Water Pollution Control Facilities (WPCF) Permit

Class V Stormwater Underground Injection Control Systems

DEQ Permit Number 102830

ENVIRONMENTAL SERVICES
CITY OF PORTLAND
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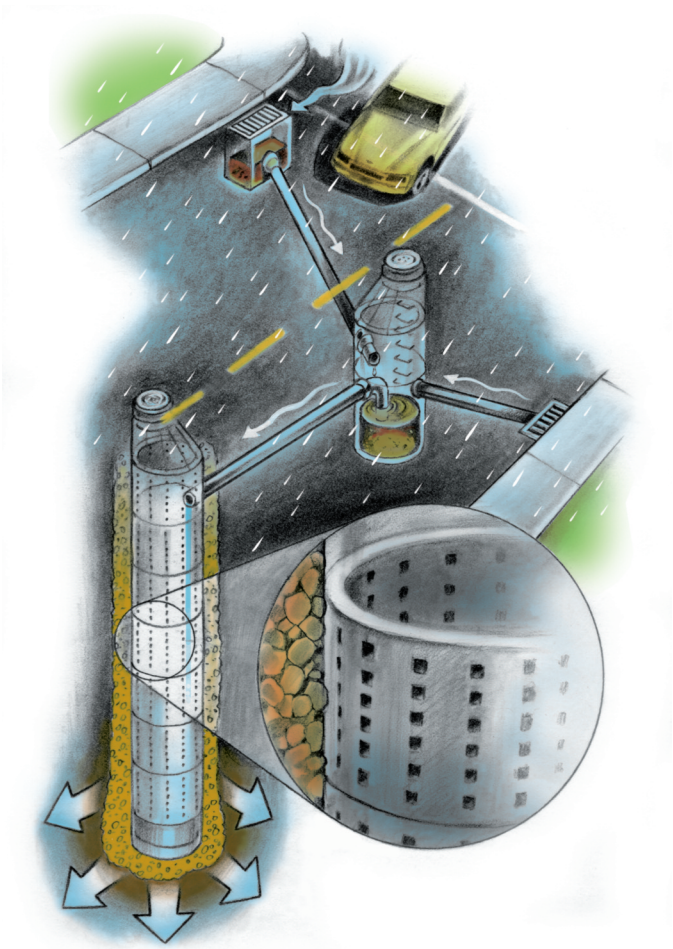
Bureau of Environmental Services • City of Portland

Underground Injection Control Management Plan

■

Annual Report
Year 4 (2015 Permit)
Fiscal Year 2018-2019
(July 1, 2018 – June 30, 2019)



November 1, 2019

Nick Fish, Commissioner • Michael Jordan, Director

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City of Portland, Oregon

Water Pollution Control Facilities (WPCF) Permit For
Class V Stormwater Underground Injection Control Systems

Permit Number: 102830

Underground Injection Control Management Plan Annual Report No. 4 (2015 Permit)

Fiscal Year 2018 – 2019
(July 1, 2018, to June 30, 2019)

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Prepared By:
City of Portland, Bureau of Environmental Services

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Acronyms and Abbreviations

BDS	Bureau of Development Services
BMP	best management practice
BPS	Bureau of Planning and Sustainability
CSSWF	Columbia South Shore Well Field
DEQ	Oregon Department of Environmental Quality
ET	Education and Training
FY	fiscal year
GWPD	groundwater protectiveness demonstration
OM	operations and maintenance
PC	Pollution Control
PBOT	Portland Bureau of Transportation
PM	Program Management
PP&R	Portland Parks and Recreation
PSA	public service announcement
ROW	right-of-way
SA	Systemwide Assessment
SDC	system development charge
SDMP	Stormwater Discharge Monitoring Plan
SMF	stormwater management facility
SPCR	Spill Protection-Citizen Response
SWMM	Stormwater Management Manual
UIC	underground injection control
UICMP	UIC Management Plan
WHPA	Wellhead Protection Area
WPCF	Water Pollution Control Facility

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Executive Summary

Introduction

This *Underground Injection Control Management Plan (UICMP) Annual Report No. 4 (2015 Permit)* is submitted to the Oregon Department of Environmental Quality (DEQ) to fulfill reporting requirements for the City of Portland's (City's) Water Pollution Control Facilities (WPCF) Permit for Class V Stormwater Underground Injection Control (UIC) Systems. This report summarizes UIC Program activities during the 2015 Permit reporting year, Year 4 (July 1, 2018, through June 30, 2019).

Background

DEQ issued the City's second WPCF Permit on May 19, 2015. As required by the Permit, the City submitted a UICMP, which DEQ approved on March 24, 2015. The UICMP describes the activities the City will implement throughout the second permit term (June 1, 2015, to May 31, 2025) to protect groundwater and meet WPCF Permit requirements. The Permit also requires the City to submit a UICMP annual report that summarizes the status of implementing the UICMP and each of its components.

The UICMP and the annual report are organized into the following major program elements:

- **System Management** includes ongoing, programmatic activities (best management practices, or BMPs) that prevent, minimize, or control pollutants.

- **System Monitoring** includes ongoing actions to demonstrate that UICs are operated in a manner that protects groundwater and meets WPCF Permit conditions.

- **Response** describes the process and criteria used to identify and implement actions needed to protect groundwater and meet Permit requirements. Corrective actions address UICs that do not meet WPCF Permit requirements.

This annual report describes the activities that occurred from July 1, 2018, through June 30, 2019 (FY 2018–19) in each of these areas. Key accomplishments are summarized below and described in more detail in the body of the report.

Key Accomplishments

Many City stormwater programs focus on preventing adverse impacts to its stormwater management system. In turn, these programs increase the level of protection for groundwater and surface water and improve the overall health of the City's watersheds. Though some of the key accomplishments summarized below are UIC-specific management actions, many are implemented on a citywide basis and help the City manage stormwater as a whole and not just in the areas where stormwater is discharged through UICs.

System Management

UIC-Specific Management Actions

- Continued ongoing evaluation of City UIC characteristics to update the UIC Registration Database; submitted updates to DEQ with this report.
- Received and responded to 54 calls regarding spills located within or near an area where UICs are the primary method of stormwater management. (DEQ is developing a groundwater sampling plan within the surrounding area of one UIC system, and it is coordinating with the City's UIC program to determine next steps. This work will continue into FY 2019–20).
- Continued to educate and train employees on WPCF Permit requirements and groundwater protection, including duty officer training on the Bureau of Environmental Services (BES) spill response hotline and procedures.
- Coordinated with other bureaus on source control, operations and maintenance (OM), spill prevention and response, and development review for UICs and groundwater protection.
- Provided ongoing coordination with other City bureaus that own UICs. Responded to UIC site-specific questions and discussed OM practices.
- Coordinated with the City's Bureau of Development Services on UIC design standards and on the City's review and approval process for UICs registered on private property.
- Cleaned approximately 1,960 UIC sedimentation and sump manholes.
- Continued evaluation of the review and approval process for private UICs to achieve a more streamlined and consistent registration process for both public and private UICs.

Citywide Management Actions

- Issued 27 enforcement actions in response to pollution complaints citywide, with proposed penalties and costs totaling $42,906.
- Conducted 118 groundwater-related inspections in the Columbia South Shore Well Field (CSSWF) Wellhead Protection Area (WHPA; excluding Gresham and Fairview) of regulated businesses.
- Conducted 363 case reviews for source control measures (citywide) at commercial and industrial properties subject to the City's *Stormwater Management Manual* requirements. Required and installed 1,719 source control measures at these commercial and industrial properties citywide.
- As a partner, administered about 43 clean-up collection events citywide to help prevent illegal dumping.
- Conducted and approved 6,730 erosion control-related inspections of private construction sites citywide. (Erosion control inspections resulted in 2,058 enforcement actions and corrections notifications).
- Inspected 223 active public construction projects citywide with erosion control components.
- Involved approximately 21,152 students citywide in activities and presentations that teach the causes and effects of water pollution and how to protect water resources.

