



King County

Department of Natural Resources and Parks

King Street Center, KSC-NR-0700
201 South Jackson Street
Seattle, WA 98104-3855

December 21, 2017

Shawn McKone
Municipal Facilities Manager
Washington State Department of Ecology
Northwest Regional Office
3190 160th Avenue SE
Bellevue, WA 98008

Mamdouh El-Aarag
OSWP/Reclaimed Water
Washington State Department of Health
16201 E. Indiana Ave, Suite 1500
Spokane Valley, WA 99216

Carnation Wastewater Treatment Facility, Applications for Renewal of the NPDES Permit and Reclaimed Water Use

Dear Mr. McKone and El-Aarag:

The King County Wastewater Treatment Division (WTD) hereby submits the Carnation Wastewater Treatment Facility (WWTF) NPDES permit (WA0032182) renewal application to the Department of Ecology. The reclaimed water permit renewal application for the reclaimed water use provisions of permit WA0032182 is hereby submitted to both the Departments of Ecology and Departments of Health.

For the reclaimed water use conditions, we would appreciate your consideration to modify total coliform monitoring to a "4/week" frequency (from "1/day"), as currently specified in Table 6 (Reclaimed Water Monitoring Schedule). We believe the plant's operating record demonstrates reliable filtration and disinfection system performance. The plant's redundant disinfection equipment, alarm capabilities, and ability of King County's offsite operators to respond to any events ensure that public health and environmental protection would not be adversely affected by the reduced level of monitoring.

Shawn McKone and Mamdouh El-Aarag
December 21, 2017
Page 2

If you have any questions regarding the reclaimed water use application, please contact Reclaimed Water Program Lead Kristina Westbrook at 206-477-5522 or for any questions regarding the NPDES permit application contact NPDES Permit Administrator Jeff Lafer at 206-477-6315.

Sincerely,

A handwritten signature in dark ink, appearing to read 'CT True', with a stylized flourish at the end.

Christie True
Director

cc: Mark Isaacson, Director, Wastewater Treatment Division (WTD), Department of
Natural Resources and Parks (DNRP)
Robert Waddle, Plant Operations Manager, WTD, DNRP
Kristina Westbrook, Reclaimed Water Program Lead, WTD, DNRP
Jeff Lafer, NPDES Permit Administrator, WTD, DNRP



STATE OF WASHINGTON DEPARTMENTS OF ECOLOGY AND HEALTH
PERMIT APPLICATION for RECLAIMED WATER USE

For Office Use Only:

Date Received _____

Application/Permit No. _____

This application is for a

- ☐ New Reclaimed Water Use Permit
☒ Renewal
☐ Modification of permit # _____

as required in accordance with the provisions of Chapters 90.46 RCW. All questions must be answered completely and accurately to be considered for coverage. If a question does not apply, answer with NA.

SECTION A. GENERAL INFORMATION

A-I. PERMITTEE: ☒ Public ☐ Private UBI No. _____

Name of Utility or Business: King County Wastewater Treatment Division	Is the operator also the owner? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	Name of Operator: King County Department of Natural Resources and Parks, Wastewater Treatment Division
Primary Contact Name: Kristina Westbrook	Operator Primary Contact Name: Robert Waddle
Title: Recycled Water Program Lead	Title: Wastewater Plant Operations and Maintenance Manager
Phone No: 207-477-5522	Phone No: 206-263-9481
E-mail Address: kristina.westbrook@kingcounty.gov	E-mail Address: robert.waddle@kingcounty.gov
Primary Mailing Address: KSC-NR-0512, 201 S. Jackson Street	Primary Mailing Address South Plant, 1200 Monster Rd SW
City Seattle Zip + 4 98104	City Renton Zip + 4 98057
BILLING INFORMATION (if different from primary contact)	
Business/Company Name	Phone No.
Mailing Address	City Zip + 4

A-II. Provide a narrative description and map of the entire project – not just the treatment facility.

☒ **Check** this box if there are attached submittals for this section.

See Appendix 1 (Project Narrative) and Appendix 3 (Facility Diagrams)

A-III. WASTEWATER DISCHARGE MANAGEMENT: ☐ Check here if the other required forms are attached.

Permits for reclaimed water are issued in combination with any required NPDES or state wastewater discharge permits. Check the boxes in column below to determine which (if any) wastewater discharge permit application forms apply for this facility. Note that unless 100% of the water generated will be reclaimed AND used, wastewater discharge applications must also be required. Permit application forms are available on Ecology's website.

- ☐ All wastewater is generated, treated and used on site. No wastewater discharges from this site.
- ☒ Wastewater discharges to waters of the US. NPDES PERMIT REQUIRED
- ☐ Wastewater discharges to land or ground water. STATE WASTE DISCHARGE PERMIT REQUIRED. ECY 040-179.
- ☐ This facility discharges industrial process wastewater for treatment at a publicly owned treatment works. STATE PRETREATMENT PERMIT REQUIRED. ECY 040-177.
- ☐ The only discharge from this site is reclaimed water meeting state standards (see Section V below).
- ☐ Facility discharges reclaimed water to a drywell, drainfield, or an infiltration system that uses perforated pipe to discharge to the subsurface and complies with the Underground Injection Control Program (UIC) regulations, 173-218 WAC.

A-IV. RECLAIMED WATER PRODUCTION: Section B required ☒ Check here if Attached.

Primary Treatment Facility Contact: Robert Waddle Title: Wastewater Plant Operations and Maintenance Manager

E-mail Address: robert.waddle@kingcounty.gov Phone No. 206-263-9481

Mailing Address: South Plant, City Renton Zip + 4 98057
1200 Monster Rd SW

Check type(s) of reclaimed water quality produced.

- ☒ Class A
- ☐ Class B
- ☐ Class C
- ☐ Class D

For ground water recharge, surface water augmentation or wetlands check additional treatment or water quality requirements achieved.

- ☐ Nitrogen reduction
- ☐ Drinking water standards
- ☒ Surface water standards
- ☐ Wetland standards
- ☐ Reverse osmosis
- ☐ Other - Explanation attached

Provide the status of each required submittal below. If submittal does not apply to your facility, enter NA.

