Water Pollution Control Facilities (WPCF) Permit

Class V Stormwater Underground Injection Control Systems

DEQ Permit Number 102830

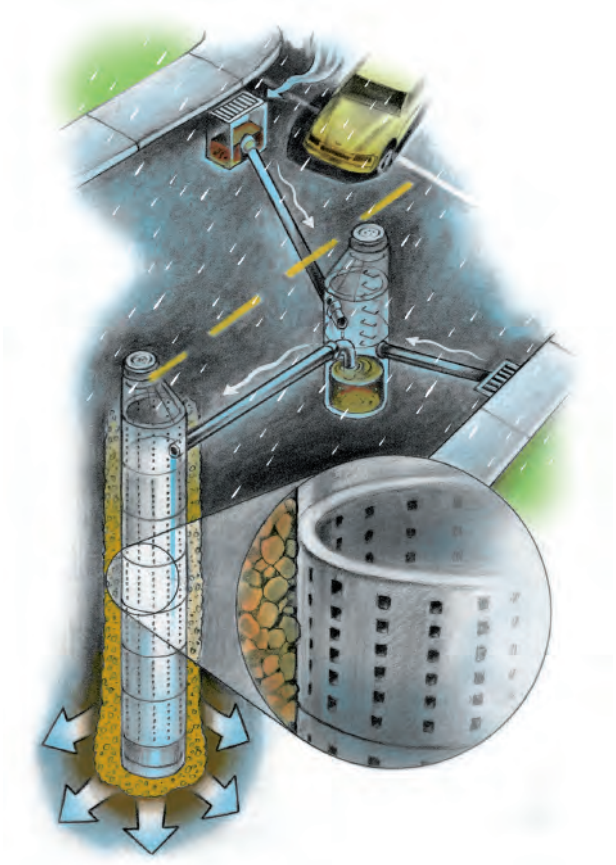
Underground Injection Control Management Plan

▪

Annual Report No. 2

Fiscal Year 2006 - 2007

(July 1, 2006 - June 30, 2007)



November 1, 2007

Prepared by

ENVIRONMENTAL SERVICES
CITY OF PORTLAND
working for clean rivers

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. 2

Fiscal Year 2006-2007
(July 1, 2006 – June 30, 2007)

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Prepared By:
City of Portland, Bureau of Environmental Services

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Introduction

This *Underground Injection Control Management Plan (UICMP)Annual Report No. 2* is submitted to the Oregon Department of Environmental Quality (DEQ) to fulfill reporting requirements for the City of Portland's Water Pollution Control Facility (WPCF) Permit for Class V Stormwater Underground Injection Control Systems (UICs). The report summarizes UIC programmatic activities during the second permit reporting year (July 1, 2006 through June 30, 2007). Section 4: Evaluation and Response, and Section 5: Corrective Actions, include activities through October 2007 in order to track and report on milestones identified in the *Systemwide Assessment Follow-up Actions* workplan.

Background

DEQ issued the WPCF permit to the City on June 1, 2005. As required by the permit, the City prepared a *UIC Management Plan* (UICMP) and submitted it to DEQ for approval on December 1, 2006. The UICMP describes the activities the City will implement throughout the permit term (June 1, 2005 – May 31, 2015) 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 first annual report (for FY 2005-06) was submitted on December 1, 2006.

Because the UICMP was still under development during the first fiscal year, the first annual report focused on programmatic implementation rather than on the implementation of detailed UICMP components. With the UICMP is now in place, this second annual report provides information about implementation of the specific components identified in the UICMP.
The City has organized the UICMP and the annual report into the following four 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.

- **Evaluation and Response** describes the process and criteria that will be used to identify, evaluate, and prioritize actions needed to protect groundwater and meet permit requirements.

- **Corrective Action** includes the processes to evaluate, rank, select, and implement appropriate corrective actions to address UICs that do not meet WPCF permit requirements.

This annual report describes the activities that occurred in FY06-07 in each of these four areas. Key accomplishments are summarized below and described in more detail in the body of the report.

Key Accomplishments

System Management

- Submitted quarterly *UIC Registration Database* updates to DEQ on September 1, 2006, December 1, 2006, March 1, 2007, and June 1, 2007.

- Started construction on a neighborhood sump rehabilitation project that addresses 41 locations where new UICs are needed to improve local drainage conditions, eliminate local street flooding, and reduce flows to the combined storm sewer system.

- Initiated pre-design activities to provide pretreatment for 27 UICs located on high-traffic or commercial/industrial streets within the Columbia South Shore Wellfield Wellhead Protection Area.

- Implemented an internal registration and approval process for new City-owned UICs, which maximizes resources and increases the efficiency, accuracy, and speed of registration and approval. The approval process confirms that all newly identified UICs meet permit rule authorization requirements.

- Submitted the *Systemwide Assessment Follow-up Actions* workplan to address the approximately 950 UICs that were identified for follow-up as part of the systemwide assessment. The document outlines the activities and projected timeframes that will be implemented to evaluate UICs that meet any of the following criteria.
  - UICs with inadequate separation distance.
  - UICs that receive drainage from facilities that store, handle, or use hazardous or toxic materials in quantities requiring registration under the Superfund Amendment and Reauthorization Action Title III.
  - UICs that receive drainage from commercial/industrial properties with site activities that may cause stormwater entering a public UIC to exceed MADLs (maximum allowable discharge limits) established in the permit.
  - UICs within close proximity to domestic use wells.

- Initiated pre-design activities for UICs with inadequate separation distance.

- Developed a focused monitoring program to address UICs within close proximity to drinking water wells.

- Implemented follow-up inspections and evaluations of UICs identified as potentially receiving drainage from facilities that store, handle, or use hazardous or toxic materials in quantities requiring registration under the Superfund Amendment and Reauthorization Action Title III.

- Received a total of 1,300 daytime calls (citywide) regarding pollution complaints, spills, sanitary sewer overflows, dye tests, and seepage discharges.

- Continued to provide oversight to ensure that commercial and industrial facilities comply with retrofit requirements under the Columbia South Shore Well Field Wellhead Protection Program. Conducted 145 inspections of regulated businesses under the program. Six violations were identified, most related to reporting requirements.

- Continued public outreach by the Portland Water Bureau and Columbia Slough Watershed Council to increase education and awareness about groundwater protection within the Columbia Slough Watershed and Columbia South Shore Wellfield Wellhead Protection Area.

- In partnership with the Columbia Corridor Association (CCA), provided outreach to regulated businesses.

- In accordance with *Stormwater Management Manual* requirements, signed off on permits for a total of 434 source control measures at sites with high-risk characteristics or activities.

- Conducted erosion control inspections related to 5,737 active private construction permits.

- Conducted 8,382 erosion control-related inspections of private construction sites. (There were 5,737 active private construction permits subject to erosion control inspection.)

- Drafted an implementation and procedurals manual for the newly passed stormwater enforcement code and administrative rules.

- Conducted employee training on stormwater management for Parks & Recreation staff; Bureau of Environmental Services (BES) spill response hotline staff; Water Bureau, Fire Bureau, and Bureau of General Services staff; and Bureau of Maintenance new employees.

- Worked with other City programs, watershed councils, and community groups to coordinate public education, stewardship activities, and integration of stormwater and groundwater protection messages.

- Cleaned 7,941 inlets (citywide) and 1,015 sedimentation and sump manholes.

- Swept approximately 580 miles of streets draining to public UICs.

- Initiated work orders to address UICs with inadequate maintenance access.

- Received City Council approval for a Green Streets policy and resolution.

- Identified BES and Bureau of Development Services (BDS) staff to evaluate the review and approval process for private UICs, identify issues and process gaps, and identify strategies for resolution and implementation for both public and private UICs.

- Participated in the regionally coordinated legislative outreach for support of House Bill 2118 to fund a statewide program using UIC fees; achieved legislative approval.

System Monitoring

- Prepared and submitted the *Final Stormwater Discharge Monitoring Plan* (SDMP) to DEQ.
- Prepared and submitted year 2 (October 2006 – 2007) UIC compliance monitoring locations to DEQ.
- Prepared and submitted 10 supplemental monitoring locations for year 2 to DEQ to assess the quality of stormwater discharged to UICs located near domestic or public drinking water wells.
- Implemented year 2 stormwater compliance and supplemental monitoring. Forty-one UIC locations were sampled in year 2 and tested for common pollutants.
- Prepared and submitted the *Annual Stormwater Discharge Monitoring Report – Year 2 – October 2006 – May 2007* to DEQ on July 15, 2007.
- Prepared and submitted year 3 (October 2007 – 2008) UIC monitoring locations to DEQ.

Evaluation and Response

- Responded to individual stormwater sampling event permit concentration exceedances.
- Responded to unusual conditions observed during implementation of the UIC monitoring program that may have impacted stormwater discharge quality.
- Initiated further evaluation of the UICs identified in the December 2007 *Annual Report No. 1* as potentially not meeting permit requirements for vertical separation distance between the bottom of the UIC and seasonal high groundwater.
- Initiated further evaluation of UICs located near domestic or public drinking water wells.
- Initiated further evaluation of year 1 and year 2 stormwater pollutants that exceeded applicable permit MADLs.
- Investigated factors associated with pentachlorophenol fate and transport that may significantly affect the quality of stormwater entering the UIC system.
- Determined four UIC locations to be non-compliant due to pentachlorophenol annual mean concentrations exceeding the MADL for two consecutive years.
- Determined 338 UICs to be non-compliant for not meeting permit requirements for separation distance (i.e., vertical distance between the bottom of the UIC and seasonal high groundwater).

- Initiated selection of demonstration projects to increase the separation distance between shallow groundwater and the bottom of the UIC.

Corrective Action

- Developed and submitted *Corrective Action Plan for Underground Injection Control Systems* (CAP) to DEQ.

- Initiated planning and pre-design activities of the 29 Category 2 UICs in accordance with the CAP.

- Applied the *UIC Prioritization Procedure* to non-compliant UICs.

1 Introduction

1.1 Overview

The Oregon Department of Environmental Quality (DEQ) issued the City of Portland's Water Pollution Control Facility (WPCF) Permit for Class V Stormwater Underground Injection Control Systems (UICs) on June 1, 2005 (Permit No. 102830).

As required by Schedule D(1) of the WPCF permit, the City prepared a *UIC Management Plan* (UICMP) and submitted it to DEQ for approval on December 1, 2006. The UICMP describes the activities the City will implement throughout the permit term (June 1, 2005 – May 31, 2015) to protect groundwater and meet WPCF permit requirements. (See Section 1.2 for additional information about the UICMP.)

The WPCF 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 summarizes activities that occurred during the second fiscal year of permit implementation (July 1, 2006 through June 30, 2007).

Because the UICMP was still under development during the first fiscal year, the first annual report (FY 2005-06) focused on programmatic implementation rather than on the implementation of detailed UICMP components. With the UICMP now in place, this second annual report provides information about implementation of the specific components identified in the UICMP. This includes detailed information, including proposed timelines and implementation schedules, for work associated with the following:

- UICs in areas of shallow groundwater
- UICs within close proximity to drinking water wells
- Overall monitoring strategy, including pentachlorophenal source identification

Table 1-1 summarizes the WPCF permit requirements for the annual report and, if applicable, describes where the requirements are addressed in this annual report.

Table 1-1
Summary of WPCF Permit Annual Report Requirements[a]

Requirement	Permit Reference	Where Requirement is Addressed in Annual Report
General Requirements		
The Permittee must notify the Department of any changes in key personnel or areas of responsibility.	D(5)(b)	Section 1.7
Unusual conditions encountered	D(15)(a)(i)	Section 4.2
Permit violations that may have occurred	D(15)(a)(ii)	No permit violations have occurred.
Minor and/or major permit modifications	D(15)(a)(vi)	None.
A demonstration of legal authority to implement the UICMP	D(15)(i)	Section 1.6
A discussion of significant land use changes that alters traffic volume, patterns of potential pollutants to a Permittee owned or operated public UIC. If the affected public UIC is a permanent trend monitoring point, then the Permittee must discuss the impact to the trend analyses and identify, for Department approval, a replacement UIC for trend analysis.	D(15)(j)	Included in *Annual Stormwater Discharge Monitoring Report- Year 2* (October 2006 – May 2007), submitted to DEQ in July 2007.
The status of implementing the UICMP and each of its components	D(15)(d)	Section 1.9
A discussion of any proposed changes to the UICMP or its components	D(15)(f)	Section 1.10
System Management		
Employee Training and Public Education program must be developed and implemented to educate Permittee's personnel and the public of the permit conditions and requirements	D(10)(d)	Section 2.4
…summarize any public UIC discovered or identified during or after the system-wide assessment	C(20)(b)	Section 2.2
A list of newly constructed …. public UICs during the reporting period	D(15)(k)	Section 2.2
A summary of BMPs implemented during the annual reporting period and the results of those BMPs and a description of BMPs to be employed during the next reporting year	D(15)(h)	Sections 2.2 through 2.6
Summarize the decommissioning of motor vehicle floor drains that discharge to public UICs.	C(13)(d)	Not applicable; no floor drains identified as draining to public UICs.
A summary of maintenance activities and supporting data.	D(15)(c)	Information on number of UICs, sediment manholes and catch basins cleaned included in Section 2.5. O&M conducted as a response action described in *Stormwater Discharge Monitoring Plan* and also included in Section 5.
System Monitoring		
Any other information, finding, condition, spills and/or action that is relevant to the management of the Permittee's public UICs or groundwater protection during operation of the public UICs	D(15)(n)	Sections 3 and 4
A summary and analysis of BMP monitoring accumulated during the annual reporting period	D(15)(l)	Section 3

Requirement	Permit Reference	Where Requirement is Addressed in Annual Report
Provide BMP monitoring results in the annual UICMP reports.	D(10)(c)(iv)	Section 3
Provide a brief overview summary of the monitoring results provided in the annual monitoring report for the reporting period.	D(15)(b)	Section 3
Include a comparison of the data to data from previous annual reporting periods.	D(15)(g)	Section 3
Violations (i.e., exceedances of permit established limits)	F(4)(d)	Section 3
Corrective Actions		
Identify Category 2 UICs.	C(12)(d) C(20)(c)	Identified in first annual report; update provided in Section 5
Identify Category 3 UICs.	C(12)(e)	Section 5 and Appendix B.
Identify Category 4 UICs.	B(7)(j)	Sections 3, 4, and 5
Provide a summary of the UIC system management for the reporting period, including: (iii) Corrective actions taken to prevent further permit violations (iv) Other corrective actions taken or initiated	D(15)(a)	Section 5
An updated prioritized list of non-compliant public UICs with implementation and completion schedules	D(15)(a)(v)	Section 5 and Appendix B.
A discussion of any compliance response action taken during the reporting period	D(15)(e)	Included in *Annual Stormwater Discharge Monitoring Report – Year 2* (July 2007) and summarized in Section 5.
Provide a prioritized list of all non-compliant public UICs by category. Include a prioritized subset of the non-compliant public UICs that must be corrected during the CIP year.	D(15)(m)	Section 5
Any part of the UIC system placed under a Department Order for a regional corrective action and the nature of the Department Order (if applicable)	D(15)(a)(vii)	Section 5
[a] Where applicable, permit requirements are grouped by the UICMP categories developed by the City of Portland.		

1.2 Overview of the UICMP

As required by the WPCF permit, the UICMP identifies and discusses the best management practices (BMPs) the City will employ throughout the permit period to protect groundwater quality, support watershed health, and meet permit conditions. These include structural, non-structural, and institutional controls. In accordance with the permit, the UICMP also includes the following:

- UIC Registration Database
- Operations and Maintenance (O&M) Plan
- BMP Monitoring Program

- Employee Training and Public Education
- Spill Prevention and Pollution Control (SPPC) Plan
- Abandonment, Decommissioning, or Alteration of Public UIC Injection Systems Plan

The UICMP also meets the requirements of OAR 340-044-0018(3)(b)(C). These requirements specify that municipalities with 50 or more stormwater injection systems must prepare and implement a written UIC management plan that includes a systemwide assessment, system controls, monitoring, and a plan for record keeping and reporting.

The UICMP is organized into the following four major elements:

- **System Management** includes ongoing, programmatic activities (best management practices, or BMPs) that prevent, minimize, or control pollutants before they can be discharged to a UIC. BMPs are organized into the following five categories:

    - System Inventory and Assessment (SA)
    - Pollution Control (PC)
    - Education and Training (ET)
    - Operations and Maintenance (OM)
    - Policy and Regulation (PR)

- **System Monitoring** includes ongoing actions to demonstrate that UICs are operated in a manner that protects groundwater and meets WPCF permit conditions. It includes two types of monitoring: stormwater discharge monitoring and BMP monitoring.

Information collected through implementation of System Management and System Monitoring activities will be used to identify program improvements or UICs that may require additional evaluation, response action, or corrective action.

- **Evaluation and Response** uses data and information from System Management (e.g., UIC location, depth to groundwater) and System Monitoring (e.g., results of maximum allowable discharge limits [MADL] monitoring) activities to assess UIC compliance status. It also defines the process and criteria that will be used to identify, evaluate, and prioritize actions necessary to protect groundwater and meet permit requirements.

- **Corrective Action** addresses UICs that are shown to be non-compliant with WPCF permit requirements through the Evaluation and Response process. It includes the process that will be used to evaluate, rank, select, and implement appropriate corrective actions. A variety of corrective actions are available, including options that do not involve construction (such as institutional controls or an assessment to demonstrate protectiveness), structural/engineering controls, and UIC closure.

1.3 Relationship of the UICMP to the UIC Program and UICMP Annual Reports

The UICMP is a comprehensive plan that describes the City's overall UIC program. It includes processes, tasks, and, where possible, implementation schedules. In many cases, however, it is difficult to determine implementation details years in advance because so many variables are involved. For that reason, UICMP implementation details will be included on a yearly basis in the UICMP annual reports. This annual report provides information about key accomplishments during FY06-07 (July 1, 2006 to June 30, 2007) and identifies activities planned for implementation in the next fiscal year (FY07-08).

