

	State of Washington Department of Ecology <b>WASTEWATER TREATMENT PLANT COMPLIANCE INSPECTION REPORT</b>		Northwest Region Office 15700 Dayton Ave N Shoreline, WA 98133 206-594-0000 ph 206-366-7810 fax (last update 7-6-2021)
	Section A: General Information		

Report Version <input checked="" type="checkbox"/> New <input type="checkbox"/> Changed <input type="checkbox"/> Delete	PERMIT # <b>WA0022527</b> <b>WAG994567</b>	mo/day/yr <b>08/24/2023</b>	Inspection Type <b>C</b>	Inspector Code <b>S</b>	Facility Type <input checked="" type="checkbox"/> 1 Municipal <input type="checkbox"/> Public <input type="checkbox"/> Private
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Remarks					
Non-Sampling Facility Inspection					
Inspection workdays <b>1.0</b>	Facility Self-Monitoring <b>4</b>	Photos Taken <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Samples Taken <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	BI <b>N</b>	QA <b>N</b>

Lead Ecology Inspector(s) Sean Wilson and Greg Lipnickey
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Section B: Facility Data		
Name, Location, and Phone of Facility Inspected King County – Vashon Wastewater Treatment Plant 9615 SW 171 <sup>st</sup> St. Vashon, WA 98070	Entry Time 10:00 AM	Permit Effective Date 03/01/2017
	Exit Time 1:30 PM	Permit Expiration Date 02/28/2022 (extended)

Name(s)/Title(s) of On-Site Representative(s) Chapin Brackett (WTD Manager – Process & Environmental Compliance) Rachel Dyda (Process Supervisor/Chief Process Analyst) Matt McDonald (Process Engineer) Elizabeth Corliss (Operator) James Glen (Operator) Evelyn Maestas (Operator)	Ecology Staff On-Site Sean Wilson, Greg Lipnickey
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Name, Address, Title, Phone, and Fax Number of Responsible Official Christie True, Director DNR and Parks 201 S Jackson St KSC-NR-0700 Seattle, WA 98104 Phone Number (206) 296-6500 Fax	Other Facility Data
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Section C: Areas Evaluated During Inspection (Check only those areas evaluated)					
<input checked="" type="checkbox"/> Permit	<input checked="" type="checkbox"/> Flow Measurement	<input checked="" type="checkbox"/> Operations & Maintenance	<input type="checkbox"/> CSO/SSO (Sewer Overflow)		
<input checked="" type="checkbox"/> Records/Reports	<input checked="" type="checkbox"/> Effluent <input type="checkbox"/> Receiving Water	<input checked="" type="checkbox"/> Sludge Handling/Disposal	<input type="checkbox"/> Pollution Prevention		
<input checked="" type="checkbox"/> Facility Site Review	<input type="checkbox"/> Compliance Schedules	<input type="checkbox"/> Pretreatment	<input type="checkbox"/> Multimedia		
<input checked="" type="checkbox"/> Self-Monitoring Program	<input checked="" type="checkbox"/> Laboratory	<input checked="" type="checkbox"/> Storm Water	<input type="checkbox"/> Other		

Section D: Summary of Findings/Comments
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**I. INTRODUCTION**

The Department of Ecology conducted a compliance inspection at King County's Vashon Wastewater Treatment Plant on August 24, 2023. Sean Wilson (the current King County Permit Manager for Ecology) led the inspection with support from Greg Lipnickey (NWRO Municipal Water Quality Enforcement Lead). King County employees Rachel Dyda, Chapin Brackett, Matt McDonald, Elizabeth Corliss, James Glen, and Evelyn Maestas assisted with the inspection. The purpose of this announced inspection was to familiarize new personnel with the facility to help with permit development, to assess the permittee's self-monitoring procedures, and to evaluate compliance with permit requirements.

The Vashon Treatment Plant facility is located near the town of Vashon on Vashon Island. The facility originally operated as an independent facility. In 1999 it was brought under the operation control of King County's Wastewater Treatment Division (KC-WTD) who subsequently increased the facility's capacity to the current 0.52 Million Gallons per Day (MGD) monthly flow rate (in 2005). The collection system connected to the nearby city and Bunker Trail area vacuum system (excluding pump station and force main that extends from the base of the hill to the treatment plant) is owned and operate by an independent organization (Vashon Sewer District).

The facility is regulated by an individual National Pollution Discharge Elimination System (NPDES) permit #WA0022527 and

the Puget Sound Nutrient General Permit #WAG994567. Their individual permit was issued January 16, 2017, expired February 28, 2022, and has been administratively extended.

