

NOV 03 1999

STA# 4

4

ENGINEERING DATA TRANSMITTAL

Page 1 of 2

1. EDT

625291

2. To: (Receiving Organization) Project Development/Implementaton		3. From: (Originating Organization) Project Definition		4. Related EDT No.: 625287	
5. Proj./Prog./Dept./Div.: TWRS		6. Design Authority/Design Agent/Cog. Engr.: Thomas H. May		7. Purchase Order No.: N/A	
8. Originator Remarks: Please review and approve the attached Interface Control Document for transfer of waste from the Plutonium Finishing Plant (PFP) to the Double Shell Tanks				9. Equip./Component No.: N/A	
				10. System/Bldg./Facility: 244-TX/DST/PFP	
				12. Major Assm. Dwg. No.:	
11. Receiver Remarks:				11A. Design Baseline Document? <input type="radio"/> Yes <input checked="" type="radio"/> No	
				13. Permit/Permit Application No.: N/A	
				14. Required Response Date: 8/26/99	

15. DATA TRANSMITTED					(F)	(G)	(H)	(I)
(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	Approval Designator	Reason for Transmittal	Originator Disposition	Receiver Disposition
1	HNF-4486		0	DST/PFP ICD	N/A	1		

16. KEY			
Approval Designator (F)	Reason for Transmittal (G)	Disposition (H) & (I)	
E, S, Q, D OR N/A (See WHC-CM-3-5, Sec. 12.7)	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 Approval Designator for required signatures)									
(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp.	(J) Name	(K) Signature
		Design Authority				1		F. R. Crawford T5-50	<i>FRC Crawford</i> 11/1/99
		Design Agent				1		J.J. Badden S5-07	<i>J.J. Badden</i> 9/20/99
1	1	Cog. Eng. T.H. May R3-73	<i>Thomas H. May</i>	7/24/99		1		W.T. Thompson R3-73	<i>W.T. Thompson</i>
1	1	Cog. Mgr. T.J. Conrads R3	<i>T.J. Conrads</i>	7/29/99					
1	1	QA J.F. Bores R2-89	<i>J.F. Bores</i>	7/30/99					
1	1	Safety W.T. Dixon R3-01	<i>W.T. Dixon</i>	7/30/99					
1	1	Env. B.G. Erlandson R1-51	<i>B.G. Erlandson</i>						

18. <i>Thomas H. May</i> 7/28/99 T. H. May Signature of EDT Originator Date		19. _____ Authorized Representative for Receiving Organization Date		20. <i>T.J. Conrads</i> 11/2/99 T.J. Conrads Design Authority/Cognizant Manager Date		21. DOE APPROVAL (if required) Ctrl No. _____ <input type="radio"/> Approved <input type="radio"/> Approved w/comments <input type="radio"/> Disapproved w/comments	
---	--	--	--	--	--	---	--



Interface Control Document Between the Double-Shell Tanks (DST) System and the Plutonium Finishing Plant (PFP)

Thomas H. May

Numatec Hanford Company

Richland, WA 99352

U.S. Department of Energy Contract DE-AC06-96RL13200

EDT/ECN: 625291

UC: N/A

Org Code: UF130000

Charge Code: 106462

B&R Code: N/A

Total Pages: 712


PF 11-9-99

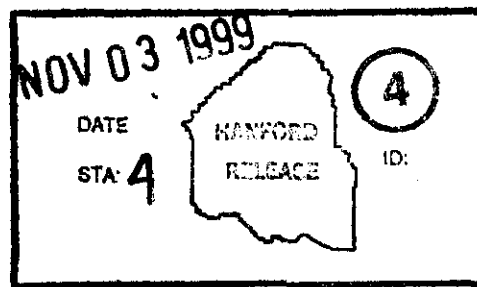
Key Words: Interface Control Document, ICD, Double Shell Tanks, DST,
Plutonium Finishing Plant, PFP

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: Document Control Services, P.O. Box 950, Mailstop H6-08, Richland WA 99352, Phone (509) 372-2420; Fax (509) 376-4989.