1.4 Other UIC Program Documents

The WPCF permit requires the City to prepare a variety of documents that together describe the programmatic actions and management practices the City will implement to protect groundwater and meet permit requirements. Some of these documents are included as appendices to the UICMP, while others were submitted to DEQ separately. Table 1-2 shows the relationship of these documents to the four major UICMP elements.

1.5 Other Program Reporting Requirements

In addition to the UICMP annual report, the City will fulfill reporting requirements specified in the WPCF permit by submitting the following reports to DEQ:

- *Annual Stormwater Discharge Monitoring Report* (due July 15 of each year)
- Interim compliance reporting:
  - Detection of priority pollutant screen (PSS) pollutants
  - Exceedance of MADLs for individual sampling events
  - Exceedance of annual mean concentration for any MADL
- *UICMP Update* (due November 1, 2010)
- *Corrective Action Plan Update* (due November 1, 2010)

Table 1-2
UIC Program Documents Related to UICMP Elements

UICMP Element/Document	Submittal Information
System Management	
Systemwide Assessment	Submitted July 15, 2006
UIC Registration Database	Submitted September 1, 2005 and updated quarterly
Operations and Maintenance Plan	Submitted December 1, 2006 (UICMP Appendix B)
Spill Prevention and Pollution Control Plan	Submitted December 1, 2006 (UICMP Appendix C)
Decommissioning Procedure for Underground Injection Control Systems	Draft submitted November 1, 2006 Final submitted December 1, 2006 (UICMP Appendix D)
System Monitoring	
Stormwater Discharge Monitoring Plan (SDMP) - *Sampling Design Plan* - *Quality Assurance Project Plan (QAPP)* - *Sample Analysis Plan (SAP)*	Submitted July 15, 2005 Final submitted August 30, 2006
BMP Monitoring Program	Submitted December 1, 2006 (UICMP Appendix E)
Annual Stormwater Discharge Monitoring Report – Year 1 (October 2005 - May 2006)	Submitted July 15, 2006
Annual Stormwater Discharge Monitoring Report – Year 2 (October 2006 - May 2007)	Submitted July 15, 2007
Evaluation and Response/Corrective Actions	
Corrective Action Plan	Submitted July 15, 2006
Corrective Actions: Category 1 Underground Injection Control Systems	Submitted July 15, 2005; completed July 2006
Compliance Determination Procedure	Submitted December 1, 2006 (UICMP Appendix F)
Prioritization Procedure	Submitted December 1, 2006 (UICMP Appendix G)
Evaluation and Response Guidelines	Submitted December 1, 2006 (UICMP Appendix H)
Systemwide Assessment Follow-up Actions workplan	Submitted December 1, 2006
Annual UICMP Reports	
Underground Injection Control Management Plan – Annual Report No. 1 - Fiscal Year 2005-2006 (July 1, 2005 – June 30, 2006)	Submitted December 1, 2006

1.6 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 make and enforce *** [as] 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 regulation of stormwater discharges, building requirements, zoning, erosion and sediment control and public improvements in Chapters 10, 17, 24, 29, and 33. Chapter 17.38 and 17.39 specifically address Drainage and Water Quality and Stormwater Discharges, respectively.

1.7 UIC Program Staff

1.7.1 Key Roles and Responsibilities

The WPCF permit designates the Bureau of Environmental Services (BES) as the bureau responsible for implementing the WPCF 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 December 2006 UICMP.

1.7.2 Personnel Changes

- Quentin Pitts left the City of Portland's UIC program.
- Barbara Adkins was hired by the City of Portland as part of the UIC program and will be assisting in implementing the UICMP program components.
- Jason Law was hired by the City of Portland and will be assisting with development of the City's UIC monitoring program, including evaluation and application of monitoring data.

1.8 Minor and/or Major Permit Modifications

No major or minor permit modifications were initiated during FY06-07

1.9 Status of Implementing the UICMP and Its Components

This annual report provides the status of implementing the UICMP and it components.

1.10 Proposed Changes to the UICMP or Its Components

There are no proposed changes to the UICMP or it components

1.11 Relationship to Other Water Quality Programs

BES works cooperatively with many other City bureaus on watershed issues. Although not all of the following activities are specifically required as part of the WPCF permit, they are closely associated with the UIC program, are related to stormwater quality, and are a part of restoring watershed health. These programs and projects are coordinated with the *Portland Watershed Management Plan* for greatest watershed health benefits.

1.11.1 Portland Watershed Management Plan

In 2005, the *Portland Watershed Management Plan* (PWMP) was developed to guide the City's commitment to improve watershed health and protect and enhance its natural resources. The PWMP is based on the "watershed approach." The watershed approach can be described as an overall context that defines how the City does its ongoing work in developing and maintaining its infrastructure, property redevelopment, and open space maintenance. (City infrastructure includes storm and sanitary sewer systems, roads, water supply system, etc.) Doing the work of the City using the watershed approach means that activities—such as construction of new infrastructure and repair and upgrading of existing features, redevelopment of areas such as the South Waterfront, and construction of new parks—are done in a manner that protects and enhances watershed health wherever feasible. Rather than focusing separately on single issues or meeting specific regulatory requirements such as protection of water quality or cleanup of contaminated sediments, the PWMP collectively considers all activities that affect watershed conditions.

The watershed approach reflects and implements core City values. In addition to protecting and improving the quality of the watershed, these values include improved public safety, economic vitality, and community stewardship. This approach relies on integrating the activities of multiple City bureaus and maximizes the use of limited resources by looking for solutions that meet multiple objectives.

Watershed Investment Fund (WIF): Funding for 2008 was increased from $500,000 to $1,500,000 for the 2007-2008 fiscal year. Fourteen projects have been selected for funding, and additional projects will be funded to support community partners such as Willamette Riverkeeper, Portland Audubon Society, SOLV, and Friends of Trees.

Implementation Plan: Implementation of the PWMP will rely on a management system to collect and evaluate the performance of PWMP projects. Priority projects for existing funds will be selected using the information available, including effectiveness monitoring data and performance measures. As future watershed project funding becomes available, the intention of the PWMP is to evaluate and select projects using a greater quantity and quality of information to improve the certainty of project success. Over time, the goal of this approach will be to move implementation toward a series of defined indicators, targets, and benchmarks to better link actions to improvements in watershed conditions.

1.11.2 NPDES MS4 Permit

DEQ first issued a National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit to Portland co-permittees (the City of Portland, Port of Portland, and Multnomah County) on September 7, 1995, and renewed the permit for a second term in March 2004. DEQ subsequently reconsidered the second-term permit and reissued a modified permit in July 2005. The permit expires on February 28, 2009.

The permit establishes controls and limitations for stormwater discharges from the municipal separate storm sewer system (MS4) to receiving waters. Its purpose is to reduce the discharge of pollutants from the MS4 to protect water quality and meet the intent of the federal Clean Water Act. The City's stormwater management area includes sections of the City within the urban services boundary that drain to the City's separate storm sewer system. The permit does not cover discharges from private facilities with individual NPDES permits, stormwater that discharges to sumps, the combined sewer system, or directly to natural stream systems.

The permit regulations do not prescribe specific numerical water quality standards or limits that must be met. Rather, the standard is reduction of pollutant discharges from the MS4 to the "maximum extent practicable", allowing permittees program implementation flexibility based on local conditions, resources, and priorities.

The permit is implemented through a *Stormwater Management Plan* (SWMP), which is incorporated into the permit by reference. The SWMP includes the following key elements:

- Best management practices (BMPs) the City will implement throughout the permit term to reduce pollutants in stormwater discharges.
- Performance measures, which track implementation of the BMPs.
- Benchmarks, which estimate the future reduction of high-priority pollutants that can be achieved. (The benchmarks are goals, not numeric standards.)
- Monitoring that will be conducted to track the long-term progress of the SWMP.

Prior to issuance of the WPCF permit, some activities specifically related to public UICs were reported in the *NPDES MS4 Annual Compliance Report*. Examples of these activities include number of sumps and sedimentation manholes cleaned and repaired.

Some components of the UICMP are similar to BMPs in the SWMP—for example, public education, pollution control, and operations and maintenance activities such as street sweeping. Reporting on these elements may therefore be common to both annual reports.

1.11.3 BES System Plan

The BES *System Plan* update began in late 2005; a draft document is due in summer 2008. This project is the update of the 1999 BES *Public Facilities Plan*. The BES *System Plan* is a comprehensive facilities planning document that guides the bureau's expenditures by identifying and recommending projects that maintain, improve, or expand the wastewater/stormwater infrastructure system. Projects are developed using both natural and engineered solutions to satisfy regulatory

requirements and are implemented in a manner protective of public health, water quality, and the environment. The *System Plan*'s infrastructure focus is complementary to the watershed approach of the PWMP.

The *System Plan* is being developed with an asset management context that considers life-cycle costs, risk, and the environmental and social benefits in the project's ranking. This new ranking methodology will enable the ranking of projects across different asset classes (e.g., a stormwater project ranked against a sanitary sewer project).

Elements of the BES *System Plan* include a sewer rehabilitation plan, an updated combined sewer plan, and an updated sanitary sewer plan. Work on the stormwater facilities element of the *System Plan* will begin in fall 2007 and will be completed in 2009.

1.11.4 Combined Sewer Overflow Reduction

Construction was completed on the third of four major phases of a program to control combined sewer overflows (CSOs) to the Willamette River and Columbia Slough. The activities included a combination of stormwater inflow reductions (roof drain disconnections, sump installation, local stream separation) and large structural solutions (including the West Side and East Side Willamette River CSO tunnels), as well as treatment plant and pump station upgrades. As a result, 16 more CSO outfalls on the Willamette River are now controlled in accordance with the Amended Stipulated and Final Order (ASFO). Since 1990, Portland has reduced CSOs from 6.0 billion gallons per year to about 2.0 billion gallons per year on an average basis. CSO discharges to the Columbia Slough have been reduced by over 99 percent, while discharges to the Willamette River have been reduced by over 40 percent to date. Over 2 billion gallons of local stream and stormwater runoff have been removed from the combined sewer system through the use of sumps, downspout disconnections, and stream separations. Of the original 55 CSO outfalls that existed in 1990, 36 outfalls are now controlled in accordance with the ASFO.

Pretreatment Programs and Publicly Owned Treatment Works (POTWs)
Many of the City's more traditional operations and infrastructure support water quality goals. Sanitary sewage is collected for treatment at the Columbia Boulevard and Tryon Creek publicly owned treatment works (POTWs). Existing pretreatment programs protect the sanitary system infrastructure, reduce pollutant releases to surface waters during combined sewer overflows, and prevent discharges that could cause treatment upsets or result in pollutant pass-through to surface waters.

BES's Industrial Source Control Division (ISCD) has administered a state and federally approved industrial pretreatment program since 1983. The program was implemented as a federal mandate to control the discharge of toxic pollutants from industrial sources that interfere with the operation of Portland's wastewater treatment plants, collection systems, and biosolids uses.

1.11.5 Science, Fish and Wildlife Section—Endangered Species Act (ESA) Program

Portland's Endangered Species Act Program was created in March 1998, shortly after the National Oceanographic and Atmospheric Association (NOAA) listed steelhead trout in the lower Columbia River system as a threatened species under the federal Endangered Species Act (ESA). Chinook salmon were subsequently listed as a threatened species in March 1999 and coho salmon in June 2005. On August 12, 2005, the National Marine Fisheries Service (NMFS) announced designations of critical habitat areas in Portland for salmon and steelhead listed under the ESA. The designated areas in Portland include Johnson Creek (including Kelley Creek and Crystal Springs), Tryon Creek, the north part of the Columbia Slough (and Smith and Bybee Lakes), and the mainstem Willamette River.

The ESA Program takes an integrated, citywide approach to salmon recovery, recognizing that the most important step the City can take to restore healthy salmon populations is to restore healthy watersheds. This comprehensive approach ensures that salmon recovery goals are compatible with other City goals and that restoration actions address multiple environmental objectives. Stormwater program activities closely relate to ESA goals; implementation of BMPs will mitigate stormwater quantity impacts and improve water quality. Stormwater program staff coordinate with City ESA staff on program activities related to fish impacts.

In 2006, the Science, Fish, and Wildlife Section within BES's Watershed Group (which includes responsibility for the City's compliance with ESA requirements and program implementation) embarked on development of a Terrestrial Ecology Enhancement Strategy to complement the work that has focused on restoration of aquatic communities, including salmon populations. The Portland Watershed Management Plan identifies the development of a terrestrial strategy as a high priority. The strategy will identify actions for improving upland and riparian watershed conditions.

1.11.6 Portland Harbor Superfund Site

The current Portland Harbor Superfund Study area covers a 9-mile stretch of the Lower Willamette from the Fremont Bridge to Sauvie Island. It is designated as a Superfund site because of sediment contamination. Portland Harbor has a long history of shipping, industrial, and commercial activity because of its key location on the Willamette River. The operational and waste disposal practices common to these industries many years ago polluted the river. Discharges from sewer outfalls, stormwater, and agricultural runoff may also contribute to the contamination. The City of Portland is a member of the Lower Willamette Group, a coalition of businesses and the Port of Portland. The group has voluntarily stepped forward to fund and participate in the site investigation. This work includes characterizing the extent of contamination in fish, wildlife, and sediments in the harbor and assessing risks to humans, fish and wildlife, and the environment from contaminated sediments.

1.12 City Budget and Funding

The City of Portland has invested more than $505.6 million in stormwater management services and facilities over the past 12 years. The revenue requirements for FY 06-07 totaled approximately $64.4 million, allocated as follows:

Major Program Category	Requirements	Percentage Share
Enforcement and Development Review	$ 9.2 million	14%
Watershed Program & Habitat Restoration	9.8 million	15%
Facilities Operations and Maintenance	16.1 million	25%
Capital Improvements*	29.3 million	45%
Total Revenue Requirements	**$ 64.4 million**	
* Includes debt service, facilities planning and engineering, construction engineering, and construction contracts.		

Ninety percent of these revenue requirements are financed through direct monthly user fees. The remaining revenue sources include direct charges for new private development (system development charges), service charges, permit fees, and regulatory charges and penalties. More details on City revenues are provided below.

In FY 07-08, the City plans to invest $72.8 million in stormwater management services and facilities. Direct monthly user fees will pay for 82 percent of these investments.

Stormwater Management Charges

City Council approves revised stormwater monthly user fees and stormwater system development charges (SDCs) at the start of each fiscal year. Monthly 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.

The following table reports the monthly single-family stormwater management charge and the monthly stormwater rate per 1,000 square feet of impervious area for the last five years:

	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007
Single-Family Residential Charge	$11.42	$12.07	$13.30	$14.26	$16.82
Residential rate per 1,000 square feet of impervious area	$4.76	$5.03	$5.54	$5.94	$7.01
Non-residential rate per 1,000 square feet of impervious area	$5.17	$5.54	$6.06	$6.45	$7.56

At the close of FY 2006-2007, City Council increased the monthly charge for single-family residences from $16.82 to $17.33. The residential rate increased from $7.01 to $7.22 per 1,000 square feet of impervious surface per month, and the commercial rate increased from $7.56 to $7.91 per 1,000 square feet of impervious area per month.

On October 30, 2006, the City launched Clean River Rewards to promote private stormwater management efforts. Ratepayers earn discounts worth as much as 35 percent of their monthly stormwater user fee, based on the extent and effectiveness of private onsite stormwater facilities. BES developed program criteria that will set the highest financial incentive for facilities that manage stormwater to the strictest water quality, volume, and flow control standards, particularly for commercial, industrial, and institutional ratepayers. As of June 30, 2007, the City processed more than 28,000 registrations. Average discount awards ranged from 33 percent of the monthly stormwater user fee for residential ratepayers to 23 percent for non-residential ratepayers. In addition to granting discounts for current and future stormwater user fees, the City awarded nearly $2.4 million in retroactive credits to eligible ratepayers.

Stormwater System Development Charges
Formerly based on impervious area, the methodology for assessing system development charges (SDCs) for new development and significant redevelopment was revised in permit year three to include two components. One component represents the charge for stormwater facilities that handle runoff from individual properties. For FY 06-07, this onsite portion was assessed based on $121.00 per 1,000 square feet of impervious area. Riparian properties that drain directly to the Columbia Slough, Columbia River, or Willamette River are exempt from this portion of the SDC. The other portion represents the cost of stormwater facilities that handle runoff from public rights-of-way. This portion was assessed based on the use of the transportation system, using road frontage and vehicle trips to allocate the costs. For FY 06-07, the rates were $3.87 per linear foot and $2.01 per vehicle trip. At the end of FY 06-07, City Council increased the rates for stormwater system development charges to $127.00 per 1,000 square feet of impervious area, $4.07 per linear foot of frontage, and $2.10 per daily 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 percent for retention of the 100-year event to no discount for control of the 10-year storm.

1.13 Organization of the Annual Report

The remainder of this Annual Report contains the following sections:

Section 2: System Management, identifies citywide actions implemented under the five BMP categories to prevent, minimize, and control pollutants prior to infiltration. It also identifies projected main activities for FY07-08.

Section 3: System Monitoring, summarizes the second-year results of UIC monitoring conducted under the *Stormwater Discharge Monitoring Plan* (SDMP) and submitted in the *Annual Stormwater Discharge Monitoring Report, Year 2, October 2006–2007* (July 15, 2007).

Section 4: Evaluation and Response, identifies evaluation and response actions conducted during FY06-07 and projected main activities for FY07-08.

Section 5: Corrective Actions, summarizes the corrective actions implemented during FY06-07 and projected main activities for FY07-08 to address UICs that do not meet permit requirements.

Appendix A identifies UICs identified/constructed during FY06-07.
Appendix B identifies Category 3 non-compliant UICs.
Appendix C is a SARA Title III inspection summary.

2 System Management

2.1 Overview

The System Management program element involves a series of actions, called best management practices (BMPs), that serve to prevent, minimize, and control pollutants in stormwater prior to discharge to a UIC. These BMPs are applied to the entire UIC system on an ongoing basis.

