0047511

ENGINEERING CHANGE NOTICE

Page 1 of 2

1. ECN 635494

Proj. ECN

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.	4. USQ Required?	5. Date
Supplemental [] Direct Revision [X] Change ECN [] Temporary [] Standby [] Supersedure [] Cancel/Void []	Jaiduk Jo, Data Assessment and Interpretation, R2-12, 373-9322	[] Yes [X] No	06/30/97
	6. Project Title/No./Work Order No. Tank 241-AN-105	7. Bldg./Sys./Fac. No. 241-AN-105	8. Approval Designator N/A
	9. Document Numbers Changed by this ECN (includes sheet no. and rev.) HNF-SD-WM-ER-678, Rev. 0	10. Related ECN No(s). N/A	11. Related PO No. N/A

12a. Modification Work	12b. Work Package No.	12c. Modification Work Complete	12d. Restored to Original Condition (Temp. or Standby ECN only)
[] Yes (fill out Blk. 12b) [X] No (NA Blks. 12b, 12c, 12d)	N/A	N/A Design Authority/Cog. Engineer Signature & Date	N/A Design Authority/Cog. Engineer Signature & Date

13a. Description of Change

13b. Design Baseline Document? [] Yes [X] No

This ECN has been generated in order to correct the radionuclides concentration and the heat load calculation.

Revision 0 pages included for back to back reproduction.

14a. Justification (mark one)

Criteria Change	[]	Design Improvement	[]	Environmental	[]	Facility Deactivation	[]
As-Found	[]	Facilitate Const	[]	Const. Error/Omission	[]	Design Error/Omission	[X]

14b. Justification Details

Three of the radionuclides were reported incorrectly in the initial release.

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

See attached distribution.

RELEASE STAMP

DATE: 4 STA: HANFORD RELEASE ID: 3

JUL 09 1997

JUL 1997 RECEIVED EDMC

A-7900-013-2 (05/96) GEF095

A-7900-013-1

ENGINEERING CHANGE NOTICE

1. ECN (use no. from pg. 1): ECN-635494

16. Design Verification Required	17. Cost Impact				18. Schedule Impact (days)	
	ENGINEERING		CONSTRUCTION			
[] Yes	Additional	[] $	Additional	[] $	Improvement	[]
[X] No	Savings	[] $	Savings	[] $	Delay	[]

19. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 13. Enter the affected document number in Block 20.

SDD/DD	[]	Seismic/Stress Analysis	[]	Tank Calibration Manual	[]
Functional Design Criteria	[]	Stress/Design Report	[]	Health Physics Procedure	[]
Operating Specification	[]	Interface Control Drawing	[]	Spares Multiple Unit Listing	[]
Criticality Specification	[]	Calibration Procedure	[]	Test Procedures/Specification	[]
Conceptual Design Report	[]	Installation Procedure	[]	Component Index	[]
Equipment Spec.	[]	Maintenance Procedure	[]	ASME Coded Item	[]
Const. Spec.	[]	Engineering Procedure	[]	Human Factor Consideration	[]
Procurement Spec.	[]	Operating Instruction	[]	Computer Software	[]
Vendor Information	[]	Operating Procedure	[]	Electric Circuit Schedule	[]
OM Manual	[]	Operational Safety Requirement	[]	ICRS Procedure	[]
FSAR/SAR	[]	IEFD Drawing	[]	Process Control Manual/Plan	[]
Safety Equipment List	[]	Cell Arrangement Drawing	[]	Process Flow Chart	[]
Radiation Work Permit	[]	Essential Material Specification	[]	Purchase Requisition	[]
Environmental Impact Statement	[]	Fac. Proc. Samp. Schedule	[]	Tickler File	[]
Environmental Report	[]	Inspection Plan	[]		[]
Environmental Permit	[]	Inventory Adjustment Request	[]		[]

20. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision	Document Number/Revision	Document Number Revision
N/A		

21. Approvals

	Signature	Date		Signature	Date
Design Authority			Design Agent		
Cog. Eng. J. Jo	J Jo	7-7-97	PE		
Cog. Mgr. K.M. Hall	Kathleen M. Hall	7/7/97	QA		
QA			Safety		
Safety			Design		
Environ.			Environ.		
Other			Other		

DEPARTMENT OF ENERGY

Signature or a Control Number that tracks the Approval Signature

ADDITIONAL

Tank Characterization Report for Double-Shell Tank 241-AN-105

Jaiduk Jo
Lockheed Martin Hanford, Corp., Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-96RL13200

EDT/ECN: ECN-635494 UC: 2070
Org Code: 74620 Charge Code: N4G4C
B&R Code: EW 3120074 Total Pages: 335

Key Words: Waste Characterization, Double-Shell Tank, DST, Tank 241-AN-105, Tank AN-105, AN-105, AN Farm, Tank Characterization Report, TCR, Waste Inventory, TPA Milestone M-44