Submittal	Title	Date	Attached	Submitted	Approved
Reclaimed Water Engineering Report	NA – This is an existing reclaimed water facility and its capacity remains the same as the last permit cycle		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reliability Assessment	NA – This is an existing facility		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note: The engineering report above is the report required in the State Water Reclamation and Reuse Standards Publication #97-023.

- ☐ Check this box if there are multiple engineering submittals for different treatment processes or sites. Attach a list of these specific submittals to include coverage under this permit

A-V. RECLAIMED WATER USE: Section D Required ☒ Check here if attached.

Check all categories of use of reclaimed water.	<input checked="" type="checkbox"/> Wetlands
<input type="checkbox"/> Industrial or commercial uses	<input type="checkbox"/> Streamflow augmentation
<input type="checkbox"/> Land application (irrigation)	<input type="checkbox"/> Direct aquifer recharge
<input type="checkbox"/> Impoundments	<input type="checkbox"/> Other - Explanation attached
<input type="checkbox"/> Groundwater recharge by surface percolation	<input type="checkbox"/> Indirect use (controlled)
	<input type="checkbox"/> Mitigation for new appropriative water rights

A-VI. WATER RIGHT IMPAIRMENT INFORMATION

State law requires that facilities that reclaim water shall not impair existing water rights downstream of any freshwater discharge points from such facilities unless compensation or mitigation is agreed to by the holder of the affected water right.

Does diversion of reclaimed water result in impairment of existing downstream water rights?

☐ No ☒ Yes

If yes, briefly describe method of compensation or mitigation of the affected water right(s).

In accordance with the attached Ecology approval letter (Appendix 2), the net environmental benefit of the project provides adequate mitigation and/or compensation as agreed to by the impaired water right holder, the State of Washington

A-VII. SUMMARY OF REQUIRED SUBMITTALS

Provide the status of each required submittal below. If submittal does not apply to your facility, enter NA. – **See Appendix 2**

Submittal	Title	Date	Attached	Submitted	Approved
Water Right Impairment Analysis	Letter of Approval of Water Right Impairment Analysis for Proposed Amendment to the Wastewater Facilities Plan for the Carnation Wastewater Treatment/Water Reclamation Facility	4/23/2007	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Other Contracts (<i>note – no user contracts</i>)	King County Special Use Permit	3/28/2013	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public Water System's Cross Connection Control Plan	City of Carnation Combined Water & Sanitary Sewer Utility Technical Standards, and Cross-Connection Control Program. Adopted by Resolution No. 416, 10/03/2017	10/03/2017	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reclaimed Water Nutrient Analysis	2016 Reclaimed Water Nutrient Analysis	12/13/2017	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

☐ **Check** this box if there are multiple submittals under the above categories for use sites or uses.

Attach a list of these specific submittals for coverage under this permit.

A-VIII. CERTIFICATION BY PERMITTEE:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Christie True
Printed Name of Person Signing Below

Director, King County Department of Natural Resources and Parks
Title

BA Brown for
Signature of Applicant

12/29/17
Date Applicant Signed

NOTE: Applications must be signed as follows: A.) For corporation, by a principal executive officer of at least the level of vice president; B.) For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or C.) For a municipality, state, federal, or other public facility, by either a principal executive officer or ranking elected official.

A-IX. SUBMITTAL INSTRUCTIONS:

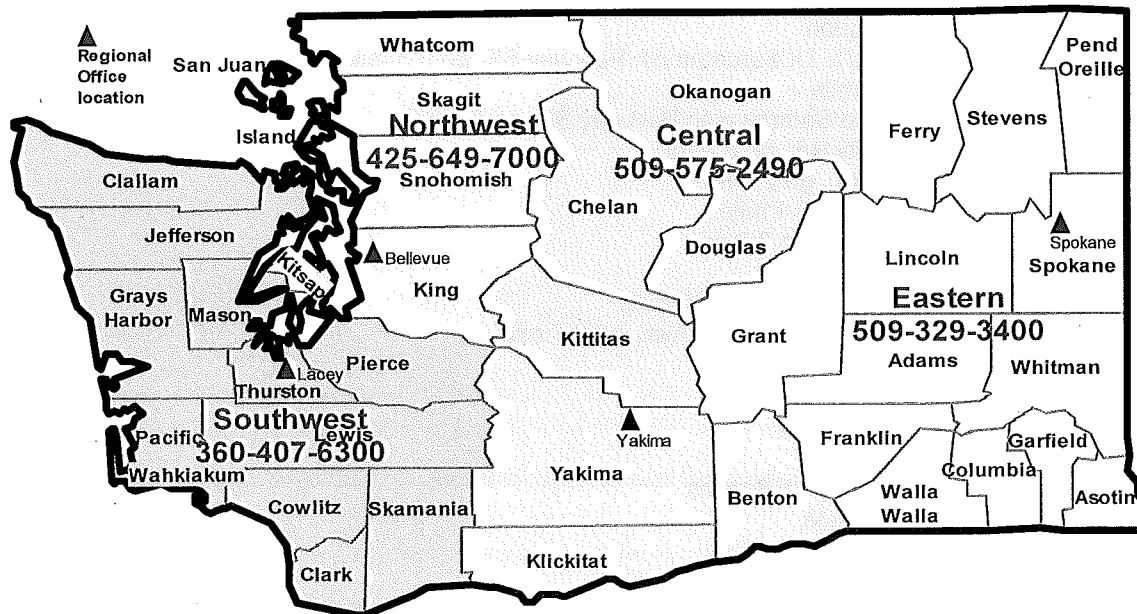
A complete application must contain all required forms for source control, discharges and reclaimed water use. The Departments of Ecology and Health may request additional information regarding water quality and the location, rate and purposes of use. Information from other submittals attached must reference submittal name, date and page number.

Submit the completed application forms to the appropriate Ecology regional office and to the Department of Health at the addresses listed below.