A major focus during the first half of FY06-07 was development of the UICMP and the associated System Management BMPs. That process involved identifying five general BMP categories and then developing specific BMPs under each category. Because the BMPs were not yet fully established during the FY05-06 reporting period, the first annual report (submitted December 1, 2006) reported on programmatic activities under the five general categories rather than on the implementation of specific BMPs. With the BMPs now established, this annual report describes FY06-07 accomplishments for each specific BMP, as well as projected main activities for FY07-08. The following sections provide the details specific to each of the five general BMPs and are consistent with the information described in the UICMP.

2.2 System Inventory and Assessment (SA)

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. Ongoing system inventory and assessment activities are important to manage all known public UICs within the City of Portland and to assess drainage to each UIC for potential impacts to groundwater. This BMP category focuses on updating and refining information related to the location and physical characteristics of existing and new UICs. It fulfills two WPCF requirements:

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

SA-1: Install, replace, retrofit, and decommission UICs as needed to provide public infrastructure for stormwater management. Maintain a comprehensive system inventory/data management system to register new UICs and track the location, physical characteristics, and status of all public UICs.

2.2.1 Key Accomplishments for FY06-07

- Quarterly *UIC Registration Database* updates were submitted to DEQ on September 1, 2006, December 1, 2006, March 1, 2007, and June 1, 2007.

- 81 new public UIC[1] records were identified in FY06-07 in quarterly *UIC Registration Database* updates:
    - No new[2] UIC records in the September 1, 2006 database update.
    - 25 new UIC records in the December 1, 2006 database update.
    - 36 new UIC records in the March 1, 2007 database update.
    - 20 new UIC records in the June 1, 2007 database update.

  These 81 UIC records are listed in Appendix A.

- Construction was started on a neighborhood sump rehabilitation project. The project was initiated in 2005; design and registration were completed in 2006/2007; and construction started in July 2007. The project's purpose is to add or replace UICs at 41 locations in north, northeast, and southeast Portland to improve local drainage conditions. Through these UIC rehabilitations, the City is able to eliminate local street flooding and reduce flows to the combined storm sewer system.

- As part of a project to comply with City of Portland Water Bureau requirements within the Columbia South Shore Wellfield Wellhead Protection Area, pre-design activities were initiated to provide pretreatment for 27 UICs. The purpose of the project is to provide additional protection of UICs that drain public rights-of-way that are classified as arterial or greater and/or are in areas zoned as commercial/industrial.

- An internal registration and approval process was implemented for new City-owned UICs. Under the new process, all newly proposed or identified publicly owned UICs locations are internally evaluated. The database automatically flags conditions that may not comply with the permit or that are associated with specific permit requirements. Once a proposed UIC is identified as meeting permit requirements, UIC locations are approved internally and reported to DEQ as part of the quarterly *UIC Registration Database* updates. This new process maximizes resources and increases efficiency, accuracy, and speed of registration and approval.

2.2.2 Projected Main Activities for FY07-08

- Design and begin construction of Columbia South Shore wellfield UIC upgrades.

- Complete construction of the neighborhood sump rehabilitation project, with completion expected in 2007.

- Continue to regularly update the *UIC Registration Database* to include new and decommissioned UICs and other relevant information.

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

[2] 267 new UIC records were reported in the database update, but were previously identified and reported as part of the systemwide assessment and included in the first annual report.

- Continue to submit quarterly *UIC Registration Database* updates to DEQ.

SA-2: Evaluate the location of public UICs relative to factors that may create adverse impacts to groundwater.

2.2.3 Key Accomplishments for FY06-07

- On December 1, 2006, the City submitted proposed *Systemwide Assessment Follow-up Actions* to DEQ to address the approximately 950 UICs that were identified for follow-up as part of the systemwide assessment. The December 2006 document outlines the activities and projected timeframes that will be implemented to evaluate UICs that meet any of the following criteria.
  - UICs with inadequate separation distance.
  - UICs that receive drainage from facilities that store, handle, or use hazardous or toxic materials in quantities requiring registration under the Superfund Amendment and Reauthorization Action Title III.
  - UICs that receive drainage from commercial/industrial properties with site activities that may cause stormwater entering a public UIC to exceed MADLs established in the permit.
  - UICs within close proximity to drinking water wells.

- Started pre-design activities for UICs with inadequate separation distance. (See Section 4.)

- Developed a focused monitoring program to assess water quality entering UICs within close proximity to domestic use wells. (See Section 3.)

- Implemented follow-up inspections and evaluations of UICs identified as potentially receiving drainage from facilities that store, handle, or use hazardous or toxic materials in quantities requiring registration under the Superfund Amendment and Reauthorization Action Title III. (Results of follow-up inspections are located in Appendix C.)

2.2.4 Projected Main Activities for FY07-08

- Continue implementation of actions identified in the *Systemwide Assessment Follow-up Actions* workplan for the following:
  - UICs with inadequate separation distance.
  - UICs that receive drainage from facilities that store, handle, or use hazardous or toxic materials in quantities requiring registration under the Superfund Amendment and Reauthorization Action Title III.
  - UICs that receive drainage from commercial/industrial properties with site activities that may cause stormwater entering a public UIC to exceed MADLs established in the permit.
  - UICs within close proximity to domestic use wells.

- Evaluate newly constructed or identified UICs for the five characteristics that may potentially create adverse impacts to groundwater. Incorporate the resulting information into the Evaluation and Response process, as appropriate.

- Integrate new system data into the *UIC Registration Database*, as appropriate.

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 WPCF permit requirements:

- Implement a *Spill Prevention and Pollution Control (SPPC) Plan*.
- Identify activities conducted on commercial/industrial properties or Sara Title III facilities that may result in a violation of MADLs in stormwater discharging to a public UIC.

PC-1: Identify, prevent, minimize, and control activities and practices that can increase pollutant discharges to public UICs.

2.3.1 Key Accomplishments for FY06-07

Spill Prevention and Pollution Control (SPPC) Plan

- Staff worked on developing the SPPC Plan (submitted in December 2006), which includes improving ongoing citywide pollution control activities to identify and control activities on private properties, including commercial/industrial properties and SARA Title III facilities where site activities (e.g., illegal disposal, improper storage and handling of materials, and erosion) could result in a violation of MADLs in stormwater discharging to a UIC.

- Forty-nine SARA Title III facilities were inspected as part of the *Systemwide Assessment Follow-up Actions* workplan. The purpose of the work was to identify and address any potential threat to City-owned UICs that receive drainage from a SARA Title III facility that were identified as part of the systemwide assessment completed in 2006. Appendix C provides the details and results of the facility inspections.

- The BES Spill Section developed and implemented an improved communication protocol with the Portland Fire Bureau that automatically pages the BES duty officer for a two-alarm event. Upon receiving the page, the duty officer contacts the Fire Bureau to identify if the duty officer is needed by the fire responders. Many events do not require the duty officer to respond to the site. In FY06-07, 11 fire results resulted in pages to the duty officer.

Spill Protection-Citizen Response (SPCR) Team

SPCR staff responds immediately to emergency spills 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 enforcement agencies 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.

- The BES spill response hotline received a total of 1,300 daytime calls (citywide) regarding pollution complaints, spills, sanitary sewer overflows, dye tests, and seepage discharges. All calls are responded to with at least a return telephone call; 80 to 90 percent receive a site visit.

- The spill response hotline received 438 after-hours complaint calls (citywide). The duty officer responded on-scene to 78 of these after-hours events.

- The spill response hotline received approximately 2,200 daytime additional information-only calls (citywide) and responded by providing agency referrals, industrial information, technical assistance, and regulatory information.

- The BES Spill Protection and Citizen Response section issued 17 warnings concerning possible violations of City Code 17.39.

- BES and the Water Bureau implemented Columbia South Shore Wellfield (CSSW) Protection Area signage. The signs list the BES spill response hotline number and read: "TO REPORT SPILLS CALL (503) 823-7180."

- The BES Spill Protection and Citizen Response section began a communication protocol with the towing companies on the City of Portland towing contract. This notification ensures that BES will be contacted for auto fluid clean-up actions and for events that threaten to impact a stormwater facility (catch basin and downstream stormwater system). The duty officer may respond to events, depending on the reported information. Many events do not require the duty officer to respond.

- The BES Spill Section acquired new dye test signage for placement in areas that are visible for green dye usage.

Regional Spill Response Committee

This multi-agency committee was established in 1995 to consult and debrief on spill response activities throughout the region. It also provides staff training and coordination. Members include representatives from the Environmental Protection Agency Criminal Investigations, United States Coast Guard, DEQ, Oregon State Police, Oregon Department of Transportation, Clean Water Services, Water Environment Services, Port of Portland, Portland Fire Bureau, Portland Fire Bureau Hazmat, City of Gresham, City of Milwaukie, City of Portland Water Bureau, and BES. BES attended and chaired the committee's four quarterly meetings.

Columbia South Shore Well Field Wellhead Protection Program

The City continued to implement the Columbia South Shore Well Field Wellhead Protection Program and reference manual for the City of Portland (and also in effect in Gresham and Fairview). The program focuses on groundwater protection through the implementation of mandatory spill containment BMPs and facility inspections for commercial and industrial facilities located within the Columbia South Shore Well Field Wellhead Protection Area (WHPA) overlay zone. 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. Program requirements include structural and operational BMPs to reduce the occurrence of spills and minimize spill impacts. Portland's program is administered by the Portland Water Bureau, with inspections being conducted by Fire Bureau inspectors every two years.

- Continued to provide oversight to ensure that commercial and industrial facilities comply with retrofit requirements under the Columbia South Shore Well Field Wellhead Protection Program. Conducted 145 inspections of regulated businesses under the program. Six violations were identified, most related to reporting requirements.

- Continued public outreach by the Portland Water Bureau and Columbia Slough Watershed Council to increase education and awareness about groundwater protection within the Columbia Slough Watershed and Columbia South Shore Wellfield:
  - Attended three neighborhood meetings to explain the protection program and what residents can do to protect groundwater.
  - Staffed a booth at Explorando in June; gave away water bottles and groundwater brochures and had an activity related to groundwater. Explorando attracted 270 visitors.
  - Held the forth annual Aquifer Adventure in September – a family event that attracted over 300 people.
  - Held Cycle the Well Field in June, with 20 riders.
  - Conducted Groundwater 201, a four-hour class on hydrogeology, Portland's groundwater system, and protection program. Twenty-six people attended. Groundwater 201 provided more technical information than the traditional Groundwater 101 class. Included information on groundwater modeling and a field trip.
  - Sponsored a "Soup on the Slough" event that focused on groundwater protection program. Sixteen people attended.
  - Participated with Metro at its Hazardous Materials Round-Up at the Parkrose K-Mart (in the wellhead protection area). Handed out brochures and talked to people dropping off their material. Over 600 people properly disposed of household hazardous materials.
  - Through the Columbia Slough Watershed Council's Slough School, provided groundwater education and curriculum to students and teachers.
  - Attended the Clean Water Festival and gave three classroom presentations on groundwater and groundwater protection to 125 students.

- In partnership with the Columbia Corridor Association (CCA), provided outreach to regulated businesses:

- Held one workshop on how to comply with wellfield wellhead protection regulations, with 26 businesses attending.
- Made two presentations at Columbia Corridor Association (CCA) breakfast forums about the groundwater protection program, with 85 attendees.
- Published 11 articles in the CCA newsletter.
- Maintained the CCA and PortlandOnline webpage on the protection program and requirements.
- Provided 26 businesses with free technical assistance on how to comply with program requirements and fielded dozens of calls on program.
- Gave away free spill response signs (required under the program), 30 spill kits, one secondary containment pallet, and three drain covers.

- Held two coordination meetings with program stakeholders, including program staff and fire inspectors from the cities of Portland, Gresham, Fairview, the Columbia Slough Watershed Council, and CCA, to improve coordination and information sharing among program participants.

- Developed the "Drop of Prevention Program" designed to help businesses identify ways to reduce amount of hazardous materials used and find less toxic alternatives. The program is in a pilot stage.

Source Control Measures

The City's *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 projects, redevelopment projects, tenant improvements, and existing sites proposing new offsite discharges.

- In accordance with SWMM requirements, the City signed off on permits for a total of 434 source control measures at sites with high-risk characteristics or activities. This inventory is citywide and is not limited to areas draining to UICs. Table 2-1 shows facility location by watershed. (Note: When the SWMM is applied, drainage from high risk areas is prohibited from draining to public UICs, and stormwater is managed onsite.)

Table 2-1
Source Control Measures

	Watershed					
Source Control Type	Johnson Creek	Willamette	Tryon Creek	Fanno Creek	Columbia Slough	Total
Exterior Bulk Storage	2	8	0	0	8	18
Fueling	3	10	0	0	5	18
Liquid Storage	2	11	0	0	8	21
Material Transfer Areas/ Loading Docks	3	16	0	0	14	33
Site Dewatering	2	8	0	0	1	11
Trash	19	202	0	3	73	297
Vehicle Washing	2	9	3	0	1	15
Grease Management	4	39	0	1	16	60
Totals	**37**	**303**	**3**	**4**	**126**	**473**

Note: Table compiled based on information in the City's permit request system: some counted facilities may not have been constructed.

Erosion Control

- There were 5,737 active private construction permits subject to erosion control inspection. The Bureau of Development Services (BDS) conducted 8,382 erosion control-related inspections of private construction sites.

- There were 300 active public construction projects with erosion control components. In general, public sites are inspected daily during construction.

- Erosion control complaints (received through the erosion control hotline or staff referrals) were tracked through the City's building permit tracking program, TRACS. A total of 380 cases were responded to.

- The pre-permit-issuance site meeting program was continued, where the applicant's team meets onsite to discuss erosion control and other sensitive site issues. Selected new single-family permit applications triggered a total of 148 potential pre-issuance site visits.

- The sixth Regional Erosion Prevention Awards were presented on June 8, 2007, to reward outstanding erosion control efforts by builders and contractors. This year's participation included 24 local jurisdictions and nine sponsors, such as the Association of General Contractors (AGC). Local inspection professionals in each jurisdiction selected the top contractors. The City of Portland presented awards to the top builder in the single-family category and the top contractor in the large-development category.

- Completed text revisions to the City's *Erosion Control Manual*.

Prevention of Illegal Disposal

- The City continued to implement solid waste and recycling programs to prevent illegal dumping (curbside recycling, yard debris collection, and neighborhood bulky waste collection events).

Other

- BES, the Fire Bureau, and General Services continued working together on the City's fire station seismic upgrade to incorporate environmental issues. Specifically, all upgrades include washing areas that discharge to the sanitary system, with appropriate pretreatment. This eliminates discharges of wash water to City storm or ground disposal systems. To date, 24 remodeled stations and 5 new stations have been completed with indoor vehicle wash areas and oil/water separators. Three additional stations will have vehicle wash areas with an oil/water separator when built or remodeled. BES continues to review new stations and remodeled stations' plans as they proceed through the building permit process. All stations are designed to incorporate many environmental components to achieve and exceed stormwater quality goals.

- An implementation and procedures manual was drafted for the newly passed stormwater enforcement code and administrative rules.

- Taggart pre-design continued. This project will incorporate stormwater management solutions to eliminate high-risk basement flooding conditions under the 25-year design storm, replace or repair failing sewer infrastructure, improve surface and ground water hydrology, and reduce combined sewer volume and peak discharges from the basin. This project maximizes surface infiltration solutions and is consistent with the current SWMM stormwater hierarchy.

2.3.2 Projected Main Activities for FY07-08

- Continue to implement the *Spill Prevention and Pollution Control Plan*, including the Spill Protection-Citizen Response (SPCR) team hotline and response activities.

- Continue to inspect and address SARA Title III and commercial/industrial businesses that were identified in the systemwide assessment as potentially draining to a City-owned UIC and that conduct activities that may pose a threat to a UIC, requiring further evaluation.

- Continue to implement the Columbia South Shore Well Field Wellhead Protection Program and reference manual for the City of Portland.

- Continue to implement the *Stormwater Management Manual*.

- Continue to operate the citywide erosion and construction site pollutant control program, including the erosion control hotline.

- Implement the cost recovery procedures for the City's new enforcement rules. Track and report on the type, number, and review of enforcement cases. Develop training and enforcement scenarios for staff who implement the City's enforcement provisions.

2.4 Education and Training (ET)

This BMP category fulfills the WPCF permit requirement for an employee training and public education program to educate City personnel and the public of the conditions and requirements of the permit.

ET-1: Implement public education activities that will raise awareness of groundwater protection and promote pollution prevention and control.

2.4.1 Key Accomplishments for FY06-07

Clean Rivers Education Program

This program involves hands-on activities that teach students about the causes and effects of water pollution and what individuals can do to protect water resources. The programs also provide community service projects, teacher workshops, and curriculum resources. A number of the programs focus on stormwater and pollution prevention. An Education Advisory Committee (comprising educators from the Portland region) provides feedback and guidance on BES's education programs and activities.

- Reached 7,524 students (grades K-12) with classroom programs that provide hands-on, interactive science education about stormwater and other environmental issues. Student participation by watershed:

Columbia Slough:	1,545
Fanno/Tryon Creek:	999
Johnson Creek:	1,616
Willamette River:	3,315
Special workshops (all)	49
Total:	**7,524**

- Involved 5,222 students (K-12) in education field programs that offer watershed investigations and assessment technique training, such as how to measure water quality and conduct macroinvertebrate sampling as indicators of water quality health. This also includes stormwater tours, boat tours, and restoration experiences along streams and wetlands. Student participation by watershed:

Columbia Slough:	1,622
Fanno/Tryon Creek:	513
Johnson Creek:	1,505
Willamette River:	1,882
Total:	**5,222**

- 2,776 of the above 5,222 students combined education with being stewards of the land by doing restoration. Student participation by watershed:

- Columbia Slough (Whitaker Ponds, Johnson Lake)	797
- Fanno Creek (Gabriel Park, Pendleton Creek)	453
- Johnson Creek (Veterans Creek, Tideman Johnson, Errol Heights)	962
- Willamette River (Oaks Bottom & Stephens Creek)	564
Total:	**2,776**

- Reached a new audience of residents of the recently constructed New Columbia neighborhood in North Portland. Rosa Parks Elementary School, which serves the neighborhood, was built according to the latest technology in green building design and stormwater management, providing a perfect classroom for the diverse student body to learn about stormwater issues. Educators were able to tie classroom and field activities to neighborhood resources, including bioswales and natural areas, as well as to festivals and camps dedicated to educating the larger community.