Abstract: N/A

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CATE: 1
STA: 4
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ID:
JUL 09 1997

Release Approval — Date 7/9/97 — Release Stamp

Approved for Public Release

RECORD OF REVISION	(1) Document Number HNF-SD-WM-ER-678	Page 1

(2) Title
Tank Characterization Report for Double-Shell Tank 241-AN-105

CHANGE CONTROL RECORD

(3) Revision	(4) Description of Change - Replace, Add, and Delete Pages	Authorized for Release (5) Cog. Engr.	(6) Cog. Mgr. Date
0	(7) Initially released 05/02/97 on EDT-617654.	J. Jo	K. M. Hall
0-A RS	Incorporate per ECN-635494.	J. Jo	K. M. Hall
		[illegible]	[illegible] 7-7-97

A-7320-005 (08/91) WEF168

Tank Characterization Report for Double-Shell Tank 241-AN-105

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L. W. Shelton Jr.
Lockheed Martin Hanford Corporation

T. L. Welsh
B&W Protec, Inc.

J. Stroup
Fluor Daniel Northwest, Inc.

Date Published
May 1997

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

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

Approved for public release; distribution is unlimited

Table 2-1. Heat Load for Tank 241-AN-105 Based on Radionuclide Content.

Radionuclide[1]	Specific Activity	Projected Inventory	Decay Heat Rate	Heat Load from Radioactive Decay[2]
	μCi/mL	Ci	W/Ci	W
^{241}Am	1.01	4310	0.0328	140
^{137}Cs	470	2,010,000	0.00472	9,490
$^{89/90}Sr$	7.42	31,680	0.00669	210
Total				9,840

Notes:

[1]Include daughter radionuclides.

[2]Only analytes contributing to the heat generation rate above 100 W are included.

2.4 SUMMARY

The results from all analyses performed to address potential safety issues showed that no primary analyte exceeded safety decision threshold limits. The analyses for the flammable gas was completed to obtain data to develop mitigation methods, to support tank behavior models needed for making safety analyses, and to support evaluations of chemical mechanisms for gas production and release. The analyses results are summarized in Table 2-2.

Table 2-2. Summary of Safety Screening and Historical Flammable Gas. (2 sheets)

Issue	Sub-issue	Result
Safety screening	Energetics	All exothermic reactions below 480 J/g. Highest 95 percent confidence interval upper limit = 384 J/g.
	Flammable gas	Vapor measurement reported 0.3 percent of lower flammability limit. (Combustible gas meter).
	Criticality	All analyses well below 37 μCi/g total alpha (within 95 percent confidence limit on each sample).

Table 2-2. Summary of Safety Screening and Historical Flammable Gas. (2 sheets)

Issue	Sub-issue	Result
Flammable gas	Mechanism of gas generation, retention, and released	N/R
	Waste behavior model	N/R
	Simulent development	N/R
	Model to support hazard analysis	N/R

Note:

N/R = not reviewed

Table 3-6. Best-Basis Total Inventory Estimates for Radioactive Components in Tank 241-AN-105 as of May 31, 1996. (Decayed to January 1, 1994)

Analyte	Total Inventory (Ci)	Basis (S, M, or E)[1]
^{60}Co	< 129	S
^{90}Sr	33,600	S
^{90}Y	33,600	S
^{99}Tc	1,170	S
^{129}I	11.0	S
^{137}Cs	2.01E+06	S
^{137m}Ba	1.90E+06	S
^{154}Eu	< 565	S
^{155}Eu	< 2,260	S
^{237}Np	25.8	S
$^{239/240}Pu$	6.43	S
^{241}Am	10.1	S
$^{243/244}Cm$	< 4.27	S

Notes:

[1]S = sample-based, M = Hanford defined waste model-based, E = engineering assessment-based.

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Table B3-29. Analytical-Based Supernatant Inventory for Tank 241-AN-105 - ("Less Thans" - Segment Data). (2 sheets)

Analyte	Tank Inventory	LL (kg or Ci)	UL (kg or Ci)
Se.icp.adl	< 1.54E+02 kg	NA	NA
Sm.icp.adl	< 1.54E+02 kg	NA	NA
Sr.icp.adl	< 1.54E+01 kg	NA	NA
Ti.icp.adl	< 1.54E+01 kg	NA	NA
Tl.icp.adl	< 3.07E+02 kg	NA	NA
Total Alpha	< 3.71E+02 Ci	NA	NA
U.icp.adl	< 7.69E+02 kg	NA	NA
V.icp.adl	< 7.71E+01 kg	NA	NA
Zr.icp.adl	< 1.56E+01 kg	NA	NA

Note:

[1]Li is one of the tracers for hydrostatic head fluid.

