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Sta #6 63

ENGINEERING DATA TRANSMITTAL

Page 1 of 1

1. EDT 140699

2. To: (Receiving Organization)	3. From: (Originating Organization)	4. Related EDT No.:
Distribution	Processing and Analytical Labs	NA
5. Proj./Prog./Dept./Div.:	**6. Cog. Engr.:**	**7. Purchase Order No.:**
Tank 105/Waste Management/Processing and Analytical Labs	K. K. Giamberardini	NA
8. Originator Remarks:		**9. Equip./Component No.:** NA
		10. System/Bldg./Facility: NA
11. Receiver Remarks:		**12. Major Assm. Dwg. No.:** NA
		13. Permit/Permit Application No.: NA
		14. Required Response Date: 08/10/93

SEP 1993 RECEIVED EDMC

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15. DATA TRANSMITTED

(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	(F) Impact Level	(G) Reason for Transmittal	(H) Originator Disposition	(I) Receiver Disposition
1	WHC-SD-WM-DP-040	NA	0	222-S LABORATORIES SINGLE SHELL TANK WASTE CHARACTERIZATION, TANK T-105 CORE 57 DATA PACKAGE	3Q	2	1	1

16. KEY

Impact Level (F)	Reason for Transmittal (G)	Disposition (H) & (I)
1, 2, 3, or 4 (see MRP 5.43)	1. Approval 2. Release 3. Information 4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)	1. Approved 2. Approved w/comment 3. Disapproved w/comment 4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION (See Impact Level for required signatures)

(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp.
2	1	Cog.Eng. K. K. Giamberardini	K K Giamberardini	8-11-93	T6-06	Safety NA					
2	1	Cog. Mgr. K. K. Giamberardini	K K Giamberardini	8-11-93	T6-06	Env. NA					
2	1	QA J. C. Langford	J C Langford	8/9/93	S1-52						

18. J.L. Wilkerson — Signature of EDT Originator — Date 8/11/93

19. NA — Authorized Representative for Receiving Organization — Date

20. K. K. Giamberardini — Cognizant/Project Engineer's Manager — Date 8-11-93

21. DOE APPROVAL (if requ) Ltr. No.
- [ ] Approved
- [ ] Approved w/comments
- [ ] Disapproved w/comments

BD-7400-172-2 (07/91) GEF097

BD-7400-172-1 (07/91)

SUPPORTING DOCUMENT

1. Total Pages 32

2. Title	3. Number	4. Rev No.
222-S LABORATORIES SINGLE SHELL TANK WASTE CHARACTERIZATION, TANK T-105 CORE 57 DATA PACKAGE	WHC-SD-WM-DP-040	0

5. Key Words

SINGLE SHELL TANK, WASTE CHARACTERIZATION, TANK T-105, CORE 57, DATA PACKAGE, SAMPLE, 222-S LABORATORY, WASTE MANAGEMENT, ANALYTICAL RESULTS

6. Author

Name: K. K. Giamberardini

K.K. Giamberardini
Signature

8-11-93

Organization/Charge Code 12610/J120H

7. Abstract

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9. Impact Level 3Q

10. RELEASE STAMP

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OFFICIAL RELEASE BY WHC
DATE AUG 12 1993
63
Sta # 6

8/11/93

9313026033 8

AUG 12 1993

Date Received: 8/11/93

INFORMATION RELEASE REQUEST

Reference: WHC-CM-3-4

Complete for all Types of Release

Purpose

- [ ] Speech or Presentation (Check only one suffix)
  - [ ] Full Paper
  - [ ] Summary
  - [ ] Abstract
  - [ ] Visual Aid
- [ ] Speakers Bureau
- [ ] Poster Session
- [ ] Videotape
- [ ] Reference
- [X] Technical Report
- [ ] Thesis or Dissertation
- [ ] Manual
- [ ] Brochure/Flier
- [ ] Software/Database
- [ ] Controlled Document
- [ ] Other

ID Number (include revision, volume, etc.): WHC-SD-WM-DP-040, REV 0

List attachments: NA

Date Release Required: 08/09/93

Title: 222-S LABORATORIES SINGLE SHELL TANK WASTE CHARACTERIZATION, TANK T-105 CORE 57 DATA PACKAGE

Unclassified Category: UC-

Impact Level: 3Q

New or novel (patentable) subject matter? [X] No [ ] Yes
If "Yes", has disclosure been submitted by WHC or other company?
[ ] No [ ] Yes Disclosure No(s).

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Will proceedings be published? [ ] Yes [X] No
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Title of Journal: NA

CHECKLIST FOR SIGNATORIES

Review Required per WHC-CM-3-4	Yes	No	Reviewer - Signature Indicates Approval: Name (printed) / Signature / Date
Classification/Unclassified Controlled Nuclear Information	[ ]	[X]	
Patent - General Counsel	[X]	[ ]	Per OGC memo 2-4-93 JLWil 8-11-93
Legal - General Counsel	[X]	[ ]	Per OGC memo 2-4-93 JLWil 8-11-93
Applied Technology/Export Controlled Information or International Program	[ ]	[X]	
WHC Program/Project	[ ]	[X]	
Communications	[ ]	[X]	
RL Program/Project	[X]	[ ]	P. Clark does not require review per telecon 8-28-93 8-11-93 JLWil
Publication Services	[X]	[ ]	P. S. Gregory P. S. Gregory (Review Only) 8-10-93
Other Program/Project	[ ]	[X]	

Information conforms to all applicable requirements. The above information is certified to be correct.

