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Office of River Protection, State of Washington Department of Ecology
Single-Shell Tank System Leak Detection and Monitoring Functions and Requirements Document Modification Notice
(Per Hanford Federal Facility Agreement and Consent Order Section 9.3)

1. Document Title and Number: RPP-9937 SST Functions and Requirements, Rev 3		
2. Minor Field Change: (Section 12.4 HFFACO Action Plan) ☐ Yes: (WRPS Signature Only – Attach signed form to Primary Document for record purposes) x No: Proceed to Box 3	**3.** Document Issue Date: May 10, 2008 **4.** Document Modification Notice Date: January 14, 2010	**5.** Notice Number: 2010-1
6. Do proposed changes require schedule changes? (Would this extend completion of retrieval beyond 12 months from date of initiation?) ☐ Yes x No	**7.** Do proposed changes include specific additions, deletions, or modification to scope and/or requirements which affect the overall intent of the plan? ☐ Yes x No	**8.** (Check only one box) ☐ Significant Modification (Check if the answer to question in either section 6 or 7 is "yes". Significant modifications require revision of the primary document.) Minor Modification Requires modification of the document x Can be accomplished with Modification Notice.

9. Description and Justification of Change:

Description:
Revise Table B-1of RPP-9937 to address replacement of manual tapes with ENRAFS on tanks BY-101, BY-104, BY-105, BY-106, BY-107, BY-108, BY-112, U-112, U-201, and U-202. Delete MT at the end of the table since it is no longer listed in the table. (Revised Table B-1 attached.)

Explanation:
As part of upgrades to the SSTs the manual tapes are being replaced by ENRAFS. This will provide continuous monitoring of tank levels and be an improvement over the use of manual tapes. Full revision of the document will occur within the next 6 months.

10. Impact of Change:

No impact.

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11. Additional Requirements and/or Provisions[1]:

Approvals

Washington River Protection Solutions, LLC.	Office of River Protection	State of Wash., Dept. of Ecology

Office of River Protection, State of Washington Department of Ecology
Single-Shell Tank System Leak Detection and Monitoring Functions and Requirements Document Modification Notice
(Per Hanford Federal Facility Agreement and Consent Order Section 9.3)

☐ Provisional Approval[2] Date	☐ Provisional Approval[2] Date	☐ Provisional Approval[2] Date
☐ Final Approval Date 2/17/2010	☐ Final Approval Date 2/25/10 TWF CTK	☐ Final Approval Date 3-3-10

Notes

1 - For use by Ecology to identify any additional information needed to make a decision regarding the request for modifications. In addition, Ecology will identify actions, if any, regarding the modification request that DOE may take pending Ecology's final decision

2 – Provisional approval allows DOE and it's contractors to take specific actions identified in section 10, prior to final approval of this modification.

B3.0 LEAK DETECTION AND LIQUID INTRUSION MONITORING

Single-shell tanks are subject to leak detection and liquid intrusion monitoring as described in this section. The basis for requirements for LDM for SST components is provided in this section.

B3.1 LIQUID INTRUSION MONITORING

Intrusions are detected using the same devices and instruments used for detecting leaks. However, with intrusions the system is set up to detect liquid level increases rather than decreases. The only difference between leak detection and liquid intrusion detection is that the surface level device can always be used for intrusion detection, even on a dry surface. While the dry surface will not decrease in response to a leak, it will register an increase if a large enough intrusion occurs. Once a liquid surface is re-established, the gauge will show a continued increase, and the intrusion will be detected. Table B-1 shows all surface level equipment installed and the comments indicate which gauges are currently used for intrusion detection only.

Table B-1. Surface Level In-Tank Liquid Detection Instrumentation (6 Sheets)

Tank	Surface Level Gauge	LOW Installed?	Comments
A-101	E	Yes	LOW used for intrusion only
A-102	E	--	ENRAF™ used for intrusion only
A-103	E	Yes	LOW used for LDM
A-104	E	--	ENRAF™ used for intrusion only
A-105	E	--	ENRAF™ used for intrusion only
A-106	E	Yes	LOW used for intrusion only
AX-101	E	Yes	LOW used for intrusion only
AX-102	E	--	ENRAF™ used for intrusion only
AX-103	E	Yes	ENRAF™ used for intrusion only
AX-104	E	--	ENRAF™ used for intrusion only
B-101	E	Yes	LOW used for intrusion only
B-102	E	--	ENRAF™ used for intrusion only
B-103	E	--	ENRAF™ used for intrusion only
B-104	E	Yes	LOW used for intrusion only
B-105	E	Yes	LOW used for intrusion only
B-106	E	--	ENRAF™ used for intrusion only
B-107	E	Yes	LOW used for intrusion only
B-108	E	Yes	LOW used for intrusion only
B-109	E	Yes	LOW used for intrusion only

