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Office of River Protection, State of Washington Department of Ecology
Change Notice

1. Document Title and Number: RPP-12711, Rev. 6-J "Temporary Waste Transfer Line Management Program Plan"		
2. Minor Field Change: □ Yes: (WRPS Signature Only - Attach signed form) X No: Proceed to Box 3	**3.** Document Issue Date: 3/6/2013 **4.** Document Modification Notice Date: 3/6/2013	**5.** Notice Number: 2013-03
6. Do proposed changes require significant schedule changes? □ 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 document.) Minor Modification X Requires modification of the document X Can be accomplished with Modification Notice.
9. Description and Justification of Change: **Change Description:** RPP-12711, Rev. 6-J must be updated to reflect the addition of a HIHTL and TVFM Box to the C-112 waste retrieval system. Changes are limited to Tables A-1 & A-2. **Justification:** These changes are required by the plan. See attached page changes.		
10. Impact of Change: None.		
11. Additional Requirements and/or Provisions[1]:		
Approvals		
Washington River Protection Solutions, LLC.	Office of River Protection	State of Wash. Dept. of Ecology
□ Provisional Approval[2] Date 3-6-13	□ Provisional Approval[2] Date 3/6/13	□ Provisional Approval[2] Date
□ Final Approval Date 3-12-13	□ Final Approval Date 3/12/13	☒ Final Approval Date 3/12/13

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 11, prior to final approval of this modification.

WMA-C

Temporary Waste Transfer Line Management Program Plan

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Key Words: Transfer Line, Hose in Hose Transfer Line, HIHTL, Management Program, Leak Detection

Abstract: This plan defines a program to ensure temporary waste transfer routes are managed in a manner that ensures compliance with environmental regulations. Appendix A contains an evaluation of the methods and sensitivity of leak detection associted with temporary waste transfer lines. Appendix B describes waste handiling and waste minimization for HIHTLs. Appendix C describes flushing, draining and removal of HIHTLs. Appendix D describes HIHTL service life extension considerations.

Release Approval Date Release Stamp

Approved For Public Release

Tank Operations Contractor (TOC) RECORD OF REVISION	(1) Document Number: RPP-12711	Page 1

(2) Title:

Temporary Waste Transfer Line Management Program Plan

Change Control Record

(3) Revision	(4) Description of Change – Replace, Add, and Delete Pages	Authorized for Release	
		(5) Author. (print/sign/date)	(6) Resp. Mgr. (print/sign/date)
0	Original Release EDT-635924	SL Swaney	TM Horner
1	Direct Rev – ECN-720231-R0	SL Swaney	TM Horner
2	Direct Rev – ECN-721019-R0 Incorporates ECNs 672973, 672974, 7202920-R0, 720544-R1 and 720665-R0	SL Swaney	MJ Sutey
2A	Direct Rev – (Page Change) – ECN-721019-R1; Incorporates changes to the C-200 series tanks.	DG Baide	WT Thompson
3	Direct Rev – ECN-721019-R3; Incorporates ECN-721019-R2 and includes C-200 and U-200 HIHTL configuration modification.	DG Baide	WT Thompson
3A	Direct Rev – (Page Change) – ECN-721019-R4; Incorporates information not previously recorded from ECN-720655-R0.	PF Kison	WT Thompson
3B	Direct Rev – (Page Change) – ECN-722908-R0; Add C-103 Transfer Route Information.	JR Bellomy	WT Thompson
3C	Direct Rev – (Page Change) – ECN-722908-R1; Update C-03B Leak Rate based upon testing.	JR Bellomy	WT Thompson
3D	Direct Rev – (Page Change) – ECN-723678-R0; Update Rad Requirements	DB Parkman	WT Thompson
3E	Direct Rev – (Page Change) – ECN-723966-R0; Update pages A-21, A-23 and A-39 to show Vacuum Return HIHTL.	DB Parkman	WT Thompson
3F	Direct Rev – (Page Change) – ECN-723881-R0; Adds Page A-23C, A-23D and A-36C. NOTE: Pages A-23A, A-23B, A-36A and A-36B have already been added by ECN-722908-R1.	RS Robinson	WT Thompson
3G	Direct Rev. - (Page Change) – ECN-724101, R2; Update information from removal of SY/PPP HIHTL	MH Brown	CW Jorgensen
3H	Direct Rev. - (Page Change) – ECN-723881-R1; Update pages A-23C and A-36C (Ref. ECN-723881-R0) to reflect new location of POR104 leak detector.	JR Bellomy	WT Thompson
3I	Direct Rev. - (Page Change) – ECN-724610-R0; Adds pages A-23E & F and A-36D to reflect waste retrieval of C-109.	JR Bellomy	WT Thompson
3J	Direct Rev. – (Page Change) – ECN-725247-R0; Revises page A-5 and adds Appendix D to allow HIHTL service life extension.	RS Robinson	WT Thompson
3K	Direct Rev. – (Page Change) – ECN-725247-R1; Appendix D to incorporate Department of Ecology Comments	RS Robinson	MR Koch
4	Direct Rev. – ECN-725247-R2	RS Robinson	WT Thompson
5	Direct Rev. – ECN-725668-R0	RS Robinson	WT Thompson
5A	Direct Rev. – (Page Change) – ECN-726124-R0; Updates page A-19 and A-32A to reflect waste removal from the C-104 heel pit.	JR Bellomy	MJ Sutey
5B	Direct Rev.-(Page Change)- ECN-726124-R1; Remove pages A-19A and A-32A (added per ECN-726124-R0)	JR Bellomy	MJ Sutey
5C	Direct Rev.-(Page Change) – ECN-725221-R0; Add pages A-19A through A-19D and pages A-32A and A-32B.	JR Bellomy	MJ Sutey
6	Direct Rev – ECN-726742-R0; Incorporates ECN-725221-R0 and deletes hoses removed from the field.	MF Erhart	TR Farris
6A	Direct Rev. – ECN 10-001076; Replace page A-15 and add pages 18A and 33A.	MF Erhart	WB Barton
6B	Direct Rev. – ECN-10-001119; Replace page A-13 and add pages A-18B, A-18C, A-33B, and A-33C	MF Erhart	WB Barton
6C	Direct Rev. – ECN-10-001227; Add Page A-16A, A-16B, A-18D, A-33D, A-33E and A-33F	JR Bellomy	RE Bauer