## II. RESULTS AND DISCUSSION

Collection System: According to KC-WTD staff, the Vashon collection system continues to experience very high Inflow and Infiltration (I/I), with a wet weather peaking factor at the treatment plant of approximately 10. Although this is a high I/I rate, this peaking factor appears to be relatively stable since the time of the last inspection in 2015 and it has not yet caused major issuing at the facility because it has sufficient capacity to treat the excess flow. The highest instantaneous inflow seen was roughly 1 MGD according to KC-WDWD staff.

The facility receives waste from some industrial users including a plastic bone production plant and a tofu manufacturing facility. Industrial users represent a small fraction of influent flows and are regulated by King County's delegated Industrial Wastewater Unit.

In December 2022, the force main system at the Bunker Trail area overflowed due to an open-ended pipe at the end of the ferry dock that was filled by abnormally high-water levels caused by heavy rainfall and king tides. The open-ended pipe will be sealed by Vashon Sewer District who operates the line.

Control System/Alarms: All critical plant operations and alarms are monitored and/or controlled from a central control room using a supervisory control and data acquisition (SCADA) system. This system includes pump stations within the collection system. Operators on-site are able to monitor and make changes while remote operators (e.g. those in South Plant control room during off-shift hours) can only monitor. Two operators are always on standby during the wet season to respond in case of an alarm or if an issue is identified by the control room.

Liquid Stream: The facility is broken into two rough sections. The newer east section is where influent is typically screened and treated. The older west section is typically used for solids treatment but that can be used (either in parallel or series with the new system) for liquids treatment in high flows. The old basins can provide roughly 250,000 gallons of equalization. This has never been done in practice but remains an option within their permit and procedures.

There is an upcoming project to automate the overflow weirs at the influent splitter to allow for automatic usage of the old system in case the facility experiences high incoming flows.

The equipment arrangement seen on site matches the equipment and process described in the facility's 2006 Operations & Maintenance Manual (page 33, 1-11). In an effort to reduce effluent nutrient loading, the anoxic portion of the oxidation ditch is currently being maintained at roughly 0.2 mg/L and the aerobic zone maintains roughly 1 mg/L dissolved oxygen.

The facility normally disinfects via a flow-paced UV system but still maintains a chlorine dosing system in case of UV failure. KC-WTD staff had no memory of UV failures but did state that they have run a couple ~1-2 hour tests of the system.

KC-WTD plans to do major outfall refurbishment or replacement in roughly 10 years. Although the no more details were available at the time of the inspection, it is likely that this planned work will require review to ensure that any potential affects on mixing are evaluated.

Solids Stream: Waste activated sludge is settled in the old Imhoff tank where decanted liquids can be returned to the influent splitter and solids can be concentrated before being pumped over to a belt filter press. The facility also has a gravity belt thickener, but it is not used. Solids are offloaded into a truck for further processing at King County's South Treatment Plant. During the summer solids generation is ~1-2 trucks/week. This reduces to ~1 truck/month in the winter when the summer tourism season ends.

Stormwater: Rainwater that falls on the site is captured with a dedicated stormwater conveyance system. Flows captured in the stormwater system are sent to a cassette-filled filtration basin and then along to a settling basin. The settling basin is design to infiltrate but can overflow to a nearby creek. The facility is not required to apply for coverage under the Industrial Stormwater General Permit as the facility's treatment capacity is less than 1 MGD.

Flow Measurement: Influent flow is measured at the Influent Splitter and, according to KC-WTD staff, can be inaccurate when there is low influent flow. Effluent flow rate is measured after UV treatment.

Laboratory: Vashon Treatment Plant has its own certified laboratory space where they can run the majority of the sampling procedures required by their permits. For parameters that Vashon WTP is not certified to analyze, samples are sent to KC-WTD's South Wastewater Treatment Plant lab. During the inspection, the lab was well organized and all equipment inspected

was found to have up to date calibration records.

Back-up Power: The facility typically runs on power provided by the local power utility but does have its own generator and 1000-gallon fuel supply for back-up power. The generator is run once per month to ensure that ready in case of emergency and the single generator has sufficient capacity to power all equipment at the facility for roughly 36 hours. The generator is also load tested once per year.

KC-WTD indicated that generator is usually required 1-2 times per month in winter months.

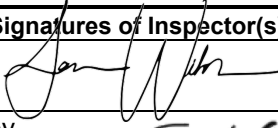
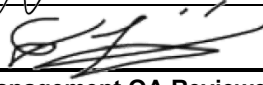

Staffing: Vashon WTP is staffed seven days a week during day shift. At other times, there is always at least one on-island, on-call operator for emergencies but primary monitoring is done via operators at South Plant.

