



2017 Underground Injection Control Permit Annual Report

Water Pollution
Control Facilities
Permit – Underground
Injection Control
Systems Permit
#103076

Multnomah County

Water Quality Program
Transportation Division
Department of Community Services

Facilities and Property Management
Department of County Management

December 2017

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Introduction

Multnomah County operates a system of underground injection controls (UICs) to infiltrate stormwater from roadways and facilities. Most of the UICs are “dry wells” lined with perforated concrete cylinders approximately 20 feet deep from the ground surface and 4 feet in diameter. The UICs exist in the parking lots of various County facilities in the cities of Portland and Gresham, and within the right-of-way in County-owned arterial and collector roadways in the cities of Troutdale and Fairview. The County currently has 141 UICs that collect stormwater from public rights-of-way and facilities and discharge it to the subsurface.

UICs are regulated under the federal Safe Drinking Water Act, and administered by the U.S. Environmental Protection Agency (EPA) under Title 40 of the Code of Federal Regulations, Parts 144-148. In Oregon, EPA has delegated the regulation of UICs to the Oregon Department of Environmental Quality (DEQ). Multnomah County UICs are regulated under a Water Pollution Control Facilities Permit (WPCF) for Class V UICs – Stormwater injection devices.

Under the WPCF UIC permit, the County must demonstrate that UICs do not endanger existing and future underground sources of drinking water, and do not allow movement of fluid containing contaminants into underground sources of drinking water. The WPCF permit requires the County to submit an annual report of its monitoring and management activities to meet these objectives.

The Annual UIC System Report must contain the following elements:

1. Stormwater monitoring results
 - a. Include any action level exceedances and actions taken to address exceedances
2. Implementation actions of the UIC Management Plan
 - a. Completed actions
 - b. Proposed modifications to the UIC Management Plan
 - c. Additional management actions not included in the UIC Management Plan
 - d. UIC Management Plan implementation actions not completed and rationale
3. Changes to UIC inventory
 - a. UICs closed, retrofitted or installed during permit year
 - b. UICs planned to be installed, modified, covered or closed in the next permit year
 - c. Newly discovered UICs in the permit area
4. Changes to key personnel or areas of responsibility for the permit

Stormwater Monitoring Results

Stormwater monitoring at County UICs is conducted twice during the wet season at five UICs. Sites were selected based on the general location (facility parking lots and roadways) and potential risks of pollutant sources: traffic volume and adjacent land use. The UIC Stormwater Monitoring Plan which can be downloaded from the County’s Water Quality Program website (<https://multco.us/water-quality-program/reports-and-plans>), describes the site selection in detail.

Table 1. Stormwater sampling sites at County UICs during permit year.

<i>Site</i>	<i>Sample ID</i>	<i>Land use</i>
SW Cherry Park Road (west)	1100243	Arterial roadway
SW 257 th Avenue	1100198	Arterial roadway
Midland Library	611L01	Facility parking
Hansen Complex	313J01	Facility parking
Juvenile Justice Center	311J06	Facility parking

Storms samples were predicted and evaluated against the criteria listed below to assess whether the predicted storm should be targeted as a potential sampling event.

- Predicted rainfall amount of ≥ 0.2 inches per storm
- Predicted rainfall duration ≥ 6 hours
- Antecedent dry period ≥ 6 hours (as defined by < 0.1 inches of precipitation over the previous 6 hours). When possible, samples will be collected after an antecedent dry period of 24 hours

The County’s UIC permit establishes action levels for five analytes shown below in Table 2. Action levels are guideline concentrations that trigger corrective action when exceeded.

Table 2. Analytical method, reporting limit and action level for UIC monitoring analytes.

Parameter	Analytical Method	Method Reporting Limit ($\mu\text{g/L}$)	Action Level ($\mu\text{g/L}$)
Benzo(a)pyrene	EPA Method 8270D (SIM)	0.01	2
Di(2-ethylhexyl)phthalate	EPA Method 8270D (SIM)	0.5	300
Pentachlorophenol	EPA Method 8270D PCP	0.08	10
Total Copper	EPA Method 200 Series	0.2	1,300
Total Lead	EPA Method 200 Series	0.1	500
Total Zinc	EPA Method 200 Series	0.5	50,000

Comparison of Action Levels to Monitoring Results

Pollutant concentrations for samples taken from five UICs during the permit year did not exceed action levels established in the County's UIC permit. Sampling data is given in Appendix A.