Tank Farm Contractor (TFC) **RECORD OF REVISION**		(1) Document Number: **RPP-12711**	Page 2
6D	Direct Rev. – ECN-11-002040; Replace page A-10 to A-13, A-27, A-34, andA-39; add pages A-11A and A-13A	JR Bellomy 11/23/2011	RE Bauer 12/6/2011
6E	Direct Rev. – ECN-11-001852; Replace pages A-10 to A-12, A-13A, and A-27 to A-28. Change required for C-109 hard heel retrieval.	TM Green 3/20/2012	WB Barton 4/17/2012
6F	Direct Rev. – ECN-12-000361; Replace pages A-10 to A-12, A-13A, and A-27 to A-28. Change to remove RPP-HOLD-51347.	TM Green 5/02/2012	WB Barton 5/04/2012
6G	Direct Rev. – ECN-12-000129; Replace pages A-10, A-11A, A-26, A-31 and A-38. Change to reflect HIHTL replacement between POR104 and AN-06A.	TM Green 9/17/2012	WB Barton 9/19/2012
6H	Direct Rev. – ECN-11-000242; Replace page A-16A and add pages A-16C & A-18E. Change required for C-101 bulk retrieval	CH Anderson 11/19/12	RE Bauer 11/20/12
6I	Direct Rev. –ECN-11-001820; Add pages A-18F, and A-33H; restore A-16A (Rev. 6C) and re-number A-16A (Rev. 6H) as A-16B. Show page A-16C as no longer used. Updated pit location on page A-15.	CH Anderson 12/19/12	RE Bauer 12/20/12
6J	Direct Rev. – ECN-13-000011; Replace pages A-10, A-15, A-16A, A-33D, A-33F & A-34. Change required for C-112 retrieval.	MF Erhart MF Erhart 3-04-2013	CJ Alderman

Table A-1. In-Pit Leak Detection Methods and Limitations.

Pit			Leak Detection			
Pit Location	Pit Type	Transfer Line Type, EIN, and Connecting Pit	Device	Method	Modification	Limitation
S-102	Distributor pit for SST	HIHTL I-30512-0-1 (to S-A)	Coffer dam (H-2-46155) and leak detector (H-2-34965)	Waste pools and leak detector alarms after 1-in. accumulation in pit floor.	Coffer dam is self draining with a 5/8-in. hole.	Waste must fill the encasement hose before filling pit. Coffer dams contain a 5/8-in. hole, drilled slightly below grade, to allow the pit to drain without operator intervention. Leak of a liquid with a viscosity equal to water requires a flow rate equal to or greater than 1.3 gpm to pool.
AN-106	DST pump pit AN-106A	HIHTL-12501-01 HIHTL-12501-02 (to POR104 portable valve pit C Farm retrieval) HIHTL-12501-03 HIHTL-12501-04 (to POR104 portable valve pit C Farm retrieval)	In-line leak detector (H-2-34965) Pump pit dwg. Previously installed on H-2-72010 Sh 1 Connected to POR104 Per ECN-721373	Waste pools and leak detector alarms after 1-in. accumulation in pit floor.	None	Waste must fill the encasement before waste can be detected by the pump pit leak detector and alarm when 1" of liquid is accumulated.
POR117 (located between POR303 and POR134)	TVFM (Throttle Valve Flow Meter) Box	HIHTL 13017-01 (from POR303 2-way Splitter Box Nozzle G) HIHTL I-07243-0-02 (to POR134 Diversion Box Nozzle K)	In-line leak detector (H-2-34965-010) TVFM Box install per ECN-12-001442	Waste pools and leak detector alarms after 1-in. accumulation in pit floor.	None	Waste must fill the encasement before waste can be detected by the pump pit leak detector and alarm when 1" of liquid is accumulated. If POR117, POR134 and POR303 are set at the same elevation, waste must accumulate in two connected structures to the alarm level.

