

5

0050775

ENGINEERING CHANGE NOTICE

Page 1 of 2

1. ECN 653794

Proj. ECN

2. ECN Category (mark one) Supplemental <input type="checkbox"/> Direct Revision <input checked="" type="checkbox"/> Change ECN <input type="checkbox"/> Temporary <input type="checkbox"/> Standby <input type="checkbox"/> Supersedure <input type="checkbox"/> Cancel/Void <input type="checkbox"/>	3. Originator's Name, Organization, MSIN, and Telephone No. John M. Conner, Data Assessment and Interpretation, R2-12, 373-2711	4. USQ Required? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. Date 05/25/99	
	6. Project Title/No./Work Order No. Tank 241-C-108	7. Bldg./Sys./Fac. No. 241-C-108	8. Approval Designator N/A	
	9. Document Numbers Changed by this ECN (includes sheet no. and rev.) WHC-SD-WM-ER-503, Rev. 0-B	10. Related ECN No(s). ECNs: 618800, 650553	11. Related PD No. N/A	

12a. Modification Work <input type="checkbox"/> Yes (fill out Blk. 12b) <input checked="" type="checkbox"/> No (NA Blks. 12b, 12c, 12d)	12b. Work Package No. N/A	12c. Modification Work Complete N/A	12d. Restored to Original Condition (Temp. or Standby ECN only) N/A
Design Authority/Cog. Engineer Signature & Date		Design Authority/Cog. Engineer Signature & Date	

13a. Description of Change
 This ECN has been generated in order to update the document to reflect results of recent data/information evaluation.

13b. Design Baseline Document? Yes No

Replace pages:
 6-1, 6-2, and 7-3 through 7-6

14a. Justification (mark one)

Criteria Change <input checked="" type="checkbox"/>	Design Improvement <input type="checkbox"/>	Environmental <input type="checkbox"/>	Facility Deactivation <input type="checkbox"/>
As-Found <input type="checkbox"/>	Facilitate Const <input type="checkbox"/>	Const. Error/Omission <input type="checkbox"/>	Design Error/Omission <input type="checkbox"/>

14b. Justification Details

A tank characterization report page change revision is required to reflect the results of recent evaluation of data/information pertaining to adequacy of tank sampling for safety screening purposes (Reynolds et al. 1999, Evaluation of Tank Data for Safety Screening, HNF-4217, Rev. 0, Lockheed Martin Hanford Corporation, Richland, Washington).

15. Distribution (include name, MSIN, and no. of copies)
 See attached distribution.

RELEASE STAMP

DATE: MAY 27 1999

STA: 4

HANFORD RELEASE

ID: 2

Tank Characterization Report for Single-Shell Tank 241-C-108

John M. Conner
Lockheed Martin Hanford Corp., Richland, WA 99352
U.S. Department of Energy Contract 8023764-9-K001

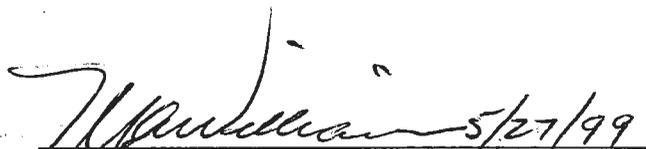
EDT/ECN: ECN-653794 UC: 2070
Org Code: 74B20 CACN/COA: 102217/EI00
B&R Code: EW 3120074 Total Pages: 151

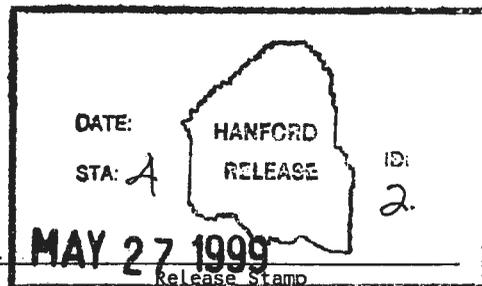
Key Words: Waste Characterization, Single-Shell Tank, SST, Tank 241-C-108, Tank C-108, C-108, C Farm, Tank Characterization Report, TCR, Waste Inventory, TPA Milestone M-44

Abstract: N/A

TRADEMARK DISCLAIMER. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors.

Printed in the United States of America. To obtain copies of this document, contact: WHC/BCS Document Control Services, P.O. Box 1970, Mailstop H6-08, Richland WA 99352, Phone (509) 372-2420; Fax (509) 376-4989.


