Multnomah County
Underground Injection Control System
Management Plan

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

Permit Number: 103076

DATE April 29, 2014

Land Use and Transportation
Department of Community Services
Multnomah County

Facilities and Property Management
Department of County Management
Multnomah County

Prepared by: Multnomah County and PBS Engineering and Environmental Inc.

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Table of Contents

1.0 Introduction

Background

Multnomah County constructs and operates a system of stormwater drainage that uses infiltration through underground injection controls (UICs) to remove stormwater from roadways and facilities. These 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 state of Oregon Department of Environmental Quality (DEQ). Oregon Administrative Rules 340-044 regulate all groundwater as a potential source of drinking water and require municipalities with more than 50 UICs to operate under a permit.

The County currently has 141 UICs that collect stormwater from public rights-of-way and facilities and discharge it to the subsurface. Most of the UICs are perforated concrete cylinders less than 23 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.

UICs are prevalent in areas where the subsurface soils support stormwater infiltration, and often where UICs are the only form of stormwater disposal available. UICs infiltrate stormwater into the subsurface, where pollutants are naturally attenuated in the vadose zone, and ultimately support the recharge of groundwater and seepage to surface waters. With the injection of stormwater pollutants and the potential for accidental spills to occur, a management plan is needed to reduce or eliminate those risks to groundwater. While studies of the fate and transport of common stormwater pollutants conveyed into UICs in the region have shown that conventional stormwater poses low risk to drinking water supplies, prudence is required to ensure that UICs don’t increase the risk of degrading groundwater quality from spills and emerging contaminants.

The Multnomah County Underground Injection Control (UIC) System Management Plan and the companion documents – the System-Wide Assessment and the Monitoring Plan – are requirements of the Water Pollution Control Facility (WPCF) permit (Permit #103076) for Class V Stormwater UIC Systems issued to the County by the Oregon Department of Environmental Quality (DEQ) on April 21, 2014. Together these plans provide an ongoing mechanism to identify UICs that may impact groundwater through the discharge of surface drainage to the subsurface. Table 3 summarizes the permit requirements for a UIC Management Plan and the County’s UIC best management practices (BMPs) that meet those requirements.

Multnomah County Organization

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 personnel contact information and their area of responsibility are described in the Table 1.

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

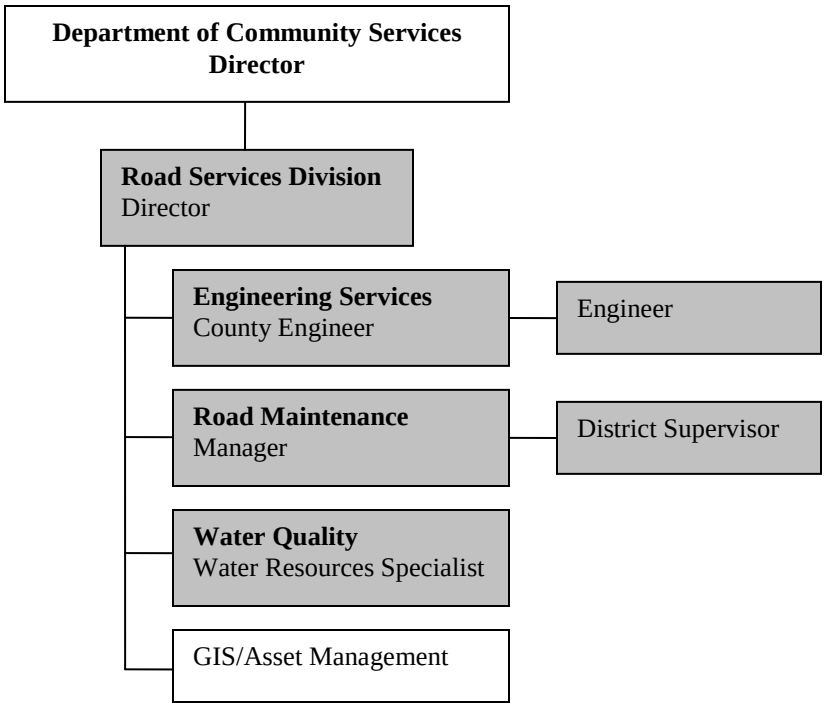

Figure 2. Organization chart for UIC related programs of Facilities Services of the Department of County Assets.

