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TANK WASTE REMEDIATION SYSTEM COMPENSATORY MEASURE REMOVAL

Nancy J. Milliken

Duke Engineering & Services Hanford, Richland, WA 99352
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Abstract: In support of Fiscal Year 1998 Performance Agreement TWR1.4.3, "Replace Compensatory Measures," the Tank Waste Remediation System is documenting the completion of field modifications supporting the removal of the temporary exemptions from the approved Tank Waste Remediation System Technical Safety Requirements (TSRs), HNF-SD-WM-TSR-006. These temporary exemptions or compensatory measures expire September 30, 1998.

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**TANK WASTE REMEDIATION SYSTEM
COMPENSATORY MEASURE REMOVAL**

Nancy J. Milliken
Duke Engineering & Services Hanford

September 1998

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TANK WASTE REMEDIATION SYSTEM COMPENSATORY MEASURE REMOVAL

1.0 INTRODUCTION

In support of Fiscal Year 1998 Performance Agreement TWR1.3.2, "Replace Compensatory Measures," the Tank Waste Remediation System (TWRS) is documenting the completion of field modifications supporting the removal of the temporary exemptions from the approved *Tank Waste Remediation System Technical Safety Requirements* (TSRs), HNF-SD-WM-TSR-006. These temporary exemptions or compensatory measures expire September 30, 1998.

1.1 Background

Along with the approval of the *Tank Waste Remediation System Basis of Interim Operation*, HNF-SD-WM-BIO-001, and its associated TSRs, a number of temporary exemptions were approved within the text of the TSR document. These temporary exemptions were designed to allow the facility to continue operating safely while making modifications to implement a standardized set of TSRs.

1.2 Purpose

The purpose of this document is to describe the work completed in support of the removal of the compensatory measures and the methodology used to verify completion.

2.0 IDENTIFICATION OF SCOPE OF WORK

Compensatory measures were included in three (3) Limiting Conditions for Operation (LCOs) and two (2) Administrative Controls (ACs). The following sections summarize the controls, the compensatory measures, and the required actions taken to remove compensatory measures.

2.1 LCO 3.1.2 Service Water Pressure Detection Systems

"Service water pressure detection systems shall be operable."

Process Area Applicability: Service water pressure detection systems that are physically connected to an active waste transfer pump not under administrative lock.

COMPENSATORY MEASURE - A temporary exemption to this control is provided for the 204-AR Waste Unloading Facility.

Required Action:

Remove temporary exemption to LCO 3.1.2 by preparing an Authorization Basis Amendment package for the 204-AR Waste Unloading Facility that allows for the use of a back flow preventer instead of a service water pressure switch.

Following installation of a service water pressure switch in 204-AR, it was determined that the service water pressure switch did not allow for the use of the raw water system to perform transfer line flushing and pump priming. A technical evaluation determined that the same safety function could be served by an existing system back flow preventer. An Engineering Change Notice (ECN) describing this technical change has been submitted to the U.S. Department of Energy, Richland Operations Office (RL) for approval.

2.2 LCO 3.1.3 Transfer Leak Detection Systems

"Transfer leak detection systems shall be operable."

Process Area Applicability: All process pits, diversion boxes, vault pits, and clean out boxes physically connected to an active waste transfer pump that is not under administrative lock.

COMPENSATORY MEASURE - A temporary exemption to this control is provided for transfer leak detection systems not on the direct transfer path, which do not meet Ignition Source Control Sets #1 or #2 requirements.

Required Action:

Remove temporary exemption to LCO 3.1.3 by replacing the relays of leak detectors in direct communication with the tank dome space with intrinsically safe relays. Ninety-two (92) pit and thirty-four (34) encasement leak detector relays have been installed to complete this activity. See Table 3-1, "Relay Component Upgrades by Tank Farm Facility," for a detailed listing of components.

2.3 LCO 3.1.4 Ventilation Stack Continuous Air Monitor (CAM) Interlock Systems

"The Ventilation Stack CAM Interlock Systems shall be operable."

Process Area Applicability: Primary tank stack CAMs for double-shell tanks and Aging Waste Facility tanks, SSTs with active ventilation (C and SX tank farms), double-contained receiver tanks, and the 204-AR Waste Unloading Facility when active ventilation is operating.

COMPENSATORY MEASURE - A temporary exemption to this control is provided for the primary stack CAMs at the 204-AR Waste Unloading Facility, 702-A, 702-AZ, backup exhauster/296-P-26, the 244-CR Vault, Tanks 241-C-105/106, and the K1 exhauster systems in AN, AW, and AP tank farms.

Required action:

Remove temporary exemption to LCO 3.1.4 by making hardware modifications to interlock the CAM with the ventilation system as described below.