- Participated in numerous community activities and events involving stormwater management and watershed protection issues and actions. Awarded 13 grants totaling $104,780 to encourage watershed protection, including promoting stormwater infiltration projects.
- Inspected and mapped private stormwater management facilities at 1,262 properties with 2,613 total facilities for compliance with BES-approved OM agreements. Issued 27 enforcement actions.
- Partnered to make 2,100 outreach contacts and provided technical assistance to 32 businesses affected by the CSSWF Wellhead Protection Program.
- Maintained over 20 BMP fact sheets online for commercial and industrial site operators. During FY 2018–19, the most-viewed fact sheets discussed catch basin maintenance (approximately 1,007 views), sand-blasting and painting operations (approximately 552 views), and preparing emergency response and spill clean-up plans (approximately 245 views).
- Cleaned approximately 11,196 storm inlets citywide.
- Swept major arterials four to six times during the year, residential streets approximately once per year, and downtown core streets five times per year.

System Monitoring

- Implemented FY 2018–19 stormwater compliance monitoring. Sampled 15 UICs located in areas of shallow groundwater and tested for pollutants required by the 2015 Permit.
- Compiled and evaluated stormwater data included with this report. There were no FY 2018–19 exceedances of 2015 Permit action levels.

Response

- Evaluated UICs for corrective action response due to database updates, monitoring results, or spill response.
- Evaluated FY 2018–19 data to ensure that no major changes occurred in the City's depth-to-groundwater estimates and evaluated monitoring data to confirm the results of groundwater protectiveness demonstrations conducted during the 2005 Permit term.
- Confirmed no new UICs needed corrective action during FY 2018–19.

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1 Introduction

1.1 Overview

The Oregon Department of Environmental Quality (DEQ) renewed the City of Portland's (City's) Water Pollution Control Facilities (WPCF) Permit for Class V Stormwater Underground Injection Control Systems (UICs; Permit No. 102830) on May 19, 2015.[1] As required by this 2015 Permit, the City submitted a UIC Management Plan (UICMP), which DEQ approved on March 24, 2015. The UICMP describes the activities the City will implement throughout the 2015 Permit term (June 1, 2015, to May 31, 2025) to protect groundwater and meet WPCF Permit requirements.

The 2015 Permit also requires the City to submit a UICMP annual report that summarizes the status of implementing the UICMP and each of its components. Accordingly, this annual report provides information about key accomplishments during the fourth fiscal year of permit implementation (July 1, 2018, through June 30, 2019, also known as FY 2018–19) and identifies activities planned for implementation in the next fiscal year where applicable.

Table 1-1 summarizes the 2015 Permit requirements for the annual report and identifies where the requirements are addressed in this annual report.

Table 1-1. Summary of the City's 2015 Permit Annual Report Requirements

Annual Report Requirement (as identified in Schedule B.5 of the 2015 Permit)	**Where Requirement Is Addressed in this Annual Report**
System Monitoring	
Results of stormwater monitoring conducted in accordance with the Stormwater Discharge Monitoring Plan	Appendix C and Section 3.1.1
Spreadsheet of all data from sampled UICs provided in analytical laboratory reports	
Evaluate and report trends in emerging pollutant types and concentrations required by Schedule D, Condition 6 (*fourth year and ninth year annual reports only*)	
Discussion of any Schedule A, Table 1, action-level exceedances, and actions taken to address the exceedances	

[1] Information about the City's first WPCF Permit term (2005 – 2015) can be found in its annual UICMP reports for 2005 through 2015.

System Management	
Description of actions taken to implement the UICMP. *UICMP requirements are as follows:*	Section 2: Key accomplishments are listed for each best management practice (BMP)
Decommissioning activities	Section 2.2.1 and Appendix A
Employee education and public outreach	ET-1, ET-2
Operations and maintenance and inspection protocols	OM-1, OM-2, OM-3, ET-2
Accidental spills/illicit disposal	ET-1, ET-3, PC-1, PC-2
Preventing discharge of stormwater from refueling areas, hazardous/toxic material storage/handling areas, materials storage/ handling areas, or other discharges that may contain pollutants above levels of concern[2]	ET-2, ET-3, OM-3, PC-1, SA-1
Housekeeping practices to protect groundwater quality	ET-2, ET-3, OM-1, OM-2
Facility designs and practices that block discharges to UICs	PC-1, PM-1
Site control measures and BMPs (Schedule A, Condition 7)	OM-1, PC-1
Description of any proposed modifications to the UICMP	Section 1.5
Description of any additional actions taken to manage the UIC system to ensure groundwater protection	Section 2.8
Description of any actions included in the UICMP that were not completed and why	Section 2.9
Identification of UICs closed, retrofitted, or installed during the year	Section 2.2.1 and Appendix A
Future (in the next year) plans to install, modify, convert, or close any UIC	Section 2.7
Changes to key personnel or areas of responsibilities for the permit	Section 1.4.2
Identification of any newly discovered UICs	Section 2.2.1 and Appendix A
Adaptive Management	Section 2.10

[2] The Systemwide Assessment (2015) did not identify any City-owned or -operated UICs located in refueling areas, hazardous or toxic material storage or handling areas, or materials storage or handling areas.

Response	
Progress reporting on corrective actions	Section 4.5
Report of all instances of noncompliance and other permit violations that are not reported per Schedule F.4.e. (compliance schedule) or F.4.f (24-hour and 5-day reporting)	Section 4.6

1.2 Overview of the UICMP

The UICMP meets the requirements of the City's 2015 UIC WPCF Permit. These requirements specify that the City prepare and implement a written UICMP that includes a systemwide assessment, system controls, monitoring, and a plan for recordkeeping and reporting.

The UICMP is organized into the following three major elements:

- **System Management** includes ongoing, programmatic activities (best management practices, or BMPs) that prevent, minimize, or control pollutants before they discharge to a UIC. BMPs include structural, nonstructural, and institutional controls. They are organized into the following five categories:

  - Systemwide Assessment
  - Pollution Control
  - Education and Training
  - Operations and Maintenance
  - Program Management

- **System Monitoring** includes ongoing actions to demonstrate that UICs are operated in a manner that protects groundwater and meets WPCF Permit conditions.

- **Response** uses data and information from system monitoring and system management to identify any UICs that may be a threat to groundwater protection and thus are out of compliance with the Permit. When a UIC is identified as such, a corrective action is required to evaluate the threat and may result in either further action to bring the UIC into compliance or closure of the UIC. The objective of the response is to improve or correct conditions at a UIC or group of UICs.

1.3 Legal Authority

The Charter of the City of Portland grants broad authority to the City "to exercise any power or authority granted to the City by statute… and [provides that the City] may do any other act necessary or appropriate to carry out such authority, or exercise any other power implied by the specific power granted." Such authority includes, among other things, "all powers commonly known as the police power to the same extent as the State of Oregon has or could exercise said

power… and to make and enforce… all necessary or appropriate water, local, police, sanitary and safety laws and regulations" (Chapter 2-105, *Charter of the City of Portland, Oregon*).

In addition, the Portland City Code addresses the regulation of stormwater discharges, building requirements, zoning, erosion and sediment control, and public improvements in Chapters 10, 17, 24, 29, and 33. Chapters 17.38 and 17.39 specifically address Drainage and Water Quality and Stormwater Discharges, respectively.

1.4 UIC Program Staff

1.4.1 Key Roles and Responsibilities

The 2015 Permit designates the Bureau of Environmental Services (BES) as the bureau responsible for implementing the Permit and for identifying and managing the regulatory and technical components of the UIC Program citywide and across bureaus. Key staff roles and responsibilities for the UIC Program are summarized in the UICMP.