	Yes	No
References Available to Intended Audience	[X]	[ ]
Transmit to DOE-HQ/Office of Scientific and Technical Information	[ ]	[X]

Author/Requestor (Printed/Signature) Date
K. K. Giamberardini 8-11-93

Intended Audience
[ ] Internal [ ] Sponsor [X] External

Responsible Manager (Printed/Signature) Date
K. K. Giamberardini 8-11-93

INFORMATION RELEASE ADMINISTRATION APPROVAL STAMP

Stamp is required before release. Release is contingent upon resolution of mandatory comments.

APPROVED FOR RELEASE OFFICIAL DOCUMENT CW Date 8/11/93

Date Cancelled | Date Disapproved

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Westinghouse
Hanford Company

P.O. Box 1970 Richland, WA 99352

WHC-SD-WM-DP-040
REV 0

RECORD COPY

222-S Analytical Laboratory

Project: SINGLE SHELL TANK WASTE CHARACTERIZATION

Tank: T-105 Core 57

Date Printed: July 6, 1993

01

APPROVAL PAGE

Hanford Analytical Services Management (HASM) has accepted and verified Core Core 57 physical testing data from Tank T-105.

K. N. Pool, Manager
Technical and Quality Oversite

J. G. Paetel, Manager
Sample Data and Laboratory
Administration

TABLE OF CONTENTS

This report consists of pages 1 through 30.

NARRATIVE

Tank 241-T-105 Core 57 Introduction and Narrative

INTRODUCTION

The extrusion was performed by the Westinghouse Hanford 222-S Laboratory, while the physical analyses will be done by the Battelle Pacific Northwest Laboratory (PNL) under the guidance provided in the "Tank Waste Remediation System Tank Waste Characterization Plan" (WHC-SD-WM-PLN-047, Rev. 0) and the "Sampling and Analysis of SST and DST Waste Tanks in Support of TWRS Fiscal Year 1993" (WHC-SOW-93-0002). The quality control for single shell tanks is described in appendix A of WHC-SD-WM-PLN-047, Rev. 0. Laboratory operations at 222-S were performed according to the "Quality Assurance Project Plan for the Analysis of Highly Radioactive Samples in Support of Environmental Activities on the Hanford Site" (WHC-SD-CP-QAPP-002) unless superseded by the waste characterization plan, appendix A, the associated SOW, or the Technical Project Plan (TPP). Deviations from the above guidelines are documented in letters of instruction from the Analytical Evaluation and Reporting (AE&R), characterization change notices, or this narrative.

The core sample was sent to PNL on June 14, 1993, for physical testing. The sample and the requested analyses are as follows.

Physical: core 57, segments 1 and 2.

No analyses were requested to be performed at the 222-S laboratory.

Tank 241-T-105 (referred to as T-105 in the remainder of this package) is a single shell tank built between 1943-44 with an operating capacity of 500,000 gallons. T-105 received 1 Kgal of "BL" and "IX" type wastes through January 1976, and 38 Kgal of "DW" waste through March 1972, and 62 Kgal of "2C", "1C", "CW", and "HLO" waste through April 1967. A P-10 pump was installed and completed between February 1976 and June 1978, there were 28.4 Kgal volume of liquid (supernatant and interstitial liquid removed by the P-10 pump. The volume of interstitial liquid removed by the P-10 pump was 0 Kgal.

SECTION I: EXTRUSION AND SAMPLE DATA

Visual

A summary of the extrusion data, entitled "Physical Properties Summary", is provided with the segment data. This is a compilation of all the recoveries for each segment of each core, with an associated percent recovery, and density. Photographs of the extruded segment will not be provided in the data package due to the fact that the film was inadvertently lost during developing. All volumes given that are less than 187 mL (100 % recovery) are estimates provided by the hot cell chemist. On the core assembly extrusion worksheets there are boxes with cross outs which indicate that there was no sample available for that item, no initial and date required.

Core 57

Segment 1: The valve was in the closed position when removed from the liner. Approximately 1.5 inches of dry solids were extruded. The sampler volume was 187 ml, containing 92% air and 8% solids (16.4 grams). No drainable liquid was recovered, and there was no liner liquid. The solids were dark brown, cohesive, dry, and consistent. In addition, the solids appeared homogeneous, with a dry texture. No subsampling was performed on the solid.

Segment 2: The valve was in the closed position when removed from the liner. Four point three grams of liner liquid were collected, but no drainable liquid was recovered. Approximately 1.5 inches of damp solids were extruded. The sampler volume was 187 ml, containing 92% air and 8% solids (16.0 grams). The solids were cream and dark brown in color with runny liquid. The sample was consistent and nonhomogeneous; the texture was runny and soft. No subsampling was performed on the sample.

Chain of Custody

	Core 57
Segment 1	93-011
Segment 2	93-012
Field Blank (Q-water from 222-S)	N/A

Kurt L. Kocher 7/1/93

Kurt L. Kocher
Project Coordinator

SAMPLE DATA SUMMARY

Physical Properties Summary For T–105

Core	Segment	Solids		Liquids		Air	Sampler	Density (g/mL)	Density (g/mL)
		Volume (mL)	Weight (g)*	Volume (mL)	Weight (g)	Volume (%)	Recovery (%)**	Solids***	Liquids***
57	1	14.96	16.4	0	0	92	8	1.10	N/A
57	2	14.96	16.0	0	0	92	8	1.07	N/A

Note: The volume of solids was estimated at the time of the segment extrusion by visibly comparing the amount of solids extracted to the 187 mL volume of the sampler. If the sampler was not completely full of solids, the residual volume of the sampler was attributed to drainable liquids and air pockets within the segment. If there was enough drainable liquid in the extrusion tray to collect, the liquid was collected and the volume estimated. The balance of the sampler volume was assumed to be air.