Table B3-30. Analytical-Based Supernatant Inventory for Tank 241-AN-105 - (Supernatant Composite Sample - Core 152, Segments 1-14). (4 sheets)

Analyte	Tank Inventory	LL (kg or Ci)	UL (kg or Ci)
Water.tga	1.82E+06 kg	2.29E+05	3.42E+06
Acetate.ic	1.64E+03 kg	1.63E+03	1.66E+03
Ag.icp.a	3.88E+01 kg	3.07E+01	4.70E+01
Ag.icp.adl	4.61E+01 kg	2.98E+01	6.24E+01
Al.icp.a	9.15E+04 kg	8.82E+04	9.47E+04
Al.icp.adl	1.12E+05 kg	1.05E+05	1.18E+05
B.icp.a	4.34E+02 kg	0.00E+00	8.74E+02
B.icp.adl	1.86E+02 kg	1.39E+02	2.34E+02
Ca.icp.a	2.25E+03 kg	1.44E+03	3.06E+03
Cl^-.ic	2.61E+04 kg	2.61E+04	2.61E+04
Cr.icp.a	4.79E+02 kg	4.79E+02	4.79E+02
Cr.icp.adl	5.70E+02 kg	5.21E+02	6.19E+02
Cr(VI).spec	3.93E+02 kg	3.77E+02	4.10E+02
^{137}Cs.gea	1.22E+06 Ci	1.17E+06	1.26E+06
Fe.icp.a	1.63E+02 kg	0.00E+00	4.47E+02
Formate.ic	4.15E+03 kg	4.15E+03	4.15E+03
^{129}I	6.85E-01 Ci	0.00E+00	1.39E+00
K.icp.a	1.36E+04 kg	1.25E+04	1.47E+04
K.icp.adl	1.67E+04 kg	1.57E+04	1.77E+04
^{1}Li.icp.a	1.53E+01 kg	1.06E+01	2.00E+01
Mo.icp.a	2.11E+02 kg	2.03E+02	2.20E+02
Mo.icp.adl	2.59E+02 kg	2.26E+02	2.91E+02
NO_2^-.ic	3.34E+05 kg	3.18E+05	3.51E+05
NO_3^-.ic	4.29E+05 kg	4.13E+05	4.45E+05
Na.icp.a	5.41E+05 kg	5.41E+05	5.41E+05
Na.icp.adl	6.55E+05 kg	6.06E+05	7.03E+05
OH^-	1.50E+05 kg	8.65E+04	2.13E+05
P.icp.a	8.70E+02 kg	7.56E+02	9.84E+02
P.icp.adl	1.01E+03 kg	9.24E+02	1.09E+03
PO_4^{3-}.ic	1.58E+03 kg	9.77E+02	2.18E+03

Table B3-30. Analytical-Based Supernatant Inventory for Tank 241-AN-105 - (Supernatant Composite Sample - Core 152, Segments 1-14). (4 sheets)

Analyte	Tank Inventory	LL (kg or Ci)	UL (kg or Ci)
S.icp.a	2.25E+03 kg	2.15E+03	2.34E+03
S.icp.adl	2.59E+03 kg	1.99E+03	3.19E+03
SO_4^{2-}.ic	2.48E+03 kg	1.17E+03	3.80E+03
Si.icp.a	5.62E+02 kg	1.88E+02	9.37E+02
Si.icp.adl	4.25E+02 kg	4.25E+02	4.25E+02
$^{89/90}Sr$	1.06E+02 Ci	8.65E+01	1.26E+02
TIC	5.62E+03 kg	4.81E+03	6.44E+03
TOC.coul	1.56E+04 kg	1.47E+04	1.66E+04
TOC.pers	6.64E+03 kg	1.75E+03	1.15E+04
^{99}Tc	7.01E+02 Ci	5.22E+02	8.80E+02
Total Beta	1.38E+06 Ci	1.25E+06	1.51E+06
Zn.icp.a	1.95E+02 kg	1.43E+02	2.47E+02
Zn.icp.adl	4.51E+01 kg	2.88E+01	6.14E+01
U.phos	9.13E+00 kg	2.79E+00	1.55E+01
^{241}Am.aea	< 1.00E-01 Ci	NA	NA
^{241}Am.gea	< 2.20E+03 Ci	NA	NA
As.icp.a	< 1.34E+02 kg	NA	NA
As.icp.adl	< 1.54E+02 kg	NA	NA
Ba.icp.a	< 6.71E+01 kg	NA	NA
Ba.icp.adl	< 7.71E+01 kg	NA	NA
Be.icp.a	< 6.71E+00 kg	NA	NA
Be.icp.adl	< 7.69E+00 kg	NA	NA
Bi.icp.a	< 1.34E+02 kg	NA	NA
Bi.icp.adl	< 1.54E+02 kg	NA	NA
$^{1}Br^{-}$.ic	< 1.34E+03 kg	NA	NA
Ca.icp.adl	< 1.54E+02 kg	NA	NA
Cd.icp.a	< 6.71E+00 kg	NA	NA
Cd.icp.adl	< 7.69E+00 kg	NA	NA
Ce.icp.a	< 1.34E+02 kg	NA	NA
Ce.icp.adl	< 1.54E+02 kg	NA	NA

