TRANSMITTAL

Number:	HLMI-21-0076
Title:	**Notification of Interface Responsibility Transition for the 222-S Laboratory Complex**
Contract:	Hanford 222-S Laboratory Contract No. 89303320CEM000075
Author:	Ryan A. Dodd
Date:	March 15, 2021

HLMI
Capability•Capacity•Reliability

March 15, 2021

HLMI-21-0076

Mr. John R. Eschenberg, President & CEO
Washington River Protection Solutions, LLC
2425 Stevens Center Place
Richland, Washington 99354

RE: Notification of Interface Responsibility Transition for the 222-S Laboratory Complex
Hanford 222-S Laboratory Contract No. 89303320CEM000075

Dear Mr. Eschenburg,

The purpose of this letter is to notify each of the Hanford Prime contractors that are party to document RPP-RPT-59117, "200 Area Treated Effluent Disposal Facility Interface Control Document," Rev 1, that Hanford Laboratory Management and Integration, LLC (HLMI) becomes the operating contractor for the 222-S complex effective April 15, 2021.

To ensure that interfaces are maintained, and services are not interrupted HLMI is adopting the responsibilities held by Washington River Protection Solutions LLC specific to the transitioning of the 222-S complex on April 15, 2021, as provided in the Attachment.

Following transition, the interface agreements will be updated and/or canceled to reflect the change in operating contractor.

Please contact Ms. Jessica Linton at 509-554-8003 or me at 509-373-0364 with questions or comments.

Sincerely,

Ryan A. Dodd
HLMI Transition Manager

Attachment: RPP-RPT-59117, "200 Area Treated Effluent Disposal Facility Interface Control Document," Rev 1, 76 pages.

cc: w/attachment

c: ORP Correspondence Control
R. Bang, ORP
R. L. Evans ORP
W. E. Hader, ORP
R. G. Hastings, ORP
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M. B. Hardesty, CPCCo
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cc: BNI Correspondence Control
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A. R. Harshfield, BNI
B. D. Ponte, BNI
D. R. Reinemann, BNI
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cc: WRPS Correspondence Control
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M. R. Kembel, WRPS
D. R. Lucas, WRPS
S. N. Luke, WRPS
B. E. McFerran, WRPS
L. A. Mills, WRPS
A. G. Miskho, WRPS
W. T. Olson, WRPS
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M. L. Roden, WRPS
W. W. Rutherford, WRPS
Z. M. Schatz, WRPS
M. C. Smith, WRPS
D. W. Strasser, WRPS
K. H. Subramanian, WRPS
D. P. Timbes, WRPS
B. G. Turner, WRPS
M. Wheeler, WRPS

Addendum:

Notification of Interface Responsibility Transition for the 222-S Laboratory Complex

Effective April 15, 2021

Approved by:

Hanford Laboratory Management and Integration, LLC (HLMI):

3/15/2021

Jessica Linton, Contracts Director — Date

Hardy, Don B — Digitally signed by Hardy, Don B
Date: 2021.03.15 13:04:27 -07'00'

Don B. Hardy, 222-S Laboratory Manager — Date

200 Area Treated Effluent Disposal Facility Interface Control Document

Approved by:

Washington River Protection Solutions (WRPS)

Katie Downing Digitally signed by Katie Downing Date: 2020.10.01 15:16:28 -07'00'

K.A. Downing, Project Contract Manager | Date

Jeremy Hartley Digitally signed by Jeremy Hartley Date: 2020.10.01 11:21:41 -07'00'

J.T. Hartley, Production Operations Manager | Date

CH2MHILL Plateau Remediation Company (CHPRC)

KEVIN KJARMO (Affiliate) Digitally signed by KEVIN KJARMO (Affiliate) Date: 2020.09.28 10:00:58 -07'00'

K.J. Kjarmo, Manager, Interface Management

Date

Hardesty, Michael B Digitally signed by Hardesty, Michael B Date: 2020.09.28 10:58:42 -07'00'

M.B. Hardesty, Manager,
Waste Encapsulation and Storage Facility

Date

Richards, David E (Dave) Digitally signed by Richards, David E (Dave) Date: 2020.09.28 12:42:33 -07'00'

D.E. Richards, Manager, T Plant

Date

Mission Support Alliance LLC (MSA)

Kon, Jonathan B Digitally signed by Kon, Jonathan B
Date: 2020.09.28 11:47:54 -07'00'

J.B. Kon, Manager, Water and Sewer Utilities — Date

Sours, Daniel L Digitally signed by Sours, Daniel L
Date: 2020.09.28 13:28:40 -07'00'

D.L. Sours, Manager, Interface Management — Date

Johnson Controls, Inc.

J.G. Burrell, Facility Manager

9-24-20

Date

Bechtel National, Inc.

	01 Oct 20
B.D. Ponte, Prime Contracts Manager	Date
Walt Taylor	1OCT2020
W. Taylor, Area Project Manager LAW/BOF/LAB/DFLAW	Date

CONTENTS

APPENDICES

FIGURE

TABLES

TERMS

AMU	aqueous make-up
BAT/AKART	best available technology / all known, available, and reasonable treatment
CHPRC	CH2MHILL Plateau Remediation Company
Ecology	State of Washington Department of Ecology
ETF	Effluent Treatment Facility
HVAC	heating, ventilation, and air-conditioning
ICD	interface control document
JCI	Johnson Controls, Inc.
MOA	Memorandum of Agreement
MSA	Mission Support Alliance
ST4502	State Waste Discharge Permit Number ST0004502
TEDF	200 Area Treated Effluent Disposal Facility
WAC	Washington Administrative Code
WESF	Waste Encapsulation and Storage Facility
WRPS	Washington River Protection Solutions
WTP	Hanford Tank Waste Treatment and Immobilization Plant

1.0 INTRODUCTION

This 200 Area Treated Effluent Disposal Facility (TEDF) Interface Control Document (ICD) was developed to define the interface requirements and responsibilities for all organizations connected with the 200 Area TEDF operation. The TEDF is an underground pipe wastewater collection system that does not have any treatment capability or retention capacity. Strict controls at the generating facilities' interface are essential to operate in compliance with the State of Washington Department of Ecology (Ecology) *State Waste Discharge Permit Number ST0004502* (ST4502) (Ecology 2012).

1.1 SCOPE

This document defines the interface requirements for the Washington River Protection Solutions (WRPS) Effluent Treatment Facility (ETF) organization, which operates the TEDF, and all TEDF generators (see Figure 1 and Table 1). These requirements are derived from the following:

- BAT/AKART (best available technology/all known, available, and reasonable treatment) studies completed to support the permit application and permit changes
  - WHC-SD-W049H-ER-003, *200 Area Treated Effluent Disposal Facility (Project W-049H) Wastewater Engineering Report* (WHC-SD-W049H-ER-003)
  - HNF-SD-W252-ER-001, *Phase II Liquid Effluent Program (Project W-252) Wastewater Engineering Report and BAT/AKART Studies* (HNF-SD-W252-ER-001)
  - *Potential Effects of Package Boiler Effluent to Washington State Waste Discharge Permit* (LMHC 1997)
  - CCN 225752, *WTP BAT/AKART Addendum No. 3*, Bechtel National, Inc., Richland, Washington.
- ST4502 discharge permit and Fact Sheet (Ecology 2012)
- HNF-3172, *Liquid Waste Processing Facilities Acceptance Criteria* (HNF-3172)
- Good engineering practices.

This document specifically addresses both ETF and TEDF generator responsibilities concerning the following:

- Generators authorized to discharge to the TEDF with listed specific sources
- Physical TEDF/Generator interface points
- Generator continuous on-line monitoring requirements
- Generator sampling and analytical requirements
- TEDF and generator flow schematics
- Operational and maintenance requirements
- Documentation requirements.

This document does not cover the TEDF end-of-pipe sampling and analytical requirements. The end-of-pipe requirements are specified in the most recent version of RPP-PLAN-60723, *Sampling and Analysis Plan for the Effluent Treatment Facility, Liquid Effluent Retention Facility, and Treated Effluent Disposal Facility* (WRPS 2018).

1.2 BACKGROUND

The TEDF collects, conveys, and disposes of uncontaminated or treated effluent from the 200 East and 200 West Area facilities. The system first became operational in 1995. Typical sources that contribute to this effluent are the following:

- Ventilation, heating, and cooling systems for buildings
- Steam condensate from heating potable water
- Condensate of pressurized softened or deionized potable water
- Rainwater from parking lots and exterior paved areas
- Potable water (Including process wastewater from potable water treatment)
- Boiler blowdown
- Cooling water blowdown
- Floor and sink drains with limited and strictly controlled usage
- Hydrotest, maintenance, construction, cooling water, condensate, and industrial storm water discharges that are covered by the Hanford Site categorical permit *State Waste Discharge Permit Number ST0004511* (Ecology 2014).

The major components of the TEDF include approximately 12 miles of pipeline connecting three pumping stations, one disposal sample station (Building 6653), and two 5-acre infiltration basins. The approximately 12 miles of pipeline is designated as waste site code 600-291-PL in the Waste Information Data System. A schematic of the TEDF is shown in Figure 1.

Pump Station 1 is located in the 200 West Area and collects effluent from T Plant, 283-W Water Treatment Plant, and 222-S Laboratory. A transfer line runs from Pump Station 1 to Building 6653 and the infiltration basins. Along the way, the pipeline collects effluent from the Waste Encapsulation and Storage Facility (WESF), some of which comes from Pump Station 2. The 242-A-81 Water Services Building, 241-A-285 Water Services Building, and Hanford Tank Waste Treatment and Immobilization Plant (WTP) wastewaters enter the transfer line at the eastern edge of the 200 East Area. The 283-E Water Treatment Plant, the discharge from the 702-AZ evaporative cooling towers, and the 242-A Evaporator effluent enters the transfer line approximately 1 mile east of the 200 East Area through Pump Station 3. These discharges utilize a portion of a pipeline that previously conveyed effluent to B Pond and was diverted to the TEDF in 1997. Wastewater can be diverted at Pump Station 3 to the C Lobe of B Pond if Pump Station 3 fails (overflow to C Lobe can also occur under certain conditions). Johnson Controls, Inc. (JCI) Package Boiler Annexes that feed into the TEDF do not have a direct physical interface with TEDF, but may enter into TEDF through the 242-A-81 Water Services Building.

Wastewater exits the transfer line and enters one of two 5-acre infiltration basins. Flow to these infiltration basins is normally alternated monthly to maintain optimal percolation rate. End-of-pipe sampling and continuous on-line monitoring are performed at Building 6653. Flow, pH, and conductivity are monitored continuously. Sampling parameters are taken both by flow proportional composite and/or grab samples as required by ST4502 (Ecology 2012) to demonstrate compliance.

2.0 RESPONSIBILITIES/REQUIREMENTS

This ICD is subordinate to the current respective Prime Contracts and Memorandum of Agreements (MOA) between the parties. Applicable MOAs include current versions of MOA-WRPS-CHPRC-2009, *Memorandum of Agreement for the Performance and Payment of Services* *between Washington River Protection Solutions and CH2M Hill Plateau Remediation Company*, MOA-001, *Memorandum of Agreement for the Performance and Payment of Services between Mission Support Alliance, LLC, and Washington River Protection Solutions* , and *TOC-MOA-BNI-006, Memorandum of Agreement for the Performance and Payment of Services between Washington River Protection Solutions and Bechtel National*. The terms and conditions contained in the prime contracts and other agreements applicable to the respective parties shall prevail over any conflicts and conflicting terms and conditions herein.

The following sections delineate the respective responsibilities of the ETF organization and the individual generators.

2.1 EFFLUENT TREATMENT FACILITY ORGANIZATION

The responsibilities of the ETF organization include the following:

1. Operate and maintain the TEDF downstream of the interface points, as identified in Table 1, in compliance with ST4502 (Ecology 2012).
2. Coordinate with generators as required to establish any lock and tag boundaries to support maintenance or repair activities.
3. Authorize effluent discharge into TEDF from new generators and from existing generators whose sources have changed in flow or quality (including one-time non-routine discharges). Facilitate Ecology's approval if needed.
4. Notify generator(s) if they need to stop or reduce discharges to TEDF for any of the following reasons and provide a defined time period for the generator(s) to identify impacts:

   (a) an exceedance of a limit identified in Tables 2 and 3;

   (b) a ST4502 exceedance at TEDF;

   (c) for maintenance or is operationally required; or

   (d) as deemed necessary by ETF.

   Note: Short-term notifications and impact requests will be reserved for ICD limit exceedances, potential permit violations, and events that have high consequences to TEDF.

   Note: If a generator's documented safety basis is at risk due to a TEDF discharge reduction or stoppage request and the contractors cannot reach resolution, DOE guidance will be requested. The applicable DOE field offices will decide how both facilities will proceed with consideration given to overall impacts to human health, the environment, and the Hanford mission.
5. Coordinate with generators to identify the source of a TEDF sample result that exceeds ST4502 limits.
6. Notify generator(s) if they need to provide a corrective action plan to ETF following an exceedance of a limit identified in Tables 2 and 3 or a ST4502 exceedance at TEDF.
7. Authorize generator(s) to resume normal discharges to TEDF if ETF is satisfied with the corrective measures the generator(s) have taken to ensure compliance with limits listed in Tables 2 and 3.

8. Initiate generator wastestream sampling by written request for routine sampling or by verbal request in off-normal and other emergency situations.
9. Manage all solid waste material generated from TEDF operation (e.g., sludge from clean out of pump stations) to prevent entry into ground and/or surface water.
10. Maintain the interface control document to ensure consistency with ST4502 (Ecology 2012).

2.2 GENERATING FACILITIES

Generating facilities' responsibilities include the following:

1. Operate and maintain the facility upstream of the TEDF/generator interface point, identified in Table 1, in compliance with the facility's BAT/AKART. The generator responsibility includes maintenance of the interface point.
2. Perform on-line monitoring for parameters identified in Table 2 at locations identified in the Appendices.
3. Discharge effluent within on-line monitoring requirements identified in Table 2 and the limits in Table 3.
4. Collect and analyze samples as described in Tables 3 and 4 at locations identified in the schematic of the applicable Appendices figures.
5. Notify the ETF Control Room (373-9000) as soon as possible for the following conditions:

   (a) Monitoring or sampling data exceeds the limits listed in Tables 2 and 3;

   (b) Scheduled and unscheduled continuous on-line monitoring interruptions; or

   (c) Any overflow to the TEDF, failure of piping, spill, or other events, which may affect discharges to the TEDF.
6. Provide monitoring and sample data required by Tables 2 and 3 to ETF Engineering.
7. Notify ETF Engineering if the limits listed in Tables 2 and 3 have been exceeded.
8. Provide a corrective action plan to ETF if the limits identified in either Tables 2 or 3 has been exceeded or if determined to have caused a ST4502 exceedance at TEDF.

