King County
Wastewater Treatment Division
Industrial Waste Program
Department of Natural Resources and Parks
201 South Jackson Street, Mail Stop KSC-NR-6200
Seattle, WA 98104-3855
206-477-5300
TTY Relay: 711

October 29, 2025

SENT VIA EMAIL ONLY
ELECTRONIC READ RECEIPT REQUESTED

Douglas Gallucci
University of Washington Environmental Health & Safety
4109 Franklin Place NE
Seattle, WA 98195
douglasg@uw.edu

Issuance of Renewed Wastewater Discharge Permit No. 7923-03 to University of Washington Seattle Campus by the King County Department of Natural Resources and Parks

Dear Douglas Gallucci:

The King County Industrial Waste (KCIW) Program is responsible for regulating industrial wastewater in the region so that it is treated properly before being discharged to the sanitary sewer system. KCIW partners with industries to ensure appropriate discharge limits are followed, which, in turn, protects the County's wastewater conveyance and treatment systems, workers, and water quality.

To this end, KCIW has reviewed and processed the University of Washington Seattle Campus application for issuance of an industrial wastewater discharge permit in accordance with Chapter 90.48 RCW as Amended, Public Law 92-500, and King County Code (K.C.C.) 28.84.060.

The enclosed issued Permit No. 7923-03 covers the wastewater discharge from the University of Washington Seattle Campus operation located at 4109 Franklin Place, Seattle, Washington. All discharges from this facility, and actions and reports relating thereto, shall be in accordance with the terms and conditions of this permit.

The enclosed Permit No. 7923-03 supersedes, and cancels Permit No. 7923-02 effective November 7, 2025.

King County Code 28.84 authorizes a fee for each Permit issued by the King County Department of Natural Resources and Parks. The current fee for issuance of a renewed Permit in Level B is $6000. King County will send you an invoice for this amount.

The main changes to this renewed permit are:

1. Nanofabrication Facility is reclassified from 40 CFR 469, Subpart B (Electronic Crystals Subcategory) to 40 CFR 469, Subpart A (Semiconductor Subcategory).

2. King County will conduct heavy metals compliance monitoring at Nanofabrication Facility on a semiannual basis.

3. Permit language has been modified to reflect King County's revised Industrial Waste Local Discharge Limits under Public Rule PUT8-13-2 (PR), which became effective on December 23, 2020.

If you have any questions about this permit or wastewater discharge from the facility, please contact Lydia Eng at 206-477-5433 or lydia.eng@kingcounty.gov. Additional information is available on KCIW's website at www.kingcounty.gov/industrialwaste.

Thank you in advance for your efforts to maintain the integrity of King County's wastewater conveyance and treatment infrastructure, ensure worker safety, and protect water quality in the central Puget Sound region.

Sincerely,

DocuSigned by:
Mark Henley
EE63C39A7130417...

Mark Henley
Program Manager

Enclosures

cc: John Wallace, University of Washington, xwallace@uw.edu
N. Shane Patrick, University of Washington, patricns@uw.edu
Rich Lee, University of Washington, ralee@uw.edu
Maia Hoffman, Washington State Department of Ecology, maia.hoffman@ecy.wa.gov
Angelique Hockett, Seattle Public Utilities, angelique.hockett@seattle.gov

Permit No.: 7923-03
Issuance Date: October 29, 2025
Effective Date: November 7, 2025
Expiration Date: November 6, 2030

King County

WASTE DISCHARGE PERMIT

Department of Natural Resources and Parks
Industrial Waste Program
201 S. Jackson Street, Mail Stop KSC-NR-6200
Seattle, WA 98104-3855

In accordance with the provisions of Chapter 90.48 RCW as amended,
Public Law 92-500, and King County Code 28.84.060,
a Waste Discharge Permit is issued to:

University of Washington Seattle Campus

Facility location:	4109 Franklin Place Seattle, WA 98195
Business hours phone:	206-616-0595
Emergency (24-hour) phone:	206-685-8973
Mailing address:	4109 Franklin Place NE Seattle, WA 98195

Permission is hereby granted to discharge industrial wastewater from the above-identified facility into the King County sewerage system in accordance with the effluent limitations and monitoring requirements set forth in this permit.

This permit is based on information provided in the permit application, which together with the following conditions and requirements are considered part of the permit. All requirements and ordinances of King County pertaining to the discharge of wastes into the King County sewerage system are hereby made a condition of this permit. All discharges and activities authorized herein shall be consistent with the terms and conditions of this permit.

This permit is not transferable without authorization from the King County Industrial Waste Program (KCIW). Failure to provide advance notice of a transfer renders this waste discharge permit voidable on the date of facility transfer.

DocuSigned by:
By Mark Henley
EE63C39A7130417...
Mark Henley, Industrial Waste Program Manager

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S1. EMERGENCY CONTACTS

KING COUNTY

Industrial Waste Program (8 a.m.-5 p.m., weekdays):	206-477-5300
Lydia Eng, Industrial Waste Compliance Investigator:	206-477-5433
Mark Henley, Industrial Waste Program Manager:	206-263-6994

Your emergency contact after 5 p.m. weekdays and on weekends is:

West Point Treatment Plant:	206-263-3801

If unable to reach anyone at this number call:

South Treatment Plant:	206-263-1760

WASHINGTON STATE DEPARTMENT OF ECOLOGY

24-Hour emergency spill phone number:	206-594-0000

S2. PERMIT SUMMARY AND COMPANY IDENTIFICATION

A. Summary Information

The following industrial waste discharge sites have been identified for this facility:

Sample Site No.	*Limit Type*	*Daily Maximum Discharge Volume (gpd)*	*Description*
IW1275A	40 CFR 469, Subpart A & King County Local Limits	8,000	Nanofabrication Facility – discharge pipe following pH neutralization tank
IW1275B	King County Local Limits	6,000	Dental School - B wing basement - after amalgam separator units (ASUs)
IW1275C	King County Local Limits	67,000	Medical Center, Hall Health
IW1275D	King County Local Limits	6,000	Dental School - D wing basement - after ASUs
NA – Miscellaneous Discharges	King County Local Limits	167,000	Miscellaneous discharges: Environmental Health and Safety activities; contaminated groundwater and stormwater; academic, research, and engineering laboratories; health care; animal care; shops and maintenance activities

Effluent limitations and self-monitoring requirements for this sample site are detailed in S4.A of this permit.

B. Reports

Report Name	*Section(s)*	*Due Date*
Annual Facility Report of the University of Washington Seattle Campus	S3.A	March 15 of each year
Semiannual Report on Compliance with Best Management Practices at the University of Washington School of Dentistry	S3.D	January 31 and July 31 of each year
Slug/Spill Control Plan	S3.E	With permit renewal application and as needed or required by KCIW.
Updated Solvent Management Plan for the Nanofabrication Facility	S3.F	December 31, 2025
Monthly self-monitoring reports	S4.A	Filed no later than the 15th day of each month
14-Day Report: Discharge or permit violation	S4.D	Within 14 days after a discharge or permit violation becomes known
5-Day Report: Slug discharge or spill	S6.A	Within 5 days after a slug discharge or spill
Installation/Modification of Pretreatment System Report	S6.C	Prior to installation or modification
Hazardous waste discharge notification	S6.D	Within 90 days after waste is identified through RCRA
Washington State Department of Ecology Dangerous Waste Reports	S6.D	As requested by KCIW
Solvent Management Plan (*for the Nanofabrication Facility*)	S12.C	An updated plan with next permit renewal application
Solvent Management Plan Review and Update, as needed (*for the Nanofabrication Facility*)	S12.D	June 30 and December 31 each year
Biannual TTO Certification Statement OR TTO Monitoring Report	S12.E	June 30 and December 31 each year

C. Major Changes in the Renewed Permit

This renewed permit contains the following major changes since last issuance:

1. Nanofabrication Facility is reclassified from 40 CFR 469, Subpart B (Electronic Crystals Subcategory) to 40 CFR 469, Subpart A (Semiconductor Subcategory).

2. King County will conduct heavy metals compliance monitoring at Nanofabrication Facility on a semiannual basis.

3. Permit language has been modified to reflect King County's revised Industrial Waste Local Discharge Limits under Public Rule PUT8-13-2 (PR), which became effective on December 23, 2020.

D. Company Identification

SIC Code No.:	8221, 8021, 8062
Hazardous Waste Generator No.:	WAD980738652
Industry Type:	University of Washington campus with academic, research, and engineering laboratories; Medical Center; animal care; shops and maintenance; Electronic Components – 40 CFR 469 Subpart A, PSNS (Nanofabrication Facility); and School of Dentistry – 40 CFR 441

S3. SPECIAL CONDITIONS OR COMPLIANCE SCHEDULE

A. Annual Facility Report

By March 15 of each year, the permittee shall submit an annual facility report of the University of Washington (UW) Seattle Campus that contains the following information:

1. Updated tables of activities/processes (other than toilets, hand washing, showering, etc.) that use water and/or produce wastewater that is discharged to the sewer or hauled off-site. This table should also include the type of pretreatment, best management practice, or other waste disposal method used for the waste product.

2. Updated list of buildings with process waste and treatment, if new additions or changes are made at the UW Seattle Campus after the latest submittal of your Wastewater Discharge Permit Renewal Application, currently May 2, 2025.

3. A list of wastes and volume (or weight) that were treated and discharged to the sanitary sewer for the preceding calendar year under the UW Seattle Campus Treatment by Generator Program.

B. Approved Miscellaneous Discharges

1. *Applicability:* Sources of wastewater discharged directly to the sanitary sewer shall not differ from the approved list of waste streams, as provided in your May 2, 2025, wastewater discharge permit application and subsequent updates as provided under Section S3.A of this permit. This wastewater is from the following sources:

    a. Academic and research laboratories

    b. Engineering laboratories

    c. Health care facilities

    d. Animal care

    e. Shops and maintenance facilities:

        i. Compost leachate and contaminated stormwater

        ii. Contaminated groundwater from power plant

        iii. Miscellaneous oil/water separators

        iv. Fountain draining and cleaning

v. Pressure washing

vi. Parking lot and roadway sweeping and cleaning

vii. Discharges from other sources as approved by KCIW in writing

2. *Discharge conditions:* Wastewater from approved sources can be discharged directly to the sanitary sewer system, following in-plant controls and/or treatment and monitoring when required, provided that it meets King County local discharge limits and the terms and conditions of this permit. In addition, these sources must comply with the following operating criteria:

   a. There shall be no odor of solvent or gasoline.

   b. There shall be no oil sheen or pronounced unusual color.

   c. There shall be no hydrogen sulfide (rotten egg) odor.

   d. There shall be no visibly pronounced turbidity; the discharge must remain translucent.

3. *Facilities maintenance discharges:* Wastewater generated from chilled water systems, cooling towers, boilers, water line flushing, sprinkler test water, and condensate systems may be discharged directly to the sanitary sewer without prior testing provided it complies with King County local discharge limits and operating criteria listed in Section S3.B.2 above.

C. Best Management Practices for UW Seattle Campus Facilities

1. Best management practices (BMPs) shall mean schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to implement the prohibitions listed in 40 CFR 403.5(a)(1) and (b). BMPs also include treatment requirements, operating procedures, and practices to control facility site runoff, spillage, or leaks; sludge or waste disposal; or drainage from raw materials storage (from 40 CFR 403.3(e)).

2. All industrial wastewater at site A1275A shall be routed through a fully operational, approved pretreatment system at all times when discharge to the sanitary sewer is occurring.

3. All industrial wastewater from the University of Washington School of Dentistry (UWSD) will be required to comply with the pretreatment standards for existing sources (PSES) for Dental Offices under 40 CFR 441.30 and reporting and recordkeeping requirements under 40 CFR 441.50.

a. Adherence to these federal pretreatment standards are in lieu of routine monitoring and reporting requirements for Sites IW1275B and IW1275D.

b. King County reserves the right to revise this permit and re-institute sampling and reporting requirements if lack of compliance with federal dental regulations is documented or King County has reason to suspect that UWSD is discharging concentrations of mercury or other metals that no longer can consistently meet King County local discharge limits as calculated in accordance with S3.F of this permit.

c. The 40 CFR 441.30 requirements include but are not limited to the following:

   i. Pretreatment devices: wastewater through sample sites IW1275B and IW1275D shall be routed through a fully operational pretreatment system that is compliant with the International Organization for Standardization (ISO) 11143 for Amalgam Separator Units (ASUs) that achieve at least a 95 percent removal efficiency or an alternative compliant with 40 CFR 441.30 (a)(1)(i) at all times when discharge to the sanitary sewer is occurring.

      1. ASU(s) must be inspected, maintained, and replaced in accordance with manufacturer's operating manual compliant with 40 CFR 441.30 (a)(1)(iv) and (vi).

      2. In the event that a separator unit is not functioning, repairs or replacement must be made no longer than 10 business days after the malfunction is discovered compliant with 40 CFR 441.30 (a)(1)(v).

   ii. Best Management Practices: the UWSD shall implement and comply with the BMPs found in pretreatment standards for existing sources (PSES) for Dental Offices under 40 CFR 441.30 (b).

      1. Waste dental amalgam from chairside traps, screens, vacuum pump filters, cuspidors, or collection devices must not be discharged to the sanitary sewer.
      2. Dental unit water lines, chairside traps, and vacuum lines must not be cleaned with oxidizing or acidic cleaners, including but not limited to bleach, chlorine, iodine, and peroxide that have a pH lower than 6 or greater than 8.

d. Reporting and recordkeeping, 40 CFR 441.50: the UWSD shall maintain records concerning equipment inspection, maintenance, repairs, or replacement of the ASUs and collection and disposal of scrap amalgam in accordance with this permit and 40 CFR 441.50. The following records that must be kept on site (either physical or electronic form copy) and available for inspection include but are not limited:

i. One-time Compliance Report required by 40 CFR 441.50 which was dated December 11, 2017, and submitted to King County on December 12, 2017

ii. Documentation of ASU inspections, including date, name of person conducting inspection and summary of follow-up actions if needed

iii. Documentation of amalgam retaining container replacement, including date

iv. Documentation of all dates that dental amalgam is picked up or shipped for disposal and the name of the permitted or licensed treatment, storage, or disposal facility receiving the amalgam retaining containers

v. Documentation of any repairs or replacements, including the date, person making repair or replacement, and a description of the repair or replacement (including make and model)

4. All other wastewater must be treated using approved methods or be able to meet all applicable King County local discharge limits and permit conditions, including the general discharge conditions found in Section S3.B.2, at point of discharge through the use of BMPs (which, for the purpose of this section, may include oil/water separators or solids removal devices).

