

ENGINEERING CHANGE NOTICE

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1. ECN 831564

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<p>11a. Modification Work</p> <p><input type="checkbox"/> Yes (fill out Bk. 11b)</p> <p><input checked="" type="checkbox"/> No (NA Bkls. 11b, 11c, 11d)</p>	<p>11b. Work Package No.</p> <p>N/A</p>	<p>11c. Modification Work Complete</p> <p>N/A</p> <p>Cog. Engineer Signature & Date</p>	<p>11d. Restored to Original Condition (Temp. or Standby ECN only)</p> <p>N/A</p> <p>Cog. Engineer Signature & Date</p>
<p>12. Description of Change</p> <p>Complete revision.</p>			
<p>13a. Justification (mark one)</p> <p>Criteria Change <input checked="" type="checkbox"/> Design Improvement <input type="checkbox"/> Environmental <input type="checkbox"/> Facility Deactivation <input type="checkbox"/></p> <p>As-Found <input type="checkbox"/> Facilitate Const <input type="checkbox"/> Const. Error/Omission <input type="checkbox"/> Design Error/Omission <input type="checkbox"/></p>			
<p>13b. Justification Details</p> <p>Changed to comply with new template and DOE-RL recommended modifications.</p>			
<p>14. Distribution (include name, MSIN, and no. of copies)</p> <p>See attached distribution.</p>			
<p>RELEASE STAMP</p> <p>MAY 10 1996</p> <p>DATE: _____</p> <p>STA _____</p> <p>4</p> <p>MARKFORD RELEASE</p> <p>ID: 16</p>			

Tank 241-SX-115 Tank Characterization Plan

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Westinghouse Hanford Company, Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-87RL10930

EDT/ECN: ECN-631564 UC: 2070
Org Code: 79200 Charge Code: N4G6A
B&R Code: EW 3120074 Total Pages: 10

Key Words: Characterization, General Safety Issues, Specific Safety Issues, Information Requirements, Schedule

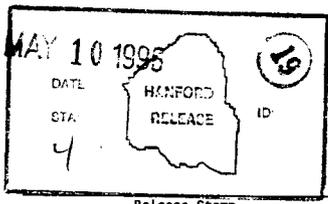
Abstract: This document is a plan that identifies the information needed to address relevant issues concerning short-term and long-term storage and long-term management of single-shell tank 241-SX-115.

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Release Approval

5/9/96
Date



Approved for Public Release

Tank 241-SX-115 Tank Characterization Plan

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Date Published
April 1996

Prepared for the U.S. Department of Energy
Office of Environmental Restoration and
Waste Management



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Management and Operations Contractor for the
U.S. Department of Energy under Contract DE-AC06-87RL10930

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1.0 INTRODUCTION

This Tank Characterization Plan (TCP) identifies the information needed to address relevant issues concerning short-term safe storage and long-term management of single-shell tank 241-SX-115 (SX-115). It should be understood that the various needs and issues surrounding tank SX-115 are evolving as new information about the tank is uncovered. As a result of this progression, this TCP addresses only the issues that, to this date, have been identified. It is expected that deviations from this plan may occur as additional issues or needs arise which impact the management of SX-115. As necessary, this TCP will be revised to reflect those changes or deviations. This plan reflects the best information available as of May 1996.

Tank SX-115 was constructed between 1953 and 1954 and was put into service in the third quarter of 1958. Tank SX-115 received Reduction Oxidation (REDOX) waste from the process plant until 1965. In 1965, the tank was removed from service because of an assumed leak with an assumed leak volume of 189 kL (50 kgal). Tank SX-115 is passively ventilated. This tank was interim stabilized in September of 1978, and intrusion prevention was completed in December 1982 (Agnew 1996).

Tank SX-115 currently contains a total volume of 45 kL (12 kgal) of waste, which is equivalent to 24 cm (9.6 in) of waste as measured from the baseline of the tank (Hanlon 1996).

This tank is not on any Watch List.

Near-term sampling and analysis activities are focused on either verifying or changing Watch List tank status, and identifying any new safety issues. Should any safety issues be identified, additional analysis will occur consistent with the identified issue.

In addition to the resolution of the safety issues, it is intended that all tank waste will be subject to pretreatment and retrieval to prepare for final storage or disposal. Presently, these long-range plans have yet to be fully identified and are, therefore, not included in this document.

2.0 PROGRAM ELEMENTS REQUIRING INFORMATION FOR TANK 241-SX-115

This section identifies the various program elements, and identifies which of these programs require characterization data from tank SX-115.

2.1 GENERAL SAFETY ISSUES

The *Tank Safety Screening Data Quality Objective* (Dukelow et al. 1995) describes the sampling and analytical requirements that are used to screen waste tanks for unidentified safety issues. Analytical requirements for the safety screening of a tank are energetics, total alpha activity, moisture content, density, and flammable gas concentration.

2.2 SPECIFIC SAFETY ISSUES

2.2.1 Ferrocyanide

This tank is not on the Ferrocyanide Watch List, therefore, there are no information needs currently identified for this program element.