- Checked out stormwater and watershed curriculum kits to 36 Portland elementary and middle school teachers for them to work independently with students in the classroom and at special school events.

- Provided teacher and community training workshops, involving 98 participants. Worked in partnership with Oregon Trout, Lewis & Clark College, PSU, PCC, and the Columbia Slough Watershed Council.

- Presented Stormwater - Soak it Up, a 75-minute classroom program for grades 4-12, and special interest groups totaling 1,274 students and teachers. The students learned to identify pollutants, distinguish between pervious and impervious surfaces, calculate runoff, and design greener cities within given budget constraints. Student reached in each watershed:

Columbia Slough:	258
Fanno/Tryon Creek:	163
Johnson Creek:	170
Willamette River:	547
Teacher/College Workshops	134
Total	**1,274**

- Presented Watershed Awareness to 1,204 students, grades 3-6. This program focuses on common non-point sources of stormwater pollution typically found in a watershed and how to prevent them. Students reached in each watershed:

Columbia Slough:	431
Fanno/Tryon Creek:	55
Johnson Creek:	123
Willamette River:	541
Events	54
Total:	**1,204**

- Clean River Educators did a large amount of outreach to Kelly Elementary and Mt. Tabor Middle School to ensure the health of their landscapes, including organizing several bioswale maintenance days. Intensive water quality education continued at Llewellyan Elementary School to complement their site. Sunnyside and Alice Ott schools got involved in field trip education.

- Coordinated with stakeholders to implement Innovative Wet Weather Program projects:
  - 30 community volunteers worked with Friends of Trees to Plant the 17th and Taylors Ferry bioswale in fall 2006.
  - 15 construction CAM students designed and constructed the David Douglas High School Parking Lot Retrofit Project.

- Columbia Slough Watershed: Co-sponsored and participated in numerous community events, including Slough 101, Wetlands 101, Groundwater 101, Explorando El Columbia Slough, Canoe the Slough, Columbia Slough Small Craft Regatta, Adventure in the Well Field, Corps of Rediscovery, three Soup on the Slough events, two watershed cycling events, four Great Blue Heron week events, two Wild in the City events, and five neighborhood association picnics and gatherings in which stormwater was a topic of instruction. The total attendance was approximately 1,885 persons.

- Participated in developing projects for the Columbia Slough Watershed Council Action Plan, which identifies numerous stormwater watershed restoration projects and activities for the Council and its partners.

- Participated in three community events, with a total of 325 participants, in the Johnson Creek Watershed: the Lents Resource Fair, Lents Community Housing Fair, 3-Bridges Opening Springwater Celebration.

- Gave presentations at the Lents Urban Renewal Advisory Committee and the East Portland Neighborhood Office; attended neighborhood association meetings in Woodstock, Lents, and Pleasant Valley to inform them about the Johnson Creek watershed restoration program and its projects.

- Conducted three public involvement events, with 25 people attending, for the Springwater Wetlands Restoration Project, East Lents Floodplain Restoration Project, and the Brownwood phase of the East Powell Butte Floodplain Restoration Project.

- Partnered with AmeriCorps' Northwest Service Academy to sponsor an Americorps member as BES's Stormwater Stewardship Coordinator. Accomplishments included:
  - Helped plan and staff an open house at the Hawthorne Youth Hostel open house, which approximately 70 people attended.
  - Represented BES at the Cascade Rise Summit (a symposium working towards the integration of regional colleges and universities with workplaces focused on environmental sustainability efforts). Discussed BES initiatives and other opportunities with approximately 40 people.

- Showed the "Art of Stormwater – Landscapes for Rain" art exhibit, highlighting innovative stormwater landscapes, at a variety of venues, including Clackamas County Water Services, the Metro Garden tour, the BES website, Capitol Hill Elementary School, and the Bureau of Development Services. The exhibit reached approximately 1,000 people.
- Coordinated development and installation of educational stormwater signage for the Innovative Wet Weather Program (IWWP) project at Alice Ott Middle School and for general BES outreach at Epler Hall, Portland State University. Over 400 people have seen these signs.
- Presented information about sustainable stormwater design in Portland's skateboard parks to 75 people.
- Worked with over 60 students from Kelly Elementary School on bioswale maintenance.
- Made a presentation to 15 people about stormwater retrofit for Capitol Hill Elementary School.
- Led over 15 summer campers and counselors on a tour of stormwater management facilities on the Portland State University campus.
- Shared information about BES projects with 15 staff members from Metro.
- Represented BES with various outreach materials at "A Greener Future for Affordable Housing" workshop series, Multnomah Days, Mississippi Street Festival, and Concordia Neighborhood Night Out.

- Held bimonthly Education Advisory Committee meetings to review and advise on public education approaches and activities.

Regional Coalition for Clean Rivers and Streams

- Continued participation in the Regional Coalition for Clean Rivers and Streams, with the following activities:
  - Contracted with a local firm to conduct four focus groups designed to assess the awareness of and interest of homeowners in the Portland metro area in sustainable stormwater management practices.
  - Conduct an RFP process to hire an advertising agency to assist the coalition in developing and implementing a public awareness campaign. Activities included reviewing and approving creative concepts and messaging for a television advertisement.
  - Maintained budget of $72,000 per year for four years to educate the public about the impact stormwater runoff pollution has on the health of rivers and streams for people, fish, and wildlife.

Publications, Signage, and General Stormwater Education

BES publishes and disseminates a variety of educational and informational materials that address stormwater-related issues and activities and are targeted at numerous audiences. BES also develops signage that provides information about specific projects (e.g., stormwater demonstration projects). Activities in FY06-07 included:

- Posted fact sheets, brochures, and educational materials on the BES Sustainable Stormwater Management website. The materials included information about native plants, removing invasive plants, green streets and other sustainable stormwater approaches. The website received over 13,000 views during FY06-07 (up almost 10,000 from the previous fiscal year).

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

- Installed interpretive signs at three Innovative Wet Weather Program (IWWP) sites.
  - East Holladay Park
  - Alice Ott Middle School
  - Mississippi Commons

- The Sustainable Stormwater Program fulfilled six requests for public viewing of the traveling exhibit "Landscapes for Rain; Art of Stormwater."

- Produced and distributed surveys and informational material to neighbors living near a green street.

- Developed and installed an interpretive sign for the Whitaker Ponds Pollution Reduction Facility, a, spill containment and constructed wetlands stormwater pollution reduction facility. This facility is located at Whitaker Ponds Nature Park and is seen by virtually every school and tour group that visits the site (approximately 5,000+ visitors).

- Developed and installed a rain garden and interpretive sign at the newly installed residential rain garden at Whitaker Ponds. This facility is a publicly accessible and highly visible residential-scaled rain garden. Interpretation is provided in Spanish and English.

- Posted temporary informational signs on the Springwater Corridor Trail regarding construction of the Brownwood phase of the East Powell Butte Floodplain Restoration Project, which includes water quality elements.

- Produced four fact sheets, with a total printing of 100 copies, for Willamette Watershed projects: Hawthorne Hostel, Woods Outfall, Burlingame Sewer Repair, and Texas Green Street.

Coordination with Other Programs and Groups

- BES coordinated with other City projects and programs (e.g., Endangered Species Act Program, Willamette Stormwater Control Program, Portland Harbor Superfund Program, BES Watershed Programs) to integrate stormwater activities and messages.

- BES worked with watershed councils and other community groups to coordinate public education and stewardship activities.

Eco-logical Business Program

- Continued to work with the Regional Pollution Prevention Outreach Team and Automotive Eco-Logical Advisory Subcommittee for the Portland metropolitan region to certify automotive repair and service shops. By the end of permit year 12, 27 shops were certified in the City of Portland, including 7 City-owned garages. Of the total, 21 are in the Willamette River Watershed, 3 are in the Columbia Slough Watershed, and three are in the Johnson Creek Watershed.

- Updated the automotive checklist and Keep Your Shop in Tune handbook to help with ease of use and incorporate issues applicable to other areas of the state.

- Continued a promotional campaign to raise awareness and communicate the importance of supporting auto shops that operate environmentally responsible business practices. The campaign used newspapers, the *Redirect Guide*, the *Chinook Book*, and local news advertising to promote the Eco-logical Business message.

- Continued implementing the Eco-logical Business Program for the landscape services sector. Certified one landscape designer in the City of Portland and two full-service firms that do work in Portland.

- Continued participation in local environmental and neighborhood events, including the annual sustainability fair and the home and garden show, to promote use of certified shops.

BEST Program

- The BEST program assists industries with green practices that save water and energy and deal with stormwater and solid waste. In 2007, 10 BEST awards were given to Portland metropolitan area businesses for business practices that helped reduce the amount of toxics used to manufacture products and the amount of resources used to run businesses and operate buildings.

2.4.2 Projected Main Activities for FY07-08

- Continue the Clean Rivers Education Program for grades K-12.

- Continue bimonthly Education Advisory Committee meetings to review and advise on public participation approaches and activities.

- Continue to produce publications and website materials.

- Continue to work with other City bureaus, watershed councils, and other community groups to provide educational activities and messages.

- Provide education outreach on the science of stormwater management to schools participating in the EPA Innovative Wet Weather Program stormwater demonstration and other bureau-sponsored projects.

- Continue the major outreach to community youth to increase their awareness of urban watershed and water quality issues, increase their connection to greenspaces and streams so they desire to protect and appreciate them, and educate them about how they can protect their watersheds.

- Continue certifications in the Eco-Logical Business Program with the Pollution Prevention Outreach Team and automotive and landscape advisory groups. The goal for permit year13 is to have three more auto shops certified and five more landscape services certified in the City of Portland.

- Continue participation in the BEST Program.

- Develop UIC-specific information and messages about groundwater protection to incorporate into existing and new education programs.

ET-2: Conduct employee training to ensure that UICs on public property are designed, constructed, operated, and closed in ways that meet WPCF permit requirements and protect groundwater.

2.4.3 Key Accomplishments for FY06-07

- UIC staff briefed Bureau of Development Services managers and staff regarding WPCF permit requirements and difficulties with registration and approval of private UICs.

- UIC staff worked with Water Bureau, Fire Bureau, Parks Bureau, and Bureau of General Services (BGS) staff to assess and register UICs located or operated by the respective bureau.

- UIC staff briefed Bureau of Maintenance (BOM) management and staff on permit requirements and the UICMP *Operations and Maintenance Plan*.

- The BES Spill Section presented a StormWatch video to 200 BOM staff and managers to increase awareness and show how to prevent stormwater contamination.

- Training was conducted for new duty officer staff on the BES spill response hotline and staff response duties.

- BOM continued its orientation for new employees. The orientation includes a one-hour overview of the bureau's environmental program, highlighting the commitment to water quality, pollution prevention, alternative energy, and environmental awareness in the workplace. This overview also includes a training video on municipal best management

practices and stormwater pollution prevention. Twelve new BOM employees were oriented during the past fiscal year.

2.4.4 Projected Main Activities for FY07-08

- Continue to conduct training to City staff on the BES spill response hotline and staff response duties.
- Continue to develop information focused on groundwater protection and UICs for City staff.
- Coordinate training for BES engineering and construction groups to identify any UIC process issues and data gaps.
- Continue to provide enhanced training for BDS development review staff on UIC design standards and on the review and approval process for UICs registered on private property.
- Continue to work with other bureaus to provide training on source control, operations and maintenance, spill prevention and response, and development review.
- Evaluate existing training approaches and schedules and revise/update as needed.

2.5 Operations and Maintenance (OM)

Operations and maintenance BMPs for City UICs are important in order to both remove pollutants from UICs (e.g., UIC cleaning) and prevent pollutant discharges into UICs (e.g., street sweeping). This BMP category identifies O&M practices both for UICs located in City-managed rights-of-ways and for UICs on other City-owned property. It fulfills the WPCF permit requirement to implement an O&M Plan for public UICs.

OM-1: Implement operations and maintenance practices to remove or prevent pollutants from entering public UICs located in City-managed rights-of-ways and on other City-owned property.

2.5.1 Key Accomplishments for FY06-07

Facility Maintenance

- Implemented the UICMP *Operations and Maintenance Plan*.
- Initiated work to address UICs identified as having inadequate maintenance access.
- Made 4,121 inspection/maintenance visits citywide (multiple visits to some locations after major rain events). (This number includes, but is not limited to, UIC-specific visits.)
- Cleaned 7,941 inlets (citywide).

- Cleaned 1,015 sedimentation and sump manholes.

- Repaired or constructed 225 inlets, 4,070 linear feet of inlet lead, and 1,674 linear feet of culvert.

- Continued to implement retrofits to the existing storm drainage system, as identified during routine operations and maintenance activities. Completed conversion of a total of 410 linear feet from ditches to swales (porous shoulder).

Street Sweeping

- Swept approximately 580 miles of streets draining to public UICs. This represents 87 percent of the 665 total miles of streets that drain to public UICs.

Bureau of Maintenance BMPs

- BOM continued to implement BMPs within the right-of-way to protect water quality, including the following:

  - Follow, with modifications, the best management practices outlined in ODOT's *Routine Road Maintenance Water Quality and Habitat Guide Best Management Practices* as guidance for BOM's transportation-related maintenance activities.

  - Track and remove abandoned erosion control devices. If not properly maintained, these bio-bags and catch basin inserts can break open and contribute to stormwater pollution. City inspectors follow protocol to identify and require utilities and contractors to remove these devices upon job completion.

  - Use the trenchless liner repair system. This technique reduces environmental impacts by minimizing pavement cuts, excavation, material removal, and trench replacement material.

  - Use bio-pillows for sediment control on impervious surfaces and hydrocarbon-absorbing booms to trap sediment, oil, and grease while cleaning the grinding machine. These bio-pillows are placed on the immediate downhill side of the cleaning process and away from the catch basins to contain any contamination on the job site. Catch basin protection at the job site is also provided when grinding and/or paving equipment is left onsite overnight.

  - Use low-disturbance sign installation methods to avoid or minimize digging. Activities include swap-out of older posts with break-away posts, where possible, to avoid digging. Where posts are set in the ground, quick-setting concrete, mixed in the hole, is used to avoid the need to rinse in the field.

  - Use mild cleaners, with no solvents, to clean signs. Signal faces are cleaned with glass cleaner and a rag, and painted parts are cleaned in the sand blasting booth in the shop.

- Phase out older parking meters. Phasing out single-space mechanical meters and converting to electronic mechanisms and pay stations provides the following environmental benefits:
    - Eliminates the need to clean older parts with solvents or treat exteriors with rust removers in the field.
    - Minimizes the number of galvanized steel posts required for the single parking meter system (zinc is a concern) and the amount of concrete drilling, breakout, and replacements associated with that system (concrete dust is a concern).
    - Further minimizes the need to use harsh cleaners. Meter housings made of stainless steel or cast aluminum and treated with anti-graffiti coating are used.

- Control asphalt. Staff monitor weather conditions during asphalt grinding, hand-apply asphalt to prevent these materials from entering the storm drain system, and require rinse water to be filtered through bio pillows and oil-absorbent booms before entering storm drains. Water-based asphalt emulsions and biodegradable asphalt release agents are used to prevent stormwater pollution by diesel and volatile organic compounds.

- BOM staff developed a set of pollution prevention BMPs for wet-weather shoulder work. These include assigning a sweeper to this work; retaining vegetation in adjacent ditch; using a cohesive, well-graded shoulder aggregate with fractured stone faces and proper moisture content; and compacting the aggregate after placement.

- BOM staff continue to look at piloting new materials and applications directed toward enhancing water quality. Pilot actions include:
    - Alternatives to galvanized metal. The BOM Stormwater Group switched from using galvanized metal to stainless and case-hardened steel to screen beavers from pipes.
    - New equipment and materials. BOM began using eco-stakes for easier installation of bio bags. BOM also began installing downpipes and splash pads for stormwater outfalls on slopes where erosion is a concern.
    - Erosion control. Crews have devised work-specific practices, such as temporary awnings over work sites and temporary bins for holding spoils during hand excavations on steep slopes

- The BOM stormwater group completed a pollution prevention and water quality protection BMP sourcebook for crew leaders to use during sewer repair operations.

Other

- BGS has responsibility for 70 buildings totaling 3 million square feet, approximately two-thirds of the City's total building inventory. The Parks & Recreation and Fire & Rescue bureaus operate their own buildings. Facility managers from all three organizations meet often to develop joint strategies for improving building operations and maintenance practices.

Site-specific O&M actions conducted as a response action are discussed in Section 4: Evaluation and Response.

2.5.2 Projected Main Activities for FY07-08

- Continue to implement the UICMP *Operations & Maintenance Plan*.

- Use UIC stormwater quality monitoring data to begin to evaluate the relationship between stormwater quality, maintenance frequency, and traffic volume. Where appropriate, adjust current O&M Plan maintenance schedules and targets.

- Begin to standardize operations and maintenance procedures for UICs on City property, based on the O&M templates established in the *Stormwater Management Manual*. Develop applicable tracking systems.

- Continue evaluation of UICs that have inadequate maintenance access and develop recommendations to address them.

- Continue ditch-to-swale conversions, and continue to construct permeable shoulders and convert ditches to vegetated swales.

- Continue to evaluate new materials and processes, pilot test tools and techniques, and monitor developments in related fields. Continue to invite guest speakers and host vendor demonstrations to keep apprised of new materials and practices.

- Continue ongoing crew-level skill training for Endangered Species Act (ESA) and BOM routine maintenance practices and water quality guidelines. Educational opportunities include outside speakers, in-house training, tail-gate and jobsite demonstrations and discussions, consultations with the bureau's environmental program specialist, and attendance at various workshops and conferences.