* Weight includes net weight of solids from the sample breakdown (VOA, Rheology, PSD, and DSC/TGA) plus the weight of the remaining solids after those samples were removed. All data are taken from the core extrusion worksheet.

** Densities are calculated from spreadsheet values.

*** Sampler Recoveries are calculated by dividing the sum of the solid and liquid volumes by the 187 mL volume of the sampler and multiplying by 100.

SAMPLING AND CUSTODY DATA

9 3 1 3 0 2 6 0 3 4 9

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

(1) Shipment Number S93-010 (2) Sample Number N/A (3) Supervisor* M.C. JONES 5-28-93

(4) Tank N/A (5) Riser N/A (6) Segment N/A (7) Core 057 (8) Cask Serial Number ~~2611~~ NOT 1012C

Radiation Survey Data:	(9) FIELD	(26) LABORATORY
Over Top Dose Rate	L.5	L.5
Side Dose Rate	L.5	L.5
Bottom Dose Rate	L.5	~~L.5~~ SC 5-28-93
Smearable Contamination	LD (alpha)	LD (alpha)
	LD (beta-gamma)	LD (beta-gamma)
	RPT* (Signature)	RPT* (Signature)

(10) Shipment Description:

A. Work Package Number	2W-93-00475
B. Cask Seal Number	2611
C. Sampler Number Used	91-104
D. Date and Time Sampler Unseated	N/A
E. Expected Liquid Content	100%
F. Expected Solid Content	0%
G. Dose Rate Through Drill String	N/A
H. Expected Sample Length	N/A

(11) INFORMATION *(Include statement of laboratory tests to be performed.)*

Characterization Plan WHC-SD-WM-PLN-047 Module A

(12) Field Comments:

This is a water sample IT has Q water in it from 2225 LABS

(27) Laboratory Comments

(13) POINT OF ORIGIN	(14) SENDER NAME	(16) DATE RELEASED	(18) DESTINATION	(20) RECIPIENT NAME	(22) DATE RECEIVED
241-T-105	M.C. JONES	5-28-93	2225 LABS	Sandra Cobb	05-28-93
	(15) SENDER SIGNATURE* M.C. Jones	(17) TIME RELEASED 1:15 P.M.		(21) RECIPIENT SIGNATURE* Sandra Cobb	(23) TIME RECEIVED 1340

(19) Seal Intact Upon Release?	(24) Seal Intact Upon Receipt?	(25) Seal Data Consistent with this Record?		
		Shipment No.	Cask Seal No.	Sample No.
☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No

DISTRIBUTION: White – Office of Sample Management; Pink – Process Engineering, R1-51; Yellow – Recipient of Sample; Goldenrod – Tank Farm Operations, T4-01

BC-6000-309 (02/90)

WHC-SD-WM-DP-040 REV 0

6

9 3 1 3 0 2 6 0 3 5 0

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

(1) Shipment Number 593-010 (2) Sample Number 93-011 (3) Supervisor* M.C. Jones

(4) Tank 105-T (5) Riser 5 (6) Segment 1 (7) Core 057 (8) Cask Serial Number C1021

Radiation Survey Data:	(9) FIELD	(26) LABORATORY
Over Top Dose Rate	<5	2.5
Side Dose Rate	.8	1
Bottom Dose Rate	1.2	~~1.5~~ 5-28-93
Smearable Contamination	<D (alpha)	<D (alpha)
	<D (beta-gamma)	<D (beta-gamma)
	RPT* L Weiss (Signature)	RPT* S Vanderburg (Signature)

(10) Shipment Description:

A. Work Package Number	2W-93-00425
B. Cask Seal Number	R654
C. Sampler Number Used	91-112
D. Date and Time Sampler Unseated	5/28/93 ~~0714 7:14 A.M.~~ 5-28-93
E. Expected Liquid Content	20%
F. Expected Solid Content	80%
G. Dose Rate Through Drill String	50 MR/hr.
H. Expected Sample Length	12.5"

(11) INFORMATION *(Include statement of laboratory tests to be performed.)*

Characterization Plan WHC-SD-WM-PLN-047 Module A

WHC-SD-WM-OP-040 REV 0

(12) Field Comments:

(27) Laboratory Comments

(13) POINT OF ORIGIN	(14) SENDER NAME	(16) DATE RELEASED	(18) DESTINATION	(20) RECIPIENT NAME	(22) DATE RECEIVED
241-T-105	M.C. Jones	5-28-93	222 S LABS	Sandra Cobb	05-28-93
	(15) SENDER SIGNATURE* M.C. Jones	(17) TIME RELEASED 1:15 P.M.		(21) RECIPIENT SIGNATURE* Sandra Cobb	(23) TIME RECEIVED 1340

(19) Seal Intact Upon Release?	(24) Seal Intact Upon Receipt?	(25) Seal Data Consistent with this Record?		
		Shipment No.	Cask Seal No.	Sample No.
☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No

DISTRIBUTION: White – Office of Sample Management; Yellow – Recipient of Sample; Pink – Process Engineering, R1-51; Goldenrod – Tank Farm Operations, T4-01

BC-6000-309 (02/90)

9 3 1 3 0 2 6 0 3 5 1

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

(1) Shipment Number S93-010 (2) Sample Number 93-012 (3) Supervisor* M.C. JONES

(4) Tank 105-T (5) Riser 5 (6) Segment 2 (7) Core 057 (8) Cask Serial Number 1002C