1. The 204-AR (296-A-26) CAM is interlocked.
2. The 702-AZ CAM is interlocked.
3. The 244-CR (296-C-05) CAM is interlocked.
4. The 241-C-104/105/106 (296-P-16) CAM is interlocked.
5. The C-006 CAM is interlocked.
6. The AN tank farm bypass of the CAM interlock is disabled (296-A-29).
7. The AP tank farm bypass of the CAM interlock is disabled (296-A-40).
8. The AW tank farm bypass of the CAM interlock is disabled (296-A-27).

NOTE: The 702-A exhauster and K-1-1 and K-1-2 backup fan CAMs were not modified. The CAM functions for these units were replaced with the new Project W-030 (702-AZ) ventilation system exhaust stack CAM.

2.4 Administrative Control 5.10 Ignition Controls

A program will be established, implemented, and maintained to manage potential ignition sources that can initiate a fire or flammable gas deflagration.

Compensatory ignition controls are contained in Section 5.10.2.e for both high level probes and pit leak detectors.

Required Action:

Some double-shell tank and Aging Waste Facility tanks have conductivity probe leak detector elements. These types of elements currently do not meet the ignition control requirements of AC 5.10. Leak detectors in direct communication with tank dome space will have their relays replaced to reduce the energy delivery to the detector.

It was also concluded that the encasement leak detectors were within the scope of the BIO Compensatory Measure program. Because the encasement leak detectors which are to remain installed and operable, they must satisfy TSR Table 5.10-1 "Flammable Gas Ignition Source Control Set Application Requirements."

Replace all high level probe relays to meet the requirements of AC 5.10. 25 high level probe relays have been replaced to complete this activity. See Table 3-1 for a detailed listing of components.

2.5 Administrative Control 5.17 Excavation Controls

"A program shall be maintained to ensure that controls are in place to coordinate excavation activities in areas of waste transfers to minimize the potential for waste transfer leakage to the surface from an excavation accident."

Applicability: This program applies to active underground waste transfer lines and excavation activities.

COMPENSATORY MEASURE - The single-walled direct buried/bermed WASTE transfer lines outside of the tank farm boundaries are temporarily exempt from permanent aboveground label requirements. Encased pipe (concrete-encased and pipe-in-pipe encased) outside of the tank farm boundaries are temporarily exempt from the permanent aboveground label requirements.

Required Action:

Remove temporary exemptions referenced in AC 5.12, "Transfer Controls," and AC 5.17 by permanently marking all active, underground piping outside of tank farm boundaries. Appendix A provides a listing of the active transfer lines marked by this activity.

Per the *Hanford Facility RCRA Permit Condition II.U.1 Report for Mapping and Marking Dangerous Waste Underground Pipelines*, DOE/RL-96-50, pipelines are to be marked every 100 meters.

NOTE: "Active" is defined as "capable of being used for transfer without an engineering change."

A related activity of note is the effort to support RCRA Permitting that include marking the cross-site transfer line and mapping all lines used since 1980. However, the definition of an active transfer line varies here from the one provided above because not all lines used since 1980 remain active.

3.0 METHODOLOGY

3.1 Component Identification

In support of the removal of compensatory measures, a number of actions were taken to identify the components requiring modification or installation.

For removal of the compensatory measures for service water pressure switches and ventilation system CAM interlocks, the components were identified within the text of the LCOs themselves. The only change to these listings was made specifically to modify the 702-AZ ventilation system instead of the 702-A ventilation system, based on current facility configuration.

For the replacement of leak detector and high level probe relays, the components modified were identified by the cognizant facility engineers.

The listing of active transfer lines marked to support this activity is provided in Appendix A, "Active Transfer Lines Marked for Compensatory Measure Removal."

Listings of components, excluding the detailed listing of transfer lines provided in Appendix A, are provided in Tables 3-1 and 3-2, "Excavation Marker, Pressure Switch, and CAM Interlock Upgrades by Tank Farm Facility."

