting in a release of the materials to the environment.

### 6.2.4 Flood

Flooding can cause the release of hazardous materials depending on the type of storage containers. Floods can also cause short circuits in electrical wiring located at or below ground level. This may then result in an increased likelihood of fires. However, calculations of the "probable maximum flood" that could occur in the Columbia River Basin indicate that maximum flood conditions would pose no threat to the T Plant Complex.

### 6.2.5 Range Fire

The hazards associated with a range fire are the same as those associated with a building fire plus potential site access restrictions and travel hazards such as poor visibility.

### 6.2.6 Aircraft Crash

In addition to the potential for serious injuries or fatalities, an aircraft crash could result in the direct release of hazardous materials to the environment or cause a fire that could lead to the release.

## 6.3 Security Contingencies

Security contingencies are discussed in the following sections.

### 6.3.1 Bomb Threat/Explosive Device

A bomb threat may be received by anyone who answers the telephone or receives mail. The major effect on the T Plant Complex is that personnel will need to perform an emergency shutdown of the facility before evacuation. If an explosive device detonates, the effects are the same as those discussed under fire and explosion.

### 6.3.2 Hostage Situation/Armed Intruder

A hostage situation or the entry of an armed hostile intruder(s) can pose an emergency if either of these conditions has the potential to adversely affect facility operations. This could result in a loss of facility control or the coercion of an employee to take some malevolent action.

### 6.3.3 Suspicious Object

If a suspicious object is discovered, the major effect on the T Plant Complex is that personnel will need to perform an emergency shutdown of the facility before evacuation.

## 7.0 INCIDENT RESPONSE

The initial response to any emergency is to immediately protect the health and safety of persons in the affected area. Identification of released material is essential to determine appropriate protective actions. Containment, treatment, and disposal assessment are secondary responses.

The following sections describe the process for implementing basic protective actions, as well as descriptions of response actions for the events listed in Section 6.0 of this plan. DOE/RL-94-02, Section 1.3, provides concept of operations for emergency response on the Hanford Site.

This section provides a discussion of protective action responses, response to facility operations emergencies, response to natural phenomena, and response to security contingencies. In addition, a section addressing prevention of secondary release, fires or explosions, is provided.

### 7.1 Protective Action Responses

Protective actions responses are discussed in the following sections. The steps identified in the following description of actions do not have to be performed in sequence because of the unanticipated sequence of incident events.

### 7.1.1 Evacuation

If an evacuation is ordered or the evacuation siren sounds, personnel must leave the building by the nearest exit and proceed to the Designated Staging Area for accountability unless told otherwise.

Locations of the staging areas are identified as follows.

| Staging Areas | Area | Location |
|---|---|---|
| Designated Staging Area | 200 West | West Parking Lot |
| Alternate Staging Area | 200 West | Southeast of 224-T |

The order to evacuate l normally is passed via the Site Crash Alarm Telephone System. Because there are not enough crash telephones to cover all occupied facilities, those personnel on the Crash Alarm Telephone System must ensure that all nearby occupied structures are also evacuating. When possible, the following steps must be conducted concurrently.

| AREA EVACUATION PROCESS |
|---|
| Halt any operations or work and place the structures in a safe condition, time permitting. Use emergency shutdown procedures if necessary. |
| Use whatever means are available (PAX system, bullhorns, runners, etc.) to pass the evacuation information to personnel. |
| Sound the evacuation siren (if available), or issue the order to evacuate by any available means. |
| Evacuate personnel to the staging area. Assist those needing help (temporary/permanent/ disabled). |
| Conduct personnel accountability. If unable to account for personnel, report personnel accountability results to the Hanford-Emergency Operations Center (Hanford-EOC) (373-1786, 373-3876, 376-8612, 376-4712). |
| Inform IC of any potentially affected personnel (i.e., injured, contaminated, exposed, etc.) once the IC arrives at the ICP. |
| Segregate personnel into four groups: PPE clothing clad personnel, persons with keys to immediately available private vehicles, persons with keys to government vehicles, and all others. |
| Load personnel in civilian clothes into private and government vehicles, load PPE clad persons into a separate government vehicle, if possible, and try to provide reserve transportation for people with late shutdown duties. |
| Relay pertinent evacuation information (routes, destination, etc.) to personnel with vehicle keys. |
| Dispatch vehicles as soon as vehicles are loaded. |
| Load remaining personnel into private vehicles, maintaining segregation if possible. |
| Report status to the Hanford-EOC, request additional transportation if required, and report if any personnel remain who are performing late shutdown duties. |

