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Page 1 of 1

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Interface Control Document between the tank Waste Remediation System and the Solid Waste Disposal Division

DR Duncan
Westinghouse Hanford Company, Richland, WA 99352
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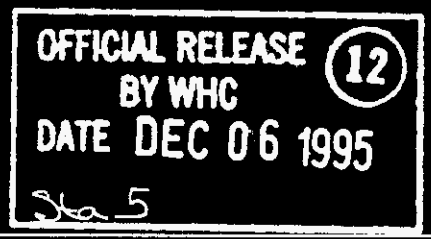
Abstract: This document discusses the interface between the Tank Waste Remediation System (TWRS) and the Solid Waste Division (SWD).



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INTERFACE CONTROL DOCUMENT

BETWEEN THE TANK WASTE REMEDIATION SYSTEM DIVISION

AND THE SOLID WASTE DISPOSAL DIVISION

WHC-SD-WM-PICD-003, REV 0

April 1995

DOCUMENT TITLE: INTERFACE CONTROL DOCUMENT BETWEEN THE TANK WASTE REMEDIATION SYSTEM DIVISION AND THE SOLID WASTE DISPOSAL DIVISION

APPROVED BY:

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APPROVED BY:

W.H. Hamilton, Jr., Director
Solid Waste Disposal

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EXECUTIVE SUMMARY

The purpose of this Interface Control Document (ICD) is to clarify and bound interfaces between the Tank Waste Remediation System (TWRS) and the Solid Waste Disposal (SWD) Divisions regarding waste management. The importance of the ICD is that it establishes an agreement to negotiate the technical and non-technical issues between the programs for all related projects.

This initial baseline ICD is a living document, subject to change as programs develop. Upon approval, the ICD will have open issues that will reach later resolution by negotiations steered by the Interface Working Group (IWG) established by both TWRS and SWD. The approval signatures represent a description of the current status and an agreement to negotiate the technical and non-technical issues as the program development occurs.

The ICD specifically includes:

- Traceability to the program requirements, applicable laws and regulations,
- Background information to aid understanding of TWRS and SWD waste management issues,
- Specific descriptions of individual and joint waste management responsibilities and interfaces, and
- Summaries of waste volumes from the most recent Hazardous and Radioactive Solid Waste Volume Forecast from TWRS and from liquid waste volume forecasts by SWD.

The outstanding issues from the Solid Waste Disposal (SWD) and Tank Waste Remediation System (TWRS) interface control document are as follows:

- Identify interface performance requirements.
- Identify the Interface Working Group.
- Improve, strengthen, and include the current waste forecast.
- Identify program funds for Long Length Contaminated Equipment (LLCE) retrieval, shipping, processing, disposal, design, construction and readiness review.
- Identify liquid waste assessment rates.

This document and the annual 30 year waste forecast from TWRS, satisfy the requirements of Section 1.3.2 of the Hanford Site Solid Waste Acceptance Criteria, DOE Order 5820.2A (1988) and DOE/RLID 5820.2A (1993a) for periodic waste forecasting. The TWRS System Engineering Management Plan (SEMP)(DOE/RL, 1994a) directs TWRS to provide a top level framework to carry out interface control activities and ICD development. The Interface Working Group with personnel from TWRS organizations and Solid Waste Systems Engineering will continue to participate in the development of this ICD.

This ICD includes definitions particular to tank waste and solid waste management; background information to aid understanding of TWRS and SWD waste management issues; specific descriptions of individual and joint waste management responsibilities and

interfaces; and summaries of waste volumes taken from responses of the latest Hazardous and Radioactive Volume Forecast Request.

In order to provide a basis and framework for developing the necessary interfaces between the organizations for the handling of solid waste produced by TWRS and tank waste produced by SWD, the responsibilities are listed in order below.

The TWRS Division is responsible for the following:

- Storing, treating, and immobilizing highly radioactive Hanford Site tank waste and associated equipment and structures.
- Providing the solid waste to interfacing organizations for further storage, treatment, and/or disposal in accordance with their acceptance criteria.

The Solid Waste Division is responsible for the following:

- Acceptance, management and disposition of solid waste and for associated facilities necessary for treatment, storage, and/or disposal of the wastes.
- Providing liquid (effluent) waste generated from its facilities to interfacing organizations for further storage, treatment, or disposal in accordance with their acceptance criteria.

INTERFACE CONTROL DOCUMENT BETWEEN THE TANK WASTE REMEDIATION SYSTEM DIVISION AND THE SOLID WASTE DISPOSAL DIVISION

1.0 INTRODUCTION

1.1 Purpose and Description

The purpose of this Interface Control Document (ICD) is to establish the interfaces between the Tank Waste Remediation System (TWRS) and the Solid Waste Disposal (SWD) Divisions regarding waste management. As each organization operates somewhat independently, it is important that each has a clear understanding of the mutual responsibilities for waste management.

This document, together with the annual 30 year waste forecast from TWRS, satisfies requirements of Section 1.3.2 of the Hanford Site Solid Waste Acceptance Criteria (Willis and Triner, 1993), Department of Energy (DOE) Order 5820.2A (DOE, 1988), and RLID 5820.2A (DOE/RL, 1993a), for periodic solid waste forecasting. This ICD is part of the baseline documentation for both organizations as described in the Solid Waste Program Technical Baseline Description (Carlson et al., 1994). The SEMP directs TWRS to provide a top-level framework to carry out interface control activities and ICD efforts. An Interface Working Group (IWG) with personnel from TWRS organizations (Environmental Cleanup and Compliance Project, Systems Engineering Integration) and SWD (Solid Waste Systems Engineering) is active in the development of this ICD.

The IWG will review requests for change, resolve non-compliant issues, and document changes in interface and project development. The following examples illustrate the IWG mission objectives:

- Ensure completion of interface and project development by review and issuance of an Engineering Change Notice (ECN).
- Re-evaluate the waste estimates and documentation of the ICD, and
- Address and resolve major issues such as major changes occurring in waste estimates, waste management practices, and distribution of organizational responsibilities.