Table B-1. Surface Level In-Tank Liquid Detection Instrumentation (6 Sheets)

Tank	Surface Level Gauge	LOW Installed?	Comments
B-110	E	Yes	LOW used for intrusion only
B-111	E	Yes	LOW used for intrusion only
B-112	E	--	ENRAF™ used for intrusion only
B-201	E	--	ENRAF™ used for intrusion only
B-202	E	--	ENRAF™ used for intrusion only
B-203	E	--	ENRAF™ used for intrusion only
B-204	E	--	ENRAF™ used for intrusion only
BX-101	E	--	ENRAF™ used for intrusion only
BX-102	E	--	ENRAF™ used for intrusion only
BX-103	E	--	ENRAF™ used for LDM
BX-104	E	--	ENRAF™ used for intrusion only
BX-105	E	--	ENRAF™ used for intrusion only
BX-106	E	--	ENRAF™ used for intrusion only
BX-107	E	--	ENRAF™ used for intrusion only
BX-108	E	--	ENRAF™ used for intrusion only
BX-109	E	Yes	LOW used for intrusion only
BX-110	E	Yes	LOW used for intrusion only
BX-111	E	Yes	LOW used for intrusion only
BX-112	E	--	ENRAF™ used for intrusion only
BY-101	E~~MT~~	Yes	ENRAF™~~LOW~~ used for intrusion only
BY-102	E	Yes	LOW used for intrusion only
BY-103	E	Yes	LOW used for LDM
BY-104	E~~MT~~	Yes	ENRAF™~~LOW~~ used for intrusion only
BY-105	E~~MT~~	Yes	ENRAF™~~LOW~~ used for intrusion only
BY-106	E~~--~~	Yes	ENRAF™~~LOW~~ used for intrusion only
BY-107	E~~MT~~	Yes	ENRAF™~~LOW~~ used for intrusion only
BY-108	E~~MT~~	Yes	ENRAF™~~LOW~~ used for intrusion only.
BY-109	E	Yes	LOW used for intrusion only
BY-110	E	Yes	LOW used for intrusion only
BY-111	E	Yes	LOW used for intrusion only
BY-112	E~~MT~~	Yes	ENRAF™~~LOW~~ used for intrusion only
C-101	E	--	ENRAF™ used for intrusion only
C-102	--	--	ENRAF™ used for intrusion only
C-103	E	--	Waste retrieval has been completed. ENRAF™ used for intrusion only

Table B-1. Surface Level In-Tank Liquid Detection Instrumentation (6 Sheets)

Tank	Surface Level Gauge	LOW Installed?	Comments
C-104	E	--	ENRAF™ used for intrusion only
C-105	E	--	ENRAF™ used for intrusion only
C-106	E	--	ENRAF™ used for intrusion only. Waste retrieval has been completed
C-107	E	--	ENRAF™ used for intrusion only
C-108	E	--	ENRAF™ used for intrusion only
C-109	E	--	ENRAF™ used for intrusion only
C-110	E	--	ENRAF™ used for intrusion only
C-111	E	--	ENRAF used for intrusion only
C-112	E	--	ENRAF™ used for intrusion only
C-201	E	--	Waste retrieval has been completed. ENRAF used for intrusion only
C-202	E	--	Waste retrieval has been completed. ENRAF™ used for intrusion only
C-203	E	--	Waste retrieval has been completed. ENRAF™ used for intrusion only
C-204	E	--	Waste retrieval has been completed. ENRAF used for intrusion only
S-101	E	Yes	LOW used for intrusion only
S-102	E	Yes	LOW is not accessible due to retrieval activity. ENRAF installed in stilling well for monitoring.
S-103	E	Yes	LOW used for intrusion only
S-104	E	Yes	LOW used for intrusion only
S-105	E	Yes	LOW used for intrusion only
S-106	E	Yes	LOW used for intrusion only
S-107	E	Yes	LOW used for intrusion only
S-108	E	Yes	LOW used for intrusion only
S-109	E	Yes	LOW used for intrusion only
S-110	E	Yes	LOW used for intrusion only
S-111	E	Yes	LOW used for intrusion only
S-112	E	--	Waste retrieval in progress
SX-101	E	Yes	LOW used for intrusion only
SX-102	E	Yes	LOW used for intrusion only.
SX-103	E	Yes	LOW used for intrusion only
SX-104	E	Yes	LOW used for intrusion only
SX-105	E	Yes	LOW used for intrusion only