   The corrective action plan shall address the following:

   (a) Known or suspected reason for exceedance;

   (b) Corrective actions and completion dates;

   (c) Expected outcome of corrective actions; and

   (d) Name of individual responsible for corrective actions.
9. Provide impacts to ETF if requested to reduce or stop discharges to TEDF, within the timeframe allotted. Notify ETF as soon as practical, if additional time is required.

   Note: ETF will reserve short-term notifications for only ICD limit exceedances, potential permit violations, and events that have high consequences to TEDF.
10. Stop or reduce discharges to the TEDF as required by ETF.

Note: If a generator's documented safety basis is at risk due to a TEDF discharge reduction or stoppage request and the contractors cannot reach resolution, DOE guidance will be requested. The applicable DOE field offices will decide how both facilities will proceed with consideration given to overall impacts to human health, the environment, and the Hanford mission.

11. Obtain authorization from ETF before starting or increasing discharges to TEDF following an ETF discharge reduction or stoppage request.
12. Coordinate with ETF as required to establish any lock and tag boundaries to support maintenance or repair activities. Close coordination with ETF may be required if the generator interface point is a diversion box or manhole that cannot be isolated at the interface point.
13. Initiate additional monitoring and/or sampling as requested by ETF in off-normal and other emergency situations.
14. Establish and maintain generating facilities operating, maintenance, and alarm response procedures to support the TEDF operation.
15. Maintain configuration control on the sources resulting from the BAT/AKART analysis as described in the Appendices.
16. Obtain ETF Engineering approval prior to discharge of effluent due to changes in existing sources and/or from new sources including one-time non-routine discharges. Provide ETF Engineering with the following information as appropriate:

    (a) Sources of discharge.

    (b) Any alternatives to the discharge, such as reuse, storage, or recycle of water.

    (c) Total volume of effluent expected to be discharged.

    (d) Effluent quality data which may be from process knowledge.

    (e) Engineering report with plans and specifications.

    (f) Batch Discharge Request (A-6007-896) for one-time non-routine discharges as required by HNF-3172.

    Ecology's approval may be required prior to discharges.
17. Take measures to prevent, contain, or treat spills that may enter the TEDF.
18. Submit assessments to ETF Engineering verifying compliance with the requirements of this section when requested. Include any corrective actions reports.
19. Ensure compliance with *State Waste Discharge Permit Number ST0004511* (Ecology 2014) as it pertains to discharges into TEDF.

3.0 REFERENCES

CCN 225752, *WTP BAT/AKART Addendum No. 3*, Bechtel National, Inc., Richland, Washington.

Ecology 2012, *State Waste Discharge Permit Number ST0004502*, issued June 25, 2012, State of Washington Department of Ecology, Richland, Washington.

Ecology 2014, *State Waste Discharge Permit Number ST0004511*, January 1, 2014, State of Washington Department of Ecology, Richland, Washington.

HNF-SD-W252-ER-001, *Phase II Liquid Effluent Program (Project W-252) Wastewater Engineering Report and BAT/AKART Studies*, Rev. 0B, B&W Hanford Company, Richland, Washington. HNF-18677, LERF, *200 Area ETF, and 200 Area TEDF Sampling and Analysis Plan*, Rev. 2, Fluor Hanford, Richland, Washington.

HNF-3172, *Liquid Waste Processing Facilities Acceptance Criteria*, Rev. 9, Washington River Protection Solutions, Richland, Washington.

LMHC 1997, *Potential Effects of Package Boiler Effluent to Washington State Waste Discharge Permit*, Letter Report from Brian Mathis to David Dumpert, dated September 4, 1997, Lockheed Martin Hanford Corporation, Richland, Washington.

MOA-001, *Memorandum of Agreement for the Performance and Payment of Services between Mission Support Alliance, LLC, and Washington River Protection Solutions*, current revision.

MOA-WRPS-CHPRC-2009, *Memorandum of Agreement for the Performance and Payment of Services between Washington River Protection Solutions and CH2M Hill Plateau Remediation Company*, current revision.

RPP-PLAN-60723, Rev. 1, *Sampling and Analysis Plan for the Effluent Treatment Facility, Liquid Effluent Retention Facility, and Treated Effluent Disposal Facility*, Washington River Protection Solutions, Richland, Washington.

TOC-MOA-BNI-006, *Memorandum of Agreement for the Performance and Payment of Services between Washington River Protection Solutions and Bechtel National*, current revision.

WHC-SD-W049H-ER-003, *200 Area Treated Effluent Disposal Facility (Project W-049H) Wastewater Engineering Report*, Rev. 0C, Westinghouse Hanford Company, Richland, Washington.

Figure 1. 200 Area Treated Effluent Disposal Facility.

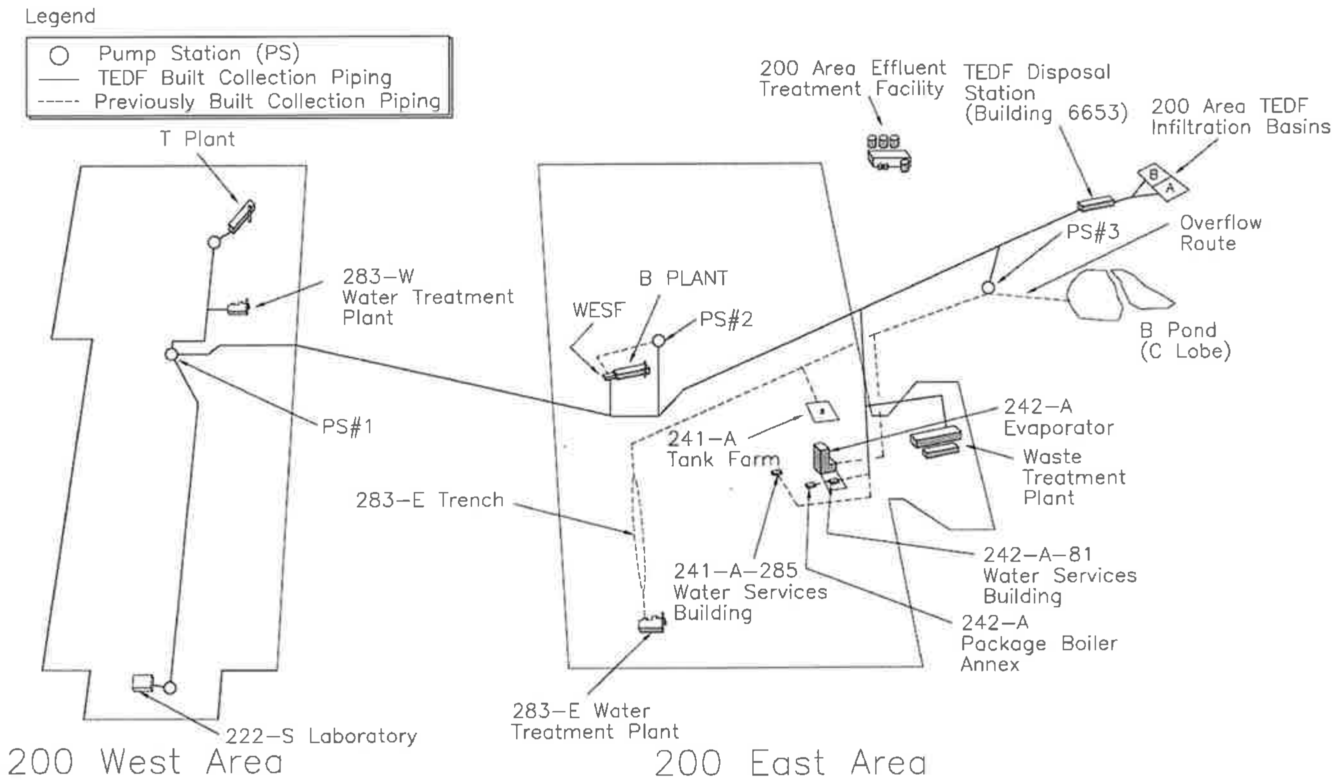


Table 1. 200 Area Treated Effluent Disposal Facility Interface Points.

Generating Facilities	Waste Stream	Related Appendix	Generator/TEDF Interface Point	Drawing Number
222-S Laboratory	222-S Laboratory wastewater	A	Valve RBW-V-304	H-2-140337, H-2-93450
702-AZ Evaporative Cooling Towers	Discharge from 702-AZ evaporative cooling towers	B	Diversion box[1]	H-2-44500 Sheet 7
242-A Evaporator	242-A Evaporator cooling water	C	Diversion box[1]	H-2-44501, H-2-825692
	242-A Evaporator steam condensate	D	Diversion box[1]	H-2-44501, H-2-825692
242-A-81 Water Services Building	242-A-81 Water Services Building wastewater	E	Manhole H-1	H-2-140342 H-2-140377
Water Treatment Plants	283-E Water Treatment Plant wastewater	F	Diversion box[1]	H-2-44500 Sheet 7, H-2-825692
	283-W Water Treatment Plant wastewater	G	Manhole B-1	H-2-140335
Johnson Controls Inc. (JCI) Package Boiler Annexes	242-A Package Boiler Annex wastewater	H	Discharge to 242-A-81 Sump[2]	H-2-98991
241-A-285 Water Services Building	241-A-285 Water Services Building wastewater	I	Manhole H-1	H-2-140342
T Plant	T Plant wastewater	J	Manhole A-1	H-2-817868, H-2-140334
Waste Encapsulation and Storage Facility (WESF)	WESF cooling water	K	Manhole E-1	H-2-140339
	WESF liquid effluent	L	Manhole F-1	H-2-140340
Hanford Tank Waste Treatment and Immobilization Plant (WTP)	Non-radioactive Liquid Waste Disposal System (NLD)	M	Interface Node 9	24590-WTP-B2-C12T-00001 H-2-830102, Sheet 2

[1] The ETF will be responsible for the diversion box associated with Pump Station 3 and the pipeline leaving the diversion box and going to the TEDF infiltration basins. Generating Facilities will be responsible for all points upstream of the point where the 36" high-density polyethylene (HDPE) line enters the diversion box and downstream of the diversion box connecting to B Pond via the 36" HDPE (except that ETF is responsible for the overflow street drain located at Canton and 4th Street which interfaces at Manhole H-2).

[2] The package boiler interface point is listed by the interface with the respective generating facility being serviced. No direct interface with the TEDF is provided, therefore no interface responsibilities with respect to pipeline maintenance or operation are assumed by ETF at this point.

Table 2. Generating Facilities Continuous [1] On-Line Monitoring Requirements.

Waste Stream	Flow type	Parameters	pH Limits		Maximum Flow (gal/min) (4 hour average)
			Minimum	Maximum	
222-S Laboratory wastewater	Batch	Flow	6.5	9.0	75
Discharge from 702-AZ evaporative cooling towers	Continuous when operating in evaporative mode	No on-line monitoring	6.5	8.5	600
242-A Evaporator cooling water	Intermittent	Flow, pH	6.5	9.0[3]	3700
242-A Evaporator steam condensate	Intermittent	Flow, pH, conductivity	5.5	8.5	180
242-A-81 Water Services Building wastewater	Intermittent	No on-line monitoring	6.5	8.5	500
283-E Water Treatment Plant wastewater	Continuous	No on-line monitoring	6.5	8.5	160
283-W Water Treatment Plant wastewater	Continuous	Flow, pH, conductivity	6.5	8.5	340
222-S Package Boiler Annex wastewater	Batch	pH	6.5	8.5	75
242-A Package Boiler Annex wastewater	Batch	pH	6.5	8.5	75
241-A-285 Water Services Building Wastewater	Intermittent	No on-line monitoring	6.5	8.5	100
T Plant wastewater	Batch	No on-line monitoring[2]	5.5	8.5	110
WESF cooling water	Intermittent	Flow, pH, conductivity, temperature	6.5	8.5	1200
WESF liquid effluent	Intermittent	No on-line monitoring	5.0	9.0[3]	530
Hanford Tank Waste Treatment and Immobilization Plant (WTP)	Continuous	Flow, pH, conductivity	6.5	8.5	500

[1] Continuous means uninterrupted except for brief lengths of time for calibration, for power failure, or for unanticipated equipment repair or maintenance.
[2] T Plant will test for pH and estimate volume at the 221-T Catch Tanks before batch discharge to the TEDF lift station. The quantity and pH of each batch discharge will be recorded in the T Plant shift-operating log.
[3] pH is set at 9.0 since raw water, which makes up this stream, can be above 8.5.

Table 3. 200 Area Treated Effluent Disposal Facility Generating Facilities Sampling and Analytical Requirements.

Parmeter[1]	Analytical Method[2]	Practical Quantitation Limits[3]	Indicator analysis	Expanded analysis	Discharge limits	References
Anions						
Chloride	EPA 300.0	1,000 µg/L	X	X	58,000 µg/L	S2 of ST4502 (Ecology 2012)
Nitrate (as N)	EPA 300.0	100 µg/L	X	X	620 µg/L	S2 of ST4502 (Ecology 2012)
Sulfate	EPA 300.0	500 µg/L	X	X	No Discharge Limit	S2 of ST4502 (Ecology 2012)
Metals						
Arsenic (Total)	EPA 200.8	2 µg/L	X	X	15 µg/L	S2 of ST4502 (Ecology 2012)
Cadmium (Total)	EPA 200.8	0.5 µg/L	X	X	5 µg/L	S2 of ST4502 (Ecology 2012)
Chromium (Total)	EPA 200.8	1 µg/L	X	X	20 µg/L	S2 of ST4502 (Ecology 2012)
Iron (Total)	SW-846 6010	100 µg/L	X	X	300 µg/L	S2 of ST4502 (Ecology 2012)
Lead (Total)	EPA 200.8	0.5 µg/L	X	X	10 µg/L	S2 of ST4502 (Ecology 2012)
Manganese (Total)	EPA 200.8	1 µg/L	X	X	50 µg/L	S2 of ST4502 (Ecology 2012)
Mercury (Total)	EPA 245.1	1 µg/L	X	X	2 µg/L	S2 of ST4502 (Ecology 2012)
Miscellaneous						
Total Dissolved Solids	EPA-600 160.1	10,000 µg/L	X	X	500,000 µg/L	S2 of ST4502 (Ecology 2012)
Radionuclides						
Gross alpha	EPA 906.0 or lab specific	NA		X	15 pCi/L[4]	S2 of ST4502 (Ecology 2012)
Gross beta	EPA 906.0 or lab specific	NA		X	50 pCi/L[4]	S2 of ST4502 (Ecology 2012)
Semi-volatiles						
Bis (2-ethylhexyl phthalate)	SW-846 8270 or 625	5 µg/L		X	10 µg/L	S2 of ST4502 (Ecology 2012)
Volatiles						
Carbon tetrachloride	SW-846 8260	5 µg/L		X	5 µg/L	S2 of ST4502 (Ecology 2012)
Chloroform	SW-846 8260	5 µg/L		X	7 µg/L	S2 of ST4502 (Ecology 2012)
Methylene chloride	SW-846 8260	5 µg/L		X	5 µg/L	S2 of ST4502 (Ecology 2012)
Trihalomethanes (Total)	SW-846 8260	10 µg/L		X	20 µg/L	S2 of ST4502 (Ecology 2012)

[1] The list of parameters contains all of the parameters listed in S1 and S2 of ST4502 (Ecology 2012) except Tritium, Oil & Grease, pH, Conductivity, and Flow. Tritium and Oil & Grease will be analyzed on an as needed basis. Conductivity, pH, and Flow are covered in Table 2.