Radiation Survey Data:	(9) FIELD	(26) LABORATORY
Over Top Dose Rate	1.5	1.5
Side Dose Rate	1	1
Bottom Dose Rate	1	—
Smearable Contamination (alpha)	<D	<D
Smearable Contamination (beta-gamma)	<D	<D
RPT* (Signature)	[signature]	[signature]

(10) Shipment Description:	
A. Work Package Number	2W-93-0475
B. Cask Seal Number	2655
C. Sampler Number Used	91-111
D. Date and Time Sampler Unseated	5-28-93 / 8:45 A.M.
E. Expected Liquid Content	20%
F. Expected Solid Content	80%
G. Dose Rate Through Drill String	45 MR/hr.
H. Expected Sample Length	16"

(11) INFORMATION *(Include statement of laboratory tests to be performed.)*

Characterization Plan WHC-SD-WM-PLN-047 Module A.

WHC-SD-WM-DP-040 REV 0

(12) Field Comments:

STRIP CHART DID NOT WORK ON LAST SAMPLE.

(27) Laboratory Comments

(13) POINT OF ORIGIN	(14) SENDER NAME	(16) DATE RELEASED	(18) DESTINATION	(20) RECIPIENT NAME	(22) DATE RECEIVED
241-T-105	M.C. JONES	5-28-93	222 S	Sandra Cobb	05-28-93
	(15) SENDER SIGNATURE* [signature]	(17) TIME RELEASED 1:15 P.M.		(21) RECIPIENT SIGNATURE* [signature]	(23) TIME RECEIVED 1340

(19) Seal Intact Upon Release?	(24) Seal Intact Upon Receipt?	(25) Seal Data Consistent with this Record?		
		Shipment No.	Cask Seal No.	Sample No.
☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No

DISTRIBUTION: White – Office of Sample Management; Pink – Process Engineering, R1-51; Yellow – Recipient of Sample; Goldenrod – Tank Farm Operations, T4-01

BC-6000-309 (02/90)

11

Keith Fuller 6-1-93

TANK 241-T-105
Hot Cell Work Plan

I. Overview.

Note: This is a revision of the previous 241-T-105 work plan to support the core sampling restart effort. Tank T-105 will be the first tank sampled in the Phase I testing.

A. Waste tank 241-T-105 sampling will consist of one (1) core (core 57) with two (2) segments per core and a single field blank.

B. This hot cell work plan is based upon *Tank Waste Remediation System Tank Waste Characterization Plan (Module A)*, WHC-SD-WM-PLN-047 Revision 0.

C. Core samplers will be loaded into 1-E2 hot cell in accordance with Procedure *Core Segment Receipt and Preparation*, LT-150-101. Core segments will be extruded in accordance with *Core Segment Extrusion*, LT-549-101. Segment homogenization will be conducted in accordance with *Homogenization and Homogenized Segment Sampling*, LT-549-102. Core compositing will be conducted in accordance with *Core Compositing and Sampling*, LT-549-103.

II. General Comments.

A. Homogenized segment and core composite samples are to be reserved for certain analyses which are in developmental stages at the time of this writing.

Note: Segments that require DSC/TGA analyses prior to homogenization will be subsampled at the time of extrusion. The RSA will be prepared by the project coordinator and samples submitted to the laboratory for analysis.

B. DSC/TGA analysis will be performed on any facie that does not appear to be similar physically or chemically with the bulk of extruded sample. If sufficient sample is available, the facie will be subsampled for adiabatic calorimetry and submitted for analysis if required by the project coordinator.

C. A homogenization test will be performed on 1 segment per core. This will be determined by the hot cell chemist and project coordinator.

D. Pu/U isotopic analyses will be performed by PNL on each core composite and on the final 6 inches of the last segment.

E. The congizant scientist may deviate from this hot cell work plan should unforseen circumstances arise. All deviations shall 1) be recorded in the laboratory notebook and 2) relayed to the project coordinator.

Keith Fuller
6-1-93

III. Sample Extrusion and Direct Sample breakdown.

A. Core 57, Segment 1

1. Collect liner liquid in jar reserved for liner liquid composite.
2. Extrude segment with calibrated drainable liquid collection jar in place.
3. Photograph extruded solids with polaroid and print film.
4. Record visual characteristics of solids including color, consistency, homogeneity, and texture.
5. Sketch picture of extruded solids showing interfaces.
6. Subsample for DSC/TGA.
7. Subsample for adiabatic calorimetry if required by hot cell chemist.
8. Subsample for Rheology if required by hot cell chemist and project coordinator.
8. Determine weight and volume (density) of drainable liquid and describe color and turbidity of liquid.
9. Transfer drainable liquid to jar reserved for drainable liquid.
10. Transfer remaining solids to jar reserved for segment solids.

B. Core 57, Segment 2.

1. Collect liner liquid in jar reserved for liner liquid composite.
2. Extrude segment with calibrated drainable liquid collection jar in place.
3. Photograph extruded solids with polaroid and print film.
4. Record visual characteristics of solids including color, consistency, homogeneity, and texture.
5. Sketch picture of extruded solids showing interfaces.
6. Subsample for Rheology and PSDA if required by hot cell chemist and project coordinator.
7. Transfer bottom 6 inches of segment to jar reserved for fissile analyses.
8. Transfer remaining solids to jar reserved for segment solids.
9. Determine weight and volume (density) of drainable liquid and describe color and turbidity of liquid.
11. Transfer drainable liquid to jar reserved for drainable liquid composite.