Washington State Department of Ecology (see map below for regional offices)	
Ecology Southwest Regional Office Water Quality Program Attn: Permit Coordinator PO Box 4775 Olympia, WA 98504-7775	Phone: 360-407-6279
Ecology Northwest Regional Office Water Quality Program Attn: Permit Coordinator 3190 - 160 th Avenue SE Bellevue, WA 98008-5452	Phone: 425-649-7201
Ecology Central Regional Office Water Quality Program Attn: Permit Coordinator 15 West Yakima Avenue, Suite 200 Yakima, WA 98902-3401	Phone: 509-457-7105
Ecology Eastern Regional Office Water Quality Program Attn: Permit Coordinator N. 4601 Monroe, Suite 100 Spokane, WA 99205-1295	Phone: 509-329-3537
Washington State Department of Health Office of Drinking Water, Suite #1500 Attn: Mamdouh El-Aarag, Water Reclamation & Reuse Program 16021 E. Indiana Avenue, Spokane Valley, Washington 99216	Phone: 509-329-2148

Headquarters (Lacey) 360-407-6000

If you are speech or hearing impaired, call 711 or 1-800-833-6388 for TTY



STATE OF WASHINGTON DEPARTMENTS OF ECOLOGY AND HEALTH
PERMIT APPLICATION for RECLAIMED WATER USE

SECTION B. RECLAIMED WATER PRODUCTION

Complete a separate section B for each treatment facility site covered under this permit. All questions must be answered completely and accurately to be considered for coverage. If a question does not apply, answer NA.

B-I. TREATMENT FACILITY SITE INFORMATION:

Facility: Carnation Wastewater Treatment Facility	
Primary Contact: Robert Waddle	Title: Wastewater Plant Operations and Maintenance Manager
E-mail Address: robert.waddle@kingcounty.gov	Phone No. 206-263-9481
Mailing Address: South Plant, 1200 Monster Rd SW	City: Renton Zip + 4 98057

Provide latitude and longitude points where reclaimed water leaves the treatment facility:
WWTF: W 47 38' 51" N 121 55' 7"; River Outfall 47 39' 57" N 121 55' 30" W, Reclaimed Water Discharge: 47 39' 59" N 121 55' 34" W

Provide directions to site from nearest hwy or city/town:

From **Interstate 405**

1. Go north on I-405 toward Renton/Everett.
2. Take exit #14 onto 520 east, go 5.8 miles.
3. Take the Redmond Way exit toward Fall City/North Bend, go 1.7 miles.
4. Continue on NE Redmond-Fall City Rd., go 6.4 miles.
5. Turn on NE Tolt Hill Rd., go 3.2 miles.
6. Turn on Fall City-Carnation Rd. NE, go 0.1 mile.
7. Continue on Tolt Ave., go 0.7 mile.
8. Turn on E Entwistle St., go 0.2 mile.
9. Arrive at 4405 Larson Ave.

From **Interstate 90 through Issaquah**

1. Go east on I-90 toward Issaquah
2. Take exit 17/Front St. toward E Lk Sammamish Parkway SE, go 0.3 mile.
3. Turn on Front St. N., go 0.1 mile.
4. Front St. N. becomes E. Lake Sammamish Parkway SE, go 0.2 mile.
5. Turn on SE Issaquah-Fall City Rd., go 3.0 mi
6. Continue on SE Duthie Hill Rd., go 2.2 mi
7. Continue on 292nd Ave. SE, go 0.1 mile.
8. Turn on Redmond-Fall City Rd., go 2.6 mi
9. Bear on NE Tolt Hill Rd., go 3.2 mi
10. Turn on Fall City-Carnation Rd. NE, go 0.1 mile.
11. Fall City-Carnation Rd. NE becomes Tolt Ave., go 0.7 mile.
12. Turn on E Entwistle St., go 0.2 mile.
13. Arrive at 4405 Larson Ave.

From **Interstate 90 through Preston**

1. Go east on I-90
2. Take exit 22 Fall City/Preston, go 0.3 miles.
3. Turn on SE 82nd St., go 0.2 mile.
4. Turn on SE High Point Way, go 0.5 miles.
5. Continue on Preston-Fall City Rd. SE, go 4.0 miles.
6. Fall City Preston-Fall City Rd. SE becomes Fall City-Carnation Rd., go 5.3 miles.

7. Fall City-Carnation Rd. becomes Tolt Ave., go 0.7 mile.
8. Turn on E Entwistle St., go 0.2 mile.
9. Arrive at 4405 Larson Ave.

B-II. CLASS OF RECLAIMED WATER PRODUCED AT THIS FACILITY:

☒

Class A

☐

Class B

☐

Class C

☐

Class D

☐

Other Process / Water Quality Limits (explain):

B-III. EXISTING PERMITS: List all existing environmental permits at this location by type, issue date, expiration date, and permit number. If no existing permits, enter NONE.

Type of Permit	Issued (date)	Expires (date)	Permit Number
National Pollutant Discharge Elimination System Waste Discharge Permit	Dec 13, 2013	Dec 31, 2018	WA0032182
State General Permit for Biosolids Management	Aug 5, 2015	Sep 4, 2020	BT0804

B-IV. LIST ALL SOURCES OF WATER TREATED TO RECLAIMED WATER AT THIS SITE:

Type of Water	Where Generated	Volume Treated	Percentage of Total
Untreated Domestic Sewage	<input type="checkbox"/> On-site <input checked="" type="checkbox"/> Off-site	29.3 MG/YR	87.6%
Secondary Effluent	<input type="checkbox"/> On-site <input type="checkbox"/> Off-site		
Storm Water	<input type="checkbox"/> On-site <input type="checkbox"/> Off-site		
Industrial Process Water	<input type="checkbox"/> On-site <input type="checkbox"/> Off-site		
Commercial Use Water	<input type="checkbox"/> On-site <input checked="" type="checkbox"/> Off-site	4.2 MG/YR	12.4%*
Agricultural Industrial Process Water	<input type="checkbox"/> On-site <input type="checkbox"/> Off-site		
Other:	<input type="checkbox"/> On-site <input type="checkbox"/> Off-site		

**Sewage sources are based on the average of 2008-2014 data for potable inside water use based on connection type, from Appendix H - Historical Water Production and Usage Data, City of Carnation 2015 Comprehensive Water System Plan DRAFT*

B-V. INFORMATION ON INDUSTRIAL AND COMMERCIAL FACILITIES DISCHARGING TO SOURCE WATER.

Identify all industries and large commercial facilities discharging to the source water for the reclamation plant by name, type of industry, address telephone number and contact name. Attach additional sheets if needed.

Industry/Facility Name:	NA		
Type:			
State Permit #:			
Street Address:			
Mailing Address:			
Telephone:			
Contact Name:			
E-mail Address:			

B-VI. TREATMENT PROCESSES USED TO PRODUCE RECLAIMED WATER AT THIS SITE:

Check (✓) all unit processes used to produce reclaimed water at this site. Enter the # of units.