5. All industrial wastewater from research and academic laboratories, health care, animal care, and medical center shall also:

   a. Incorporate BMPs found in the King County Local Hazardous Waste Management Program *Laboratory Waste Management Guide* (Publication Number SQG-LABS-1 (9/94) rev. 12/15) and subsequent versions.

   b. Manage unused, expired, or partially used pharmaceuticals (drugs) by returning to reverse distributors or designating the drugs and working with a hazardous waste or controlled substances disposal company. These drugs must not be discharged to the sanitary sewer.

   c. Manage radioactive compounds in accordance with Washington State Department of Health regulations. Most radioactive waste will need to be collected and disposed of as low-level radioactive waste. For specific guidance, contact the Washington State Department of Health.

6. Maintain pretreatment and monitoring equipment and conduct operations according to KCIW approved documents, including but not limited to the UW Seattle Campus' most recent engineering reports and operations and maintenance manuals.

7. Maintain the following monitoring records or other activities associated with these BMPs on site for a minimum of three years in accordance with Section S7.B of this permit:

a. Chemical wastes managed under the UW Seattle Campus Treatment by Generator Program that are treated and discharged to the sanitary sewer and report the waste types and volume (or weight) in the annual report required under Section S3.A.

b. Any other information necessary to document compliance with applicable BMPs in Section S3.C.

D. Semiannual Report on Compliance with Best Management Practices

1. Beginning on January 30, 2026, UW Seattle Campus shall submit a signed report on compliance with BMPs during the preceding six months (due January 31 and July 31 each year) that contains a general review of your compliance status for implementing BMPs identified in Section S3.C as it relates to discharges of wastewater.

2. This report, at a minimum, will include a statement that BMPs found in Section S3.C were either:

   a. Fully implemented, or

   b. Not fully implemented and include:

      i. Locations that did not implement BMPs

      ii. Actions that were taken to ensure a return to compliance with Section S3.C.

3. This report shall include a certification statement as set forth in 40 CFR 403.6(a)(2)(ii).

E. Slug Discharge Control Plan

UW Seattle Campus shall review and update, as needed, its existing Slug Discharge Control Plan periodically and submit an updated plan with the next permit renewal application, specifically for the Nanofabrication Facility. The UW Seattle Campus shall also be aware of all the other facilities on the campus and that best management practices are followed to prevent spills to the sanitary sewer. The purpose of the Slug Discharge Control Plan is to minimize the potential for slug discharges into the sanitary sewer system. The U.S. Environmental Protection Agency (EPA) defines a slug discharge as "any discharge of a nonroutine, episodic nature, including but not limited to, an accidental spill or a noncustomary batch discharge, which has a reasonable potential to cause interference or pass through, or in any way violate the POTW's (publicly owned treatment works) regulations, local limits, or permit conditions." At a minimum, your plan must include the following elements:

1. General company information:

   a. Company name

b. Address

c. Contact person(s)

d. Phone number(s)

e. Emergency 24-hour phone number(s)

f. Operating schedule (days of week, hours)

g. Describe nature of business

2. Facility layout flow diagrams (The information submitted with your KCIW permit application can be attached to this plan.)

3. Inventory of process tanks and new and waste chemicals stored on site (include location, chemicals and concentration, container type, average stored volume, total container volume, and special provisions taken to prevent slug discharges)

4. Description of discharge practices, including nonroutine batch discharges

5. Procedures for immediately notifying KCIW of spills or slug discharges and for follow-up written notification within five days

6. Inventory of spill and leak prevention equipment

7. Operation and preventative maintenance measures used to prevent a spill or slug discharge

8. Employee Safety and Training Program content and schedule. The program must include procedures for ensuring that all employees who work in production areas, that have wastewater which drains to a King County regulated sample site, are familiarized with the requirements of this permit prior to their working in those areas. Also, employees specifically involved with wastewater treatment, sampling, or reporting are trained in the permitted discharge limits, reporting requirements, violation criteria, and how to appropriately respond in the event they become aware of a discharge, permit, or King County Code violation.

9. Description of previous slug or spill discharges that have occurred at your facility and corrective actions implemented to prevent recurrence

F. Updated Solvent Management Plan

An updated solvent management plan was not included with the permit renewal application for the Nanofabrication Facility. The solvent management plan is due by **December 31, 2025**.

Your Solvent Management Plan must include:

1. Which TTOs are used

2. Method of disposal, i.e., reclamation, contract hauling, or incineration

3. Procedures that are used to ensure that TTOs do not routinely spill or leak into the wastewater

S4. EFFLUENT LIMITATIONS & SELF-MONITORING REQUIREMENTS

A. Effluent Limitations and Self-Monitoring Requirements:

1. The permittee shall comply with the following discharge limits and monitor its discharges to the King County sewerage system as specified below.

Sample Site No.	*Limit Type*	*Sample Site Description*
IW1275A	King County Local Limits (KCLL) and 40 CFR 469 Subpart A PSNS	Nanofabrication Facility - discharge pipe following pH neutralization tank

Parameter	*Daily Average (mg/L)*	*Instantaneous Maximum (mg/L)*	*Maximum Loading*[1] *(lbs/day)*	*Sampling Frequency*	*Sample Type*
Arsenic, Total[2]	1.0	4.0	0.07	NA	NA
Cadmium, Total[2]	0.5	0.6	0.03	NA	NA
Chromium, Total[2]	2.75	5.0	0.18	NA	NA
Copper, Total[2]	3.0	8.0	0.20	NA	NA
Lead, Total[2]	2.0	4.0	0.13	NA	NA
Mercury, Total[2]	0.1	0.2	0.01	NA	NA
Nickel, Total[2]	2.5	5.0	0.17	NA	NA
Silver, Total2	1.0	3.0	0.07	NA	NA
Zinc, Total[2]	5.0	10.0	0.33	NA	NA
Cyanide, Amenable	2.0	3.0	NA	NA	NA
Nonpolar FOG	100	NA	NA	NA	NA
Total Toxic Organics[3]	**1.37**[4]	NA	NA	Semiannually	Composite

pH (s.u.)	*Daily Minimum*	*Minimum*	*Maximum*	Continuous	In-line meter
	5.5	5.0	12.0		

Daily Maximum Discharge Volume (gpd)	*Industrial*	*Other*	*Total*	Continuous	Recording of each batch discharge
	8,000	0	8,000		

[1] Applicable poundage limit for each parameter equals the daily average concentration in mg/L, multiplied by the flow in million gallons per day, multiplied by 8.34. A maximum loading of 0.01 is listed whenever the calculated poundage limit is 0.01 or less.

[2] For the determination of total metals (which are equivalent to total recoverable metals) the sample is not filtered before processing.

[3] See Section S11 for TTO sampling and reporting requirements. Semiannual TTO sampling must be conducted January and June and once between July and December each year. Companies that choose to certify that they do not discharge TTOs may substitute semiannual TTO monitoring with semiannual certification provided that reporting requirements outlined in S11 are met.

[4] Bold font type indicates the federal categorical discharge limit. The limit for TTO is a federal categorical limit and the remaining limits are KCLL.

S4. EFFLUENT LIMITATIONS & SELF-MONITORING REQUIREMENTS

A. Effluent Limitations and Self-Monitoring Requirements (continued):

Sample Site No.	*Limit Type*	*Sample Site Description*
IW1275B	King County Local Limits	Dental School – B Wing basement after Amalgam Separator Units (ASUs)

Parameter	*Daily Average (mg/L)*	*Instantaneous Maximum (mg/L)*	*Maximum Loading*[1] *(lbs/day)*	*Sampling Frequency*[3]	*Sample Type*
Arsenic, Total[2]	1.0	4.0	0.05	NA	NA
Cadmium, Total[2]	0.5	0.6	0.03	NA	NA
Chromium, Total[2]	2.75	5.0	0.14	NA	NA
Copper, Total[2]	3.0	8.0	0.15	NA	NA
Lead, Total[2]	2.0	4.0	0.10	NA	NA
Mercury, Total[2]	0.1	0.2	0.01	NA	NA
Nickel, Total[2]	2.5	5.0	0.13	NA	NA
Silver, Total[2]	1.0	3.0	0.05	NA	NA
Zinc, Total[2]	5.0	10.0	0.25	NA	NA
Cyanide, Amenable	2.0	3.0	NA	NA	NA
Nonpolar FOG	100	NA	NA	NA	NA

pH (s.u.)	*Daily Minimum*	*Minimum*	*Maximum*	NA	NA
	5.5	5.0	12.0		

Daily Maximum Discharge Volume (gpd)	*Industrial*	*Other*	*Total*	Calculated/ Estimated	Calculated/ Estimated
	6,000	0	6,000		

[1] Applicable poundage limit for each parameter equals the daily average concentration in mg/L, multiplied by the flow in million gallons per day, multiplied by 8.34. A maximum loading of 0.01 is listed whenever the calculated poundage limit is 0.01 or less.

[2] For the determination of total metals (which are equivalent to total recoverable metals) the sample is not filtered before processing.

[3] Sampling requirements are deferred in lieu of adherence to 40 CFR 441 requirements; see Section S3.C.3.

S4. EFFLUENT LIMITATIONS & SELF-MONITORING REQUIREMENTS

A. Effluent Limitations and Self-Monitoring Requirements (continued):

Sample Site No.	*Limit Type*	*Sample Site Description*
IW1275C	King County Local Limits	Medical Center

Parameter	*Daily Average (mg/L)*	*Instantaneous Maximum (mg/L)*	*Maximum Loading*[1] *(lbs/day)*	*Sampling Frequency*	*Sample Type*
Arsenic, Total[2]	1.0	4.0	0.56	NA	NA
Cadmium, Total[2]	0.5	0.6	0.14	NA	NA
Chromium, Total[2]	2.75	5.0	1.54	NA	NA
Copper, Total[2]	3.0	8.0	1.68	NA	NA
Lead, Total[2]	2.0	4.0	1.12	NA	NA
Mercury, Total[2]	0.1	0.2	0.05	NA	NA
Nickel, Total[2]	2.5	5.0	1.40	NA	NA
Silver, Total[2]	1.0	3.0	0.15	NA	NA
Zinc, Total[2]	5.0	10.0	2.79	NA	NA
Cyanide, Amenable	2.0	3.0	NA	NA	NA
Nonpolar FOG	100	NA	NA	NA	NA

pH (s.u.)	*Daily Minimum*	*Minimum*	*Maximum*	NA	NA
	5.5	5.0	12.0		

Daily Maximum Discharge Volume (gpd)	*Industrial*	*Other*	*Total*	NA	NA
	67,000	0	67,000		

[1] Applicable poundage limit for each parameter equals the daily average concentration in mg/L, multiplied by the flow in million gallons per day, multiplied by 8.34. A maximum loading of 0.01 is listed whenever the calculated poundage limit is 0.01 or less. Applicable poundage limits for cadmium, mercury, and silver have been adjusted to prevent significant increase of pollutants at West Point Treatment Plant influent.

[2] For the determination of total metals (which are equivalent to total recoverable metals) the sample is not filtered before processing.

S4. EFFLUENT LIMITATIONS & SELF-MONITORING REQUIREMENTS

A. Effluent Limitations and Self-Monitoring Requirements (continued):

Sample Site No.	*Limit Type*	*Sample Site Description*
IW1275D	King County Local Limits	Dental School – D Wing basement after ASUs

Parameter	*Daily Average (mg/L)*	*Instantaneous Maximum (mg/L)*	*Maximum Loading*[1] *(lbs/day)*	*Sampling Frequency*[3]	*Sample Type*
Arsenic, Total[2]	1.0	4.0	0.05	NA	NA
Cadmium, Total[2]	0.5	0.6	0.03	NA	NA
Chromium, Total[2]	2.75	5.0	0.14	NA	NA
Copper, Total[2]	3.0	8.0	0.15	NA	NA
Lead, Total[2]	2.0	4.0	0.10	NA	NA
Mercury, Total[2]	0.1	0.2	0.01	NA	NA
Nickel, Total[2]	2.5	5.0	0.01	NA	NA
Silver, Total[2]	1.0	3.0	0.13	NA	NA
Zinc, Total[2]	5.0	10.0	0.05	NA	NA
Cyanide, Amenable	2.0	3.0	NA	NA	NA
Nonpolar FOG	100	NA	NA	NA	NA

pH (s.u.)	*Daily Minimum*	*Minimum*	*Maximum*	NA	NA
	5.5	5.0	12.0		

Daily Maximum Discharge Volume (gpd)	*Industrial*	*Other*	*Total*	Calculated/ Estimated	Calculated/ Estimated
	6,000	0	6,000		

[1] Applicable poundage limit for each parameter equals the daily average concentration in mg/L, multiplied by the flow in million gallons per day, multiplied by 8.34. A maximum loading of 0.01 is listed whenever the calculated poundage limit is 0.01 or less.

[2] For the determination of total metals (which are equivalent to total recoverable metals) the sample is not filtered before processing.

[3] Sampling requirements are deferred in lieu of adherence to 40 CFR 441 requirements; see Section S3.C.3.