### 7.1.2 Take Cover

When the Take Cover Alarm is activated, personnel take cover in the nearest building or trailer. A message followed by the Take Cover siren is transmitted over the area emergency sirens. The following actions must be taken or considered:

- Shut doors and windows and wait for further instructions.
- Secure unfiltered ventilation.
- Lock up classified documents, follow normal exit procedures from radiological areas (in preparation for a possible evacuation) etc.
- Report your location to the Accountability Aide or the BED.
- Accountability Aides provide accountability status to the Staging Area Manager for facility personnel during an event.
- Inform IC of potentially affected personnel (i.e., injured, contaminated, exposed, etc.) once the IC arrives at the ICP.

## 7.2 Response To Facility Operations Emergencies

Depending on the severity of the event, the BED reviews the site-wide and T Plant Complex emergency response procedure(s) and, as required, categorizes and/or classifies the event. If necessary, the BED initiates area protective actions and Hanford Site Emergency Response Organization activation. The steps identified in the following description of actions do not have to be performed in sequence because of the unanticipated sequence of incident events. Attachment A provides a list of procedures.

### 7.2.1 Loss of Utilities

A case-by-case evaluation is required for each event to determine loss of utility impacts. When a BED determines a loss of utility impact, actions are taken to ensure dangerous and/or mixed waste is being properly managed, to the extent possible given event circumstances. As necessary, the BED will stop operations and take appropriated actions until the utility is restored.

### 7.2.2 Major Process Disruption/Loss of Plant Control

When a PWR Core II fuel assembly is partially or completely dropped or becomes immobilized during movement, work activities cease, the area is placed in a safe configuration, and recovery activities are initiated.

### 7.2.3 Pressure Release

Response to a pressure release includes the following:

- Notify personnel to leave the area of the hazard.
- Inform the BED.
- If possible, shut off the affected system's source (e.g., steam decontamination unit by use of valves).
- Evacuate affected areas.
- Determine impacts/risks associated with reentry (e.g., hazardous or radioactive releases, moisture or heat conditions).
- Inform appropriate maintenance personnel for repair.

### 7.2.4 Fire and/or Explosion

In the event of a fire, the discoverer activates a fire alarm (pull box); calls 911 (373-3800 if using a cellular phone), or verifies that 911 has been called. Automatic initiation of a fire alarm (through the smoke detectors and sprinkler systems) is also possible.

- Unless otherwise instructed, personnel shall evacuate the area/building by the nearest safe exit and proceed to the designated staging area for accountability.
- On actuation of the fire alarm, ONLY if time permits, personnel should shut down equipment, secure waste, and lock up classified materials (or hand carry them out). The alarm automatically signals the Hanford Fire Department.
- The BED proceeds directly to the ICP, obtains all necessary information pertaining to the incident, and sends a representative to meet Hanford Fire Department.
- The BED provides a formal turnover to the IC, when the IC arrives at the ICP.
- The BED informs the Hanford Site Emergency Response Organization as to the extent of the emergency (including estimates of dangerous waste, mixed waste, or radioactive material quantities released to the environment).
- If operations are stopped in response to the fire, the BED ensures that systems are monitored for leaks, pressure buildup, gas generation, and ruptures.
- Hanford Fire Department firefighters extinguish the fire as necessary.

NOTE: Following a fire and/or explosion, 40 CFR 265.196 will be addressed for the 221-T Tank System and 2706-T Tank System regarding fitness for use.

### 7.2.5 Hazardous Material, Dangerous and/or Mixed Waste Spill

Spills can result from many sources, including process leaks, container spills or leaks, damaged packages or shipments, or personnel error. Spills of mixed waste are complicated by the need to deal with the extra hazards posed by the presence of radioactive materials.