E. Field Blank.

1. Extrude segment with calibrated drainable liquid collection jar in place.
2. Transfer drainable liquid to jar reserved for field blank.

F. Hot Cell Blank.

1. Place calibrated drainable liquid collection jar in place under extrusion tray.
2. Rinse down tray with normal tap water until collection jar is full.
3. Transfer drainable liquid to jar reserved for hot cell blank.

IV. Homogenization, Core Compositing, and Sample Breakdown.

A. Homogenization, core compositing, and homogenized sample breakdown will be conducted in a single operation. Segments will be thoroughly homogenized immediately prior to subsampling. All sample vial labels will be identified through LCCS.

B. Subsample sample origins in order of priority accordingly.

1. Core 57.
   a. Segment 1, homogenized.
      i. Wt% solids
      ii. Homogenization test (Acid dig-ICP)-see chemist
      iii. Core Composite T105C57C

   b. Segment 2, homogenized, bottom 6 inches
      i. Wt% solids
      ii. Fusion (total U, Pu-239/240)
      iii. PNL (Pu/U isotopics)
      iv. Homogenize with remaining solids

Note: The solids from the bottom 6 inches of segment 2 will be blended and homogenized with the remaining solids of segment 2.

   c. Segment 2, homogenized, remaining solids
      i. Wt% solids
      ii. Homogenzation test (Acid dig-ICP)-see chemist
      iii. Core Composite T105C57C

Composite Sample Breakdown.

A. Core composites will be homogenized thoroughly immediately prior to subsampling. All sample vial labels will be identified through LCCS.

B. Subsample specific sample origins in order of priority accordingly.

1. Core 53 Composite.
   a. Acid {ICP} (5-6 grams)
   b. Fusion {Cs,GEA,ICP,Sr-90,Tc-99, Pu-239/240,Am-241,Tα,TB,TU} (5-6 grams)
   c. Water {C-14,Cr(VI),GEA,H-3,IC,ICP, NH3,NO2-,TIC,TOC,Tα,TB,TDS,GEA*, Wt% Solids*} (5-6 grams)
   d. Direct {CN-,Hg,OH-,pH,I-129,} (5-6 grams)
   e. Wt% Solids (in duplicate) (1-2 grams)
   f. [PNL] TOC,Pu(iso),U(iso), (20 grams)
   g. Bulk Density (15 grams) each
   h. Archive (TOD, ICP-MS, Wt% oxides Residual solids,GEA) (50 grams)

2. Core 54 Composite.
   a. Acid {ICP} (5-6 grams)
   b. Fusion {Cs,GEA,ICP,Sr-90,Tc-99, Pu-239/240,Am-241,Tα,TB,TU} (5-6 grams)
   c. Water {C-14,Cr(VI),GEA,H-3,IC,ICP, NH3,NO2-,TIC,TOC,Tα,TB,TDS,GEA*, Wt% Solids*} (5-6 grams)
   d. Direct {CN-,Hg,OH-,pH,I-129} (5-6 grams)
   e. Wt% Solids (in duplicate) (1-2 grams)
   f. [PNL] TOC,Pu(iso),U(iso) (20 grams)
   g. Bulk Density (in duplicate) (15 grams) each
   h. Archive (TOD,ICP-MS,Wt% oxides Residual solids,GEA) (50 grams)

VI. Liquid Sample Origins Sample Breakdown.

A. Drainable Liquid Composites.
   1. Filter through 0.45μ vacuum filter.
   2. Chemical Analysis {CN-,IC,ICP,NH3,NO2-, OH-,pH,TDS,TIC,TOC} (50 ml)
   3. Radiochemisty {C-14,GEA,H-3,Sr-90,Tc-99, I-129,Pu-239/240,Am-241,Tα,TB,TU} (50 ml)
   4. DSC/TGA (10 ml)
   5. Density (10 ml)
   6. Archive (Viscosity,TOD,Heat capacity adiabatic calorimetry) (10 ml)

B. Hot cell Blank.
   1. Direct {GEA,IC,ICP,NH3,OH-,pH, Tα,TB,TIC,TOC} (50 ml)
   2. DSC/TGA (1 ml)

C. Field Blank.
   1. Direct {GEA,IC,ICP,NH3,OH-,pH, Tα,TB,TIC,TOC} (50 ml)
   2. DSC/TGA (1 ml)

D. Liner Liquid Composites.
1. Analyses to be determined.

* To be performed on residual solids.

Cognizant Scientist Keith Fuller 6/1/93

Project Coordinator Karl A Locke 6/1/93

Westinghouse Hanford Company — **Internal Memo**

From: Analytical Evaluation and Reporting/ Analytical Customer Interface — 7K220-93-045
Phone: 3-1027/2-2485
Date: May 24, 1993
Subject: LETTER OF INSTRUCTION FOR EXTRUSION OF CORE SAMPLES DURING CORE SAMPLING RECOVERY TESTING

To: J. G. Kristofzski T6-06

cc:

K. E. Bell	R2-12	B. C. Simpson	R2-12
T. M. Brown	R2-12	H. E. Smith	R2-12
B. C. Carpenter	R2-12	C. D. Suydam	S1-57
R. K. Fuller	T6-31	J. H. Tillman	H4-23
C. S. Homi	R2-12	E. J. Waldo	R2-12
K. L. Kocher	T6-06	T. E. Whelan	S1-57
R. P. Marshall	T6-14	W. F. Zuroff	R2-14
A. F. Noonan	R2-12	LMS File/LB	

References:

(1) WHC-SD-WM-TP-170, revision 0, "Core Sampling Recovery Test Strategy," dated May 1993.