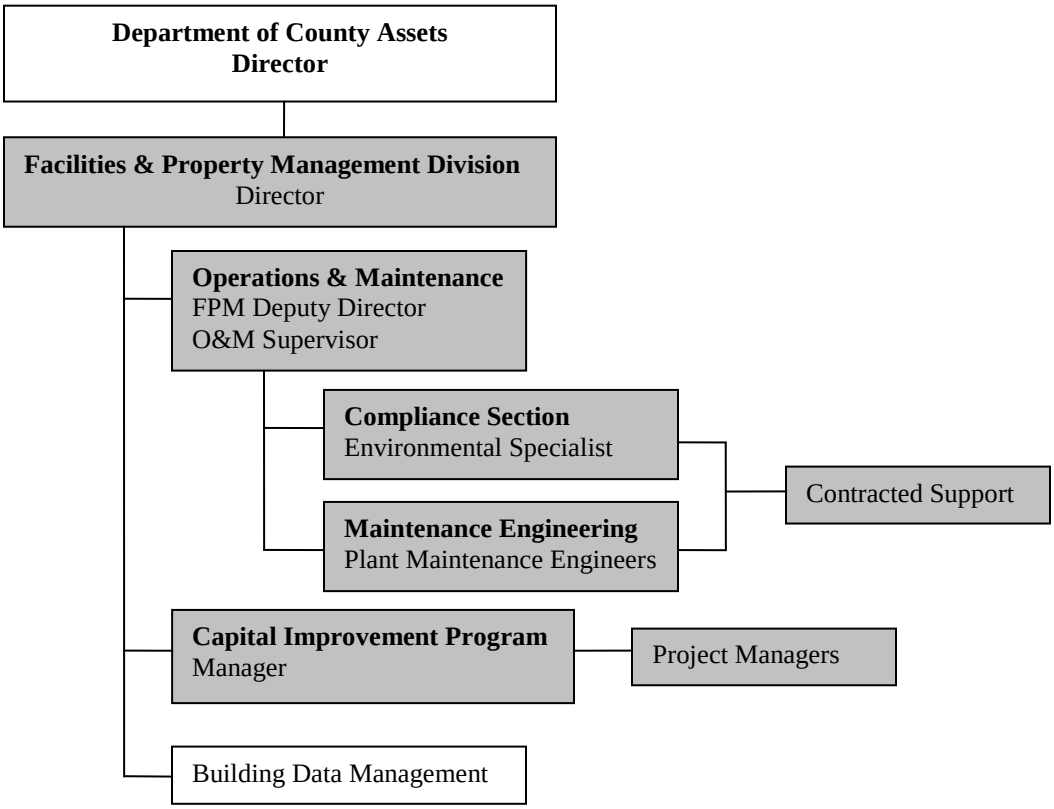

Table 1. Key personnel in County UIC management.

Key Personnel	*Area of Responsibility*
Michael McBride, Compliance Section Lead (503) 988-4474 michael.c.mcbride@multco.us	**Facilities Management** Manages the maintenance of UICs and associated stormwater infrastructure on County-owned facilities
Royal Forbes, Plant Maintenance Engineering Supervisor. (503) 209-2858 royal.forbes@multco.us	**Facilities Management** Oversees the construction of new UICs on County-owned facilities
Roy Iwai, Water Resources Specialist (503) 988-5050 ext 28031 roy.iwai@multco.us	**Water Quality Program – Road Services** Manages the UIC program plan development, water quality monitoring, data analysis, and annual compliance reporting
John Niiyama, Road Maintenance Manager (503) 988-5050 ext 29611 john.niiyama@multco.us	**Road Maintenance – Road Services** Oversees the maintenance budget and maintenance policies for UICs in the road right-of-way
Tim Burke, District 4 Supervisor (503) 988-5050 ext 29612 tim.burke@multco.us	**Road Maintenance – Road Services** Manages the maintenance of UICs on the County road right-of-way
Brian Vincent, County Engineer (503) 988-5050 ext 29642 brian.s.vincent@multco.us	**Road Engineering – Road Services** Oversees the engineering budget and engineering policies and standards for UIC construction in the road right-of-way
Adam Soplop, Engineer (503)988-5050 ext 22604 adam.soplop@multco.us	**Road Engineering – Road Services** Manages the design and construction of UICs in the road right-of-way

2.0 Goals and Objectives

UICs are designed to infiltrate stormwater runoff into the underground systems and preventing flooding of roadways from stormwater runoff. The County recognizes the benefits of managing stormwater through the subsurface, particularly to groundwater recharge. However, the County also recognizes there are inherent risks associated with stormwater and chemical spills. The overall goal of the Underground Injection Control System (UIC) Management Plan is to protect groundwater by managing risks presented by various pollutants and pollutant sources.

The Multnomah County UIC program follows the science-based and risk-based approach of the DEQ WPCF permit. While much is now understood about UIC risks and management from the City of Portland's UIC permit experience, more information is needed to manage the County's particular UIC environment. By filling knowledge and data gaps, preparing for accidents, and improving management practices, the risks to groundwater can be further reduced over the course of the permit term.

Science and risk-based approach

Risks to groundwater in the UIC system are dependent on the pollutant source, pollutant characteristics, pollutant concentration or volume, and the characteristics of the physical location of the UIC above ground and below. Pollutants are generated by vehicular traffic, leached from utility poles, runoff of commercial and industrial sites, washed off lawns and landscaping, accidentally spilled, or intentionally dumped. Proactive practices to reduce these sources are important to reduce the risks from these pollutants.

Stormwater characterizations conducted by local jurisdictions in Oregon have shown that many of the common pollutant concentrations fall below federal drinking water standards, where standards exist.[1] This characterization of low pollutant concentrations in stormwater relative to the drinking water standards is important to consider when assessing the risks to groundwater. Local data is needed to confirm these assumptions about the range of the stormwater pollutants for the County UIC system, because stormwater pollutant concentrations are variable, depending on the traffic volume, size of storm, time of year, and other factors.

The fate and transport of stormwater pollutants is a critical aspect of the pollutant risk to groundwater, particularly for those with high human toxicity. Stormwater pollutants either become bound to sediment and organic matter, or become part of the dissolved liquid phase. This fractionation is influenced greatly by the amount of organic carbon in stormwater sediment and soils surrounding the UIC. The dissolved fraction of metals, for example, ranges from 20 percent - 50 percent of the total metals concentration in stormwater, the remainder adsorbing to solids.[2] Pollutants adsorbed to solids are tightly bound, and are effectively trapped in catch basins and the UIC or immediately surrounding soils, hence, posing a low risk to groundwater.

Natural attenuation of dissolved pollutants in the vadose zone occurs through physical processes such as adsorption, absorption, or volatilization, and biological processes such as microbial degradation. The vadose zone effectively acts as a filter, then, and naturally reduces the risks of the UIC system.[3] Pollutants with a high affinity to sediment and organic matter, such as polycyclic aromatic hydrocarbons (PAHs; a common component of petroleum products), and metals, attenuate rapidly and present less risk to groundwater than more mobile constituents such as organic solvents. For those pollutants that degrade quickly through chemical or biological processes, the risks to groundwater are decreased.