- The discoverer notifies the BED and initiates SWIMS response:
  - Stops work
  - Warns others in the vicinity
  - Isolates the area
  - Minimizes the spill if possible
  - Requests the BED Secure ventilation.
- The BED determines if emergency conditions exist requiring response from the Hanford Fire Department based on classification of the spill and injured personnel, and evaluates the need to perform additional protective actions.
- If the Hanford Fire Department resources are not needed, the spill is mitigated with resources identified in Section 9.0 of this plan and proper notifications are made.
- If the Hanford Fire Department resources are needed, the BED calls 911 (373-3800 if using a cellular phone).
- The BED sends a representative to meet the Hanford Fire Department.
- The BED provides a formal turnover to the IC when the IC arrives at the ICP.
- The BED informs the Hanford Site Emergency Response Organization as to the extent of the emergency (including estimates of dangerous waste, mixed waste, or radioactive material quantities released to the environment).
- If operations are stopped in response to the spill, the BED ensures that systems are monitored for leaks, pressure buildup, gas generation, and ruptures.
- Hanford Fire Department stabilizes the spill.

NOTE: For response to leaks or spills and disposition of leaking or unfit-for-use tank systems, refer to 40 CFR 265.196.

#### 7.2.5.1 Damaged or Unacceptable Shipments

During the course of receiving dangerous and/or mixed waste at T Plant Complex, an unanticipated event could be discovered resulting in a conformance issue concerning the waste. In some cases, the conformance issue will result from receiving offsite shipment, manifested pursuant to Hanford Facility RCRA Permit, Condition II.P.1 or WAC 173-303-370 that is damaged or otherwise presents a hazard and cannot be transported. Damaged or unacceptable shipments resulting from onsite transfers are not subject to WAC 173-303-370 however conformance issues must be resolved in order to maintain proper records.

Regardless of whether the waste is received as an offsite shipment or onsite transfer, the following actions are taken:

- Operations management is notified of the damaged or unacceptable waste to be received.
- If the conformance issue results in a spill or release, actions described in Section 7.2.5 are taken.
- The generating organization is notified of the conformance issue.

An operations representative, in conjunction with the generating organization, determines the course of action to resolve the conformance issue.

### 7.2.6 Radiological Material Release

Radioactive waste is stored in quantities in the form of liquid and solid waste at the T Plant Complex Spills or releases could result in the spread of significant levels of contamination. Consideration must be given to radiological risks during events involving ventilation loss, electrical loss, and all spills, including the use of clean liquids on contaminated systems or areas.

#### 7.2.6.1 Radioactive Gaseous Effluent Discharge

All potentially contaminated gaseous effluent discharges are sampled using a filter paper to determine radioactivity.

#### 7.2.6.2 Radioactive Liquid Effluent Discharge

Radioactive content of liquid discharges from floor drains have been demonstrated to be below regulatory limits, eliminating the requirement for continuous radioactive monitoring. T Plant Complex management directs personnel to isolate all waste streams that potentially could cause out-of-limit levels in the waste stream. Should the possibility for radioactive contamination become evident, management could re-evaluate and implement additional monitoring.

#### 7.2.6.3 Significant Contamination Spread - Airborne Radioactivity

Significant contamination spreads could be indicated by a Continuous Air Monitor (CAM) alarm. A CAM alarm is characterized by an audible bell and a flashing red beacon.

CAMs draw air from the immediate air space in which CAMs are stationed, and are located in Section 20 of the Operating Gallery, head end, and in the 221-T Canyon and 2706-T/TA and can be placed as necessary to monitor for airborne radioactivity.

Airborne contamination spread in the 221-T Canyon can be exceptionally hazardous because of decontamination work performed on equipment potentially contaminated with gross amounts of mixed fission products. Therefore, personnel must be acutely aware of the CAM alarms caused by contamination spread and must know the appropriate emergency response. Such response is listed as follows.

Response to a CAM:

- Stop work activities, immediately exit the area, and notify management and the BED.
- Warn other personnel to stay out of the area.
- Contact Radiological Control and Operations Management and stand by for survey and contamination status.
- Operations posts the area as an airborne radioactivity area. Radiological Control will investigate the cause and surveys, as appropriate, to determine the extent of contamination.