The ICD can be changed only by the use of an ECN. It is expected that an annual letter will be sent requesting re-evaluation of the waste estimates and provisions of the ICD. It is also anticipated that major changes occurring in waste estimates or waste management practices or responsibilities of either organization will be reflected in this ICD as they occur.

1.2 Functional Interface Block Diagram

The TWRS Functions and Requirements (DOE/RL, 1994b) comprehensively describes the top level functions, requirements and interfaces of the TWRS Division. The

document defines the systems engineering approach of transforming a sequence of activities into mission needs, descriptive systems performance parameters and preferred system configurations.

Figure 1 shows the interface between the TWRS and SWD programs. The block on the left side represents the TWRS function that relates to the following interfaces and the block on the right represents the SWD function. The block numbers are traceable to the nomenclature of the TWRS Functions and Requirements.

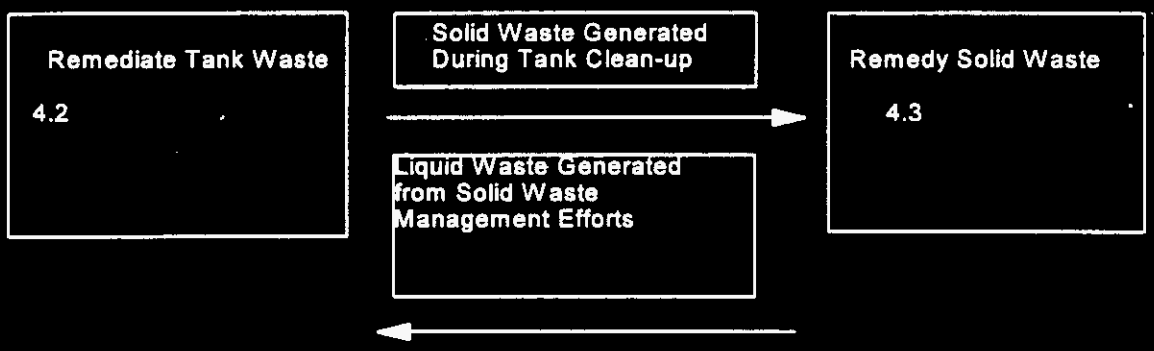

Figure 1. Functional Block Diagram

Interfaces, as illustrated by the separate generators within TWRS and SWD, are shown in Appendix A.

2.0 SCOPE

The general scope includes:

- The handling of all solid waste generated by TWRS and intended for management by SWD and all liquid waste generated by SWD and intended for management by TWRS.

The document specifically includes:

- Definitions significant in solid waste management,
- Background information to aid understanding of TWRS and SWD waste management issues,
- Specific descriptions of individual and joint waste management responsibilities and interfaces, and
- Summaries of waste volumes taken from responses to the latest Hazardous and Radioactive Waste Volume Forecast Request.

3.0 DEFINITIONS

Dangerous Waste. Those solid wastes designated in the Washington Administrative Code (WAC) 173-303-070 through 173-303-103 (WAC, 1993) as dangerous or extremely

hazardous waste.

Generator. Any person or group whose act or produces dangerous waste identified or listed in WAC 173-303-040 (WAC 1933) or whose act first causes a dangerous waste to become subject to regulation. Also, a person or group whose act or process produces a radioactive waste as defined by the Atomic Energy Act of 1954.

Low-Level Waste (LLW). Waste that contains radioactivity and is not classified as high-level waste, transuranic (TRU) waste, or spent nuclear fuel or 11e (2) by-product material as defined by DOE Order 5820.2A, Attachment 2 (DOE, 19988). Test specimens of fissionable material irradiated for research and development only, and not for the production of power or plutonium, may be classified as LLW provided the concentration of transuranic radionuclides is less than 100 nCi/g.

Mixed Waste (MW). Waste containing both radioactive and dangerous components as defined by the Atomic Energy Act of 1954, the Resource Conservation and Recovery Act of 1976 (RCRA), and WAC 173-303 (See Dangerous Waste, above).

Solid Waste. Any discarded material that is not excluded by WAC 173-303-017(2) or that is not excluded by a variance granted under WAC 173-303-017(5). Materials are solid waste if they are (1) abandoned by being disposed of , burned or incinerated, (2) accumulated, stored, or treated (but not recycled) before (or in lieu of) being abandoned by being disposed of, burned or incinerated.

Transuranic Waste (TRU). Without regard to source or form, waste that is contaminated with alpha-emitting transuranium radionuclides with half-lives greater than 20 years and concentrations greater than 100 nCi/g at the time of assay. Heads of Field Elements can determine that other alpha contaminated wastes, peculiar to a specific site, must be managed as transuranic waste.

Waste Container. A portable receptacle for waste, including any liner or shielding material that is intended to accompany the waste in disposal.

Waste Package. The waste, waste container, and any absorbent that are intended for disposal as a unit. In the case of surface contaminated, damaged, leaking, or breached waste packages, any overpack shall be considered the waste container, and the original container shall be considered part of the waste.

Waste Stream. A distinct waste or group of waste items with specific definable characteristics (physical, radiological, chemical) and history.

4.0 BACKGROUND

Westinghouse Hanford Company (WHC) is the Management and Operations Contractor of the Hanford Site for the DOE. The top priority for the DOE, today, is to clean up the Site.

Between the 1940s and late 1960s, 149 single-shell tanks were built to hold radioactive waste from U.S. Defense programs. Then, during the 1970s, 28 double-shell tanks were built for additional storage. These tanks are located in restricted areas called Tank Farms within the 200 East and 200 West Areas on the Hanford Site. Ancillary structures for these tanks were built, also, for handling the waste. These structures catch tanks, receivers tanks, pipelines, value pits, diversion boxes, evaporators, and others, and

provide functions for both storage and transferring of waste. Some of these are located within the Tank Farms and some outside, like pipelines running underground connecting to several different Tank Farms.