- Continue crew participation in an onsite evaluation of erosion control techniques at certain locations within southwest Portland. Field employees are evaluating durable materials to reduce ditch erosion during times of high velocity.

- Continue to work with BES to assess the efficiency of pervious concrete in infiltrating stormwater. Monitor and evaluate two test sites to assess their maintainability.

- Continue development of a manual that includes best management practices for all BOM maintenance activities, not just those addressed in ODOT's roadside maintenance manual. This draft manual includes best management practices for such activities as traffic maintenance, environmental systems, pest control, traffic electrical work, recycling, sidewalk maintenance, and other activities performed by BOM. Field crew employees are assisting with the development and evaluation of the BMPs and will be involved in updating and refining them.

- Continue to test prototype machinery that contains sediments from the pavement markings grinder, which is used to remove and capture plastic pavement markings from the street. This

includes efforts to retrofit the grinder with a vacuum system to collect the grindings in an efficient manner for proper disposal.

2.6 Policy and Regulation (PR)

The development of policies, codes, and administrative rules is a key element in providing long-term protection of groundwater. 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.

PR-1: Review and modify City policies, codes, and regulations to enhance groundwater protection.

2.6.1 Key Accomplishments for FY06-07

Development Review Process and UICs

- Key staff from BES and BDS were identified to develop a rule authorization process for private UICs that meet permit requirements. The team is evaluating 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.

DEQ UIC Program Funding - Legislative Approval for Fees

- The City participated in the regionally coordinated legislative outreach for support of House Bill 2118 to fund a statewide program with UIC fees. Legislative approval was achieved.

Stormwater Advisory Committee

The City's Stormwater Advisory Committee (SAC) is a group of external stakeholders that reviews and makes recommendations on stormwater management issues and policies. During FY06/07, the SAC provided input on the Green Streets policy language in the *Transportation Systems Plan*, Green Streets Cross-Bureau Team Phase II report, and stormwater-related components of the *Portland Watershed Management Plan.* The SAC also continued review and comment on revisions for the *Stormwater Management Manual*.

Green Streets Program

- The Portland City Council approved a Green street resolution, report, and policy to promote and incorporate the use of Green Street facilities in public and private development.

Stormwater Management Manual Revision

- BES launched a prioritized workplan for the 2007 revision of the 2004 *Stormwater Management Manual*. The manual is expected to be released in early 2008. Revisions will

include modifications and clarifications to the stormwater hierarchy and UIC requirements section. The stormwater hierarchy is used to determine the ultimate discharge point for stormwater from a development/redevelopment site. It protects groundwater resources by requiring the use of onsite surface filtration facilities where practicable. Where complete infiltration at the ground surface is not possible, UICs may be used, along with the appropriate degree of pretreatment (depending on the source of the stormwater runoff).

Tasks completed in FY06-07 include:

- Developed and launched a comprehensive stakeholder involvement plan.
- Clarified the application of the stormwater disposal hierarchy.
- Met with the development community to discuss UIC issues and DEQ registration fees.
- Developed a soil specification for the stormwater facility growing medium.
- Developed typical details and specifications for vegetated facilities in the public right of way.
- Developed a scope of work to review the City's flow control and water quality standards for the 2010 manual revision.

Land Acquisition

- The Johnson Creek Willing Seller Program acquired approximately 1.6 acres of floodplain property in FY 06-07. This program purchases developed and vacant properties within the floodway or areas that repeatedly flood from willing sellers. Its purpose is to help people move out of harms way of flooding. Acquired lands provide the City the opportunity to improve fish and wildlife habitat, restore wetlands and increase flood storage capacity, and create passive recreational activities for City residents. Since June 1997, 71 properties have been purchased, totaling 127 acres. Much of the property that has been acquired as part of this program is located in areas of shallow groundwater and adjacent to identified Category 2 and Category 3 UICs.

2.6.2 Projected Main Activities for FY07-08

- Work with the Oregon Water Resources Department to establish a notification process for identification of new drinking water wells.

- Evaluate potential City code or policy changes to limit installation of new drinking water wells within the City of Portland.

- Continue to coordinate the review and approval process with BDS for private UIC registrations and development issues.

- Continue to work with BDS and DEQ to develop consistent design standards and guidance for UICs on private and public property.

- Continue Stormwater Advisory Committee meetings to provide review/comment and policy guidance on stormwater issues.

- Continue to purchase land for stormwater management and natural resource protection, and work with property owners to protect existing natural areas.

- Continue to develop a Green Streets master plan for the Gateway area to provide certainty and guidance for designers, developers, planners, and City staff in planning and implementing Green Street elements in the right-of-way.

- Develop an ecoroof policy.

- Complete work on the 2007 revision of the *Stormwater Management Manual* and clarification of the stormwater hierarchy. Continue to provide and expand training and technical assistance on the manual to City staff and the development community**.**

3 System Monitoring

The System Monitoring program element involves ongoing UIC monitoring activities conducted to demonstrate that UICs are operated in a manner that meets WPCF permit requirements and protects groundwater as a drinking water resource. System Monitoring includes two types of monitoring:

- Stormwater discharge monitoring of a representative subset of UICs, as identified in the *Stormwater Discharge Monitoring Plan* (SDMP). (This is subsequently referred to as compliance monitoring.)

- Monitoring to determine the effectiveness of BMPs in controlling pollutant discharges to UICs and to identify technologies that can be used to improve stormwater quality or successfully implement corrective actions, as identified in the BMP Monitoring Program.

3.1 Compliance Monitoring

3.1.1 Key Accomplishments for FY06-07

- Prepared and submitted the *Final Stormwater Discharge Monitoring Plan* (SDMP) to DEQ on August 31, 2006.

- Prepared and submitted year 2 (October 2006 – 2007) UIC compliance monitoring locations to DEQ on September 1, 2006.

- Prepared and submitted to DEQ on September 28, 2006, 10 supplemental monitoring locations for year 2 (October 2006 – 2007) to assess the quality of stormwater discharged to UICs located near domestic or public drinking water wells.

- Implemented year 2 stormwater compliance and supplemental monitoring. Forty-one UIC locations were sampled in year 2 and tested for common pollutants.

- Compiled and evaluated year 2 stormwater data. Notified DEQ of year 2 annual mean concentration exceedances of the permit's maximum allowable discharge limits on July 10, 2007.

- Prepared and submitted the *Annual Stormwater Discharge Monitoring Report – Year 2 – October 2006 – May 2007* to DEQ on July 15, 2007. The report results are summarized in Section 3.1.2, below.

- Initiated stormwater discharge trend analysis. Preliminary results are summarized in Section 3.1.2, below.

- Prepared and submitted year 3 (October 2007 – 2008) UIC monitoring locations to DEQ on August 31, 2007, including 30 compliance monitoring locations selected in accordance with the SDMP, 5 UIC monitoring locations carried over from year 2 because of MADL

exceedances, and 10 new supplemental monitoring locations located near drinking water wells.

- Began development of the BMP Monitoring Program.

3.1.2 UIC Stormwater Year 2 Monitoring Summary

The City of Portland's UIC compliance monitoring program was implemented in accordance with the final SDMP. The monitoring program was designed to be representative of the estimated 9,000 City-owned/operated UICs. Five sampling events were completed, as required by the permit, between October 2006 and May 2007. Stormwater samples from discharges to City-owned UICs were analyzed for common pollutants (e.g., metals, volatile organic compounds, semivolatile organic compounds, and pesticides), as defined by the permit. Testing of priority pollutant screen (PPS) analytes is required in permit years 1, 4, and 9; however, nine PPS analytes are reported in year 2 since they were detected using EPA test methods for analysis of the common pollutants. Field and laboratory data collected during year 2 generally met the data quality objectives defined in the SDMP.

Forty-one UIC locations, stratified based on estimated traffic volume (>1,000 vehicle trips per day [TPD] and <1000 TPD), were sampled in year 2, as follows:

- Thirty UICs selected to implement the year 2 compliance monitoring (i.e., monitoring network) described in the SDMP:
  - Panel 2 (15 rotating UIC locations sampled in permit years 2 and 7)
  - Panel 6 (15 fixed UIC locations sampled in permit years 1 through 10)

- One UIC location (P1_1) carried over from year 1 monitoring because of an exceedance of the permit-defined maximum allow discharge limit (MADL) for pentachlorophenol.

- Ten supplemental UICs located near drinking water wells.

Year 2 Results [3]

- All common pollutants that were analyzed for and two PPS analytes (2,4-D and chlorobenzene) were detected in year 2.

- Three pollutants (pentachlorophenol, di(2-ethylhexyl)phthalate (DEHP), and lead) were detected in year 2 at concentrations above their MADLs in at least one sample. Detected concentrations of other common and PPS analytes were below their respective MADLs. The City reported MADL exceedances to DEQ, as required by the permit[4].

[3] A full discussion of monitoring methodology and results can be found in the *Annual Stormwater Discharge Monitoring Report – Year 2* (July 2007).

[4] Actions taken in response to individual MADL exceedances are reported in Section 4: Evaluation and Response.

- Twenty-six ancillary pollutants (i.e., analytes derived from the analytical methods for common pollutants) were detected at low concentrations (generally less than 1 µg/L). The eight ancillary pollutants detected at the highest frequencies (between 51 and 98 percent) during the individual sampling events are polycyclic aromatic hydrocarbons (PAHs). Of the PAHs detected, naphthalene had the highest concentration (1.09 µg/L).

Annual Mean Concentrations

- Annual mean concentrations were calculated for pollutants that were detected at concentrations >50 percent of the MADL. Theoretically, the mean concentration cannot exceed the MADL if the detected concentrations are <50 percent of the MADL.

- Annual geometric mean concentrations for nine UIC locations (P1_1, P6_1, P6_2, P6_7, P6_14, P2_5, P2_7, P2_13, and P2_14) exceed the MADL for pentachlorophenol (1.0 µg/L). Annual geometric means for these locations range from 1.0 to 3.2 µg/L, slightly above the MADL.

- Annual mean concentrations for DEHP, benzo(a)pyrene, and lead were less than their respective MADLs.

- The WPCF permit requires the City to identify UICs in which the annual mean concentration exceeds the MADL for two consecutive years as Category 4[5] UICs. The year 1 annual mean concentration of pentachlorophenol exceeded the MADL in the following UIC locations: P1_1; P6_1; P6_7; P6_8; and P6_14. (See *Annual Stormwater Discharge Monitoring Report – Year 1*, July 2006.) The year 2 annual mean concentration of pentachlorophenol exceeded the MADL for a second consecutive year in four of the five UICs identified above. These Category 4 UICs are listed in Section 5.

Preliminary Trend Analysis

Year 1 and year 2 pollutant concentration data were compared using box plots. Box plots were prepared to identify potential differences in pollutant concentrations between:

- Permit years (year 1, year 2)
- Traffic categories (i.e., <1,000 TPD; ≥1,000 TPD)
- Sample panels (e.g., panel 1, panel 2, panel 6, supplemental panel).

In general, the box plots prepared for year 1 and year 2 data are very similar for each variable. For the pollutants evaluated (lead, dissolved lead, pentachlorophenol, DEHP), the concentration ranges were generally narrow, and the concentration means, medians, and geometric means were well below their respective MADL (i.e., <50 percent). Pollutant concentrations appear to be

[5] Category 4 UICs are those UICs that become non-compliant by failing to meet the annual mean MADL within one wet season after the exceedance or failing to satisfy any groundwater protection conditions of Schedule A of the permit.

slightly higher in the ≥1,000 TPD traffic category than in the <1,000 TPD category and very similar between sample panels.

Response Actions

Section 4 summarizes the actions taken during the year 2 wet season (October 2006 – May 2007) to further understand pollutant sources, prevent pollutants of concern from exceeding respective MADLs, and respond to conditions identified during implementation of the stormwater discharge monitoring program. These actions are discussed in detail in the *Annual Stormwater Discharge Monitoring Report – Year 2*, dated July 2007.

3.1.3 Projected Main Activities for FY07-08

- Select UIC locations for year 3 monitoring (i.e., panel 3 [compliance monitoring], supplemental panel, carry-over locations). Locations were submitted to DEQ on September 1, 2007.

- Implement year 3 UIC compliance and supplemental monitoring in accordance with the final SDMP.

- Document, analyze, and report results of the year 3 stormwater monitoring in the *Annual Stormwater Discharge Monitoring Report – Year 3*. This report will be submitted to DEQ by July 15, 2008.

- Continue to work with DEQ to demonstrate through the SDMP-required compliance monitoring and supplemental monitoring that discharges to public UICs within 500 feet of domestic and irrigation wells or within a 2-year time of travel of public drinking water wells meet permit MADLs and are protective of groundwater quality.

- Initiate planning and selection of year 4 compliance, supplemental, year 3 carryover, and priority pollutant screen (PPS) stormwater monitoring locations.

- Notify DEQ of year 4 stormwater monitoring locations by September 1, 2008.

3.2 BMP Monitoring

3.2.1 Key Accomplishments for FY06-07

- Developed the *BMP Monitoring Plan* as Appendix E of the UICMP submitted to DEQ in December 2007.

- To facilitate program improvements, investigated factors associated with pentachlorophenol fate and transport that may significantly affect the quality of stormwater entering the UIC system.

- Initiated a process to select demonstration projects to increase the separation distance between shallow groundwater and the bottom of the UIC.

3.2.2 Projected Main Activities for FY07-08

- Compile and evaluate the results of the pentachlorophenol investigation to assess potential program improvements that may significantly improve the quality of stormwater entering the UIC system.

- Select and implement demonstration projects to increase the separation distance between shallow groundwater and the bottom of the UIC. Initiate approach for monitoring effectiveness of demonstration projects.

- Evaluate methodologies to extrapolate water quality data citywide.

4 Evaluation and Response

The Evaluation and Response program element uses data and information from System Management (e.g., UIC location, depth to groundwater) and System Monitoring (e.g., results of MADL monitoring) activities to assess UIC compliance status. It also defines the process and criteria that will be used to identify, evaluate, and prioritize actions necessary to protect groundwater and meet permit requirements.

4.1 Summary of Key Accomplishments[6]

- Developed and submitted the *Compliance Determination Procedure* (Appendix F, UICMP) to DEQ in December 2006. This procedure establishes the criteria and process that will be used to identify the compliance status of one UIC or a group of UICs. The procedure uses available data and information and defined criteria to classify compliance status as compliant, non-compliant, or no-determination (i.e., further evaluation is required to determine if the UIC meets permit conditions).

- Developed and submitted the *UIC Prioritization Procedure* (Appendix G, UICMP) to DEQ in December 2006. This procedure assesses the reasonable likelihood of a given UIC to adversely impact groundwater quality. The prioritization procedure results in assignment of a high, medium, or low priority for further evaluation and may be used to rank non-compliant UICs for corrective action.

- Developed and submitted the *UIC Evaluation and Response Guidelines* (Appendix H, UICMP), which identify the steps the City may follow, as needed and appropriate, to collect and evaluate information or data in order to determine UIC compliance, identify a contaminant source(s), or demonstrate groundwater protection.

- Responded to individual year 2 MADL exceedances. During year 2 stormwater discharge monitoring (see Section 3), three common pollutants were detected during individual sampling events at concentrations above their respective MADLs: pentachlorophenol, DEHP, and lead. Actions taken in response to individual MADL exceedances are summarized in Sections 4.2 and 4.4.

- Responded to unusual conditions observed during implementation of the UIC monitoring program that may have impacted stormwater discharge quality. These actions are described in Section 4.2.

- Initiated further evaluation of the UICs identified in the December 2007 *Annual Report No. 1 – Fiscal Year 2005 – 2006* as potentially not meeting permit requirements for vertical

[6] This summary covers primarily City of Portland fiscal year (FY) July 1, 2006 through June 30, 2007. Because of the ongoing nature of the work being performed under the Evaluation and Response element, however, key work completed since July 1 is included to demonstrate the City's progress on schedule commitments made in the December 1, 2006 *Systemwide Assessment Follow-up Actions* workplan and during meetings with DEQ and EPA staff.

separation distance between the bottom of the UIC and seasonal high groundwater. Evaluation of these UICs was performed in accordance with the *Systemwide Assessment Follow-up Actions* workplan submitted to DEQ on December 1, 2007. These actions are described in further detail in Section 4.3.

- Initiated further evaluation of UICs located near domestic or public drinking water wells. These activities are described in Section 4.5.

- Initiated further evaluation of year 1 and year 2 stormwater pollutants that exceeded applicable permit MADLs. Specifically, further evaluation of DEHP and pentachlorophenol was performed. These activities are described in Section 4.4.

- Completed compliance determinations, based on the results of year 2 stormwater monitoring for five UIC locations where year 1 pentachlorophenol annual mean concentrations exceeded the MADL. These Category 4 UICs are described in Section 4.4.

- Completed compliance determinations, based on the results of the further evaluation activities initiated for the UICs identified as potentially not meeting permit requirements for separation distance (i.e., vertical distance between the bottom of the UIC and seasonal high groundwater). These UICs were identified in the December 2007 *Annual Report No. 1 – Fiscal Year 2005 – 2006*. The results of the compliance determinations and identification of Category 3 UICs are presented in Section 4.3 and in Appendix B.

- Applied the *UIC Prioritization Procedure* to UICs in Category 3 UIC locations. Results of the prioritization are presented in Appendix B.

4.2 Response Actions

Response actions are intended to reduce stormwater discharge concentrations at the surface in order to meet permit limits. Meeting permit limits (i.e., MADLs) 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.

Implementation of *UIC Evaluation and Response Guidelines* (UICER) Nos. 1 through 8 (see UICMP - Appendix H) is considered to be applicable and appropriate response actions. UICER guidelines implemented since July 2006 are described primarily in this section, but are referenced as appropriate in subsequent sections.