Release Approval _____ Date 5/27/99



Approved for Public Release

6.0 CONCLUSIONS AND RECOMMENDATIONS

The characterization of tank 241-C-108 presented in this TCR is based on several sampling and analysis events. The tank was sampled using the push mode core method in June 1994. However, because of insufficient recovery, three auger samples were obtained in November and December 1994. The tank headspace was also sampled in August 1994.

The two primary data requirements for the Ferrocyanide Safety Program DQO (Meacham et al. 1994) were satisfied. No exothermic reactions were observed, and the moisture content was inconsequential because the fuel weight percent was below 8 percent. Calculations indicate that more than two-thirds of the ferrocyanide that was originally placed in the tank has degraded.

With the exception of the TGA results of two subsamples of the auger sample 94-AUG-012, all safety screening analytes were within the limits specified in the tank 241-C-108 TCP (Schreiber 1994a). Vapor sampling demonstrated that none of the tank headspace gases exceeded 25 percent of their lower flammability limit. Additionally, the heat load from the radioactive decay of radionuclides is much lower than the 11,700 W (40,000 Btu/h) limit which separates high-heat tanks from low-heat tanks.

As discussed in Section 5.4, the auger sampling analytical results were compared to the HTCE (Brevick et al. 1994a). The results compared poorly. The disparities may be the result of the failure of the TLM to account for an amount of HS waste, or possibly overestimating the amount of waste from the UR process.

The tank 241-C-108 headspace was sampled in August 1994 for gases and vapors to address flammability and industrial hygiene concerns. Collection and analysis of samples has been reported. It was determined that no headspace constituents exceeded the flammability or industrial hygiene notification limits specified in WHC-EP-0562, *Program Plan for the Resolution of Tank Vapor Issues* (Osborne and Huckaby 1994).

The analytical data do not suggest a safety problem with tank 241-C-108, and the amount of waste present in the tank is small; for these reasons, further sampling and analysis are not recommended.

Further evaluation in 1999 of these sampling and analyses data confirms that tank 241-C-108 has been sufficiently sampled for safety screening purposes (Reynolds et al. 1999).

This page left intentionally blank.

- Hanlon, B. M., 1995, *Waste Tank Summary Report for Month Ending June 30, 1995*, WHC-EP-0182-87, Westinghouse Hanford Company, Richland, Washington.
- Hendrickson, R. W., 1995, *Tank Vapor Characterization Oak Ridge National Laboratories Quality Assurance Assessment*, TWRSQA-95-0012, Westinghouse Hanford Company, Richland, Washington.
- Huckaby, J. L., 1995a, *Tank 241-C-108 Vapor Sampling and Analysis Tank Characterization Report*, WHC-SD-WM-ER-423, Rev. 1, Westinghouse Hanford Company, Richland, Washington.
- Huckaby, J. L., 1995b, *Waste Tank Headspace Gas and Vapor Characterization Reference Guide*, WHC-SD-WM-ER-430, Rev. 0, Westinghouse Hanford Company, Richland, Washington.
- Huckaby, J. L., and M. S. Story, 1994, *Vapor Characterization of Tank 241-C-103*, WHC-EP-0780, Rev. 0, Westinghouse Hanford Company, Richland, Washington.
- Jenkins, R. A., A. B. Dindal, C. E. Higgins, C. Y. Ma, and J. T. Skeen, 1994, *Analysis of Tank 241-C-108 Headspace Components*, Oak Ridge National Laboratory, Oak Ridge, Tennessee.
- Jordan, K. N., 1994, *Tank Waste Remediation System Multi-Year Plan*, WHC-SP-1101, Rev. 0, Westinghouse Hanford Company, Richland, Washington.
- Kummerer, M., 1994, *Topical Report on Heat Removal Characteristics of Waste Storage Tanks*, WHC-SD-WM-SARR-010, Rev. 0, Westinghouse Hanford Company, Richland, Washington.
- Lucke, R. B., M. W. Ligothke, K. H. Pool, T. W. Clauss, A. K. Sharma, B. D. McVeety, M. McCulloch, J. S. Fruchter, and S. C. Goheen, 1995, *Vapor Space Characterization of Waste Tank 241-C-108: Results from Samples Collected Through the Vapor Sampling System on 8/5/94*, PNL-10351, Pacific Northwest Laboratory, Richland, Washington.
- Mahlum, D. D., J. Y. Young, and R. E. Weller, 1994, *Toxicologic Evaluation of Analytes from Tank 241-C-103*, PNL-10189, Pacific Northwest Laboratory, Richland, Washington.
- McLaren, J. M., 1994, *Ferrocyanide Safety Program: Thermal Analysis of Ferrocyanide Watch List Tanks, Group II*, WHC-EP-0795, Westinghouse Hanford Company, Richland, Washington.