Table A-1. In-Pit Leak Detection Methods and Limitations.

Pit			Leak Detection			
Pit Location	**Pit Type**	**Transfer Line Type, EIN, and Connecting Pit**	**Device**	**Method**	**Modification**	**Limitation**
West of C-101	Diversion Box (POR134)	Hose-in-Hose Transfer Line I-15390-0-01 (to C-104 Pump Pit)	In-Line Leak Detector (H-2-34965-010) Diversion Box (H-14-107391)	Waste pools and leak detector alarms after 1" accumulation in pit floor.	Sump pump used to remove waste in case of leak.	Waste must fill the encasement before waste can be detected by the Pit In-Line Leak Detector and alarm when 1" of liquid is accumulated.
		Hose-in-Hose Transfer Line I-15390-0-02 (to C-104 Heel Pit)				
		Hose-in-Hose Transfer Line I-15390-0-03 (to C-104 Sluice Pit)				
		Hose-in-Hose Transfer Line I-15390-0-04 (to POR138 Portable Valve Box)				
		Hose-in-Hose Transfer Line I-15390-0-05 (to POR138 Portable Valve Box)				
		Hose-in-Hose Transfer Line I-07243-0-01 (to POR303 2-way Splitter Box Nozzle H)				
		Hose-in-Hose Transfer Line I-07243-0-02 (from POR117 TVFM Box Nozzle B)				
		Hose-in-Hose Transfer Line I-07243-0-03 (to C-111 Sluice Box #2)				

Table A-1. In-Pit Leak Detection Methods and Limitations.

Pit			Leak Detection			
Pit Location	**Pit Type**	**Transfer Line Type, EIN, and Connecting Pit**	**Device**	**Method**	**Modification**	**Limitation**
Between C-112 and C-109	2-Way Splitter Box (POR303)	Hose-in-Hose Transfer Line I-01537-0-01 (to C-111 Sluice Box #1)	In-Line Leak Detector (H-2-34965-010) 2-Way Splitter Box (H-14-109295)	Waste pools and leak detector alarms after 1" accumulation in pit floor.	Sump pump used to remove waste in case of leak.	Waste must fill the encasement before waste can be detected by the Pit In-Line Leak Detector and alarm when 1" of liquid is accumulated.
		Hose-in-Hose Transfer Line I-01537-0-02 (to C-111 Pump Pit)				
		Hose-in-Hose Transfer Line I-01537-0-03 (to C-112 Sluice Box #1)				
		Hose-in-Hose Transfer Line I-01537-0-05 (to C-112 Sluice Box #2)				
		Hose-in-Hose Transfer Line I-01537-0-04 (to C-112 Pump Pit)				
		Hose-in-Hose Transfer Line I-07243-0-01 (to POR134 Diversion Box Nozzle J)				
		Hose-in-Hose Transfer Line 13017-01 (to POR117 TVFM Box Nozzle A)				

Table A-2. Transfer Line and Pit Hold-up/Estimated Time for Leak Detection.

A	B	C	D	E	F	G	H	I	J	K	L	M
Hose					Pit				Total Volume and Time @ 2 gpm			
Transfer Line Type and EIN[1]	Transfer Line Length (ft)	Hold-up Volume of 4-in. annulus (gal)[2]	Time to fill hose @ 2 gpm Leak (min)	HIHTL Assembly Drawing	Pit	Hold-up Volume of 1 in. (gal)	Time to Fill Pit to1 in. (min)[3]	Pit Drawing	Total Hold-up Volume (Col C+G) (gal)	Total Time (Col D+H) (min)	Total Time (hr)	Min. Detectable Leak Rate in Pit [4] (gpm)
HIHTL I-07243-0-01 Hose #14	365	125.6	62.8	H-14-107326	POR134 Diversion Box	108.6	54.3	H-14-107391	234.2	117.1	1.95	0.16
					POR303 2-Way Splitter Box	46.0	23.0	H-14-109295	171.6	85.8	1.43	0.12
HIHTL I-07243-0-02 Hose #15	365	125.6	62.8	H-14-107326	POR134 Diversion Box	108.6	108.6[7]	H-14-107391	234.2	171.4	2.86	0.16
					POR117 TVFM Box	21.1	21.1[7]	H-14-107904	146.7	83.9	1.40	0.10
HIHTL I-07243-0-03 Hose #16	335	115.3	57.6	H-14-107326	POR134 Diversion Box	108.6	54.3	H-14-107391	223.9	111.9	1.87	0.16
					C-111 Sluice Box at Riser-003	6.9	3.5	H-14-107602	122.2	61.1	1.02	0.08
HIHTL I-01537-0-01 Hose #20	75	25.8	12.9	H-14-107326	POR303 2-Way Splitter Box	46.0	23.0	H-14-109295	71.8	35.9	0.60	0.05
					C-111 Sluice Box at Riser-006	6.9	3.5	H-14-107602	32.7	16.4	0.26	0.02