(2) WHC-SD-WM-TPP-047, revision 0, "Technical Project Plan for 222-S Laboratory in support of Tank Waste Remediation System Tank Waste Characterization Plan (WHC-SD-WM-PLN-047) and Statement of Work (WHC-SOW-93-0002)," dated December 1992.

This letter of instruction provides direction to the 222-S laboratory for extrusion of core samples to be taken under the core sampling recovery plan (Reference 1). Implementation of this plan is scheduled to begin with the sampling of a third core from tank 241-T-105.

The 222-S Laboratory is requested to extrude the segments and report preliminary extrusion results as soon as possible after receipt of the samples. The preliminary information to be reported is: volume and weight of solids and liquids recovered, sample recovery for each segment reported as a percentage of the expected sample volume (which can be calculated from the expected sample length provided on the chain of custody form), and a description of the sample and the extrusion process. This information is to be provided via cc:mail to Analytical Evaluation and Reporting (AE&R) as soon as possible after the extrusion is completed and no later than two days after the receipt of the sample. The results of the extrusion will be used by Core Sampling Engineering to evaluate the sampling process and determine what sampling actions are to be taken. After the extrusions for a tank are completed, the extrusions results are to be formally documented in an internal memo to AE&R.

J. G. Kristofzski
Page 2
May 24, 1993

7K220-93-045

The receipt, extrusion, analysis, and data package preparation of these samples, including the additional core being taken from tank 241-T-105, are to be performed as outlined in the existing technical project plan (Reference 2). This letter of instruction has been determined to be impact level 4.

If you have any questions, please contact L. M. Sasaki at 373-1027 or H. S. Rich at 372-2485.

H. S. Rich, Scientist
Analytical Customer Interface
Hanford Analytical Customer Interface

L. M. Sasaki, Engineer
Analytical Evaluation and Reporting

pkc

Westinghouse Hanford Company **Internal Memo**

From: Analytical Evaluation and Reporting/ Analytical Customer Interface
7K220-93-052

Phone: 3-1027/2-2485 R2-12/H4-23
Date: June 16, 1993
Subject: LETTER OF INSTRUCTION ON TANK 241-T-105 CORE 57 ANALYTICAL REQUIREMENTS

To: J. G. Kristofzski T6-06

cc:

R. K. Fuller	T6-31	K. L. Silvers	R2-12
C. S. Homi	R2-12	C. D. Suydam	S1-57
K. L. Kocher	T6-06	T. E. Whelan	S1-57
R. P. Marshall	T6-14	File/LB	
A. F. Noonan	R2-12		

References:
(1) WHC-SOW-3-0002, Revision 0, "Sampling and Analysis of SST and DST Waste Tanks in Support of TWRS Fiscal Year 1993 Statement of Work," dated November 1992.

(2) Internal Memo, H. S. Rich and L. M. Sasaki to J. G. Kristofzski, "Letter of Instruction for Extrusion of Core Samples During Core Sampling Recovery Testing," dated May 24, 1993.

This letter documents that, since all tank 241-T-105 core 57 sample material has been shipped to the 325 Laboratory for physical and other testing, the 222-S Laboratory is not required to perform additional work on the samples.

Work performed on core 57 prior to its shipment to the 325 Laboratory is to be documented in a data package as required by the statement of work (Reference 1). Extrusion results are also to be documented in an internal memo as required by an earlier letter of instruction (Reference 2).

If you have any questions, please contact H. S. Rich at 372-2485 or L. M. Sasaki at 373-1027.

H. S. Rich, Scientist
Analytical Customer Interface
Hanford Analytical Services Management

L. M. Sasaki
Analytical Evaluation and Reporting

pkc

Westinghouse Hanford Company **Internal Memo**

From: Program Support 93-001
Phone: 3-1242 T6-06
Date: June 17, 1993
Subject: T-105 EXTRUSION RESULTS

To: L.M. Sasaki R2-12

cc: R. K. Fuller T6-30
C. S. Homi R2-12
J. G. Kristofzski JK T6-06
A. F. Noonan R2-12
H. S. Rich H4-23
K. L. Silvers R2-12
W. F. Zuroff R2-14
KLK File/LB

This Internal Memo is to document to concerned parties the results of the extrusion of Core 57 from T-105.

Note: Cores 53 and 54 were the first two T-105 cores extruded. Core 57 was the next core obtained from T-105 and supports the core sampling restart effort.

Both segments of Core 57 were extruded on June 1, 1993. A summary of the extrusion is provided below.

T-105 core 57 segment #1

Valve was in the closed position when removed from the liner. Approximately 1.5 inches of dry solids were extruded. No drainable liquid recovered. There was no liner liquid. Based on the sampler volume of 187 ml, the sampler efficiency was as follows:

% volume of air	92%
% volume of liquid	0%
% volume of solids	8%

Information on the solid sample recovered from core 57 segment #1:

Stored in jar # C5701 (16.4 grams)
Total weight of solids recovered was 16.4 grams
No subsampling was performed

T-105 core 57 segment #2

Valve on the sampler was in the closed position when removed from the liner. 4.3 grams of liner liquid were collected. No drainable liquid recovered from the extrusion. Only a few drops of liquid appeared on the extrusion tray during the course of the extrusion. Approximately 1.5 inches of damp solids were extruded.

Sampler efficiency based on 187 ml total volume was as follows:

% volume of air	92%
% volume of liquid	0%
% volume of solids	8%

Information on the solids collected from core 57 segment #2:

Stored in jar #C5705
Total weight of solids collected (16.0 grams)

After obtaining instructions from AE&R on June 4, 1993, no analyses were requested from the 222-S laboratory, so both samples were sent to the PNL-325 laboratory for physical testing.