During the daily operations of the Tank Farms, several different types of solid waste are generated as a result of the work done in and around the tanks or their ancillary structures. This solid waste consists mostly of plastic, paper, metal, cloth, and less frequently, includes HEPA filters, soil, equipment, chemical products, lead, wood, and asbestos. These waste types are considered as solid waste versus the liquid waste int he tanks. The solid waste is segregated in the field into specific waste classifications - MW, LLW, TRU, DW, and non-regulated waste.

Solid waste collected in the field is packaged, characterized, and shipped to treatment, storage, and disposal (TSD) units on the Hanford Site. These include DW storage facilities, LLW disposal sites, and MW storage areas.

The SWD Division will generate liquid waste from decontamination activities and from leachate collection in the mixed waste disposal trench. This waste is characterized and shipped to TWRS for storage in double-shell tanks.

A unique category of TWRS solid waste is the ling-length contaminated equipment (LLCE). These pieces of equipment are the instrument trees, transfer pumps, air lift circulators, air lances, etc., that are currentlyl installed or will be installed in the tanks, vaults, and receivers located in the Tank Farms. The LLCE cannot be handled in the same manner as most solid waste because of size and current, or recent past, contact with tank liquid waste; but it still has to be removed for disposal.

The waste generators within TWRS must be aware of and comply with applicable state and federal waste handling and transportation regulations and directives before shipping solid waste to Hanford Site TSD units. The generator must receive advance approval from the waste receiving facility and must certify that the waste meets the receiving facility's waste acceptance criteria. Waste descriptions must be as complete as possible to ensure adequate treatment, storage, and disposal capability will exist.

A 30-year forecast of all waste classes (LLW, MW, TRU and DW) pertinent to the TWRS waste generator is submitted each year by the generator to SWD. This forecast, along with other generator forecasts, provides SWD with data to establish billing rates and to plan construction of new TSD units. It also provides data to the national DOE database that compiles current data on waste inventories.

5.0 RESPONSIBILITIES

The TWRS and SWD have specific roles as defined in Hanford Mission Plan (DOE/RL, 1993b), the TWRS Functions and Requirements (DOE/RL, 1994b), and the Solid Waste Program Technical Baseline Description (Carlson et al., 1994). The responsibilities are presented here in order to provide a basis and framework for developing the necessary interfaces between the organizations for the handling of solid and liquid waste.

The TWRS Division is responsible for storing, treating, and immobilizing highly radioactive Hanford Site waste in single-shell and double-shell tanks and associated equipment and structures. Ongoing operations and maintenance activities associated with

these facilities generate a number of solid waste streams. The TWRS is responsible for providing this solid waste to interfacing organizations for further storage, treatment, and/or disposal in accordance with their acceptance criteria.

The SWD Division is responsible for acceptance, management and disposition of solid waste and for associated facilities necessary for treatment, storage, and /or disposal of these wastes. The SWD is responsible for providing liquid waste generated from its facilities to interfacing organizations for further storage, treatment, or disposal in accordance with the acceptance criteria of these interfacing organizations.

5.1 Tank Waste Systems Remediation Division

The TWRS Division generates solid waste, currently, as a result of operations and maintenance work performed in the tank farm facilities and will also generate solid waste in the future from remediation activities. The TWRS is responsible for the proper segregation, packaging and inventorying of its generated LLW, MW, TRU, DW, and non-regulated waste according to the particular waste class acceptance criteria. The TWRS is responsible for the transportation of the packaged material to the designated treatment, storage, or disposal location.

5.1.1 Waste Segregation

The TWRS Division is responsible for ensuring segregation of its generated waste to the proper waste class - LLW, MW, TRU, DW, or non-regulated waste. This segregation process begins at the point of generation, as in a specific tank farm. Each waste item is marked with a number, entered on an inventory sheet on the waste container, and traced as it moves through the system.

Each waste stream generated in the tank farms requires a waste specification. It is the responsibility of TWRS to provide specifications to SWD for each waste stream identified. Relevant information included in each waste specification may include analytical data, Material Safety Data Sheets (MSDs), process knowledge, and any other data to assist in proper designation. When specifically requested by TWRS, SWD provides waste designations to TWRS. The TWRS then reviews and verifies those designations and resolves any discrepancies.

5.1.2 Waste Minimization

Waste minimization is accomplished in TWRS in such activities as pre-job planning, minimizing unnecessary materials used radiologically controlled areas, use of less hazardous materials, inventory control, and segregation of waste. Part of the pre-job planning in TWRS is completion of a waste planning checklist to help ensure waste minimization measures are incorporated in the work.

5.1.3 Waste Characterization

The TWRS is responsible for characterizing the waste it generates according to its radiological, chemical, and physical characteristics. The method most commonly used for

characterization involves performing a non-destructive assay of each container and obtaining samples from waste containers or waste streams and analyzing the samples. Knowledge of significant chemical constituents based upon understanding of how the waste was generated provides adequate chemical characterization in some cases. Inventories of the contents of waste containers provides physical characterization.

5.1.4 Waste Forecast

Each year, the TWRS as a solid waste generator, is required to put together a 30-year forecast of the volume of solid waste to be shipped from the Tank Farms. This requirement may also be met by submitting an ECN to the IWG with current forecasting information. The IWG will incorporate the ECN in the ICD. The forecast shows the volume of waste for each year and is broken down into several categories - waste class, waste form, container type, hazardous constituents, and radiation types. A summary of the forecast, with a list of the separate TWRS generators, is given in Appendix B.

5.1.5 Waste Storage

The TWRS is responsible for storage of liquid waste from the SWD in the double-shell tank system. As retrieval of waste from double-shell tanks begins to impact storage capability, alternatives to such storage will need to be implemented.