### 7.2.7 Criticality

Not applicable

## 7.3 Prevention Of Recurrence Or Spread Of Fires, Explosions, Or Releases

The BED, as part of the ICS, takes the steps necessary to ensure that a secondary release, fire, or explosion does not occur. The BED will take measures, where applicable, to stop processes and operations; collect and contain released wastes and remove or isolate containers. The BED shall also monitor for leaks, pressure buildups, gas generation, or ruptures in valves, pipes or other equipment, whenever this is appropriate.

## 7.4 Response To Natural Phenomena

Depending on the severity of the event, the BED reviews sitewide and T Plant Complex emergency response procedure(s) and, as required, categorizes and/or classifies the event. If necessary, the BED initiates area protective actions and Hanford Site Emergency Response Organization activation. The steps identified in the following description of actions do not have to be performed in sequence because of the unanticipated sequence of incident events. Attachment A provides a list of procedures.

### 7.4.1 Seismic Event

The Hanford Site Emergency Organization's primary role in a seismic event is coordinating the initial response to injuries, fires, and fire hazards and acting to contain or control radioactive and/or hazardous material releases.

Individuals should remain calm and stay away from windows, steam lines, and hazardous material storage locations. Once the shaking has subsided, individuals should evacuate carefully and assist personnel needing help. The location of any trapped individuals is reported to the BED or is reported to 911 (373-3800 if using a cellular phone).

The BED takes whatever actions are necessary to minimize damage and personnel injuries. Responsibilities include the following:

- Coordinating searches for personnel and potential hazardous conditions (fires, spills, etc.).
- Conducting accountability.
- Securing utilities and facility operations.
- Arranging rescue efforts and notifying 911 for assistance.
- Determining if hazardous materials were released.
- Determining current local meteorological conditions.
- Warning other facilities and implementing protective actions if release of hazardous materials poses an immediate danger.

- Providing personnel and resource assistance to other facilities, if required and possible.

### 7.4.2 Volcanic Eruption/Ash fall

When notified of an impending ash fall, the BED will implement measures to minimize the impact of the ash fall. BED actions include the following:

- Installing filter media over building ventilation intakes or shut down supply ventilation as necessary.
- Installing filter media or protective coverings on outdoors equipment that may be adversely affected by the ash (diesel generators, equipment rooms, etc.).
- Shutting down some or all operations and processes.
- Sealing secondary use exterior doors.

If other emergency conditions arise as a result of the ash fall (e.g., fires due to electrical shorts or lightning), response is as described in the other applicable sections of this plan.

### 7.4.3 High Winds/Tornados

Upon notification of impending high winds, the BED takes steps necessary to secure all outdoor waste and hazardous material containers and storage locations. All doors and windows are shut and personnel are warned to use extreme caution when entering or exiting the building. Ventilation, utilities and operations will be shut down as appropriate to lessen the severity of the impact.

### 7.4.4 Flood

Calculations of the "probable maximum flood" that could occur in the Columbia River Basin indicate that maximum flood conditions would pose no threat to the T Plant Complex or other 200 Areas operations. Therefore, no emergency response has been formulated for a flood.

### 7.4.5 Range Fire

Responses to range fires are handled by preventive measures (e.g., keeping hazardous material and waste accumulation areas free of combustible materials such as weeds and brush). If a range fire breaches the T Plant Complex boundary, the response is as described in Section 7.2.4.

### 7.4.6 Aircraft Crash

The response to an aircraft crash is the same as that for responding to a fire and/or explosion (Section 7.2.4).

## 7.5 Security Contingencies

Depending on the severity of the event, the BED reviews the sitewide and T Plant Complex emergency response procedure(s) and, as required, categorizes and/or classifies the event. If necessary, the BED initiates area protective actions and Hanford Site Emergency Response Organization activation. The steps identified in the following description of actions do not have to be performed in sequence because of the unanticipated sequence of incident events. Attachment A provides a list of procedures.