[2] Other analytical methods can be substituted if the method used produces measurable results in the sample and EPA has listed it as a Part 136 EPA-approved method or the method is accredited by the Department of Ecology.

[3] Practical Quantitation Limit is the lowest concentration of a substance that can reliably be measured, within specific limits of precision, during routine laboratory conditions.

[4] Discharge Limit was taken from Groundwater Protection Standards (WAC 173-200) since no limit was included in ST4502 (Ecology 2012).

Table 4. Minimum Generating Facilities Sampling Requirements.

Effluent[1]	Parameters[2]	Frequency[3]
222-S Laboratory wastewater	Indicator	Not Required
	Expanded	1 per 12 months
Discharge from 702-AZ evaporative cooling towers	Indicator	Not Required
	Expanded	2 per year[4]
242-A Evaporator cooling water	Indicator	Not Required
	Expanded	1 per campaign (max 2/yr)
242-A Evaporator steam condensate	Indicator	Not Required
	Expanded	1 per campaign (max 2/yr)
242-A-81 Water Services Building wastewater	Indicator	Not Required
	Expanded	Not Required
283-E Water Treatment Plant wastewater	Indicator	Not Required
	Expanded	Not Required
283-W Water Treatment Plant wastewater	Indicator	1 per 3 months
	Expanded	1 per 12 months
242-A Package Boiler Annex wastewater	Indicator	1 per 242-A Evaporator campaign (max 2/yr)[4,5]
	Expanded	Not Required
241-A-285 Water Services Building	Indicator	Not Required
	Expanded	Not Required
T Plant wastewater	Indicator	Not Required
	Expanded	1 per 12 months
WESF cooling water	Indicator	1 per 3 months
	Expanded	1 per 12 months
WESF liquid effluent	Indicator	1 per 3 months[4]
	Expanded	1 per 12 months[4]
Hanford Tank Waste Treatment and Immobilization Plant	Indicator	1 per 3 months
	Expanded	1 per 12 months

[1] Grab samples will be taken per approved sampling procedure. A grab sample is an individual sample collected over a fifteen minute or less period.
[2] Indicator and expanded parameters are defined in Table 3 and can be combined when the sampling frequency coincides.
[3] Sampling frequency is based on operating time periods and effluent quality. For example, waste streams that were active only for six months of the year are sampled only twice; and waste streams that have only potable, raw, and/or rainwater sources are normally not sampled for either "Indicator" or "Expanded".
[4] Sampling is to be completed during effluent stream operating periods or during a planned discharge.
[5] Sampling at the 242-A Package Boiler Annex includes a minimum of one sampling event during operation of the process boiler.

APPENDIX A

222-S LABORATORY WASTEWATER

APPENDIX A

222-S LABORATORY WASTEWATER

The 222-S Laboratory will call the ETF Control Room, 373-9000, prior to discharging wastewater from the facility to the TEDF. ETF will provide a maximum batch size, anticipated to be at least 2,000 gallons, after reviewing the latest iron sample results and current TEDF operating flows. This control will ensure proper management of the 222-S discharge given historical elevated iron sample results.

A.1 FIRST FLOOR ANALYTICAL SECTION

All analytical section laboratory sinks and hood drains (except the sinks located under Hood 16 in Room 2B) go to the retention basin waste line. The hood drain from the sinks located under Hood 16 in Room 2B, and the Hot Cell drains in 1A, 1E, 1F, and 11A go to the 219-S Waste Handling Facilities. All analytical section water fountains and service sinks in Rooms 7A and 7D drain to the analytical section retention basin waste line as does the condensate from analytical room A/C units.

A.2 SECOND FLOOR EQUIPMENT ROOM

The sink in Room S3-E drains to the analytical section retention basin waste line. The distilled water tank overflow and drain lines, the fire suppression sprinkler system drain, the backflush and drain from the deionized-water unit, and a floor drain near the deionized-water unit all go to the analytical section retention basin waste line. Air compressor and air handling unit condensate is collected and is piped to the analytical section retention basin waste line. A floor drain in Room S1A drains to the multi-curie section retention basin waste line.

A.3 SUMPS

All sumps in the basement cold tunnels act as floor drains for tunnels under the 222-S Laboratory. These tunnels contain service piping and drain lines for the building. Nonradioactive and nonhazardous effluents, from sumps 1 through 7, discharge into the retention basin waste line. Sump 5 is also fed by a drain line from a floor drain in Stairwell 19 located on the north side of the 222-S Laboratory Building. Sump 7 is fed by a floor drain located in Stairwell 18, which in turn discharges to the retention basin waste line.

A.4 222-SA STANDARDS LABORATORY

There is currently no 222-SA building. The previous building has been demolished to make room for construction of a new 222-SA building. The new 222-SA building is planned for the same function with the same discharges. Those sources will include nonhazardous effluents from the laboratory sinks, fume hoods, and glass washer being discharged to a catch tank and then pumped directly into the line going to the 207-SL Retention Basin.

A.5 219-S WASTE HANDLING FACILITIES

Sump 8 located in the operating gallery empties into a utility drain. This drain line runs west out of the 219-S Building to manhole 4 where it connects to the 207-SL Retention Basin line.

For a stream schematic and a source description of 222-S Laboratory sources, refer to Figure A-1 and Table A-1, respectively.

Figure A-1. 222-S Laboratory Wastewater Flow Schematic.

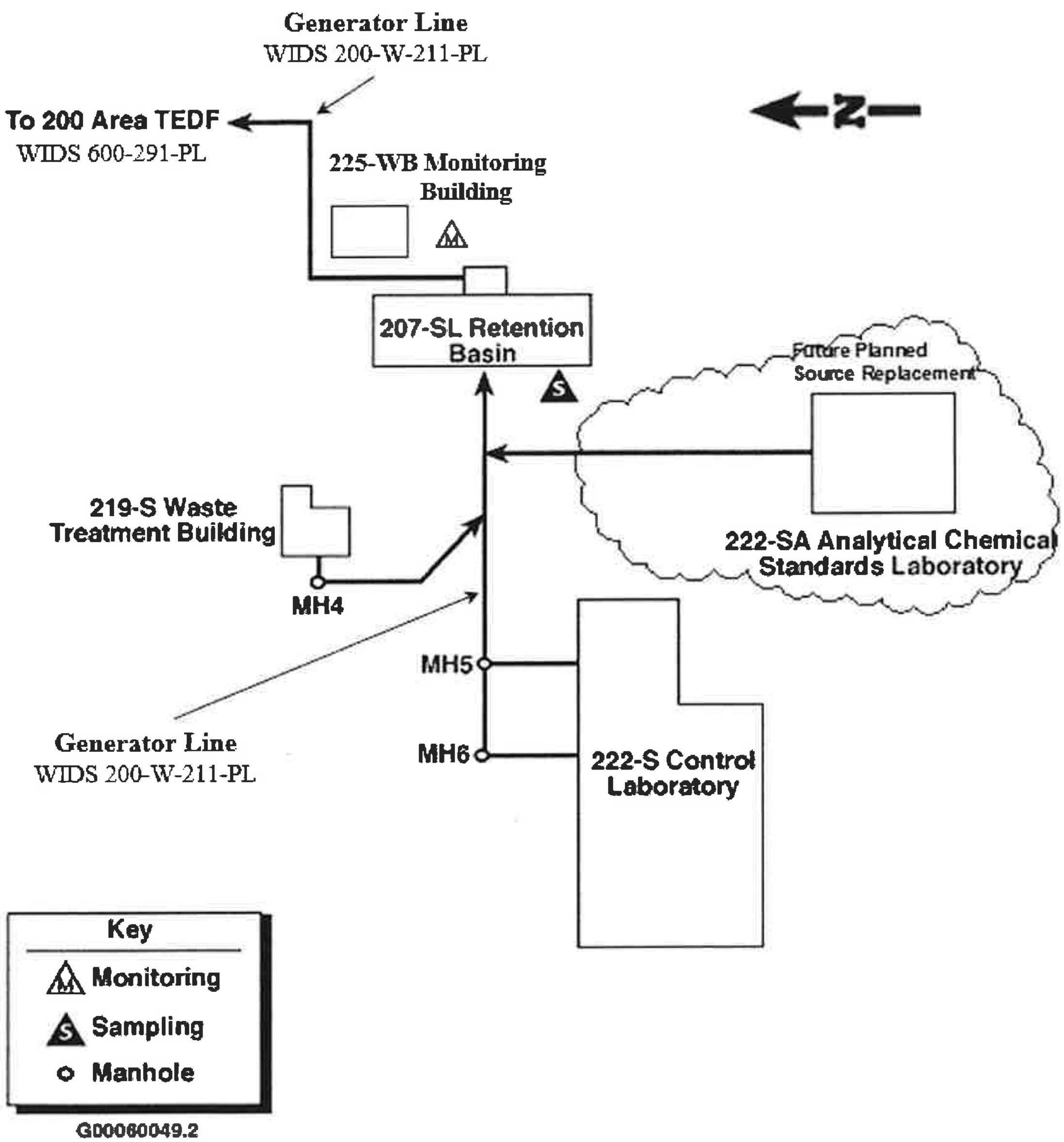


Table A-1. 222-S Laboratory Wastewater Sources.[1]

Source		Building	Effluent Water Type	Flow Type	Flow Rate gal/min[2]	Status[3]
6.	Distilled water generator drain	222-S	Distilled water	Intermittent	5.7E-04	Active
7.	Cold Sumps 1 to 7	222-S	Potable water/ Rain water	Intermittent	1.4E-04	Active
8.	Laboratory sinks	222-S	Potable water	Intermittent	5.0E-01	Active
9.	Sump 8	219-S	Potable water	Intermittent	1.4E-04	Active
14.	222-SA sinks, hoods, and glass washer	222-SA	Potable water	Intermittent	None	Inactive
				Total	4.9E+00[4]	
				Maximum	7.5E+01[5]	

[1] This table updates Table C.5-1 and Figure C.5-1 of WHC-SD-W049H-ER-003, *200 Area Treated Effluent Disposal Facility (Project W-049H) Wastewater Engineering Report.* Source numbers are not sequential because some sources have been deleted.
[2] Flow rate based on total annual flow divided by 525,600 min (1 year).
[3] Active = Source that presently is discharging.
[4] Total flow to 200 Area Treated Effluent Disposal Facility.
[5] Maximum flow that could be generated.

APPENDIX B

702-AZ EVAPORATIVE COOLING TOWERS

APPENDIX B

702-AZ EVAPORATIVE COOLING TOWERS

The 702-AZ evaporative cooling towers have been taken out of service and no longer routinely discharge to TEDF. Each tower is equipped with a floor drain in the concrete where the excess cooling water was discharged to TEDF, this floor drain is still active and could receive water from excess snowmelt or rainwater.

An overflow street drain located at Canton and 4th Street was installed as a part of the Tank Farm Run-On Control Measures. This drain provides the capability to collect rainwater from the area surrounding Tank Farms 241-A, 241-AP, and 241-AW and convey it to the TEDF via H-Line. This drain is normally left open and is closed by ETF when conditions or activities warrant isolation from the TEDF. There are no sampling requirements associated with rainwater entering the TEDF through this drain.

For a stream schematic and a source description of the discharge from the 702-AZ evaporative cooling towers, refer to Figure B-1 and Table B-1, respectively.

Figure B-1. 702-AZ Evaporative Cooling Towers Flow Schematic.