TABLE 3-1
RELAY COMPONENT UPGRADES BY TANK FARM FACILITY

Facility	Component ID	Previous ID	Type	ECN(s)	Work Package
A FARM	241-A01H-WT-PNL-1	LDE-801H-1	Pit	627073	97-0555
A FARM	241-A-A-WT-PNL-1	LDE-VP-1-1	Pit	627073	97-0555
A FARM	241-A-B-WT-PNL-1	LDE-VP-B-1	Pit	627073	97-0555
A FARM	A417-WT-PNL-1	LDE-417-1/2	Pit	641277	97-0929
A FARM	A417-WT-PNL-2	LDE-417-3	Pit	641277	97-0929
A FARM	241-ER-151-PNL-1	LDE-ER-151	Pit	645410 617273	97-2260
A FARM	241-ER-152-PNL-1	LDE-ER-152	Pit	645410 617273	97-2260
A FARM	241-ER-311-PNL-1	LDE-ER-311	Pit	636305	97-2233
A FARM	241-ER-153-PNL-1		Pit	647686 617273	97-1992
A FARM	244-A-WT-PNL-1	LDE-PP-SYS	Pit	647686 639794	97-1992
A FARM	LIOW-702-PNL-1	LDE-241A-A-ENC	Encasement	645415	97-1995
AN FARM	AN01A-WT-LDSTA-121	LDE-01A-1SYS	Pit	617275	96-1263
AN FARM	AN02A-WT-LDSTA-128	LDE-02A-1SYS	Pit	617275	96-1263
AN FARM	AN03A-WT-LDSTA-131	LDE-03A-1SYS	Pit	617275	96-1263
AN FARM	AN04A-WT-LDSTA-134	LDE-04A-1SYS	Pit	617275	96-1263
AN FARM	AN05A-WT-LDSTA-137	LDE-05A-1SYS	Pit	617275	96-1263
AN FARM	AN06A-WT-LDSTA-140	LDE-PP-06A	Pit	617275	96-1263
AN FARM	AN07A-WT-LDSTA-143	LDE-PP-07A	Pit	617275	96-1263
AN FARM	ANVPA-WT-LDSTA-146	LDE-VP-AN-A	Pit	617275	96-1263
AN FARM	ANFP-WT-LDSTA-701	LDE-FP-ANS-YS	Pit	617275	96-1263
AN FARM	ANVPB-WT-LDSTA-149	LDE-VP-AN-B	Pit	617275	96-1263
AN FARM	AN01E-WT-LDSTA-126	LDE-01E-SYS	Pit	637073	97-0555
AN FARM	AN01D-WT-LDSTA-125	LDE-01D-SYS	Pit	637073	97-0555

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Facility	Component ID	Previous ID	Type	ECN(s)	Work Package
AN FARM	AN101-WST-LE-132		HL Probe	629854	97-0271
AN FARM	AN102-WST-LE-133		HL Probe	629854	97-0271
AN FARM	AN103-WST-LE-134		HL Probe	629854	97-0271
AN FARM	AN104-WST-LE-135		HL Probe	629854	97-0271
AN FARM	AN105-WST-LE-136		HL Probe	629854	97-0271
AN FARM	AN106-WST-LE-137		HL Probe	629854	97-0271
AN FARM	AN107-WST-LE-138		HL Probe	629854	97-0271
AN FARM	ANVPB-WT-LDSTA-150	LDE-241AN-SL-160	Encasement	617275	96-1263
AN FARM	ANVPA-WT-LDSTA-147	LDE-241AN-SL-168	Encasement	617275	96-1263
AN FARM	AN101-WT-LDSTA-124	LDE-AN-DR-368	Encasement	617275	96-1263
AN FARM	ANVPB-WT-LDSTA-151	LDE-SN-AN-260	Encasement	617275	96-1263
AN FARM	ANVPA-WT-LDSTA-148	LDE-SN-AN-268	Encasement	617275	96-1263
AP FARM	AP01A-WT-LDE-201	LDE-01A-1	Pit	629849	97-0270
AP FARM	AP02A-WT-LDE-203	LDE-02A-1	Pit	629849	97-0270
AP FARM	AP03A-WT-LDE-207	LDE-03A-A	Pit	629849	97-0270
AP FARM	AP04A-WT-LDE-211	LDE-04A-1	Pit	629849	97-0270
AP FARM	AP05A-WT-LDE-213	LDE-05A-1	Pit	629849	97-0270
AP FARM	AP06A-WT-LDE-216	LDE-06A-1	Pit	629849	97-0270
AP FARM	AP07A-WT-LDE-218	LDE-07A-1	Pit	629849	97-0270
AP FARM	AP08A-WT-LDE-220	LDE-08A-1	Pit	629849	97-0270
AP FARM	APVP-WT-LDE-224	LDE-VP-1	Pit	629849	97-0270
AP FARM	APFP-WT-LDE-701	LDE-FP-1	Pit	629849	97-0270
AP FARM	AP02D-WT-LDE-205	LDE-02D	Pit	629849	97-0270
AP FARM	AP03D-WT-LDE-210	LDE-03D	Pit	629849	97-0270
AP FARM	AP101-WST-LE-101		HL Probe	629852	97-0270