Records Review: During the inspection, data from three Discharge Monitoring Reports (DMRs) were reviewed and compared to the available lab and process information stored/used on site. Three of the DMRs reviewed were for the facility's individual wastewater permit: June 2018, December 2022, and March 2023. No discrepancies were found between onsite and submitted data.

### III. CONCLUSION

In general, the facility appeared to be well maintained and achieving operational control. No evidence of spills, diversion of flows around treatment, or non-operational equipment was found. Staff interviewed were knowledgeable, helpful, open, and honest. Ecology found No evidence of non-compliance with any permit conditions during the inspection.

The largest challenge facing the facility is the large inflow and infiltration rates. As KC-WTD does not own or operate much of the conveyance system (except for the Bunker Trail force main), they will need to work with Vashon Sewer District to either incentivize I&I reductions. But as the facility is currently capable of handling the flows, this is not a critical action.

Name(s) and Signatures of Inspector(s)	Agency/Office/Telephone	Date
Sean Wilson 	WA Dept. of Ecology, NWRO, 425-577-4864	11/17/2023
Greg Lipnickey 	WA Dept. of Ecology, NWRO, 425-449-6560	11/17/2023
Name and Signature of Management QA Reviewer	Agency/Office/Telephone	Date
Shawn McKone 	WA Dept. of Ecology, NWRO, 206-549-0158	11/17/2023

**ANNOUNCED** Inspection**INSTRUCTIONS****Section A: General Information**

**Report Version:** N for 1<sup>st</sup> version, C for Changed or amended, or D for Delete

**NPDES Permit No.:** Enter the facility's NPDES or State permit number.

**Inspection Date:** Insert the date entry was made into the facility. Use the month/day/year format (e.g., 06/30/04 = June 30, 2004).

**Inspection Type:** Use one of the codes listed below to describe the type of inspection:

A Performance Audit	L Enforcement Case Support	2 IU Sampling Inspection
B Compliance Biomonitoring	M Multimedia	3 IU Non-Sampling Inspection
C Compliance Evaluation (non-sampling)	P Pretreatment Compliance Inspection	4 IU Toxics Inspection
D Diagnostic	R Reconnaissance	5 IU Sampling Inspection with Pretreatment
E Corps of Engineers Inspection	S Compliance Sampling	6 IU Non-Sampling Inspection with pretreatment
F Pretreatment Follow-up	U IU Inspection with Pretreatment Audit	7 IU Toxics with Pretreatment
G Pretreatment Audit	X Toxics Inspection	
I Industrial User (IU) Inspection	Z Sludge	

**Inspector Code:** Use one of the codes listed below to describe the *lead agency* in the inspection:

C - Contractor or Other Inspectors (Specify in Remarks Columns)	N - NEIC Inspectors
E - Corps of Engineers	R - EPA Regional Inspector
J - Joint EPA/State Inspectors - EPA Lead	S - State Inspector
	T - Joint State/EPA Inspectors - State Lead

**Facility Type:** Use one of the choices below to describe the facility.

1 - Municipal. Publicly Owned Treatment Works (POTWs) with 1987 Standard Industrial Code (SIC) 4952.

2 - Industrial. Other than municipal, agricultural, and Federal facilities.

3 - Agricultural. Facilities classified with 1987 SIC 0111 to 0971.

4 - Federal. Facilities identified as Federal by the EPA Regional Office

**Remarks:** These columns are reserved for remarks.

**Inspection Work Days.:** Estimate the total work effort (to the nearest 0.1 work day), up to 99.9 days, that were used to complete the inspection. This estimate includes the accumulative effort of all participating inspectors; any effort for laboratory analyses, testing, travel time and preparation time. This estimate does not require detailed documentation.

**Facility Evaluation Rating:** Use information gathered during the inspection (regardless of inspection type) to evaluate the quality of the facility self-monitoring program. Grade the program using a scale of 1 to 5 with a score of 5 being used for very reliable self-monitoring programs, 3 being satisfactory, and 1 being used for very unreliable programs.

**Biomonitoring Information.** Enter D for static testing. Enter F for flow through testing. Enter N for no biomonitoring.

**Quality Assurance Data Inspection.** Enter Q if the inspection was conducted as follow-up on quality assurance sample results. Enter N otherwise.

**Photos Taken:** Yes or No

**Samples Taken:** Yes or No

**Lead Ecology Inspector:** Enter lead inspector's name

**Section B: Facility Data**

This section is self-explanatory except for: "Other Facility Data," which may include new information not in the permit or PCS (e.g., new outfalls, names of receiving waters, new ownership, and other updates to the record), e-mail addresses...; and "Ecology Staff On-Site", which may include staff names, titles, phone numbers, or e-mail addresses.