S4. EFFLUENT LIMITATIONS & SELF-MONITORING REQUIREMENTS

A. Effluent Limitations and Self-Monitoring Requirements (continued):

Sample Site No.	*Limit Type*	*Sample Site Description*
NA – Miscellaneous Discharges	King County Local Limits	Miscellaneous discharges: Environmental Health and Safety activities; contaminated groundwater and stormwater; academic research, and engineering laboratories; health care; animal care; shops and maintenance activities

Parameter	*Daily Average (mg/L)*	*Instantaneous Maximum (mg/L)*	*Maximum Loading*[1] *(lbs/day)*	*Sampling Frequency*	*Sample Type*
Arsenic, Total[2]	1.0	4.0	0.69	NA	NA
Cadmium, Total[2]	0.5	0.6	0.14	NA	NA
Chromium, Total[2]	2.75	5.0	3.38	NA	NA
Copper, Total[2]	3.0	8.0	4.18	NA	NA
Lead, Total[2]	2.0	4.0	1.13	NA	NA
Mercury, Total[2]	0.1	0.2	0.05	NA	NA
Nickel, Total[2]	2.5	5.0	3.48	NA	NA
Silver, Total[2]	1.0	3.0	0.15	NA	NA
Zinc, Total[2]	5.0	10.0	6.96	NA	NA
Cyanide, Amenable	2.0	3.0	NA	NA	NA
Nonpolar FOG	100	NA	NA	NA	NA

pH (s.u.)	*Daily Minimum*	*Minimum*	*Maximum*	NA	NA
	5.5	5.0	12.0		

Daily Maximum Discharge Volume (gpd)	*Industrial*	*Other*[3]	*Total*	NA	NA
	167,000	145,000	312,000		

[1] Applicable poundage limit for each parameter equals the daily average concentration in mg/L, multiplied by the flow in million gallons per day, multiplied by 8.34. A maximum loading of 0.01 is listed whenever the calculated poundage limit is 0.01 or less. Applicable poundage limits for arsenic, cadmium, chromium, lead, mercury, and silver have been adjusted to prevent significant increase of pollutants at West Point Treatment Plant influent.

[2] For the determination of total metals (which are equivalent to total recoverable metals) the sample is not filtered before processing.

[3] Cooling water at power plant

2. A self-monitoring report of all required and nonrequired sampling must be filed no later than the 15th day of the time period following the reporting period (i.e., the 15th day of the following month for monthly reports; January 15, April 15, July 15, and October 15 for quarterly reports; January 15 and July 15 for semiannual reports; and January 15 for annual reports). The permittee shall use the KCIW self-monitoring form to submit results unless an alternate form is approved by KCIW. If no discharge has occurred during the sampling period, the report shall be submitted notifying KCIW that no discharge has occurred.

3. The total volume discharged for any processing day shall be calculated by reading the volume passing through meter number or shall be estimated using another KCIW approved method. The total volume for each processing day on which samples are collected shall be reported on self-monitoring reports. The total monthly discharge volume shall be reported on self-monitoring reports.

4. Volume and waste type from all batch discharges shall be recorded on the self-monitoring form.

5. For self-monitoring, the permittee shall collect composite samples in accordance with the following methods:

    a. Heavy metals and organics parameters (other than volatile organics):

        i. If time-proportioned composite sampling is authorized, a composite sample shall consist of four or more grab samples of equal volume collected at least 15 minutes apart and no more than two hours apart throughout the processing day from a well-mixed effluent chamber.

        ii. A flow-proportioned composite sample shall mean a sample composed of grab samples collected continuously or discretely, by hand or machine, in proportion to the flow at the time of collection or to the total flow since collection of the previous grab sample. The grab sample volume or frequency of grab collection may be varied in proportion to flow.

    b. A cyanide composite sample shall consist of four grab samples of equal volume collected at least 15 minutes apart and no more than two hours apart from a well-mixed effluent chamber. Each aliquot shall be collected, treated, and preserved in the field in accordance with 40 CFR 136 and 403 Appendix E. Treated aliquots may be collected into a single container and analyzed as one sample.

    c. For volatile organic analysis (VOA), a composite sample shall consist of four grab samples of equal volume collected at least 15 minutes apart and no more than two hours apart from a well-mixed effluent chamber. Each aliquot shall be collected and preserved in the field in accordance with 40 CFR 136. The individual grab samples may be composited (at the laboratory) prior to analysis.

d. The three nonpolar fats, oils, and grease (FOG) grab samples shall be of equal volume, collected at least five minutes apart, and analyzed separately. When using U.S. EPA approved protocols specified in 40 CFR Part 136, the individual grab samples may be composited (at the laboratory) prior to analysis. The result of the composite sample or the average of the concentrations of the three grab samples may be reported as Total FOG unless the value is 100 mg/L or greater, in which case the concentration of nonpolar FOG must be reported.

e. For situations where the only discharge for the 24-hour period is of short duration (e.g., batch discharge), resulting in the inability to collect composite samples that meet the definitions described in Number 9.a-c above, the permittee shall collect grab samples every 15 minutes during the duration of the discharge. Regardless of the number of aliquots making up this sample, it will be used to evaluate compliance with daily average limits.

6. Discharges of caustic solutions greater than pH 12.0 are prohibited unless King County provides prior written authorization (email is sufficient). The authorized discharge of caustic solutions greater than pH 12.0 shall be subject to special conditions to protect worker safety and the POTW.

7. Should an automatic pH recording system fail (if required by permit or compliance order), the permittee shall manually check the pH at least four times per hour. Any discharge without a pH record shall be considered a violation of this permit.

B. Non-Required Self-Monitoring

All sampling data collected by the permittee and from split samples obtained from KCIW's sampling, at the point(s) of compliance, and analyzed using procedures approved by 40 CFR 136 or approved alternatives shall be submitted to KCIW whether required as part of this permit or done voluntarily by the permittee. Split samples obtained from KCIW's sampling shall not be used as replacement for required self-monitoring as outlined in permit condition S4.A.

C. Violation Criteria

1. Wastewater from regulated processes shall comply with the effluent limitations prior to dilution with other wastewaters unless a fixed alternative discharge limit is approved by KCIW. (See Section S8.C.4 for further information about dilution.)

2. A review of any violation will include consideration of testing accuracy prior to enforcement action.

3. The more restrictive limitation (concentration or mass) shall prevail for determining violations.

4. Daily average and maximum monthly average limits apply to composite samples and to grab samples from short-term batch discharges.

5. Instantaneous maximum limits apply to grab samples, with the exception of grab samples from short-term batch discharges.

6. The instantaneous minimum pH limit is violated whenever any single grab sample or any instantaneous recording is less than pH 5. The daily minimum pH limit is violated whenever any continuous recording of 15 minutes or longer remains below pH 5.5 or when each pH value of four consecutive grab samples collected at 15-minute intervals or longer within a 24-hour period remains below pH 5.5.

7. Non-polar FOG (mineral/petroleum origin) limit: 100 mg/L

   The limit for non-polar FOG is violated when either:

   a. The arithmetic mean of the concentration from the individual analyses of three grab samples, taken no more frequently than 5-minute intervals, exceeds the limitation, or

   b. The concentration of a single composite sample of three grab samples, taken no more frequently than 5-minute intervals, exceeds the limitation.

   Industrial users that violate the non-polar FOG limit may be required to complete, for King County review and approval, a FOG Control Plan.

D. Response when Violations are Detected

1. When monitoring data shows a violation, the permittee shall:

   a. Take immediate action to stop the violation and notify KCIW within 24 hours of learning of the violation.

   b. Collect a sample and submit new data to KCIW within 14 days of becoming aware of the violation.

   c. Submit a written report within 14 days of learning of the violation (*14-Day Report*). The report should explain the cause of the violation and corrective actions taken to respond to the violation and ensure ongoing compliance.

2. In the event the permittee is unable to comply with any of the conditions of this permit because of a breakdown of equipment or facilities, an accident caused by human error, negligence, or any other cause, such as an act of nature, the permittee shall:

a. Take immediate action to stop, contain, and clean up the unauthorized discharges and correct the problem.

b. Immediately notify KCIW and, if after 5 p.m. weekdays and on weekends, call the emergency King County treatment plant phone number in Section S1 so steps can be taken to prevent damage to the sewerage system.

c. Submit a written report within 14 days of the event (*14-Day Report*) describing the breakdown, the actual quantity and quality of resulting waste discharged, corrective action taken, and the steps taken to prevent a recurrence.

3. Whenever an effluent check shows a pH violation, as defined in King County Code 28.84.060.N "Violations," the permittee shall take immediate steps to bring the discharge back into compliance. If this is not possible, the permittee shall cease discharge.

4. Compliance with these requirements does not relieve the permittee from responsibility to maintain continuous compliance with the conditions of this permit or the resulting liability for failure to comply.

E. Limitations Applicable to All Sites

1. General

The permittee's discharge shall not interfere with the operation of the King County sewerage system, cause King County to exceed its NPDES permit limits, or endanger local utility or King County sewer workers.

The permittee's discharge shall not violate any discharge standard, limitation, or specific prohibition of King County Code 28.84.060 or local discharge limits applicable on the date of discharge. (See Section 28.84.060.D-F of King County Code.)

Prohibitions previously referenced include, but are not limited to, substances causing fire or explosion hazard, flow obstruction, excess oxygen demand, and toxic vapors.

Limitations listed in Section S4 include, but are not limited to, restrictions on settleable solids, organic compounds, hydrogen sulfide, and polar FOG.

2. Organic compounds

No person shall discharge any organic pollutants that result in the presence of toxic gases, vapors, or fumes within a public or private sewer or treatment works in a quantity that may cause acute worker health and safety problems. Organic pollutants subject to this restriction include, but are not limited to, the following:

a. Any organic compound listed in the "Total Toxic Organics (TTO)" definition provided in 40 CFR Section 469.22

b. Acetone, 2-butanone (MEK), 4-methyl-2-pentanone (MIBK), xylenes

Industrial users are required to implement source control strategies and best management practices to minimize the concentration of any of the aforementioned organic pollutants.

3. Lower explosive limit (LEL)

   At no time shall two successive readings on an explosive hazard meter at the point of discharge into the King County sewerage system (or at any point in the system) be more than 5 percent of the LEL. No single reading shall exceed 10 percent of the LEL.

4. Closed cup flashpoint

   Discharges shall not have a closed cup flashpoint of less than 140^{o} Fahrenheit or 60^{o} Centigrade using test methods specified in 40 CFR 261.21.

5. Polar fats, oils, and grease

   Discharges of fats, oils, and grease (FOG) shall not result in significant accumulations which, either alone or in combination with other wastes, are capable of obstructing flow or interfering with the operations or performance of the POTW.

   Industrial users that have the potential to discharge polar FOG (animal and vegetable origin) shall minimize free-floating polar FOG. Industrial users must minimize the use of emulsifying agents, such as cleaners or detergents, to only the quantity needed to maintain industrial activities at their facility and to not impact the POTW.

   Industrial users may not add emulsifying agents prior to or within FOG-removal devices, exclusively for the purposes of emulsifying free-floating FOG.

   Industrial users that discharge free-floating polar FOG will be required to complete, for King County review and approval, a FOG control plan.

   King County has the authority to include aqueous concentration-based discharge limits for polar FOG or total FOG (i.e., the sum of polar and non-polar FOG) in permits and discharge authorizations issued to industrial users that primarily discharge FOG of animal or vegetable origin. The concentration-based limits shall be based on what can be achieved through implementation of a treatment technology that the Wastewater Treatment Division Director determines represents all known, available, and reasonable methods of prevention, control, and treatment.

6. Temperature

   Discharge shall not cause the temperature of the influent at the King County treatment works to exceed 40° C or 104° F. The temperature shall not exceed 65° C or 150° F at the point of discharge from the industrial source to public sewers and/or the metropolitan sewerage system.

7. Settleable solids

   Discharge shall not have a settleable solids volume greater than 7 ml/L.

F. Responsibility for Compliance

It is the responsibility of the permittee to ensure that all effluent limitations of this permit are met whether or not self-monitoring for the parameter is required.

S5. SAMPLE SITE ACCESS AND IDENTIFICATION

A. Unobstructed access to sample sites shall be available to authorized KCIW personnel during normal operating hours. The permittee shall be responsible for providing alternate sample sites in the event of obstruction of access or upon evidence of tampering with the monitoring equipment.

B. The permittee shall allow KCIW to permanently label the sample sites used to collect wastewater samples.

C. The permittee shall, at all reasonable times, allow authorized representatives of KCIW to enter, inspect, and sample as specified in King County Code 28.84.060.L, “Inspection and Sampling of Industrial Users.”

S6. NOTIFICATION REQUIREMENTS

A. Spills and Slug Discharges

1. The permittee shall notify KCIW immediately in the event of a spill or slug discharge to the sanitary sewer. A written report regarding the cause of the spill and/or slug discharge shall be submitted to KCIW within 5 days of the date of occurrence. The report should explain the cause of the violation and corrective actions taken to respond to the violation and ensure ongoing compliance. (See Section S8.B for spill and slug discharge control procedures.)

2. Following a spill and/or slug discharge, KCIW may require the submission or modification of a spill/slug control plan.

B. Changes in Discharge Characteristics

The permittee shall inform KCIW prior to any facility or manufacturing changes that will result in:

1. Introduction of new wastewater pollutants

2. Significant alteration in the volume (greater than 20 percent increase from permit application) or character of the pollutants discharged to the King County sewerage system

3. Discharge of waste streams not listed in the permit application

4. Addition of a new point of discharge or a new chemical, process, product, manufacturing line, or waste processing activity

5. Elimination or replacement of a process, manufacturing line, or activity that produces wastewater

6. Modification to the sample site or sample collection method

7. Changes in the potential for spill or slug discharges

No change shall be made until plans have been approved and either written permission or a new or modified permit has been received. In no case are any changes permitted that will cause violation of the effluent limitations specified herein.

C. Installation/Modification of Pretreatment System

The permittee must provide engineering submittal(s) for KCIW review and approval prior to installing or modifying a pretreatment system. KCIW retains the authority to determine if the engineering submittal(s) must be developed under the supervision of a Washington state professional engineer and pursuant to Chapter 173-240 WAC.

D. Hazardous Wastes

1. Within 180 days following commencement of discharge or permit issuance, whichever is later, the permittee must notify KCIW, the U.S. EPA, and the Washington State Department of Ecology of any discharge of a listed or characteristic RCRA hazardous waste. Identifying the listed or characteristic RCRA hazardous wastes on the permittee's wastewater discharge permit application serves as notice to KCIW. This is a one-time notification requirement. The contents of the notification may vary according to the quantity of waste discharged. (See "Notification of the Discharge of Hazardous Wastes" in King County Code 28.84.060.)