### 7.5.1 Bomb Threat/Explosive Device

Response to a bomb threat/explosive device is discussed in the following sections.

#### 7.5.1.1 Telephone Threat

Individuals receiving telephoned threats attempt to get as much information as possible from the caller (using the bomb threat checklist if available). Upon conclusion of the call, or during the call if possible, notify the BED and Hanford Patrol by calling 911 (do not use wireless communications devices for reporting a bomb threat/explosive device unless beyond 300 feet from the suspected object).

The BED evacuates the T Plant Complex and questions personnel at the staging area regarding any suspicious objects. When Hanford Patrol personnel arrive, follow their instructions.

#### 7.5.1.2 Written Threat

Receivers of written threats handle the letter as little as possible. Notify the BED and Hanford Patrol by calling 911 (do not use wireless communications devices for reporting a bomb threat/explosive device unless beyond 300 feet from the suspected object). Depending on the content of the letter, the BED might evacuate the affected locations. The letter is turned over to Hanford Patrol and their instructions are followed.

### 7.5.2 Hostage Situation/Armed Intruder

The discoverer of a hostage situation or armed intruder reports the incident to 911 (373-3800 if using a cellular phone) and to the BED, if possible. The BED, after conferring with Hanford Patrol, might covertly evacuate areas not observable by the hostage taker(s)/intruder. No alarms will be sounded.

Hanford Patrol will determine the remaining response actions and will activate the Hostage Negotiating Team, if necessary.

#### 7.5.3 Suspicious Object

The discoverer of a suspicious object reports this to the BED and to 911 (do not use wireless communications devices for reporting a bomb threat/explosive device unless beyond 300 feet from the suspected object), if possible, and ensures that the object is not disturbed.

The BED will evacuate the T Plant Complex and (based on the description provided by the discoverer) attempt to determine the identity or owner of the object. Questioning personnel at the staging area could do this.

If the identity/ownership of the object cannot be determined, then Hanford Patrol will assume command of the incident. The canine unit will be used to determine if the package contains explosives. If there is a positive indication of explosives or it cannot be assured that there are no explosives, an Explosive Ordnance Disposal Team will be dispatched to properly dispose of the object.

## 8.0 TERMINATION OF EVENT, INCIDENT RECOVERY, RESTART OF OPERATIONS

DOE/RL-94-02, Section 9.0, describes actions for event termination, incident recovery, and restart of operations. The extent by which these actions are employed is based on the incident classification of each event. In addition, DOE/RL-94-02 also contains considerations for the management of incompatible wastes that might apply.

### 8.1 Termination Of Event

For events where the Hanford-Emergency Operations Center (Hanford-EOC) is activated, the RL/ORP Emergency Manager has the authority to declare event termination.

This decision is based on input from the BED, IC, and other emergency response organization members. For events where the Hanford-EOC is not activated, the ICS and staff will declare event termination.

### 8.2 Incident Recovery And Restart Of Operations

A recovery plan is developed when necessary in accordance with DOE/RL-94-02 Section 9.2. A recovery plan is needed following an event when further risk could be introduced to personnel, the T Plant Complex, or the environment through recovery action and/or to maximize the preservation of evidence.

If this plan was implemented according to Section 4.0 of this plan, the Washington State Department of Ecology must be notified before operations can resume. DOE/RL-94-02, Section 5.1, discusses different reports to outside agencies. This notification is in addition to those required reports and must include the following statements.

- There are no incompatibility issues with the waste and released materials from the incident.
- All the equipment has been cleaned, fit for its intended use, and placed back into service.
- The notification required by WAC 173-303-360(2)(j) may be made via telephone conference. Additional information that Ecology requests regarding these restart conditions will be included in the required 15-day report identified in Section 11.0 of this plan.

For emergencies not involving activation of the Hanford-EOC, the BED ensures that conditions are restored to normal before operations are resumed. If the Hanford Site Emergency Response Organization was activated and the emergency phase is complete, a special recovery organization could be appointed at the discretion of RL to restore conditions to normal. This process is detailed in RL and contractor emergency procedures. The makeup of this organization depends on the extent of the damage and the effects. The onsite recovery organization will be appointed by the appropriate contractor's management.