4.2.1 Key Accomplishments for FY06-07

- Cleaned four UIC systems, in accordance with *UICER Guideline No. 8 – Response Actions*, based on observations of debris in the sedimentation manhole or inlets prior to year 2 sampling or during stormwater event sampling. (See the *Annual Stormwater Discharge Monitoring Report – Year 2*, dated July 2007, for more information.)

- Cleaned two UIC systems, in accordance with *UICER Guideline No. 8 – Response Actions*, based on observations (i.e., unusual conditions) during pre-sampling inspections or sampling events. (See Section 8 of the *Annual Stormwater Discharge Monitoring Report – Year 2*, dated July 2007, for more information.)

- Performed source investigations on two UICs to evaluate the potential impact of paint disposal into UIC inlets, in accordance with *UICER Guideline No. 4 - Source Identification*. These investigations and the results are described in the *Annual Stormwater Discharge Monitoring Report – Year 2* (July 2007).

- Performed additional stormwater discharge sampling, in accordance with *UICER Guideline No. 4 – Source Identification*, to verify the effectiveness of UIC cleaning for a UIC with a paint release to an inlet during event 1 of year 2. These investigations and the results are described in the *Annual Stormwater Discharge Monitoring Report – Year 2* (July 2007).

- Conducted additional stormwater discharge sampling, in accordance with *UICER Guideline 6b – Additional Stormwater Monitoring*, to assess potential UIC impacts from a leaking transformer observed adjacent to a UIC compliance monitoring location (SP1_5). Because of the potential presence of polychlorinated biphenyls (PCBs) in the transformer fluids, PCBs were analyzed during event 1; however, PCBs were not detected. (See the *Annual Stormwater Discharge Monitoring Report – Year 2*, dated July 2007, for more information.) City staff notified PGE of the transformer release (*UICER Response Guideline 8 – Response Actions*). PGE responded and cleaned up the spill on November 1, 2007, and the transformers were replaced.

4.2.2 Projected Main Activities for FY07- 08

- Implement actions, as needed and appropriate, in response to year 3 individual stormwater discharge monitoring MADL exceedances, unusual conditions observed during UIC sampling, inspections, or citizen complaints.

4.3 Further Evaluation of UIC Separation Distance

The WPCF permit requires that UICs more than 5 feet deep must have a minimum separation distance of 10 feet between the UIC and seasonal high groundwater. UICs less than 5 feet deep must have a minimum separation distance of 5 feet.

Of the initial 9,000 UICs evaluated in the systemwide assessment, approximately 349 UICs were identified in the *UICMP Annual Report No. 1 – Fiscal Year 2005 – 2006* (December 2007) as potentially having inadequate separation distance and requiring further evaluation. The *Systemwide Assessment Follow-Up Actions* workplan (submitted to DEQ on December 1, 2006) describes the tasks the City will undertake to develop a plan to increase separation distance or manage stormwater using infiltration.

The following sections outline the key accomplishments for FY06-07 and the projected activities for FY07-08 regarding UIC separation distance.

4.3.1 Key Accomplishments for FY06-07

- Initiated implementation of tasks 1 and 2 of Section 2 of the *Systemwide Assessment Follow-Up Actions* workplan, which addresses further evaluation of separation distance in general accordance with *UICER Guideline No. 1: Separation Distance*. This workplan describes the development of a regional approach for addressing UICs in areas of shallow groundwater.

  - Met with DEQ (workplan tasks 1 and 2) to discuss UICs in areas of shallow groundwater, including the approach, expectations, and general guidelines for addressing the UICs with potential inadequate separation distances. In addition, the application of "regional corrective actions," referenced in the WPCF permit (*UICER Guideline No. 7: Regional Assessment of Problem*), was discussed. Meetings were held April 10, June 28, and July 27, 2007.

  - Collected pre-design data and refined UIC information (workplan task 1), including:
    - Identifying technologies for increasing separation distance or managing stormwater infiltration.
    - Reviewing in-house UIC flow test, as-built, and other data.
    - Developing hydrogeologic conceptual site models for areas with shallow groundwater (e.g., Johnson Creek/Holgate Lake, Columbia Slough), including:
      - Reviewing available well logs and boring logs not used in development of the USGS depth to groundwater maps.
      - Reviewing local and regional geologic/geotechnical studies.
      - Reviewing area soils maps.

  - Performed compliance determinations (workplan task 1) of 349 UICs initially identified as having potentially inadequate separation distances, using updated data and weight of evidence. Results of the compliance determination are documented in section 4.3.2 and Appendix B.

  - Coordinated systemwide assessment follow-up activities for UICs with potential inadequate separation distance with the BES pre-design team that is addressing the 29 Category 2 UICs (see Section 5) with inadequate separation distance, including:
    - Identification of demonstration projects.
    - Development of corrective action alternatives.
    - Evaluation of potential correction action alternatives.

4.3.2 Compliance Determination - Category 3 UICs

Category 3 UICs are defined by the permit as those City-owned UICs discovered to be non-compliant after completion of the systemwide assessment. Appendix B describes the methodology used to determine permit compliance for the list of UICs identified in the FY05-06 UICMP annual report (December 2006) as potentially having inadequate separation distances, using new data and a weight-of-evidence evaluation performed in general accordance with the *Compliance Determination Procedure* (UICMP, Appendix F).

The results of the further evaluation (task 1 of Section 2 of the *Systemwide Assessment Follow-Up Actions* workplan) were used to complete the *Compliance Determination Procedure*. Reapplication of this procedure, using new data and a weight-of-evidence approach, resulted in 338 Category 3 non-compliant UICs. Appendix B contains a prioritized list of Category 3 UICs and a map of their locations.

4.3.3 Projected Main Activities for FY07-08

- Continue pre-design activities for Category 3 UICs in accordance with the scope and schedule of the *Systemwide Assessment Follow-Up Actions* workplan; coordinate with efforts for Category 2 UICs to the extent practicable. Specifically, continue implementing task 2 and initiate task 3 of Section 2 of the workplan, including:

  - Select, design, and construct demonstration projects to increase separation distance (see Section 5.3). Target completion date: December 2008.

  - Continue discussions with DEQ regarding moving toward a regional corrective action for Category 2 and 3 non-compliant UICs. Projected timeline: November 2007 – July 2009.

  - Define and develop preliminary groups of UICs with similar characteristics or where similar technologies may be applicable in developing corrective action alternatives. Target completion date: January 2008.

  - Conduct fate and transport analyses of selected pollutants to assess the range of minimum "separation distances" and/or conditions needed to protect groundwater quality, in accordance with Oregon Administrative Rules 340-040. Projected timeline: August 2007 – January 2008.

  - Develop and evaluate alternatives to increase separation distance or manage stormwater using infiltration, by individual UICs and/or groups of Category 3 UICs. Projected timeline: October 2007 – July 2009.

  - Initiate development of recommendation (e.g. corrective action, protectiveness demonstration) for all Category 3 UICs (individually and/or by groups). Target completion date: July 2009.

- Develop preliminary scope(s), schedule(s), and budget(s) for design and implementation of a regional corrective action approach to increase separation distances or manage surface water using infiltration for Category 3 UICs. Target completion date: July 2009.

- Meet with DEQ on a periodic basis to provide an overview of work completed to date and to discuss next steps. Projected timeline: September 2007 – July 2009.

- Continue identification and evaluation of additional UICs, if any, with potential inadequate separation as new data become available (USGS depth to groundwater study is finalized and published, data generated by local studies, etc.). Target timeframe: Ongoing.

- Perform compliance determinations on any new UICs identified with potential inadequate separation distance. Report and prioritize any newly identified Category 3 UICs to DEQ in accordance with the permit, as appropriate. Projected timeframe: Ongoing.

- Continue coordination with the BES team addressing the 29 Category 2 UICs (see Section 5) with inadequate separation distance.

4.4 Further Evaluation of Stormwater Pollutants Exceeding MADLs

The WPCF permit requires the City to notify and report stormwater discharges that exceed the MADLs defined in Table 1 of the permit. Notification and reporting requirements of individual stormwater event and annual mean MADL exceedances are described in the *Quality Assurance Project Plan* (QAPP; City of Portland, 2006). In addition, annual monitoring reports must include (per Permit Schedule B, Section 7) identification and discussion of any exceedance of an individual storm event MADL or annual mean MADL concentration, including:

(1) Any potential cause of the exceedance, to the extent practicable and if known; and

(2) Actions taken during the wet season to reduce the concentration of the pollutant of concern.

Actions taken to assess the potential cause of the exceedance were evaluated in general accordance with *UICER Guideline No. 2: MADL Exceedances* and are described below. Actions taken during the wet season to reduce concentrations are described as response actions in Section 4.2.

4.4.1 Key Accomplishments for FY06-07

Pentachlorophenol

- Reported MADL exceedances to DEQ within 7 days following receipt of validated analytical data. Forty-one sample concentrations from 13 UIC locations exceeded the MADL of 1.0 µg/L for pentachlorophenol.

- Conducted initial source investigation for pentacholrophenol in stormwater discharges to UICs that do not have wood-treated utility poles within their drainage basins (i.e.,

pentachlorophenol baseline sampling) (*UICER Guideline 5: Source Specific Investigation Monitoring*). Sampling was conducted in accordance with the SDMP and *UICER Guideline No. 6b: Additional Stormwater Monitoring*. The presence of pentachlorophenol in these samples might suggest additional sources (e.g., air deposition, household sources, etc). Sampling included five UICs located in low-traffic (<1000 TPD) residential areas. Samples were collected once during event 3 and once in June 2007. (See the *Annual Stormwater Discharge Monitoring Report – Year 2*, dated July 2007, for more information.)

- Performed additional stormwater sampling (*UICER Guideline 6b: Additional Stormwater Monitoring*) to assess if pentachlorophenol is entering the UIC system in a dissolved phase (i.e., filtered) or associated with stormwater solids (e.g., particulates). Field filtering of stormwater samples was conducted at three locations during year 2, event 5 to analyze for dissolved concentrations of pentachlorophenol in stormwater. These locations were selected based on the consistency and concentration of pentachlorophenol detections. (See the *Annual Stormwater Discharge Monitoring Report – Year 2*, dated July 2007 for more information.)

- Collected samples (*UICER Guideline 5: Source Specific Investigation Monitoring*) along the potential pentachlorophenol migration pathway from suspect wooden utility poles to the UIC sedimentation manhole. (See the *Annual Stormwater Discharge Monitoring Report – Year 2*, dated July 2007, for more information.) Sampling was performed near UICs where the annual mean pentachlorophenol concentration was detected above the MADL concentration in year 1, including: P1_1, P6_1, P6_7, P6_8, and P6_14. The basic scope of the investigation included collecting the following types of samples at each of the five locations, to the extent practicable:

  - Treated-wood utility pole wipe samples (located near catch basins).
  - Soil at the base of treated-wood utility poles (if available).
  - Curb sweeping solids samples (if available).
  - Solids from catch basins (if available).
  - Sedimentation manhole solids samples.

  Selected samples were analyzed for pentachlorophenol, PAHs, DEHP, total organic carbon, total petroleum hydrocarbons, and grain-size.

- Initiated analyses and evaluation of the pentachlorophenol pathway results (*UICER Guideline 5: Source Specific Investigation Monitoring*).

- Initiated fate and transport analyses of pentachlorophenol (*UICER Guideline 6a: Fate and Transport Analyses*) from the point of discharge into the UIC (i.e., permit point of compliance) through unsaturated soil (i.e., vadose zone) and into groundwater.

- Performed compliance determinations on the five UICs identified in year 1 with annual mean pentachlorophenol concentrations exceeding the MADL. Results of the compliance determination are documented below in Section 4.4.2.

- Met with DEQ to discuss the ubiquitous nature of pentachlorophenol in the year 1 and year 2 stormwater monitoring data and the City's general approach to evaluating and demonstrating groundwater protection through site-specific and regional fate and transport modeling (see (*UICER Guideline No. 6: Groundwater Protectiveness Demonstration*). In addition, the applicability of a regional corrective action for pentachlorophenol was discussed. Meetings were held on April 10 and June 28, 2007.

Lead

- Reported MADL exceedances to DEQ within 7 days following receipt of validated analytical data. Five individual sample concentrations from four UIC locations exceeded the MADL of 50.0 µg/L for lead.

Di(2-Ethylhexyl)phthalate (DEHP)

- Reported MADL exceedances to DEQ within 7 days following receipt of validated analytical data. Twelve individual sample concentrations from 13 UIC locations exceeded the MADL of 6.0 µg/L for DEHP.

- Investigated a potential anomalous DEHP concentration. Year 2, event 1 stormwater results from UIC monitoring location, P6_1 detected DEHP at a concentration of 264 µg/L. This concentration is significantly above the applicable MADL and was considered anomalous. As a result, the following actions were completed: field inspection, UIC sedimentation manhole grab water sampling, and resampling of stormwater discharge. P6_1 was resampled to ensure that if the event 1 value was determined to be an outlier, the minimum number (i.e., five) of individual stormwater samples would be available for determining the annual mean concentration. Investigation results are presented in the *Annual Stormwater Discharge Monitoring Report – Year 2*, dated July 2007.

- Submitted split samples during year 2 event 5 sampling to DEQ's laboratory for DEHP analyses (*UICER Guideline No. 5: Source Specific Investigation Monitoring*) because of identified contract laboratory quality control issues for DEHP. Random and sometimes pervasive quality control issues were encountered throughout the first four monitoring events of year 2. Results are presented in the *Annual Stormwater Discharge Monitoring Report – Year 2*.

- Calculated year 2 annual mean (geometric and arithmetic) DEHP concentrations. (See the *Annual Stormwater Discharge Monitoring Report – Year 2*, dated July 2007, for more information.) Mean concentrations were below the MADL at all sampled locations.

- Performed DEHP analyses on selected soil, curb sweeping solids, catch basin solids, and sedimentation manhole solids as part of the evaluation of the pentachlorophenol pollutant migration pathway investigation.

4.4.2 Compliance Determination - Category 4 UICs

UICs in which the annual mean concentration exceeded the MADL for two consecutive years were identified as Category 4[7] UICs in the July 2007 *Annual Stormwater Discharge Monitoring Report – Year 2*. Table 4-1 lists Category 4 UICs.

Table 4-1: Category 4 UICs Identified in Year 2

Location Code	Approximate Address	BES UIC No.	Traffic Category (TPD)	Estimated Separation Distance Between UIC and Groundwater (ft)	Year 1 Annual Geometric Pentachlorophenol Concentration (µg/L)	Year 2 Annual Geometric Pentachlorophenol Concentration (µg/L)
P1_1	6940 N. Macrum Ave.	AAG769	< 1000	73	1.1	1.2
P6_1	3500 SE 112th Ave.	ADW577	≥ 1000	64	1.2	1.0
P6_7	608 NE 87th Ave.	ADV645	< 1000	148	2.0	1.8
P6_14	4289 NE Prescott St.	AD1252	≥ 1000	64	1.5	1.4

Corrective actions for Category 4 UICs will be identified, evaluated, and selected in accordance with the *Corrective Action Plan* (CAP) (2006). The proposed corrective action for these Category 4 UICs is a groundwater protectiveness demonstration (i.e., risk assessment), performed in accordance with *UICER Guideline No. 6: Groundwater Protectiveness Demonstration.*

In addition to the proposed corrective action, a sedimentation manhole was installed at P6_7 during the summer of 2007. The installation of pretreatment is consistent with the CAP and may reduce pentachlorophenol concentrations to acceptable levels. P6_7 will continue to be monitored as part of the fixed panel for the duration of the permit.

4.4.3 Projected Main Activities for FY07-08

- Implement year 3 stormwater compliance monitoring, and report MADL exceedances in accordance with the permit and QAPP.

- Evaluate and select appropriate statistical method(s) (e.g., graphical analyses, regression analyses, cumulative distribution function analyses) for extrapolating stormwater discharge monitoring data and potential non-compliance issues to the entire population of City-owned UICs. Projected timeline: October 2007 – July 2008.

[7] Category 4 UICs are those UICs that become non-compliant by failing to meet the annual mean MADL within one wet season after the exceedance or failing to satisfy any groundwater protection conditions of Schedule A of the permit.

- Complete site-specific fate and transport analyses (*UICER Guideline No. 6a: Fate and Transport Analysis*) of pentachlorophenol in Category 4 UICs from point of discharge to shallow groundwater to assess whether concentrations are attenuated by unsaturated soils prior to reaching groundwater and therefore protective of groundwater quality in accordance with Oregon Administrative Rules 340-040. Specific tasks are described below. Target completion: January 2008.

  - Prepare a conceptual site model (CSM) of potential transport pathways for pentachlorophenol discharge to a UIC.

  - Assess the fate and transport of pentachlorophenol in the vadose zone (unsaturated soil), discharge into groundwater (dilution), and migration in groundwater (dilution, advection, biodegradation, etc.).

  - Meet with DEQ on a periodic basis to discuss the evaluation approach, specific input parameters, preliminary results, etc.

  - Document and submit results of site-specific groundwater protectiveness demonstrations to DEQ for four UIC locations (P1_1, P6_1, P6_7, P6_14) in which the annual mean pentachlorophenol exceeded the MADL in years 1 and 2.

- Evaluate results of pentachlorophenol pathway data to determine if specific actions (e.g., street sweeping, UIC cleaning) may decrease pentachlorophenol concentrations. Target completion: July 2008.

- Continue evaluation and strategic planning with DEQ (*UICER Guideline No. Regional Assessment of Problem*) to address ubiquitous pentachlorophenol concentrations in stormwater discharges. Hold periodic meetings with DEQ to provide an overview of work completed to date, discuss next steps, and initiate development of a regional approach for addressing the pentachlorophenol. Projected timeline: Ongoing FY07 -08.

- Perform regional fate and transport analyses (U*ICER Guideline No. 6: Groundwater Protectiveness Demonstration)* to develop a decision-making tool for evaluating MADL exceedances (pentachlorophenol and other pollutants, as appropriate) to determine if groundwater is protected in accordance with the permit or if corrective action is required. These analyses will include an evaluation of vertical separation distance and proximity to drinking water wells, as appropriate; to ensure groundwater beneficial uses are protected. Target completion: January 2008.