2. Whenever the U.S. EPA publishes new RCRA rules identifying additional hazardous wastes or new characteristics of hazardous wastes, the permittee must notify KCIW, the U.S. EPA, and the Washington State Department of Ecology if any of these wastes are discharged to the King County sewerage system. Notification must occur within 90 days of the effective date of the published regulation.

E. Continuing Discharge after Permit Expiration Date

This permit does not authorize discharge after its expiration date. If the permittee wishes to continue discharge after the expiration date, an application must be filed for reissuance of this permit at least 180 days prior to the expiration date. If the permittee submits its re-application in the time specified herein, the permittee shall be deemed to have an effective waste discharge permit or authorization until KCIW issues or denies the new waste discharge permit. If the permittee fails to file its re-application in the time period specified herein, the permittee will be deemed to be discharging without a discharge permit after the current permit's expiration date.

S7. MONITORING AND RECORD KEEPING

A. Record Keeping and Retention

1. The permittee shall maintain records relating to all permitted discharges to the King County sewerage system including routine maintenance, waste disposal dates, manifests, self-monitoring reports, analytical lab results, pH monitoring records, and flow records.

2. All records required by the permit shall be available for review at reasonable times by authorized representatives of KCIW.

3. Records of all such testing shall be retained for a period of three years unless litigation or the direction of KCIW requires an extension of that time.

B. Recording of Results

For each measurement or sample taken to comply with this permit, the permittee shall record the following information:

1. Date, exact place, and time of sampling

2. Dates the analyses were performed

3. Person who performed the analyses

4. Analytical techniques or methods used

5. Results of all analyses

C. Representative Sampling

Samples and measurements taken to meet the requirements of this condition shall be representative of the volume and nature of the monitored discharge.

D. Test Procedures

All analyses shall be performed in accordance with procedures established by the administrator of the U.S. EPA pursuant to Section 304(g) of the federal Clean Water Act and contained in 40 CFR Part 136 and amendments thereto or with any other test procedure approved in writing by the U.S. EPA administrator, and/or KCIW. In all cases, except total dissolved sulfide, the detection limit shall be well below the discharge limit. Where 40 CFR Part 136 does not include a sampling or analytical technique for the pollutant in question, sampling and analysis shall be performed in accordance with the procedures set forth in the U.S. EPA publication entitled *Sampling and Analysis*

Procedures for Screening of Industrial Effluents or Priority Pollutants, April 1977 or *Standard Methods*, latest edition and amendments thereto, or with any other sampling and analytical procedures approved by the U.S. EPA.

E. Lab Accreditation

All self-monitoring data submitted to KCIW that required a laboratory analysis must have been performed by a laboratory accredited by the Washington State Department of Ecology for each parameter tested. This does not apply to field measurements performed by the permittee such as pH, temperature, flow, atmospheric hydrogen sulfide, total dissolved sulfides, settleable solids by Imhoff cone, or process control information.

F. Falsifying Information

The act of knowingly falsifying, tampering with, or knowingly rendering inaccurate any monitoring device, report, or method required pursuant to the federal pretreatment standards, King County Code 28.84.060, or special conditions of this permit shall constitute a violation of this permit, and shall be subject to the legal remedies available under "Revocation of Permit or Authorization" and "Penalties and Enforcements" in King County Code 28.84.060.

G. Toxicity Testing

If KCIW is required by the Washington State Department of Ecology to determine the source of a pattern of acute toxicity pursuant to its treatment plant NPDES permit, the permittee may be required to test its effluent for toxicity according to procedures to be determined by KCIW.

H. Signatory Requirements for Industrial User Reports

Any report required by this permit shall meet the signatory and certification requirements listed in King County Code 28.84.060 and King County Code 28.82.

S8. OPERATIONS AND MAINTENANCE

The permittee shall use waste preventative practices to reduce or eliminate contaminant loading to the King County sewerage system. These practices shall include proper chemical storage, spill prevention and notification, and maintenance and operation of any required pretreatment equipment.

A. Chemical Storage

Chemical solutions, solid chemicals, waste materials, oils, and solvents shall be stored in a manner that will prevent the entry of these materials into the King County sewerage system.

1. Non-compatible chemicals shall be segregated and securely stored in separate containment areas that prevent mixing of incompatible or reactive materials.

2. The permittee shall install shut-off devices to all drains in any hazardous waste storage areas.

3. Chemicals shall be dispensed only in roofed and bermed areas that eliminate potential spills to the King County sewerage system.

4. All empty barrels that have not been cleaned (steam-cleaned or triple-rinsed) shall be adequately stoppered and stored in an upright position.

5. Process tanks shall be located in a bermed, roofed, secured area capable of containing 110 percent of the volume of the largest tank. The permittee shall ensure that process solutions are used and stored in such a manner as to minimize spills of concentrated solutions to the sanitary sewer.

B. Spill or Slug Discharge Control Procedures (See Section S6.A)

1. In the event of a concentrated solution spill such as a tank failure, the permittee shall not discharge any spilled solution to the metropolitan sewer system unless laboratory test results indicate that the substance meets the conditions of this permit, and the permittee receives approval from KCIW.

2. Concentrated waste or spilled chemicals that do not meet, or are not treated to meet, the discharge conditions of this permit shall be transported off site for disposal at a facility approved by the Washington State Department of Ecology or appropriate county health department.

3. The permittee shall maintain and inspect all process solution tanks on a regular basis. Any leaks shall be repaired promptly.

4. The permittee shall use spill prevention practices to preclude the discharge of liquids, solids, or gases which by reason of their nature or quantity are, or may be, sufficient either alone or by interaction with other substances to cause fire or explosion.

5. All process tanks and chemical storage containers shall be accurately labeled. Emergency phone numbers of King County, the fire department, the permittee's 24-hour corporate contact, and Washington State Department of Ecology shall be posted at all sites that KCIW requires.

6. The permittee shall ensure that concentrated waste from process tank filters and other equipment is prevented from entering the sanitary sewer unless it is treated to meet the discharge conditions of this permit.

7. The permittee shall maintain and use product recovery options such as drag-out rinses for each plating bath or process as required to meet the discharge conditions of this permit. Recovered materials shall not be discharged to the sanitary sewer unless they are treated to meet the discharge conditions of this permit.

C. Pretreatment Equipment Maintenance and Operations

1. All pretreatment systems used to bring the permittee's discharge into compliance with King County's discharge limitations and all compliance monitoring equipment shall be maintained continuously in satisfactory and effective operations by the permittee at the permittee's expense and shall be subject to periodic inspections by authorized KCIW personnel. These systems shall be attended at all times during discharge to the King County sewerage system. In the event that such equipment fails, the permittee must notify KCIW immediately and take spill prevention precautions.

2. The permittee shall not initiate construction or modification of a pretreatment system prior to receiving KCIW approval of plans and specifications per WAC 173-240. In addition, KCIW may require an engineering report and an operations and maintenance manual.

3. KCIW shall be contacted before the beginning of any limited experimental modifications or new equipment testing that could reasonably be expected to affect effluent quality or quantity. This experimental work shall proceed only after securing written approval from KCIW and following the permittee's adherence to any applicable special conditions.

4. The effluent limitations specified in this permit are to be met by treatment of the wastes for pollutant removal. The use of municipal water, groundwater, seawater, stormwater, or other materials, including waste products, for the purpose of diluting a waste to achieve those limitations is prohibited.

5. The permittee shall adequately maintain and efficiently operate all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit.

D. Water/Sewer Meter Requirements

The permittee shall obtain or maintain access to a water or sewer meter that can provide accurate information regarding industrial process wastewater and cooling water discharge to the sewer. Another method of volume determination may be used only upon approval by KCIW.

E. Solid Waste

1. The permittee shall handle and dispose of all solid waste material (as defined in WAC 173-304-100) not otherwise authorized by this permit in such a manner as to prevent its entry into the King County sewerage system.

2. All covers, screening devices, sumps, hoppers, conveyors, and other facilities provided for the recovery and handling of solid wastes are to be maintained in an efficient operating condition.

F. Stormwater

Stormwater, surface water, groundwater, and roof runoff shall be excluded, except where specifically authorized by this permit or King County Code 28.84.060, from the King County sewerage system.

S9. GENERAL CONDITIONS

A. The discharge of any pollutant more frequently than, or at a level in excess of, that identified and authorized by this permit shall constitute a violation of the terms and conditions of this permit. Whenever the permittee refuses to take corrective action or continues the violating condition, the imposition of civil penalties including fines up to $10,000 for each violation per day and/or termination of this permit may result. Termination of this permit may require disposal of the industrial waste in some manner other than into the public sewer, private sewer, or side sewer tributary to the King County sewerage system at the expense of the person holding the permit. Any person causing damage to a public sewer or treatment facility by discharges in violation of the terms and conditions of this permit shall be liable for any such damage incurred by King County as a result of such damage or discharge. Where criminal enforcement action is considered in a particular case, that case may be referred to state or federal authorities.

B. The diversion or bypass of any discharge from any pretreatment facility utilized by the permittee to maintain compliance with the terms of this permit is prohibited except where unavoidable to prevent loss of life or severe property damage. The procedure outlined in Section S4.D shall be followed in case of such a diversion or bypass.

C. After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked in whole or in part during its terms for those causes cited in King County Code 28.84.060.

D. If a toxic standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the federal Clean Water Act for a toxic pollutant, which is present in the discharge authorized herein, and such standard or prohibition is more stringent than any limitation upon such pollutant in this permit, this permit will be revised or modified in accordance with the toxic effluent standard or prohibition and the permittee shall be so notified. Section 307(a) requires that the administrator of the U.S. EPA shall promulgate effluent standards (or prohibitions) for toxic pollutants that he or she has listed as such.

E. Nothing in this permit shall be construed as excusing the permittee from compliance with any applicable federal, state, or local statutes, ordinances, or regulations.

F. All requirements and ordinances of the U.S. EPA and the Washington State Department of Ecology pertaining to hazardous and toxic wastes, disposal facilities, and discharge of wastes into the King County sewerage system, are hereby made a condition of this permit.

S10. WASHINGTON STATE DEPARTMENT OF ECOLOGY CONDITIONS

This permit does not constitute authority for discharge into waters of the state. Any such discharge is subject to enforcement action by the Washington State Department of Ecology (Ecology).

Upon issuance of this permit, the permittee assumes the responsibility to abide by the following environmental requirements and any other appropriate regulations stipulated by Ecology. **Ecology retains authority to enforce these permit conditions (RCW 70.105 and RCW 90.48).**

A. Conditions to Protect Ground and Surface Waters

1. Contaminated waters or wastes shall not be discharged to state waters.

2. Boiler blow down and water shall not be discharged to state waters.

3. Solid chemicals, chemical solutions, waste materials, oils, and solvents shall be stored in a manner that will prevent the entry of these materials into state, ground, or surface waters, and in a manner that will prevent spillage by overfilling, tipping, or rupture.

4. The permittee shall handle and dispose of all solid waste material in such a manner as to not cause any adverse effect on ground or surface water quality.

5. Filtered solids or sludge shall be stored in such a manner that drainage from this material is prevented from either draining across public rights-of-way or entering the local storm drain system or the groundwater.

6. No emulsifiers or dispersants are to be used on waters of the state without approval from Ecology.

7. If corrosive processing solutions are used, the processing/plating floor shall be sealed with corrosion resistant material that prevents leakage. This coating shall be repaired or replaced as needed.

Questions regarding the implementation of conditions outlined in Section S10 should be directed to the regulatory authority, the Washington State Department of Ecology, at 206-594-0000 (Northwest Regional Office, P.O. Box 330316, Shoreline, WA 98133-9716).

S11. 90-DAY COMPLIANCE REPORT REQUIREMENTS

New categorical industrial users (CIUs) are required to submit a 90-day compliance report. For existing dischargers, if during this permit cycle, certain conditions at the permitted facility change such as, but not limited to, instituting a new categorical operation line, changes in nature and characteristics of wastewater, and/or modification of a pretreatment system, you shall submit the following information no later than 90 days after the changes are instituted in order to comply with 40 CFR 403.12 (d), titled "Report on compliance with categorical pretreatment standard deadline."

A. Your statement indicating whether the discharge limits in Section S4, "Effluent Limitations and Self-Monitoring Requirements," of this permit are being met on a consistent basis, and if not, what additional operations, maintenance, or pretreatment efforts are necessary to bring your regulated discharge into compliance.

B. Your statement establishing the shortest reasonable time schedule for making any necessary changes to enable your discharge to be in consistent compliance with the discharge standards. (The schedule must include milestone dates for interim improvements or any other key actions, which will demonstrate that satisfactory progress is being sustained.)

C. Pertinent engineering drawings for pretreatment systems you presently have and/or plan to install, along with operations and maintenance information pertinent to attainment of your discharge limits (if applicable).

D. Your TTO Baseline Report and Solvent Management Plan (where applicable). See Section S12.

E. An analysis of a representative sample of wastewater from the permittee's effluent for cadmium, chromium, copper, nickel, lead, zinc, and cyanide. See 40 CFR 403.12. A minimum of four grab samples must be used for cyanide. For metals the sample shall be a 24-hour flow-proportioned composite. If the permittee can show that flow proportioning is infeasible, time composites consisting of a minimum of four grab samples may be used.

F. Notification analysis of routine batch discharges, which:

1. Lists the tanks that are routinely discharged with or without treatment

2. Lists frequency and volume of the batch discharge from each tank

3. Lists results from cadmium, chromium, copper, nickel, lead, and zinc testing of a representative sample from each routine batch discharge. The representative sample shall consist of grab samples collected at the beginning, middle, and end of each discharge.