Practices to treat or remove pollutants once pollutants have entered stormwater are important to prevent accumulation of persistent pollutants in the UIC and the vadose

[1] Kennedy/Jenks Consultants (December 16, 2009). Compilation and Evaluation of Existing Stormwater Quality Data from Oregon. Technical Report for Oregon Association of Clean Water Agencies. K/J Project No. 0891020.00.

[2] Pitt, R., A. Maestre, R. Morquecho, T. Brown, T. Schueler, K. Cappiella and P. Sturm, 2005. Evaluation of NPDES Phase 1 Municipal Stormwater Monitoring Data. University of Alabama and the Center for Watershed Protection.

[3] GSI Water Solutions Inc. (June 10, 2011). Pollutant Fate and Transport Model Results in Support of the City of Gresham UIC WPCF Permit – Proposed EDLs. Technical Memorandum to City of Gresham.

zone. Metals, for example are readily attenuated in the vadose zone, but because they persist indefinitely, reduction of metals is needed to extend the functional life of a UIC.

Responding to spills from accidents and illegal dumping requires established and practiced procedures. The potential quantity and concentration from spills are the highest risks to groundwater in UIC management. The actual risks will depend on the toxicity and mobility of the particular product, and the ability for local emergency response actions to contain spills and prevent material from entering the UIC system.

Not all pollutant sources have the same level of risk to groundwater. Table 2 summarizes the typical pollutant sources, pollutant types, and the key attenuating characteristics in a UIC. The County's approach to managing UICs follows the general level of risk imparted by the particular pollutant type. As new pollutants emerge from different sources, this matrix will be updated and risk reassessed.

Table 2. Typical sources and general characteristics of pollutants of the UIC system.

Pollutant source	*Pollutant*	*Attenuating characteristic*		*General Risk Level*
		Sorption	*Degradation*	
Traffic-generated pollutants	Metals	Moderate	None	Low
	Combustion by-products (e.g., PAHs)	High	Moderate	Low
	Oil, grease	High	High	Low
Utility poles and industrial land uses	Pentachlorophenol	High	Moderate	Low
	Di(2-ethylhexyl) phthalate	High	High	Low
Lawns and landscaping	Herbicides/insecticides	Varies	Varies	Moderate
Spills	Petroleum products	Low	High	High
	Industrial chemicals	Varies	Varies	High

UIC Management Plan objectives

This plan describes a strategy of best management practices to meet the following objectives:

1) To clean and inspect the UIC system,
2) To educate the public and staff, and
3) To prevent the injection of pollutants that increases the risk to the beneficial uses of groundwater.

The plan includes a risk-based monitoring plan to assess pollutant concentrations of concern, and a process to decommission UICs so that closed UIC sites do not pose a future risk to groundwater. The plan is managed adaptively, such that new science, risk evaluations, management techniques and other pertinent information informs the improvement of the plan.

The UIC Management Plan addresses the requirements of the County's UIC WPCF permit. Table 3 summarizes these permit requirements by section, and the location in this document where the requirements are addressed.

Table 3. Permit requirements addressed by UIC best management practices (BMPs)

Permit requirement	*Location in Management Plan*
D.5.a. Stormwater monitoring plan	Appendix A
D.5.b. Injection system decommissioning	Section 4
D.5.c. Employee education and public outreach	Section 3. BMPs
D.5.d. Operation and maintenance	Section 3. BMPs
D.5.e. Protection from spills and illicit discharge	Section 3. BMPs
D.5.f. Preventing injection from loading docks or other areas that may contain pollutants above levels of concern	Section 3. BMPs
D.5.g. Housekeeping practices to protect groundwater quality	Section 3. BMPs
D.5.h. Facility designs or practices to block UIC discharge	Section 3. BMPs
D.6. Adaptive management	Section 2

Adaptive Management

An adaptive management approach to assess and modify elements of the UIC Management Plan ensures that the program protects groundwater resources while infiltrating stormwater into the UIC system. The adaptive management process will include:

- Annual review of monitoring data
- Evaluation of emerging pollutant types and concentrations during the fifth year of permit issuance
- Review of available technologies and practices
- Evaluation of resources available to implement the program
- Implications of new science and technology to protect groundwater through UIC best management practices
- Five-year review of System-Wide Assessment and UIC inventory for accuracy and compliance with permit conditions

3.0 UIC System Overview

The County currently has a total of 141 UICs: 94 on County facility properties and 47 in County roadways. All 47 of the road UICs drain the public right-of-ways in County owned roadways. Of the 94 facilities UICs, 16 drain buildings roofs, 46 drain parking areas or driveways, and 10 drain landscaped areas. The remaining 22 UICs dispose of stormwater from a combination of contributing drainage areas including parking lots, driveways, sidewalks, walkways, roofs, landscaped areas, and building foundations (soil dewatering). A total of 10 County UICs have stormwater pretreatment systems (i.e., sedimentation manhole, filtration vaults, grassy swales, or flow-through planter units).

A detailed inventory of the County's UICs and maps of the County regions with UICs may be found in the System-Wide Assessment.

4.0 Best Management Practices (BMPs)

Operations and Maintenance

Objective: 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	The street sweeping program for County roads reduces materials on the roadway and reduces the amount of fine sediment entering the UIC, which preserves the infiltration function of the UIC. It may also reduce the amount of sorbed contaminants from being mobilized into the UIC (e.g., PAHs, heavy metals)
2. Catch Basin Cleaning	Catch basin cleaning reduces the amount of fine sediment entering the UIC, which preserves the infiltration function of the UIC and reduces mobilization of pollutants into the UIC. Catch basins are cleaned twice a year, unless cleaning records indicate less frequent or more frequent cleaning is appropriate.
3. Stormwater Facility Cleaning	The County Transportation division manages a limited number of stormwater treatment facilities, such as catch basin filters and sedimentation manholes. Periodic cleaning of these facilities is needed to optimize their ability to trap sediment. Stormwater systems at County-owned facilities are maintained in accordance with local standards or manufacturer recommendations. Complex sites (i.e., those with more than catch basin collection and pipe conveyance) have a site-specific Operations and Maintenance (O&M) plan. This O&M plan specifies minimum maintenance requirements, frequency intervals, and inspections. Maintenance of mechanical treatment devices (e.g., Stormfilters, Vortechs units, oil/water separators, etc.) are conducted by approved contractors with experience maintaining such devices.
4. UIC Inspection and Cleaning	The removal of sediment from these structures reduces the risk of groundwater pollution by decreasing the potential mass loading of pollutants to sediments accumulated in the UIC. Rehabilitation of a UIC to restore or improve infiltration rates may also be necessary depending on the age of the UIC.