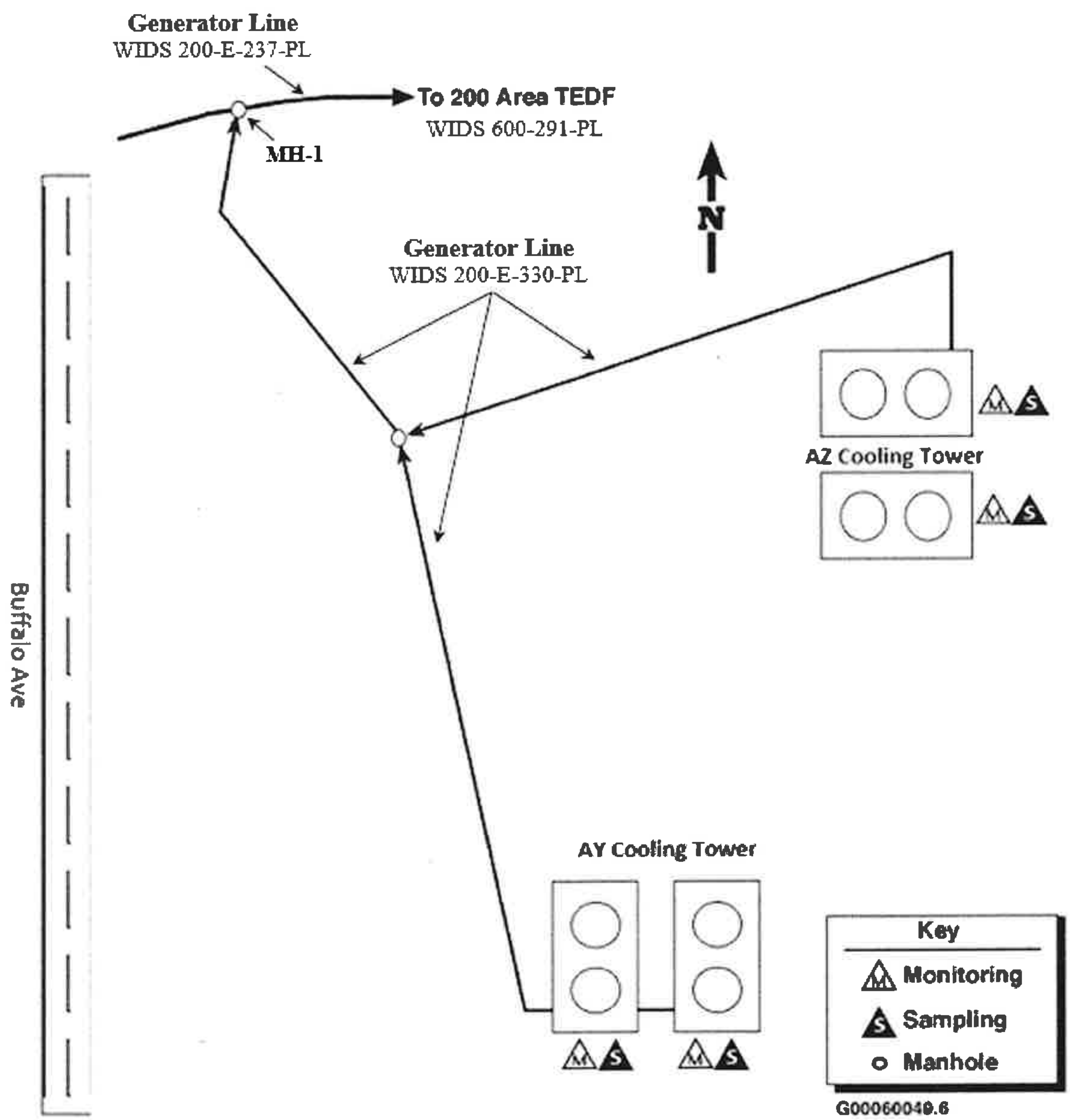


Table B-1. 241-A Tank Farm Cooling Water Sources.[1]

Source		Building	Effluent Water Type	Flow Type	Flow Rate gal/min[2]	Status[3]
8.	702-AZ cooling towers	702- AZ	Raw water (untreated)	Continuous Wet Mode	2.3E+01	Out of Service but not isolated
9.	Tank Farm Street overflow drain (Canton & 4th St)	241-A, 241-AP, and 241-AW	Storm Water	Intermittent	Negligible[6]	Active
				Total	2.3E+01[4]	
				Maximum	6.0E+02[5]	

[1]This table updates the information presented in HNF-SD-W252-ER-001, *Phase II Liquid Effluent Program (Project W-252) Wastewater Engineering Report and BAT/AKART Studies*.
[2]Flow rates (gal/min) are based on total annual flow divided by 525,600 min (1 year).
[3]Active = source that presently is discharging.
[4]Total flow to 200 Area Treated Effluent Disposal Facility.
[5]Maximum flow that could be generated.
[6]HNF-FMP-02-12059-R0 (HNF 2002) documents that maximum flow is estimated to be 1.5E+03 gal/min. Although this maximum flow is higher than the maximum value on the table, it is not included in the table because the drain is normally locked closed and is opened by ETF on a case-by-case basis.

APPENDIX C

242-A EVAPORATOR COOLING WATER

APPENDIX C
242-A EVAPORATOR COOLING WATER

The 242-A Evaporator cooling water consists of raw water used for once through cooling and three other water sources with comparative negligible flow rates that are added to the condenser cooling water for discharge to the TEDF. During evaporator operating campaigns, the cooling water stream flow rates are continuous at approximately 2,640 gal/min with potential peak flows of 3,650 gal/min. Between campaigns, the combined cooling water flow rates are reduced to approximately 10 gal/min.

C.1 CONDENSER COOLING WATER

The condenser cooling wastewater stream is once through cooling water that is a potentially contaminated effluent. This effluent quality is consistent with raw water quality; however, there is a low potential for radioactive contamination.

C.2 WATER FILTER CATCH BASIN DRAINAGE

Raw water is filtered to protect spray nozzles in process equipment. Filters are located in the heating, ventilation, and air-conditioning (HVAC) room. Discharge only occurs during routine maintenance such as filter changes. Wastewater from the filters and strainers is collected in a catch basin with a drain to the main cooling water drain line. Blowdown from process steam traps also is routed to the main cooling water drain line.

C.3 HVAC ROOM FLOOR DRAINS

There are two floor drains in the HVAC room. The potential sources to these floor drains are the raw water main, the potable water line and some fire protection water lines that run through the room. The flow rate through the floor drains is intermittent and not calculable; less than one gal/day is assumed.

C.4 COMPRESSED AIR RECEIVER CONDENSATE

The compressed air receiver contains a moisture trap and a drain valve. Condensate moisture is drained periodically at an estimated rate of less than one gal/day.

For a stream schematic and a source description of the 242-A Evaporator cooling water refer to Figure C-1 and Table C-1, respectively.

Figure C-1. 242-A Evaporator Cooling Water Flow Schematic.

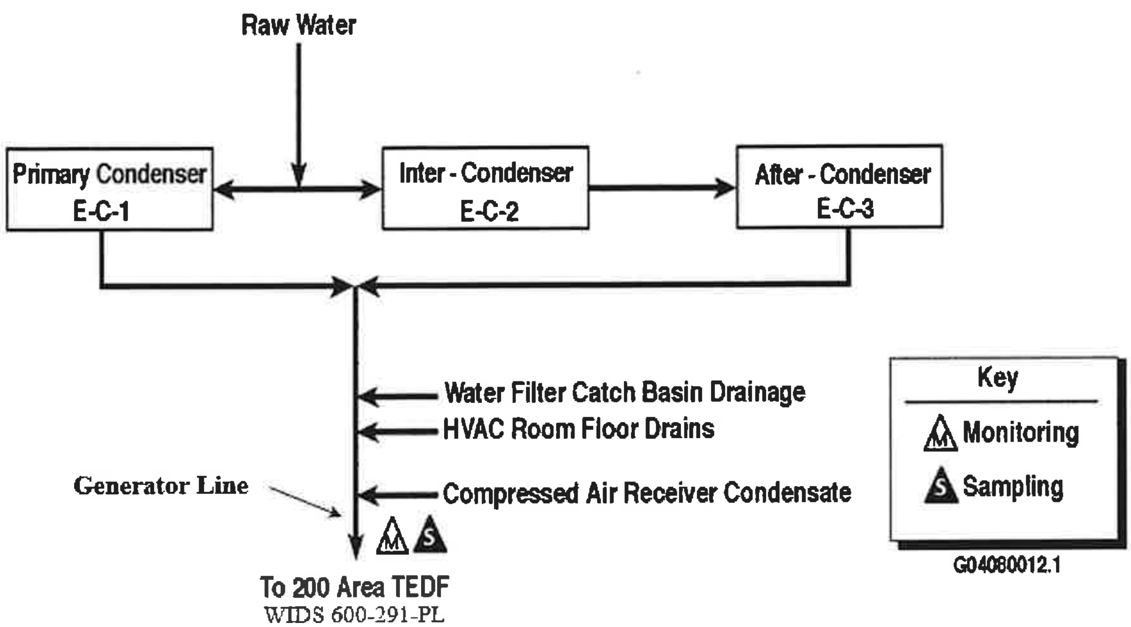


Table C-1. 242-A Evaporator Cooling Water Sources.[1]

Source		Building	Effluent Water Type	Flow Type	Flow Rate gal/min[2]	Status[3]
1.	Condenser cooling water	242-A	Raw water (untreated)	Continuous when operating	1.0E+02	Active
4.	Water filter catch pan drainage	242-A	Raw water (untreated)	Intermittent	Negligible	Active
5.	Heating, ventilation, and air conditioning room floor drainage	242-A	Raw water (untreated)	Intermittent	Negligible	Active
7.	Compressed Air Receiver Condensate	242-A	Steam condensate	Intermittent	Negligible	Active
				Total	1.0E+02[4]	
				Maximum	3.7E+03[5]	

[1] This table updates the information presented in HNF-SD-W252-ER-001, *Phase II Liquid Effluent Program (Project W-252) Wastewater Engineering Report and BAT/AKART Studies*. Source numbers are not sequential because some sources have been deleted.
[2] Flow rates (gal/min) are based on total annual flow divided by 525,600 min (1 year).
[3] Active = Source that presently is discharging.
[4] Total flow to 200 Area Treated Effluent Disposal Facility.
[5] Maximum flow that could be generated.

APPENDIX D

242-A EVAPORATOR STEAM CONDENSATE

APPENDIX D

242-A EVAPORATOR STEAM CONDENSATE

The 242-A Evaporator steam condensate consists of four streams. During evaporator campaigns, the combined stream flow rates are continuous at approximately 82 gal/min, with maximum surge flow rates of approximately 120 gal/min. Between campaigns, steam condensate flow rates are reduced to low, intermittent flows.

D.1 REBOILER STEAM CONDENSATE

The 242-A Evaporator uses a reboiler to heat the waste feed solution for evaporation. There is no contact between the steam and the waste liquid in the reboiler. The steam condensate flow rate from the reboiler during an evaporator campaign is normally about 60 gal/min. Between campaigns, there is no flow through the reboiler.

D.2 STEAM SEPARATOR CONDENSATE (SS-C-1)

A steam ejector system maintains a reduced pressure atmosphere in the evaporator vessel. Steam strainers are located in the steam supply lines to the ejectors. Condensate from the strainers flows into a drain funnel that drains to the main steam condensate line to tank C-103. This flow is negligible and has been assumed to be less than 0.02 gal/min (WHC 1993).

Condensate from the steam separator in the steam ejector system flows into the steam strainer drain funnel that drains to the main steam condensate line to tank C-103. This flow is negligible and has been assumed to be less than 0.02 gal/min.

Blowdown from the steam separator strainer, the steam trap and blowdown for the steam jet lines flow into the steam strainer drain funnel that drains to the main steam condensate line to tank C-103. In addition, the AS-1 air sample pump/air receiver drain line and the raw water safety relief valve before the E-C-2 and E-C-3 condensers are connected to the steam strainer drain funnel. These flows are negligible and have been assumed to be less than 0.02 gal/min.

D.3 R-C-1 SAMPLER/MONITOR COOLER RAW WATER DISCHARGE

A small heat exchanger (cooler) using noncontact raw water is included on the steam condensate sample line to prevent heat damage to a sample pump and monitoring equipment. Water from this cooler discharges to the main steam condensate line to tank C-103. During evaporator campaigns, this flow rate is about 12 gal/min. Between campaigns, this flow rate is shut down.

For a stream schematic and a source description of the 242-A Evaporator steam condensate, refer to Figure D-1 and Table D-1, respectively.

Figure D-1. 242-A Evaporator Steam Condensate Flow Schematic.

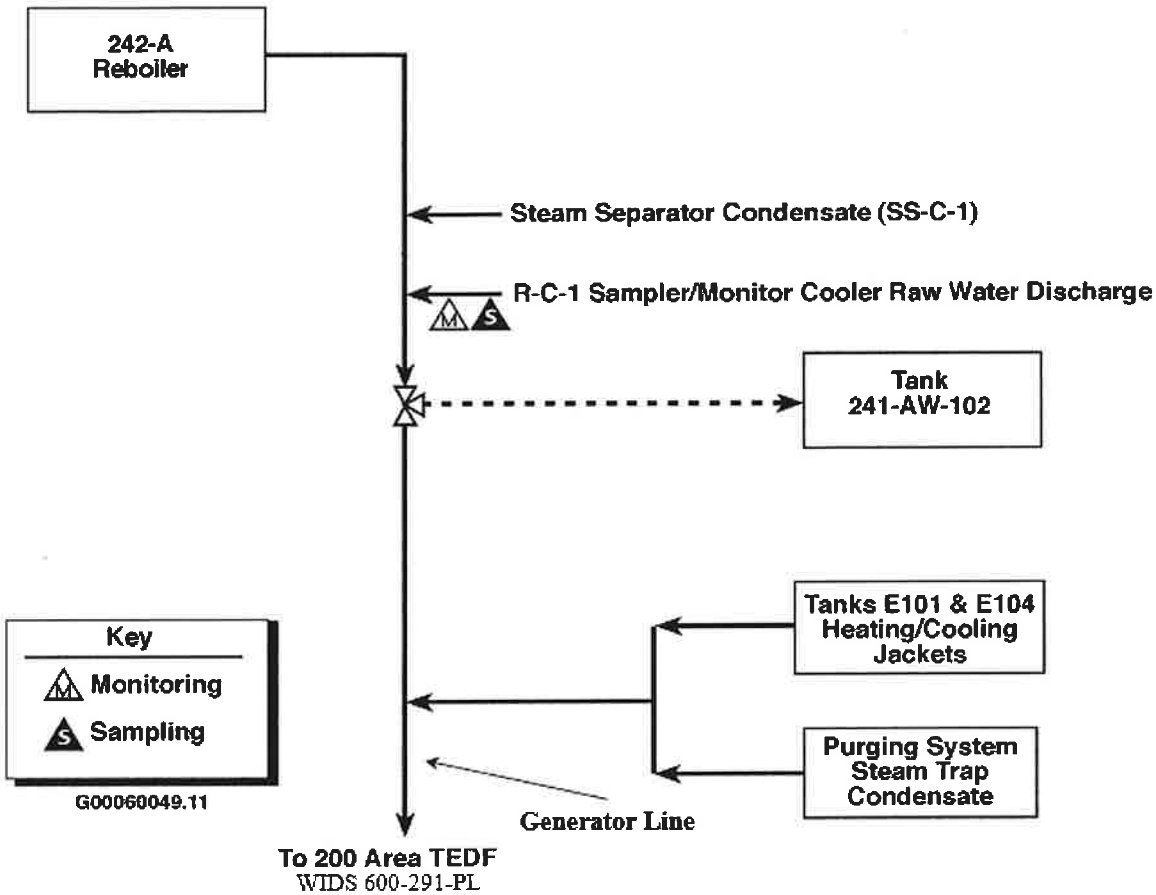


Table D-1. 242-A Evaporator Steam Condensate Sources.[1]

Source		Building	Effluent Water Type	Flow Type	Flow Rate gal/min[2]	Status[3]
1.	Reboiler steam condensate	242-A	Steam condensate	Continuous when operating	2.3E+00	Active
5.	Steam separator condensate	242-A	Steam condensate	Continuous when operating	Negligible	Active
7.	Sampler/monitor cooler raw water discharge	242-A	Raw water (untreated)	Continuous when operating	1.70E-01	Active
				Total	2.5E+00[4]	
				Maximum	1.80E+02[5]	

[1] This table updates the information presented in HNF-SD-W252-ER-001, *Phase II Liquid Effluent Program (Project W-252) Wastewater Engineering Report and BAT/AKART Studies*. Source numbers are not sequential because some sources have been deleted.
[2] Flow rates (gal/min) are based on total annual flow divided by 525,600 min (1 year).
[3] Active = source that presently is discharging.
[4] Total flow to 200 Area Treated Effluent Disposal Facility.
[5] Maximum flow that could be generated.