For your reference, copies of the chains of custody and the T-105 extrusion logbook have been provided.

Kurt Kocher 6/17/93

Kurt Kocher, Project Coordinator
Program Support

rvs

6-1-93 T-105 Core 57

Chain of Custody information

SHIPMENT	SAMPLE	CASK	RISER	CORE	SEGMENT
1) 593-010	93-011	C1021	5	57	1
2) 593-010	93-012	1002C	5	57	2
* 3) 593-00	N/A	1012C	N/A	N/A	N/A

* item #3 in cask 1012C is the field blank for T-105.

Keith Fuller
6-1-93

Keith Fuller 6-1-93

RPT 6-1-93

SHIPMENT # 593-010

Tank 241-T-105
Extruded Segment Description Sheet

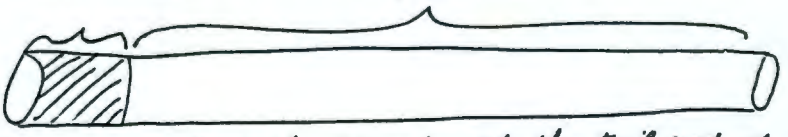
SEAL # 2654

Sample 93-011 Riser 5 Core 57 Segment 1

General Description of Sample:

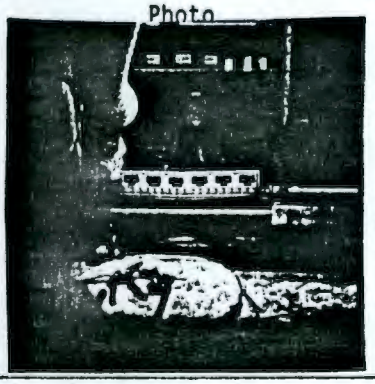
1) No LINER liquid
2) No Drainable liquid
3) Approximately 1½"-2" of dark brown solids were extruded.
4) Ball was closed when sampler was removed from liner (valve)

Sketch:



Note: Solids came out of the sampler at the tail end of the extrusion.

Photo



Sampler Efficiency		Drainable Liquid Density	
Volume of Sampler	187 mLs	Total Weight	—
%Volume of Air	172 mLs (92%)	Total Volume	—
%Volume of Liquid	—	Density	—
%Volume of Solids	15 mL (8.0%)	Turbidity	—
Comments:	N/A	Comments:	—
			No drainable liquid

Solids		Liner Liquid		Drainable Liquid	
Color	DARK BROWN	Collection Jar	—	Collection Jar	—
Consistency	COHESIVE, DRY CONSISTENT	Gross Wt.	—	Gross Wt.	—
Homogeneity	Homogeneous	Tare Wt.	—	tare Wt.	—
Texture	DRY	Net Wt.	—	Net Wt.	—
Penetrometer	N/A	No. Phases	—	No. Phases	—

Cognizant Scientist: Keith Fuller 6-1-93

Reviewed By: Karl L Kahn 6/2/93

6-1-93

Balance check:

20 g 19.95 g
500 g 499.79 g

Drainable liquid jar 218.72 grams - tare weight

core 57 solids (JAR # C5701)

235.9 grams (segment #1 solids + jar weight)
219.5 grams tare weight of jar
16.4 grams weight of sample

JAR # C5701 (16.4 grams) - core 57 segment #1 solids

* After taking pictures, the entire sample was placed in jar # C5701. No subsampling was performed until AE & R is notified.

Keith Fuller
6-1-93

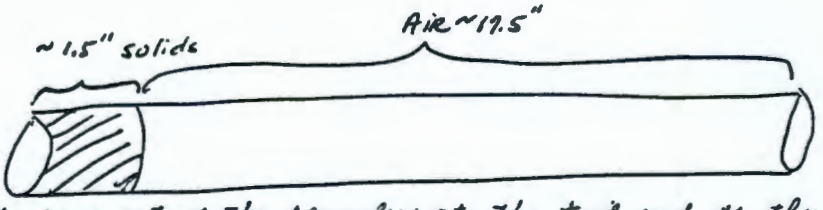
Shipment # 593-010

Tank 241-T-105
Extruded Segment Description Sheet

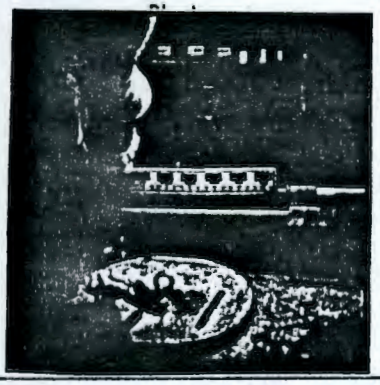
Sample 93-012 Riser 5 Core 57 Segment 2

General Description of Sample:
(1) Approximately 5-10 mls of liner liquid
(2) Valve was in the closed position. (Sampler valve)
(3) No drainable liquid.
(4) About the same amount of solids as segment #1.