1.4.2 Personnel Changes

There were no personnel changes in UIC Program staff in FY 2018–19.

1.5 Proposed Changes to the UICMP

There are no proposed changes to the UICMP at this time.

1.6 City Budget and Funding

The City has invested more than $1.72 billion in stormwater management services and facilities over the past 24 years.[3] The revenue requirements for FY 2018–-19 were allocated as described in Table 1-2:

Table 1-2: Stormwater Program Expenditures

Major Program Category	Revenue Requirements (*millions*)		Percent Change
	2010–11	2018–19	
Enforcement and Development Review	$5.8	$12.5	115%
Watershed Program and Habitat Restoration	$18.3	$22.4	22.6%
Facilities Operations and Maintenance	$21.0	$28.9	37.5%
Capital Improvements*	$45.8	$66.4	45%
Total Expenditures	**$90.9**	**$130.2**	**43.2%**

* Includes debt service, facilities planning and engineering, construction engineering, and construction contracts.

In FY 2019–-20, the City plans to invest $142.8 million in stormwater management services and facilities. Direct monthly user fees will pay for 88% of these investments.

[3] The 24-year time period reflects the implementation period of the City's National Pollutant Discharge Elimination System permit.

Stormwater Management Charges

City Council approves revised stormwater system monthly user fees at the start of each fiscal year. Monthly system user fees are adjusted to reflect operating, maintenance, and capital costs of the City's sanitary sewer and drainage system. The rate adjustments are based upon cost-of-service principles, ensuring equity by charging ratepayers according to the amount of sewer and drainage service they use.

Table 1-3 reports the change in the monthly single-family stormwater management charge and in the residential and nonresidential monthly stormwater rate per 1,000 square feet of impervious area, between 2010 and 2019.

Table 1-3. Stormwater Management Charges and Rates

Stormwater Management Monthly Charges and Rates	2010–11	2018–19	Percent Change
Single-family residential charge	$21.79	$29.68	36.2%
Residential rate ($/1,000 ft^2 impervious area)	$9.08	$12.36	36.1%
Nonresidential rate ($/1,000 ft^2 impervious area)	$9.66	$13.02	34.8%

Stormwater System Development Charges

In addition to stormwater system monthly user fees, City Council also approves revised stormwater system development charges (SDCs) for new development and significant redevelopment at the start of each fiscal year.

The methodology for assessing SDCs includes two components. The first component, onsite runoff management, represents the charge for stormwater facilities that handle runoff from individual properties. For FY 2018–-19, this onsite portion is assessed based on $228 per 1,000 square feet of impervious area (see Table 1-4). Riparian properties that drain directly to the Columbia Slough, Columbia River, or Willamette River are exempt from this portion of the SDC.

The second component, public right-of-way (ROW) runoff management, represents the cost of stormwater facilities that handle runoff from public ROWs. This portion is assessed based on the use of the transportation system, using road frontage and vehicle trips associated with the proposed development to allocate the costs. For FY 2018–-19, the rates were $7.40 per linear foot and $4.02 per vehicle trip.

Discounts may be granted only for the "onsite" part of the charge for facilities constructed as part of new development. Discounts range from 80% for retention of the 100-year event, to no discount for control of the 10-year storm.

Table 1-4. Stormwater System Development Charges (SDCs) and Rates

SDC Charges and Rates	2010–11	2018–19	Percent Change
Onsite portion ($/1,000 ft^2)	$154.00	$228	48%
ROW portion ($/linear foot of frontage)	$4.78	$7.40	54.8%
ROW portion ($/vehicle trips)	$2.51	$4.02	60.1%

1.7 Organization of the Annual Report

The remainder of this annual report contains the following sections:

Section 2: System Management identifies citywide BMPs implemented to prevent, minimize, and control pollutants prior to infiltration. Where relevant, it also identifies projected main activities for FY 2019–-20.

Section 3: System Monitoring summarizes compliance monitoring. Details are provided in Appendix C.

Section 4: Response identifies response actions conducted during FY 2018–-19 and those projected for next fiscal year (FY 2019–-20).

Appendix A identifies UICs added and removed from service during FY 2018–-19 (including closure reports for decommissioned UICs, provided on a separate CD).

Appendix B identifies spills that occurred within areas serviced by UICs.

Appendix C is a report presenting the annual results of the City's 2015 Permit-required UIC monitoring.

2 System Management

2.1 Overview

The System Management program element involves a series of actions, called BMPs, that serve to prevent, minimize, and control pollutants in stormwater prior to discharge to a UIC. These BMPs are organized into the following five general categories and are applied to the entire UIC system on an ongoing basis:

- Systemwide Assessment
- Pollution Control
- Education and Training
- Operations and Maintenance
- Program Management

Although this report is focused on the City's management of its UIC system, it is important to understand that many programs detailed in this section provide stormwater management benefits (improved water quality, groundwater and stormwater protection, and increases in overall watershed health) across the entire City and not just to areas that discharge stormwater to UICs.

2.2 Systemwide Assessment (SA)

The purpose of the Systemwide Assessment (SA) BMP is to identify, evaluate, track, and report on spatial and physical characteristics of existing and new City-owned and -operated UICs. This enables the City to evaluate whether drainage entering individual UICs may pose a risk to groundwater, as well as to overall watershed health, as a result of these characteristics. Ongoing activities necessary to provide stormwater drainage infrastructure include the registration and construction of new UICs, replacement of existing UICs, and decommissioning of existing UICs. This BMP category focuses on updating information related to the location and physical characteristics of existing and new UICs. It fulfills two WPCF Permit requirements:

- Develop and implement a comprehensive UIC Registration Database.
- Evaluate UICs for factors that could present a risk to groundwater quality.

SA-1: Inventory and Assess City-Owned UICs

2.2.1 SA-1: Key Accomplishments

- Submitted UIC Registration Database updates to the DEQ with this report. All updated UIC database information is posted by November 1, 2019, to the City's FTP site where it can be accessed by DEQ. The files provide all new and removed UIC information as well as any attribute changes to existing information currently included in the UIC database.

- Identified 53 new public UIC[4] records in UIC Registration Database updates. These UIC records are listed in Appendix A.

- Removed or changed the status[5] of 44 public UIC records in UIC Registration Database updates. These records are listed in Appendix A.

- During FY 2018–19, three UICs were decommissioned. Closure reports are included on a CD as part of Appendix A.

- Other changes to database records made as part of the database update include:

    - 4 updates to maintenance period
    - 49 updates to operational status
    - 9 updates to addresses
    - 34 updates to latitude
    - 34 updates to longitude
    - 13 updates to distance to nearest water well
    - 2 updates to distance to nearest wetland
    - 6 updates to distance to nearest surface water
    - 0 updates to size of impervious area
    - 6 updates to UIC pretreatment
    - 0 updates to installation date
    - 88 updates to UIC depth and diameter
    - 107 updates to depth-to-groundwater (most of these updates are due to a new calculation method causing minor changes in rounding)
    - 9,114 updates to date updated
    - 8,683 updates to discharge rate

2.3 Pollution Control (PC)

Activities and practices such as spills, illegal disposal, improper site management, and erosion can increase the discharge of pollutants to public UICs, with potential negative impacts to groundwater. This BMP category focuses on reducing such pollutant discharges from both public and private sites and activities. It fulfills two 2015 Permit requirements:

- Implement spill prevention and pollution control.
- Identify activities conducted on commercial/industrial properties that may result in a violation of action levels in stormwater discharging to a public UIC.

[4] Some UICs identified as new facilities may not be recently discovered or newly constructed UICs. UICs may be identified as new due to database management. For example, correcting a database identifier for a facility from "sedimentation manhole" to "UIC" would make the UIC appear to be a new sump in the BES database, even though the facility itself is not new.