APPENDIX E

242-A-81 WATER SERVICES BUILDING WASTEWATER

APPENDIX E

242-A-81 WATER SERVICES BUILDING WASTEWATER

The 242-A-81 Water Services Building stream consists of raw water and some waste collected as a result of backflushing of two strainers located in the Water Services Building. The backflushed water flows out of the strainer to a drain which ties in to the TEDF.

The backflush process is triggered by a high differential pressure across the strainers. This action reverses the flow of the raw water through the strainers. When this reversal of flow occurs, the backflush is diverted to a sump in the 242-A-81 Water Services Building's floor.

The 242-A Package Boiler Annex discharges into the 242-A-81 Water Services Building and is described in Appendix H as a separate generator stream.

For a stream schematic and a source description of the 242-A-81 Water Services Building, refer to Figure E-1 and Table E-1, respectively.

Figure E-1. 242-A-81 Water Services Building Wastewater Flow Schematic.

G00060049.7

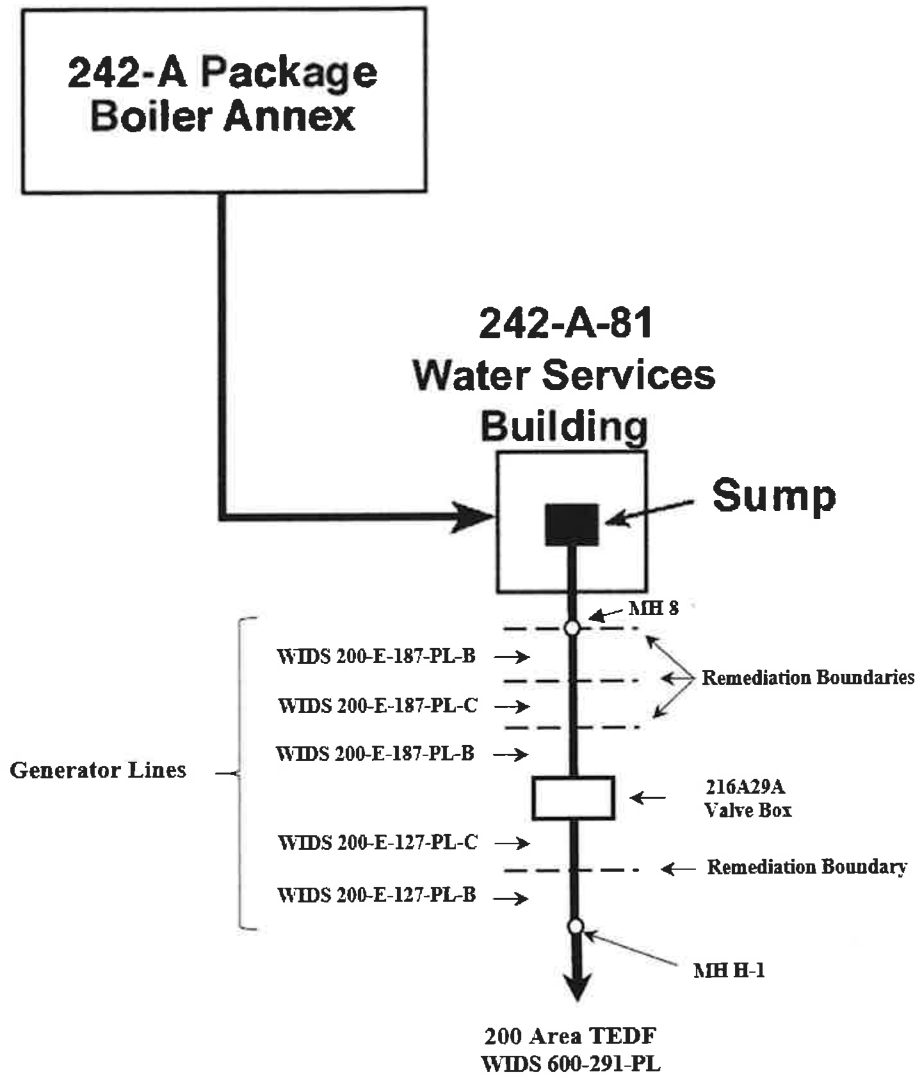


Table E-1. 242-A-81 Water Services Building Wastewater Sources.[1]

Source		Building	Effluent Water Type	Flow Type	Flow Rate gal/min[2]	Status[3]
1.	Strainer	242-A-81	Raw water (untreated)	Intermittent	1.2E+00	Active
2.	Backflow preventer	242-A-81	Raw water (untreated)	Intermittent	1.8E-01	Active
3.	JCI Blowdown separator	242-A Annex	Potable water	Intermittent	8.3E-01	Active
4.	JCI Water softener regenerant	242-A Annex	Potable water	Intermittent	4.8E-01	Active
5.	JCI Backflow preventer drain	242-A Annex	Potable water	Intermittent	Negligible	Active
				Total	2.7E+00[4]	
				Maximum	5.0E+02[5]	

[1] This table updates the information presented in HNF-SD-W252-ER-001, *Phase II Liquid Effluent Program (Project W-252) Wastewater Engineering Report and BAT/AKART Studies*. Source numbers are not sequential because some sources have been deleted.
[2] Flow rates (gal/min) are based on total annual flow divided by 525,600 min (1 year).
[3] Active = source that presently is discharging.
[4] Total flow to 200 Area Treated Effluent Disposal Facility.
[5] Maximum flow that could be generated.

APPENDIX F

283-E WATER TREATMENT PLANT WASTEWATER

APPENDIX F

283-E WATER TREATMENT PLANT WASTEWATER

The 283-E Water Treatment Plant wastewater stream is in standby status. The only potential discharges to the TEDF are from the 282-E Reservoir.

F.1 282-E RESERVOIR

The 282-E Reservoir contains river water pumped from the 100-B and 100-D Area River Pumphouses. This reservoir has a capacity of 3,000,000 gallons with overflow weir piping sized for a maximum flow of 7,000 gal/min. The reservoir water level is maintained by computer controlled inlet valves. Should the reservoir overflow, water will discharge into the 283-E Trench. The 283-E Trench is unlined and allows for effluent percolation into the soil. However, due to the potential volumes that could overflow from the 282-E Reservoir, the 283-E Trench has the potential to fill and discharge to the TEDF effluent line.

F.2 OTHER 283-E WATER TREATMENT PLANT DISCHARGES

A number of other 283-E Water Treatment Plant effluent sources that route to the 283-E Trench also exist. These sources include the following:

- sampling equipment drain and sample sink drain in the 283-E Water Treatment Plant;
- 283-E Water Treatment Plant clearwell overflow; and
- numerous floor, trench, and sump pump pit drains located throughout the 282-E Pumphouse, including drainage from the 282-E truck fill station, the 283-E Water Treatment Plant, the 282-E Reservoir, the 282-E Inlet Weir, and Building 282-EC.

Due to the limited flow rates of these sources, it is highly unlikely that their combined rate would ever result in the 283-E Trench overflow to the TEDF system. Consequently, these sources have not been itemized in Table F-1.

For the 283-E Water Treatment Plant wastewater flow schematic and the 282-E Reservoir source description, refer to Figure F-1 and Table F-1, respectively.

Figure F-1. 283-E Water Treatment Plant Wastewater Flow Schematic.

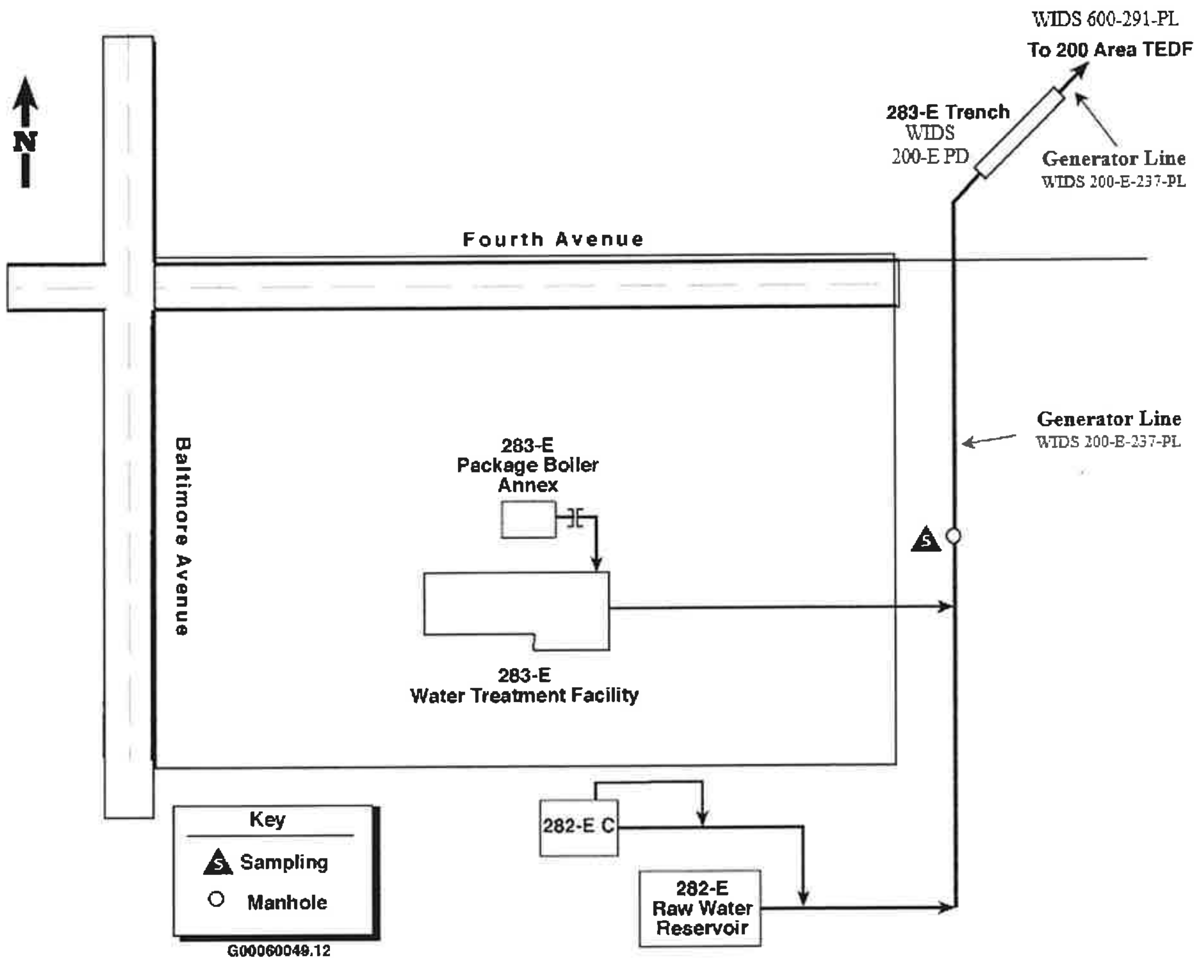


Table F-1. 283-E Water Treatment Plant Wastewater Sources.[1]

Source		Building	Effluent Water Type	Flow Type	Flow Rate gal/min[2]	Status[3]
1.	Reservoir overflow	282-E	Raw water (untreated)	Intermittent	2.1E+00	Active
				Total	1.80E+00 [4]	
				Maximum	1.60E+02[5]	

[1] This table updates the information presented in HNF-SD-W252-ER-001, *Phase II Liquid Effluent Program (Project W-252) Wastewater Engineering Report and BAT/AKART Studies*.
[2] Flow rates (gal/min) are based on total annual flow divided by 525,600 min (1 year).
[3] Active = source that presently is discharging.
[4] Total flow to 200 Area Treated Effluent Disposal Facility.
[5] Maximum flow that could be generated.

APPENDIX G

283-W WATER TREATMENT PLANT WASTEWATER

APPENDIX G

283-W WATER TREATMENT PLANT WASTEWATER

The 283-W Water Treatment Plant wastewater stream includes discharges from the 282-W Reservoir and the 283-W Water Treatment Plant.

G.1 282-W RESERVOIR

The 282-W Reservoir contains raw water pumped from the 100-B and the 100-D Area River Pumphouses. This reservoir has a capacity of 3,000,000 gallons with overflow weir piping sized for a maximum flow of 400 gal/min. The reservoir water level is maintained by computer controlled inlet valves. Should the reservoir overflow, the water will discharge into the TEDF effluent line.

G.2 283-W SAMPLE DRAIN AND SAMPLE SINK

The automatic sampling equipment drain and sample sink in the 283-W Water Treatment Plant receive potable and raw water from the monitoring and sampling equipment used in the plant. The automatic sampling equipment drain and sample sink discharge at an average annual rate of 6.0 gal/min and 1.3 gal/min, respectively.

G.3 283-W CLEARWELL OVERFLOW

Potable water overflow from the 283-W Water Treatment Plant clearwells is an intermittent source which has been estimated to be less than 0.02 gal/min on an annualized basis, with 250-gal/min instantaneous flows.

G.4 FLOOR, TRENCH AND SUMP PUMP PIT DRAINAGE

Numerous floor, trench and sump pump pit drains are located throughout the 282-W Pumphouse, the 283-W Water Treatment Facilities, the 282-W Reservoir, the 282-W Inlet Weir and Building 282-WC. Sources of liquid waste to these drains include safety showers, sampling ports, raw and potable water. These sources are estimated to generate an average annual flow of approximately 15 gal/min.