Table B3-30. Analytical-Based Supernatant Inventory for Tank 241-AN-105 - (Supernatant Composite Sample - Core 152, Segments 1-14). (4 sheets)

Analyte	Tank Inventory	LL (kg or Ci)	UL (kg or Ci)
$^{243/244}$Cm	< 1.00E-01 Ci	NA	NA
Co.icp.a	< 2.69E+01 kg	NA	NA
Co.icp.adl	< 3.07E+01 kg	NA	NA
^{60}Co.gea	< 3.33E+01 Ci	NA	NA
Cu.icp.a	< 1.61E+01 kg	NA	NA
Cu.icp.adl	< 1.54E+01 kg	NA	NA
^{154}Eu.gea	< 2.50E+02 Ci	NA	NA
^{155}Eu.gea	< 8.35E+02 Ci	NA	NA
F^-.ic	< 1.38E+02 kg	NA	NA
Fe.icp.adl	< 7.71E+01 kg	NA	NA
Hg.cvaa	< 1.79E-01 kg	NA	NA
La.icp.a	< 6.71E+01 kg	NA	NA
La.icp.adl	< 7.71E+01 kg	NA	NA
^{1}Li.icp.adl	< 1.54E+01 kg	NA	NA
Mg.icp.a	< 1.34E+02 kg	NA	NA
Mg.icp.adl	< 1.54E+02 kg	NA	NA
Mn.icp.a	< 1.34E+01 kg	NA	NA
Mn.icp.adl	< 1.54E+01 kg	NA	NA
Nd.icp.a	< 1.34E+02 kg	NA	NA
Nd.icp.adl	< 1.54E+02 kg	NA	NA
Ni.icp.a	< 2.69E+01 kg	NA	NA
Ni.icp.adl	< 3.07E+01 kg	NA	NA
^{237}Np	< 5.66E-02 Ci	NA	NA
Oxalate.ic	< 1.11E+03 kg	NA	NA
Pb.icp.a	< 1.34E+02 kg	NA	NA
Pb.icp.adl	< 1.54E+02 kg	NA	NA
$^{239/240}$Pu	< 9.53E-02 Ci	NA	NA
Sb.icp.a	< 8.04E+01 kg	NA	NA
Sb.icp.adl	< 9.25E+01 kg	NA	NA
Se.icp.a	< 1.34E+02 kg	NA	NA

Table B3-30. Analytical-Based Supernatant Inventory for Tank 241-AN-105 - (Supernatant Composite Sample - Core 152, Segments 1-14). (4 sheets)

Analyte	Tank Inventory	LL (kg or Ci)	UL (kg or Ci)
Se.icp.adl	< 1.54E+02 kg	NA	NA
Sm.icp.a	< 1.34E+02 kg	NA	NA
Sm.icp.adl	< 1.54E+02 kg	NA	NA
Sr.icp.a	< 1.34E+01 kg	NA	NA
Sr.icp.adl	< 1.54E+01 kg	NA	NA
Ti.icp.a	< 1.34E+01 kg	NA	NA
Ti.icp.adl	< 1.54E+01 kg	NA	NA
Tl.icp.a	< 2.69E+02 kg	NA	NA
Tl.icp.adl	< 3.07E+02 kg	NA	NA
Total Alpha	< 3.95E+01 Ci	NA	NA
Tritium	< 1.01E-01 Ci	NA	NA
U.icp.a	< 6.71E+02 kg	NA	NA
U.icp.adl	< 7.69E+02 kg	NA	NA
V.icp.a	< 6.71E+01 kg	NA	NA
V.icp.adl	< 7.71E+01 kg	NA	NA
Zr.icp.a	< 1.34E+01 kg	NA	NA
Zr.icp.adl	< 1.54E+01 kg	NA	NA

Note:

[1]Li and [1]Br are the tracers for hydrostatic head fluid.

Table B3-31. Analytical-Based Salt Slurry Inventory for Tank 241-AN-105 - (nested ANOVA with the Riser Term - Segment Data). (3 sheets)

Analyte	Tank Inventory	LL (kg or Ci)	UL (kg or Ci)
Water.tga	1.20E+06 kg	9.51E+05	1.44E+06
Acetate.ic.w	1.60E+03 kg	0.00E+00	3.97E+03
Acetate.ic.wo	1.81E+03 kg	8.80E+02	2.74E+03
Ag.icp.a	5.25E+01 kg	0.00E+00	2.27E+02
Al.icp.a	5.96E+04 kg	1.53E+04	1.04E+05

Table B3-31. Analytical-Based Salt Slurry Inventory for Tank 241-AN-105 - (nested ANOVA with the Riser Term - Segment Data). (3 sheets)