Treatment Process	✓	Unit Process	# of Units	
Preliminary Treatment	<input type="checkbox"/>	Manually Operated Bar Screens		
	<input type="checkbox"/>	Mechanically Operated Bar Screens		
	<input checked="" type="checkbox"/>	Fine Screen – Size: 2mm	2	
	<input type="checkbox"/>	Comminutor/Grinder		
	<input type="checkbox"/>	Grit removal		
	<input type="checkbox"/>	Pre-Aeration		
	<input checked="" type="checkbox"/>	Odor Control	2	
	<input checked="" type="checkbox"/>	Flow Measurement	1	
	<input type="checkbox"/>	Flow Equalization		
	<input type="checkbox"/>	Septage or Other Hauled Wastes		
<input type="checkbox"/>	Other: (specify)			
Primary Treatment	<input type="checkbox"/>	Sedimentation Tanks/Clarifiers		
	<input type="checkbox"/>	Septic Tanks		
	<input type="checkbox"/>	Other (Specify)		
Secondary Treatment Biological Oxidation	<input type="checkbox"/>	Activated Sludge	Conventional	
	<input type="checkbox"/>		Batch Treatment (SBR)	
	<input type="checkbox"/>		Extended Aeration	
	<input type="checkbox"/>		Package Plant	
Post Secondary Treatment	<input type="checkbox"/>	Coagulation		
	<input type="checkbox"/>	Flocculation		
	<input type="checkbox"/>	Sedimentation		
	<input type="checkbox"/>	Filtration	High-Rate Rapid Sand Filter	
	<input type="checkbox"/>		Continuous Backwash Upflow	
	<input type="checkbox"/>		Rotating Filter Disk	
	<input type="checkbox"/>		Compressible Fiber Filter	
	<input type="checkbox"/>		Traveling Bridge Filter	
	<input type="checkbox"/>		Membrane Filter <input type="checkbox"/> Microfiltration <input type="checkbox"/> Ultrafiltration	
	<input checked="" type="checkbox"/>	Membrane Bioreactor <input type="checkbox"/> Microfiltration <input checked="" type="checkbox"/> Ultrafiltration	5 trains	
<input type="checkbox"/>	Other: (specify)			
Advanced Treatment	<input type="checkbox"/>	Nanofiltration		
	<input type="checkbox"/>	Reverse Osmosis		
	<input type="checkbox"/>	Other (specify)		

Disinfection	<input type="checkbox"/>	Chlorine Gas	
	<input checked="" type="checkbox"/>	Hypochlorite <i>(only if discharge is to river under NPDES permit)</i>	
	<input checked="" type="checkbox"/>	Ultraviolet Light	2 trains of 2 units each
	<input type="checkbox"/>	Ozone	
	<input type="checkbox"/>	Other (specify):	
On-Site Storage	<input type="checkbox"/>	Lined Pond	
	<input type="checkbox"/>	Unlined Pond	
	<input type="checkbox"/>	Covered Tank	
	<input type="checkbox"/>	Other (specify):	
Chemical Additives <input type="checkbox"/> List attached	<input checked="" type="checkbox"/>	List <u>all</u> chemical additives associated with the treatment processes (e.g. alum for coagulation, chlorine for oxidation). Attach list if needed. <ul style="list-style-type: none"> • Caustic soda – alkalinity • Citric acid – cleaning membranes/UV • Sodium hypochlorite – odor control and cleaning membranes • Muriatic acid – concentrated hydrochloric acid for cleaning membranes 	
Other Treatment (Specify)	<input type="checkbox"/>		
	<input type="checkbox"/>		
	<input type="checkbox"/>		
	<input type="checkbox"/>		
	<input type="checkbox"/>		

B-VII. FACILITY DIAGRAM

Attach a sketch, aerial photograph, or map, including scale, of the treatment facility showing the following: **See Appendix 3**

✓	Check items shown on the attachment.
<input checked="" type="checkbox"/>	Approximate overall dimensions of the facility
<input checked="" type="checkbox"/>	A properly labeled line drawing of all water and wastewater flows including direction of flow
<input checked="" type="checkbox"/>	All chemical storage areas
<input checked="" type="checkbox"/>	All discharge point(s) and receiving water(s)
<input checked="" type="checkbox"/>	All sludge (or biosolids) storage, processing or disposal areas

B-VIII. CHARACTERISTICS OF RECLAIMED WATER PRODUCED

Enter X for parameters known to be present in the reclaimed water, or S for parameters suspected to be present. Provide data for all X or S. Mark NA for parameters that are not of concern at this facility.

☐ New Treatment Facility – Estimate concentrations based on design.

☒ Existing facility - Use actual operating data for the last year of operation where available - indicated by (✓) (2016 and/or 2017 data was used when available for the parameters below)