[5] The reasons for removal may include identification through field investigations as not existing, change in ownership, or data error. The reason for changing status (e.g., from "active" to "closed") is UIC decommissioning.

PC-1: Identify, prevent, minimize, and control activities that can increase pollutant discharges to public UICs. These activities include illegal dumping of solid and liquid wastes (such as paint, used motor oil, or solvents) into catch basins; accidental or unplanned discharges (such as car accidents and firefighting activities); site uses that may generate pollutants; and construction site activities.

2.3.1 PC-1: Key Accomplishments

Spill Prevention and Pollution Control

- Continued to respond to pollution complaints citywide and issue enforcement actions for violations of Portland City Code 17.39 for prohibited discharges. During FY 2018–19, issued 27 enforcement actions citywide, with proposed penalties and costs totaling $42,906.

- Continued to implement City programs, which included improving ongoing citywide pollution control activities to identify and control activities on private properties and commercial/industrial properties where site activities (e.g., illegal disposal, improper storage and handling of materials, and erosion) could result in a violation of action levels in stormwater discharging to a UIC.

Regional Spill Response Committee

- Continued a "reboot" of the Regional Spill Response Committee that began in 2016-17 to refocus efforts, solicit input about new participants and meeting topics, and increase coordination with emergency responders and planners. This reboot has produced a significant amount of material, information, and suggestions that the Committee is analyzing to determine next steps. In FY 2018–19, one new position (one full-time employee) was approved for funding, and the position was filled in December 2018. In April 2018, SPCR organized another meeting of the Regional Spill Response Committee. The new SPCR position will be responsible for developing and organizing agendas for future meetings, with the aim to ramp up to a quarterly meeting schedule over the course of the next permit year. The Regional Spill Response Committee includes representatives from various City bureaus, DEQ, the U.S. Coast Guard, Clackamas County Water Environment Services, the Port of Portland, and the City of Gresham.

Spill Protection-Citizen Response (SPCR) Team

SPCR staff responds immediately to spill emergencies and investigates pollution complaints regarding spills, illegal disposal, improper site management, and erosion. Citizens can call in reports on a dedicated spill response hotline 7 days a week, and staff is available 24 hours a day to respond to spills, slicks, and other suspicious or inappropriate discharges. The program refers problems to other local or state agencies for response and enforcement as appropriate. The SPCR team also provides education and technical assistance to property owners to improve site management and address work practices that may impact stormwater discharges (see ET-3, Education and Training, Key Accomplishments). SPCR staff supports the entire City, including areas that use UICs for stormwater management.

SPCR staff received 54 calls regarding spills located within or near an area where UICs are the primary method for stormwater disposal. Appendix B shows this information in table format, including date, release type, volume, location, identification of the closest City-owned UIC catch basin, and if the spill entered a City-owned UIC.

Of the 54 reported spills, 5 reached a UIC system. Three of the 5 were inspected and the UIC systems were cleaned. It was determined that, once cleaned, the volumes of paint or auto fluids discharged to the UIC systems did not pose a threat to groundwater, and the cases were closed.

Two of the 5 releases required longer investigations and response actions. These are described below.

- On October 12, 2018, a fire occurred at Starks Auto Shop on 5330 N Columbia Court. During firefighting activities, a release of used automotive fluids discharged to a nearby city-owned UIC (AAD536). The Portland Fire Department was the initial responder to the fire. The City on-call duty officer and DEQ Cleanup Program (Mike Greenburg), also responded to the fire. Once the fire was contained, an on-call environmental contractor was directed to clean the sedimentation manhole, UIC, and all connecting inlets and catch basins. DEQ directed Starks Auto Shop to conduct soil sampling around the UIC to determine the level of impact to the subsurface soils. Starks hired Akana Environmental Consultants to conduct the investigation. Results of the investigation indicated that oil and gas were released to the subsurface through the UIC. DEQ Cleanup continues to work with Starks and Akana to develop and implement a groundwater sampling plan for the surrounding area of the UIC. DEQ Cleanup is leading the cleanup and coordinating with the DEQ UIC program and the City's UIC program to inform next steps. This work will continue into FY 2019–20.

- On April 24, 2019, an unleaded gasoline spill occurred at 9808 SE Division Street (Space Age gas station). During the process of filling the underground tanks, a hole was found in one of the gas lines. The gasoline drained to the ground, left the site and discharged to a city-owned UIC. The spill was reported to Oregon Emergency Response System and the City's spill hotline. DEQ Cleanup Program (Mike Greenberg) and the City on-call duty officer responded. DEQ Cleanup directed sediment sampling inside the sedimentation manhole and sump. The sampling results determined only a minimal amount of gasoline was released to the UIC, and it was mostly contained within the sedimentation manhole. Due to the limited release and depth to groundwater in the area being greater than 100 feet, additional investigation and cleanup activities were limited to the catch basin and potentially impacted surface soils. Space Age gasoline contracted an environmental contractor to clean the UIC system, including catch basins and inlet leads.

Columbia South Shore Well Field (CSSWF) Wellhead Protection Program

The City provides outreach and technical assistance to businesses and residents in the CSSWF WHPA to help them comply with local drinking water source protection regulations. These regulations are designed to prevent contamination of groundwater used as the drinking water source. During FY 2018–19, the City continued to implement the CSSWF Wellhead Protection Program and reference manual for the City of Portland (also in effect in Gresham and Fairview) within the CSSWF WHPA overlay zone. Businesses in the area are required to implement structural and operational BMPs, such as mandatory spill-containment BMPs and facility

inspections, to manage harmful chemicals, reduce the occurrence of spills, and minimize spill impacts. The program also includes education and outreach efforts to affected residents and businesses and one-on-one technical assistance to businesses to help them comply with program requirements (See ET-3).

- Conducted 118 groundwater-related site inspections in the WHPA (excluding Gresham and Fairview) of regulated businesses.

- Provided a groundwater protection workshop, including spill control basics, attended by roughly 40 businesses.

Source Control Measures

The City's *Source Control Manual* [formerly part of the *Stormwater Management Manual* (SWMM)] requires storm and sanitary source controls for site uses and characteristics that generate, or have the potential to generate, specific pollutants of concern. These requirements apply to new development and post-development activities that are considered "high-risk" or pollutant-generating. The manual identifies structural, operational, and treatment BMPs designed to prevent or control conventional and toxic pollutants in stormwater, groundwater, and wastewater.

- Conducted 363 case reviews[6] for source control measures at commercial and industrial properties subject to SWMM requirements.

- Required and installed 1,719 source control measures at these commercial and industrial properties.[7] These numbers are citywide and are not limited to areas draining to UICs. (Note: When the SWMM is applied, drainage from high-risk areas is prohibited from draining to public UICs, and stormwater is managed onsite.)

- Continued to implement the City's SWMM and *Source Control Manual*, which became effective in early FY 2016–17. The 2016 SWMM includes a BMP hierarchy to promote infiltration-based and vegetated facility implementation. If onsite infiltration is not feasible, onsite stormwater management that overflows to an offsite discharge location is required. BES is in the process of revising the SWMM. Changes are focused on updating facility BMP details, reworking engineering assumptions used to size facilities, and increasing the use of orifice control for flow control. The new version of the manual is anticipated to become effective in early 2020.

Prevention of Illegal Disposal

To help prevent illegal dumping, the City continued to implement curbside collection services (residential garbage, recycling, yard debris, and food scrap collection). The City also continued

[6] This includes 43 land use reviews and 320 contaminated site reviews.