Benzo(a)pyrene and Di-(2-ethyl-hexyl) phthalate were detected typically two orders of magnitude less than the action level concentration. Pentachlorophenol was detected at two sites one order of magnitude less than the action level. Copper, lead and zinc were detected between two and four orders of magnitude below the action levels. Given that no action level exceedances were found during sampling, no corrective actions were needed.

Additional Pesticide Monitoring

Pesticide data was collected through the County's Underground Injection Control (UIC) Program to also fulfill NPDES MS4 Phase I permit requirements. Details of the pesticide selection process are found in the County's UIC Monitoring Plan (2014), which can be downloaded from the County's Water Quality Program website (multco.us/water-quality-program/reports-and-plans). The pesticide data serves to inform both programs.

The objective of this pesticide sampling is to fill data gaps about pesticides that may be commonly used along County's urban roadways and at County facilities. 179 different pesticides were screened using two methods to provide a baseline of pesticide information: Pacific Agricultural Laboratory Multi-residue Pesticide Screen and the Chlorinated Acid Herbicide Profile. Data were collected from two UICs and three facilities.

Six pesticides were detected from the two UICs on roadways, and two pesticides were detected at one County facilities. Pesticide detections are given in Appendix A.

Implementation Actions of the UIC Management Plan

A summary of management actions are provided in the table below. No modifications to the UIC Management Plan are proposed for this permit year.

Operations and Maintenance	
The objective of the UIC operations and maintenance activities is to reduce sedimentation of the UIC system and to ensure the continued infiltration function of the UIC system. These activities include street sweeping, catch basin cleaning, sediment manhole cleaning and sediment removal from the UIC drywell itself.	
1. Street sweeping	Streets were swept monthly in UIC areas.
2. Catch basin cleaning	Catch basins on County roadways are cleaned based on the NPDES catch basin cleaning program. Cleaning frequency is based on the fullness of a catch basin (1-3 times per year). Catch basins at County facilities are cleaned once in the reporting year.
3. Stormwater facility cleaning	Stormwater treatment facilities are cleaned based on an annual work schedule at the three facilities with pretreatment devices.
4. UIC cleaning	UICs are cleaned once during the 10 year permit term. UICs were not cleaned during this permit year.

Spill Protection	
The objective of the spill protection BMP is to prevent spilled chemicals from vehicle accidents and other sources from physically entering a UIC. The goals of this BMP are to promptly respond to accidental non-stormwater discharges to reduce the frequency and overall impact of spills to the stormwater system.	
1. Spill response program	The County's Spill Response Plan is current.
2. Erosion control for public projects	No construction occurred in UIC areas during the permit year.
3. Spill detection	No spills or dumping were detected during catch basin cleaning.

Pollution Prevention and Good Housekeeping	
The objective of the pollution prevention and good housekeeping BMP is to reduce, avoid and minimize pollutants from County operations.	
1. Road Maintenance and Operations Manual review	Road Maintenance and Operations Manual is current.
2. Stormwater retrofit	No major roadwork occurred in UIC areas.
3. Conduct vegetation management activities	County facilities manages vegetation according to the Facilities Pesticide, Herbicide and Fertilizer Management Policy.

Employee Education

The objective of the employee education BMP is to ensure that County personnel are familiar with procedures and operations of regular maintenance activities and emergency situations to avoid and minimize pollutant risk to the groundwater.

1. Staff training	Annual spill training was conducted as part of the First Responder training provided by Risk Management. Road Maintenance staff inspects and stocks spill kits in the spill response vehicle routinely after spill events.
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Public Outreach

The objective of public outreach is to make the public aware of the ways in which they can reduce the use of chemical products that may impact water quality and human health.

1. Regional public education efforts	The County participates in the Regional Coalition of Clean Rivers and Streams “The River Starts Here” campaign. (http://theriverstartshere.org/)
2. Storm drain markers	Catch basin markers were inspected in November and December 2017. Catch basin markers are inspected every 5 years.
3. Public reporting of spills	No spills were reported during the permit year in UIC areas.

Changes to UIC Inventory

During the past permit year (fiscal year), the County Transportation Division made no changes to the roadway UIC inventory and have no plans to install, retrofit or close any roadway UICs during the next permit year. The County Facilities Management reports eight UICs added to the County UIC inventory from a building newly acquired by the County. This Mid County District Office, located at 1245 and 1415 SE 122nd Ave in Portland, Oregon, had UICs located in the parking lot that receives parking lot and roof drainage, as detailed below. Further investigation is ongoing to access UIC on this new property.