Spill Protection

Objective:

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. Implement the Spill Response Program	In accordance with the Occupational Safety and Health Administration (OSHA) 29 CFR 1910.120 (HAZWOPER) and Oregon Administrative Rule 340-044-0018 (Ground Water Protection) Multnomah County is required to develop and implement an Emergency Spill Response Plan. This plan describes the procedures to be followed by employees who respond to releases of hazardous substances at any site. In addition, this plan is designed to minimize hazards to human health and the environment from fire, explosives, sudden and non-sudden releases of diesel, oil, and hazardous waste into the air, surface and groundwater, and/or soil.
2. Require Erosion and Pollution Controls for Public Projects	This BMP is intended to apply to contractors hired to construct County projects, including road and bridge repair and construction, and associated projects. The County will implement requirements to control discharges from construction sites to ensure that construction practices do not release sediment and contaminants onto roadways or open space where they may be washed into storm drains. The County establishes special provisions and specifications in individual project agreements/ROW permits to address erosion control. Current requirements include placing filters in catch basins, monitoring catch basins, following standards for construction of temporary access roads, and a $1,000 cash deposit. Construction projects at County-owned facilities are required to meet the development code requirements of local jurisdictions (e.g., City of Portland, City of Gresham, State of Oregon 1200-C Permit, etc). These include implementing erosion prevention and sediment control BMPs to meet water quality standards. Additional requirements may be imposed by the Capital Improvement Program division for sites at greater risk of potential pollution to surface water or groundwater.
3. Implement a Spill Detection program	Road Maintenance crews are trained to be aware of unusual deposits during routine catch basin cleaning and periodic UIC cleaning. If unusual substances are found in the catch basin these are immediately reported to the District Supervisors in the Road Maintenance Division or the Water Resources Specialist. In addition, depending on the type of material, these incidents are reported to the Safety Officer, Code Compliance staff, or Nuisance Control Officer. The appropriate County staff will investigate and take enforcement action as necessary. Field inspections occur during regular catch basin cleaning twice a year, unless cleaning records indicate less frequent or more frequent cleaning is appropriate.

Pollution Prevention and Good Housekeeping

Objective: The objective of the pollution prevention and good housekeeping BMP is to reduce, avoid and minimize pollutants from County operations.	
1. Review the RMOM for Potential Updates to Address Water Quality	The County Road Maintenance and Operation Manual (RMOM) is a reference manual with guidance on vegetation management, equipment and material transport, emergency maintenance, and roadway and drainage maintenance. The manual was developed to comply with ODOT's Routine Road Maintenance Water Quality and Habitat Guide Best Management Practices (2009), and serves as the core of the County's ESA 4(d) submittal to NOAA Fisheries.
2. Retrofit Existing Facilities for Water Quality Benefit	When major road repair is needed, the County will develop and implement retrofits of existing public drainage and flood control facilities (sumps, water quality filtration devices, retention basins, drainage channels, bioswales, trash racks, sediment trap devices, etc.) where practical to improve water quality, and install new systems according to current standards. Facilities & Property Management adopts a similar approach when performing capital improvements on County properties. All new development is designed to meet current local standards for stormwater management, typically requiring water quality treatment for runoff from pollution generating impervious surfaces. When major facility maintenance or repair is needed, stormwater infrastructure is upgraded to conform to the current industry standards for water quality treatment. Where appropriate, preference is given to low-impact-development stormwater management techniques such as bioswales, rain gardens, filter strips, planter boxes, and ponds.

3. Conduct Vegetation Management Activities	Vegetation management policies and strategies are outlined in the Multnomah County Transportation Integrated Vegetation Management Program (IVM), and vegetation management procedures are outlined in the Road Maintenance Operations Manual (RMOM) including environmental considerations for daily operations such as: tractor mowing, hand brushing, hand weeding, pesticide application, fertilizing, planting, pruning, water, etc. Chemical herbicide applicators receive annual certification from the Oregon Department of Agriculture in proper handling, safety, and application of allowable chemicals. All herbicides are applied in accordance with manufacturers' labels. A Chemical Review process is required, where staff from Safety and Risk Management review and approve chemical use. The Facilities & Property Management Division has implemented a Pesticide, Herbicide and Fertilizer Management Policy. The intent of this standard policy and procedure is to provide a framework to minimize the use of pesticide, herbicide and fertilizer applied to the grounds of County-owned facilities, in an effort to comply with environmental permits and promote good environmental stewardship.

Employee Education

Objective: 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. Conduct Training and Education for County Personnel	Training for Spill Detection and Spill Response are included in several components of staff training including: Road Maintenance supervisors and staff participate in the annual review of RMOM, IVM, and Emergency Spill Response Plan. Training includes issues ranging from Hazardous Material training, the impacts of on-the-job activities on stormwater quality, and how to reduce risks to groundwater from spills. Topics include erosion control, stormwater maintenance activities, inspection practices, construction BMPs, and spill response. County Facilities and Property Management staff, with the potential to encounter a spill are trained as HAZWOPER First Responders. These employees receive an annual refresher that includes a review of the Emergency Spill Response Plan. In addition, all County trade workers are provided with an Environmental Operations Field Guide that serves as a quick reference for actions to take in the event of encountering a spill scenario.