Sketch:



Note: Solids came out of the sampler at the tail end of the extrusion



Sampler Efficiency		Drainable Liquid Density	
Volume of Sampler	187 mLs	Total Weight	NA
%Volume of Air	92.0%	Total Volume	NA
%Volume of Liquid	0.0%	Density	NA
%Volume of Solids	8.0%	Turbidity	NA
Comments:	N/A	Comments:	No drainable liquid

Solids		Liner Liquid		Drainable Liquid	
Color	Mixture of cream and dark brown	Collection Jar	N/A	Collection Jar	NA
Consistency	Consistent running liquid	Gross Wt.	210.3 grams	Gross Wt.	NA
Homogeneity	inhomogeneous	Tare Wt.	206.0 grams	tare Wt.	NA
Texture	Runny, soft	Net Wt.	4.3 grams	Net Wt.	NA
Penetrometer	N/A	No. Phases	1	No. Phases	NA

Cognizant Scientist: Keith Fuller 6-1-93

Reviewed By: Karl A Kahn 6/2/93

6-1-93

C5705 Contains T-105 segment #2 solids

~~144.6 grams sample + jar~~ RS Fuller 6-1-93

157.6 grams sample + jar weight
141.6 grams tare weight of jar
16.0 grams weight of segment #2 solids

C5705 segment #2 solids T-105 (16.0 grams)

* Entire sample was placed in jar C5705 after pictures were taken. No subsampling was performed. Will contact AE & R for further direction.

Keith Fuller
6-1-93

48

Shipment # 593-010 | Tank 241-T-105 Extruded Segment Description Sheet | CASK # 1012C

Sample N/A Riser NA Core NA Segment NA

General Description of Sample:
T-105 Field Blank

Sketch:

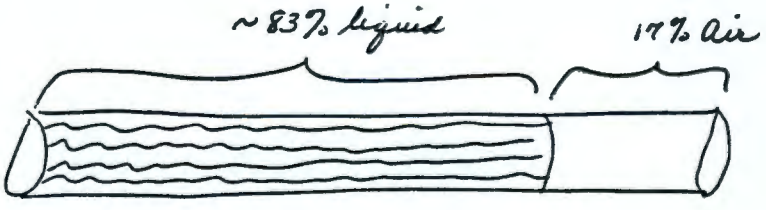


Photo	Sampler Efficiency	Drainable Liquid Density
Not required.	Volume of Sampler 187mL	Total Weight 157.2 grams
	%Volume of Air 17.0%	Total Volume 155 mLs
	%Volume of Liquid 83.0%	Density 1.014 g/mL
	%Volume of Solids —	Turbidity CLEAR/COLORLESS
	Comments: None	Comments: NONE

Solids	Liner Liquid	Drainable Liquid
Color —	Collection Jar NA	Collection Jar C5709
Consistency —	Gross Wt. NA	Gross Wt. 374.9 grams
Homogeneity —	Tare Wt. NA	tare Wt. 217.7 grams
Texture —	Net Wt. NA	Net Wt. 157.2 grams
Penetrometer —	No. Phases NA	No. Phases 1

Cognizant Scientist: Keith Fuller 6-2-93

Reviewed By: Karl R Fish 6-2-93

6-2-93

T-105 Field Blank

JAR # C5709	374.9 grams	gross wt FB + JAR C5709
	217.7 grams	tare wt JAR C5709
	157.2 grams	wt of T105 Field Blank

Volume = 155 mL

Density = $\frac{157.2\ g}{155.0\ mL}$ = 1.014 g/mL

T-105 Hot Cell Blank

JAR # C5710	377.6 grams	gross wt. HCB + JAR C5710
	228.6 grams	tare wt. of JAR C5710
	149.0 grams	wt. of T-105 Hot Cell Blank

Keith Fuller
6-2-93

6-8-93

(1) C5701 - Core 57 segment # 1 solids

lab I.D. = D49

(2) C5705 - Core 57 segment #2 solids

lab I.D. = D48

Both samples shipped to PNL per AE+R request.

Keith Fuller
6-8-93

6-14-93

(1) Logbook WHC-N-650 (1) will be reviewed by HASM. Logbook will be transferred to Herlene Rich via John Kristofski.

(2) For tracking purposes, individuals please sign and date this page when accepting and ~~relinquishing~~ SP3 relinquished this logbook.

RKFuller 6-14-93

Relinquished by:	Accepted by:
(1) Keith Fuller 6-14-93 2:22 pm	John Kristof 6-14-93 2:22 pm
John Kristof 6-14-93 3:15 pm	John H. Gillmay 6-14-93 3:15 pm.
John H. Gillmay 6-15-93 3:15 pm	Herlene Rich 6-15-93 3:15 pm
Herlene Rich 6-16-93 10:17 am	Linda Burbank 6-16-93 10:17 am
	Keith Fuller 6-16-93 2:06 pm

DISTRIBUTION SHEET

To	From	Page 1 of 1
DISTRIBUTION	PROCESSING AND ANALYTICAL LABORATORIES	Date 08/09/93
Project Title/Work Order 222-S LABORATORIES SINGLE SHELL TANK WASTE CHARACTERIZATION, TANK T-105 CORE 57 (WHC-SD-WM-DP-040, REV 0)		EDT No. 140699 ECN NO.

Name	MSIN	Text With all Attach	EDT/ECN Only
ONSITE			
U.S. Department of Energy, RL			
J. M. Clark	R3-72	X	
J. Noble-Dial	R3-72	X	
Westinghouse Hanford Company			
A. F. Noonan	R2-12	X	
H. S. Rich	H4-23		X
J. L. Wilkerson	T6-06		X
Central Files	L8-04	2	
EDMC	H6-08	X	
TFIC (Tank Farm Information Center)	R1-20		X
OFFSITE			
Washington State Department of Ecology			
Single-Shell Tank Unit Manager S. E. McKinney P.O. Box 47600 Olympia, Washington 98504-7600		X	
Environmental Protection Agency			
Single-Shell Tank Unit Manager D. R. Sherwood 712 Swift Boulevard, Suite 5 Richland, Washington 99352		X	