G. Your Washington State Hazardous Waste Generator number.

S12. TTO DEFINITION AND REPORTING REQUIREMENTS

A. 40 CFR 469.22 Specialized TTO Definition

The definitions in 40 CFR Part 401 and the chemical analysis methods in 40 CFR 136 apply to this subpart. In addition, the term "total toxic organics (TTO)" means the sum of the concentrations for each of the following toxic organic compounds which is found in the discharge at a concentration greater than ten micrograms per liter:

1,2,4-Trichlorobenzene
chloroform
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
ethylbenzene
1,1,1-Trichloroethane
methylene chloride
naphthalene
2-Nitrophenol
phenol
bis (2-ethylhexyl) phthalate
tetrachloroethylene
toluene
trichloroethylene
2-Chlorophenol
2,4-Dichlorophenol
4-Nitrophenol
pentachlorophenol
di-n-butyl phthalate
anthracene
1,2-Diphenylhydrazine
isophorone
butyl benzyl phthalate
1,1-Dichloroethylene
2,4,6-Trichlorophenol
carbon tetrachloride
1,2-Dichloroethane
1,1,2-Trichloroethane
dichlorobromomethane

B. Requirements for TTO Baseline Report

The permittee shall submit the following information no later than 90 days after the commencement of discharge.

1. A statement certifying that the permittee does not use any chemical listed in the definition of TTO (as stated in 40 CFR 469.22) in any area that drains to the sanitary sewer. Use the standard certification statement included in this permit at the end of S12.

   OR

2. An analysis of the permittee's effluent for those chemicals used in the permittee's facility that are listed in the definition of TTO.

   OR

3. An analysis of the permittee's effluent for TTO as defined in 40 CFR 469.22 see S12.A.

C. Requirements for Solvent Management Plan

If the permittee chooses to use the certification alternative in S12.B, where applicable, and S12.E, instead of monitoring for TTOs, the permittee shall submit a solvent management plan.

The permittee shall submit an updated Solvent Management Plan with the permit renewal application.

Your Solvent Management Plan must include:

1. Which TTOs are used

2. Method of disposal, i.e., reclamation, contract hauling, or incineration

3. Procedures that are used to ensure that TTOs do not routinely spill or leak into the wastewater

Where applicable, the following reports are due every June 30 and December 31.

D. Requirements for Semiannual Updates of Solvent Management Plan

List any changes to the last plan on file or state there are no changes to the plan.

E. Biannual TTO Certification Statement OR Monitoring Requirements

The permittee shall submit the following certification statement semiannually, OR an analysis of the permittee's effluent for those chemicals used in the permittee's facility that are listed in the definition of TTO, OR an analysis of the permittee's effluent for TTO as defined in 40 CFR 469.22 (see S12.A).

CERTIFICATION LANGUAGE FOR TTO REPORT

In lieu of submitting monitoring results, the permittee may make the following certification statement:

> "Based on my inquiry of the person or persons directly responsible for my managing compliance with the permit limitation (or pretreatment standard) for total toxic organics (TTO), I certify that, to the best of my knowledge and belief, no dumping of concentrated toxic organics into the wastewaters has occurred since filing of the last discharge monitoring report. I further certify that this facility is implementing the toxic organic management plan submitted to the permitting (or control) authority.
>
> "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that a qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations."

King County

Industrial Waste Program
Company Fact Sheet

October 29, 2025

COMPANY INFORMATION

Company/Agency Name:	University of Washington Seattle Campus
Facility Address:	4109 Franklin Place Seattle, WA 98195
Mailing Address:	4109 Franklin Place NE Seattle, WA 98195
Treatment Plant:	West Point
Corp. Contact & Phone:	Douglas Gallucci, 206-616-0595
Site Contact & Phone:	John Wallace, 206-616-5837
Company/Agency Type:	Electronic Components – 40 CFR 469, Subpart A, Pretreatment Standards for New Sources (PSNS)
Days Operating:	365
SIC No.:	8221
EPA ID No.:	WAD980738652
Compliance Investigator:	Lydia Eng

PERMIT INFORMATION

Permit No.:	7923-03
Effective Date:	November 7, 2025
Expiration Date:	November 6, 2030

Description of sample sites, limit types, and discharge volumes:

Sample Site No.	Description	Limit Type	Maximum Discharge Volume (gallons per day)
IW1275A	Nanofabrication Facility - discharge pipe following pH neutralization tank	40 CFR 469 Subpart A, PSNS & King County Local Limits	8,000
IW1275B	B Wing basement after Amalgam Separator Units (ASUs)	King County Local Limits	6,000
IW1275C	Medical Center, Hall Health	King County Local Limits	67,000
IW1275D	D Wing basement after ASUs	King County Local Limits	6,000
NA - Miscellaneous Discharges	Miscellaneous discharges: Environmental Health and Safety activities; contaminated groundwater and stormwater; academic, research, and engineering laboratories; health care; animal care; shops and maintenace activities	King County Local Limits	167,000
Total industrial discharge volume (gpd) (add all sites)			254,000
Cooling water (non-regulated) (gpd)			145,000

MONITORING FEE PARAMETER

Compliance Monitoring & Administration (CM&A) Fee
The University of Washington Seattle Campus (UW Seattle Campus) has a Nanofabrication Facility, which is designated as 40 CFR Part 469 – Electrical and Electronic Component Point Source Category, Subpart A – Semiconductor Subcategory. There is one sample site from which KCIW samples, and the maximum permitted daily discharge volume is 8,000 gallons per day.

Based on the King County Industrial Waste (KCIW) CM&A criteria for categorical operations and due to no changes in the number of locators and permitted discharge volume, UW Seattle Campus will remain at the CM&A Fee Tier 5, which is for facilities falling under “Medium discharge volume categorical industrial user (CIU) (>5,000 gpd - up to 50,000 gpd) with one regulated sample site.”

Category: CATEGORICAL
Tier: 5

PERMIT PROCESSING

Permit number: 7923-03

Action	Date
Application due	May 10, 2025
Application received	May 2, 2025
Application sent to local sewer agency	October 10, 2025
Inspection date	September 15, 2025
Final publication date	September 16, 2015
Published volume	250,000 gallons per day
Draft issued	October 16, 2025
Final issued	October 29, 2025

COMMENTS

Nature of Business
The UW Seattle Campus is a large and complex public educational and research institution that includes a Nanofabrication Facility, School of Dentistry, Medical Center, academic and research laboratories, engineering laboratories, shops and maintenance, health care, and animal care.

Sources of Wastewater and Treatment System
The Environmental Programs section of the UW Seattle Campus Environmental Health and Safety (EHS) manages the wastewater discharge permit and all other environmental permits on behalf of the UW Seattle Campus. Furthermore, general campus operations such as a compost facility, contaminated groundwater at the power plant, motor pool, building maintenance, and some custodial services (i.e., pressure washing) are included. The UW has an established treatment by generator program. The Environmental Program section of Environmental Health and Safety (EH & S) of the University of Washington manages this permit on behalf of the UW.

Several categories of buildings were excluded from this permit due to the lack of industrial activities located on site and are considered to have waste streams that are domestic in nature, or food service that is similar in nature to restaurants, which are not regulated by KCIW. These are buildings associated with Housing and Food Services, Intercollegiate Athletics, or are primarily comprised of offices, auditoriums, and classrooms.

The processes that generate industrial wastewater regulated under this permit are the following:

Nanofabrication Facility (Site IW1275A)
The UW Seattle Campus Nanofabrication Facility operates a full-service micro and nanotechnology user facility with laboratories, cleanrooms, and user spaces focused on enabling basic and applied research, advanced research and development, and prototype production. At the Nanofabrication Facility, electronic sensors and circuit protypes are manufactured, typically using silicon wafers as starting material. Materials are added or subtracted with a temporary polymeric pattern to create patterned wiring for circuits and micro-machining of materials for

creating sensors. Typical materials added are dielectrics (silicon oxides and nitrides), polymeric materials, and metals (typically gold, nickel, and indium, with the occasional request for other solutions). Subtractive processes are usually wet or plasma etching of silicon and metal films. Solvent processing is used primarily for cleaning substrates and stripping off the temporary polymeric layers.

The sources of wastewater are from reverse osmosis, deionized water, photoresist development, the cleaning, etching, electroplating, and rinsing of small metal parts, the dielectric etching and cleaning of wafers, and the dicing/grinding and rinsing of wafers. All industrial wastewater from the Nanofabrication Facility flows to a holding tank and then to the pH neutralization system for treatment at Site IW1275A. The facility has low levels of metals in the wastewater and is not required to provide pretreatment for metals removal. Per protocols at the Nanofabrication Facility, processes that may result in larger concentrations of regulated heavy metals must receive special approval and may be diverted to containerized waste if analysis showed the activity would conflict with permit conditions.

Once the industrial wastewater is pH-neutralized, the tank automatically releases the treated industrial wastewater to the sanitary sewer. Each batch discharge is recorded and tracked for reporting purposes. The pH is monitored and recorded continuously. Sulfuric acid or caustic soda is automatically injected as needed to ensure compliance with the pH discharge limits. If the effluent of the pH value exceeds the permitted pH discharge limits, the discharge valve immediately closes to prevent the discharge to the sanitary sewer and the wastewater is further pH-adjusted. Personnel are also automatically notified if the effluent's pH exceeds the pH discharge limits. Once the wastewater meets pH discharge limits, the wastewater is automatically released to the sanitary sewer.

All organic solvent waste is diverted to containers. All hazardous waste generated at the Nanofabrication Facility (and at the other UW Seattle Campus laboratories) that is not reused, recycled or treated are sent to permitted hazardous waste recycling and disposal facilities.

School of Dentistry (Sites IW1275B and IW1275D)

Wastewater generated at this teaching dental clinic (general practice, pediatric, and small specialty practices) occurs from various dental procedures, from teeth cleaning to fillings, and from the use of amalgam separators. The pollutant of concern is mercury from amalgam. The University of Washington School of Dentistry (UWSD) has converted all x-ray units to digital imagery. There are two wings with two separate sample sites: the B Wing with IW1275B and the D Wing with IW1275D.

The B and D Wings of the dental clinics have identical collection and treatment systems for the vacuum lines. In managing dental wastes at the B and D Wings, the UWSD adheres to the *UWSD Amalgam and Wastewater Operations and Maintenance Manual*, general best management practices (BMPs), and the July 2017 publication of the new regulations for dental offices in the Code of Federal Regulations (40 CFR Part 441). The UWSD flushes the vacuum line system with water at least once a month and the air/water separators with water at least once a week to clean the pipes and units. These wastewaters are treated through a series of several International Organization for Standardization (ISO) certified amalgam separator units (ASUs),

each followed by one additional filter. UWSD contracts a certified vendor to dispose of the amalgam wastes. UWSD ensures that the amalgam separators are regularly maintained according to the manufacturer's instructions and service records.

Other BMPs in the B and D Wings include regular disposal of chair side traps and the use of non-oxidizing line cleaners. The UWSD may also conduct cleaning of accumulated solids in the air separators by an appropriate vendor, and the waste is disposed of at an off-site facility.

Medical Center (Hospital) (Site IW1275C)

Discharges classified under the Medical Center and other laboratories have similar sources of processes, which include wastewater from preparation of slides, laboratory stains, preservatives, cleaning operations (glassware, other vessels, cages, patient care areas, laboratory work areas, etc.), pharmaceuticals, tissue preservation, and routine sterilization of equipment and work areas. The Medical Center and the miscellaneous discharges are mainly controlled through BMPs. In addition, the UW Seattle Campus has an established Treatment by Generator (TBG) program directed primarily at researchers and those sites associated with the Medical Center to manage several different chemicals. This TBG program is approved by the Washington State Department of Ecology which allows the on-site treatment of certain waste streams (listed below) without requiring a separate dangerous waste treatment permit.

The chemical waste treatment (TBG) and recycling programs include:

- Acid/base neutralization
- Cidex ortho-phthalaldehyde treatment
- Ethidium bromide filtration
- Formaldehyde treatment
- Glutaraldehyde treatment
- Silver recovery
- Xylene distillation
- Mercuric chloride treatment

Miscellaneous Discharges

In addition to the wastewater discharges from academic, research, and engineering laboratories, other miscellaneous discharges include shops, maintenance, and campus area activities, such as washing vehicles, cleaning and maintaining the exterior of large and multi-use buildings, maintaining the oil/water separators in the garages and the vehicle maintenance shop, cleaning up painting activities, cleaning the streets and parking lots, and maintaining a compost facility. All associated miscellaneous discharges are mainly controlled through BMPs and TBG protocols.

All wastes at the UW Seattle Campus that are to be disposed of are screened to identify any hazards, the appropriate disposal options, and whether the waste stream is eligible for treatment or recycling. Participating sites are instructed on TBG requirements such as managing hazardous waste correctly, documenting any appropriate training, following an approved procedure, and ensuring the use of a chemical treatment log.

Established procedures are in place to treat or otherwise manage each waste either at the individual facility or at the EHS building.

Compliance History

KCIW recognizes industrial wastewater dischargers that meet or exceed wastewater discharge permit requirements. Each year, a Gold, Silver, or Commitment-to-Compliance Award is presented to permittees who have maintained excellent records of compliance with rules and regulations for the previous calendar year. To qualify for a Gold Award or Silver Award, permittees must have had an active industrial wastewater discharge permit each month of the calendar year and have discharged industrial wastewater for at least three months. A Gold Award is presented to companies who had no discharge violations for the year (King County or self-monitoring) and submitted no late reports. A Silver Award is presented to companies with no more than one self-monitoring discharge violation and no more than one late report submittal. The Commitment-to-Compliance Award acknowledges companies that have received a Gold Award for five consecutive years. A KCIW compliance monitoring violation yields no awards for that year.

In the past permit cycle, UW Seattle Campus received the Silver Award in 2021 and 2023 and no awards in 2020, 2022, and 2024. There were no pH discharge violations or daily discharge volume violations in the past permit cycle at the Fabrication Facility, but there were several late report submittals.