Two floor drains inside 287-W are connected to the diversion Manhole C-5 located outside of TEDF Pump Station # 1 via a short pipeline. The pipeline, floor drains, backflow preventers and building were constructed as part of Project L-340. These floor drains collect potable water intermittently generated from two backflow preventers. The 287-W is physically located near the TEDF Pump Station # 1 and is not shown on the schematic.

G.5 283-W FILTER BACKWASH WATER

The 283-W Water Treatment Plant has four filters which are backwashed after approximately 96 hours of operation. The filter backwash generates approximately 65,000 gallons of water. This water is collected and intermittently pumped to the TEDF at approximately 200 gal/min. This water is pumped through the 283-WF Sampling Facility where it is monitored for pH, conductivity, temperature and flow.

For a stream schematic and a source description of the 283-W Water Treatment Plant refer to Figure G-1 and Table G-1, respectively.

Figure G-1. 283-W Water Treatment Plant Wastewater Flow Schematic.

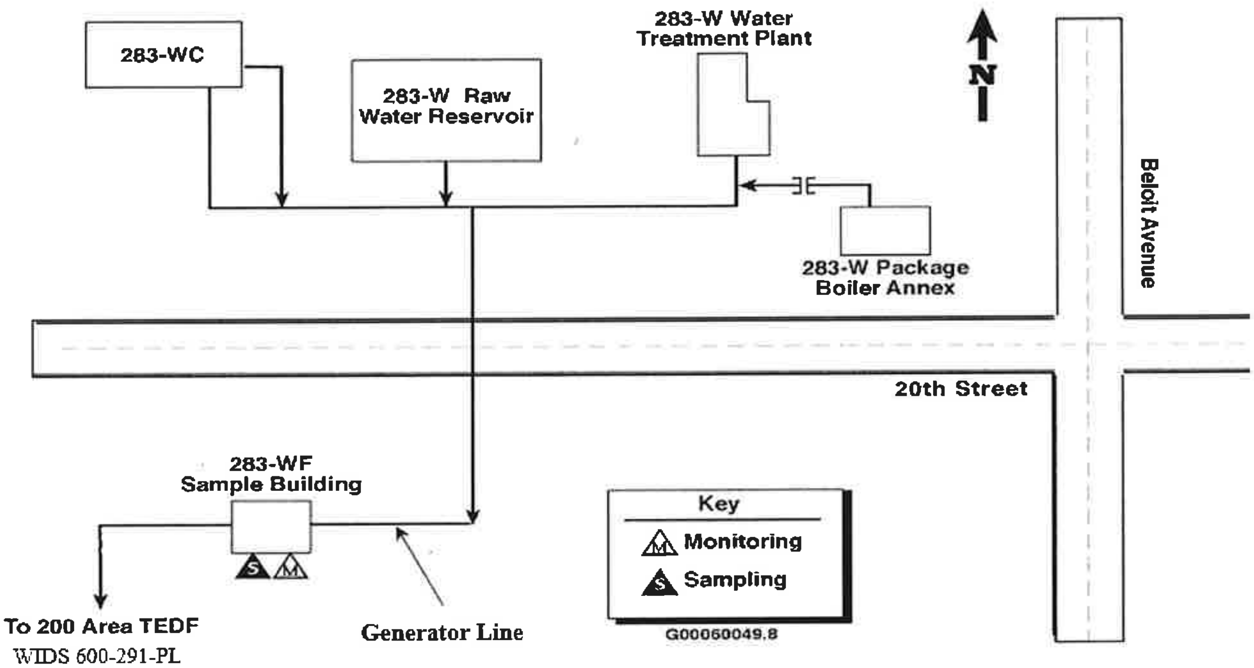


Table G-1. 283-W Water Treatment Plant Wastewater Sources.[1]

Source		Building	Effluent Water Type	Flow Type	Flow Rate gal/min[2]	Status[3]
1.	Reservoir overflow	282-W	Raw water (untreated)	Intermittent	8.0E-01	Active
11.	283-W sample drain line	283-W	Potable water	Continuous	6.0E+00	Active
12.	283-W sample sink line	283-W	Potable water	Continuous	1.3E+00	Active
17.	Clearwell overflow	283-W	Potable water	Intermittent	Negligible	Active
23.	Floor/trench/sump pump pit drains	282-W 282-WC 283-W 283-WE	Raw water (untreated)	Intermittent	1.5E+01	Active
24.	Backflow Preventer Overflow	287-W	Potable water	Intermittent	Negligible	Active
25.	Filter Backwash Water	283-W	Non-Potable Water	Intermittent	1.7E+01	Active
				Total	4.0E+01[4]	
				Maximum	3.4E+02[5]	

[1] This table updates the information presented in HNF-SD-W252-ER-001, *Phase II Liquid Effluent Program (Project W-252) Wastewater Engineering Report and BAT/AKART Studies*. Source numbers are not sequential because some sources have been deleted.
[2] Flow rates (gal/min) are based on total annual flow divided by 525,600 min (1 year).
[3] Active = source that presently is discharging.
[4] Total flow to 200 Area Treated Effluent Disposal Facilities.
[5] Maximum flow that could be generated.

APPENDIX H

JOHNSON CONTROLS, INC. PACKAGE BOILER ANNEX WASTEWATER

APPENDIX H

JCI PACKAGE BOILER ANNEX WASTEWATER

The 242-A Package Boiler Annex, operated by Johnson Controls, Inc. (JCI), supplies steam to the 242-A Evaporator. The package boiler produces three intermittent potable sources including water softener regenerate, boiler blow down, and cooling water. Effluents from the 242-A package boiler discharge through a sump inside the boiler annex to the 242-A-81 Water Services Building then to the TEDF.

The water softener regenerate contributor is a spent brine solution that reconditions the zeolite water softener units. During normal operations the softener regenerate has the highest concentration of dissolved solids, being less than 10 percent sodium chloride by weight.

Boiler blowdown is an intermittent stream discharging to the blowdown separator during package boiler operation. Discharge of the blowdown maintains boiler water quality by removal of concentrated dissolved solids. The blowdowns are from the top surface of the boiler, through various piping and valves located in the boiler and process piping. Both types of blowdowns are used to control total dissolved solids in the boiler water. Surface blowdowns normally are used to maintain the boilers at correct operating parameters. Bottom blowdowns are made periodically to remove accumulated solids. The boiler blowdowns pH adjusted as necessary to ensure compliance with TEDF permit discharge requirements. Potable water is used to cool the intermittent blowdown stream before the annex sump where sampling occurs.

All water treatment chemicals used are approved for discharge under specific conditions to the TEDF by the Environmental Compliance Officer before actual use.

For a stream schematic and a source description of the Package Boiler Annexes, refer to Figure H-1 and Table H-1, respectively.

Figure H-1. JCI Package Boiler Annex Wastewater Flow Schematic.

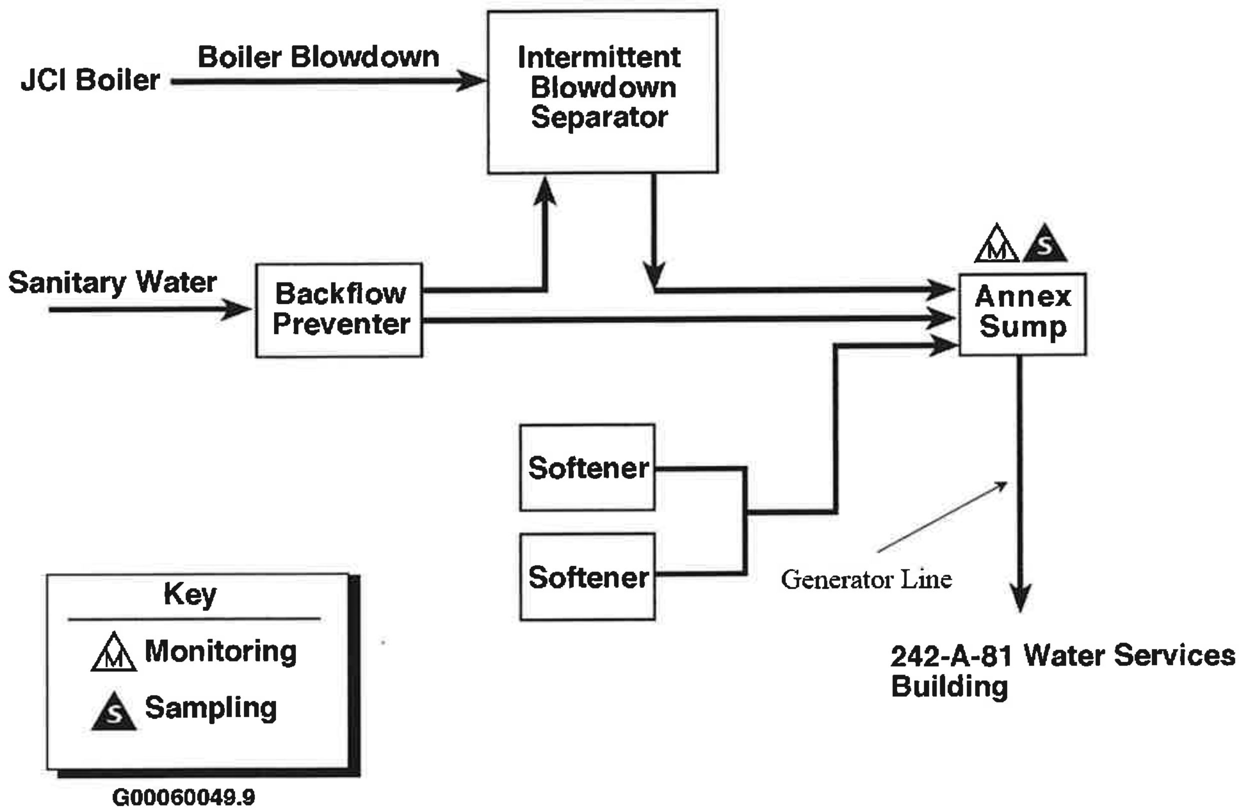


Table H-1. JCI Package Boiler Annex Wastewater Sources.

Source[1]		Building	Effluent Water Type	Flow Type	Flow Rate gal/min[2]	Status[3]
4.	Blowdown separator	242-A Annex	See Appendix E			
5.	Water softener regenerant	242-A Annex	See Appendix E			
6.	Backflow preventer drain	242-A Annex	See Appendix E			

[1] This table updates the information presented in *Potential Effects of Package Boiler Effluent to Washington State Waste Discharge Permit* (LMHC 1997).

[2] Based on total annual flow divided by 525,600 min (1 year).

[3] Active = source that presently is discharging.

APPENDIX I

241-A-285 Water Services Building WASTEWATER

APPENDIX I

241-A-285 WATER SERVICES BUILDING WASTEWATER

The 241-A-285 Water Services Building was constructed to provide water to support tank retrieval operations. The building construction is complete including the tie-in to a line connected at the TEDF H-1 manhole. Potential sources from the building sump include pressure relief valve failure, water tank overflow, or backflow preventer draining. These raw water sources are managed as a ST0004511 (Ecology 2014) discharge to TEDF. For a stream schematic and a list of sources from 241-A-285, refer to Figure I-1 and Table I-1, respectively.

Figure I-1. 241-A-285 Water Services Building Wastewater Flow Schematic.

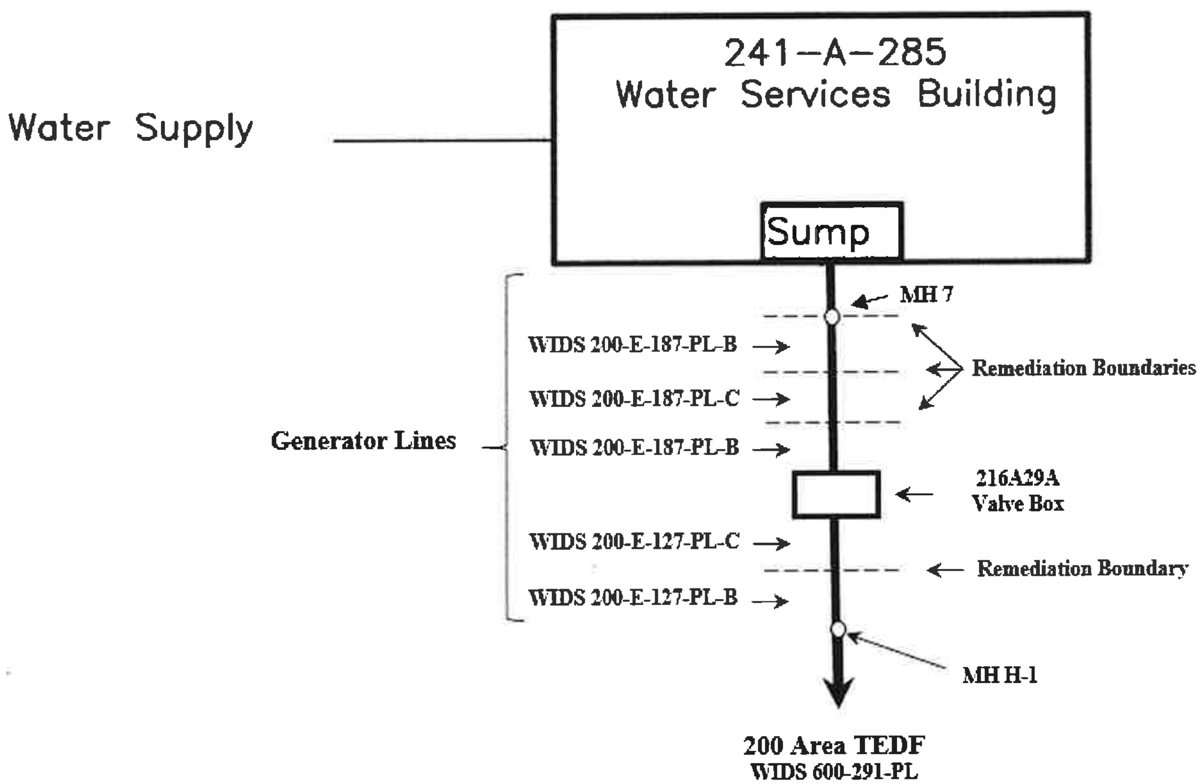


Table I-1. 241-A-285 Water Services Building Wastewater Sources

Source	Building	Effluent Water Type	Flow Type	Flow Rate gal/min[1]	Status
Pressure Relief Valve	241-A-285	Raw water	Intermittent	Negligible Only discharge on failure	Active
Water tank overflow	241-A-285	Raw water	Intermittent	Negligible Only discharge on failure	Active
Backflow preventer drain	241-A-285	Raw water	Intermittent	Negligible Only discharge on failure	Active
Miscellaneous Maintenance	241-A-285	Raw Water	Intermittent	Negligible	Active
			Total	Negligible	
			Maximum[2]	100	

[1]Based on total annual flow divided by 525,600 min (1 year).
[2]Maximum flow that could be generated.