Release Approval 11/3/99
Date



Release Stamp

Approved For Public Release

HNH-4486

Revision 0

INTERFACE CONTROL DOCUMENT FOR THE DOUBLE-SHELL TANK SYSTEM AND THE PLUTONIUM FINISHING PLANT

September 1999

T. H. May
Numatec Hanford Corporation
Richland, Washington

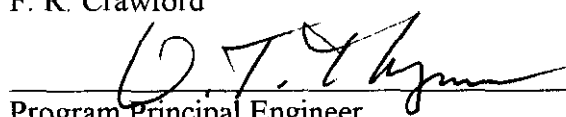
Approved by:


Tank Farm Facility Manager

J. J. Badden


PFP Project Manager

F. R. Crawford


Program Principal Engineer

W. T. Thompson

9/23/99
Date

11/1/99
Date

9/15/99
Date

Prepared for:
Office of River Protection
Richland, Washington

HNF-4486
Revision 0

This page intentionally left blank.

CONTENTS

1.0 INTRODUCTION.....	1
1.1 SCOPE.....	2
1.2 BACKGROUND	2
2.0 INTERFACE DESCRIPTION	3
2.1 RIVER PROTECTION PROJECT RESPONSIBILITIES	3
2.2 GENERATOR RESPONSIBILITIES	3
3.0 ITEMS PASSED ACROSS THE INTERFACE.....	4
3.1 PFP WASTE.....	4
3.1.1 PFP Annual Dilute Waste Volume.....	4
3.1.2 PFP Waste Acceptance into the DST System	4
3.1.3 PFP Waste Acceptance into 244-TX DCRT	4
3.1.4 Transfer Facility	4
4.0 ISSUES LIST	5
4.1 INTERFACE DEFINITION	5
5.0 INTERFACE DIAGRAMS	5
5.1 244-Z TO 102-SY VIA 224-TX.....	5
6.0 REFERENCES	6
6.1 REFERENCE DOCUMENTS	6
6.2 RELATED DOCUMENTS.....	6
6.3 OPERATING DOCUMENTS	7

TERMS

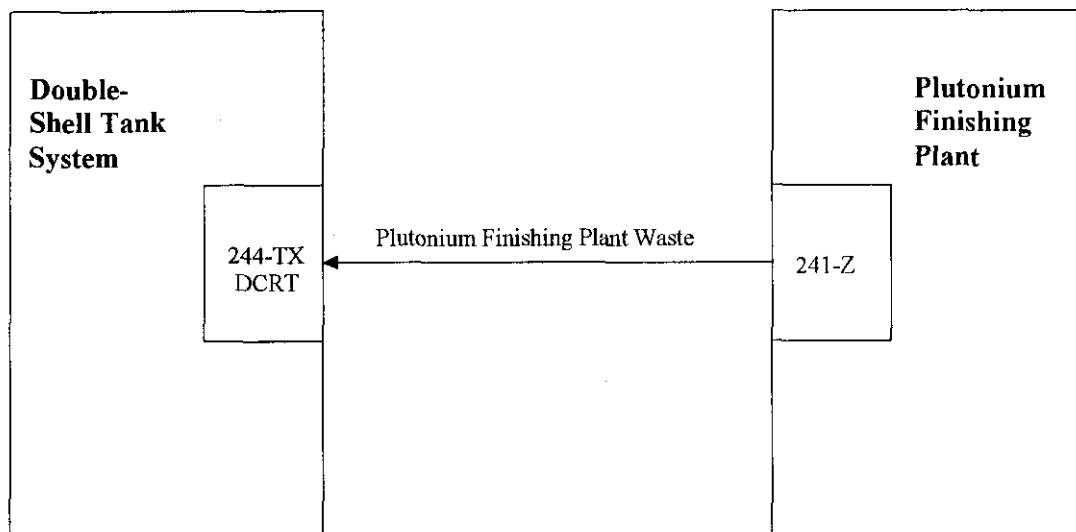
BIO	Basis for Interim Operation
DCRT	Double Contained Receiving Tank
DST	Double-Shell Tank
ICD	Interface Control Document
KGAL	Kilogallons
PFP	Plutonium Finishing Plant
RPP	River Protection Project
SST	Single-Shell Tank
TBD	To Be Defined
Tri-Party Agreement	<i>Hanford Federal Facility Agreement and Consent Order</i>
TSA	Technical Safety Requirements

INTERFACE CONTROL DOCUMENT FOR THE DOUBLE-SHELL TANK SYSTEM AND THE PLUTONIUM FINISHING PLANT

1.0 INTRODUCTION

This Interface Control Document (ICD) describes the interface between the Double-Shell Tank (DST) System and the Plutonium Finishing Plant (PFP) (see Figure 1). The 200 Area tank farms has limited ability to adjust waste composition. Waste compatibility between existing waste and new waste must be closely controlled. Therefore, strict control of waste composition at the waste generator is essential to operate in compliance with the requirements of the *Authorization Basis* (Jones 1999a) and the *Technical Safety Requirements* (Jones 1999b).