**Section C: Areas Evaluated During Inspection**

Check only those areas evaluated by marking the appropriate box. Use Section D and additional sheets as necessary.

**Section D: Summary of Findings/Comments**

Support the findings, as necessary, in a narrative report. Use the headings given on the report form (staffing, back-up power) as appropriate. Reference a list of attachments, such as completed checklists, photos, lab reports, etc. Use extra sheets as necessary.

LINKS AND INFORMATION:

“Informational Manual for Treatment Plant Operators”; February 2004; by the Department of Ecology  
Publication Number 04-10-020:

<http://www.ecy.wa.gov/pubs/0410020.pdf>

The manual was prepared to help wastewater treatment plant operators complete and submit their Discharge Monitoring Reports (DMRs) and other annual reports to the Department of Ecology. The manual is available in hard copy. To request a copy, contact the Department of Ecology, Publications Distribution Center at P.O. Box 47600, Olympia, WA 98504-7600 or by Telephone: (360) 407-7472. Updates to the manual are included on the website version.

Ecology's Wastewater and Reuse website:

<http://www.ecy.wa.gov/programs/wq/wastewater/index.html>

Ecology's Operator Certification website:

[http://www.ecy.wa.gov/programs/wq/wastewater/op\\_cert/index.html](http://www.ecy.wa.gov/programs/wq/wastewater/op_cert/index.html)

Ecology's Laboratory Accreditation website:

[http://www.ecy.wa.gov/programs/eap/labs/labs\\_main.html](http://www.ecy.wa.gov/programs/eap/labs/labs_main.html)

Ecology's Biosolids website:

<http://www.ecy.wa.gov/programs/swfa/biosolids/>

Ecology's Operator Outreach: Andy O'Neill, (509) 710-3676; [aone461@ecy.wa.gov](mailto:aone461@ecy.wa.gov)

Ecology's Municipal Compliance Specialist (Northwest Regional Office): Greg Lipnickey, QEP (425) 449-6560;

[greg.lipnickey@ecy.wa.gov](mailto:greg.lipnickey@ecy.wa.gov)

Ecology's Wastewater Operator Certification Coordinator: Poppy Carre; (360) 407-6449; 1-800-633-6193 (within the state);

[poca461@ecy.wa.gov](mailto:poca461@ecy.wa.gov)

Ecology's Biosolids Coordinator (Northwest Regional Office): Marietta Sharp; (206) 594-0049; [mars461@ecy.wa.gov](mailto:mars461@ecy.wa.gov)

Reporting Spills/Overflows/Upsets/Bypasses/Loss of Disinfection IMMEDIATELY:

Ecology's 24-hour number: (206) 594-0000 to report a spill

Department of Health – Shellfish Program 24-hour number: (360) 236-3330

## Inspection Photos

### PHOTO NO. 1

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**Date:** 08/24/2023  
**Taken by:** Greg Lipnickey  
**Witness:** Sean Wilson

**Description:**  
Overflow weir at Influent Splitter

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### PHOTO NO. 2

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**Date:** 08/24/2023  
**Taken by:** Greg Lipnickey  
**Witness:** Sean Wilson

**Description:**  
Old equalization basin

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**PHOTO NO. 3**

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**Date:** 08/24/2023  
**Taken by:** Greg Lipnickey  
**Witness:** Sean Wilson

**Description:**  
Imhoff tank used for sludge settling

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**PHOTO NO. 4**

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**Date:** 08/24/2023  
**Taken by:** Greg Lipnickey  
**Witness:** Sean Wilson

**Description:**  
Thickened sludge offload area

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**PHOTO NO. 5**

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**Date:** 08/24/2023  
**Taken by:** Greg Lipnickey  
**Witness:** Sean Wilson

**Description:**  
Auger pulling screenings upward to a refuse bin  
at headworks

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**PHOTO NO. 6**

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**Date:** 08/24/2023  
**Taken by:** Greg Lipnickey  
**Witness:** Sean Wilson