X/S	Actual data ✓	Parameter	Concentration			# of Analyses	Analytical Method	Detection Limit
			Minimum	Maximum	Average			
X	<input checked="" type="checkbox"/>	BOD (5 day)	<1.0 mg/L	7.8 mg/L	<1.3 mg/L	148	SM 5210-B	1 mg/L
X	<input checked="" type="checkbox"/>	COD	3 mg/L	25 mg/L	15.4 mg/L	49	SM 5220D	3 mg/L
	NA	Total Organic Carbon						
X	<input checked="" type="checkbox"/>	Total Suspended Solids	<2.0 mg/L	4 mg/L	<2.0 mg/L	156	SM 2540-D	2 mg/L
X	<input checked="" type="checkbox"/>	Total Dissolved Solids	354 mg/L	537 mg/L	406 mg/L	11	SM 2540C	10 mg/L
	NA	Conductivity						
X	<input checked="" type="checkbox"/>	pH	6.5 s.u.	8.6 s.u.	7.4 s.u.	365	SM4500H	NA
X	<input checked="" type="checkbox"/>	Ammonia-N	<0.1 mg/L	<0.1 mg/L	<0.1 mg/L	52	SM 4500-NH3-G	0.1 mg/L
X	<input checked="" type="checkbox"/>	Total Kjeldahl N	0.8 mg/L	2.1 mg/L	1.2 mg/L	52	SM 4500-Norg-B	0.4 mg/L
X	<input checked="" type="checkbox"/>	Nitrate + Nitrite-N	3.6 mg/L	28.3 mg/L	15.4 mg/L	51	SM4500-NO2+3-B	0.09 mg/L
X	<input checked="" type="checkbox"/>	Total Nitrogen-N	4.6 mg/L	29.3 mg/L	16.6 mg/L	51	Calculated	0.4 mg/L
X	<input checked="" type="checkbox"/>	Ortho-phosphate- P	2.8 mg/L	5.9 mg/L	4.1 mg/L	51	SM 4500-P-B, F	0.03 mg/L
X	<input checked="" type="checkbox"/>	Total-phosphate-P	3.1 mg/L	6.9 mg/L	4.2 mg/L	51	SM 4500-P F	0.1 mg/L
	NA	Total Residual Chlorine						
	NA	Free Residual Chlorine						
X	<input checked="" type="checkbox"/>	Total Coliform	0	0	0	365	SM 9222B	1 CFU/100mL
X	<input checked="" type="checkbox"/>	Dissolved Oxygen	4.5 mg/L	8.4 mg/L	6.3 mg/L	93	SM4500 OG	0.1 mg/L
X	<input checked="" type="checkbox"/>	Total Oil and Grease	<1.5 mg/L	1.7 mg/L	<1.7 mg/L	4	EPA 1664B	1.7 mg/L
X	<input checked="" type="checkbox"/>	Calcium	15400 µg/L	23500 µg/L	16854 µg/L	13	EPA 200.7*SW846 6010C	50 µg/L
X	<input checked="" type="checkbox"/>	Chloride	36.3 mg/L	67.5 mg/L	47.3 mg/L	4	SM4110B-CL	1 mg/L
	NA	Fluoride						
X	<input checked="" type="checkbox"/>	Magnesium	6740 µg/L	59200 µg/L	34479 µg/L	13	EPA 200.7*SW846 6010C	30 µg/L
X	<input checked="" type="checkbox"/>	Potassium	15500 µg/L	21000 µg/L	17523 µg/L	13	EPA 200.8*SW846 6020A	100 µg/L
X	<input checked="" type="checkbox"/>	Sodium	39000 µg/L	103000 µg/L	63392 µg/L	13	EPA 200.8*SW846 6020A	100 µg/L
X	<input checked="" type="checkbox"/>	Sulfate	26.6 mg/L	30.9 mg/L	28.5 mg/L	4	SM4110B-SO4	2 mg/L
X	<input checked="" type="checkbox"/>	Barium (total)	3.06 µg/L	4.59 µg/L	3.54 µg/L	9	EPA 200.8*SW846 6020A	0.05 µg/L
X	<input checked="" type="checkbox"/>	Cadmium (total)	<0.05 µg/L	<0.05 µg/L	<0.05 µg/L	9	EPA 200.8*SW846 6020A	0.05 µg/L
X	<input checked="" type="checkbox"/>	Copper (total)	9.76 µg/L	11.9 µg/L	10.8 µg/L	9	EPA 200.8*SW846 6020A	0.4 µg/L
X	<input checked="" type="checkbox"/>	Iron (total)	19 µg/L	24 µg/L	20.9 µg/L	9	EPA 200.8*SW846 6020A	10 µg/L
X	<input checked="" type="checkbox"/>	Lead (total)	<0.1 µg/L	0.27 µg/L	<0.13 µg/L	9	EPA 200.8*SW846 6020A	0.1 µg/L
X	<input checked="" type="checkbox"/>	Manganese (total)	1.95 µg/L	7.97 µg/L	3.29 µg/L	9	EPA 200.8*SW846 6020A	0.1 µg/L
	NA	Mercury						
X	<input checked="" type="checkbox"/>	Selenium	<0.05 µg/L	<0.05 µg/L	<0.05 µg/L	9	EPA 200.8*SW846 6020A	0.5 µg/L
X	<input checked="" type="checkbox"/>	Silver (total)	<0.04 µg/L	<0.04 µg/L	<0.04 µg/L	9	EPA 200.8*SW846 6020A	0.05 µg/L
X	<input checked="" type="checkbox"/>	Zinc (total)	47.6 µg/L	58.9 µg/L	50.9 µg/L	9	EPA 200.8*SW846 6020A	0.5 µg/L

B-IX. ADDITIONAL CHARACTERISTICS OF RECLAIMED WATER PRODUCED - NA

Contact the appropriate Ecology regional office to check on additional testing requirements. List Parameters Not Included Above. Enter X for parameters which are known to be present in the reclaimed water. S for parameters suspected to be present in the reclaimed water. Provide data for all parameters marked. This section should address all organic chemical constituents expected such as volatile organic and synthetic organic compounds, pesticides, herbicides and fungicides; radionuclide and disinfection byproducts that may be generated in the disinfection process.

[illegible]

B-X. RECLAIMED WATER PRODUCTION VOLUME

Provide the following information regarding reclaimed water production at this facility:

Maximum Production Capacity: ¹ Design MGD	1.29
Average Flow(Maximum month) Design MGD	0.48
Total Annual Volume of Reclaimed Water Available For Use (MG)	33.5 MG in 2016
Estimate Actual Annual Volume of Reclaimed Water Used (MG)	33.5 MG in 2016
Date Began Operation	March 2009
Date of Last Upgrade	NA
Date Planned Upgrades	NA
Describe how influent flow is measured: Magnetic Flow Meter	
Describe how effluent flows are measured: Magnetic Flow Meter	
Attach actual flow records for the last year (if available) See Appendix 4	

Note: The max production capacity is based on all 5 membrane trains operating at maximum capacity.

¹ "Maximum production capacity" refers to the amount of reclaimed water that a treatment facility is designed to produce at peak output and 24-hour production.

B-XI. FACILITY ALARMS. Describe how the following alarm features are provided. If referencing information in an engineering report or other submittal, give name of submittal, date and page number of information. Attach additional sheets if needed.