[7] The City reviews and requires source control measures for some projects that never materialize due to development issues, project financing, etc. This metric reflects projects that eventually received final building and occupancy permits and, therefore, were actually constructed. The number includes properties that re-enter the permitting process from previous years, such as redevelopment or tenant improvement projects.

its partnership with neighborhood coalition offices and Metro to administer neighborhood clean-up collection events. During the year, 43 events took place throughout the City. The Bureau of Planning and Sustainability (BPS) continued to support the implementation of Keep It Pretty Rose City, an anti-litter toolkit to help community groups organize litter pickup activities. More than 5,300 households removed bulky household waste from their homes with the assistance of over 1,100 community volunteers who helped at the citywide events.

PC-2: Focus on erosion control during construction activities, on both public and private sites.

2.3.2 PC-2: Key Accomplishments

The City has an erosion control program that applies to both public and private construction projects. Portland City Code Title 10 and the City's *Erosion and Sediment Control Manual* outline requirements and provide technical guidance for temporary and permanent erosion prevention and for construction-related sediment and pollution control. Program requirements apply to all ground-disturbing activities, regardless whether a development permit is required, unless such activities are otherwise exempted by Portland City Code. As part of its comprehensive plan to manage stormwater, protect water quality, and promote watershed health, the City has implemented the following erosion-control actions citywide:

- Conducted 6,730 erosion control-related inspections of private construction sites. This number includes all inspections.

- Inspected all private development sites with qualifying ground disturbance areas for temporary and permanent erosion control measures at the beginning and near or at completion of the project. At interim checks conducted during regular building inspections (or as needed), the inspector noted any erosion control deficiencies, and the site operator was required to implement corrective action.

- As a result of erosion control inspections, the City issued a combined total of 2,058 enforcement actions and corrections notifications (i.e., stop work orders, correction notices, and notices of violation).

- Inspected 223 active public construction projects with erosion control components. In general, public sites are inspected daily during construction.

- Additional erosion control activities and accomplishments in FY 2018–19 included the following:

    - BDS moved the Residential and Commercial Site Development erosion control inspectors to a consolidated workgroup under "Property Compliance - Site Inspections." This workgroup began performing erosion and sediment control inspections for all residential and commercial permits with ground-disturbing activity.
    - The Erosion Control Technical Advisory Committee (BES and BDS) continued meeting throughout 2018 to 2019.

- On April 5, 2019, BDS and BES initiated the *Erosion and Sediment Control Manual* review and rewrite process. This process includes a full review of the existing manual's structure, BMPs, and usability.

2.4 Education and Training (ET)

The purpose of this Education and Training (ET) BMP category is to inform and educate the public; businesses; and City employees about UICs, groundwater protection, and WPCF Permit conditions. It is also used to promote pollution prevention and source control.

ET-1: Provide education and outreach to members of the public living and working in areas served by UICs. Implement public information, education, involvement, and stewardship activities that will raise awareness, foster community stewardship, and promote pollution prevention, stormwater and groundwater management, and environmental protection.

2.4.1 ET-1: Key Accomplishments

As part of its comprehensive plan to manage stormwater, protect water quality, and promote watershed health, the City has implemented the following actions citywide.

Clean Rivers Education Program

- Reached 6,551 students (grades K–12) with classroom programs that provide hands-on, interactive science education about stormwater and other environmental issues.
- Involved 4,305 students (K–12) in education field programs that offer watershed investigations and field assessments, stormwater tours, boat tours, and restoration experiences.
- Provided canoe trips to students in the Columbia Slough watershed. These included classroom studies and stewardship projects related to stormwater pollution.
- Presented *Stormwater - Soak It Up*, a 75-minute classroom program for grade 4–12 students and teachers and special interest groups.
- Provided green infrastructure tours. Students visited bioswales, stormwater planters, ecoroofs, areas with porous pavement, and creative downspout disconnections. Students learn how these solutions allow stormwater to soak into the ground to reduce volume, while plants and soil filter pollutants and improve water quality.
- Presented *Watershed Awareness* class to grades 3–6. This program focuses on common nonpoint sources of pollution and pollution prevention.
- Provided career education classroom programs and field trips for middle- and high-school students in the Columbia Slough watershed.

- Worked with Zenger Farm to provide classroom and field education lessons focused on stormwater management, watershed health, environmental stewardship, and sustainability.

An estimated 21,152 students participated in these activities citywide.

Stewardship Activities and Community Events

- Sponsored, cosponsored, funded, and participated in numerous community activities and events throughout the City's watersheds that involved stormwater management and watershed protection issues and actions (e.g., workshops, educational presentation and activities, training, restoration projects). FY 2018–19 examples included the following:

    - Awarded 13 stewardship grants totaling $104,780. The program provides up to $10,000 per project to citizens and organizations to encourage watershed protection in Portland. Several awards were given for projects that promoted stormwater infiltration, such as to Depave for sites in the Johnson Creek watershed, and to Verde for rain gardens in the Columbia Slough watershed.

    - Forty-nine community and school participants distributed door-hangers with stormwater pollution prevention messages to residences as part of the storm drain curb marker program.

    - Coordinated with Columbia Slough Watershed Council to provide Slough 101, Groundwater 101, and various Columbia Slough outreach events. Eighty events were attended by 4,305 participants and 771 volunteers.

Stormwater-Related Information

- Included four different inserts on various topics in City water/sewer bills mailed to approximately 190,000 customers:

    - Fall 2018: Under construction for clean rivers
    - Winter 2018/19: Wintry rains and flood information
    - Spring 2019: Keep your pipes fat free
    - Summer 2019: Big pipe, big difference and weekly summer testing results

- Updated and posted fact sheets, brochures, and educational materials on the BES website:

    - "Clean River Rewards" stormwater discount program (38,338 page views)
    - Treebate incentives for planting yard trees (31,495 page views)
    - Green Street Stewards Program (23,699 views)

- Continued to educate and recruit volunteer Green Street Stewards to look after green infrastructure. Programs provided education, training, and tours to residents, including low-income communities and communities of color, businesses, and nonprofit organizations. In FY 2018–19, 47 events were attended by 721 participants and 38 volunteers (citywide).

- Distributed a variety of educational materials at community meetings and events.

Ecological Business Program

- Continued to work with the Regional Pollution Prevention Outreach Team (P2O Team), Automotive Eco-Logical Advisory Subcommittee, and Landscape Eco-Logical Advisory Subcommittee for the Portland metropolitan region to certify businesses using sustainable and environmental practices under the Eco-Logical Business Program (EcoBiz). This involves performing site visits and technical assistance during FY 2018–19 on ways to:

    - Reduce and eliminate pollutants such as volatile organic compounds and chlorinated solvents
    - Prevent spills by adding secondary containment for tanks over 55 gallons
    - Provide employee spill response trainings
    - Properly manage and dispose of hazardous materials
    - Conserve water in the office, shop, and on managed landscaped areas
    - Wash vehicles and equipment using environmentally responsible systems
    - Adopt sustainable purchasing and inventory policies
    - Adopt the principles of Integrated Pest Management (landscapers)
    - Reduce or eliminate the use of pesticides (landscapers)

- Partnered with DEQ to create a green dry cleaners certification program. The criteria to be an EcoBiz dry cleaner was approved by DEQ and the Regional P2O Team in summer 2018, and implementation began in August 2018. Site visits and certifications for the dry cleaner program are currently conducted by the Pacific Northwest Pollution Prevention Center, an EcoBiz partner.

Alternative Transportation

The Portland Bureau of Transportation (PBOT) promotes carpooling, public transportation, and alternative commuting strategies to reduce emissions of toxic pollutants and to support climate change prevention measures. Specific activities include the following:

- PBOT and Drive Less Connect continue to match carpooling partners and provide discounted carpool parking.

- PBOT sponsored International Walk + Bike to School day with 43 schools participating in October and 40 schools participating in May Walk + Roll Challenge Month.

- PBOT continued to provide the Bicycle Lunch and Learn series, Portland by Cycle rides and classes, and Bike and Walk maps covering Portland.