Table B-1. Surface Level In-Tank Liquid Detection Instrumentation (6 Sheets)

Tank	Surface Level Gauge	LOW Installed?	Comments
SX-106	E	Yes	LOW used for intrusion only
SX-107	E	--	ENRAF™ used for intrusion only
SX-108	E	--	ENRAF™ used for intrusion only
SX-109	E	--	ENRAF™ used for intrusion only
SX-110	E	--	ENRAF™ used for intrusion only
SX-111	E	Yes	LOW used for intrusion only
SX-112	E	Yes	LOW used for intrusion only
SX-113	E	--	ENRAF™ used for intrusion only
SX-114	E	--	ENRAF™ used for intrusion only
SX-115	E	--	ENRAF™ used for intrusion only
T-101	E	Yes	LOW used for intrusion only
T-102	E	--	ENRAF™ used for LDM
T-103	E	--	ENRAF™ used for intrusion only
T-104	E	Yes	LOW used for intrusion only
T-105	E	--	ENRAF™ used for intrusion only
T-106	E	--	ENRAF™ used for intrusion only
T-107	E	--	ENRAF™ used for intrusion only
T-108	E	--	ENRAF™ used for intrusion only
T-109	E	Yes	LOW used for intrusion only
T-110	E	Yes	LOW used for intrusion only
T-111	E	Yes	LOW used for intrusion only
T-112	E	--	ENRAF™ used for LDM
T-201	E	--	ENRAF™ used for intrusion only
T-202	E	--	ENRAF™ used for intrusion only
T-203	E	--	ENRAF™ used for intrusion only
T-204	E	--	ENRAF™ used for intrusion only
TX-101	E	--	ENRAF™ used for intrusion only
TX-102	E	Yes	LOW used for intrusion only
TX-103	E	Yes	LOW used for intrusion only
TX-104	E	Yes	LOW used for intrusion only
TX-105	E	Yes	LOW used for intrusion only
TX-106	E	Yes	LOW used for intrusion only
TX-107	E	--	ENRAF™ used for intrusion only
TX-108	E	Yes	Interstitial Liquid Level (ILL) to low for LOW use, ENRAF™ used for intrusion only

Table B-1. Surface Level In-Tank Liquid Detection Instrumentation (6 Sheets)

Tank	Surface Level Gauge	LOW Installed?	Comments
TX-109	E	Yes	LOW used for intrusion only
TX-110	E	Yes	LOW used for intrusion only
TX-111	E	Yes	LOW used for intrusion only
TX-112	E	Yes	LOW used for intrusion only
TX-113	E	Yes	LOW used for intrusion only
TX-114	E	Yes	LOW used for intrusion only
TX-115	E	Yes	LOW used for intrusion only
TX-116	E	Yes	LOW used for intrusion only
TX-117	E	Yes	LOW used for intrusion only
TX-118	E	Yes	LOW used for intrusion only
TY-101	E	--	ENRAF™ used for intrusion only
TY-102	E	--	ENRAF™ used for intrusion only
TY-103	E	Yes	LOW used for intrusion only
TY-104	E	--	ENRAF™ used for intrusion only
TY-105	E	Yes	LOW used for intrusion only
TY-106	E	--	ENRAF™ used for intrusion only
U-101	E	--	ENRAF™ used for intrusion only
U-102	E	Yes	LOW used for intrusion only
U-103	E	Yes	LOW used for intrusion only
U-104	E	--	ENRAF™~~MT~~ used for intrusion only
U-105	E	Yes	LOW used for intrusion only
U-106	E	Yes	LOW used for intrusion only
U-107	E	Yes	LOW used for intrusion only
U-108	E	Yes	LOW used for intrusion only
U-109	E	Yes	LOW used for intrusion only
U-110	E	Yes	LOW used for intrusion only
U-111	E	Yes	LOW used for intrusion only
U-112	~~EMT~~	--	ENRAF™ ~~MT~~ used for intrusion only
U-201	~~EMT~~	--	ENRAF™~~MT~~ used for intrusion only
U-202	~~EMT~~	--	ENRAF™~~MT~~ used for intrusion only
U-203	E	--	ENRAF™ used for intrusion only
U-204	E	--	ENRAF™ used for intrusion only

Table B-1. Surface Level In-Tank Liquid Detection Instrumentation (6 Sheets)

Tank	Surface Level Gauge	LOW Installed?	Comments

Adapted from RPP-9645, Rev. 0.

Level Gauge

E = ENRAF™ Gauge[1]

~~MT = Manual Tape~~

LOW = liquid observation well

[1]ENRAF is a trademark of the ENRAF Corporation, Houston, Texas.