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Facility	Component ID	Previous ID	Type	ECN(s)	Work Package
AP FARM	AP102-WST-LE-102		HL Probe	629852	97-0270
AP FARM	AP103-WST-LE-103		HL Probe	629852	97-0270
AP FARM	AP104-WST-LE-104		HL Probe	629852	97-0270
AP FARM	AP105-WST-LE-105		HL Probe	629852	97-0270
AP FARM	AP106-WST-LE-106		HL Probe	629852	97-0270
AP FARM	AP107-WST-LE-107		HL Probe	629852	97-0270
AP FARM	AP108-WST-LE-108		HL Probe	629852	97-0270
AP FARM	APVP-WT-LDE-227	LDE-609	Encasement	629852	97-0270
AP FARM	APVP-WT-LDE-228	LDE-610	Encasement	629852	97-0270
AP FARM	APVP-WT-LDE-225	LDE-509	Encasement	629852	97-0270
AP FARM	APVP-WT-LDE-226	LDE-510	Encasement	629852	97-0270
AW FARM	AW01A-WT-LDSTA-161	LDE-01A-1	Pit	629851	98-0835
AW FARM	AW02A-WT-LDSTA-164	LDE-02A-1	Pit	629851	98-0835
AW FARM	AW03A-WT-LDSTA-169	LDE-03A-1	Pit	629851	98-0835
AW FARM	AW04A-WT-LDSTA-172	LDE-04A-1	Pit	629851	98-0835
AW FARM	AW05A-WT-LDSTA-176	LDE-05A-1	Pit	629851	98-0835
AW FARM	AW06A-WT-LDSTA-179	LDE-06A-1	Pit	629851	98-0835
AW FARM	AW02D-WT-LDSTA-167	LDE-2D-1	Pit	629851	98-0835
AW FARM	AWA-WT-LDSTA-311	LDE-VP-A	Pit	637083	97-0362
AW FARM	AWFP-WT-LDSTA-701	LDE-FP-AW	Pit	629851	98-0835
AW FARM	AW02E-WT-LDSTA-168	LDE-02E-1	Pit	629851	98-0835
AW FARM	AWB-WT-LDSTA-211	LDE-VP-B	Pit	629851	98-0835
AW FARM	241-A-350-LDE-1	LDE-350-A	Pit	629840	97-1993
AW FARM	241-A-350-LDE-2	LDE-350-2	Pit	629840	97-1993
AW FARM	AW101-WST-LE-131		HL Probe	647681 637016	98-1186
AW FARM	AW102-WST-LE-132		HL Probe	647681 637016	98-1186

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Facility	Component ID	Previous ID	Type	ECN(s)	Work Package
AW FARM	AW103-WST-LE-133		HL Probe	647681 637016	98-1186
AW FARM	AW104-WST-LE-134		HL Probe	647681 637016	98-1186
AW FARM	AW105-WST-LE-135		HL Probe	647681 637016	98-1186
AW FARM	AW106-WST-LE-136		HL Probe	647681 637016	98-1186
AW FARM	AW-SL-167		Encasement	629853	98-0837
AW FARM	AW-SN-219		Encasement	629853	98-0837
AW FARM	AW-SN-220		Encasement	637083	97-0362
AW FARM	AW-SN-267		Encasement	629853	98-0837
AW FARM	AW-SN-268		Encasement	629853	98-0837
AW FARM	AW-SN-269		Encasement	629853	98-0837
AW FARM	AW-SN-270		Encasement	629853	98-0837
AW FARM	AW-DR-334		Encasement	629853	98-0837
AW FARM	AW-DR-335		Encasement	629853	98-0837
AW FARM	AW-DR-361		Encasement	629853	98-0837
AW FARM	AW-PW-481		Encasement	629840	97-1993
AW FARM	AW-SN-274		Encasement	629853	98-0837
AW FARM	AW-SL-168		Encasement	637083	97-0362
AX FARM	241-AX01A-WT-PNL-1	LDE-901A-1	Pit	637073	97-0555
AX FARM	241-AX-A-WT-PNL-1	LDE-241-AX-A	Pit	637073	97-0555
AX FARM	241-AX-B-WT-PNL-1	LDE-241-AX-B	Pit	637073	97-0555
AX FARM	AX-501-WT-PNL-1	LDE-501-AX	Pit	641277	97-0929
AX FARM	AX152-WT-PNL-2	LDE-PP-152	Pit	636361	97-1885
AX FARM	AX152-WT-PNL-1	LDE-DS-152-AX	Pit	637081	96-1329
AY FARM	AY01A-WT-PNL-1	LDE-101-22	Pit	636359	97-0899
AY FARM	AY01B-WT-PNL-1	LDE-101-18	Pit	645432	98-0836