- PBOT coordinated the Safe Routes to School program, which included over 100 schools in the City of Portland.

- PBOT coordinated Sunday Parkways, a series of free events that this year allowed 125,000 participants to use nonmotorized modes of transportation along Portland streets.

- The Portland bike share system, BIKETOWN, launched in July 2016. The system is one of the largest bike share systems in the nation and consists of 1,000 SMART bicycles, 103 stations, and 47 community stations across the central city area. During 2018–19 (January to June 2019), users rode 1,112,088 miles, including 33,789 rides taken by 2,075 annual membership riders and 68,026 casual riders (day-pass riders and single-ride users). With a reduced fare and cash payment option, 726 Portlanders living on low incomes also became annual members through BIKETOWN for All program.

ET-2: Promote knowledge of WPCF Permit conditions and requirements for City staff responsible for implementing UIC program elements and BMPs, and ensure that City practices related to UICs are protective of groundwater.

2.4.2 ET-2: Key Accomplishments

- Continued to educate employees and develop training on groundwater protection and WPCF Permit requirements, including duty officer training on the BES spill response hotline and specific duty officer procedures.

- Coordinated with other bureaus on source control, OM, spill prevention and response, and development review for UICs and groundwater protection.

- Provided ongoing coordination with bureaus that own UICs. Responded to UIC site-specific questions and discussed OM practices.

- Coordinated with BDS development review staff on UIC design standards and on the review and approval process for UICs registered on private property.

ET-3: Provide outreach and technical assistance to businesses to reduce and control pollutant discharges from industrial and commercial facilities to protect groundwater quality.

2.4.3 ET-3: Key Accomplishments

As part of its comprehensive plan to manage stormwater, protect water quality, and promote watershed health, the City has implemented the following actions citywide.

Maintenance Inspection Program

- The Maintenance Inspection Program ensures that property owners follow site-specific, BES-approved OM agreements. Program staff conduct inspections, provide technical assistance to property owners on the OM of their onsite stormwater management facilities (SMFs), and provide guidance on pollution prevention BMPs for site activities that may impact the functionality of the SMFs. The program also collects information on SMF deficiencies and corrective actions taken to address them. Maintenance Inspection Program activities in FY 2018–19 included the following:

- Inspected 1,262 properties with 2,613 associated private SMFs.
- Recorded 357 OM Agreements for 755 SMFs managing 161 acres of impervious surface.
- Tracked and mapped SMFs and SMF attributes.
- Issued 27 enforcement actions (i.e., warning notices, notices of violation, and voluntary compliance agreements).

CSSWF Wellhead Protection Program

- Provided education and outreach to affected residents and businesses to help them comply with local drinking water source protection requirements of the program, in conjunction with the Columbia Corridor Association and Columbia Slough Watershed Council. Activities in FY 2018–19 included the following:

    - Made 2,100 individual outreach contacts.
    - Provided technical assistance to 32 businesses.
    - Distributed 23 free spill kits, 24 required signs, and 1 secondary containment pallet.
    - Maintained the association and City of Portland webpages on the Groundwater Protection Program with information for businesses and residents.

Sustainability at Work

- Sustainability at Work (formerly the BEST Business Center) continued to assist Portland businesses with resources and information to help them "green" their operations, including managing stormwater and preventing pollution. The program is run by the City of Portland in partnership with Metro and Energy Trust of Oregon. The program conducted the following activities in FY 2018–19:

    - Conducted 211 site visits at businesses, providing assistance across a broad range of topics, including water conservation, stormwater management, hazardous waste, energy efficiency, renewable power, alternative transportation, and waste prevention.

    - Distributed an e-newsletter monthly to over 3,500 Sustainability at Work customers, providing tips, case studies, and best practices in the above-mentioned topic areas.

    - Administered Sustainability at Work certifications, recognizing businesses that have taken measurable steps to conserve resources and reduce their greenhouse gas emissions. In FY 2018–19, the program completed 123 new certifications and renewals. As of June 30, 2018, 380 businesses were certified.

Industrial Stormwater Program

- Twenty BMP fact sheets are posted on BES's Industrial Stormwater Program website, which provides technical assistance for the public. Information is targeted to commercial and industrial site operators, helping to educate and assist in the prevention of spills and the protection of groundwater and surface water. During FY 2018–19, the most-viewed BMP materials continue to be related to:

- Catch basin maintenance (approximately 1,007 views)
- Sand-blasting and painting operations (approximately 552 views)
- Preparing emergency response and spill cleanup plans (approximately 245 views)

Other BMP materials included information on dewatering activities, loading and unloading materials, and outside container storage and waste disposal.

2.5 Operations and Maintenance (OM)

OM BMPs for City UICs are important to both remove pollutants from UICs (e.g., UIC cleaning) and prevent pollutant discharges into UICs (e.g., street sweeping and catch basin cleaning). This BMP category identifies OM practices both for UICs located in City-managed ROWs and for UICs on other City-owned property.

OM-1: Address the inspection, maintenance, cleaning, and repair of City-owned UICs in public ROWs.

2.5.1 OM-1: Key Accomplishments

- Cleaned approximately 11,196 storm inlets (citywide).
- Cleaned 1,960 UIC sedimentation and sump manholes.
- Repaired 231 storm inlets and inlet leads and 202 linear feet of culverts (citywide).

OM-2: Address operation and maintenance activities that are conducted in public ROWs and may affect City-owned UICs.

2.5.2 OM-2: Key Accomplishments

Street Sweeping

The City implements practices in and around ROWs to prevent and limit pollutant discharges, such as street sweeping, spill control, erosion control, and material testing, as well as conducts leaf removal. PBOT is the primary bureau responsible for maintaining the City's roads and other transportation-related facilities and infrastructure. The PBOT *Maintenance Environmental Handbook* is a guide provided to PBOT Maintenance and Operations (PBOT-MO) field crews to ensure they have easily accessible information on handling of wastes, erosion control measures, spill control and prevention practices, and vehicle washing.

- The street sweeping program cleans over 4,000 lane miles of curbed streets in the City each year. The City swept major arterials four to six times in FY 2018–19, residential streets approximately once, and downtown core streets five times during the year. Street sweeping removed 2,029 tons of sediment and material from City roadways in FY 2018–19.

- Continued to implement a street leaf removal program in 30 leaf service areas (areas that have streets lined with large, mature trees). Under the program, the PBOT schedules and implements one or two leaf collection days per zone. The program removed 9,587 tons of leaf material in FY 2018–19.

PBOT Maintenance Operations BMPs

- Continued to implement BMPs within the ROW to protect water quality, including:
    - Following the Oregon Department of Transportation *Routine Road Maintenance Water Quality and Habitat Guide*.
    - Controlling erosion during all sediment-disturbing activities.
    - Using cured-in-place pipe technology when replacing stormwater piping in the ROW to reduce the amount of excavation needed.
    - Using low-disturbance sign installation methods to avoid or minimize digging.
    - Using mild, solvent-free cleaners to clean signs.
    - Using a UV-protection and anti-graffiti coating on new street signs to reduce the need for chemical cleaners.
    - Monitoring weather conditions during asphalt grinding to avoid runoff.
    - Hand-applying asphalt where necessary to prevent these materials from entering the storm drain system.

- Coordinated with BES on environmentally responsible practices for use of roadway anti-icers and deicers including road salt. In FY 2018–19, the City conducted deicing activities on approximately 51 and 25.3 lane miles in Southeast and North/Northeast Portland, respectively. Deicing procedures and BMPs were integrated into Snow and Ice Response Plan updates, including adaptive management of priority route identification and evaluation of application rates. All crews directly responsible for winter maintenance activities are trained on Pacific NW Snowfighters Association BMPs prior to the winter season start in October.