Figure 1. Interface Control Between the Double-Shell Tank System
and the Plutonium Finishing Plant.



1.1 SCOPE

This document identifies the requirements and responsibilities for all parties to support waste transfer from the Plutonium Finishing Plant (PFP) facility to the Double-Shell Tank (DST) System of the River Protection Project (RPP). This ICD will not attempt to control the physical portion of this interface because the physical equipment making up this interface, and any associated interface requirements, are already in place, operational and governed by existing operating specifications and other documentation. The PFP and DST Systems have a direct physical interface (the waste transfer pipeline) that travels between the 241-Z Building (TK-D5) and DST SY-102 via 244-TX double-contained receiver tank (DCRT).

The purpose of the ICD process is to formalize working agreements between the RPP DST System and organization/companies internal and external to RPP. This ICD has been developed as part of the requirements basis for design of the DST System to support the Phase I Privatization effort.

The signatures on the cover page of this document indicate agreement between the parties that this document reflects the current technical baseline for each system and that the requirements contained in this document will not be revised without the agreement of all parties.

1.2 BACKGROUND

Since 1991, the mission of the PFP has changed from nuclear material processing to cleanout, stabilization, and storage. Specifically, the mission is fourfold:

1. Facility cleanout to a state ready for final decommissioning and decontamination or use for an environmental restoration mission
2. Stabilization of reactive radioactive residues to a state suitable for long term storage and immobilization of sand, slag, and crucible residues for disposal
3. Continued safe storage of special nuclear materials in secure vault areas (which may include stabilization of those materials)
4. Operation of analytical and plutonium process support laboratories.

Liquid waste from PFP is transferred to the 241-Z Liquid Waste Treatment facility tanks for treatment prior to transfer to DCRT 244-TX in the DST system. The 241-Z facility is a permitted Treatment, Storage, and Disposal Facility under a Type A permit from Washington State Department of Ecology (Ecology).

The 244-TX DCRT is a concrete vault located approximately one mile north of PFP. It is carbon steel lined and contains a carbon steel tank. This DCRT supports 241-T, 241-TX, and 241-TY saltwell pumping as well as support for transfers from PFP. Caustic can be added to the DCRT contents.

2.0 INTERFACE DESCRIPTION

PFP will utilize an existing pipeline to move waste from the 241-Z Building (TK-D5) to the DST System via the 244-TX DCRT. From the 244-TX DCRT the DST System transfers the waste into 241-AY-102. The actual physical interface between these facilities has been defined at a point in the pipeline connecting TK-D5 and 244-TX just after the pipeline (HSW-202 and HSW-203) has left the 241-Z building.

2.1 RIVER PROTECTION PROJECT RESPONSIBILITIES

The responsibilities of the RPP DST system includes:

1. Operate and maintain the DST system in compliance with requirements of the Basis for Interim Operation (BIO) and Technical Safety Requirements (TSRs).
2. Establish and maintain the ICDs to ensure consistency with the BIO and TSRs.
3. Establish and maintain the tank farms waste acceptance criteria.
4. Prepare a waste compatibility assessment to authorize shipment of waste to 244-TX
5. Operate and maintain the 244-TX facility per TO-430-480.
6. Communicate all relevant DST document changes to 241-Z Cognizant Engineer

2.2 GENERATOR RESPONSIBILITIES

1. Operate and maintain the 241-Z facility in accordance with Operating Specification OSD-Z-184-00010 (PHMC 1998).
2. Notify DST systems Process Control Group that a waste transfer is planned.
3. Sample waste from tank TK-D5 and analyze per Operating Procedure ZO-101-023 (PHMC 1999)
4. Prepare waste profile sheet per the *Double-Shell Tank System Waste Analysis Plan* (Mulkey 1998) and send to Process Control Group
5. Provide annual input to the Operations Waste Volume Projections per *Operations Waste Volume Projection* (Strode 1998).

3.0 ITEMS PASSED ACROSS THE INTERFACE

This section contains the item descriptions and interface requirements associated with each item passed across the interface as defined in section 2.0 above. These interface requirements are intended to be bounding requirements for design and contained in the *System Specification for the Double-Shell Tanks System* (Grenard 1998). For current operational estimates of waste volumes and timing, refer to the most current revision of the *Operational Waste Volume Projection* (Strode 1998). All transfers shall comply with the controls contained in the BIO and Technical Safety Requirements (Jones 1999a, b). Additionally the Tank Farm administrative lock, which controls the transfer, is placed on the 241-Z transfer pump. The key to the lock is maintained at the West Area shift office.