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Facility	Component ID	Previous ID	Type	ECN(s)	Work Package
AY FARM	AY01C-WT-PNL-1	LDE-101-19	Pit	645432	98-0836
AY FARM	AY01D-WT-PNL-1	LDE-101-20	Pit	636359	97-0899
AY FARM	AY01E-WT-PNL-1	LDE-101-21	Pit	645432	98-0836
AY FARM	AY02A-WT-PNL-1	LDE-102-22	Pit	636359	97-0899
AY FARM	AY02B-WT-PNL-1	LDE-102-18	Pit	645432	98-0836
AY FARM	AY02C-WT-PNL-1	LDE-102-19	Pit	645432	98-0836
AY FARM	AY02D-WT-PNL-1	LDE-102-20	Pit	636359	97-0899
AY FARM	LDK-102-32 (AY-02E)	LDE-102-32	Pit	643131	97-1805
AY FARM	AY501-COND-PNL-1	LDE-501-AY	Pit	636361	97-1885
AY FARM	AY101-WST-LE-1		HL Probe	643999	97-0416
AY FARM	AY102-WST-LE-2		HL Probe	643999	97-0416
AY FARM	LDE-SL-502		Encasement	629837	97-1994
AY FARM	LDE-SL-503		Encasement	629837	97-1994
AY FARM	LDE-SL-504		Encasement	629837	97-1994
AY FARM	LDE-SL-505		Encasement	629837	97-1994
AY FARM	LDE-DR-700		Encasement	629837	97-1994
AZ FARM	AZ01A-WT-PNL-1	LDE-101-20	Pit	645432	98-0836
AZ FARM	AZ01B-WT-PNL-1	LDE-101-18	Pit	645432	98-0836
AZ FARM	AZ01C-WT-PNL-1	LDE-101-19	Pit	645432	98-0836
AZ FARM	AZ02A-WT-PNL-1	LDE-102-20 AZ047-1	Pit	637081	96-1329
AZ FARM	AZ02B-WT-PNL-1	LDE-102-18	Pit	637081	97-0835
AZ FARM	AZ02C-WT-PNL-1	LDE-102-19	Pit	645432	98-0836
AZ FARM	AZ151-WT-PNL-1	LDE-151-1	Pit	637081	96-1329
AZ FARM	AZ152-WT-PNL-1	LDE-152-1	Pit	637081	96-1329
AZ FARM	AZ101-WST-LE-1		HL Probe	643999	97-0416
AZ FARM	AZ102-WST-LE-2		HL Probe	643999	97-0416

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Facility	Component ID	Previous ID	Type	ECN(s)	Work Package
AZ FARM	AZ-SL-500		Encasement	629837	97-1994
AZ FARM	AZ-SL-501		Encasement	629837	97-1994
AZ FARM	AZ-SN-600		Encasement	629837	97-1994
AZ FARM	AZ-SN-601		Encasement	629837	97-1994
C FARM	LDE-1366		Pit	W-320-640	97-1706
C FARM	LDE-1368		Pit	W-320-640	97-1706
C FARM	LDE-1363	SL-100	Encasement	W-320-640	97-1706
C FARM	LDE-1364	SN-200	Encasement	W-320-640	97-1706
S FARM	LDE-DBS-151SY-S		Pit	641445	98-0883
S FARM	LDE-304-3S-YS		Pit	641445	98-0883
SY FARM	LDE-VP-SY-A		Pit	641408	97-0794
SY FARM	LDE-VP-SY-B		Pit	641408	97-0794
SY FARM	LDE-071A-1SYS		Pit	641408	97-0794
SY FARM	LDE-02A-1		Pit	641408	97-0794
SY FARM	LDE-03A-1SYS		Pit	641408	97-0794
SY FARM	LDE-02D-1		Pit	641408	97-0794
SY FARM	LDE-FP-SY-A		Pit	641408	97-0794
SY FARM	LDE-FP-SY-B		Pit	641408	97-0794
SY FARM	LDE-02E-1		Pit	641408	97-0794
TX FARM	LDE-241-TX-302C		Pit	650110	98-1445
TX FARM	LDE-TX-154SY-S		Pit	650110	98-1445
U PLANT	LDE-DB-U-151		Pit	641445	98-0883
U PLANT	LDE-DB-U-152		Pit	641445	98-0883
U PLANT	LDE-241-UX-302A		Pit	650110	98-1445
U PLANT	LDE-DB-UX-154		Pit	650110	98-1445

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Facility	Component ID	Previous ID	Type	ECN(s)	Work Package
U PLANT	LDE-241-U-301B		Pit	650110	98-1445

TABLE 3-2
EXCAVATION MARKER, PRESSURE SWITCH, AND CAM INTERLOCK
UPGRADES BY TANK FARM FACILITY

Facility	Component ID	Type	ECN(s)	Work Package
200 EAST	94 lines	Markers	N/A	N/A
200 WEST	47 lines	Markers	N/A	N/A
204-AR	296-A-26	CAM Interlock	647683	98-0834
204-AR	Raw Water PS	Pressure Switch	N/A	AB Amendment
244-CR	296-C-05	CAM Interlock	647680	98-1051
AN FARM	296-A-29	CAM Interlock	647678	98-0737
AP FARM	296-A-40	CAM Interlock	647676	98-0833
AW FARM	296-A-27	CAM Interlock	647677	98-0737
AY/AZ FARM	702-AZ-CAM	CAM Interlock	647682	98-1052
C FARM	296-C-006	CAM Interlock	647640	98-1071
C FARM	296-P-16	CAM Interlock	646460	98-0071

3.2 Task Completion Verification

To verify that the components were installed, work completion packages were developed by the BIO Compensatory Measure program. As listed in Tables 3-1 and 3-2, each component was cross walked to the specific work package completing the work. In Table 3-3, "Verification Packages," work was grouped by work package to facilitate the re-creation of the closure documentation necessary to demonstrate the completion of the necessary actions to remove the compensatory measures.