Analyte	Tank Inventory	LL (kg or Ci)	UL (kg or Ci)
Al.icp.f	6.22E+04 kg	3.59E+04	8.85E+04
B.icp.a	2.41E+02 kg	0.00E+00	6.64E+02
Ca.icp.a	1.73E+03 kg	0.00E+00	1.28E+04
Cd.icp.a	3.15E+01 kg	0.00E+00	1.02E+02
Cl^-.ic	1.39E+04 kg	7.32E+03	2.05E+04
Cr.icp.a	6.30E+03 kg	0.00E+00	1.74E+04
Cr.icp.f	6.67E+03 kg	0.00E+00	2.07E+04
Cu.icp.a.w	1.90E+01 kg	1.72E+00	3.62E+01
Cu.icp.a.wo	1.91E+01 kg	2.39E+00	3.59E+01
F^-.ic	5.01E+03 kg	0.00E+00	2.28E+04
Fe.icp.a	3.23E+02 kg	0.00E+00	1.24E+03
Formate.ic	2.85E+03 kg	1.45E+03	4.25E+03
K.icp.a	9.30E+03 kg	2.77E+03	1.58E+04
^{1}Li.icp.a.w	5.33E+01 kg	0.00E+00	2.27E+02
^{1}Li.icp.a.wo	5.55E+01 kg	0.00E+00	2.25E+02
Mn.icp.a.w	5.67E+01 kg	0.00E+00	3.86E+02
Mn.icp.a.wo	5.85E+01 kg	0.00E+00	3.98E+02
Mo.icp.a	1.39E+02 kg	1.02E+01	2.67E+02
NO_2^-.ic	1.72E+05 kg	9.03E+04	2.53E+05
NO_3^-.ic	3.00E+05 kg	4.53E+04	5.55E+05
Na.icp.a	4.93E+05 kg	1.10E+05	8.76E+05
Na.icp.f	6.14E+05 kg	3.09E+05	9.20E+05
Ni.icp.a	1.10E+02 kg	0.00E+00	2.89E+02
Ni.icp.f.w	3.68E+03 kg	0.00E+00	2.07E+04
Ni.icp.f.wo	4.72E+03 kg	0.00E+00	1.71E+04
Oxalate.ic	1.87E+04 kg	0.00E+00	5.34E+04
P.icp.a	6.70E+03 kg	0.00E+00	6.41E+04
PO_4^{3-}.ic.w	2.18E+04 kg	0.00E+00	2.26E+05
PO_4^{3-}.ic.wo	2.18E+04 kg	0.00E+00	2.26E+05
Pb.icp.a.w	1.28E+02 kg	0.00E+00	3.18E+02

Table B3-37. Tank Inventory - Based on Composite Data. (6 sheets)

Supernatant Analyte	Supernatant Inventory	Sludge Analyte	Salt Slurry Inventory	Salt Slurry Inventory	Tank Inventory
^{129}I	6.85E-01 Ci	^{129}I	< 9.50E+00 Ci	< 8.00E-01 Ci	< .10E+01 i
^{137}Cs.gea	1.22E+06 Ci	^{137}Cs.gea	7.37E+05 Ci	5.30E+04 Ci	2.01E+06 Ci
^{154}Eu.gea	< 2.50E+02 Ci	^{154}Eu.gea	< 2.40E+02 Ci	< 1.95E+01 Ci	< 5.10E+02 Ci
^{155}Eu.gea	< 8.35E+02 Ci	^{155}Eu.gea	< 9.38E+02 Ci	< 5.92E+01 Ci	< 1.83E+03 Ci
^{237}Np	< 5.66E-02 Ci	^{237}Np	2.57E+01 Ci	< 4.17E+00 Ci	< 2.99E+01 Ci
$^{239/240}$Pu	< 9.53E-02 Ci	$^{239/240}$Pu	< 4.39E+00 Ci	1.94E+00 Ci	< 6.43E+00 Ci
^{241}Am.aea	< 1.00E-01 Ci	^{241}Am.aea	9.93E+00 Ci	1.00E+01 Ci	< 2.00E+01 Ci
^{241}Am.gea	< 2.20E+03 Ci	^{241}Am.gea	< 2.00E+03 Ci	< 1.27E+02 Ci	< 4.33E+03 Ci
$^{243/244}$Cm	< 1.00E-01 Ci	$^{243/244}$Cm	< 2.34E+00 Ci	< 1.45E+00 Ci	< 3.89E+00 Ci
^{60}Co.gea	< 3.33E+01 Ci	^{60}Co.gea	< 9.09E+01 Ci	< 4.63E+00 Ci	< 1.29E+02 Ci
$^{89/90}$Sr	1.06E+02 Ci	$^{89/90}$Sr	2.22E+04 Ci	9.40E+03 Ci	3.17E+04 Ci
^{99}Tc	7.01E+02 Ci	^{99}Tc	4.38E+02 Ci	3.45E+01 Ci	1.17E+03 Ci
Acetate.ic	1.64E+03 kg	Acetate.ic	1.14E+03 kg	< 2.03E+01 kg	< 2.80E+03 kg
Ag.icp.a	3.88E+01 kg	Ag.icp.a	2.88E+01 kg	1.09E+01 kg	7.85E+01 kg
Ag.icp.adl	4.61E+01 kg	Ag.icp.a	2.88E+01 kg	1.09E+01 kg	8.58E+01 kg
Al.icp.a	9.15E+04 kg	Al.icp.a	4.96E+04 kg	3.72E+03 kg	1.45E+05 kg
Al.icp.adl	1.12E+05 kg	Al.icp.a	4.96E+04 kg	3.72E+03 kg	1.65E+05 kg
As.icp.a	< 1.34E+02 kg	As.icp.a	< 9.77E+01 kg	< 1.00E+01 kg	< 2.42E+02 kg
As.icp.adl	< 1.54E+02 kg	As.icp.a	< 9.77E+01 kg	< 1.00E+01 kg	< 2.62E+02 kg
B.icp.a	4.34E+02 kg	B.icp.a	2.82E+02 kg	2.92E+01 kg	7.45E+02 kg