- Continued to use the PBOT *Maintenance Environmental Handbook*, completed in 2011, that includes guidance to ensure that field crews have easily accessible information on waste handling, erosion control measures, spill control and prevention practices, and vehicle washing.

OM-3: Address OM of UICs <u>on other City property</u>, as well as good housekeeping practices that may affect UICs.

2.5.3 OM-3: Key Accomplishments

- Continued discussions with other City bureaus to standardize OM procedures for UICs on City property, based on the OM templates established in the City's SWMM.

- Maintained the program that requires the Portland Water Bureau to submit requests to BES for potable water discharges from the flow tests of hydrants and tank and reservoir drains. Discharges are approved on a case-by-case basis with a letter of authorization. The

authorization requires DEQ/BES BMPs to reduce the impacts of flow rate, volume, and suspended solids from these activities, in addition to the state guidelines for chlorinated discharges. A report is required for each discharge in order to track volume and respond to any complaints.

- The City's Procurement Services engages in green purchasing best practices to spend public funds on goods and services that minimize negative impacts on human health and the environment. In FY 2018–19, the program included environmentally preferable product and service specifications in City solicitations and contracts, such as the use of untreated wood for boardwalks and similar exterior wood features. Additional specifications include zero-sediment runoff at construction sites and onsite stormwater management (ecoroofs, rain gardens, etc.).

- The Portland Fire Bureau continued to control discharges from equipment washing and nonemergency firefighting training by routing discharges to the sanitary sewer system.

- PBOT Maintenance Operations inspected and maintained, as necessary, stormwater and stormwater containment and pollution prevention facilities in City maintenance yards. It continued to implement stormwater controls, which encompass installation, inspection, and maintenance of filtration and absorbent media at selected stormwater inlets.

- Portland Parks and Recreation (PP&R) continued to comply with practices required for Salmon Safe certification, including integrated pest management, reducing water and fertilizer inputs on park properties, restoring riparian and upland habitats, and using alternatives to pesticides. PP&R was the first City bureau to be certified Salmon Safe in 2004 and was recertified in 2012. Since that time, the following additional City bureaus participate and have been tasked with carrying out elements of the Salmon Safe certification: BES, PBOT, Portland Water Bureau, Portland Fire & Rescue, Office of Management & Finance, and BPS.

- PP&R continued to implement City integrated pest management activities to reduce water and fertilizer inputs on parks, including:

    - Utilizing plants with natural resistance to pests.
    - Proper mowing and irrigation of park turf to increase vigor and reduce weed populations.
    - Mulching of planting beds to reduce establishment of weeds.
    - Application of selected herbicides to control invasive weeds and prevent their spread.
    - Release of natural biological control insects to control invasive weed infestations.

- PP&R continued to implement practices to conserve water, minimize runoff, and increase infiltration in the City's park system, including:

    - Aerating and overseeding athletic fields to reduce the need for fertilizers.
    - Computerizing irrigation systems to reduce water usage.
    - Prioritizing park areas that receive irrigation based on frequency and volumes.
    - Reviewing park designs to minimize the amount of "open turf" acreage.

- PP&R consolidates maintenance activities and materials into one location, the Mount Tabor Yard. Recyclable and recoverable waste products are moved to the site, stored appropriately, and hauled offsite by specialized vendors and contract services. Used transportation maintenance wastes (oil, antifreeze, solvents, tires, dry cell batteries), paper and cardboard, scrap wood and metal, excess paint, and fluorescent lamps are managed at the site.

Site-specific OM actions conducted as a response action are discussed in Section 4: Response.

2.6 Program Management (PM)

The purpose of the Program Management (PM) BMP is to ensure effective program management, coordination, and reporting for effective implementation of the UICMP and compliance with the WPCF Permit. This approach involves strong relationships and coordination with multiple City bureaus, state agencies, and other jurisdictions and organizations. This BMP category includes City initiatives, such as policies that promote the implementation of green streets as alternatives or retrofits for UICs, as well as code and administrative rules pertaining to groundwater protection.

PM-1: Facilitate internal City coordination regulations to enhance groundwater protection.

2.6.1 PM-1: Key Accomplishments

Development Review Process and UICs

- Continued evaluation of the review and approval process for private UICs, identifying issues and process gaps and identifying strategies for a more streamlined and consistent registration process for both public and private UICs.

SWMM Revision

- Continued to participate in quarterly meetings for System Planning and SWMM revisions, which provide policy and design requirements for stormwater management citywide, to provide input on new and retrofitted UICs on private and public property and in the public ROW. Internal and external review of the SWMM is scheduled for late 2019, with the update being finalized in 2020.

Land Acquisition

- Acquired 22 acres of land in the Willamette watershed, 1.4 acres in the Johnson Creek watershed, and 0.4 in the Tryon Creek watershed as part of the Watershed Land Acquisition Program and Johnson Creek Willing Seller Programs. UICs are most commonly found in Johnson Creek and Columbia Slough Eastside watersheds.

PM-2: Coordinate with external partners, including state agencies, other jurisdictions, and outside organizations.

2.6.2 PM-2: Key Accomplishments

Regional Coordination

- Participated in the Association of Clean Water Agencies Groundwater Committee, which consisted of discussing monitoring proposals and permit negotiations with other municipal permittees, tracking the issuance of individual and general municipal WPCF Permits and permit conditions, and promoting consistency in required Permit activities (e.g., adaptive management).

- Participated in and contributed to developing the *Clean Water - It's Our Future* campaign, a series of public service announcements (PSAs) focused on residential pesticide use and car washing. The City contributed $5,000 in FY 2018–19 to be pooled with other jurisdictions funding and participated in selecting and developing messages. Two of the PSAs aired in summer 2019 (FY 2019–20) during KPTV news segments throughout the Portland

metropolitan area with complimentary information accessed on the KPTV Community webpages. Additional PSAs are currently being filmed.

2.7 Projected Main Activities for FY 2019–20

All stormwater management BMPs discussed in Sections 2.2 through 2.6 are intended to help prevent, minimize, and control pollutants in stormwater prior to discharge to a UIC. Unless otherwise noted as a one-time activity, implementation of these BMPs is expected to continue and be tracked in FY 2019–20. The following additional PM activity may also be added:

- Participate in the UIC rules revision process (which will include revision of Oregon Administrative Rules [OAR] 340-044, UIC Rules, and OAR 340-040, Groundwater Quality Protection Rules) when initiated by DEQ.

Due to the large amount of development and redevelopment in the City of Portland, it is impossible for the City's UIC Program to forecast how many new UICs will be added or removed from the system 1 year in advance. Therefore, for UIC construction, the City has its own registration process to ensure that all new UIC installations meet the conditions of its current WPCF UIC Permit prior to construction. Also, for UIC closure, part of the City's decommissioning process is to inform DEQ directly (either by phone or email) prior to any actions in the field. Since June 30, 2019 (end of FY 2018–19 reporting), new UICs have either been approved for installation or were newly discovered in the field, and two UICs have been reported for decommissioning.

All newly constructed or identified UICs will continue to be evaluated for characteristics that may potentially create adverse impacts to groundwater. Resulting information will be incorporated into the Response process, as appropriate.

2.8 Additional Actions Taken to Manage the UIC System

Additional actions taken to manage the UIC system to ensure groundwater protection for this reporting year include the following:

- City policy requires adding pretreatment to a UIC system when a construction project impacts a UIC that does not have a sedimentation manhole or other form of pretreatment.

2.9 UICMP Actions Not Completed

All actions identified in the UICMP have been completed for this reporting year.

2.10 Adaptive Management

Adaptive management measures are evaluated annually. The City submitted its permit-required Year 4 emerging pollutant evaluation as Appendix A of the Year 3 annual UICMP report, on

November 1, 2018.[8] This evaluation will be conducted again prior to completing the City's permit renewal application.