5.2 Solid Waste Disposal Division

The Solid Waste Disposal Division is responsible for operating TSD units at the Hanford Site. The Hanford Site Solid Waste Acceptance Criteria (Willis and Triner, 1993) defines the criteria that must be met by waste generators for solid waste to be accepted by the SWD Division facilities. In addition, the acceptance criteria defines the responsibilities and authorities of the following with regard to solid waste management:

- Waste generator
- Solid Waste Disposal Division
- Westinghouse Hanford Safety and Environmental Advisory Council (SEAC) and the Waste Management Subcouncil,
- U.S. Department of Energy, Richland Operations Office, and
- Hanford Site Landlord, Utility, and Transportation Services.

The SWD Division is responsible for submitting an annual forecast of the liquid waste volume to be shipped to TWRS for storage. A summary of forecast volumes is in Appendix B.

5.2.1 Solid Waste Storage

The SWD Division provides storage for low-level waste, low-level mixed waste, and TRU and TRU mixed waste. Facilities available to support storage of solid wastes are:

- Central Waste Complex, currently used for storage of low-level waste,

low-level mixed waste, TRU waste, and TRU mixed waste prior to disposal,
- TRUSAF, currently used for storage of TRU and TRU mixed waste, and
- the 616 Facility, which provides storage of dangerous waste prior to offsite shipment for disposal.

Facilities that may be available in the future to support storage of solid waste are:
- Enhanced Radioactive and Mixed Waste Storage, Phase V, to be used for storage of contact-handled LLW, TRU, and MW, and
- LLCE storage pads.

5.2.2 Solid Waste Decontamination Services

The SWD Division assists the decontamination of Hanford Site facility equipment and waste by providing decontamination, repair, sampling, verification, and repackaging services at the following sites:
- 221-T Canyon Facility for high-activity level equipment and waste, and
- 2706-T Facility for low-activity level equipment and waste.

5.2.3 Solid Waste Treatment

The Division will provide treatment for low-level mixed waste, TRU waste and TRU mixed waste. Facilities that may be available (possibly through privatization or external contracting) are:
- Waste Receiving and Processing (WRAP) Module 1, which will provide treatment and packaging of contact-handled TRU waste for eventual shipment offsite,
- WRAP 2A, which planned to provide treatment for LLMW (except for low-level Greater-than Category 3 waste),
- WRAP 2B, to provide treatment and packaging of oversized and remote-handled waste, and
- Thermal Treatment Plant, which is planned for Resource Conservation and Recovery Act of 1976 (RCRA) treatment of LLMW to meet land disposal restrictions.

5.2.4 Solid Waste Disposal

The SWD Division provides disposal for low-level waste in trenches and will include separate trenches for RCRA-compliant LLMW.

6.0 INTERFACES

The work at Hanford relating to both TWRS and SWD, has certain areas where the responsibility is shared between the two organizations. This document will clarify the interfaces for that work and with which organization the responsibility rests. Interfaces by discrete generator are shown in the figure in Appendix A.

6.1 Waste Designations

The TWRS has the responsibility to ensure that all solid waste generated within TWRS is properly designated. For each waste stream, TWRS prepares a waste specification with all relevant data such as analytical information, MSDSs, and process knowledge. Upon request from TWRS, Generator/Waste Acceptance Services of the SWD Division performs waste designation of individual waste streams and waste products according to the procedures of the Washington State Dangerous Waste Regulations, WAC 173-303-070 (WAC, 1993). TWRS is then responsible to ensure that the generated waste or waste stream is packaged correctly and is placed in the correct containers for shipment.

6.2 Waste Characterization

6.2.1 Tank Waste Remediation System Division

TWRS is responsible for providing SWD all the data necessary for an initial waste stream characterization. Also, the TWRS is responsible for periodic re-characterizing of its routine waste streams. The TWRS is responsible for confirming identity of waste shipped from its generators to TSD facilities.

If sampling and analysis of TWRS waste must be performed by the TSD facility because of inadequate characterization by TWRS, the costs must be borne by TWRS. Costs of verifying that wastes have been treated to meet Land Disposal Restrictions requirements will be borne by the TSD facility.

Waste received from TWRS at the TSD facility must be characterized to the extent necessary to confirm that the wastes received are those itemized on the shipping papers or manifest. This confirmation of the waste characterization is not meant to be a full characterization of the waste but more of a confirmation of the waste identity.

6.2.2 Solid Waste Disposal Division

The SWD Division is responsible for segregating and characterizing the waste it generates and intends to send to TWRS according to its radiological, chemical, and physical properties. The SWD Division shall meet all the waste acceptance requirements determined by TWRS and documented in waste stream specific approvals. These requirements are based on the Double-Shell Tank Waste Analysis Plan (Mulkey, 1994), the Tank Farm Waste Transfer Compatibility Program (Carothers, 1991), the Data Quality Objectives for Tank Farms Waste Compatibility Program (Carothers, 1994), and operating considerations. Listed waste with a designation other F001 through F005 shall no be accepted in the SWD landfills from which leachate might be shipped to the TWRS.

If sampling and analysis of SWD waste by TWRS is required because of inadequate and/or incorrect characterization by SWD, the costs must be borne by SWD.

6.3 Waivers

The waste generator, TWRS, may seek a waiver to a Hanford Site Practice (HSP) from the Hanford Site Solid Waste Acceptance Criteria (Willis, and Triner, 1993) if the criteria cannot be met. TWRS provides SWD a complete description in writing of the desired waiver. This document includes an alternative action with equivalent technical value and an equivalent degree of safety and environmental protection. The SWD responds to the request by issuing a letter back to TWRS. Additional charges may be assessed for waste handled under a waiver.