Table B3-37. Tank Inventory - Based on Composite Data. (6 sheets)

Supernatant Analyte	Supernatant Inventory	Sludge Analyte	Salt Slurry Inventory	Salt Slurry Inventory	Tank Inventory
B.icp.adl	1.86E+02 kg	B.icp.a	2.82E+02 kg	2.92E+01 kg	4.97E+02 kg
Ba.icp.a	< 6.71E+01 kg	Ba.icp.a	< 4.90E+01 kg	< 5.02E+00 kg	< 1.21E+02 kg
Ba.icp.adl	< 7.71E+01 kg	Ba.icp.a	< 4.90E+01 kg	< 5.02E+00 kg	< 1.31E+02 kg
Be.icp.a	< 6.71E+00 kg	Be.icp.a	< 4.90E+00 kg	< 5.02E-01 kg	< 1.21E+01 kg
Be.icp.adl	< 7.69E+00 kg	Be.icp.a	< 4.90E+00 kg	< 5.02E-01 kg	< 1.31E+01 kg
Bi.icp.a	< 1.34E+02 kg	Bi.icp.a	< 9.77E+01 kg	< 1.00E+01 kg	< 2.42E+02 kg
Bi.icp.adl	< 1.54E+02 kg	Bi.icp.a	< 9.77E+01 kg	< 1.00E+01 kg	< 2.62E+02 kg
$^{1}Br^{-}$.ic	< 1.34E+03 kg	Br^{-}.ic	< 1.35E+03 kg	< 1.27E+02 kg	< 2.82E+03 kg
Ca.icp.a	2.25E+03 kg	Ca.icp.a	5.22E+02 kg	8.45E+01 kg	2.86E+03 kg
Ca.icp.adl	< 1.54E+02 kg	Ca.icp.a	5.22E+02 kg	8.45E+01 kg	< 7.61E+02 kg
Cd.icp.a	< 6.71E+00 kg	Cd.icp.a	1.77E+01 kg	3.56E+00 kg	< 2.80E+01 kg
Cd.icp.adl	< 7.69E+00 kg	Cd.icp.a	1.77E+01 kg	3.56E+00 kg	< 2.90E+01 kg
Ce.icp.a	< 1.34E+02 kg	Ce.icp.a	< 9.77E+01 kg	< 1.00E+01 kg	< 2.42E+02 kg
Ce.icp.adl	< 1.54E+02 kg	Ce.icp.a	< 9.77E+01 kg	< 1.00E+01 kg	< 2.62E+02 kg
Cl^{-}.ic	2.61E+04 kg	Cl^{-}.ic	1.43E+04 kg	1.05E+03 kg	4.15E+04 kg
Co.icp.a	< 2.69E+01 kg	Co.icp.a	< 1.95E+01 kg	< 2.00E+00 kg	< 4.84E+01 kg
Co.icp.adl	< 3.07E+01 kg	Co.icp.a	< 1.95E+01 kg	< 2.00E+00 kg	< 5.22E+01 kg
Cr(VI).spec	3.93E+02 kg	Cr(VI).spec	2.88E+02 kg	2.67E+01 kg	7.08E+02 kg
Cr.icp.a	4.79E+02 kg	Cr.icp.a	3.60E+03 kg	7.05E+02 kg	4.78E+03 kg
Cr.icp.adl	5.70E+02 kg	Cr.icp.a	3.60E+03 kg	7.05E+02 kg	4.88E+03 kg

Table B3-37. Tank Inventory - Based on Composite Data. (6 sheets)