**Description:**  
Anoxic zone of oxidation ditch

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**PHOTO NO. 7**

**Date:** 08/24/2023  
**Taken by:** Greg Lipnickey  
**Witness:** Sean Wilson

**Description:**  
Aerobic zone of oxidation ditch aerated by  
surface agitation



**PHOTO NO. 8**

**Date:** 08/24/2023  
**Taken by:** Greg Lipnickey  
**Witness:** Sean Wilson

**Description:**  
Influent sampling unit





# Inspection Report

**PHOTO NO. 9**

**Date:** 08/24/2023  
**Taken by:** Greg Lipnickey  
**Witness:** Sean Wilson

**Description:**  
Influent sample refrigerator temperature records

Sampler Start			Sampler Stop		Notes
Date	Time	Temp.	Pulse Setting	Purge Setting	
6/15/23	08:27	21°	65	15 sec	
6/20/23	08:20	21°	80	15 sec	
6/21/23	08:15	21°	80	15 sec	
6/22/23	08:06	72°	80	15 sec	
6/23/23	08:03	72°	80	15 sec	
6/24/23	08:10	48°	60	15 sec	
6/25/23	08:19	32°	60	15 sec	
6/26/23	08:08	32°	60	15 sec	
6/27/23	08:13	48°	60	15 sec	
6/28/23	08:13	32°	60	15 sec	
6/29/23	08:10	32°	60	15 sec	
6/30/23	08:10	32°	60	15 sec	
7/1/23	08:00	32°	60	15 sec	
7/2/23	08:00	32°	60	15 sec	
7/3/23	08:00	32°	60	15 sec	
7/4/23	08:00	32°	60	15 sec	
7/5/23	08:00	32°	60	15 sec	
7/6/23	08:00	32°	60	15 sec	
7/7/23	08:00	32°	60	15 sec	
7/8/23	08:00	32°	60	15 sec	
7/9/23	08:00	32°	60	15 sec	
7/10/23	08:00	32°	60	15 sec	
7/11/23	08:00	32°	60	15 sec	
7/12/23	08:00	32°	60	15 sec	
7/13/23	08:00	32°	60	15 sec	
7/14/23	08:00	32°	60	15 sec	
7/15/23	08:00	32°	60	15 sec	
7/16/23	08:00	32°	60	15 sec	
7/17/23	08:00	32°	60	15 sec	
7/18/23	08:00	32°	60	15 sec	
7/19/23	08:00	32°	60	15 sec	
7/20/23	08:00	32°	60	15 sec	
7/21/23	08:00	32°	60	15 sec	
7/22/23	08:00	32°	60	15 sec	
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7/24/23	08:00	32°	60	15 sec	
7/25/23	08:00	32°	60	15 sec	
7/26/23	08:00	32°	60	15 sec	
7/27/23	08:00	32°	60	15 sec	
7/28/23	08:00	32°	60	15 sec	
7/29/23	08:00	32°	60	15 sec	
7/30/23	08:00	32°	60	15 sec	
7/31/23	08:00	32°	60	15 sec	

**PHOTO NO. 10**

**Date:** 08/24/2023  
**Taken by:** Greg Lipnickey  
**Witness:** Sean Wilson

**Description:**  
The in-use secondary clarifier



## PHOTO NO. 11

Date: 08/24/2023  
 Taken by: Greg Lipnickey  
 Witness: Sean Wilson

Description:  
 UV channel during operation



## PHOTO NO. 12

Date: 08/24/2023  
 Taken by: Greg Lipnickey  
 Witness: Sean Wilson

Description:  
 Lab calibration logs

Date	Time	Flow Rate	Parameter 1	Parameter 2	Notes
8/29/22	4-7-10	96.12	6.00	CE	Nutrient
9/8/22	-	-	6.00	CE	Nutrient
9/14/22	-	-	6.00	CE	Nutrient
10/19/22	-	-	5.99	CE	Nutrient
10/24/22	-	-	6.02	CE	Nutrient
10/27/22	-	-	6.02	CE	Nutrient
11/3/22	-	-	6.03	CE	Nutrient
11/16/22	-	-	6.06	CE	Nutrient
12/8/22	-	-	6.02	CE	Nutrient
12/14/22	-	-	6.08	CE	Nutrient
1/5/23	-	-	6.08	CE	Nutrient
1/12/23	-	-	6.09	CE	Nutrient
1/18/23	-	-	6.09	CE	Nutrient
2/2/23	4-7-10	95.92	6.05	CE	Nutrient
2/7/23	-	-	6.04	CE	ERA
2/9/23	-	-	6.04	CE	ERA
2/15/23	-	-	6.00	CE	GN
3/1/23	-	-	5.99	CE	GN
3/15/23	-	-	5.98	CE	GN
4/6/23	-	-	5.97	CE	GN
4/13/23	4-7-10	95.11	6.07	CE	GN
4/19/23	-	-	6.03	CE	GN
5/3/23	-	-	6.00	CE	GN
5/16/23	-	-	6.00	CE	GN
6/6/23	4-7-10	94.7	6.06	CE	GN