6.4 Package Traceability

Each waste container ordered through Site Warehousing Services has a unique Container Identification Number (CIN) in the form of a barcode. The TWRS applies another unique number to the package for their own tracking purposes. These identification numbers allow tracking of the waste packages from distribution of the container to the TWRS waste generator to final disposal. The numbers trace the package to a location and to a generator.

6.5 Preshipment Inspections

Non-radioactive dangerous waste, low-level waste and MW generated by TWRS may be inspected as requested by SWD of the waste package has not been fully approved. The inspection will be provided by Hazardous Materials Operations (HMO) of Transportation and Packaging and/or by SWD.

6.6 Shipping Schedule

All shipments of solid waste to the SWD TSD facilities controlled SWD are scheduled through the SWD scheduler. The TWRS waste generator notifies the scheduler at least two days before the shipment is scheduled to leave TWRS. The generator gives the estimated time of arrival of the shipment and any concerns for unusual expedited, of other shipping needs.

All shipments of liquid waste to the double-shell tanks are scheduled through Tank Farms Engineering. The SED gathers the required information on the planned shipment and submits it along with a preferred shipment date to Tank Farm Engineering.

6.7 Noncompliances

Radioactive solid waste packages received at the SWD TSD facility with noncompliant conditions will require resolution. The SWD may do one or more of the following alternatives:

- Hold the package and request TWRS to provide written instructions

for TWRS to correct the condition.

- Return the package to TWRS for correction.
- Refer the issue to the U.S. Department of Energy, Richland Office; State of Washington, Department of Ecology; and other appropriate regulatory agencies as necessary for resolution if agreement on disposition cannot be reached between SWD and TWRS.
- Correct the condition and charge TWRS for any costs incurred when approved by TWRS.

The waste generator, TWRS, will be back charged for costs incurred for the following conditions:

- Decontamination costs incurred by SWD because of generator or transporter error,
- Correction of deficiencies such as overpacking, paperwork correction, or any other Non-conformance Report condition, or
- Other charges that may be added for unique waste streams with prior notification to the generator.

Serious or repeated instances of noncompliant waste package physical conditions will result in an increased frequency of compliance waste management assessments or surveillances and may result in a suspension of waste acceptance. In the case of a waste package being acceptable but the documentation is incorrect, TWRS, the waste generator, will be notified and will be required to correct the documentation. Repeated cases of incorrect documentation will be referred to SWD for inclusion in the next waste management assessment or surveillance.

6.8 Records

The TSD unit in the SWD develops and maintains a historical quality record of the waste generated, treated, stored, shipped, disposed at that facility. This maintained data is based on the data recorded on the shipping papers/manifest. Each waste package is accompanied by these shipping papers/manifest which contain data including the physical and chemical characteristics of the waste and the quantities of major radionuclides in the waste. Also, included in the accompanying documents is information on the waste package surface dose rate and the radionuclide category, e.g., Category 1, Category 3, or Greater than Category 3.

6.8.1 Mixed Waste Specific

The TSD facility must keep a written operating record at the facility until closure of the facility. The recorded information includes the description of and quantity of the waste and records and results of waste analyses and trial tests required to manage the DW properly.

The waste generator, TWRS, maintains descriptions of waste content. Records kept by TWRS that are used to describe, quantify, or otherwise characterize waste for purposes of designation, Land Disposal Restrictions requirements, or proper management, are retained for a 5-year period. Waste tracking data, including shipping papers, shall be maintained by TWRS.

6.8.2 Dangerous Waste Specific

The TWRS must ensure proper designation of DW and must have all proper DW numbers as required by regulations. All waste classified as "non-radioactive" must have a waste radiation release certification completed by the TWRS generator.

The TSD facility (616 Facility) keeps a written operating record of the description of and quantity of DW received or managed and the location of each DW within the facility and the quantity at each facility and records and results of waste analyses and trial tests required to mange the DW properly.

6.9 Waste Verification & Confirmation

6.9.1 Tank Waste Remediation Systems Division

Prior to shipping TWRS waste from the Tank Farms to SWD TSD units, TWRS needs to be certified by the TSD facility. In general, TWRS is required to provide detailed information supporting characterization of the waste streams to the receiving TSD unit for review and approval prior to receiving certification. The TWRS is also subject to periodic assessments by the TSD facility to ensure that wastes are being managed consistent with the certification documentation. The TWRS certification program is currently "approved".

The TSD facility periodic assessments of the TWRS certification program involve assignment of an approval status to the waste generator, TWRS. If that status is "approved", shipment of waste is approved subject to an approved specification and an approved funding authorization. A "limited approval" status allows shipment of specific waste streams subject to an approved specification and approved funding authorization for those streams. "Restricted" status allows authorized shipment of limited amounts of waste, subject to conditions, limitations, and restrictions. Costs associated with TSD facility efforts to support shipments from TWRS, in "restricted" status, are borne by TWRS. The "not approved" status does not allow shipment.

6.9.2 Solid Waste Disposal Division

Prior to shipping SWD waste to the double-shell tanks, the waste stream must be approved by TWRS in writing and all specified conditions will have to be met. In general, SWD must conduct analyses of its waste and submit other information as requested. The TWRS may elect to periodically assess waste shipments it receives and waste shipments may be stopped from any unit whose waste is found not to conform with the representation given to TWRS.

6.10 Waste Forecast

A 30-year forecast of solid waste volumes is required to be provided annually by the TWRS Division to the SWD Division (Willis and Triner, 1993). The data from this forecast is used to define future solid waste treatment, storage, and disposal needs.

The SWD establishes the solid waste class categories to be reported on the forecast. They also establish the categories of waste forms from which the waste originates. This information is provided from the SWD to the solid waste generators. The

TWRS is the solid waste generator and responsible for providing the forecast to the SWD on an annual basis and, also, for reporting any changes to their forecast on a semi-annual basis.

In like manner, SWD provides TWRS with an annual forecast of liquid waste to be shipped from SWD to TWRS for storage.

The forecast waste is summarized in Appendix B.