Table A-2. Transfer Line and Pit Hold-up/Estimated Time for Leak Detection.

A	B	C	D	E	F	G	H	I	J	K	L	M
Hose					Pit				Total Volume and Time @ 2 gpm			
Transfer Line Type and EIN[1]	Transfer Line Length (ft)	Hold-up Volume of 4-in. annulus (gal)[2]	Time to fill hose @ 2 gpm Leak (min)	HIHTL Assembly Drawing	Pit	Hold-up Volume of 1 in. (gal)	Time to Fill Pit to1 in. (min)[3]	Pit Drawing	Total Hold-up Volume (Col C+G) (gal)	Total Time (Col D+H) (min)	Total Time (hr)	Min. Detectable Leak Rate in Pit [4] (gpm)
HIHTL I-01537-0-05 Hose #24	51	17.6	8.8	H-14-107326	POR303 2-Way Splitter Box	46.0	23.0	H-14-109295	63.6	31.8	0.53	0.04
					C-112 Sluice Box at Riser-002	6.9	3.5	H-14-107602	24.5	12.3	0.21	0.02
HIHTL 13017-01 Hose #33	33	11.4	5.7	H-14-107326	POR303 2-Way Splitter Box	46.0	46.0[7]	H-14-109295	57.4	51.7	0.86	0.04
					POR117 TVFM Box	21.1	21.1[7]	H-14-107904	32.5	26.8	0.45	0.02

Table A-2 Notes
Transfer Line and Pit Hold-up/ Estimated Time for Leak Detection

(1)	Temporary waste transfer lines listed in this column are continuous assemblies unless described otherwise.
(2)	Volume here is the 4-in. hose (4 in. nominal inner diameter) minus the volume of the 2-in. hose (2.75 in. nominal outside diameter). During a transfer the 2-in. hose is full, so any leak would only have to fill the annulus space of the 4-in. hose.
(3)	To figure out pit fill time for pits containing self-draining coffer dams with 5/8-in. hole Flow into the pit assumes a leak rate of at least 2 gpm Flow into the drain is less than 2 gpm because the 5/8-in. hole is drilled slightly below grade (Time) (Flow into the Pit) – (Time) (Flow into the Drain) = G gal (T min) (2 gal/min) – (T min) (1.3 gal/min) = G gal (T min) (2 - 1.3 gal/min) = G gal T min = (G gal) / (.7 gal/min) *For pits not containing self-draining coffer dams, the following leak rate was used:* AN-106, BY-105, PPP, SY-102 ASSD, and SY-A (SY-02D) @ 2 gpm
(4)	The minimum detectable leak rate depends on the device installed in the drain. Minimum detectable leak rate is determined by dividing the hold-up volume by 24 hr, less an allowance for continuous drainage, if any. For drains fitted with self-draining coffer dams, this allowance is approximately 1.3 gpm (RPP-6725 Appendix H), and the relationship between detection rate and hold-up volumes is according to the formula presented in Section A-4.2: $(V_H/Q_L) + [(V_P/(Q_L-1.3)] = 1440$.
(5)	SY-A valve pit drains into the SY-102 tank if a leak should occur. The 3-in. drain when open will allow 40 gpm flow. The anticipated transfer flow rate is greater than 40 gpm. The leak rate assumed here is 41 gpm allowing liquid to accumulate at a rate of 1 gpm. This is conservative as a coffer dam was installed to limit the drain flow rate and enhance the sensitivity of in-pit leak detection.
(6)	The leak detection level in the ASSD on SY-102 is 2.14 in., which is higher than the normal 1 in. 2.14 in. is used in the hold-up volume calculation to give the correct value.
(7)	The HIHTL connections at the POR117 TVFM Box, POR134 Diversion Box, and POR303 Splitter Box are located at approximately the same elevation. For conservatism, assume flow to these boxes is equal. The leak rate used is then one-half of 2 gpm.