[8] GSI Water Solutions. 2017. *Analysis of Urban Stormwater Quality Data and Pollutant Fate and Transport Simulations in Support of Emerging Pollutant Evaluations*. Prepared for City of Portland and ACWA membership. September 21, 2017.

3 System Monitoring

The System Monitoring program element involves ongoing UIC monitoring to demonstrate that UICs are operated to meet WPCF Permit requirements and protect groundwater as a drinking water resource. Stormwater discharge monitoring is conducted annually on a representative subset of UICs, as identified in the *Stormwater Discharge Monitoring Plan* (SDMP). This is referred to as "compliance monitoring" and is discussed in Section 3.1.

3.1 Compliance Monitoring

3.1.1 UIC Stormwater Discharge Monitoring Summary - Year 4 (2015 Permit)

The City's UIC monitoring program was implemented in accordance with the 2015 SDMP. The monitoring program under the City's 2015 Permit was designed to focus on UICs located in areas of shallow groundwater, defined as having less than 5 feet of separation distance between the UIC and estimated seasonal high groundwater. Fifteen UIC locations were sampled between July 1, 2018, and June 30, 2019, to implement the required compliance monitoring described in the SDMP. Stormwater discharge samples were analyzed for pollutants as defined in Table 1 of the 2015 Permit. Specific information concerning site details, monitoring results, and QA/QC can be found in Appendix C.

Year 4 (2015 Permit) Results

- All six pollutants in Table 1 of the City's 2015 Permit were detected in Year 4 (2015 Permit). Specific constituent concentrations are provided in Appendix C.

Action Level Exceedances and Response Actions

- No pollutants were detected in Year 4 (2015 Permit) at concentrations above their respective action levels and, thus, no response actions were required.

3.1.2 Key Accomplishments

- Implemented Year 4 (2015 Permit) stormwater compliance monitoring. Fifteen UICs were sampled and tested for pollutants as defined by the Permit.
- Compiled and evaluated Year 4 (2015 Permit) stormwater data; there were no exceedances of the Permit's action levels.
- Prepared and submitted annual stormwater discharge monitoring results to DEQ with this report (Appendix C).

3.1.3 Projected Main Activities

- Implement Year 5 (2015 Permit) UIC compliance monitoring in accordance with the 2015 WPCF Permit and 2015 Permit SDMP.

- Document, analyze, and report results of Year 5 (2015 Permit) stormwater monitoring to DEQ by November 1, 2020 (per the 2015 WPCF Permit).

- Continue to work with DEQ to demonstrate (through SDMP-required compliance monitoring) that discharges to public UICs meet Permit action levels and are protective of groundwater quality (see Section 4).

4 Response

The Response program element uses data and information from System Management and System Monitoring activities (see Sections 2 and 3) to assess UIC compliance status. It also defines the process and criteria used to identify, evaluate, and prioritize actions necessary to protect groundwater and meet WPCF Permit requirements.

During the first permit term (2005 to 2015), the City completed numerous actions to ensure UICs were compliant with the state and federal UIC rules and protective of groundwater. Actions included required and voluntary annual monitoring, on-the-ground UIC retrofits, and decommissioning, as well as data evaluation and numerous modeling efforts to demonstrate groundwater protectiveness for various discharge scenarios. Detailed information about these activities can be found in the annual UICMP reports for 2005 through 2015.

Ongoing evaluation and annual response activities are discussed in this section.

4.1 Assessment Response

Data generated through the systemwide assessment and ongoing database updates and evaluations are used to identify whether spatial and physical characteristics of UICs could result in drainage that may pose a risk to groundwater. Assessment response then evaluates the appropriate actions to correct the condition and protect groundwater quality. Responses may include a variety of corrective actions, and they may apply to individual UICs or groups of UICs that have been identified as needing correction.

4.1.1 Key Accomplishments

- No UICs were identified that required a corrective action response.

4.1.2 Projected Main Activities

- Implement actions as needed and appropriate to respond to any Year 5 (2015 Permit) UICs identified as needing correction.

4.2 Monitoring Response

Response actions are intended to reduce elevated stormwater discharge concentrations at the ground surface to meet permit action levels. Meeting permit limits (i.e., action levels) at the “end of pipe” demonstrates compliance with state and federal requirements for the protection of “underground sources of drinking water” and “waters of the state.” Response actions are intended to be implemented in a timely manner and are considered interim in nature until a final compliance determination is made or a final corrective action is implemented.

4.2.1 Key Accomplishments

- No monitoring response actions were needed during FY 2018–19.

4.2.2 Projected Main Activities

- Implement actions, as needed and appropriate, in response to any Year 5 (2015 Permit) individual stormwater discharge monitoring action level exceedances, unusual conditions observed during UIC sampling, inspections, or citizen complaints.

4.3 Spill Response

Spills and illicit discharges are reported to the SPCR team through the spill response hotline or by the Oregon Emergency Response System, or they are discovered by staff during site inspections. If a spill that could impact a UIC is discovered, the City will undertake a response as identified in the UICMP.

4.3.1 Key Accomplishments

- Continued to operate the BES 24-hour spill response hotline. Activities in FY 2018–19 included:
    - Received and responded to approximately 2,090 calls (citywide) regarding pollution complaints, spills, sanitary sewer overflows, dye tests, and other pollution-related inquiries.

During FY 2018–19, two spills of note occurred that required larger response actions (see Section 2.3 of this report for details).

Appendix B contains a table of all spills during FY 2018–19 that were in close proximity to a UIC catchment including any triggered response-related activities.

4.3.2 Projected Main Activities

- Continue investigation at the Starks site as appropriate. Continue coordination with DEQ Cleanup and UIC programs to identify any further actions and confirm permit compliance.

- Implement actions as needed and appropriate in response to any FY 2019–20 spills that may impact a UIC.

4.4 Groundwater Protectiveness Demonstration and Verification

During the first permit term (2005 to 2015), the City completed multiple groundwater protectiveness demonstrations (GWPDs). These GWPDs showed that operation of all City-owned UICs are protective of groundwater, including UICs with direct discharge and UICs that are within close proximity to a drinking water well. For the purpose of maintaining the validity of the demonstrations, the City evaluates monitoring data and depth-to-groundwater information annually to confirm that the basis of the protectiveness demonstrations have not changed and that groundwater continues to be protected.

4.4.1 GWPD Verification

The following data were evaluated to ensure that the City's GWPDs are still valid.

- **Verification of vertical separation distance:** U.S. Geological Survey depth-to-groundwater data were used in combination with existing construction information to calculate the vertical separation distance between the bottom of the UIC and seasonal high groundwater. All vertical separation distances are reported and updated as part of the UIC database annual reporting.
- **Verification of stormwater discharge monitoring results:** In general, pollutants detected in Year 4 (2015 Permit) monitoring are similar to detections, frequency, and concentration ranges identified during the first permit term. Common pollutants detected during the first permit term and during Year 4 (2015 Permit) are at low concentrations and below their respective action levels. Concentrations are generally low and within narrow ranges at individual UIC locations.

4.4.2 Key Accomplishments

- Evaluated UICs for WPCF Permit compliance.
- Evaluated Year 4 (2015 Permit) monitoring information for compliance.

4.4.3 Projected Main Activities

- Continue identification and evaluation of UICs as new data become available.
- Perform compliance determinations on any new UICs.
- Review and update as appropriate the Decision Making Framework for Groundwater Protectiveness Demonstrations to reflect any identified changes.
- Apply the protocols in the Decision Making Framework for Groundwater Protectiveness Demonstrations to any new UICs as appropriate to determine if groundwater is protected or corrective action is required.

4.5 Other Noncompliance or Violations

No instances of noncompliance or other unreported Permit violations were identified.

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ENVIRONMENTAL SERVICES
CITY OF PORTLAND
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