4.5 Further Evaluation of UICs near Domestic Wells

The WPCF permit requires that stormwater discharges meet the MADLs defined in Table 1 of the permit for UICs that are located:

- Less than 500 feet from a domestic well;
- Within a 2-year time of travel of a public water well; or
- Less than 500 feet from a public water well without a delineated time of travel.

As used in this report, the term "domestic well" includes the categories of public and privately held wells listed above and includes wells used to supply water for purposes of drinking water or irrigation. Of the initial 9,000 UICs evaluated in the *Systemwide Assessment* report, 332 UICs were identified that are within 500 feet or a 2-year time of travel of a domestic use well.

Stomwater quality discharge limits established in the WPCF permit are designed to protect groundwater as a drinking water resource in accordance with OAR 340-040. The City's UIC program (UICMP, December 2007) builds upon this permit requirement by implementing aggressive stormwater management strategies that prevent, minimize, and treat pollutants in stormwater before they can be discharged to a UIC.

The S*ystemwide Assessment Follow-Up Actions* workplan (submitted to DEQ on December 1, 2006) describes the initial tasks the City completed over the past year to evaluate water quality entering UICs near a domestic use well. The following section describes the actions taken during FY 06-07 to evaluate UICs near domestic wells.

4.5.1 Key Accomplishments for FY06-07

- Conducted stormwater discharge monitoring of 10 supplemental UICs located within 500 feet of a domestic well, 500 feet of a public water well that does not have a time of travel, or the 2-year time of travel of a public water well, in accordance with *UICER Guideline No. 3: Proximity to Drinking Water Wells*. Supplemental monitoring locations were randomly selected using the method described in the SDMP and stratified by traffic category. The objectives of this monitoring program included:
  - Assess the quality of stormwater discharged to UICs located near domestic or public drinking water wells.
  - Demonstrate that the results of the citywide annual compliance monitoring program (described in the SDMP) are representative of stormwater discharging to UICs located within 500 feet of a domestic well, 500 feet of a public water well, and the 2-year time of travel of a public water well.

- Sampled five storm events at each year 2 supplemental monitoring location. Sampling and analyses were performed in accordance with the SDMP. No annual mean pollutant concentration exceeded its respective MADL concentration at any of the supplemental monitoring locations.

- Evaluated and presented results in the *Annual Stormwater Discharge Monitoring Report – Year 2* (July 2007).

- Met with DEQ on July 27, 2007, to discuss the results of the year 2 supplemental monitoring and approach for continued supplemental monitoring in permit year 3.

- Developed and submitted 10 new supplemental monitoring locations to DEQ to be sampled during permit year 3 (BES letter to DEQ dated August 31, 2007).

4.5.2 Projected Main Activities for FY07-08

- Collect and apply stormwater quality data entering UICs near domestic wells. Identify stormwater pollutants that may not meet permit requirements; identify variables such as land use, traffic volume, or management actions that significantly influence stormwater quality; apply stormwater quality data at individual UIC locations and citywide; apply results of analyses to develop programmatic and site-specific actions that improve stormwater quality where needed. Projected timeline: July 1, 2007 – November 1, 2008.

  - Collect stormwater quality data. Continue to collect stormwater monitoring data and evaluate the quality of stormwater entering UICs near drinking water wells, including:

    - Implement annual UIC compliance monitoring (see Section 3). Projected timeline: October 1, 2007 – May 31, 2008.

    - Implement supplemental stormwater quality monitoring. Year 3 sampling will include 10 new supplemental UIC sampling locations. Each location will be sampled during five storm events, concurrent with the UIC compliance monitoring program (see Section 3). Projected timeline: October 1, 2007 – May 31, 2008.

    - Document the quality of stormwater discharged to UICs located near domestic wells. Supplemental sampling results will be included in the *Annual Stormwater Discharge Monitoring Report – Year 3*. The report is due to DEQ on July 15, 2008.

  - Apply stormwater quality data. Continue evaluation of the results of the annual compliance monitoring program (described in the SDMP) and the supplemental monitoring program. Projected timeline: July 1, 2007 – November 1, 2008.

    - Evaluate whether or not UIC compliance monitoring results are representative of stormwater discharging to UICs near domestic wells.

    - Continue identification and evaluation of pollutants that exceed permit limits (e.g., pentachlorophenol) at the end of pipe where stormwater is discharged into a UIC. (See Section 4.4.3.)

    - Develop a methodology, based on the UIC compliance monitoring sampling design (see *Stormwater Discharge Monitoring Plan*) and the results of the supplemental monitoring, to estimate potential pollutant concentrations (e.g., pentachlorophenol) in stormwater discharges to UICs near drinking water wells, in general accordance with *UICER Guideline 3: Proximity to Drinking Water Wells*. The following types of actions, listed below, may be considered or conducted. Projected timeline: September 1, 2007 – November 2008.

- Modify the current UIC compliance monitoring program design to include additional stratification by proximity/non-proximity to drinking water wells in addition to traffic category.
- Continue supplemental UIC sampling at 10 new locations in year 4 to achieve a total sample size of 30 UICs in proximity to drinking water wells.
- Continue identification and evaluation of factors that affect pollutant concentrations in stormwater discharges to UICs (e.g., trend analyses, correlation analyses).
- Refine data evaluation and data presentation procedures to acknowledge and discuss uncertainties (sample size, precision of estimates, etc.).

- Continue evaluation and interpretation of stormwater monitoring data and extrapolation of the compliance monitoring results to the overall UIC system.

- Apply information from actions discussed above (where appropriate) to update prioritized list of non-compliant UICs annually or sooner if needed. The updated prioritization will be evaluated relative to drinking water well locations and implementation priorities will be selected accordingly.

- Evaluate the location and physical characteristics of public UICs near domestic wells relative to factors that could impact stormwater or groundwater quality. Identify physical characteristics (separation distance, soil type, etc.) or site-specific factors (land use, traffic volume, maintenance practices, etc.) occurring within the UIC drainage catchment that may have an adverse impact on stormwater or groundwater quality. Implement site-specific or programmatic actions that prevent adverse impacts to stormwater or groundwater. For FY 07-08, efforts will focus on the actions listed below. Projected timeline: July 1, 2007 – November 1, 2008.

– Identify and prevent site practices that may impact stormwater quality. Identify and prevent site-specific actions occurring within public UIC drainage catchments that may have an adverse impact on stormwater quality. Implement site-specific or programmatic actions that prevent adverse impacts to stormwater before it can be discharged to a UIC.

  o Initiate BMP SA-2 to further evaluate the location of public UICs relative to factors that may create an adverse impact to stormwater quality or groundwater. The evaluation will include documenting site practices, land use, traffic volume, and proximity/non-proximity of drinking water wells through focused field inspections and/or spatial analyses using GIS software. Use this information to identify and site-specific or programmatic actions that prevent adverse impacts to stormwater.

  o Collect additional information needed to verify the location or existence of domestic or irrigation wells that could not be field verified during systemwide assessment activities. Develop methodology to address wells that do not have verifiable

information.

- Explore the potential for the City to be notified by the Oregon Water Resources Department (OWRD) if new water supply wells (e.g., irrigation, domestic) are installed within the City.

- Evaluate potential changes to City code/policy that would limit installation of new domestic wells.

- Initiate evaluation of available information regarding well depths and screened intervals of drinking water wells near UICs.

- Check with the Portland Water Bureau for 2-year time of travel estimate updates.

- Identify and address UICs in areas of shallow groundwater. The WPCF permit establishes requirements for separation distance between the bottom of a UIC and seasonal high groundwater. A subset of the Category 2 and Category 3 UICs identified as potentially having inadequate separation distance is located near domestic wells. The City is actively addressing these UICs to provide adequate separation distance, meet permit requirements, and protect groundwater in accordance with OAR 340-040, which protects all groundwater as a drinking water resource.

  Planning and initial pre-design activities for Category 2 and 3 UICs were initiated in FY07/08 under the *Systemwide Assessment Follow-up Actions* workplan and will continue in FY08/09 (see Sections 4.3.3 and 5.4.2 of this report). The *UIC Prioritization Procedure* described in Appendix G of the UICMP was conservatively applied to develop prioritization scores for UICs near domestic wells. The *Prioritization Procedure* results presented in Appendix B are intended to be used to categorize or rank UICs for either further evaluation and/or corrective action.

  A detailed description of the City's efforts to address Category 2 and Category 3 UICs is provided in Section 4.3.4, Section 5, and Appendix B of this report. Important highlights regarding FY 07-08 actions to address UICs in shallow groundwater include:

  - Continue pre-design activities for Category 3 UICs in accordance with the scope and schedule of the *Systemwide Assessment Follow-Up Actions* workplan; coordinate with efforts for Category 2 UICs to the extent practicable. Specifically, continue implementing task 2 and initiate task 3 of Section 2 of the workplan.

  - Develop, evaluate, and recommend corrective actions for all Category 3 UICs. Target completion date: July 2009.

  - Use pre-design and design information to update the prioritized list of non-compliant UICs annually, or sooner if needed. The updated prioritization will be evaluated relative to drinking water well locations, and implementation priorities will be selected accordingly.

- Complete corrective actions for 29 Category 2 UICs no later than November 1, 2010

- Complete corrective actions for Category 3 UICs no later than July 15, 2011. Completion dates for Category 3 UICs are subject to change if DEQ approves a regional corrective action for addressing UICs in areas of shallow groundwater, as allowed by the permit.

- Develop a groundwater protectiveness demonstration. The groundwater protectiveness demonstration will act as a decision tool that cumulatively applies physical site and system information (depth to groundwater, soil type, drainage catchment activities, land use, traffic volume, etc.) in conjunction with stormwater monitoring data to evaluate potential risks to stormwater or groundwater. This tool will be used to help identify UICs where existing conditions are protective of groundwater; identify UICs where additional programmatic or site-specific actions may be needed to increase separation distance, improve stormwater quality or make other system improvements; and prioritize actions and resource allocations. Projected timeline: October 2007 – November 2008.

  - Develop a groundwater protectiveness demonstration (*UICER Guideline No. 6: Groundwater Protectiveness Demonstration*). This tool may consider:

    - Pollutant fate and transport in the unsaturated (vadose) zone.
    - Vertical separation distance needed to ensure groundwater protection. (Note: Corrective actions for UICs with inadequate separation distance will ensure groundwater is protected as a drinking water resource. See Sections 4.3.3, 5.3, and 5.4).
    - Pollutant fate and transport in the saturated zone.
    - Horizontal distance needed between a UIC and drinking water wells to ensure protection of current and future groundwater uses.

- Implement other actions.

  - Continue to prevent, minimize, and control pollutants prior to their discharge to UICs (see Section 2.3). Projected timeline: July 1, 2007 – October 1, 2008.

  - Address 4 Category 4 UICs no later than July 2011.

  - Meet with DEQ on a periodic basis to provide an overview of work completed to date and to discuss next steps. Projected timeline: July1, 2007 – November 1, 2008.

5 Corrective Actions

The Corrective Actions program element addresses UICs that are shown to be non-compliant with WPCF permit requirements through the Evaluation and Response process. This program includes the processes that will be used to evaluate, rank, select, and implement appropriate corrective actions. A variety of corrective actions are available, including options that do not involve construction (such as institutional controls or an assessment to demonstrate protectiveness), structural/ engineering controls, and UIC closure.

5.1 Summary of Key Accomplishments[8]

- Developed and submitted *Decommissioning Procedure (Final) for Underground Injection Control Systems* (Appendix D, UICMP) to DEQ in December 2006.
- Developed and submitted *Corrective Action Plan for Underground Injection Control Systems* (CAP) to DEQ in July 2006.
- Initiated planning and pre-design activities of the 29 Category 2 UICs in accordance with the CAP.

5.2 Category 1 UICs

The permit defines Category 1 UICs as those that were known to be non-compliant with permit conditions upon the date of permit issuance. Five UICs were identified as being constructed into groundwater at the time the permit was issued and therefore determined to be non-compliant. These five UICs were decommissioned in 2006, and the decommissioning was documented in the December 1, 2006 *UICMP Annual Report No. 1*.

5.3 Category 2 UICs

The permit defines Category 2 UICs as those identified as non-compliant during the systemwide assessment. The permit requires Category 2 UIC corrective actions to be completed by November 1, 2010.

5.3.1 Key Accomplishments for FY06-07

- Identified and prioritized 29 Category 2 UICs in the December 1, 2006 *UICMP Annual Report No. 1*, based on the results of the *Systemwide Assessment* report (submitted to DEQ on July 15, 2006) and using the procedures described in the UICMP.

[8] This summary covers primarily City of Portland fiscal year (FY) July 1, 2006 through June 30, 2007. Because of the ongoing nature of the work being performed under the Corrective Action element, however, key work completed since July 1 is included to demonstrate the City's progress on schedule commitments made in the December 1, 2006 *Systemwide Assessment Follow-up Actions* workplan and during meetings with DEQ and EPA staff.

- Assigned the Category 2 UIC project to BES's Engineering Services Group.

- Obtained capital improvement project (CIP) funding for Category 2 UIC project pre-design activities.

- Initiated implementation of the *Corrective Action Plan* (CAP; July 2006) for the 29 Category 2 UICs identified in the December 1, 2006 *UICMP Annual Report No. 1*, including:

  - Defining corrective action objectives (CAP – Step 2).

  - Identifying general response actions (CAP – Step 3).

  - Identifying potentially applicable technologies for increasing separation distance or managing stormwater infiltration (CAP – Step 3).

  - Starting assembly of corrective action alternatives (CAP – Step 4).

  - Refining alternative selection criteria (CAP – Step 5).

  - Initiating engineering pre-design evaluation of potential corrective alternatives for Category 2 UIC, including collecting and evaluating available information:
    - Reviewing in-house UIC flow test, as-built, and other data.
    - Characterizing UIC drainage basins and flow estimates.
    - Reviewing available geologic and hydrogeologic data in proximity to Category 2 UICs.

- Formed an internal BES team in March 2007 to facilitate coordination and communication between the Category 2 UIC project and the regional evaluation of UICs in shallow groundwater and to provide technical oversight of the two projects.

- Identified five Category 2 UICs that will be fast-tracked and used as demonstration projects to evaluate technologies that could be used to increase separation distance (S*ystemwide Assessment Follow-up Actions* workplan - Task 2). The demonstration projects will increase UIC separation distance and streamline evaluation of the feasibility of technologies and selection of recommended alternatives for the regional UICs in shallow groundwater project.

- Integrated Category 2 UIC pre-design activities with further evaluation activities for UIC locations with potentially inadequate separation distances. Work was specifically coordinated with the S*ystemwide Assessment Follow-up Actions* workplan. That workplan anticipates the development of a regional corrective action for UICs in areas of shallow groundwater (i.e., Category 2 and Category 3 UICs).

- Reprioritized Category 2 UICs. Appendix B, Table B-1 includes the list of prioritized Category 2 UICs, the corrective status, and identification of the anticipated corrective action response.

5.3.2 Projected Main Activities for FY07-08

- Continue implementing the *Corrective Action Plan* for the identified Category 2 UICs to meet the permit-required corrective action completion date of November 1, 2010. FY07-08 activities include:

  - Develop pre-design corrective action alternatives to increase separation distance or manage stormwater using infiltration by individual UIC and/or groups of UICs (CAP – Step 4). Target completion: December 2007.

  - Evaluate and compare pre-design alternatives using CAP standards and decision criteria (CAP – Step 5). Target completion: December 2007.

  - Recommend corrective action for each Category 2 UIC (CAP - Step 6). Target completion: December 2007.

  - Initiate design of selected corrective actions (CAP – Section 7). Projected timeframe: December 2007 – July 2008.

  - Initiate development of a schedule and budget for implementation of Category 2 corrective actions (CAP – Section 7). Projected timeframe: December 2007 – July 2008.

- Continue implementing the S*ystemwide Assessment Follow-up Actions* workplan (Task 2) to identify UIC demonstration projects to increase vertical separation distance. FY07-08 activities include:

  - Recommend demonstration projects for selected Category 2 UICs. Target completion: December 2007.

  - Finalize design of UIC demonstration projects. Target completion date: April 2008.

  - Bid and construct demonstration projects. Projected timeframe: May 2008 - December 2008.

- Perform fate and transport analyses of selected pollutants in unsaturated soil (i.e., vadose zone) to assess the range of minimum separation distances and/or conditions needed to ensure protection of groundwater quality in accordance with Oregon Administrative Rules 340-040 (see Section 4.3.3).

- Meet with DEQ on a periodic basis to:

  - Provide an overview of work completed to date.
  - Discuss integration of Category 2 UIC corrective action implementation into an enforceable regional corrective action along with Category 3 UICs.
  - Discuss next steps.

5.4 Category 3 UICs

The permit defines Category 3 UICs as those identified as non-compliant following completion of the systemwide assessment. The permit requires Category 3 corrective actions to be completed within three full CIP cycles following the annual report date for the reporting period in which the non-compliant public UICs are reported as discovered or in accordance with a DEQ-approved regional corrective action.

5.4.1 Key Accomplishments for FY06-07

- Identified 338 Category 3 UICs with potentially inadequate separation distances, based on updated compliance determinations of the UICs identified in the *UICMP Annual Report No. 1*. Results of the compliance determination are presented in Section 4.3 and discussed in detail in Appendix B.

- Notified DEQ in writing, as part of this annual report, within 30 days after completion of the compliance determination for Category 3 UICs. Appendix B presents a list (Table B-1) of Category 3 UICs and the following information for each non-compliant UIC. :
    - Location of each non-compliant UIC.
    - Nature of the non-compliant condition.
    - Estimated UIC depth.
    - UIC pretreatment.
    - Predominant land use
    - Estimated traffic volume.
    - Estimated vertical separation distance.
    - Distance to nearest well (e.g., domestic, irrigation, public).
    - Determination of whether the UIC is located within the 2-year time of travel (TOT) of a public supply well.
    - Identification of the anticipated corrective action.
    - Project status.
    - Planned FY07-08 activities.