TABLE 3-3
VERIFICATION PACKAGES

INSTALLATION WORK PACKAGE	ECN(s)	OTHER DOCUMENTS
96-1263	617275	TF-FT-229-006 (Rev C-0) (6-24-98) H-14-020801 Sheets 1, 2, and 3
96-1329	637081 636269 637023	H-2-68335 Sheets 3 and 4 H-2-64400 Sheet 5 H-2-44612 Sheet 3 H-2-44683 H-2-44681 Sheets 1 and 2 H-2-34965 Sheet 4 H-2-94029 Sheet 1
97-0270	629849 629852	2E-98-1235 2E-98-1744 H-2-90475 Sheet 2 H-2-90476 Sheet 2 H-2-90479 H-2-09948 Sheet 2 H-14-020603
97-0271	629854 647692	H-2-71979 H-2-71980 H-2-71981 H-2-71982 H-2-71983 H-2-71984 H-2-72037
97-0362	637083	H-14-020801 Sheet 4
97-0416	643999	H-2-64400 Sheets 4,6,7,8,11,12,13 and 14 H-2-68335 Sheets 2,3,6 and 7

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INSTALLATION WORK PACKAGE	ECN(s)	OTHER DOCUMENTS
97-0555	627073	2E-98-1833 2E-98-1890 TF-FT-209-006 (Rev B-1) (2-9-98) TF-FT-269-007 (Rev B-1) (2-9-98) TF-FT-229-006 (Rev A-0) (11-25-97) TF-96-0330 (Rev 3) H-14-020801 Sheets 1 and 3 H-2-69237
97-0794	641408	
97-0835	637081 636269	6-TF-042 (Rev 5-0) (3-17-97) H-2-68335
97-0899	637074 636359 631956	H-2-64400 Sheets 4,5,6 and 7 H-2-34965 Sheet 4 H-2-94029 Sheet 1
97-0929	641277 642885	TF-FT-259-007 (Rev A-0) (11-18-97) 6-TF-042 2E-97-1885 2E-98-0444 H-2-56142 Sheet 4
97-1706	W-320-640 W-320-692	TF-FT-359-009 (Rev A-0) (4-8-98) 2E-98-0527 2E-98-0530 2E-98-0902
97-1805	643131 635850 W-320-563 W-320-600	CWP-W-320-104 2E-98-0529/W TF-FT-259-007 (Rev C-2) (4-9-98) H-2-64400 Sheet 7
97-1885	636361	TF-FT-259-007 (Rev A-0) (11-18-97) H-2-64400 Sheet 2 H-2-74600 Sheet 3
97-1992	647686 617273 639794 637003	H-2-90370 Sheet 1 H-2-90398 H-2-38208 H-2-38210 H-2-38211

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INSTALLATION WORK PACKAGE	ECN(s)	OTHER DOCUMENTS
97-1993	629840 636304 647685 629848	TF-FT-239-006 (Rev A-5) (4-7-98) TF-FT-680-004 (Rev 7) (3-7-98) H-2-70387 Sheet 2 H-2-70332 H-2-70329 Sheet 1 H-2-70362 Sheet 1 H-2-70325 Sheet 1 H-2-99085 Sheets 8, 14 and 19
97-1994	629837	6-TF-042 (Rev 5-C) (8-15-98) H-2-64400 Sheets 4, 5, 6, and 7 H-2-68335 Sheets 3, 7 and 8 H-2-68353 H-2-69237 H-2-70760
97-1995	645415	TF-FT-209-006 (Rev B-2) (4-14-98) H-2-70703 Sheet 1
97-2233	636305	TF-FT-209-006 (Rev B-1) (2-9-98) 2E-97-2338 H-2-71670 H-2-43031 H-2-71615 H-2-822533
97-2260	645410 617273	H-2-090370
98-0071	646460	TF-FT-359-008 TF-98-0021
98-0737	647677	TF-FT-229-005 (Rev A-0) (6-23-98) TF-FT-239-017 (Rev A-1) (9-2-98) TF-98-0479
98-0833	647676	
98-0834	647683 629877 647586	TF-FT-299-001 (Rev A-0) (7-14-98)
98-0835	629851	TF-FT-239-006 (Rev B-0) (7-30-98) H-14-020802 Sheets 1, 2, 3, 5 and 6
98-0836	645432	H-2-64400 Sheets 4 and 5 H-2-68335 Sheets 2 and 7
98-0837	629853	H-14-02802 Sheets 1, 2, 3 and 5