Supernatant Analyte	Supernatant Inventory	Sludge Analyte	Salt Slurry Inventory	Salt Slurry Inventory	Tank Inventory
Si.icp.a	5.62E+02 kg	Si.icp.a	4.33E+02 kg	1.22E+02 kg	1.12E+03 kg
Si.icp.adl	4.25E+02 kg	Si.icp.a	4.33E+02 kg	1.22E+02 kg	9.80E+02 kg
Sm.icp.a	< 1.34E+02 kg	Sm.icp.a	< 9.77E+01 kg	< 1.00E+01 kg	< 2.42E+02 kg
Sm.icp.adl	< 1.54E+02 kg	Sm.icp.a	< 9.77E+01 kg	< 1.00E+01 kg	< 2.62E+02 kg
Sr.icp.a	< 1.34E+01 kg	Sr.icp.a	< 9.77E+00 kg	< 1.00E+00 kg	< 2.42E+01 kg
Sr.icp.adl	< 1.54E+01 kg	Sr.icp.a	< 9.77E+00 kg	< 1.00E+00 kg	< 2.62E+01 kg
TIC	5.62E+03 kg	TIC	3.16E+04 kg	2.12E+03 kg	3.93E+04 kg
TOC.coul	1.56E+04 kg	TOC.pers	1.32E+04 kg	1.15E+03 kg	3.00E+04 kg
TOC.pers	6.64E+03 kg	TOC.pers	1.32E+04 kg	1.15E+03 kg	2.10E+04 kg
Ti.icp.a	< 1.34E+01 kg	Ti.icp.a	< 9.77E+00 kg	< 1.00E+00 kg	< 2.42E+01 kg
Ti.icp.adl	< 1.54E+01 kg	Ti.icp.a	< 9.77E+00 kg	< 1.00E+00 kg	< 2.62E+01 kg
Tl.icp.a	< 2.69E+02 kg	Tl.icp.a	< 1.95E+02 kg	< 2.00E+01 kg	< 4.84E+02 kg
Tl.icp.adl	< 3.07E+02 kg	Tl.icp.a	< 1.95E+02 kg	< 2.00E+01 kg	< 5.22E+02 kg
AT	< 3.95E+01 Ci	AT	3.30E+01 Ci	1.49E+01 Ci	< 8.74E+01 Ci
Total Beta	1.38E+06 Ci	Total Beta	7.92E+05 Ci	7.06E+04 Ci	2.24E+06 Ci
Tritium	< 1.01E-01 Ci	Tritium	5.33E+00 Ci	< 1.63E-01 Ci	< 5.59E+00 Ci
U.icp.a	< 6.71E+02 kg	U.icp.a	< 4.90E+02 kg	< 5.02E+01 kg	< 1.21E+03 kg
U.icp.adl	< 7.69E+02 kg	U.icp.a	< 4.90E+02 kg	< 5.02E+01 kg	< 1.31E+03 kg
U.phos	9.13E+00 kg	U.phos	2.12E+02 kg	2.12E+01 kg	2.42E+02 kg
V.icp.a	< 6.71E+01 kg	V.icp.a	< 4.90E+01 kg	< 5.02E+00 kg	< 1.21E+02 kg

Table B3-37. Tank Inventory - Based on Composite Data. (6 sheets)

Supernatant Analyte	Supernatant Inventory	Sludge Analyte	Salt Slurry Inventory	Salt Slurry Inventory	Tank Inventory
V.icp.adl	< 7.71E+01 kg	V.icp.a	< 4.90E+01 kg	< 5.02E+00 kg	< 1.31E+02 kg
Water.tga	1.82E+06 kg	Water.tga	1.11E+06 kg	1.10E+05 kg	3.04E+06 kg
Zn.icp.a	1.95E+02 kg	Zn.icp.a	1.98E+01 kg	2.97E+00 kg	2.18E+02 kg
Zn.icp.adl	4.51E+01 kg	Zn.icp.a	1.98E+01 kg	2.97E+00 kg	6.79E+01 kg
Zr.icp.a	< 1.34E+01 kg	Zr.icp.a	1.09E+01 kg	1.44E+01 kg	< 3.87E+01 kg
Zr.icp.adl	< 1.54E+01 kg	Zr.icp.a	1.09E+01 kg	1.44E+01 kg	< 4.07E+01 kg

Note:

^{1}Li and ^{1}Br are the tracers for hydrostatic head fluid.

Table D2-1. Sampling and Hanford Defined Waste Model Inventory Estimates for Nonradioactive Components in Double-Shell Tank 241-AN 105 (2 sheets)

Analyte	June 1996 Inventory based on segment data from both core samples (kg)	June 1996 Inventory based on composite of core 152 (kg)	HDW Model Inventory (kg)	Inventory based on Evaporator post-run data[1] (kg)
Pb	266	< 264	1,540	NR
PO_4^{3-}	23,600	16,800	74,700	8,110
Si	920	980	13,600	NR
SO_4^{2-}	24,100	21,700	159,000	28,000
Sr	40	< 24.2	0	NR
TOC	NR	30,000	109,000	14,400
U	NR	242	13,800	NR
Zr	< 46.4	< 40.7	149	NR
% water	46.6	46.6	17.2	NR
density, g/mL	1.56	1.56	1.88	1.50

Notes:

NR = not reported

[1]Hendrickson 1994.