3.1 PFP WASTE

Waste retrieved from PFP that is transferred to DSTs.

3.1.1 PFP Annual Dilute Waste Volume

The DST shall accept up to 33 kgal of waste from the PFP from 1999 through 2012 (see *Operational Waste Volume Projection* [Strode 1999]).

3.1.2 PFP Waste Acceptance into the DST System

PFP waste shall be subjected to the DST waste acceptance process described in the Waste Analysis Plan (Mulkey 1998, Appendix A) and must be approved by DST System Process Control Group before transfer of PFP waste into the DST System can begin.

3.1.3 PFP Waste Acceptance into 244-TX DCRT

PFP waste must meet the chemical composition, radionuclide composition, and transfer requirements contained in the Operating Specification for the Plutonium Finishing Plant (OSD-Z-184-00010) before waste can be received at the 244-TX DCRT.

3.1.4 Transfer Facility

The DST System shall maintain the compatibility to receive waste from PFP through the 244-TX DCRT as defined in 3.1.1, 3.1.2, and 3.1.3.

4.0 ISSUES LIST

4.1 INTERFACE DEFINITION

Waste from PFP first enters the 244-TX DCRT before eventually being transferred to DST SY-102. This ICD assumes that the interface between PFP and Tank Farms is with the DST System. This is consistent with the information contained in the DST Specification, which in turn is consistent with information contained in the Tri-Party Agreement (TPA) concerning the definition of the DST System. However, the BIO reference, HNF-SD-WM-HIE-007, appears to place the 244-TX DCRT within the SST System definition and control.

If a change is made to the TPA DST System list concerning the classification of the 244-TX DCRT causing a similar change to the *DST Specification*, then this ICD and its associated interface requirements will have to also be revisited and possibly modified.

5.0 INTERFACE DIAGRAMS

This section provides a 'roadmap' to lower level ICDs that have been, or will be, developed to define and control the specific physical interfaces and interface requirements between specific elements of the DST System and PFP.

5.1 244-Z TO 102-SY VIA 244-TX

The current baseline is to ship waste via an existing pipeline from the 241-Z treatment facility portion of PFP (TK-D5) to DST SY-102 via the 244-TX DCRT. The actual physical interface between PFP and the DST Systems has already been defined as previously discussed in Section 2.0 and is governed by existing requirements and documents. Thus, no attempt will be made to define any lower level ICDs for this interface. Transfers into 244-TX were controlled by Tank Farm procedure TO-470-962 which has not been used in several years. The procedure is currently out of date and will be updated prior to any future shipment of waste from PFP to 244-TX.

6.0 REFERENCES

6.1 REFERENCE DOCUMENTS

- Grenard, C. E., 1998, *System Specification for the Double Shell Tanks System*, HNF-SD-WM-TRD-007, Rev. E, Cogema Engineering, Richland, Washington.
- Jones, G. L., 1999a, *Basis for Interim Operation*, HNF-SD-WM-BIO-001, Rev 1-D, MACTEC, prepared for Lockheed Martin Hanford Corporation, Richland, Washington.
- Jones, G. L., 1999b, *Technical Safety Requirements*, HNF-SD-WM-TSR-006, Rev. 0-5, MACTEC, prepared for Lockheed Martin Hanford Corporation, Richland, Washington.
- Mulkey, C. H., 1998, *Double-Shell Tank System Waste Analysis Plan*, HNF-SD-WM-EV-053, Rev 5, Lockheed Martin Hanford Corporation, Richland, Washington.
- PHMC, 1998, *Operating Specification for the Plutonium Finishing Plant 241-Z Waste Facility*, OSD-Z-184-00010, Rev. H-0, Project Hanford Management Contractor, Fluor Daniel Hanford, Inc., Richland, Washington.
- Strode, J. N., 1999, *Operational Waste Volume Projection*, HNF-SD-WM-ER-029, Rev. 25, Lockheed Martin Hanford Corporation, Richland, Washington
- PHMC, 1996, *PFP 241-Z Process Sample TK-D4, TK-D5, TK-D7 OR TK D8*, ZO-101-023, Project Hanford Management Contractor, Fluor Daniel Hanford, Inc., Richland, Washington.