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INSTALLATION WORK PACKAGE	ECN(s)	OTHER DOCUMENTS
98-0883	641445	H-2-45082 Sheet 1 H-2-71634 H-2-71665
98-1051	647680	
98-1052	647682	
98-1071	647840	2E-98-0528 TF-FT-359-010 (Rev B-1) (8-25-98) H-2-818561 Sheets 6 and 7
98-1186	647681	TF-98-0769 H-2-70331 H-2-70324 Sheet 2 and 3 H-2-70362 Sheet 1 H-2-70388 H-2-70389 H-2-70390 H-2-70391 H-2-70392 H-2-70393 H-14-030002 Sheet 6
98-1445	650110	2W-98-1370

4.0 VERIFICATION AND VALIDATION

Lockheed Martin Hanford Corporation verified the installation of 100 percent of the components listed in Tables 3-1 and 3-2. Validation actions by Fluor Daniel Hanford, Inc. and RL included field verification of completed work and the review of verification packages. Field verification produced a number of photographs supporting task completion. Example photographs documenting typical field installations taken during verification activities are included as Figures 3-1, 3-2, and 3-3.

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Figure 3-1
AN CAM Interlock

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Figure 3-2
Intrinsically Safe Leak Detector Relay for
LDE-VP-SY-B PIT

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Figure 3-3
200 West Area Marker

5.0 CONCLUSION

A number of components were either installed or modified to allow for the removal of the compensatory measures. Compensatory Measure Removal work is complete and is physically verifiable. Traceability to closure documentation is provided by this document.

In the case of the 204-AR Waste Unloading Facility, an Authorization Basis Amendment package was prepared and submitted to RL for approval to remove the compensatory measure from LCO 3.1.2.

Appendix A
Active Transfer Lines Marked for Compensatory Measure Removal

Table 1. Active Transfer Lines Marked for Compensatory Measure Removal

Transfer Line Identification	Connection Facility	Connection Facility
200 East Area active transfer lines		
V244 ¹	221-B	241-ER-152
V244 ¹	241-ER-153	244-CR
V244 ¹	241-ER-152	241-ER-153
4006/4918 ¹	244-AR	241-AX-152
4503 ¹	241-AX-155	AY-101
4506 ¹	241-AX-155	AY-102
4608 ¹	241-AZ-152	AY-101
9808	241-ER-151	244-BX
108/837/8649/8901	221-B	244-CR
4001/T029	241-A-B	202-A
4508/B105 ¹	AZ-101	241-AX-152
4509/4507 ¹	AZ-101	241-AX-155
4511/B106 ¹	AZ-102	241-AX-152
4512/4600 ¹	AZ-102	241-AX-155
814/4002/4028/G026	244-AR	PUREX
833/8618/8612	221-B	244-AR
834/8615/8653	221-B	244-AR
9653/243 ¹	221-B	241-ER-151
A106/4504 ¹	241-AX-152	AY-102
A108/4501 ¹	241-AX-152	AY-101

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Transfer Line Identification	Connection Facility	Connection Facility
B106/4505 ¹	241-AX-152	AY-102
B108/4502 ¹	241-AX-152	AY-101
D008 ¹	PUREX	241-A-151
D020 ¹	PUREX	241-A-151
D040 ¹	PUREX	241-A-151
D070 ¹	PUREX	241-A-151
D149 ¹	PUREX	241-A-151
D186 ¹	PUREX	241-A-151
E006 ¹	PUREX	241-A-151
E167 ¹	PUREX	241-A-151
F241 ¹	PUREX	241-A-151
F274 ¹	PUREX	241-A-151
F377 ¹	PUREX	241-A-151
F429 ¹	PUREX	241-A-151
F719 ¹	PUREX	241-A-151
F791 ¹	PUREX	241-A-151
G057	PUREX	241-A-151
G180 ¹	PUREX	241-A-151
G212 ¹	PUREX	241-A-151
LIQW702	204-AR	241-A-A
M044 ¹	PUREX	241-A-151
M045 ¹	PUREX	241-A-151
R165 ¹	PUREX	241-A-151

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Transfer Line Identification	Connection Facility	Connection Facility
R345 ¹	PUREX	241-A-151
SL100 ¹	241-AX-B	241-A-B
SL101 ¹	241-AX-A	241-A-A
SL113 ¹	242-A	241-A-B
SL114 ¹	242-A	241-A-A
SL160 ¹	241-AN-B	241-AZ-102
SL167 ¹	242A	241-AW-B
SL168 ¹	242A	241-AW-A
SL500 ¹	AZ-102	241-AX-A
SL502 ¹	241-AX-B	AY102
SL509 ¹	241-AW-B	241-AP VP
SL510 ¹	241-AW-A	241-AP VP
SN200 ¹	244-BX	BY-102
SN201 ¹	244-BX	BY-103
SN202 ¹	244-BX	BY-105
SN203 ¹	244-BX	BY-106
SN200SN213 ¹	241-AX-B	241-A-B
SN201/SN214 ¹	241-AX-A	241-A-A
SN207 ¹	244-BX	BY-109
SN208 ¹	244-BX	BY-101
SN208 ¹	244-BX	BY-104
SN208 ¹	244-BX	BY-110
SN215	244-A	241-A-A