- Meacham, J. E., R. J. Cash, G. T. Dukelow, H. Babad, J. W. Buck, C. M. Anderson, B. A. Pulsipher, J. J. Toth, and P. J. Turner, 1994, *Data Requirements for the Ferrocyanide Safety Issue Developed through the Data Quality Objective Process*, WHC-SD-WM-DQO-007, Westinghouse Hanford Company, Richland, Washington.
- Osborne, J. W., and J. L. Huckaby, 1994, *Program Plan for the Resolution of Tank Vapor Issues*, WHC-EP-0562, Rev. 1, Westinghouse Hanford Company, Richland, Washington.
- Osborne, J. W., J. L. Huckaby, T. P. Rudolph, E. R. Hewitt, D. D. Mahlum, J. Y. Young, and C. M. Anderson, 1994, *Data Quality Objectives for Generic In-Tank Health and Safety Vapor Issue Resolution, March 7, 1994*, WHC-SD-WM-DQO-002, Rev. 0, Westinghouse Hanford Company, Richland, Washington.
- Parong, S. M., 1995, *Inductively Coupled Plasma (ICP) Emission Spectrometric Method for the Thermo Jarrell Ash (TJA) Type 61E*, LA-505-161, Rev. B-0, Westinghouse Hanford Company, Richland, Washington.
- Postma, A. K., J. E. Meacham, G. S. Barney, G. L. Borsheim, R. J. Cash, M. D. Crippen, D. R. Dickinson, J. M. Grigsby, D. W. Jeppson, M. Kummerer, J. M. McLaren, C. S. Simmons, and B. C. Simpson, 1994, *Ferrocyanide Safety Program: Safety Criteria for Ferrocyanide Watch List Tanks*, WHC-WP-0691, Westinghouse Hanford Company, Richland, Washington.
- Rasmussen, R. A., 1994a, *Oregon Graduate Institute Vapor Analysis Results, Tank 241-C-108, August 1994*, Oregon Graduate Institute of Science and Technology, Beaverton, Oregon.
- Rasmussen, R. A., 1994b, *Air Samples Collected at Waste Tank 241-BY-104 on June 24, 1994, by Westinghouse Hanford in 6-L SS SUMMA™ Canisters*, Oregon Graduate Institute of Science and Technology, Beaverton, Oregon.
- Rasmussen, R. A., 1994c, *Air Samples Collected at Waste Tank 241-BY-105 on July 7, 1994, by Westinghouse Hanford in 6-L SS SUMMA™ Canisters*, Oregon Graduate Institute of Science and Technology, Beaverton, Oregon.
- Rasmussen, R. A., 1994d, *Air Samples Collected at Waste Tank 241-BY-106 on July 8, 1994, by Westinghouse Hanford in 6-L SS SUMMA™ Canisters*, Oregon Graduate Institute of Science and Technology, Beaverton, Oregon.
- Reynolds, D. A., W. T. Cowley, J. A. Lechelt, and B. C. Simpson, C. DeFigh-Price, 1999, *Evaluation of Tank Data for Safety Screening*, HNF-4217, Rev. 0, Lockheed Martin Hanford Corporation, Richland, Washington.

Schreiber, R. D., 1994a, *Tank 241-C-108 Tank Characterization Plan*, WHC-SD-WM-TP-211, Rev. 0, Westinghouse Hanford Company, Richland, Washington.

Schreiber, R. D., 1994b, *Tank 241-C-108 Tank Characterization Plan*, WHC-SD-WM-TP-211, Rev. 1, Westinghouse Hanford Company, Richland, Washington.

Schroeder, R. W., 1994, *Determination of Carbon by Hot Persulfate Oxidation and Coulometric Detection*, LA-342-100, Rev. A-0, Westinghouse Hanford Company, Richland, Washington.

Schroeder, R. W., 1995, *Determination of Cyanide by Microdistillation and Spectrophotometric Analysis*, LA-695-102, Rev. C-0, Westinghouse Hanford Company, Richland, Washington.