6.11 Long -Length Contaminated Equipment

At some time during operations, remediation, and/or decommissioning of Tank Farms, each Tank Farm LLCE item will have to be removed from its installation (tank, vault, receiver) for the purpose of treatment and disposal. Additionally, new items will be installed and will also require treatment and disposal in the future. Treatment and disposal handling of LLCE will be based on the capabilities available at the time of retrieval. Future facilities for LLCE items will include a TWRS full-size encapsulation system and a SWD grout vault encapsulation facility.

Prior to the operational date of the TWRS full-size encapsulation system LLCE will be encapsulated and disposed in the RWM landfill. During retrieval, TWRS will rinse the LLCE item for dose rate reduction and enclose the LLCE item in a flexible receiver for contamination control. The flexible receiver will contain sufficient absorbent material to absorb any residual liquids remaining on or in the LLCE item. The TWRS will place the LLCE item into a disposable truck-transportable steel transport container (also termed long equipment containers or LECs) and ship the LLCE item to SWD. Each transport container will have its own Safety Evaluation for Packaging (SEP). Either the SWD or the TWRS will fill the void space in the transport container to ≥90% and weld shut all openings, thereby forming a complete encapsulating barrier of steel. Likewise, either the SWD or the TWRS will also paint and/or preserve the transport container to maximize the waste package lifetime in the burial trench environment. Void fill, encapsulation and preservation will be performed at 2706-T. However, only the SWD will ship the container to the RMW landfill for disposal. If temporary storage is required prior to processing at 2706-T, SWD will provide storage at T-Plant or CWC.

LLCE classified as TRU which is retrieved prior to the operational date of the TWRS full-size encapsulation system will be stored in the transport container at CWC for future processing. LLCE will be retrieved and shipped by TWRS as described above. SWD will provide storage at CWC.

LLCE retrieved after the operational date of the TWRS full-size encapsulation system will be encapsulated in a disposable burial container and disposed in the RWM landfill. During retrieval, TWRS will rinse the LLCE item for dose rate reduction and enclose the LLCE item in a flexible receiver for contamination control. The flexible receiver will contain sufficient absorbent material to absorb any residual liquids remaining on or in the LLCE item. TWRS will place the LLCE item into one of a family of disposable burial containers housed in a single reusable truck-mounted steel shipping container. The shipping container will have its own Safety Analysis Report for Packaging (SARP). TWRS will void fill the burial container to ≥90% and weld shut all openings, thereby forming a complete encapsulation barrier of the burial container material. The burial container material will

meet all applicable hazardous waste encapsulation requirements. TWRS will ship the waste form to SWD. SWD will remove the waste form from the transport container and dispose of the waste form in the RMW landfill.

LLCE classified as TRU which is retrieved after the operational date of the TWRS full-size encapsulation system will be stored in the transport container/burial container unit at CWC for future processing. LLCE will be retrieved and shipped by TWRS as described above, with the exception that TWRS will not void fill TRU LLCE items. SWD will provide storage at CWC.

LLCE retrieved after the operational date of the SWD grout vault encapsulation system will be encapsulated and disposed in the grout vaults. During retrieval, TWRS will rinse the LLCE item for dose rate reduction and enclose the LLCE item in a flexible receiver for contamination control. The flexible receiver will contain sufficient absorbent material to absorb any residual liquids remaining on or in the LLCE item. TWRS will place the LLCE item into a reusable truck-mounted steel transport container. The shipping container will have its own Safety Analysis Report for Packaging (SARP). TWRS will ship the LLCE item to SWD. SWD will remove the LLCE item from the transport container and place the LLCE item into the selected grout vault. SWD will cover the LLCE item with an encapsulating material, thereby forming a complete encapsulating barrier of encapsulating material. The encapsulating material will meet all applicable hazardous waste encapsulation requirements.

LLCE classified as TRU which is retrieved after the operational date of the SWD grout vault encapsulation system will be stored in the shipping container at CWC for future processing. LLCE will be retrieved and shipped by TWRS as described above. SWD will provide storage at CWC. In all cases, the dimensions, source terms and packaging details of the transport and burial containers will be given in the applicable SEPs and SARPs. The transport and burial containers will match interfaces as discussed in Disposal of Tank Farm Long-Length Contaminated Equipment: Alternative Options Study and Engineering Support Information and any successor treatment options engineering studies.

Currently, the TWRS full-size encapsulation system and the SWD grout vault encapsulation system are not operational, therefore all current LLCE processing will be at 2706-T. SWD will fund development of the SWD grout vault encapsulation system as a follow-on to the full-size encapsulation system.

TWRS will determine the best methods for obtaining adequate characterization of the LLCE to meet the SWD acceptance criteria.

As the cost on a cubic foot basis is large for each item, a fixed fee for each LLCE item will be explored jointly in the future.

Currently, there are insufficient solid waste storage capabilities to store all projected TRU LLCE items until approved TRU treatment facilities are available. SWD will design, build, permit, operate, and close the storage capacity required for LLCE.

TWRS, in conjunction with SWD, will explore the cost effectiveness of other treatment options for LLCE.

All future planned solid waste disposal facilities/operations will be funded, designed, built, permitted, operated, and closed by SWD.

6.12 Nonradioactive Nonhazardous Asbestos

If TWRS is aware of a project that will produce a large amount of asbestos waste, they are required to notify Acceptance Services (in SWD) prior to removal activities.

7.0 REFERENCES

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APPENDIX A

INTERFACE DRAWING

APPENDIX B

WASTE FORECAST SUMMARY

The TWRS stream data was taken directly from the 1994 Solid Waste Forecast Request responses. The SWD stream data was taken from the TWRS Operational Waste Volume Projection (Koreski and Strode, 1994) and internal communications regarding waste volume projection assumptions for T Plant for the period 1995-2028.