Required Alarms	How Provided
Loss of power from normal power supply	The 900 kw standby generator is capable of providing power to entire facility
Alarms independent of normal power supply	The SCADA system (including all PLCs) will be powered by an uninterruptible power supply (UPS)
Master Alarm Inter-connect all site alarms Who is notified?	Alarms interconnected to SCADA and plant operator is notified (on-site/remote site)
Master alarm to remote service location Who is notified?	Alarms interconnected to King County's Regional Facility (South Treatment Plant, Renton, WA) and plant operator is notified

B-XII. FACILITY RELIABILITY. In the table below, indicate (✓) which reliability requirements are used at this facility. One or more reliability features are required for each category. If the treatment category does not apply to this facility, write NA.

Reliability Category	✓	Option
Power Supply	Check which of the following are provided (at least one required)	
	<input checked="" type="checkbox"/>	Alarm and standby power source
	<input type="checkbox"/>	Alarm & automatically actuated short term storage or disposal
	<input type="checkbox"/>	Automatically actuated long term storage
	<input type="checkbox"/>	Approved other - specify
Emergency Storage or Disposal	Check which of the following are provided (at least one required)	
	<input type="checkbox"/>	Long term storage on-site. No disposal options
	<input type="checkbox"/>	Emergency short-term storage with approved disposal option
	<input checked="" type="checkbox"/>	Approved other – specify Diversion to discharge point approved by Dept. of Ecology. Diversion point is Snoqualmie River outfall
Biological Treatment	Check which of the following are provided (at least one required)	
	<input type="checkbox"/>	Alarm and multiple units treating entire flow with one not in service
	<input type="checkbox"/>	Alarm, short-term storage or disposal and standby equipment
	<input checked="" type="checkbox"/>	Alarm and long-term storage or disposal provisions
	<input type="checkbox"/>	Automatic diversion to long-term storage or disposal.
	<input type="checkbox"/>	Approved other – specify
Secondary Sedimentation NA	Check which of the following are provided (at least one required)	
	<input type="checkbox"/>	Multiple units treating entire flow with one unit not in service.
	<input type="checkbox"/>	Standby sedimentation unit process
	<input type="checkbox"/>	Approved long-term storage or disposal provisions
		Approved other – specify
Coagulation NA	Check which of the following are provided (all four are required).	
	<input type="checkbox"/>	Standby chemical feeders
	<input type="checkbox"/>	Adequate chemical storage and conveyance facilities
	<input type="checkbox"/>	Adequate reserve chemical supply
	<input type="checkbox"/>	Automatic dosage control

Coagulation (continued) NA	Check which of the following are provided (at least one required)	
	<input type="checkbox"/>	Alarm and multiple units treating entire flow with one not in service.
	<input type="checkbox"/>	Alarm, short-term storage or disposal and standby equipment.
	<input type="checkbox"/>	Alarm and long-term storage or disposal provisions
	<input type="checkbox"/>	Automatic diversion to long-term storage or disposal provisions.
Filtration	Check which of the following are provided (at least one required)	
	<input checked="" type="checkbox"/>	Alarm and multiple units treating entire flow with one not in service.
	<input type="checkbox"/>	Alarm, short-term storage or disposal and standby equipment.
	<input checked="" type="checkbox"/>	Alarm and long-term storage or disposal provisions
	<input type="checkbox"/>	Automatic diversion to long-term storage or disposal provisions.
Reverse Osmosis NA	Check which of the following are provided (at least one required)	
	<input type="checkbox"/>	Alarm and multiple units treating entire flow with one not in service.
	<input type="checkbox"/>	Alarm, short-term storage or disposal and standby equipment.
	<input type="checkbox"/>	Alarm and long-term storage or disposal provisions
	<input type="checkbox"/>	Automatic diversion to long-term storage or disposal provisions.
Ultraviolet Disinfection	Check which of the following are provided (at least one required)	
	<input checked="" type="checkbox"/>	Alarm and multiple units treating entire flow with one not in service.
	<input type="checkbox"/>	Alarm, short-term storage or disposal and standby equipment.
	<input checked="" type="checkbox"/>	Alarm and long-term storage or disposal provisions
	<input type="checkbox"/>	Automatic diversion to long-term storage or disposal provisions.
Chlorine Disinfection NA	Check which of the following are provided (all six are required).	
	<input type="checkbox"/>	Standby chlorinator
	<input type="checkbox"/>	Standby chlorine supply
	<input type="checkbox"/>	Manifold system to connect chlorine cylinders
	<input type="checkbox"/>	Chlorine scales
	<input type="checkbox"/>	Automatic switchover to full chlorine cylinders
	<input type="checkbox"/>	Continuous measuring and recording of chlorine residual
	Check which of the following are provided (at least one required)	
	<input type="checkbox"/>	Alarm and standby chlorinator
	<input type="checkbox"/>	Alarm, short-term storage or disposal and standby equipment.
	<input type="checkbox"/>	Alarm and long-term storage or disposal provisions
	<input type="checkbox"/>	Automatic diversion to long-term storage or disposal provisions.
	<input type="checkbox"/>	Alarm and multiple point chlorination. Each point has independent power source, separate chlorinator and separate chlorine supply.
	<input type="checkbox"/>	Approved other – specify

**STATE OF WASHINGTON DEPARTMENTS OF ECOLOGY AND HEALTH
PERMIT APPLICATION for RECLAIMED WATER USE**

SECTION C. RECLAIMED WATER DISTRIBUTION

NOTE: Complete a separate form C for each reclaimed water distribution system under this permit.

C-I. DISTRIBUTOR INFORMATION:

Treatment Facility Providing Reclaimed Water : Carnation Wastewater Treatment Facility	
Water Distributor: King County Department of Natural Resources and Parks, Wastewater Treatment Division	Is the distributor also the owner of the treatment facility? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If no attach a copy of the agreement used to control the water distribution and use. <input type="checkbox"/> Agreement attached
Primary Contact Name: Robert Waddle	
Title: Wastewater Plant Operations and Maintenance Manager	
Phone No: 206-263-9481	
E-mail Address: robert.waddle@kingcounty.gov	
Primary Mailing Address: South Plant, 1200 Monster Rd SW	
City: Renton	Zip + 4 98057

C-II CLASS OF RECLAIMED WATER DISTRIBUTED: ☒ A ☐ B ☐ C ☐ D
☐ Other Process / Water Quality Limits (explain):

C-III. TOTAL WATER SUPPLY AVAILABLE FROM THIS DISTRIBUTION SYSTEM:

Source of Water	Average Daily Flow (MGD)
Reclaimed Water Produced	0.09 mgd
Other Water Distributed in this system:	(enter total)0
<input type="checkbox"/> Surface Water <input type="checkbox"/> Ground Water <input type="checkbox"/> Storm Water <input type="checkbox"/> Drinking Water <input type="checkbox"/> Other:	
Reclaimed Water Recovered From Aquifer Storage	0
TOTAL	0.09 mgd

STATE OF WASHINGTON DEPARTMENTS OF ECOLOGY AND HEALTH
PERMIT APPLICATION for RECLAIMED WATER USE

SECTION D. RECLAIMED WATER USE

NOTE: Complete a separate form D for each reclaimed water customer (water user) under this permit. For subdivisions with a number of residential users, a single form may be used.