Simpson, B. C., G. L. Borsheim, and L. Jensen, 1993, *Tank Characterization Data Report - Tank 241-C-112*, WHC-EP-0640, Rev. 1, Westinghouse Hanford Company, Richland, Washington.

Slippern, J. L., 1995, *Determination of Uranium by Kinetic Phosphorescence*, LA-925-009, Rev. A-1, Westinghouse Hanford Company, Richland, Washington.

SP-004, Rev. 1 was issued April 29, 1995.

Tran, T. T., 1993, *Thermocouple Status Single-Shell and Double-Shell Waste Tanks*, WHC-SD-WM-TI-533, Rev. 0, Westinghouse Hanford Company, Richland, Washington.

Welty, R. K., 1988, *Waste Storage Tank Status and Leak Detection Criteria*, WHC-SD-WM-TI-356, vols. 1 and 2, Rev. 1, Westinghouse Hanford Company, Richland, Washington.

WHC, 1995, *Vapor and Gas Sampling of Single-Shell Tank 241-C-108 Using the Vapor Sampling System*, WHC-SD-WM-RPT-110, Rev. 0, Westinghouse Hanford Company, Richland, Washington.

This page intentionally left blank.

DISTRIBUTION SHEET

To Distribution	From Data Assessment and Interpretation	Page 1 of 2 Date 05/25/99
Project Title/Work Order Tank Characterization Report for Single-Shell Tank 241-C-108, WHC-SD-WM-ER-503, Rev. 0-C		EDT No. N/A ECN No. ECN-653794

Name	MSIN	Text With All Attach.	Text Only	Attach./ Appendix Only	EDT/ECN Only
------	------	-----------------------	-----------	------------------------	--------------

OFFSITE

Sandia National Laboratory

P.O. Box 5800
MS-0744, Dept. 6404
Albuquerque, NM 87815

D. Powers X

Nuclear Consulting Services Inc.

P. O. Box 29151
Columbus, OH 43229-01051

J. L. Kovach X

Chemical Reaction Sub-TAP

P.O. Box 271
Lindsborg, KS 67456

B. C. Hudson X

SAIC

555 Quince Orchard Rd., Suite 500
Gaithersburg, MD 20878-1437

H. Sutter X

Los Alamos Laboratory

CST-14 MS-J586
P. O. Box 1663
Los Alamos, NM 87545

S. F. Agnew X

Tank Advisory Panel

102 Windham Road
Oak Ridge, TN 37830

D. O. Campbell X

DISTRIBUTION SHEET

To Distribution	From Data Assessment and Interpretation	Page 2 of 2
		Date 05/25/99
Project Title/Work Order Tank Characterization Report for Single-Shell Tank 241-C-108, WHC-SD-WM-ER-503, Rev. 0-C		EDT No. N/A
		ECN No. ECN-653794

Name	MSIN	Text With All Attach.	Text Only	Attach./Appendix Only	EDT/ECN Only
------	------	-----------------------	-----------	-----------------------	--------------

ONSITE

Department of Energy - Richland Operations

W. S. Liou	S7-54	X			
DOE/RL Reading Room	H2-53	X			

DE&S Hanford, Inc.

G. D. Johnson	S7-73	X			
---------------	-------	---	--	--	--

Fluor Daniel Hanford Corporation

J. S. Hertzell	H8-67	X			
----------------	-------	---	--	--	--

Lockheed Martin Hanford, Corp.

J. W. Cammann	R2-11	X			
J. M. Conner	R2-11	X			
R. E. Larson	T4-07	X			
L. M. Sasaki	R2-12	X			
B. C. Simpson	R2-12	X			
R. R. Thompson	R2-12	X			
ERC (Environmental Resource Center)	R1-51	X			
T.C.S.R.C.	R1-10	5			

Lockheed Martin Services, Inc.

B. G. Lauzon	R1-08	X			
Central Files	B1-07	X			
EDMC	H6-08	X			

Numatec Hanford Corporation

J. S. Garfield	R3-73	X			
D. L. Herting	T6-07	X			

Pacific Northwest National Laboratory

A. F. Noonan	K9-91	X			
--------------	-------	---	--	--	--

Scientific Applications International Corporation

M. D. LeClair	R3-75	X			
---------------	-------	---	--	--	--