APPENDIX J

T PLANT WASTEWATER

APPENDIX J

T PLANT WASTEWATER

Wastewater from T Plant consists of rainwater, housekeeping water, fire system maintenance, and condensate from HVAC equipment. Sources include outdoor sumps in 211-T area, indoor sumps in 2706-T Facility, 271-T and 221-T, and floor drains in 271-T and 221-T. All 221-T and 271-T wastewater is directed to one of two adjacent catch tanks in the electrical gallery of 221-T. The larger of the two, a 1,000-gal tank, typically serves as the lead tank. The second, a 500-gal tank, serves as a backup. Wastewater from the 2706-T Facility and 211-T area are batch transferred to the 225-WA sump.

When a 221-T catch tank is full, operators manually actuate the transfer pump sending effluent to the T Plant 225-WA lift station sump.

When the 225-WA lift station sump is sufficiently full, a transfer pump is started manually within the 225-WA building to send wastewater to the TEDF interface point, manhole A-1.

For a stream schematic and source description, refer to Figure J-1 and Table J-1, respectively.

Figure J-1. T Plant Wastewater Flow Schematic.

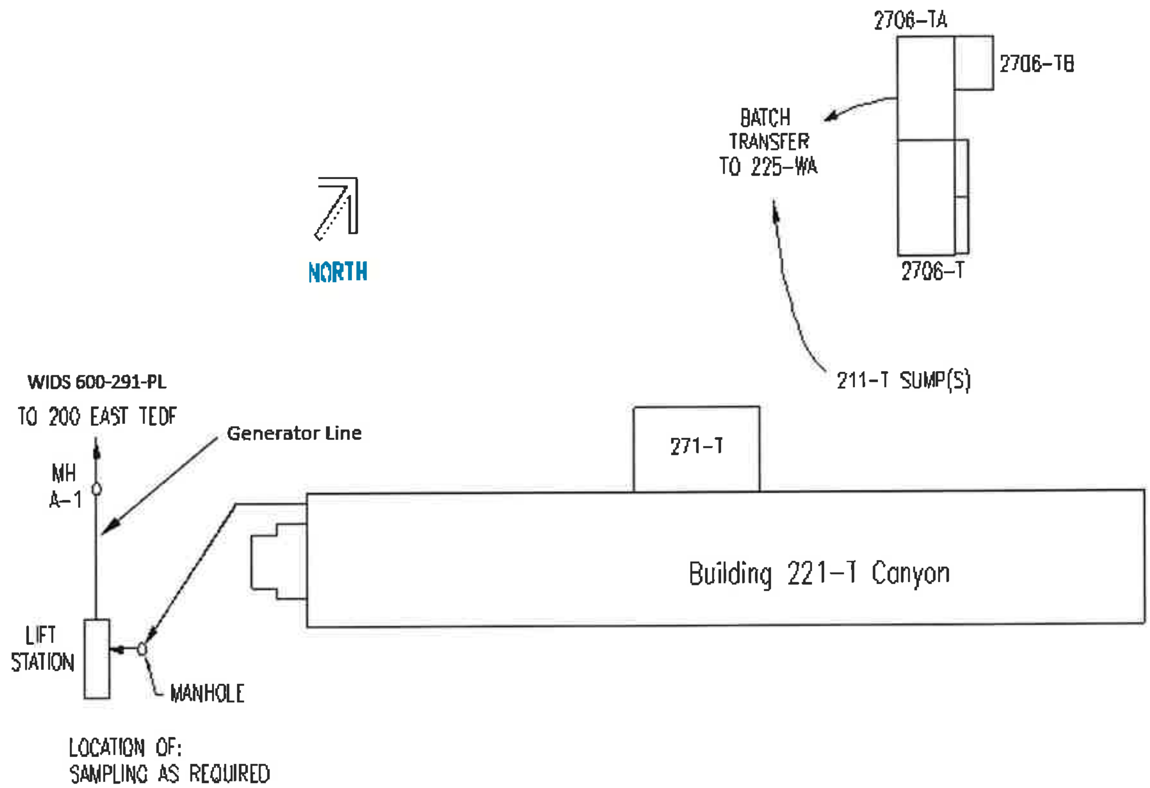


Table J-1. T Plant Wastewater Sources.[1]

Source		Building	Effluent Water Type	Flow Type	Flow Rate gal/min[2]	Status[3]
1.	Electrical gallery sumps	221-T	Potable water Raw water (untreated)	Intermittent	0.0E+00	Active
2.	Pipe/Operating gallery floor drains	221-T	Potable water	Intermittent	0.0E+00	Active
4.	Floor drains	271-T	Potable water, fire system maintenance	Intermittent	0.0E+00	Active
5.	Sumps	211-T, 2706-T Facility	Rain water, fire system maintenance HVAC Condensate	Intermittent	2E-03	Active
21.	Heating and ventilation system	221-T, 271-T,	HVAC Condensate	Intermittent	3E-03	Active
				Total	1E-02[4]	
				Maximum	1.1E+02[5]	

[1] This table updates the information presented in HNF-SD-W252-ER-001, *Phase II Liquid Effluent Program (Project W-252) Wastewater Engineering Report and BAT/AKART Studies*. Source numbers are not sequential because some sources have been deleted.

[2] Flow rates (gal/min) are based on total annual flow divided by 525,600 min (1 year).

[3] Active = source that presently is discharging.

[4] Total flow to 200 Area Treated Effluent Disposal Facility.

[5] Maximum flow that could be generated.

APPENDIX K

WASTE ENCAPSULATION AND STORAGE FACILITY COOLING WATER

APPENDIX K

WASTE ENCAPSULATION AND STORAGE FACILITY COOLING WATER

The contributors to the WESF cooling water effluent are discussed below.

K.1 WESF CLOSED LOOP COOLING SYSTEM

The WESF pool cell closed loop cooling system (225-BG) intermittently discharges cooling water blowdown to the TEDF during normal operations.

K.2 DEEP WELL PUMP TESTING

The WESF deep well pump, 282B, is tested every 60 days and discharge from the well is routed to the TEDF through manhole E-1.

K.3 SINGLE PASS POOL CELL COOLING

In the event that the normal pool cell closed loop cooling system fails, raw water from the site raw water supply system or from the WESF deep well pump can be routed through the pool cell heat exchangers to cool the WESF pool cells. Discharge from the heat exchangers would be routed to the TEDF.

For a stream schematic and a source description of the WESF cooling water stream sources, refer to Figure K-1 and Table K-1, respectively.

Figure K-1. Waste Encapsulation and Storage Facility Cooling Water Flow Schematic.

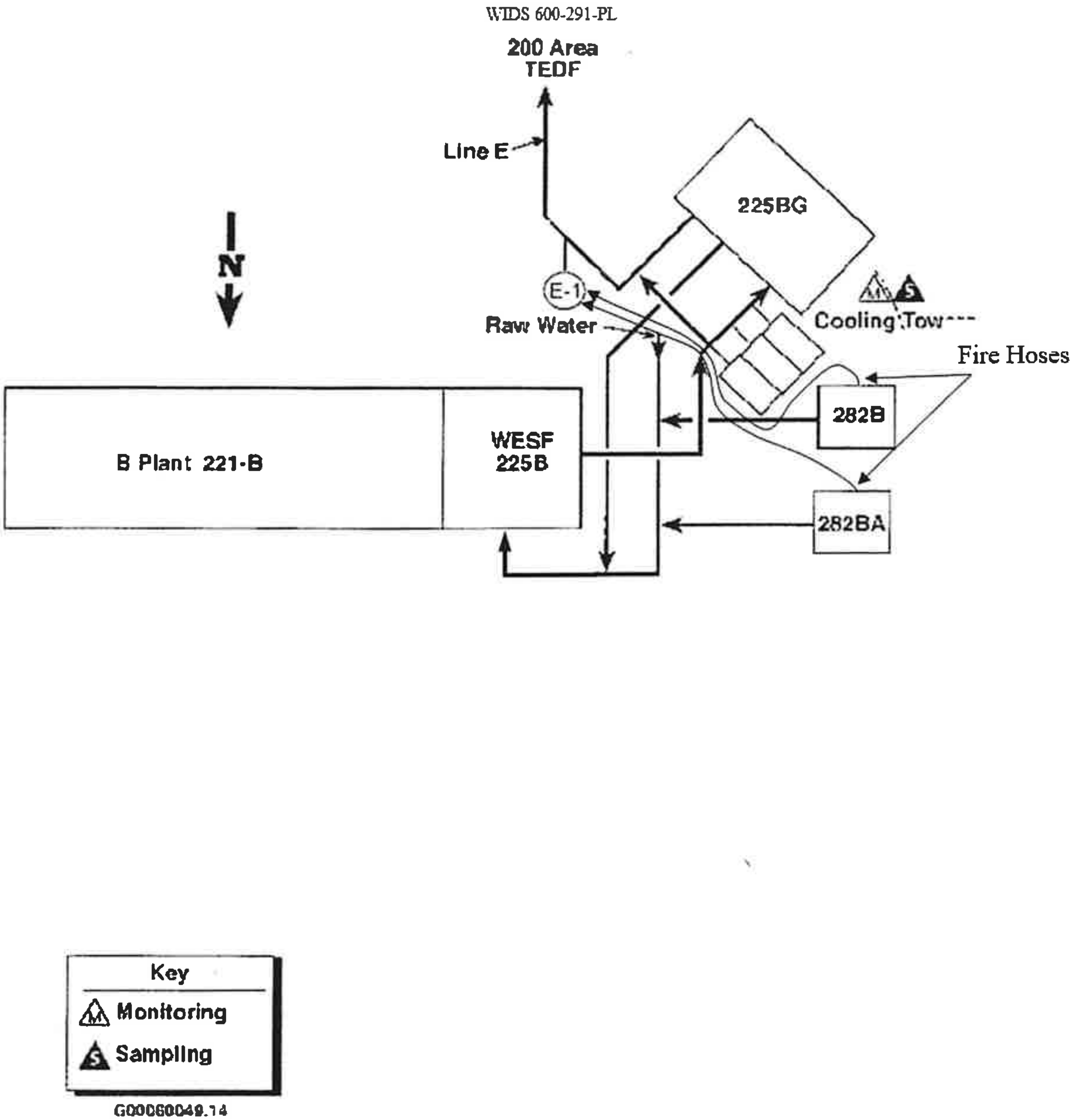


Table K-1. Waste Encapsulation and Storage Facility Cooling Water Sources.[1]

Source		Building	Effluent Water Type	Flow Type	Flow Rate gal/min[2]	Status[3]
1.	Closed loop cooling water system blowdown	225BG	Potable water or raw water	Intermittent	1.4E+01	Active
2.	Single pass	225B	Raw water (untreated)	Intermittent	Negligible except in Emergency	Active
3.	Deep Well Pump Test Water	282B	Raw Water (Groundwater)	Intermittent	3.6E-01	Active
				Total	1.44E+01[4]	
				Maximum	1.2E+03[5]	

[1] This table updates the information presented in HNF-SD-W252-ER-001, *Phase II Liquid Effluent Program (Project W-252) Wastewater Engineering Report and BAT/AKART Studies*.
[2] Flow rates (gal/min) are based on total annual flow divided by 525,600 min (1 year).
[3] Active = source that presently is discharging.
[4] Total flow to 200 Area Treated Effluent Disposal Facility.
[5] Maximum flow that could be generated.

APPENDIX L

WASTE ENCAPSULATION AND STORAGE FACILITY LIQUID EFFLUENT

APPENDIX L

WASTE ENCAPSULATION AND STORAGE FACILITY LIQUID EFFLUENT

The WESF liquid effluent stream consists of storm water, with comparatively small amounts of potable water, raw water, and deionized water from incidental discharges. While the stream formerly was identified as the B Plant Chemical Sewer, the designation was changed to reflect deactivation activities which have eliminated the B Plant contributions to the stream.

The primary contributor to the waste stream is storm water run-off from the B Plant and 224-B roofs via street drains between B Plant and 224-B, which now accounts for nearly 2/3 of the annual discharge. With the deactivation of the package steam boiler and water cooled compressed air heat exchanger in the 225-BC building, there is no longer a continuous stream. Other sources contributing to the stream are batch discharges from Pool Cells 9 and 10, 225B, 225BC, 225BF, K-3 T Pit, floor drains, HVAC supply filter backwash, K-5 cooling tower, and street drains. The two pool cells could receive potable, deionized, and raw water discharges from the pool cell area. The K-5 cooling tower which is located next to 225-BC only discharges to TEDF during its annual winterization.

For a stream schematic and a source description of the WESF liquid effluent sources, refer to Figure L-1 and Table L-1, respectively.

Figure L-1. Waste Encapsulation and Storage Facility Liquid Effluent Flow Schematic.