6.2 RELATED DOCUMENTS

- PHMC, 1999, *Tank Farms Operations Administrative Controls*, HNF-IP-1266, Rev. 0, Lockheed Martin Hanford Corporation, Richland, Washington
- Mayer, E. E., #80232764-9-K001-*Revised Double-Shell Tank Waste Acceptance Criteria*, External letter LMHC-9757070 to A. M. Umek (August 12, 1997), Lockheed Martin Hanford Corporation, Richland, Washington.
- PHMC, 1999, *Data Quality Objectives for the Waste Compatibility Program*, HNF-SD-WM-DQO-001, Rev. 3, Lockheed Martin Hanford Corporation, Richland, Washington.
- Wicks, J. H., *Subcontract Number, Configuration Control of Tank Waste Compositions*, External Letter LMHC-9755448 to W. M. Funderburke (June 20, 1997), Lockheed Martin Hanford Corporation, Richland, Washington.

Mayer, E. E., #80232764-9-K001-Revised Waste Acceptance Criteria, External Letter LMHC-9754635 to A. M. Umek (June 12, 1997), Lockheed Martin Hanford Corporation, Richland, Washington.

Fowler, K. D., 1995, *Tank Farm Waste Compatibility Program*, WHC-SD-WM-OCD-015, Rev. 1, Lockheed Martin Hanford Corporation, Richland, Washington.

PHMC, 1997, *Plutonium Finishing Plant 241-Z Process, Transfer TK-D5 to Tank Farms*, ZO-101-010, Project Hanford Management Contractor, Fluor Daniel Hanford, Inc., Richland, Washington.

PHMC, 1999, *244-TX to 241-SY-102 Slipstream Transfer Via 244-S DCRT*, TO-430-480, Rev I-2, Project Hanford Management Contractor, Fluor Daniel Hanford, Inc., Richland, Washington.

6.3 OPERATING DOCUMENTS

The following table lists operating documents applicable to this interface.

Operating Documents	
Double-shell tank	Plutonium Finishing Plant
OSD-T-151-00007, H-21, Operating Specification for 241-AN, AP, AW, AY, AZ & SY Tank Farms	OSD-Z-184-00010, H-0, Operating Specification for the Plutonium Finishing Plant 241-Z Waste Facility (released as HNF-SD-CP-OCD-036)
CPS-T-149-00010, I-0, Criticality Prevention Specification for Waste Stored in Double Shell Tanks and Associated Equipment	CPS-Z-165-80741, B-1, PFP Criticality Prevention Specification 241-Z Solution Disposal Facility
HNF-SD-WM-DQO-001, Rev. 2, Data Quality Objectives for the Waste Compatibility Program	
HNF-SD-WM-EV-053, Rev 5, Double Shell Tank Waste Analysis Plan	
TO-430-480, Rev I-2, 244-TX to 241-SY-102 Slipstream Transfer Via 244-S DCRT	ZO-101-010, Plutonium Finishing Plant 241-Z Process, Transfer TK-D5 to Tank Farms
TO-470-962, Inactive, Transfer from PFP to 244-TX	ZO-101-023, PFP 241-Z Process Sample TK-D4, TK-D5, TK-D7 OR TK D8

Distribution

Reason	Disposition	Name	MSIN
3		T. B. Veneziano	S7-40
3		H. L. Boston	R2-53
3		D. I. Allen	R2-50
3		M. A. Payne	R2-58
3		M. D. Ebben	H7-07
3		E. E. Mayer	R2-50
3		J. E. Ferguson	H8-71
3		S. D. Brumley	H7-07
3		R. F. Wood	H7-07
3		R. L. Treat	R3-75
3		R. W. Powell	R3-75
3		W. T. Thompson	R3-73
3		R.W. Root	R2-58
3		C. J. Rice	R2-53
3		R. A. Dodd	R3-72
3		A. F. Choho	R3-73
3		D. M. Hammond	R1-44
3		R. D. Potter	R3-73
3		E. W. Dunbar	K8-95
3		S. M. O'Toole	R2-89
3		T.M. Blaak	S5-13
3		D.G. Baide	S5-05
3		D.J. Carrell	R1-51
3		T.J. Conrads	R3-73
3		C. Defigh-Price	R2-12
3		B.G. Erlandson	R1-51
3		K.D. Fowler	R2-11
3		C.E. Grenard	R3-74
3		G.A. Hofferber	B1-45
3		N.W. Kirch	R2-11
3		T. Laney	S5-05
3		M.W. Leonard	B1-45
3		C.H. Mulkey	R1-51
3		O.D. Nelson	R3-74
3		F.R. Crawford	T5-50
3		M.W. Gibson	T5-55
3		D.R. Hirzel	T5-54
3		P. E. Roege	T5-57