Year	Award	Reason
2020	NA	• 3 late self-monitoring reports • 1 late BMP Report
2021	Silver	• 1 late self-monitoring report
2022	NA	• 2 late self-monitoring reports
2023	Silver	• 1 late self-monitoring report
2024	NA	• 2 late self-monitoring report • 1 late TTO Biannual Report

Trends in Discharge of Pollutants of Concern

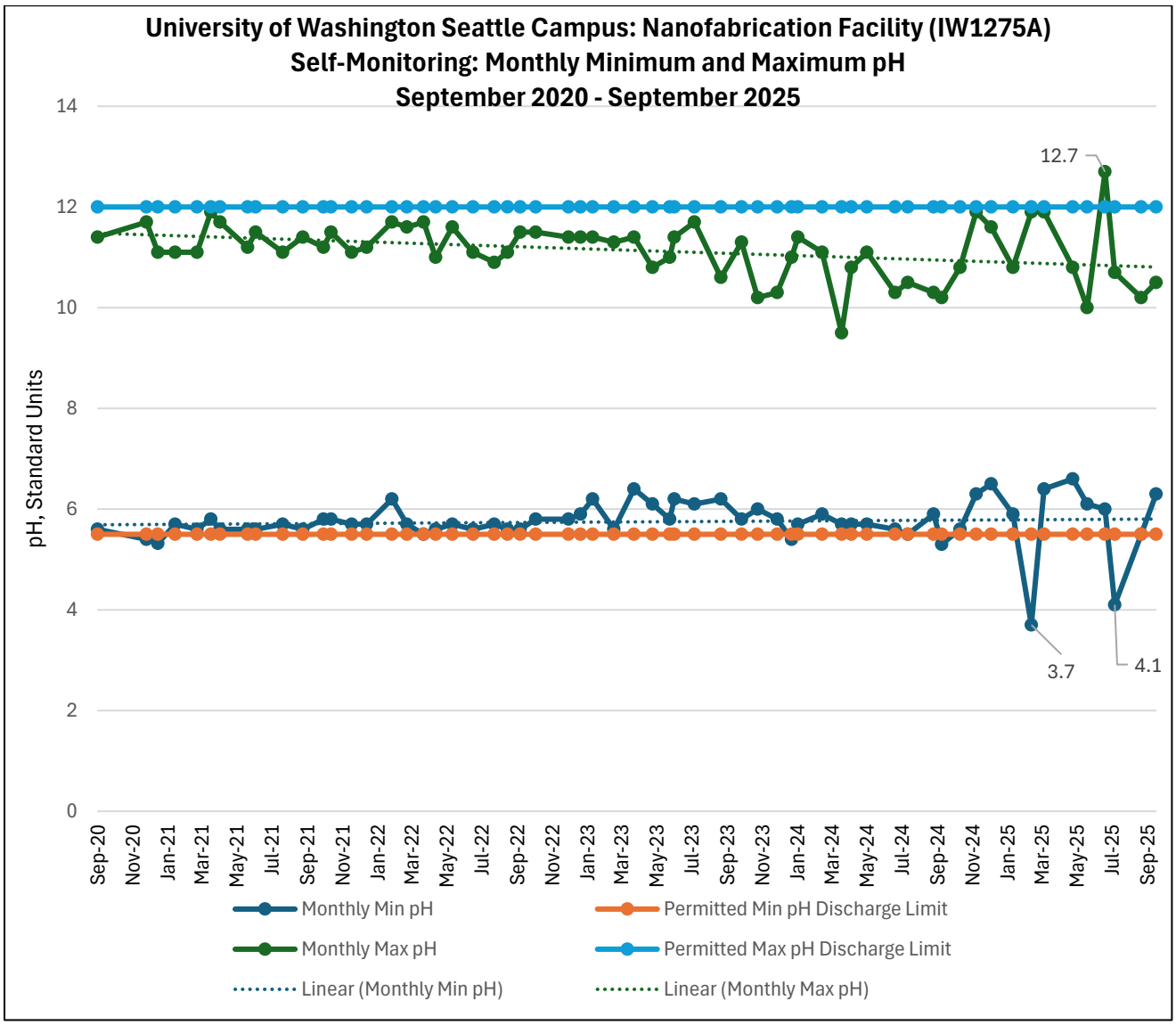
Nanofabrication Facility (IW1275A)

A review of the Nanofabrication Facility's self-monitoring and KCIW compliance monitoring data over the past five years indicated consistent compliance with pollutants of concern as required by 40 CFR 469 and King County local limits.

pH:

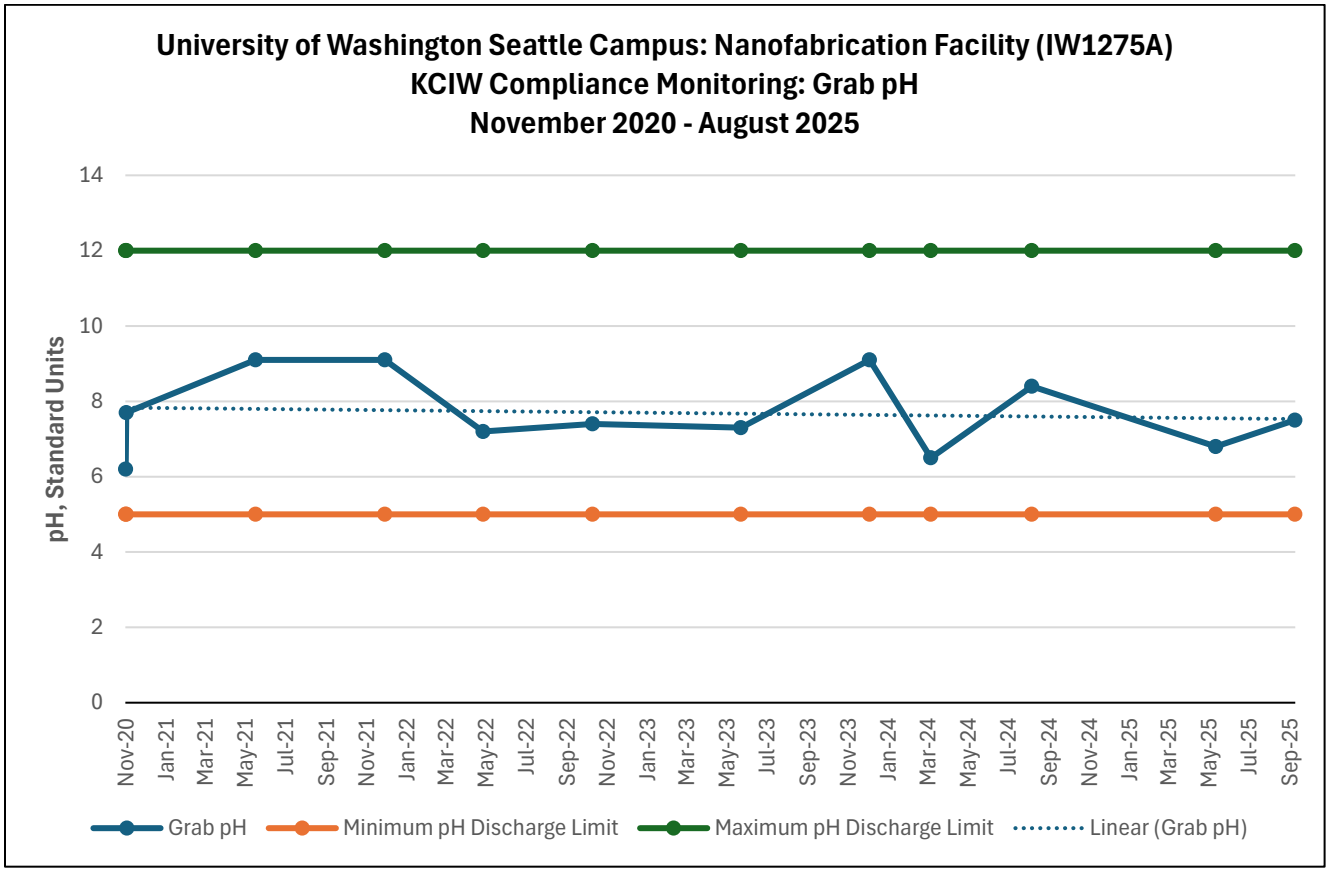
In the last permit cycle, the Nanofabrication Facility's self-monitoring of daily pH shows a slight decreasing trend for the monthly maximum pH and a steady/linear trend for the monthly minimum pH. In the graph below, there are three pH data points (3.7 s.u., 4.1 s.u., and 12.7 s.u.) showing exceedance of the pH discharge limit. However, these were not discharge violations as the duration of discharge was less than one minute. Once Nanofabrication Facility's pH neutralization system detected that the effluent of the pH was outside of the pH discharge limits, the discharge valve automatically closed to halt the release of the effluent. The wastewater was

diverted back to the pH neutralization tank for further treatment until the pH met pH discharge limits.



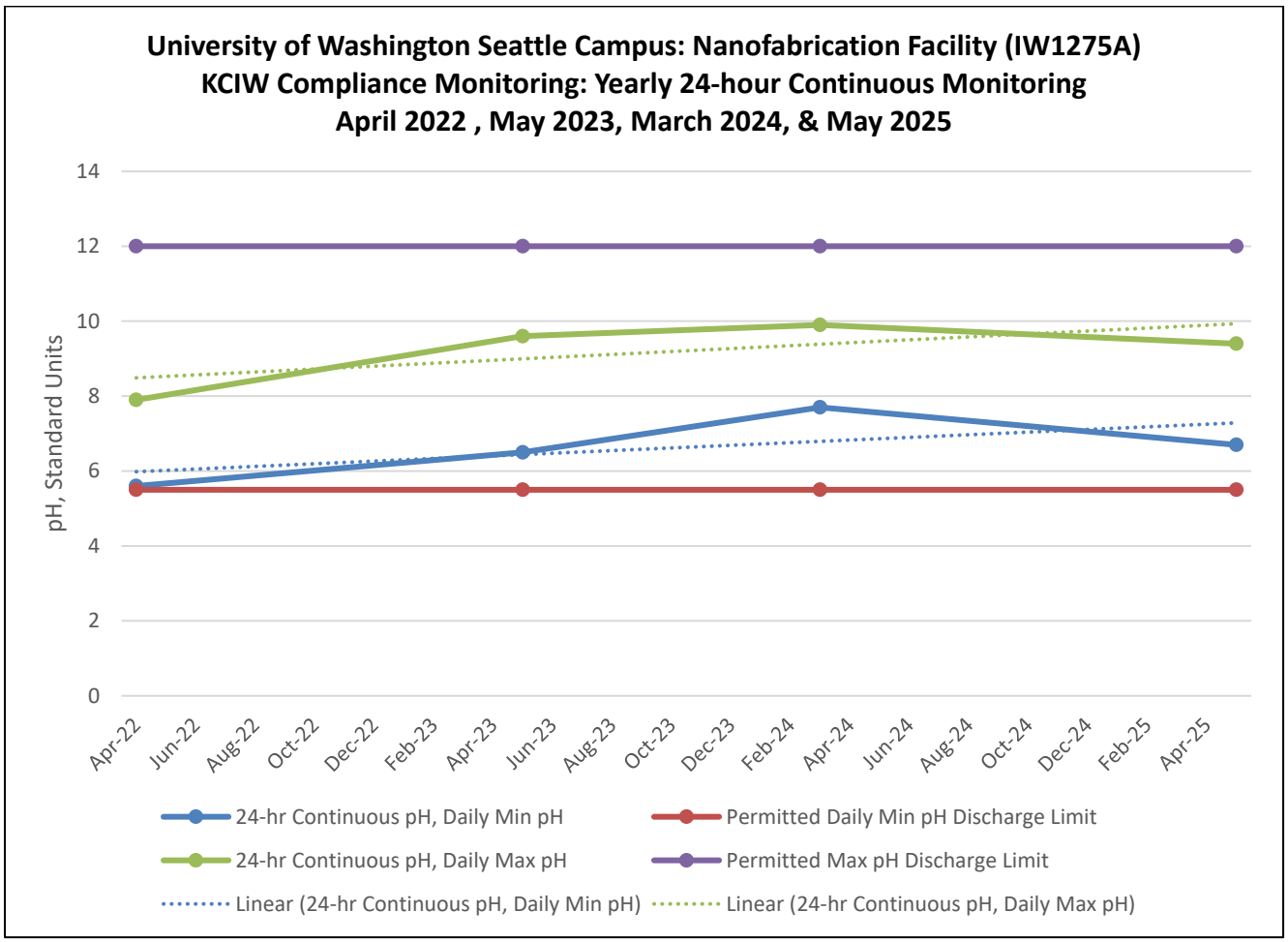
KCIW compliance monitoring of grab pH reveals a steady/linear trend and not highly variable.