Table D2-2. Sampling and Hanford Defined Waste Model Inventory Estimates for Radioactive Components in Double-Shell Tank 241-AN-105. (Decayed to January 1, 1994)

Analyte	June 1996 inventory based on segment data from both core samples (Ci)	June 1996 inventory based on composite of core 152 (Ci)	HDW model inventory (Ci)	Inventory based on evaporator post-run data[1]
^{60}Co	NR	< 129	253	NR
^{90}Sr	NR	33,600	665,000	13,800
^{90}Y	NR	33,600	665,000	NR
^{99}Tc	NR	1,174	1,500	NR
^{129}I	NR	11.0	2.89	NR
^{137}Cs	NR	2.01E+06	1.48E+06	215,000
^{137}mBa	NR	1.90E+06	1.41E+06	NR
^{154}Eu	NR	< 565	4,020	NR
^{155}Eu	NR	< 2,250	1,660	NR
^{237}Np	NR	< 25.8	5.28	NR
$^{239/240}Pu$	NR	6.42	359	44.1
^{241}Am	NR	10.1	429	NR
^{244}Cm	NR	< 4.27	0.92	NR

Note:

[1]Hendrickson 1994.

Table D4-1. Best-Basis Inventory Estimates for Nonradioactive Components in Tank 241-AN-105 Supernatant as of May 31, 1996. (2 sheets)

Analyte	Supernatant inventory (kg)	Basis (S, M, or E)[1]	Comments
Pb	146	S	Composite < 154
PO_4	2,850	S	
Si	492	S	
SO_4	4,840	S	
Sr	< 13.4	S	
TOC	15,600	S	Core composite data.
U_{TOTAL}	9.13	S	Core composite data.
Zr	< 15.5	S	
Percent water	51.9	S	
Density, g/mL	1.42	S	

Notes:

[1]S = Sample-based, M = Hanford defined waste model-based, E = Engineering assessment-based.

Table D4-2. Best-Basis Inventory Estimates for Radioactive Components in Tank 241-AN-105 Supernatant as of May 31, 1996. (Decayed to January 1, 1994) (2 sheets)

Analyte	Supernatant inventory (Ci)	Basis (S, M, or E)[1]
^{60}Co	< 122	S
^{90}Sr	112	S
^{90}Y	112	S
^{99}Tc	701	S
^{129}I	0.685	S
^{137}Cs	1.93E+06	S
^{137m}Ba	1.82E+06	S
^{154}Eu	< 250	S
^{155}Eu	< 835	S
^{237}Np	< 0.0566	S
$^{239/240}Pu$	0.0953	S

Table D4-2. Best-Basis Inventory Estimates for Radioactive Components in Tank 241-AN-105 Supernatant as of May 31, 1996. (Decayed to January 1, 1994) (2 sheets)

Analyte	Supernatant inventory (Ci)	Basis (S, M, or E)[1]
^{241}Am	0.100	S
$^{243/244}Cm$	0.110	S

Notes:

[1]S = Sample-based, M = Hanford defined waste model-based, E = Engineering assessment-based

Table D4-5. Best-Basis Total Inventory Estimates for Nonradioactive Components in Tank 241-AN-105 as of May 31, 1996. (2 sheets)

Analyte	Total inventory (kg)	Basis (S, M, or E)[1]
K	25,400	S
La	< 581	S
Mn	< 59.4	S
Na	1.10E+06	S
Ni	< 129	S
NO_2	504,000	S
NO_3	728,000	S
OH	214,000	S
Pb	265	S
PO_4	20,200	S
Si	950	S
SO_4	22,900	S
Sr	< 32.1	S
TOC	29,900	S
U_{TOTAL}	242	S
Zr	< 43.5	S
Percent water	46.6	S
Density, g/mL	1.56	S

Notes:

[1]S = Sample-based, M = Hanford Defined Waste model-based, E = Engineering assessment-based.

Table D4-6. Best-Basis Total Inventory Estimates for Radioactive Components in Tank 241-AN-105 as of May 31, 1996. (Decayed to January 1, 1994)

Analyte	Total inventory (Ci)	Basis (S, M, or E)[1]
^{60}Co	< 129	S
^{90}Sr	33,600	S
^{90}Y	33,600	S
^{99}Tc	1,170	S
^{129}I	11.0	S
^{137}Cs	2.01E+06	S
^{137m}Ba	1.90E+06	S
^{154}Eu	< 565	S
^{155}Eu	< 2,260	S
^{237}Np	25.8	S
$^{239/240}Pu$	6.43	S
^{241}Am	10.1	S
$^{243/244}Cm$	< 4.27	S

Notes:

[1]S = Sample-based, M = Hanford defined waste model-based, E = Engineering assessment-based.

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