<i>Drywell</i>	<i>Basin Type(s)</i>	<i>Latitude, Longitude (approximate)</i>	<i>Access</i>
DW-1	Roof	45.5134, -122.5380	No
DW-2	Roof	45.5132, -122.5379	No
DW-3	Parking	45.5130, -122.5383	No
DW-4	Roof	45.5131, -122.5381	No
DW-5	Parking	45.5135, -122.5387	No
DW-6	Parking	45.5140, -122.5387	Yes
DW-7	Roof	45.5135, -122.5383	No
DW-8	Roof	45.5135, -122.5385	No

Changes to Key Personnel

County UICs are managed primarily by two separate work groups based on the location of the UIC. Road Services maintains UICs within the road right-of-way (Figure 1). Facilities Management owns and operates UICs on the property of County-owned facilities (Figure 2).

Key contact information and their area of responsibility are described in Table 3.

Figure 1. Organizational chart for UIC related programs of Road Services Division of the Department of Community Services.

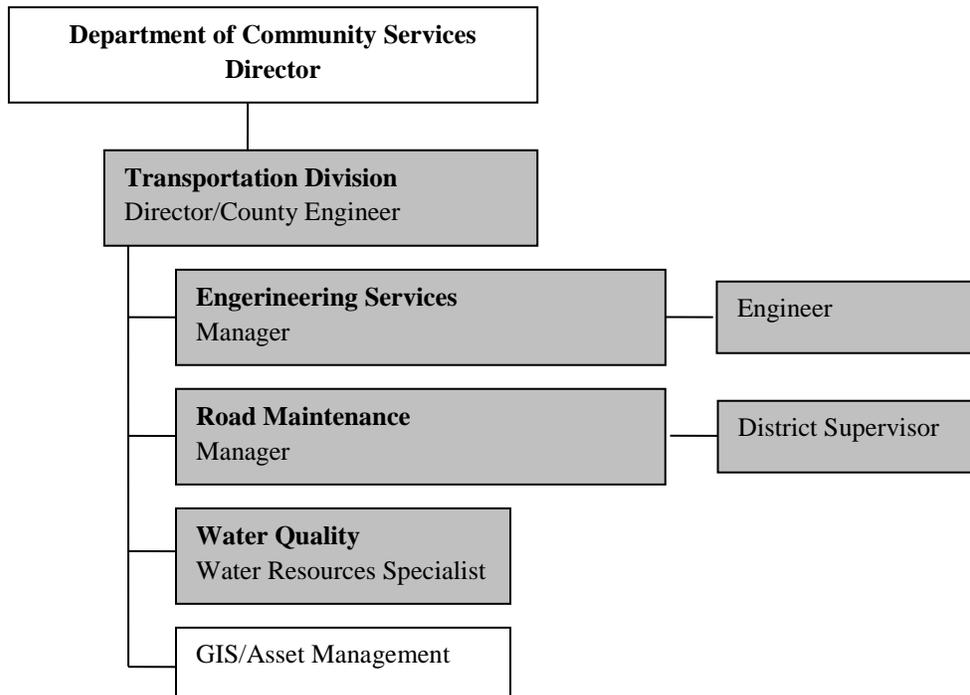


Figure 2. Organization chart for UIC related programs of Facilities Services of the Department of County Assets.