KCIW Compliance Monitoring for Grab pH Date	Grab pH (s.u.)	Instantaneous pH Discharge Limit (s.u.)
2-Nov-20	6.2	5.0 – 12.0
3-Nov-20	7.7	
18-May-21	9.1	
30-Nov-21	9.1	
28-Apr-22	7.2	
11-Oct-22	7.4	
24-May-23	7.3	
5-Dec-23	9.1	
7-Mar-24	6.5	
7-Aug-24	8.4	
13-May-25	6.8	
10-Sep-25	7.5	

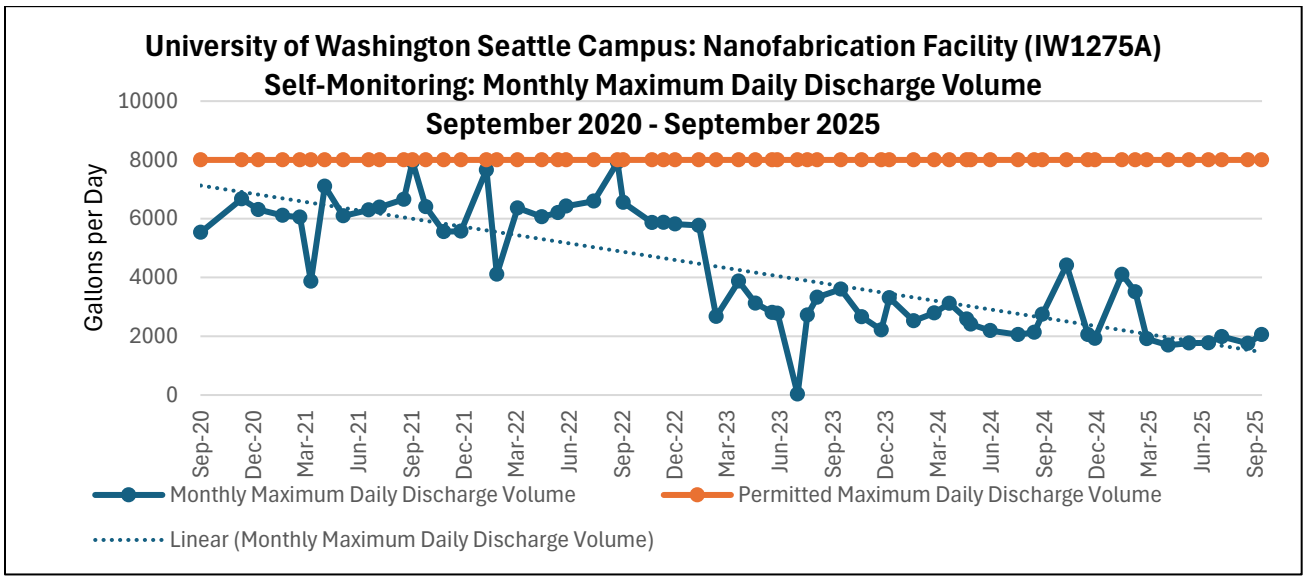


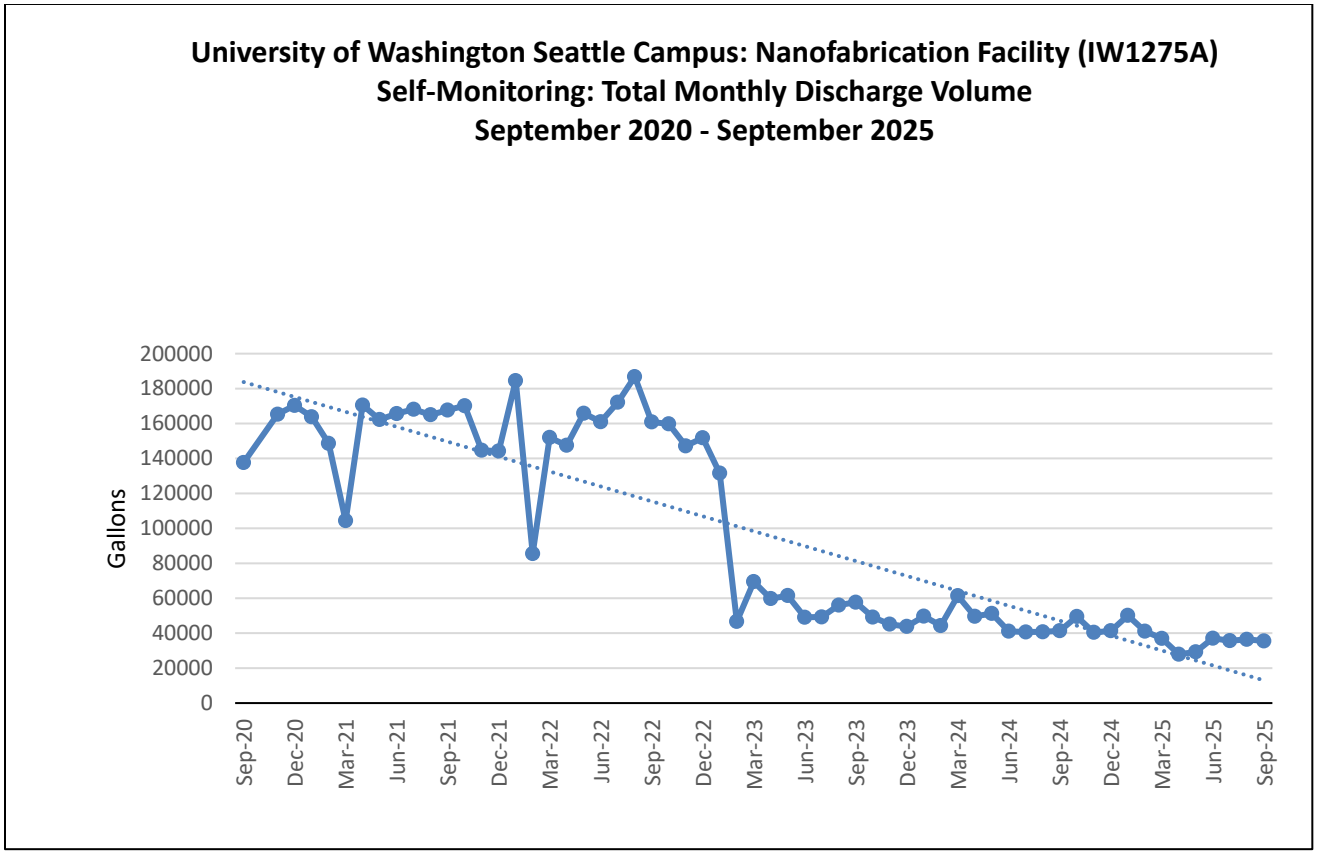
KCIW 24-hour continuous pH monitoring exhibits a slight increasing trend but with values that are well within the permit limits.

KCIW Compliance Monitoring Date for 24-hour Continuous pH	Minimum pH (s.u.)	Maximum pH (s.u.)
28-Apr-22	5.6	8.6
24-May-23	6.5	8.2
7-Mar-24	7.7	11.2
13-May-25	6.7	9.9
Daily pH Discharge Limit	**5.5**	**12.0**



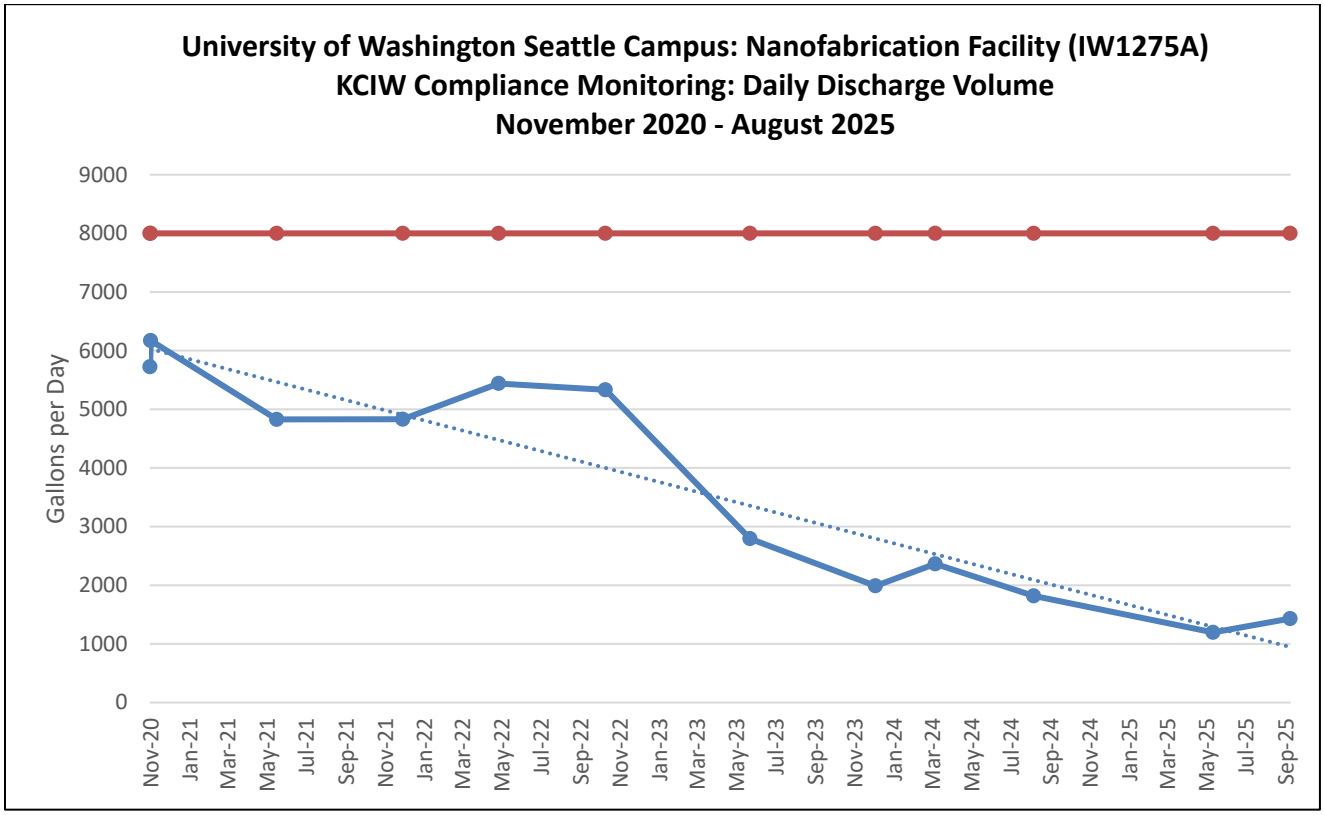
Nanofabrication Facility's monthly maximum daily discharge volume shows a steadily decreasing trend in the past permit cycle, which is also reflected in the total monthly discharge volume.





KCIW compliance monitoring of daily discharge volume also presents a decreasing trend.

KCIW Compliance Monitoring Date for Daily Discharge Volume	Daily Discharge Volume (gallons)	Permitted Maximum Daily Discharge Volume (gallons per day)
2-Nov-20	5725	8.000
3-Nov-20	6171.9	
18-May-21	4827	
30-Nov-21	4830	
28-Apr-22	5440	
11-Oct-22	5332	
24-May-23	2793	
5-Dec-23	1988	
7-Mar-24	2363	
7-Aug-24	1818	
13-May-25	1195.9	
10-Sep-25	1431	



Total Toxics Organics (TTOs) - 469

During the previous permit cycle, KCIW collected federally required total toxic organics (TTO - 40 CFR 469.22) twice a year in addition to sampling for TTO - VOA. Sample results indicated compliance of 1.37 mg/L with the TTO chemicals listed in CFR 469, as well as sample results indicating compliance with the TTO - VOA chemicals listed in CFR 433, Metal Finishing Point Source Category. TTO compliance monitoring occurred on November 2, 2020, May 18, 2021, November 30, 2021, April 28, 2022, October 11, 2022, May 24, 2023, December 5, 2023, March 7, 2024, August 7, 2024, May 13, 2025, and September 10, 2025.

TTO 469 Compliance Monitoring

Two compounds listed on the TTO 469 were detected during KCIW compliance monitoring: Bis(2-Ethylhexyl) Phthalate and 2-Nitrophenol. Bis(2-Ethylhexyl) Phthalate is commonly used as a plasticizer and is relatively ubiquitous and is found in many common laboratory supplies. 2-Nitrophenol is most likely used in the nanofabrication process to test the performance of newly developed sensors by exposing them to varying concentrations of 2-nitrophenol and measuring the resulting electrical signals. This process helps determine the sensor's sensitivity, detection limit, and linear dynamic range. Both compounds were detected below the TTO 469 discharge limit.

Date of KCIW Compliance Sampling	Organic Compound	Concentration (mg/L)	Daily Average Discharge Limit (mg/L)
3-Nov-20	Bis(2-Ethylhexyl)Phthalate	0.0019	**1.37**
3-Nov-20	2-Nitrophenol	0.0013	
28-Apr-22	Bis(2-Ethylhexyl)Phthalate	0.0573	
11-Oct-22	Bis(2-Ethylhexyl)Phthalate	0.0054	
24-May-23	Bis(2-Ethylhexyl)Phthalate	0.018	
5-Dec-23	Bis(2-Ethylhexyl)Phthalate	0.029	
7-Mar-24	Bis(2-Ethylhexyl)Phthalate	0.0013	
7-Aug-24	2-Nitrophenol	0.0011	
7-Aug-24	Bis(2-Ethylhexyl)Phthalate	0.0019	
10-Sep-25	Bis(2-Ethylhexyl)Phthalate	0.014	

Other TTO detections

Diethyl phthalate, Dimethyl phthalate, and chloroform are on the list of TTOs for metal finishing (40 CFR part 433.11e) and were detected during KCIW compliance monitoring. These compounds' concentrations complied with the federal discharge limit of 2.13 mg/L.

Date of KCIW Compliance Sampling	TTO Compound (40 CFR part 433.11e)	Concentration (mg/L)	Threshold Level (mg/L)	Permitted Daily Average Discharge Limit (mg/L)
2-Nov-20	Diethyl Phthalate	0.00275	**0.01**	**2.13**
3-Nov-20	Diethyl Phthalate	0.00261		
30-Nov-21	Dimethyl Phthalate	0.0677		
28-Apr-22	Diethyl Phthalate	0.0288		
24-May-23	Chloroform	0.0066		
5-Dec-23	Diethyl Phthalate	0.0318		
7-Aug-24	Diethyl Phthalate	0.0017		

Acetone and benzyl alcohol were also detected but they are not on the TTOs list for CFR 469 or CFR 433. The results were below King County's discharge screening levels:

Date of KCIW Compliance Sampling	Organic Compound	Concentration (mg/L)	Discharge Screening Level (mg/L)
2-Nov-20	Acetone	0.215	**1,200**
3-Nov-20	Acetone	0.186	
18-May-21	Acetone	0.741	
30-Nov-21	Acetone	0.506	
28-Apr-22	Acetone	0.252	
11-Oct-22	Acetone	0.0994	
24-May-23	Acetone	0.145	
5-Dec-23	Acetone	8.23	
7-Mar-24	Acetone	2.75	
7-Aug-24	Acetone	0.309	
13-May-25	Acetone	0.227	
10-Sep-25	Acetone	0.427	
7-Aug-24	Benzyl Alcohol	0.0019	**3,500**

Slug and/or Spill Control Plan

KCIW requires all significant industrial users to develop and implement a slug discharge control plan. A slug discharge, as defined in 40 CFR 403.8.f.2.vi and K.C.C. 28.84.060.L.12, is any discharge of a non-routine, episodic nature, including but not limited to an accidental spill or a non-customary batch discharge, which has a reasonable potential to cause interference or pass through, or in any other way violate the POTW's regulations, local limits, or permit conditions.

40 CFR 403.8.f.2.vi and K.C.C. 28.84.060.L.12 list specific items that need to be incorporated in slug discharge control plans.

The UW Seattle Campus submitted an updated slug discharge control plan with the permit renewal application on May 2, 2025. The proposed permit requires the UW Seattle Campus to review and update, as needed, its existing slug discharge control plan periodically and submit an updated plan with the next permit renewal application.