D-I. GENERAL INFORMATION:

Name of Customer (Water User): King County Department of Natural Resources and Parks (site managed by the Parks and Recreation Division)	
Site Address: Chinook Bend Natural Area	City: Carnation Zip + 4: 98014
(If no address describe the location): Just west of Snoqualmie River Crossing with NE Carnation Farm Rd	
Provide a legal description with latitude and longitude if known. GL 3 LESS CO RDS TGW POR GL 4 & 7 LY N & ELY OF RD NO 259 & 1023 LESS CO RDS; WWTF: W 47 38' 51" N 121 55' 7"; River Outfall 47 39' 57" N 121 55' 30" W, Reclaimed Water Discharge: 47 39' 59" N 121 55' 34" W	
Primary Contact: Robert Nunnenkamp	Title: Real Property Agent
Phone No: 206-477-4581	E-mail Address: robert.nunnenkamp@kingcounty.gov
Mailing Address: KSC-NR-0700, 201 S. Jackson St, Rm 700	City: Seattle Zip + 4: 98104-3855
Name of Reclaimed Water Distributor (Purveyor): King County Wastewater Treatment Division	<p>Is the customer (water user) the same as the:</p> <p>Treatment facility owner (Permittee) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Distributor (purveyor) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><i>(King County Wastewater Treatment Division has a special use permit allowing reclaimed water to be applied for beneficial use at the Chinook Bend Wetland that is managed by King County Parks and Recreation Division. The agreement is not an end user agreement as the water is applied and managed by on department, the King County Department of Natural Resources and Parks).</i></p> <p>If no, attach a copy of the agreements used to control the use. <input type="checkbox"/></p> <p>Agreement attached</p>
Name of Drinking Water System Purveyor: NA	Name of Cross Connection Control Program Administrator: NA

D-II. DESCRIPTION OF USE OF RECLAIMED WATER:

- The volume of reclaimed water use at this site is ☐ Estimated ☒ Metered
- Describe the uses of reclaimed water at this site. Using available flow records and other available information, allocate the average flows among the various use categories. For each type of reclaimed water use at this site, enter the permitted capacity, average flows and acreage.
☒ Same as Section C - IV of this application ☐ Additional information is attached.
- Describe any plans to modify the use of reclaimed water at this site.
☒ No modifications ☐ Description attached.

D-III. SITE ACCESS AND NOTIFICATION OF USE

In the table below, indicate (✓) which methods are used at this area to notify the public of reclaimed water use.

<input checked="" type="checkbox"/>	Check which of the following are provided:
<input checked="" type="checkbox"/>	Advisory signs posted at location
<input type="checkbox"/>	Advisory signs posted on tank trucks
<input type="checkbox"/>	Advisory signs posted in storage areas
<input type="checkbox"/>	Written notices. Check who receives notification: <input type="checkbox"/> General Public <input type="checkbox"/> Employees <input type="checkbox"/> Residents <input type="checkbox"/> Customers
<input type="checkbox"/>	Golf course score cards
<input type="checkbox"/>	Identification of areas not designated for reclaimed water use. Check which apply: <input type="checkbox"/> Buildings <input type="checkbox"/> Drinking fountains <input type="checkbox"/> Eating areas <input type="checkbox"/> Passing vehicles <input type="checkbox"/> Other (Specify): _____
<input checked="" type="checkbox"/>	Purple color coding: Check which apply: <input checked="" type="checkbox"/> Pipes <input checked="" type="checkbox"/> Valves <input type="checkbox"/> Outlets
<input type="checkbox"/>	Training programs: <input type="checkbox"/> Employees <input type="checkbox"/> Residents <input type="checkbox"/> Customers <input type="checkbox"/> Truck use <input type="checkbox"/> Other (Specify): _____

D-IV. CROSS CONNECTION CONTROL

Check which of the following apply:

- ☒ Reclaimed water use area is serviced only with reclaimed water
☐ Reclaimed water use area is serviced with both reclaimed and potable water

Answer all questions below where dual potable and reclaimed water systems exist.

1. All public water systems servicing this area are actively implementing and enforcing cross-connection control plans. ☐ Yes ☐ No
2. All cross-connection control programs have been accepted by the Department of Health.
☐ Yes ☐ No
3. How many illegal cross-connections were identified during the last reporting period (permit)?
 - a. How many of these were eliminated?
 - b. Attach description of any cross-connections found and efforts to eliminate. ☐ Attached

D-V. BEST MANAGEMENT PRACTICES (FOR SITE USE OF RECLAIMED WATER)

☐ All reclaimed water is used at this site is consumed on site. Site has no discharges.

☒ Site has the following discharges of reclaimed water to waters of the state.

☐ Aquifer recharge by: ☐ Surface percolation ☐ Direct injection

Note: If not owned by the Permittee, a separate permit application may be required for this discharge.

☒ Discharges to surface waters or to wetlands discharging to surface waters. NPDES PERMIT REQUIRED

Enter existing permit number (if any) WA0032182

☐ This site uses reclaimed water for industrial process wastewater which is then discharged to a publicly owned treatment works. STATE PRETREATMENT PERMIT REQUIRED. ECY 040-177.

☐ Discharges to wetlands that discharge to ground water. STATE WASTE DISCHARGE PERMIT REQUIRED. ECY 040-179.

In the table below, indicate (✓) which methods are used at this area to regulate reclaimed water use.