TWRS GENERATORS

NAME	DEPT.	Coordinator/Contracts	Level II
Tank Farm Transition Project	TWRS/ENV	P. Gagnon/F.D. Sargent	C.J.Geier
SST Retrieval	"	"	"
SST Long Length Equipment	"	"	"
DST Pilot Scale Retr. (TWP W315)	TWRS/ENG	G.D. Bazinet/W.L. Knecht, G.R. Bloom, W.A. Pfeiffer	J.A. Swenson
DST Retrieval (TWP W343)	"	"	"
High Level Vit. Project	"	"	"
Low Level Vit. Project	"	"	"
Pretreatment Facility	"	"	"
Vent. Upgrades (TWP W030)	TWRS/PRJ	F.L. Leavell/K.A. Colosi, E.M. Nordquist, C.A. Rieck, M.J. Ramos	M.A. Cahill
Tank 101 AZ Retrieval (TWP W151)	"	"	"
DST Retr. System (TWP W211)	"	"	"
DST Tank Farm Restoration	"	"	"
Transfer Lines (TWP W028)	TWRS/PRJ	D.V. Vo	R.L. Fritz
Cross-Site Transfer (TWP W058)	"	"	"
Tank 241-106C Sluicing (TWP W320)	TWRS/PRJ	T.N. Shaw/L.B.McDaniel	C.A. Augustine
Tank 241-106C Manipulator (TWP W340)	"	"	"

Waste Tank Operations

Description
Routine operations and maintenance waste from 200 West and East tank farms. Mixed waste will consist of soil, HEPA filters, and debris.

Container Type
55-gallon drums
85-gallon drums
3.41x3.58x6.41 metal box
5.32x5.69x9.69 metal box
6x5.89x6.7 metal box
2.41x2.57x6.41 metal box
5.32x5.69x9.69 metal box

Volume (ft^3) by Waste Class and Year of Generation

	1995	1996.....2024
CH LLW-1	9590	10550.....10550
CH LLMW-1	4200	4620.....4620
CH LLMW-3	1800	1980.....1980
HAZ	1212	1333.....1333

Single Shell Tank Retrieval

Description
Retrieval program operational waste.

Container Type
55 gallon drums
4x4x8 box (w/skids)

Volume (ft^3) by Waste Class and Year of Generation

	1997	2004	2005	2006	2007	2008	2009	2010	2011	2012
CH LLW-1	128	384	384	512	640	640	896	1024	1280	1536
CH LLMW-1	102	307	307	410	512	512	717	819	1024	1229
CH LLMW-3	154	461	461	614	768	768	1075	1229	1536	1843

2013	2014	2015	2016	2017
1792	2176	2560	2560	2560
1434	1741	2048	2048	2048
2150	2611	3072	3072	3072

Single Shell Tank Long Length Equipment

Description
Large equipment removed from single shell tanks

Container Type
LEC-1
LEC-2
LEC-3
LEC-4
LEC-5
LEC-6
LEC-A
LEC-B

Volume (ft^3) by Waste Class and Year of Generation

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
CH LLMW-3	1637	7873	21133	13040	17444	19230	22699	26242	28145	64076	58292
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
	68288	79425	77859	92964	98655	133680	147753	172047	204933	231185	242169
	2017	2018	2019	2020	2021	2022	2023	2024			
	249421	73808	85909	98108	114549	133936	133936	133936			

Double Shell Tank Pilot Scale Retrieval -TWP 315

Description
25 liter stainless steel sampling device plus lead shielding

Container Type
55 gallon drums

Volume (ft^3) by Waste Class and Year of Generation

	2005	2015
CH LLW-1	22	22

Double Shell Tank Retrieval - TWP W343

Description
Soil, concrete, construction materials, and equipment removed from tanks.

Container Types
55-gallon drums
LEC-3 (48"x70')
LEC-4 (66'x70')
LEC-6 (86"x70')

Volume (ft^3) by Waste Class and Year of Generation

	2008	2009	2010	2011	2012	2013	2014	2015	2016
CH LLW-1	2590	2649	4440	1850	2960	2590	2590	2590	1480
RH LLMW-GTC-3	1578	1578		1578	15618	1578	1578	1578	789
RH LLMW-3			789						
RH TRUM			8151						789

High Level Vitrification

Description
Waste will be contaminated metals, plastics, rubber, paper, cloth, paint debris, lab chemicals, solvents, batteries, light ballast. Waste will be generated from spill cleanup, decontamination, housekeeping, maintenance, and lab activities.

Container Types
55-gallon drums
4x4x8 boxes (w/skids)
4x4x8 metal boxes
standard waste boxes

Volume (ft^3) by Waste Class and Year of Generation

	2009	2024
CH LLW-1	15873	15873
CH LLW-3	28600	28600
RH LLW-3	4480	4480
CH LLMW-1	644	644
CH LLMW-3	874	874
CH TRU	2070	2070
RH TRU	1762	1762
CH TRUM	2070	2070
RH TRUM	1982	1982
HAZ	166	166

Low Level Vitrification

Description
Waste will be contaminated metals, plastics, rubber, paper, cloth, paint debris, lab chemicals, solvents, batteries, light ballast. Waste will be generated from spill cleanup, decontamination, housekeeping, maintenance, and lab activities.

Container Types
55-gallon drums
4x4x8 box (w/skids)
4x4x8 metal

Volume (ft^3) by Waste Class and Year of Generation

	2005	2024
CH LLW-1	15015	15015
CH LLW-3	5005	5005
RH LLW-3	768	768
CH LLMW-1	55	55
CH LLMW-3	37	37
HAZ	120	120

Pretreatment Facility

Description
Waste will be contaminated metals, plastics, rubber, paper, cloth, paint debris, lab chemicals, solvents, batteries, light ballast. Waste will be generated from spill cleanup, decontamination, housekeeping, maintenance, and lab activities.