Public Outreach

Objective: 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. Participate in Regional Public Education Efforts	The County will continue to provide funding and staff support for the various public involvement and education activities provided by the Regional Coalition of Clean Rivers and Streams (RCCRS). The RCCRS develops stormwater education campaigns which includes media buy from cable, radio, billboard, transit ad, and the internet.
2. Maintain Signage to Protect Water Quality	The County installs storm drain markings and other signage programs to promote public awareness of the importance of keeping pollutants out of storm drains as opportunities arise. All catch basins on roadways with UICs have been previously marked.
3. Facilitate Public Reporting of Illicit Discharge and Dumping	The County utilizes its nuisance ordinance (MCC 7.20) to encourage the public to report incidents of illegal discharge and dumping. The County Nuisance Code Division web page provides the process and telephone number to report illegal dumping. Nuisance code enforcement investigates, enforces and assesses penalties. Citizens may call the County Road Services for illegal discharge and dumping on a County road or in the right-of-way of any County road. Signs are currently posted in all known problem areas for dumping.

5.0 Decommissioning UICs

Decommissioning an underground injection control (UIC) system in Oregon is regulated by the Oregon Department of Environmental Quality (DEQ) under Oregon Administrative Rule (OAR) 340-044 (http://www.deq.state.or.us/wq/uic/regs.htm). Related information is found on the internet at http://www.deq.state.or.us/wq/uic/guidance.htm. The following is a summary of the requirements.

UIC Pre-closure Notification Form

UIC systems must be registered with the DEQ prior to closure or decommissioning. All UICs included in the County's inventory of injection systems have been registered with DEQ. Site addresses can be checked at the DEQ UIC database to verify registration status (http://www.deq.state.or.us/wq/uic/uic.asp).

Frequently asked questions and answers related to UIC decommissioning are found at http://www.deq.state.or.us/wq/uic/faqs.htm.

If construction or investigative activities on a County-maintained roadway or County-owned facility uncover a previously unknown UIC system, the UIC must be registered and incorporated into the County's system-wide assessment. The registration document can be found at http://www.deq.state.or.us/wq/uic/docs/forms/preclosure039.pdf.

DEQ requires a $100 fee be paid for each UIC intended for closure. Multnomah County has been assigned UIC Facility Number 10598 for all County-owned UICs; this must be indicated on the Pre-Closure Notification form. The form must be complete and signed by a legally authorized representative. UICs fall under specific Federal Injection Classes. Information related to these classes is found at http://www.deq.state.or.us/wq/uic/federal.htm. The only known UICs at County facilities are EPA Well Type 5D2, for underground injection of stormwater runoff.

Sampling Plan

A sampling plan for UIC closure is required and must be approved by DEQ before closure may commence. The plan must also be approved by a registered Professional Geologist, Engineering Geologist, or Professional Engineer.

UICs must be sampled prior to closure. If closing multiple UICs on one site or roadway, not every feature must be sampled, only a representative number. For example, if a parking area feeds into two or more UICs, only one needs to be sampled, although that one should represent the "worst case scenario". A sampling plan is required to be submitted and approved by the DEQ before sampling can occur.

The sampling plan needs to state the number of UICs to be sampled, the analyses to be conducted, and the final decommissioning method. The DEQ will state if changes are

needed and will approve the sampling plan. The sampling method is not required for the sampling plan.

Submit the sampling plan to the DEQ by e-mail. If the sampling plan will be large or complex, the DEQ may require a hard copy be submitted. The plan should be submitted to the UIC WPCF permit manager.

Most County UICs receive runoff from areas of vehicle traffic. Therefore the minimum analysis requirements are gasoline- and diesel-range petroleum hydrocarbons by method NWTPH-Gx and NWTPH-Dx respectively, and Toxicity Characteristic Leaching Procedure (TCLP) extraction by EPA Method 1311 on the Resource Conservation and Recovery Act (RCRA) 8 metals by the EPA 6000/7000 Series Methods. The TCLP analysis on the RCRA 8 metals will better facilitate disposal of the UIC contents, if necessary. The DEQ may allow synthetic precipitation leaching procedure (SPLP) analysis in lieu of TCLP analysis. Additional analysis may be required depending on land use, (i.e. volatile organic compounds (VOCs) may need to be analyzed if there is a dry cleaner next door).

Sample UIC

A sample needs to be taken from the solid UIC contents and from the base of the UIC. This may be the same sample if sediment accumulation is minimal, or multiple samples for thicker sediment deposits. If access to the interior of the UIC is available, either through the lid or a manhole, a hand auger may be appropriate for sample collection. A sediment collection device, such as a ponar grabber, may also be used, or qualified personnel may perform confined space entry for sample collection. If access to the UIC interior is not available, a drill rig can be used adjacent to the UIC and a sample collected from representative material at the depth of the UIC base.

Some UICs have a concrete bottom, and others are open to native material. Concrete bottomed UICs should be sampled with a ponar grabber, or equivalent, or have a hole drilled adjacent to the UIC. Some UICs have water pre-treatment before the water enters the UIC, such as a sedimentation manhole or oil/water separator. The pre-treatment feature should be decommissioned concurrently with the UIC, but no sampling or notification to the DEQ is required.

Submit for Closure Authorization

Once the analytical results of the sampling are obtained, submit the laboratory data and chain-of-custody documentation to the DEQ for approval to decommission the UIC according to the sampling plan. The DEQ will give permission to decommission, or state if additional sampling or UIC cleaning is required.