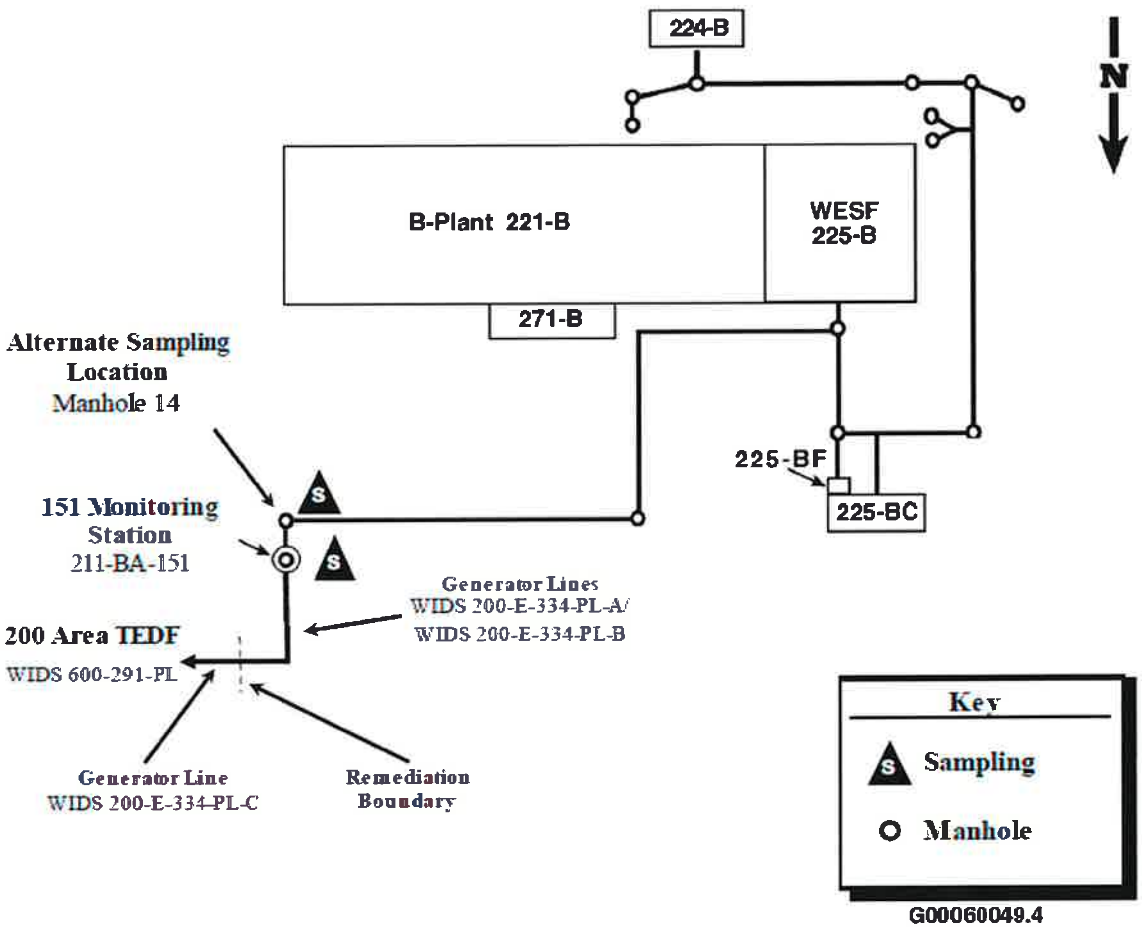


Table L-1. Waste Encapsulation and Storage Facility Liquid Effluent Sources.[1]

Source		Building	Effluent Water Type	Flow Type	Flow Rate gal/min[2]	Status[3]
4.	Street drains (2)	221-B 224-B	Storm water	Intermittent	4.5E-01[6]	Active
6.	Street drain (1)	225-B	Storm water	Intermittent	3.0E-02	Active
7.	Yard drains (2)	225-BB	Storm water	Intermittent	3.0E-02	Active
8.	Air Compressor heat exchanger water[7], floor drains and filter backwash	225-B 225-BC 225-BF	Potable water/ Raw water (untreated)	Intermittent	1.9E-03	Active
9.	Steam condensate and raw water	225-B	Potable water/ Raw water (untreated)	Intermittent	5.0E-02	Active
22.	Pool cells 9 and 10	225-B	Potable water/ Raw water (untreated)	Intermittent	2.0E-01	Active
26.	K-3 T Pit	225-B	Storm Water	Intermittent	2.0E-04	Active
27.	TK-210 Demin Water	225-B	Demineralized Water	Intermittent	1.8E-03	Active
28.	Yard drain at truck port apron	225-B	Storm water/ Potable Water/ Raw Water (untreated)	Intermittent	1.0E-02	Active
29.	K-5 Cooling Tower	225-BC	Potable water/ Raw water/ (untreated))	Intermittent	1.0E-03	Active
				Total	7.75E-01[4]	
				Maximum	5.3E+02[5,6]	

[1] This table updates the information presented in WHC-SD-W049H-FDC-001, *Functional Design Criteria for the 200 Area Treated Effluent Disposal System, Project W-049H* [WHC 1994]. Source numbers are not sequential because some sources have been deleted.

[2] Flow rates (gal/min) are based on total annual flow divided by 525,600 min (1 year).

[3] Active = source that presently is discharging.

[4] Total flow to 200 Area Treated Effluent Disposal Facility.

[5] Maximum flow that could be generated (WHC-SD-W049H-FDC-001, *Functional Design Criteria for the 200 Area Treated Effluent Disposal System, Project W-049H* [WHC 1994]).

[6] The annual flow rate for source 4 and the maximum effluent flow were increased to 4.5E-01 gal/min and 5.3E+02 gal/min, respectively, to account for the increased flow from the metal roof on B Plant.

[7] The water cooled air compressor heat exchanger is no longer used routinely, but may be operated if needed to cool air from a temporary portable compressor.

APPENDIX M

HANFORD TANK WASTE TREATMENT AND IMMOBILIZATION PLANT WASTEWATER

APPENDIX M

HANFORD TANK WASTE TREATMENT AND IMMOBILIZATION PLANT

The non-radioactive liquid waste disposal system (NLD) effluent discharged from the Hanford Tank Waste Treatment and Immobilization Plant (WTP) will consist of reverse osmosis reject stream, cooling tower blowdown, boiler blowdown, and miscellaneous uncontaminated drains (see Figure M-1). The predominant source of the NLD effluent are potable and raw water that the WTP Contractor will condition for use at WTP.

A pipeline has been provided for the NLD effluents from the WTP site boundary to the 200 Area TEDF. The physical interface location for connection of the effluent line to TEDF is shown as Node 9 on the Interface Control Drawing, 24590-WTP-B2-C12T-00001. The interface point is at the isolation valve 68J-GV-01 as shown in drawing H-2-830102, Sheet 2. Valve 68J-GV-01 will remain in the open position unless a condition exists that requires it be closed (e.g. discharge permit non-compliance, corrective maintenance work downstream, etc.). In the event ETF needs to manipulate the valve, ETF will notify WTP and will request access to the valve location.

The physical point of connection between WTP communication lines and communication lines provided by the Tank Farms Operations contractor will be near Pole E2476, shown as Node 18 on the same drawing (24590-WTP-B2-C12T-00001).

The WTP NLD system primarily consists of a centralized 574,000 gallon collection tank, two 500 gpm effluent pumps, air stripper units, and monitoring and control instruments. The NLD effluent is pumped from the collection tank through the air stripper to remove trihalomethanes and finally discharged to TEDF. The effluent pump has a preset maximum flow rate of 500 gpm. The collection tank may be simultaneously receiving effluents and discharging them so a batch volume cannot be predicted at this time.

Flow, pH and conductivity continuous monitoring (except for brief lengths of time for calibration, power failure or for unanticipated repair or maintenance) will be instituted per Table 2, Generating Facilities Continuous On-Line Monitoring requirements. If on-line monitoring for pH and/or conductivity is lost for greater than 24 hours, then daily pH and/or conductivity grab samples will be taken, logged and reported to the ETF control room during transfers. If flow monitoring is lost, WTP will notify the ETF control room when a transfer begins, estimated flow, and when the transfer ends.

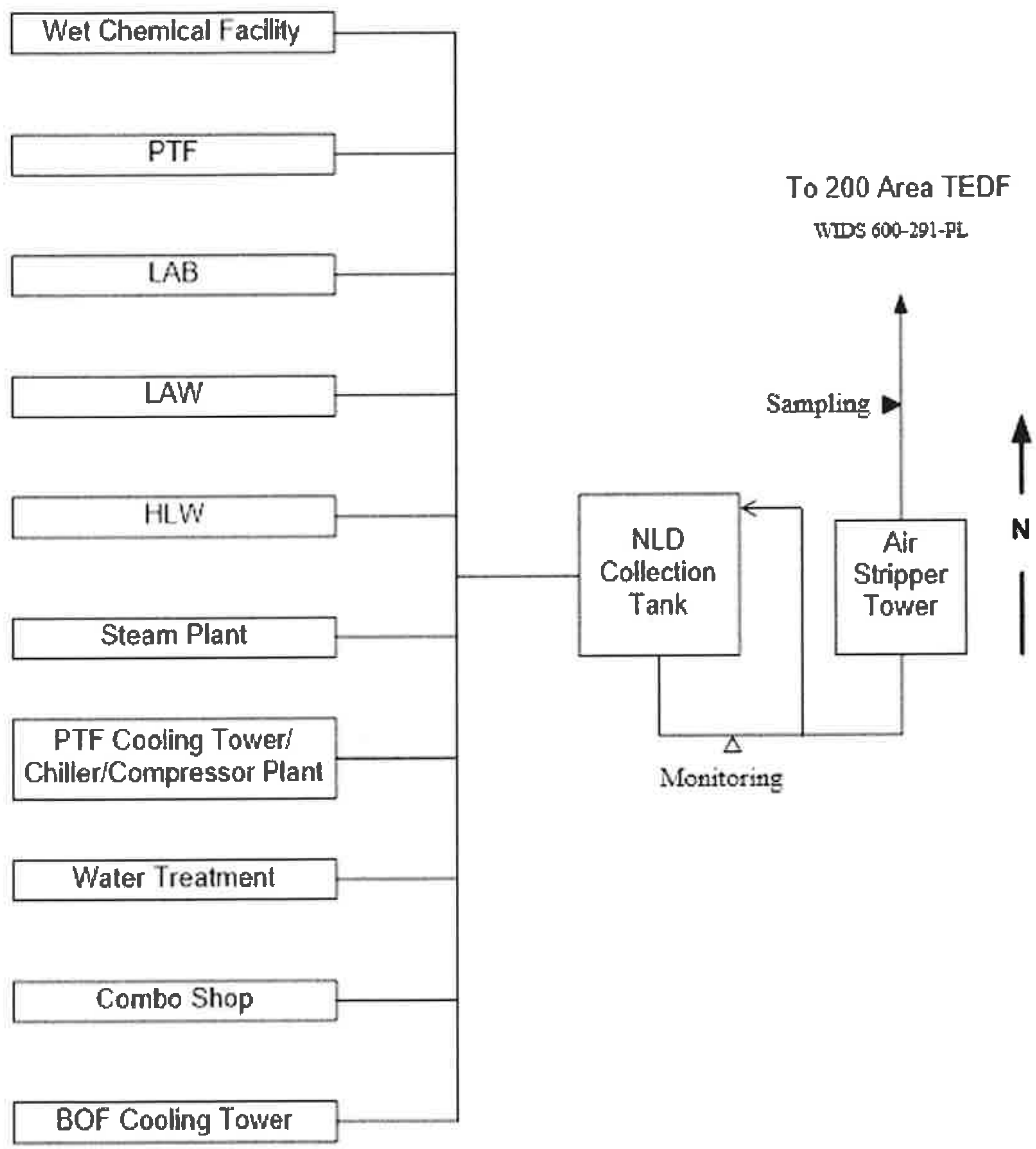
Quarterly samples and yearly expanded samples will be taken per Table 4, Minimum Generating Facilities Sampling requirements.

The estimated total annual volume of effluent discharged from WTP to TEDF is ~194 million gallons (CCN 225752 *WTP BAT/AKART Addendum No. 3*).

For a stream schematic and a source description of the WTP liquid effluent sources, refer to Figure M-1 and Table M-1, respectively.

The WTP contractor also has an interface control document that covers the WTP to TEDF interface, *ICD 05 - Interface Control Document for Nonradioactive, Nondangerous Liquid Effluents* (24590-WTP-ICD-MG-01-005). If conflicts exist between the two ICDs the parties will determine which ICD(s) to modify.

Figure M-1. Hanford Tank Waste Treatment and Immobilization Plant Liquid Effluent Flow Schematic.



PTF – Pretreatment Facility
LAW – Low Activity Waste
HLW – High Level Waste
BOF – Balance of Facilities

Table M-1. Hanford Tank Waste Treatment and Immobilization Plant Liquid Effluent Sources.

Source		Building	Effluent Water Type	Flow Type	Flow Rate gal/min	Status
1	Wet Chemical Facility	BOF	Floor drains (non-rad, non-dangerous water)	Intermittent	1	Active
2	PTF	PTF	Floor and sink drains / Condensate	Intermittent	11	Active
3	LAB	LAB	Floor and sink drains / Condensate	Intermittent	1	Active
4	LAW	LAW	Floor and sink drains / Condensate	Intermittent	11	Active
5	HLW	HLW	Floor and sink drains / Condensate	Intermittent	20	Active
6	Steam Plant	BOF	Boiler blowdown	Intermittent	14	Active
7	PTF Cooling Tower/ Chiller/Compressor Plant	BOF	Cooling water blowdown	Intermittent	64	Active
8	Water Treatment	BOF	Reverse osmosis blowdown	Continuous	81	Active
9	Combo Shop	BOF	Floor drains (non-rad, non-dangerous water)	Intermittent	Negligible	Active
10	BOF Cooling Tower	BOF	Cooling water blowdown	Intermittent	181	Active
				Total	~ 384 gpm	

APPENDIX N

APPENDICES REFERENCES

APPENDIX N

APPENDICES REFERENCES

CCN 225752, "*WTP BAT/AKART Addendum No. 3*", 20 December 2010. Bechtel National, Inc., Richland, Washington.

24590-WTP-ICD-MG-01-005, *ICD 05- Interface Control Document for Nonradioactive, Nondangerous Liquid Effluents,* 22 October 2018. Bechtel National, Inc., Richland, Washington.

24590-WTP-B2-C12T-00001, *Interface Control Drawing,* Rev 5, 9 July 2019. Bechtel National Inc., Richland, Washington.

HNF-FMP-02-12059-R0, *TEDF Manhole H-2 Run Off Collection,* HNF-FMP-02-12059-R0, Fluor Hanford, Richland, Washington.

HNF-SD-W252-ER-001, *Phase II Liquid Effluent Program (Project W-252) Wastewater Engineering Report and BAT/AKART Studies*, Rev. 0B, B&W Hanford Company, Richland, Washington.

LMHC 1997, *Potential Effects of Package Boiler Effluent to Washington State Waste Discharge Permit,* Letter Report from Brian Mathis to David Dumpert, dated 4 September 1997, Lockheed Martin Hanford Corporation, Richland, Washington.

WHC-SD-W049H-ER-003, *200 Area Treated Effluent Disposal Facility (Project W-049H) Wastewater Engineering Report*, Rev. 0C, Westinghouse Hanford Company, Richland, Washington.

WHC-SD-W049H-FDC-001, *Functional Design Criteria for the 200 Area Treated Effluent Disposal System, Project W-049H,* Rev. 1B, Westinghouse Hanford Company, Richland, Washington.