Container Types
55-gallon drums
4x4x8 boxes (w/skids)
4x4x8 metal

Volume (ft^3) by Waste Class and Year of Generation

	2004	2024
CH LLW-1	5005	5005
CH LLW-3	5005	5005
RH LLW-3	512	512
CH LLMW-1	28	28
CH LLMW-3	18	18
HAZ		

Ventilation Upgrades - TWP W030

Description
Metal, inorganic non-metal, combustible, soil. Waste was generated previously during production and stored in AY/AZ tank farms.

Container Types
55-gallon drums
4x4x8 boxes (w/skids)

Volume (ft^3) by Waste Class and Year of Generation

	1995	1996	1997
CH LLW-1	1000	700	300

101-AZ Retrieval - TWP W151

Description
LLW-1 will be plastic and wood generated during greenhouse operations.
LLW-3 will be contaminated soil volumes generated during excavations
LLMW-3 will be long length components from the 101-AZ tank, in flexible receiver bags with absorbent.

Container Types
4'x4'x8' box (w/ skids)
55-gallon drums
LEC-3
LEC-4
Special LEC (2.33'x2.67'x70.33')

Volume (ft^3) by Waste Class and Year of Generation

	1995	2001
CH LLW-1	429	143
CH LLW-3	92	
RH LLMW-3	4095	3806

DST Retrieval Systems - TWP 211

Description
Contaminated soil and equipment in LEC's generated during construction of DST retrieval system upgrades for tanks 101 AP, 101 AW, 101 SY, 103 SY, 102 AY, 102 AZ, 103 AN, 104 AN, 105 AN and 106 AN.

Container Types
55-gallon drums
LEC-3's (48"x70')

Volume (ft^3) by Waste Class and Year of Generation

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
CH LLW-1	3500	7000	3500	3500	7000	7000	7000	7000	3500	3500	7000
RH LLMW-3		500	500	500	1000	1000	1000	1000	500	500	1000

	2007	2008	2009
CH LLW-1	3500	3500	3500
RH LLMW-3	500	500	500

DST Tank Farm Restoration - TWP 314

Description
Contaminated soil, construction debris, equipment
Container type
55-gallon drums
4x4x8 boxes (w/skids)

Volume (ft^3) by Waste Class and Year of Generation

	1998	1999	2000	2001	2002	2003	2004
CH LLMW-1	8500	14500	36850	41100	26600	26600	4250

Transfer Lines - TWP W028

Description
Contaminated soil generated during excavation of the aging waste transfer lines from B Plant to the 151 AR valve pit.

Container Types
4x4x8 boxes (w/o skids)

Volume (ft^3) by Waste Class and Year of Generation

	1996	1997
CH LLW-1	130	130

Cross-site Transfer - TWP W058

Description
Contaminated soil generated during the excavation of the cross-site transfer system connecting the 241-SY tank farm and the 244-A lift station

Container Types
4x4x8 boxes (w/o skids)

Volume (ft^3) by Waste Class and Year of Generation

	1995	1996	1997
CH LLW-1	1250	6500	5250

Tank 106C Sluicing - TWP W320

Description
Tank equipment such as pumps, sluicers, instrument trees, heel jet, jumpers, and unused existing pump; construction waste, debris

Container Type
55 gallon drums
4x4x8 box w/skids
Metal boxes (to be designed) of 155, 211, 227, 253, and 345 ft^3

Volume (ft^3) by Waste Class and Year of Generation

	1995	1996	1997	1998
CH LLW-1	1626	1114	3262	758
CH LLMW-3	1418	1024	7078	866

241-C-106 Manipulator Retrieval - WHC TWP 340

Description
Contaminated soil; section (~6'x6'x6' or 216 ft^3) of concrete from top of tank

Container Types
55-gallon drums, self-contained concrete monolith

Volume (ft3) by Waste Class and Year of Generation

	1999	2000	2001
CH LLW-1	276	276	276
RH LLW-1		216	

SWD WASTE STREAMS

Mixed Waste Landfill Leachate - Trenches #31 and 34*

Description
Volumes of leachate collected from the mixed waste landfill.

Container Type
Tank Car

Volume (kgal) by Waste Class and Year of Generation

The baseline assumption in the TWRS Operational Waste Volume Forecast is zero for liquid waste from leachate collection. The upper planning case does assume 120 kgal per month for Trench 31. It is assumed that Trench 34 would be similar.

Decontamination Liquid Waste - T Plant, 2706-T

Description
Liquid waste generated from decontamination activities at T Plant or 2706-T.

Container Type
Railcar

Volume (kgal) by Waste Class and Year of Generation*

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
CH LLMW-1	120	120	120	120	120	120	120	120	120	120	120
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
	169.66	161.82	153.98	146.14	138.3	138.3	138.3	138.3	115.5	92.7	69.9
	2017	2018	2019	2020	2021	2022	2024				
	47.1	24.3	1.5	1.5	1.5	1.5	1.5				

* This waste may be sent to the 200 Area Effluent Treatment Facility rather than to DSTs, depending on leachate analyses and operational decisions.

* The TWRS Operational Waste Volume Forecast scope extends to 2005; volumes in later years are from T Plant projection assumptions. All numbers are baseline assumptions.

DISTRIBUTION SHEET

To	From	Page 1 of 1
DISTRIBUTION	SOLID WASTE DISPOSAL	Date 12-06-95
Project Title/Work Order		EDT No. 605309
Interface Control Document between the Tank Waste Remediation System and the Solid Waste Disposal Division		ECN No. n/a

Name	MSIN	Text With All Attach.	Text Only	Attach./ Appendix Only	EDT/ECN Only
DR DUNCAN	T4-02	X			
KL HLADEK	T4-02	X			
WH HAMILTON	T3-01	X			
DE McKENNEY	T3-01	X			
CJ GEIER	R2-36	X			
GL DUNFORD	R2-36	X			
ML GRYGIEL	H6-33	X			
CENTRAL FILES	A3-88	2			