Decommission the UIC

The DEQ will state if cleaning of the UIC contents is necessary. Expect to clean UIC contents if high levels of contamination are encountered, or if sediment accumulation is thick. At a minimum, all water should be removed and properly disposed prior to filling the UIC. The DEQ and Oregon Water Resources Department generally require that the UIC void be filled with an impermeable material, such as controlled density fill (CDF). Completely excavating the UIC is another acceptable decommissioning method, as well as a combination of the two (filling with CDF half way and excavating the rest). The UICs should be decommissioned using the method described in the DEQ approved sampling plan.

Closeout Report

A final closeout report must be submitted to the DEQ to formally close the UICs. The report must be submitted to the UIC WPCF Permit Manager at the DEQ, and include the following:

- Name of the UIC system owner (i.e., Multnomah County)
- Existing land use of the site
- Date of closure
- Name of contractor or those who performed the closure
- Description of how the system was closed, including what materials were used
- Closure log showing vertical depth of the UIC system and vertical placement of the material used to close the system
- Copies of backfill material receipts (optional)
- Description of what samples were collected and at what depth, including chain-of-custody forms that document sample handling and transfer
- Summary of sampling data and analyses, including laboratory reports
- Description of how and where any materials removed from the UIC system were disposed of, as well as disposal receipts
- If site is in a DEQ cleanup program, list DEQ regional contact information
- Existing type of pre-treatment, if any, associated with each UIC
- Photos and diagrams showing how the UIC system was closed (optional or as requested)
- A statement that the closure meets DEQ's closure requirements (OAR 340-044-0040) and Oregon Water Resources Department abandonment requirements (either OAR 690-240-0030 or 690-220-0030)
- The closure report must be certified by an Oregon-licensed geologist, professional engineer, or engineering geologist

Appendix A. Multnomah County Emergency Spill Response Plan

MULTNOMAH COUNTY

EMERGENCY SPILL RESPONSE PLAN

November 2012

TABLE OF CONTENTS

Section

1.0 Introduction

1.1 Document Purpose

In accordance with the Oregon Occupational Safety and Health Division (OR-OSHA) OAR-437-2/H-1910.120 (HAZWOPER) and OAR 340-044-0018 (Ground Water Protection) Multnomah County is required to develop and implement an Emergency Spill Response Plan. This plan will describe the procedures to be followed by employees who respond to releases of hazardous substances at any site. In addition, this plan is designed to minimize hazards to human health and the environment from fire, explosives, sudden and non-sudden releases of diesel, oil, and hazardous waste into the air, surface and ground water, and/or soil.

Areas and activities that are most vulnerable to spills include fueling activities, loading and unloading activities, vehicle maintenance, storage areas, bridges, roads, and parking lots.

1.2 Document Scope

The procedures described in this document are developed specifically for Multnomah County. **Multnomah County staff will clean up only incidental spills (as described in this document) and will only take defensive measures when responding to anything larger than incidental spill**. This document reflects the scope of those types of responses.

2.0 Pre-emergency Planning and Coordination with Outside Parties

2.1 Emergency responders available

When employees encounter known or suspected hazardous materials, and they perceive that there is an imminent danger (e.g. fire, explosion, environmental damage), they should contact 911.

2.2 Hazardous Material Contractor

Multnomah County has made arrangements with the following Hazardous Materials Remediation Contractor to provide additional emergency response services as needed:

a) NRC Environmental Services
Daytime work hours (503) 283-1150
24 hour number 1 (800) 337-7455

3.0 Personnel Roles, Lines of Authority, Training and Communications

3.1 General Program

This plan addresses spill response occurring on County property, bridges, roads, and rights of way. The County spill response system is designed to be a defensive response to provide protection for human safety, the environment, and property. For other than incidental spills, County staff are trained to take defensive measures only. Staff are not trained or equipped to clean up anything larger than an incidental spill.

3.2 Spill Report/Notification Procedure

3.2.1 If a spill occurs at a County facility:

a) Report to Facilities Dispatch (503) 988-3779. If possible relay the location of the spill, the materials spilled, and the approximate amount spilled.

b) Trained personnel will be dispatched to the site.

3.2.2 If a spill is related to transportation:

a) During daytime work hours

(1) Roads – Call the appropriate supervisor. If possible, relay the location of the spill, the material spilled, and the approximate amount of the spill.

(2) Bridges – Call the operator by dialing (503) 988-3757 Ext 0. If possible relay the location of the spill, the material spilled, and the approximate amount of the spill.

(3) The operator will transfer the call to the appropriate supervisor.

(4) Trained personnel will be dispatched to the site.

3.3 Key Personnel

3.3.1 Facilities Dispatch and Transportation supervisors are able to contact 911 services and NRC Environmental Services as necessary.

3.2.2 Other key personnel include

Mike McBride, Facilities and Property Management
Work Phone (503) 988-4474
County Cellular (503) 209-2969
24-hour # (FPM Dispatch) (503) 988-3779

Rob Gabris, Risk Management
Work Phone (503) 988-4788
Cellular Phone (503) 347-7178
Home Phone (503) 284-8520

Bill Whitson, Road Maintenance
Work Phone (503) 988-5050 ext 29611

Carl Morgan, Bridge Maintenance
Work Phone (503) 988-3757 ext 224

Mike Pullen, Communications Office
Cellular Phone (503) 209-4111
Home Phone (503) 234-3875

David Austin, Communications Office
Cellular Phone (503) 803-8616

3.4 Incident Commander

3.4.1 The highest ranking County employee at the emergency scene will be the Incident Commander. The Incident Commander position will be transferred to other County personnel with higher rank and training as they arrive at the emergency scene.

3.4.2 The Incident Commander is responsible for coordinating operations and the activities of County employees involved in the spill response.

3.4.3 The Incident Commander will also represent the County when other emergency responders (e.g. police, fire, clean-up contractors) arrive at the scene.

3.5 Training

Multnomah County staff who may encounter spills are trained to the First Responder Operations Level as per OR-OSHA 1910.120 and are familiar with this plan and proper spill response procedure. These employees will only take defensive measures to control anything larger than an incidental spill.