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Transfer Line Identification	Connection Facility	Connection Facility
SN216	244-A	241-A-B
SN219 ¹	241-A-B	241-AW-B
SN220 ¹	241-A-A	241-AW-A
SN232 ¹	244-A	241-ER-153
SN233 ¹	244-A	241-ER-153
SN234 ¹	244-A	241-ER-153
SN244 ²	244-CR	241-ER-153
SN247 ¹	241-AN-101	241-AX-B
SN260 ¹	241-AN-B	AZ-102
SN269 ¹	242A	AW102
SN270 ¹	242A	AW102
SN600 ¹	AZ-102	241-AX-A
SN609	241-AW-102	241-AP
SN610	241-AW-102	241-AP
U039 ¹	PUREX	241-A-151
U136 ¹	PUREX	241-A-151
V021 ¹	241-A-151	241-AW-A
V022 ¹	241-A-151	241-AW-B
V023 ¹	241-A-151	241-AW-B
4029/4004/G341	202-A	241-A-A
V228 ¹	241-ER-151	241-ER-153
V229 ¹	241-ER-151	241-ER-152
V360 ¹	241-ER-151	241-EW-151

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Transfer Line Identification	Connection Facility	Connection Facility
V360 ¹	241-UX-154	241-EW-151
V361 ¹	241-ER-151	241-EW-151
V361 ¹	241-UX-154	241-EW-151
V362 ¹	241-ER-151	241-EW-151
V362 ¹	241-UX-154	241-EW-151
V363 ¹	241-ER-151	241-EW-151
V363 ¹	241-UX-154	241-EW-151
V364 ¹	241-ER-151	241-EW-151
V364 ¹	241-UX-154	241-EW-151
V366 ¹	241-ER-151	241-EW-151
V366 ¹	241-UX-154	241-EW-151
V714	241-AX-155	241-AR-151
V714	PUREX	241-AR-151
V719 ¹	241-AZ-152	241-AX-155
V720 ¹	241-AR-151	AY102
200 West Area active transfer lines		
202 ¹	241-Z (P-D-5-1)	244-TX
203 ¹	241-Z (P-D-5-1)	244-TX
V398	241-TX-152	241-U152
V404	241-TX-152	241-U152
SN6012 ¹	244TX	241-T-104
7624 ¹	244TX	241-T-111
SL118 ¹	241-S-D	241-SX-B

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Transfer Line Identification	Connection Facility	Connection Facility
SN216/SN282 ¹	244-U	241-SY-B
SN245 ¹	244S	241-S-107
SN246 ¹	244S	241-S-107
SN247 ¹	244S	241-S-107
SN248 ¹	244S	241-S-107
SN249 ¹	244S	241-S-107
SN275 ²	241-SY-A	241-S-A
SN276 ²	241-SY-B	241-S-B
SN283 ¹	242S	241-SY-102
SN7624 ¹	244-TX	241-T-111
SNL 5350 ¹	219-S	244-S
V360	241-UX-154	241-EW-151
V361	241-UX-154	241-EW-151
V362	241-UX-154	241-EW-151
V363	241-UX-154	241-EW-151
V364	241-UX-154	241-EW-151
V366	241-UX-154	241-EW-151
V374 ¹	221-U	241-UX-154
V387 ¹	241-TX-154	241-TX-152-DB
V388 ¹	241-TX-154	241-TX-152-DB
V402 ¹	244TX	241-TX-152
V406 ¹	244TX	241-TX-152
V453/V421 ¹	241-U-152	241-U-151

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Transfer Line Identification	Connection Facility	Connection Facility
V455 ¹	241-S-151	241-U-151
V456 ¹	244-S	241-U-151
V503/4700 ¹	241-S-151	241-UX-154
V505/5701 ¹	241-UX-154	241-S-151
V517	202S	241-S-151
V522 ¹	244S	241-S-151
V560 ¹	244S	241-S-151
V561 ¹	244S	241-SY-B
V562 ¹	241-SY-A	244S
V657 ¹	241-T-151	241-T-153
V658 ¹	241-T-151	241-T-153
V730 ¹	221-T	241-TX-154
V732 ¹	221-T	241-TX-154
V734 ¹	221-T	241-TX-154
V735 ¹	221-T	241-TX-154
V737 ¹	221-T	241-TX-154
V738 ¹	221-T	241-TX-154
<p>Source: WHC-SD-WM-HIE-007, 1996, Tank Waste Remediation System FSAR Hazard Identification Facility Configuration Verification Report, Rev. 0, Westinghouse Hanford Company, Richland, Washington.</p> <p>¹Markers previously installed. Field verified in place.</p> <p>²Temporary blank.</p>		

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