2.2.2 Organic

This tank is not on the Organic Watch List, therefore there are no information needs currently identified for this program element.

2.2.3 High Heat

This tank is not on the High Heat Watch List, therefore there are no information needs currently identified for this program element.

2.2.4 Flammable Gas

This tank is not on the Flammable Gas Watch List, therefore there are no information needs currently identified for this program element.

2.2.5 Vapor

All 177 underground tanks must be vapor-sampled for organic solvent screening as per *Recommendation 93-5 Implementation Plan* (DOE-RL 1996). Some tanks may require additional vapor sampling due to other program needs. These tanks may be classified into four categories: (1) those tanks which are to be rotary mode core sampled (as a consequence of the rotary sampling system exhauster permit requirements); (2) tanks on the Organic or Ferrocyanide Watch Lists; (3) tanks in C farm; and (4) tank 241-BX-104, due to vapor exposure. Information needs must satisfy *Data Quality Objectives for Tank Hazardous Vapor Safety Screening* (Osborne and Buckley 1995), and for rotary mode only, *Rotary Core Vapor Sampling*

Data Quality Objective (Price 1994) and *Data Quality Objective for Regulatory Requirements for Hazardous and Radioactive Air Emissions Sampling and Analysis* (Mulkey and Markillie 1995) as amended by *Status of the Current Understanding of the Toxic Air Pollutants (TAPS) and Hanford Tank Farm Vapor Space Characterization; Recommended Path Forward and Justification for Continued RMCS Exhauster Operations* (Laws 1996).

2.2.6 Criticality

No information separate from that for the general safety issue of tank SX-115 are currently identified for this program element. However, if the general safety screening of tank SX-115 identifies a potential criticality concern, analyses for fissile materials and neutron absorbers and poisons will be performed as identified in the safety screening data quality objective (DQO).

2.3 CONTINUING OPERATIONS

2.3.1 Compatibility/Stabilization

This section does not apply to tank SX-115.

2.3.2 Evaporator

This section does not apply to tank SX-115.

2.4 DOUBLE-SHELL TANK WASTE ANALYSIS PLAN

This section does not apply because tank SX-115 is a single-shell tank.

2.5 DISPOSAL

2.5.1 Retrieval

Current retrieval needs (Bloom and Nguyen 1995) do not call for test samples to be taken from tank SX-115.

2.5.2 Pretreatment/Vitrification

Tank SX-115 is not identified as a bounding tank for pretreatment/disposal process development strategy (Kupfer et al. 1995). All tanks were prioritized using the pretreatment strategy in the *Tank Waste Characterization Basis* (Brown et al. 1995) document and a portion of the archive material could be used for pretreatment testing, if available. The strategy does not require any specific analyses to be done on the samples.

2.6 HISTORICAL MODEL EVALUATION

Bounding tanks and data requirements for historical model evaluations are found in *Historical Model Evaluation Data Requirements* (Simpson and McCain 1995). Tank SX-115 is not identified as a primary bounding tank for historical model evaluations.

3.0 HOW INFORMATION WILL BE OBTAINED

The number of samples required to characterize a tank is a function of waste heterogeneity and the desired confidence to make a correct decision. As directed by the safety screening DQO, if inadequate information exists to determine an appropriate number of samples, two vertical profiles will be obtained. These vertical profiles may be obtained using core, auger (for shallow tanks), or grab samples. Recent video surveillance (WHC 1996) revealed a nearly empty tank with a thin crust of waste incompletely covering the tank bottom, suggesting very little waste may be present. If analysis of these profiles reveals that additional profiles are necessary to meet data needs, more sample profiles will be requested..

4.0 PRIORITY OF INFORMATION REQUIREMENTS

Auger sampling was completed in May 1995, but failed to obtain sufficient material to analyze. Subsequent auger sampling is scheduled in July 1996. Vapor sampling is scheduled in December 1997 (Stanton 1996). Refer to Table 4-1 for the current DQO requirements and planned sampling and analytical requirements.

Table 4-1: Integrated DQO Requirements and Priorities

Sampling Event	Applicable Issues	Sampling Requirements*	Analytical Requirements*
Vapor	-Organic Solvent Layer 93-5 Vapor Issue - Hazardous Vapor DQO	Steel canisters, Triple Sorbent Traps, Sorbent Trap Systems	Flammable Gas Organic Vapors Permanent Gases
Auger Sampling	-Safety Screening DQO	Core samples from 2 risers separated radially to the maximum extent possible Combustible gas measurement	Flammability, Energetics, Moisture, Density, Total alpha activity

* Consult each applicable DQO in force at the time for sampling and analytical requirements.

5.0 WHEN INFORMATION WILL BE AVAILABLE

According to Stanton (1996), data are expected to be available from the auger sampling event for tank SX-115 in November 1996. Vapor sampling data are expected in February 1998. These times may be altered if the if the sampling schedule changes.

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		EDT No. N/A
		ECN No. ECN-631564

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