3.6 Means of Communication

3.6.1 Multnomah County Communication Systems consist of:

a) Telephones

b) Portable and vehicle two-way radios

c) Cellular telephones

3.7 Outside Agency Notification

Contacts will be made by one of the County key personnel, if required, as soon as possible after the spill.

3.7.1 The Oregon Emergency Response System (OERS)
1 (800) 452-0311

The National Response Center (NRC)
1 (800) 424-8802

3.7.2 Telephone reports to the NRC and OERS are required when a spill involving a hazardous material results in:

a) Death

b) Hospitalization

c) Property damage in excess of $50,000

d) Any substance the Incident Commander or Key County Person thinks should be reported

e) A discharge of hazardous materials in excess of the reportable quantity (RQ) in the current 40 CFR Table 302.4 and OAR 340-108

f) Release into water way or drainage facilities

3.7.3 A hazardous waste specialist can be contacted at Oregon DEQ to determine if a spill is a substance of reportable quantity. Reportable quantity is defined in OAR 340-108 - 0010 as:

a) Any quantity of radio active material or radio active waste

b) Any quantity of oil released in the waterways of the state that can produce a visible sheen

c) Oil spilled on the surface of the land, any quantity over 42 gallons (one barrel)

d) Any amount equal to or greater than the quantity listed in 40 CFR Part 302 - one pound or more of nerve agents (released on site)

e) One pound of pesticide residues

3.7.4 When reporting a spill the following information shall be provided:

a) Name, address, and DEQ/EPA hazardous waste ID number of the facility

b) Date, time, and type of incident (e.g., spill or fire)

c) Quantity and type of hazardous material, hazardous substance or hazardous waste involved in the incident

d) Extent of any injuries

e) Estimated quantity and disposition of any recovered materials

4.0 Emergency Recognition and Prevention

This section describes the particular actions personnel will take in response to unplanned sudden releases of diesel, oil or hazardous materials to the surrounding environment. In the event of such a release, Multnomah County personnel will take all necessary precautions (up to the level of training received) to prevent the spread of contaminants.

4.1. Assess Hazardous Risk

4.1.1 Hazardous risk at a County facility.

Before responding to a spill at a County facility responders will use the Material Safety Data Sheet (MSDS) to:

a) Identify the hazard(s) and asses the risk.

b) Secure the scene.

c) Obtain help if needed.

d) Decide on site entry.

1) If County responders are not appropriately protected and trained for the level of emergency, they will not respond further than providing traffic control and site security, while waiting for assistance.

4.1.2 Hazard and risk on bridges and the right of way (ROW)

A material spilled on the roads and bridges is typically unknown to the responders, making it necessary to first identify the material spilled and then perform a basic hazard and risk assessment. County responders will follow the following steps when responding to spills on bridges, roads and rights of way:

a) Approach the spill area cautiously.

b) From a safe distance use whatever means available to identify the material spilled.

c) Once the spilled material is identified use whatever means available to identify the hazards.

d) Secure the scene from a safe distance.

e) Obtain help as needed.

f) Decide on what, if any, defensive actions can be taken..

1) If County responders are not appropriately protected and trained for the level of emergency, they will not respond further than providing traffic control and site security while waiting for assistance.

4.1.3 Tools for assessing hazard(s) and risk

When approaching the scene of an emergency spill, County responders will use any of the following means available to identify the material and assess the hazard(s):

a) Vehicle placards and chemical ID numbers

b) Container labels

c) Shipping papers

d) Material Safety Data Sheets (MSDS) if available

e) The Department of Transportation (DOT) Guide book for assistance in identifying the spilled material and assessing hazards.

When approaching the scene of an emergency spill, responders will be aware of warning signs (Red Flags) that might indicate a hazardous material release, such as:

a) Collapsed victims

b) People running from the area

c) Flames or smoke

d) Sound from venting safety devices on vehicles

e) Hissing sound

f) Birds and insects falling from the sky

4.2 Spill Response

4.2.1 Spill Classification

Spills are divided into three categories:

a) Incidental spills -- these include drips or other small spills of a quantity less than a gallon of diesel, oil or antifreeze (this includes gasoline).

b) Medium spills -- these are spills where:

(1) The spill is greater than one gallon but less than 42 gallons of diesel, oil (NOT including gasoline), and antifreeze.

(2) The spill is not threatening to impact the environment via runoff or contact with surface and or ground water (i.e., the spill is entirely contained on asphalt or gravel areas).

c) Large spills - large spills include:

(1) 42 gallons or more of diesel, hydraulic oil, waste oil, and antifreeze (on land).

(2) Any hazardous material. (This includes a quantity of greater than 1 gallon of gasoline.)

(3) Release of oil that causes a film, sheen, or discoloration of surface water.

4.2.2 Response Procedures

a) The hazards posed by an incidental hazardous material spill are no greater than those posed by using the material itself. For example, the hazards of filling a portable generator with diesel are similar to those of cleaning up a half-gallon spill of diesel.

Thus incidental spills may be cleaned up by staff using appropriate personal protective equipment (PPE).

b) County staff will **only use defensive measures** when responding to medium and large spills Defensive measures include:

(1) Following the spill report/notification procedure in section 3.2 above to give accurate information as to the location, material spilled, and estimated amount of the spill.

(2) Evaluating the hazard(s) from a safe distance. If the spilled material is flammable, eliminate sources of ignition if possible near the spill area.

(3) Assisting other emergency responders as needed.

(4) Preventing spilled material from entering drains, catch basins, and waterways.

(5) Securing the scene and control traffic (both vehicle & pedestrian).

5.0 Safe Distances and Places of Refuge

5.1 Emergencies occurring at a Multnomah County Facility

a) County facilities have Emergency Action Plans, developed by occupying departments, that employees will follow.

b) The plans contain procedures for evacuating the facility and designate gathering locations for employees and visitors that are deemed safe distances.