The Slug Control Plan, received with the permit renewal application on May 2, 2025, was reviewed by KCIW and found to be sufficient and current.

Self-Monitoring Requirements

Nanofabrication Facility (IW1275A):

The Nanofabrication Facility is regulated under 40 CFR 469 limitations, and the pollutants of concern are TTOs listed under 40 CFR 469.22. The facility is required to monitor and submit monthly self-monitoring reports for the following parameters of the effluent:

Parameters at IW1275A (discharge pipe following pH neutralization tank)	Frequency
Minimum and Maximum Daily pH	Record the daily minimum and maximum pH of the effluent each day and report the minimum and maximum pH of the effluent of each month
Daily Discharge Volume	Record the daily discharge volume
Maximum Monthly Daily Discharge Volume	Record the maximum daily discharge volume of each month
Total Monthly Discharge Volume	Record the total discharge volume of each month

The facility is not required to monitor heavy metals due to low levels of metals in the wastewater. In lieu of monitoring for TTO-469 and in accordance with 40 CFR Part 469.13, KCIW allows UW Seattle Campus to certify semiannually that "no dumping of concentrated toxic organics into the wastewaters has occurred since filing the last discharge monitoring report and that the facility is implementing the solvent management plan submitted to the control authority". Semiannually, UW Seattle Campus submits a TTO Certification Statement as described in S12.B of this permit.

The Nanofabrication Facility has submitted a solvent management plan on December 16, 2022, that specifies to KCIW's satisfaction the toxic organic compounds used; the method of disposal used instead of dumping, such as reclamation, contract hauling, or incineration; and procedures for assuring that toxic organics do not routinely spill or leak into the wastewater. KCIW sampling of TTO at the Nanofabrication Facility indicates compliance and verifies that the company's solvent management plan is effective. UW Seattle Campus' Nanofabrication Facility is required to submit an updated solvent management plan upon issuance of UW Seattle Campus' renewed wastewater discharge permit

UW Seattle Campus is not required to self-monitor at the UWSD (IW1275 B and IW1275D), Medical Center - Hospital (IW1275B), and Miscellaneous Discharges. UWSD is required to follow BMPs and regulations under 40 CFR Part 441 – Dental Office Point Source Category. For the Medical Center and Miscellaneous Discharges, there are BMPs and protocols in place.

King County Compliance Monitoring Program

There are no monitoring requirements at the UWSD and at the Medical Center. However, the Nanofabrication Facility at the UW Seattle Campus is regulated under 40 CFR 469, Subpart A, PSNS. At a minimum, King County will conduct the following compliance monitoring at Nanofabrication Facility for the following parameters listed in the table below. The parameters are standard for categorical standard industrial users regulated under 40 CFR part 469. Although 40 CFR 469, Subpart A pretreatment standards do not include metals limits, KCIW will verify compliance with King County local limits, by collecting metals samples on an annual basis.

Parameters		Frequency
Composite	Arsenic	Semiannually
	Cadmium	
	Chromium	
	Copper	
	Lead	
	Nickel	
	Silver	
	Zinc	
Grab pH		
Daily Discharge Volume		
Total Toxic Organics – VOA (4 grab composite)		
Total Toxic Organics - BNA		
24-hour Continuous pH		Annually

Monitoring Methods

- There are no monitoring requirements at the UWSD (IW1275B and IW1275D) and at the Medical Center (IW1275C).

- There are monitoring requirements at the Nanofabrication Facility (IW1275A):

Physical samples:

Nanofabrication Facility: There is no required sampling except for monitoring the effluent's pH and the daily discharge volume.

KCIW sampling: For daily average limits, the following sample collection type is representative: collection via an actuator with the KCIW compliance monitoring equipment, which will collect a sample of the effluent after a specified discharge volume. Flow-proportional sampling at the site is not feasible due to the configuration of the pretreatment system set-up and effluent recording. Sample collection via an actuator is sufficient due to multiple discharges throughout the day from a well-mixed chamber.

pH monitoring: Continuous

Nanofabrication Facility: The effluent's pH is measured by an in-line pH probe and is continuously monitored and recorded on a data logger.

KCIW: Semiannually, grab pH samples are collected at the facility's sample site, IW1275A, and the effluent's pH is analyzed by a hand-held pH meter. 24-hour continuous pH monitoring is conducted annually by using KCIW continuous pH monitoring equipment at sample site, IW1275A.

Flow monitoring: Batch estimates

Nanofabrication Facility and KCIW: The volume of each batch effluent discharge to the sanitary sewer is monitored and recorded using a data logger, estimating the

volume by pre- and post- discharge tank volume difference. In the event of a KCIW compliance monitoring event, Nanofabrication Facility will provide the daily discharge volume.

Special Conditions

Nanofabrication Facility

Required submittal of an updated Solvent Management Plan

UWSD

BMPs from 40 CFR 441 are included to ensure that the dental wastewater meets discharge limits. In addition, UWSD shall submit semiannual reports on compliance with BMPs.

Medical Center and Miscellaneous Discharges

BMPs are included to protect the King County sewer system and worker safety.

UW Seattle Campus

The UW Seattle Campus is required to submit an annual report on its Seattle campus development, detailing new buildings and associated activities by March 15 each year.

Limit Calculations

Nanofabrication Facility (IW1275A)

For the Nanofabrication Facility, the pretreatment limitations are based on the applicable standards outlined in 40 CFR 469 Subpart A of the Electrical and Electronic Component Point Source Category PSNS. PSNS apply because the Nanofabrication Facility officially began operation in 2011, which was after the publication of the 40 CFR 469 pretreatment regulations in 1983. Under 40 CFR 469 Subpart A PSNS, the only limitation is for Total Toxic Organics (TTO) 469 at the Nanofabrication Facility. In addition, King County Local Limits apply to all other parameters.

The Nanofabrication Facility also performs metal finishing activities (small scale electroplating of gold, nickel, and indium, with associated drag-out rinses and chemical etching) that would normally qualify for permitting under 40 CFR 433, Metal Finishing Point Source Category PSNS. However, the UW Fluke Hall Nanofabrication Facility performs these activities during the wafer fabrication process and not during the assembly and packaging process, which come after wafer fabrication.

A discussion, and resolution for regulators, of the overlap between the effluent limitations guidelines and standards covering semiconductor manufacturing (Subpart A of the Electrical and Electronic Component Point Source Category at 40 CFR 469.10) and those covering metal finishing operations (the Metal Finishing Point Source Category at 40 CFR 433) was provided in a 1998 U.S. Environmental Protection Agency (USEPA) memorandum.

In the April 21, 1998, USEPA memorandum, titled "Permitting Guidance for Semiconductor Manufacturing Facilities", it is concluded that:

> "After carefully reviewing both the Part 469 and 433 regulations and their associated background documents; examining past regulatory interpretations; visiting semiconductor manufacturing facilities; speaking with the industry; and reviewing current articles and books on the processes, the Agency believes that semiconductor manufacturing can be broken into two sections for the purposes of applying the requirements of 40 CFR Parts 469 and 433. The first section is the wafer fabrication process, and the second section is the final assembly and packaging process. The Agency believes that the metal finishing requirements contained in part 433 only cover the process after wafer fabrication which is used to deposit a layer of metal onto the surface of the wafer to provide contact points for final assembly."

Because the metal finishing processes at Nanofabrication Facility occur during wafer fabrication and not after, the facility will be solely regulated under 40 CFR 469.

The Nanofabrication Facility is not required to monitor organics under 40 CFR 469.23 if they follow guidelines under 40 CFR 469.13, which are:

1) Submit a solvent management plan
2) Submit periodic certification reports required by 40 CFR 403.12(e)

This renewed permit will continue to reflect the applicable TTO limits of 40 CFR 469 and will include the applicable King County local discharge limits.

UWSD (Sites IW1275B and IW1275D)
King County local limits (greater than 5,000 gpd) apply to these two permitted sites. In lieu of self-monitoring, UWSD is required to continue to comply with the federal categorical 40 CFR 441 BMPs.

Medical Center (IW1275C) and Miscellaneous Discharges
King County local limits (greater than 5,000 gpd) apply to the Medical Center and to the Miscellaneous Discharges.

Changes since the Last Permit

- In the past, the Nanofabrication Facility operated a pyrophoric scrubber which uses a thermal/wet processor, known as an exhaust gas pyrolizer, to combust pyrophoric substances before they leave the building via the building's exhaust system as well as scrub out any undesirable corrosives and other water reactive gases. By using a combination of a high-temperature oxidative reactor (a "burn box") and a wet scrubber, the system safely eliminates hazardous, toxic, and flammable components from the exhaust stream. However, as of October 2022, the scrubber system lost its heating element due to corrosion and thus rendering it inoperable. After a thorough review with UW Seattle Campus EH&S and a third-party environmental consultant, it was determined to be economically unfeasible to repair the system's heating element and there are no

current plans to replace this system. This has resulted in an estimated 2,500 gallons of moderately acidic wastewater being eliminated from the waste stream.

- In the past permit cycle, the Nanofabrication Facility was categorized under Subpart B - Electronic Crystals Subcategory of the 40 CFR 469 – Electrical and Electronic Components Point Source Category. However, in review of the applicable subparts (A: Semiconductor, B: Electronic Crystals, C: Cathode Ray Tube, and D: Luminescent Materials), and in discussion with Nanofabrication Facility, and with confirmation from Nanofabrication Facility, the Subpart A – Semiconductor definition is more suitable to the operations at the Nanofabrication Facility. Subpart A applies to semiconductor manufacturing while Subpart B applies to electronic crystal manufacturing. Subpart A applies to point sources involved in the process of creating semiconductors whereas Subpart B applies to facilities that grow crystals or produce crystal wafers for use in electronic devices.

  The PSNS for both subparts include a 'maximum for any 1 day' limit of 1.37 mg/L. Subpart B includes total arsenic limits of 2.09 mg/L and 083 mg/L as 'maximum for any 1 day' and as 'average of daily values for 30 consecutive days', respectively. However, a footnote corresponding to the total arsenic states that "The arsenic (T) limitation only applies to manufacturers of gallium or indium arsenide crystals" and the UW Seattle Campus does not manufacture gallium or indium arsenide crystals. Therefore, these limits were not imposed in the expiring permit (7923-02). Thus, there are no changes to the pretreatment standards in the proposed permit when compared to the expiring permit.

  As stated above, under 40 CFR 469 Subpart A PSNS, the only limitation is for Total Toxic Organics (TTO) 469 as maximum daily limit of 1.37 mg/L. In addition, King County Local Limits apply to all other parameters.

- To be consistent with other permittees categorized under 40 CFR 469, Subpart A PSNS, and also performing metal finishing, KCIW will conduct metals compliance monitoring at Nanofabrication Facility on a semiannual basis. In addition, KCIW will continue to semiannually conduct TTO VOA and TTO BNA compliance monitoring.

- Permit language has been modified to reflect King County's revised Industrial Waste Local Discharge Limits under Public Rule PUT8-13-2 (PR), which became effective on December 23, 2020. This permit contains standard language that is universally applied to permittees. Some standard language in this permit has been updated to the most recent version and differs from the previous permit issued to UW Seattle Campus.

Comments

Publication:
NA – The UW published for 250,000 gallons per day in September 2015.

Application:
There were no comments from the local sewer agency, Seattle Public Utilities (SPU).

First draft:
Issued on October 16, 2025, to UW Seattle Campus, SPU, and Department of Ecology

- There were no comments from Seattle Public Utilities
- There were no comments from the Department of Ecology
- There were two questions from UW Seattle Campus:
    - Via email on October 22, 2025, John Wallace, UW Seattle Campus Environmental Health and Safety, asked about the Solvent Management Plan reporting requirements that are listed in Section B, page 5, of the draft permit document. Mr. Wallace writes that there are 3 different solvent management plans. One for WNF (Washington Nanofabrication) in S3.F. Then one for S12.C and an update for S12.D. Mr. Wallace asked for clarification on the submittals regarding the reports for S12.C and S12.D.

      KCIW replied to Mr. Wallace on October 22, 2025:
      For S3.F: As in with all other industrial users under similar oversight, KCIW requires an updated Solvent Management Plan (SMP) from WNF since this plan was not included with the permit renewal application. This report is due by December 31, 2025.

      For S12.C: An updated SMP for WNF is required to be submitted with the next permit renewal application. If there are no changes, UW may resend the existing one with a new review date indicated on the document.

      For S12.D: By June 30 and December 31, WNF must notify KCIW of any changes to its SMP. This includes submitting any changes that have occurred or confirming that no changes have been made.

      On October 23, 2025, Mr. Wallace acknowledged the response and had no further questions or comments.

    - Via email on October 22, 2025, Mr. Wallace asked for clarification on the S3.E. Slug Discharge Control Plan if an updated plan including steps 1-9 is to be submitted by the end of this new permit.

      KCIW replied to Mr. Wallace on October 22, 2025:
      The permit requires UW to submit an updated Slug Discharge Control Plan, specifically for the Nanofabrication Facility, with the next permit renewal application, or any time during the permit cycle if changes occur. If there are no changes, UW may resend the existing one with a new review date indicated on the document.

      On October 23, 2025, Mr. Wallace acknowledged the response and had no further questions or comments.

On October 28, 2025, KCIW followed up with an email to UW Seattle Campus that the permittee shall also be aware of all the other facilities to ensure that best management practices are followed to prevent spills to the sanitary sewer.

Second draft: NA

Safety

Nanofabrication Facility:
Safety glasses are required. Clean room attire is required if entering one of the clean rooms.

UWSD:
The waste may contain biohazard materials, and it is recommended to wear gloves and other appropriate personal protection (safety glasses and hearing protection) when sampling or inspecting the sample site. In addition, it is recommended that all employees responsible for sampling and inspections to check with King County Waste Treatment Division Safety Officer to ensure that safety protocols are followed in case of accidental exposure and if immunizations are appropriate and up to date.

Medical Center and Miscellaneous Areas:
Inspecting and/or sampling at the UW Campus other than the Nanofabrication Facility or the UWSD, it is recommended to wear safety glasses and steel-toed shoes especially if visiting shops and maintenance shops.