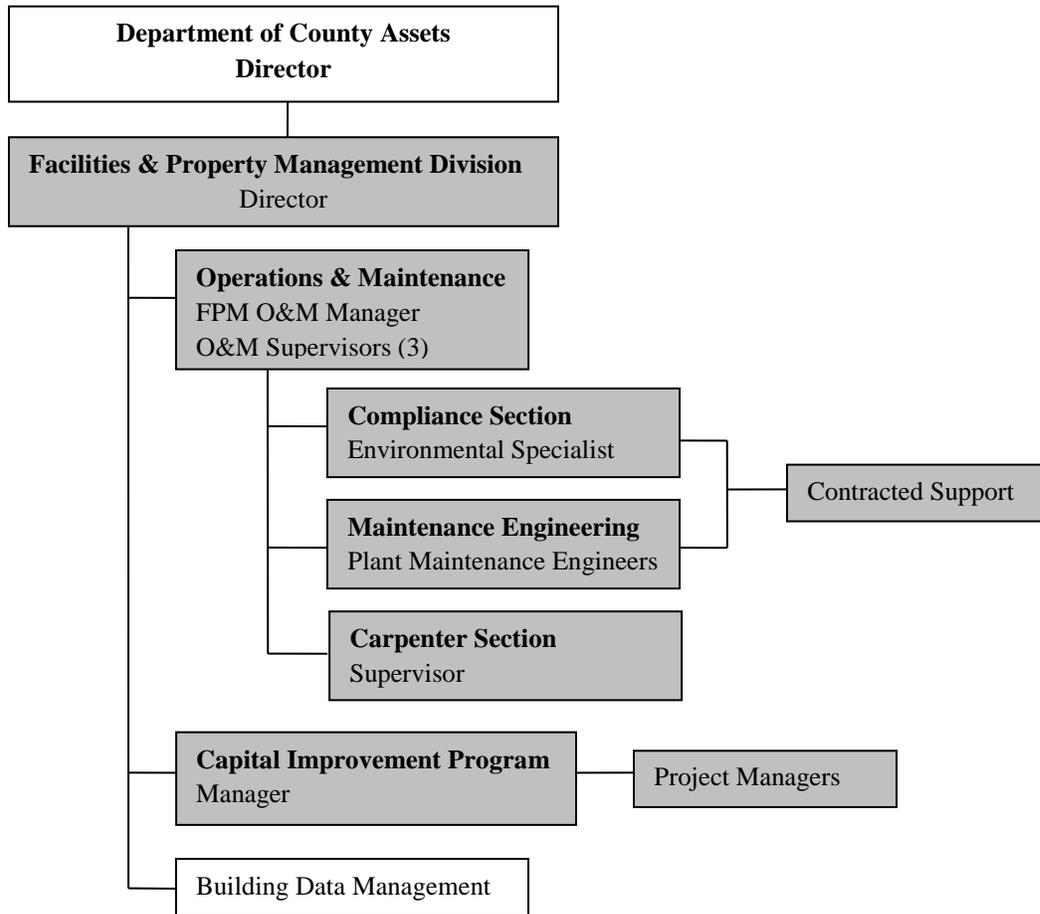


Table 3. Key personnel and areas of UIC responsibility.

<i>Key Personnel</i>	<i>Area of Responsibility</i>
<p>Mark Dorin, Compliance Section (503) 351-5848 Mark.dorin@multco.us</p>	<p>Facilities Management Manages the maintenance of UICs and associated stormwater infrastructure on County-owned facilities</p>
<p>Royal Forbes, Plant Maintenance Engineering Supervisor (503) 256-4985 royal.forbes@multco.us</p>	<p>Facilities Management Oversees the construction of new UICs on County-owned facilities</p>
<p>Michael Strauch, FPM O&M Manager (503) 988-4106 Michael.strauch@multco.us</p>	<p>Facilities Management Manages all O&M staff who are responsible for day to day operations of Compliance, Dispatchers & Trades (Engineering/Electrical/Mechanical) workers.</p>
<p>Henry Alaman, FPM Division Director (503) 988-6294 Henry.alaman@multco.us</p>	<p>Facilities Management Provides direction, oversight and support to the Division</p>
<p>Alan Proffitt, Capital Improvement Program Manager (503) 988-4213 Alan.d.proffitt@multco.us</p>	<p>Facilities Management Manages staff responsible for new construction or large renovation projects which may include storm water related infrastructure</p>
<p>Audrey Clarke, Cartentry Section Supervisor (503) 988-4189 Audrey.clarke@multco.us</p>	<p>Facilities Management Supervises carpentry operations including landscape and roof drainage</p>
<p>Roy Iwai, Water Resources Specialist (503) 988-0195 roy.iwai@multco.us</p>	<p>Water Quality Program – Transportation Manages the UIC program plan development, water quality monitoring, data analysis, and annual compliance reporting</p>
<p>John Niiyama, Road Maintenance Manager (503) 988-0210 john.niiyama@multco.us</p>	<p>Road Maintenance – Transportation Oversees the maintenance budget and maintenance policies for UICs in the road right-of-way</p>
<p>Tim Burke, Road Maintenance Supervisor (503) 988-0211 tim.burke@multco.us</p>	<p>Road Maintenance – Transportation Manages the maintenance of UICs on the County road right-of-way</p>
<p>Ian B. Cannon, P.E., Director/County Engineer (503) 988-3595 Ian.b.cannon@multco.us</p>	<p>Transportation Division Oversees the Transportation budget, policies and strategic direction of the division</p>
<p>Riad Alharithi, P.E., Engineering Services Manager (503) 988-0181 Riad.alharithi@multco.us</p>	<p>Road Engineering – Transportation Oversees the engineering budget and standards for UIC construction in the road right-of-way</p>
<p>Carrie Warren, P.E., Engineer 3 (503) 988-0169 Carrie.warren@multco.us</p>	<p>Road Engineering - Transportation Manages the design and construction of UICs in the road right-of-way</p>

Appendix A: Stormwater Data

Table A. Stormwater data of analytes with permit actions levels and minimum reporting limits for the laboratory method used in sample analysis. Refer to the UIC Monitoring Plan for details on analytical methods.