5.2 Emergencies occurring on roads and bridges

If County personnel are responding to a spill that has occurred on a road or bridge, the following steps will be taken:

a) Responders will approach the scene cautiously.

b) Stay upwind as much as possible.

c) Move further away if experiencing symptoms that may be related to hazardous materials exposure.

6.0 Security and Control

6.1 To prevent convergence onto the scene by unauthorized individuals, County personnel will begin securing the site by isolating the hazard area and denying entry. As a responder, you may need to exercise your authority to stop traffic.

6.2 County employees will not clean up anything other than an incidental spill.

6.3 If County employees are on-scene during a medium or large spill response they will remain in uncontaminated areas.

7.0 Evacuation Procedures

7.1 At County Facilities

a) All Multnomah County facilities have an evacuation plan, developed by occupying departments, to assure proper evacuation of a County Facility under emergency conditions. Each plan is designed to ensure employee and visitor safety by providing the most efficient means of evacuation and identifying lines of communication and responsibility.

b) It is the responsibility of management at each County facility to ensure that employees at that facility area familiar with the evacuation procedure. It is the responsibility of each employee to follow the evacuation procedure at his/her facility.

7.2 Roads, Homes, and Businesses

a) During a spill of a hazardous material it may become necessary to evacuate people from nearby homes and businesses. In these situations, County responders will

follow the lead of local police and fire authorities and give assistance as directed.

8.0 Decontamination Procedures

The purpose of decontamination is to prevent the spread of contamination from the hazard area to clean areas and into the environment. Because County staff will only take defensive measures to control medium or large spills, they should not be in contact with hazardous materials.

Nonetheless PPE, equipment, tools or materials that may have been in contact with hazardous materials will be bagged at the scene and transported back to the facility where they can be decontaminated.

County staff who clean up incidental spills will clean (i.e. decontaminate) or dispose of contaminated PPE, equipment, tools or materials as per their customary procedures. The Spill Response Contractor is capable of decontaminating impacted items as well.

9.0 Emergency Medical Plan

9.1 Use your site or workgroup-specific procedures for responding to medical emergencies in the field. If immediate medical assistance is needed contact 911.

9.3 If an injured employee is taken to an emergency medical provider directly from the field, contact the employee's supervisor or designee as soon as possible. In addition, contact Risk Management as soon as possible.

10.0 After Action Review (AAR) of Emergency Response

10.1 Critique meeting

Following an emergency response, an AAR meeting will be held to review and revise all aspects of the emergency response. Appropriate personnel will attend this meeting. At a minimum, the following topics will be discussed:

a) Managing the scene

b) Identification of hazard(s)

c) Analyzing the hazard(s)

d) Selection and use of PPE

e) Communication & Control of the hazard(s)

f) Decontamination

g) Termination of operation

10.2 Incident documentation

During an emergency response, the Incident Commander will initiate documentation of the incident for future reference. The following items will be documented:

a) History and facts about the cause of the incident.

b) Description of steps taken by responders from the time of notification to the time of termination.

c) Names and roles of on scene response personnel.

d) Third party information, i.e., name, address, phone, insurance.

e) Police report and official incident number.

f) Internal Order Number (I.O. number) for charge back.

g) External vendor reports and invoice copies

11.0 Emergency response equipment

Multnomah County Transportation maintains a trailer equipped for the purpose of responding to emergency spills. The following equipment is on the trailer:

11.1 Personnel Protective Equipment (PPE)

a) Disposable boot covers

b) Gloves

c) Goggles

d) Orange Cloth Overalls (various sizes)

e) Dust masks

11.2 Emergency Safety Equipment

a) First aid kit

b) Self-contained portable eye wash station

11.3 Clean-up Equipment & Supplies

a) Absorbent (grease sweep)

b) Booms, long and short (petroleum and universal)

c) Absorbent pads (petroleum and universal)

d) Drain covers

e) Small swimming pool (for spill containment)

f) Shovels

g) Push brooms

h) Large heavy duty trash bags with ties and labels

i) Barrier tape and cones

j) Wipes for clean up

k) Drum for waste collection

l) 10’ x 10’ - 6 mil visqueen tarp for PPE removal.-

11.4 Spill Kit location

There are a number of spill control kits in a variety of locations throughout the County. Spill control kits have been placed at the following locations:

a) In Road Maintenance Supervisors trucks

b) District 1 Shop (Skyline)

c) District 5 Shop (Springdale)

d) Yeon Shops Warehouse

e) Hansen Station

f) Blanchard Fleet Shop

g) Operator’s tower on the four Willamette River draw bridges

h) Emergency Response Coordinator’s Vehicle

i) Facility: B437 - Multnomah County East - 600 NE 8th Gresham, Oregon. Spill kit located in boiler room adjacent to the main parking lot east end of the building.

j) Facility: B314 - Inverness Jail - 11540 NE Inverness Drive. Spill kit is located in the lobby reception desk.

k) Facility: B311 - Juvenile Justice Center - 1401 NE 68th Avenue, Portland, Oregon. Spill kit located inside the HVAC Plant outside wall of the office door.

l) Facility: B420 - Southeast Health - 3653 SE 34th Avenue, Portland, Oregon. Spill kit located on the first floor in the Janitor storage room adjacent to the front door.

m) Facility: B322 - Northeast Health - Walnut Park/NEHC, 5329 NE MLK Blvd. Spill kit located in the compressor room at the south end of the building adjacent to the parking lot.

n) B504 the Multnomah Garage - 501 SE Hawthorne Blvd. Spill kit located in the electrical room at the entrance of the garage.

o) Facility: B119 - Justice Center - 1120 SW 3rd. Spill kit located in the guard shack at the bottom of the entrance ramp L1.