Category	✓	Option
General Site Management		Check which of the following are provided:
	<input type="checkbox"/>	Other water used at this reclaimed water use site. Check all that apply: <input type="checkbox"/> Public potable water system <input type="checkbox"/> Private well <input type="checkbox"/> Surface water
	<input checked="" type="checkbox"/>	Site access is <input checked="" type="checkbox"/> unrestricted <input type="checkbox"/> restricted to public <input type="checkbox"/> restricted to most employees
	<input type="checkbox"/>	Rules prohibit the spraying with reclaimed water.
	<input type="checkbox"/>	Reclaimed water is confined to use areas. Set back distance:
	<input type="checkbox"/>	Rules prohibit hose bibs on reclaimed water lines.
	<input type="checkbox"/>	Use of reclaimed water is secured (authorized personnel only).
	<input type="checkbox"/>	Rules prohibit ponding of reclaimed water.
	<input checked="" type="checkbox"/>	Other restrictions (specify): Reclaimed water is applied to the wetland in accordance with the approved water right impairment analysis. <input type="checkbox"/> Additional information is attached.
Impoundments & Storage Ponds - NA	<input type="checkbox"/>	Site has lined impoundments (ponds) with reclaimed water.
	<input type="checkbox"/>	Site has unlined impoundments (ponds) with reclaimed water. Describe method of seepage control. <input type="checkbox"/> attached
	<input type="checkbox"/>	Describe method to prevent breeding of vectors (for health protection). <input type="checkbox"/> attached
	<input type="checkbox"/>	Describe method to prevent odor, slime, and poor aesthetics. <input type="checkbox"/> attached
	<input type="checkbox"/>	Describe ground water monitoring (if any): <input type="checkbox"/> attached
	<input type="checkbox"/>	Other (Specify): <input type="checkbox"/> Additional information is attached.

Irrigation Uses - NA	<input type="checkbox"/>	Site has irrigation uses. <input type="checkbox"/> Seasonal use <input type="checkbox"/> Year round use <input type="checkbox"/> Landscape <input type="checkbox"/> Agriculture
	<input type="checkbox"/>	Type of irrigation <input type="checkbox"/> Spray irrigation <input type="checkbox"/> Flood irrigation <input type="checkbox"/> Surface drip system <input type="checkbox"/> Subsurface drip system <input type="checkbox"/> Other (specify): _____
	<input type="checkbox"/>	Hydraulic loading rates determined as follows: Check method boxes below: <input type="checkbox"/> By water balance <input type="checkbox"/> By other method Describe: _____ <input type="checkbox"/> Calculations attached <input type="checkbox"/> Submitted previously <input type="checkbox"/> Approved
	<input type="checkbox"/>	Application is controlled. Check methods of control. <input type="checkbox"/> Irrigation schedule (if available) attached. <input type="checkbox"/> Apply only when crops are growing. <input type="checkbox"/> Apply at night or when public is not present. <input type="checkbox"/> High wind cutoff to irrigation controls at <input type="checkbox"/> 15 mph <input type="checkbox"/> 25 mph <input type="checkbox"/> No application when ground is frozen <input type="checkbox"/> Use temperature set point <input type="checkbox"/> No application when ground in saturated <input type="checkbox"/> Use moisture sensors <input type="checkbox"/> Other (specify): _____
	<input type="checkbox"/>	Describe ground water monitoring <div style="text-align: right;"><input type="checkbox"/> Additional information is attached</div>

D-VI. LAND APPLICATION AND GROUNDWATER RECHARGE - NA

1. For land application and groundwater recharge sites, attach a topographic map (USGS 7.5 minute) showing the following information:
 - a. Surface water drainage systems with ¼ mile of the site
 - b. All wells within 1 mile of the site
 - c. Any discharge points
 - d. Land uses and zoning adjacent to the site
 - e. Groundwater gradient☐ Map attached

2. Describe soils at this site using information from local soil survey reports. ☐ Additional information attached.

3. Describe local geology and hydrogeology within one mile of this site. ☐ Additional information attached.

D-VII. GROUNDWATER INFORMATION - NA

If groundwater monitoring is required or available, provide measurements from monitoring wells or supply wells in the area of the groundwater recharge or irrigation. Provide the location of each well on a map. Attach well logs and well I.D. # when available. Copy this page for each well.

Well ID Number: _____

☐ New Reclaimed Water Site – Background
 ☐ Existing Site

Parameter	Concentration			# of Analyses	Analytical Method	Detection Limit
	Minimum	Maximum	Average			
BOD (5 day)						
COD						
Total Organic Carbon						
Total Suspended Solids						
Total Dissolved Solids						
Conductivity						
pH						
Ammonia-N						
Total Kjeldahl N						
Nitrate + Nitrite-N						
Total Nitrogen-N						
Ortho-phosphate- P						
Total-phosphate-P						
Total Residual Chlorine						
Free Residual Chlorine						
Total Coliform						
Dissolved Oxygen						
Total Oil and Grease						
Calcium						
Chloride						
Fluoride						
Magnesium						
Potassium						
Sodium						
Sulfate						
Barium (total)						
Cadmium (total)						
Copper (total)						
Iron (total)						
Lead (total)						
Manganese (total)						
Mercury						
Selenium						
Silver (total)						
Zinc (total)						
Water Level						

D-VIII. RECLAIMED WATER USE CAPACITY ALLOCATION

Using available flow records and other available information, allocate the average flows among the various use categories. For each type of reclaimed water use, enter the permitted capacity, average flows and acreage.

Use Category	Sub-Category	Capacity (MGD)	Average Flow (MGD)	Area (acres)
Water Production	Treatment Plant Uses			
Industrial Use	Process & Product Production			
	Cooling Use			
	Other			
Commercial Use	Toilet flushing			
	Fire protection			
	Other			
Public Access Land Application (irrigation)	Golf Course			
	Residential			
	Parks & Playgrounds			
	Schools			
	Cemeteries			
	Other			
Agricultural Land Application (irrigation)	Food Crops			
	Grass, Pasture			
	Other			
Groundwater Recharge	Surface Percolation			
	Direct Injection			
Wetlands	Constructed Treatment (aesthetic/polishing)			
	Beneficial Use (created)			
	Natural (restore)	0.37 (design capacity)	0.09 (in 2016)	4-6 acres
Surface Water	Augmentation			
Municipal Uses	Sewer Cleaning			
	Street Cleaning			
	Construction Compaction			
	Other			
Other (specify)				
TOTAL		0.37 (design capacity)	0.09 (in 2016)	4-6 acres