## 8.3 Incompatible Waste

After an event, the BED or the onsite recovery organization ensures that no waste that might be incompatible with the released material is treated, stored, and/or disposed of until cleanup is completed. Clean up actions are taken by T Plant Complex personnel or other assigned personnel. DOE/RL-94-02,Section 9.2.3, describes actions to be taken.

Waste from cleanup activities is designated and managed as newly generated waste. A field check for compatibility is performed before storage as necessary. Incompatible wastes are not placed in the same container. Containers of waste are placed in approved storage areas appropriate for their compatibility class.

If incompatibility of waste was a factor in the incident, the BED or the onsite recovery organization ensures that the cause is corrected.

## 8.4 Post Emergency Equipment Maintenance And Decontamination

All equipment used during an incident is decontaminated (if practicable) or disposed of as spill debris. Decontaminated equipment is checked for proper operation before storage for subsequent use. Consumables and disposed materials are restocked. Fire extinguishers are replaced.

The BED ensures that all equipment is cleaned and fit for its intended use before operations are resumed. Depleted stocks of neutralizing and absorbing materials are replenished, self-contained breathing apparatus are cleaned and refilled, and protective clothing is cleaned or disposed of and restocked, etc.

## 9.0 EMERGENCY EQUIPMENT

Hanford Site emergency resources and equipment are described and listed in DOE/RL-94-02, Appendix C. Emergency resources and equipment for the T Plant Complex are presented in this section.

### 9.1 Fixed Emergency Equipment

| FIXED EMERGENCY EQUIPMENT | | |
|---|---|---|
| **TYPE** | **LOCATION** | **CAPABILITY** |
| Fire Detection Equipment | Master Fire Alarm Boxes located in 2706-T Electrical Room and 271-T by door 13 | Detector transmits signal to master fire alarm box and then the HFD |
| Eye Wash/Safety Shower | Throughout the complex | Assists in flushing chemical/material from eyes, clothes, and body |

### 9.2 Portable Emergency Equipment

| PORTABLE EMERGENCY EQUIPMENT | | |
|---|---|---|
| **TYPE** | **LOCATION** | **CAPABILITY** |
| Fire Extinguishers | Throughout the complex | |
| Halon | Crane Cab | Class A, B, and C |
| Dry Chemical | | Class A, B, and C |
| *Emergency Monitoring Kit | M0-892 - Incident Command Post Trailer | Use during emergencies for radiation detection equipment, PPE clothing, and respiratory equipment |
| *Emergency Monitoring Kits | ICP and Radiological Control Office, 271-T First Floor | Use for radiological emergency response |

* = This equipment is for radiological emergency response purposes only. It is not Ecology's intent to regulate radionuclides. However, it is necessary to maintain an up-to-date complete BEP.

## 9.3 Communications Equipment/Warning Systems

| COMMUNICATIONS EQUIPMENT | | |
|---|---|---|
| **TYPE** | **LOCATION** | **CAPABILITY** |
| Crash Alarm Telephone | 271-T, outside room 113, 271-T, 2nd floor corridor, MO-906 | Telephone system used to disseminate emergency messages |
| PAX System | Throughout complex | Public address system used for communication |

## 9.4 Personal Protective Equipment

| PERSONAL PROTECTIVE EQUIPMENT | | |
|---|---|---|
| **TYPE** | **LOCATION** | **CAPABILITY** |
| Protective Clothing | Section 20, Operating Gallery; Section 20, Pipe Gallery; MO-433; 2716-T | Protect personnel from exposure to hazardous chemicals/materials |
| Respirators | Mask Station, 271-T | Protect personnel from hazardous atmosphere and airborne particulates |
| Powered Air Purifying Respirators (PAPRs) | Mask Station, 271-T | Protect personnel from hazardous atmosphere and airborne particulates |
| Acid Suit | First floor AMU, 271-T | Provides personnel protection from acids/caustics |
| SCBA | MO-892, MO-433, 2716-T | Provide sufficient respiratory protection for rapid response to emergencies |