			<i>Benzo(a)pyrene</i> (ug/l)	<i>DEHP</i> (ug/l)	<i>PCP</i> (ug/l)	<i>Total Copper</i> (ug/l)	<i>Total Lead</i> (ug/l)	<i>Total Zinc</i> (ug/l)
Minimum Reporting Limit			0.01	1	1	0.200	0.100	0.500
Permit Action Level			2	300	10	1300	500	50000
<i>Site</i>	<i>Sample ID</i>	<i>Date</i>						
SW Cherry Park	1100243-N	10/13/2016	0.015	16	ND	13.6	2.11	75.7
SW 257th Ave	1100198	10/13/2016	0.018	11	1.7	14.2	1.68	65.6
Midland Library	611L01	10/13/2016	ND	ND	ND	1.31	0.146	7.59
Hanson	313J01	10/13/2016	ND	4.6	1.3	9.91	2.74	45.6
Juvenile Justice	311J07	10/13/2016	ND	5.7	ND	5.46	3.78	21.8
SW Cherry Park	1100243-N	2/15/2017	0.021	29	ND	13.1	4.42	87.3
SW 257th Ave	1100198	2/15/2017	0.071	18	ND	22.9	4.91	125
Midland Library	611L01	2/15/2017	ND	1.6	ND	3.62	0.99	19.2
Hanson	313J01	2/15/2017	0.033	13	0.83	12.6	9.24	71.8
Juvenile Justice	311J07	2/15/2017	ND	2.5	ND	2.55	1.96	9.67

Table B. Pesticide detections from UIC stormwater monitoring and the quantitation limit. Refer to the UIC Monitoring Plan for details on analytical methods.

<i>Sample date</i>	<i>Analyte</i>	<i>Result</i>	<i>QL</i>	<i>Unit</i>	<i>Method</i>	<i>Site</i>
10/13/2016	2,4-D	0.13	0.08	ug/L	Modified EPA 8151A	Hansen Complex
10/13/2016	2,4-D	0.36	0.08	ug/L	Modified EPA 8151A	SW Cherry Park
10/13/2016	Triclopyr	0.21	0.08	ug/L	Modified EPA 8151A	SW Cherry Park
10/13/2016	Diphenylamine	0.11	0.06	ug/L	Modified EPA 8270D	SW Cherry Park
10/13/2016	2,4-D	0.089	0.08	ug/L	Modified EPA 8151A	SW 257th Ave
10/13/2016	2,4-D	0.098	0.08	ug/L	Modified EPA 8151A	SW 257th Ave
10/13/2016	Aldrin	0.29	0.12	ug/L	Modified EPA 8081B	SW Cherry Park (Field dup)
10/13/2016	Chlordane	3	0.6	ug/L	Modified EPA 8081B	SW Cherry Park (Field dup)
10/13/2016	Dieldrin	1.8	0.6	ug/L	Modified EPA 8081B	SW Cherry Park (Field dup)
10/13/2016	2,4-D	0.39	0.08	ug/L	Modified EPA 8151A	SW Cherry Park (Field dup)
10/13/2016	Dicamba	0.099	0.08	ug/L	Modified EPA 8151A	SW Cherry Park (Field dup)
10/13/2016	Triclopyr	0.21	0.08	ug/L	Modified EPA 8151A	SW Cherry Park (Field dup)
10/13/2016	Diphenylamine	0.12	0.06	ug/L	Modified EPA 8270D	SW Cherry Park (Field dup)
2/15/2017	Pentachlorophenol	0.42	0.16	ug/L	Modified EPA 8151A	Hansen Complex
2/15/2017	Pentachlorophenol	0.23	0.16	ug/L	Modified EPA 8151A	SW 257th Ave
2/15/2017	2,4-D	0.097	0.08	ug/L	Modified EPA 8151A	SW Cherry Park (Field dup)
2/15/2017	Diphenylamine	0.068	0.06	ug/L	Modified EPA 8270D	SW Cherry Park (Field dup)