## 9.5 Spill Control And Containment Supplies

| SPILL KITS AND SPILL CONTROL EQUIPMENT | | |
|---|---|---|
| **TYPE** | **LOCATION** | **CAPABILITY** |
| Absorbents, spill pigs and pillows, and gloves<br><br>Magnetic mat | First floor AMU Spill Cabinet<br><br>First floor AMU Spill Cabinet | Use to clean up most liquid spills and some solids<br><br>Sealing floor drains for spill containment |
| Non-sparking cleanup tools | First floor AMU Spill Cabinet | Opening-closing drums, sweeping/shoveling ignitables |
| Sampling containers and supplies | First floor AMU Spill Cabinet | Sampling most liquids and solids |
| Emergency response equipment and supplies | Emergency response boxes<br><br>West side and east side of 221-T | Use for emergency response |

## 9.6 Incident Command Post

The ICPs for the T Plant Complex are in MO-892 and in 271-T, Room 213. Emergency resource materials are stored at each location. The IC could activate the Hanford Fire Department Mobile Command Unit if necessary.

# 10.0 COORDINATION AGREEMENTS

RL has established a number of coordination agreements, or Memoranda of Understanding (MOU) with various agencies to ensure proper response resource availability for incidents involving the Hanford Site. A description of the agreements is contained in DOE/RL-94-02, Section 3.0, Table 3-1.

# 11.0 REQUIRED REPORTS

Post incident written reports are required for certain incidents on the Hanford Site. The reports are described in DOE/RL-94-02, Section 5.1.

Facility management must note in the TSD-unit operating record, the time, date and details of any incident that requires implementation of the contingency plan (refer to Section 4.0 of this plan).

Within fifteen (15) days after the incident, a written report must be submitted to Ecology. The report must include the elements specified in WAC 173-303-360(2)(k).

## 12.0 PLAN LOCATION AND AMENDMENTS

Copies of this plan are maintained at the following locations:

- Facilities Operations Offices (271-T, MO-892)
- 271-T, Operating Record.

This plan will be reviewed and immediately amended as necessary, in accordance with DOE/RL-94-02, Section 14.3.1.1.

## 13.0 FACILITY/BUILDING EMERGENCY RESPONSE ORGANIZATION

**BUILDING EMERGENCY DIRECTOR**

| T Plant Complex BEDs | | |
|---|---|---|
| TITLE | LOCATION | PHONE |
| Operations Management | 271-T/221-T | 373-1077 |

Names and home telephone numbers of the BEDs are available from the POC (373-3800), in accordance with the *Hanford Facility RCRA Permit*, Dangerous Waste Portion, General Condition II.A.4.

## 14.0 REFERENCES

DOE Order 232.1, *Occurrence Reporting and Processing of Operations Information*, U.S. Department of Energy, Washington D.C.

DOE/RL-94-02, *Hanford Emergency Management Plan.*

WAC 173-303, "Washington State Dangerous Waste Regulations," *Washington Administrative Code*, Washington State Department of Ecology, Olympia, Washington.

Ecology, 1994, Dangerous Waste Portion of the Hanford Facility Resource Conservation and Recovery Act Permit for the Treatment, Storage, and Disposal of Dangerous Waste, Permit Number WA7890008967, Washington State Department of Ecology, Olympia, Washington.

## ATTACHMENT A

### Listing of Procedures and Documents

Sitewide Procedures

DOE-0223, *Emergency Plan Implementing Procedures*, RLEP-1.0, "Recognizing and Classifying Emergencies," Appendix 1-2.E.

DOE-0223, *Emergency Plan Implementing Procedures*, RLEP-1.1, "Hanford Incident Command System and Event Recognition and Classification"

DOE-0223, *Emergency Plan Implementing Procedures*, RLEP-3.4, "Emergency Termination, Reentry, and Recovery"

Facility-Specific Emergency Response Procedures

DO-ERP-001, Evacuation
DO-ERP-002, Take Cover
DO-ERP-003, Spill/Release/Contamination Spread
DO-ERP-009, Utility Disconnect and Response
DO-ERP-010, Response to Dropped Fuel Element
DO-ERP-011, Response to a Crane Failure with a Raised Fuel Assembly Exposed