- Developed a prioritized list of Category 3 non-compliant public UICs (included in Appendix B, Table B-1).

5.4.2 Projected Main Activities for FY07-08

Corrective actions for Category 3 UICs will be identified, evaluated, and selected in accordance with the *Corrective Action Plan* (July 2006) and the *Systemwide Assessment Follow-up Actions* workplan (December 2006). Planning and initial pre-design activities for these UICs were initiated in FY07/08 under the *Systemwide Assessment Follow-up Actions* workplan and will continue in FY08/09 (see Section 4.3.3).

Corrective actions for the Category 3 UICs identified in this report must be completed by July 15, 2011. The permit allows for a regional corrective action if the nature of the corrective action requires more than three full CIP cycles to complete. The City is anticipating pursuing the

Category 3 UICs as a regional corrective action. Regional corrective actions may be approved by DEQ and implemented through either a permit modification under OAR 340-045-0055 or a DEQ-issued order.

At this time, site-specific corrective actions have not been identified for each of the Category 3 UICs. However, the general response action anticipated (i.e., preliminary corrective action category) to address the non-compliant UIC has been identified in accordance with the *Corrective Action Plan*. These actions are included in Appendix B, Table B-1. The anticipated correction action is subject to change as site-specific information is collected and pre-design and design activities are performed.

The following actions are planned for FY07-08:

- Continue implementing the *Systemwide Assessment Follow-up Actions* workplan. (FY07-08 activities are described in detail in Section 4.3.3.)

- Recommend corrective actions for individual UICs or groups of UICs. Corrective actions will be selected that are consistent with the corrective action standards and decision criteria identified in Tables 6-2 and 6-3 of the *Corrective Action Plan*. Once a corrective action is selected for each UIC, it will be reported in subsequent UICMP annual reports.

- Continue to develop a regional corrective action. (FY07-08 activities are described in detail in Section 4.3.3.)

- Perform fate and transport analyses of selected pollutants in unsaturated soil (i.e., vadose zone) to the minimum separation distances and/or conditions needed to ensure protection of groundwater quality in accordance with Oregon Administrative Rules 340-040 (see Section 4.3.3).

- Meet with DEQ on a periodic basis to:

  - Provide an overview of work completed to date.

  - Discuss integration of Category 2 UIC corrective action implementation into an enforceable regional corrective action, along with Category 3 UICs.

  - Discuss next steps.

5.5 Category 4 UICs

The permit defines Category 4 UICs as those that become non-compliant by failing to meet the annual mean MADL within one wet season after the exceedance or failing to satisfy any groundwater protection conditions of permit Schedule A.

5.5.1 Key Accomplishments for FY06-07

- Identified four Category 4 UICs, based on the results of the year 2 stormwater monitoring data (see Sections 3 and 4.4).

- Notified DEQ in writing within 7 days after verification of the annual mean exceeding the MADL. (See BES letter to DEQ dated July 10, 2007 and *Annual Stormwater Discharge Monitoring Report –Year 2,* dated July 15, 2007.) This notification included:

    - Brief description of the non-compliant UIC.
    - Location of each non-compliant UIC.
    - Nature of the non-compliant condition.
    - Type of traffic volume and land use activities for the non-compliant UIC.
    - Identification of an appropriate general response action (CAP – Step 3).

- Met with DEQ on April 10, June 28, and July 27, 2007 to discuss the approach, expectations, and general guidelines for:
    - Addressing the four Category 4 UICs identified because of pentachlorophenol concentrations at these locations.
    - Approach for addressing ubiquitous citywide pentachlorophenol concentrations (see Section 4.4).

5.5.2 Projected Main Activities for FY07-08

The permit requires Category 4 corrective actions to be completed within three full CIP cycles immediately following the wet season for compliance response monitoring (i.e., within three full CIP cycles after the annual mean MADL exceedance that triggers the corrective action). Corrective actions for the Category 4 UICs identified in this report must be completed by July 15, 2011.

The following actions are planned for FY07-08:

- Evaluate the fate and transport of pentachlorophenol from the end-of-pipe where stormwater is discharged into the UIC through unsaturated soil (i.e., vadose zone) to groundwater for each of the four individual Category 4 locations. These evaluations will use site-specific information to assess if the groundwater quality is protected in accordance with Oregon Administrative Rules 340-040 (see Section 4.4). This evaluation will be performed in accordance with *UICER 6 – Groundwater Protectiveness Demonstration*, included in Appendix H of the UICMP. The demonstration is intended to meet DEQ's risk assessment protocols. Projected timeframe: August 2007 – January 2008.

- Submit technical memoranda for DEQ review and approval for each Category 4 UIC, presenting the results of the site-specific groundwater protectiveness demonstration. Target completion date: January 2008.

- Meet with DEQ on a periodic basis during site-specific evaluations to:

  - Discuss fate and transport evaluation process, assumptions, and results.
  - Provide an overview of work completed to date.
  - Discuss next steps.

Appendix A
Public UICs Identified/Constructed During FY06-07

Table A-1 Public UICs Identified/ Constructed During FY06-07							
Date UIC Reported	BES Unit ID	UIC DEQ ID	EPA UIC Classification	Current Status3	UIC Location	Traffic Volume	Pre-treatment Type
12/1/2006	ANK266	9288	Class V Injection Well	AC	14326 SE ELLIS ST	<1000	SedMH
12/1/2006	AAZ482[1]	9281	Class V Injection Well	AC	11106 NE SISKIYOU ST	<1000	NA
12/1/2006	AAZ609	9282	Class V Injection Well	AC	12200 NE FARGO ST	>1000	No Pretreatment
12/1/2006	AAZ611[1]	9283	Class V Injection Well	AC	11640 NE FARGO ST	<1000	NA
12/1/2006	ANL680	9303	Class V Injection Well	AC	4619 NE AINSWORTH ST	<1000	No Pretreatment
12/1/2006	ANL617	9302	Class V Injection Well	AC	6100 NE 45TH AVE	<1000	SedMH
12/1/2006	ANL522	9298	Class V Injection Well	AC	15774 SE PINE ST	<1000	SedMH
12/1/2006	ANL357	9296	Class V Injection Well	AC	15769 NE EVERETT CT	<1000	SedMH
12/1/2006	ANL221	9292	Class V Injection Well	AC	1407 SE 140TH AVE	<1000	SedMH
12/1/2006	ANL007	9291	Class V Injection Well	AC	8417 SE LAMBERT ST	<1000	No Pretreatment
12/1/2006	ABS200	9284	Class V Injection Well	AC	8200 SE MORRISON ST	>1000	No Pretreatment
12/1/2006	ANL320	9293	Class V Injection Well	AC	16116 SE SHERMAN ST	<1000	SedMH
12/1/2006	ANL334	9295	Class V Injection Well	AC	5005 NE FREMONT ST	>1000	SedMH
12/1/2006	ANL537	9299	Class V Injection Well	AC	2800 SE 137TH AVE	<1000	SedMH
12/1/2006	ANL324	9294	Class V Injection Well	AC	8847 NE WASCO ST	<1000	SedMH
12/1/2006	ANL602	9301	Class V Injection Well	AC	404 NE 146TH AVE	<1000	SedMH
12/1/2006	ANA749[1]	9287	Class V Injection Well	AC	3502 SE 166TH AVE	<1000	NA
12/1/2006	ANK274	9289	Class V Injection Well	AC	14328 SE CANNON ST	<1000	SedMH
12/1/2006	ANK278	9290	Class V Injection Well	AC	5615 SE 145TH AVE	<1000	SedMH
12/1/2006	AMU614[1]	9286	Class V Injection Well	AC	1700 NE 122ND AVE	>1000	NA
12/1/2006	ANL730	9305	Class V Injection Well	AC	11465 SE PARDEE ST	<1000	No Pretreatment
12/1/2006	ANL688	9304	Class V Injection Well	AC	5633 NE 48TH AVE	<1000	SedMH

Table A-1 Public UICs Identified/ Constructed During FY06-07							
Date UIC Reported	BES Unit ID	UIC DEQ ID	EPA UIC Classification	Current Status3	UIC Location	Traffic Volume	Pre-treatment Type
12/1/2006	ANL592	9300	Class V Injection Well	AC	17200 SE STEPHENS ST	<1000	SedMH
12/1/2006	ACA589[2]	9285	Class V Injection Well	AC	3330 SE 122ND AVE	>1000	No Pretreatment
12/1/2006	ANL367	9297	Class V Injection Well	AC	900 N KILPATRICK ST	<1000	SedMH
3/1/2007	ANM068	9312	Class V Injection Well	AC	9527 N HAVEN AVE	<1000	SedMH
3/1/2007	ANM054	9310	Class V Injection Well	AC	1954 SE 154TH AVE	<1000	SedMH
3/1/2007	AAV139	9306	Class V Injection Well	AC	8724 NE BEECH ST	<1000	No Pretreatment
3/1/2007	ANM128	9316	Class V Injection Well	AC	9521 N FISKE AVE	>1000	SedMH
3/1/2007	ANM061	9311	Class V Injection Well	AC	9446 N HAVEN AVE	>1000	SedMH
3/1/2007	ANM077	9313	Class V Injection Well	AC	5010 N CECELIA ST	<1000	SedMH
3/1/2007	ANM209	9318	Class V Injection Well	AC	4529 NE 113TH PL	<1000	SedMH
3/1/2007	ANM003	9307	Class V Injection Well	AC	280 SE 103RD AVE	<1000	SedMH
3/1/2007	ANM040	9308	Class V Injection Well	AC	9237 N HAVEN AVE	<1000	SedMH
3/1/2007	ANM124	9315	Class V Injection Well	AC	9305 N FISKE AVE	>1000	SedMH
3/1/2007	ANM136	9317	Class V Injection Well	AC	9521 N FISKE AVE	>1000	SedMH
3/1/2007	ANM214	9319	Class V Injection Well	AC	9817 NE IRVING ST	<1000	SedMH
3/1/2007	ANM052	9309	Class V Injection Well	AC	9337 N HAVEN AVE	<1000	SedMH
3/1/2007	ANM118	9314	Class V Injection Well	AC	9305 N FISKE AVE	>1000	SedMH
3/1/2007	ACQ295	5338	NA	PA	6200 SE 142ND AVE	NA	No Pretreatment
3/1/2007	R00001	9320	Class V Injection Well	UC	11140 NE SISKIYOU ST	<1000	SedMH
3/1/2007	R00002	9331	Class V Injection Well	UC	5420 NE GARFIELD AVE	>1000	SedMH
3/1/2007	R00003	9340	Class V Injection Well	UC	3522 NE LIBERTY ST	<1000	SedMH
3/1/2007	R00004	9341	Class V Injection Well	UC	3570 NE LOMBARD CT	<1000	SedMH

Table A-1 Public UICs Identified/ Constructed During FY06-07							
Date UIC Reported	BES Unit ID	UIC DEQ ID	EPA UIC Classification	Current Status3	UIC Location	Traffic Volume	Pre-treatment Type
3/1/2007	R00005	9342	Class V Injection Well	UC	4553 NE 112TH AVE	<1000	SedMH
3/1/2007	R00006	9343	Class V Injection Well	UC	45 NE 89TH AVE	<1000	SedMH
3/1/2007	R00007	9344	Class V Injection Well	UC	5265 NE CLEVELAND AVE	<1000	SedMH
3/1/2007	R00008	9345	Class V Injection Well	UC	2761 SE 87TH AVE	<1000	SedMH
3/1/2007	R00009	9346	Class V Injection Well	UC	5291 N. EMERSON DR	<1000	SedMH
3/1/2007	ANS162	9323	Class V Injection Well	UC	SE ALDER WEST OF SE 160TH AVE	<1000	SedMH
3/1/2007	R00014	9325	Class V Injection Well	UC	NE COUCH ST & NE 149TH PL	<1000	SedMH
3/1/2007	ANS036	9326	Class V Injection Well	UC	SE 92ND AVE & SE GLADSTONE ST	>1000	SedMH
3/1/2007	ANS048	9327	Class V Injection Well	UC	SE 92ND AVE & SE FRANCIS ST	>1000	SedMH
3/1/2007	ANS078	9328	Class V Injection Well	UC	SE 92ND AVE & SE FRANCIS ST	>1000	SedMH
3/1/2007	ANS063	9329	Class V Injection Well	UC	SE 92ND AVE & SE BUSH ST	>1000	SedMH
3/1/2007	ANS079	9330	Class V Injection Well	UC	SE 92ND AVE & SE 92ND PL	>1000	SedMH
3/1/2007	R00023	9335	Class V Injection Well	UC	3239 SE 131ST	<1000	SedMH
3/1/2007	R00024	9336	Class V Injection Well	UC	SE 136TH & SE STEELE	>1000	SedMH
3/1/2007	R00025	9337	Class V Injection Well	UC	SE CENTER & SE 128TH AVE	<1000	SedMH
3/1/2007	R00026	9338	Class V Injection Well	UC	NE 64TH & KILLINGSWORTH ST	>1000	SedMH
3/1/2007	R00027	9339	Class V Injection Well	UC	NE 64TH & EMERSON CT	<1000	SedMH

Table A-1 Public UICs Identified/ Constructed During FY06-07							
Date UIC Reported	BES Unit ID	UIC DEQ ID	EPA UIC Classification	Current Status3	UIC Location	Traffic Volume	Pre-treatment Type
6/1/2007	ABE066	9347^	Class V Injection Well	AC	10200 NE TILLAMOOK ST	>1000	NA
6/1/2007	ANN308	9349	Class V Injection Well	UC	6300 NE KILLINGSWORTH ST	>1000	SedMH
6/1/2007	ANN312	9350	Class V Injection Well	UC	6300 NE KILLINGSWORTH ST	<1000	SedMH
6/1/2007	ANN967	9352	Class V Injection Well	AC	6321 NE 66TH AVE	<1000	No Pretreatment
6/1/2007	ANP029	9353	Class V Injection Well	AC	8823 SE 12TH CT	<1000	SedMH
6/1/2007	ANP184[4]	9354	NA	PA	6360 NE MARTIN LUTHER KING BLVD	NA	SedMH
6/1/2007	ANP186[4]	9355	NA	PA	6329 NE MARTIN LUTHER KING BLVD	NA	SedMH
6/1/2007	ANP190[4]	9356	NA	PA	6200 NE MARTIN LUTHER KING BLVD	NA	SedMH
6/1/2007	ANP196[4]	9357	NA	PA	5949 NE MARTIN LUTHER KING BLVD	NA	SedMH
6/1/2007	ANP200[4]	9358	NA	PA	5900 NE MARTIN LUTHER KING BLVD	NA	SedMH
6/1/2007	ANP205[4]	9359	NA	PA	5800 NE MARTIN LUTHER KING BLVD	NA	SedMH
6/1/2007	ANP223[4]	9360	NA	PA	5700 NE MARTIN LUTHER KING BLVD	NA	SedMH
6/1/2007	ANP225[4]	9361	NA	PA	5600 NE MARTIN LUTHER KING BLVD	NA	SedMH
6/1/2007	ANP736	9363	Class V Injection Well	AC	6414 SE 129TH PL	<1000	SedMH
6/1/2007	ANP790	9364	Class V Injection Well	AC	1322 SE 164TH PL	<1000	SedMH
6/1/2007	ANP933	9365	Class V Injection Well	AC	1749 NE 157TH AVE	<1000	No Pretreatment
6/1/2007	ANQ481	9366	Class V Injection Well	UC	5229 N HAIGHT	<1000	SedMH
6/1/2007	ANS307	9367	Class V Injection Well	UC	7704 SE 60TH AVE	<1000	SedMH
6/1/2007	ANS260	9368	Class V Injection Well	UC	606 SE 119TH AVE	<1000	SedMH
6/1/2007	ANQ460	9371	Class V Injection Well	UC	301 N SUMNER	<1000	SedMH

[1] = Locations originally identified incorrectly as new UICs. Updated in later submittals as sedimentation manholes.

Table A-1 Public UICs Identified/ Constructed During FY06-07							
Date UIC Reported	BES Unit ID	UIC DEQ ID	EPA UIC Classification	Current Status3	UIC Location	Traffic Volume	Pre-treatment Type
[2] = UIC location currently active but identied to be abandoned in 07							
[3] = Status designations are as follows: (AC = Active), (PA = Plugged or Abandonded), (UC = Under Construction)							
[4] = Location newly identified as abandonded.							

Appendix B
Category 3 Non-Compliant Public UICs

Appendix B

Category 3 Non-Compliant Public UICs

I. Introduction

The Water Pollution Control Facility (WPCF) permit issued to the City of Portland (City) Bureau of Environmental Services (BES) by the Oregon Department of Environmental Quality (DEQ) in June 2005 defines four categories of non-compliant underground injection control systems (UICs):

Category 1: UICs known to be non-compliant with permit conditions upon the date of permit issuance.

Category 2: UICs identified to be non-compliant during the systemwide assessment.

Category 3: UICs identified to be non-compliant following completion of the systemwide assessment.

Category 4: UICs identified to be non-compliant by failing to meet the annual mean MADL (maximum allowable permit limit) within one wet season after the exceedance or failing to satisfy any groundwater protection conditions of permit Schedule A.

Permit Schedule F, Section 5 (gg) lists six non-compliant conditions. Conditions 1 through 4 address water quality limits and are applicable to Category 4. Category 4 UICs are identified when the annual mean stormwater pollutant concentration exceeds the MADL for two consecutive wet seasons [Schedule C, Section 10(b)]. Conditions 5 and 6 address separation distance. The permit requires that UICs more than 5 feet deep must have a minimum vertical separation distance of 10 feet between the bottom of the UIC and seasonal high groundwater. UICs less than 5 feet deep must have a minimum vertical separation distance of 5 feet.

This appendix presents the following:

- Identification of Category 3 UICs (Section II)
- Prioritized list of non-compliant UICs by Category 2, 3, and 4 (Section III)
- Status of non-compliant UICs by Category 2, 3, and 4 (Section IV)

This appendix also serves to notify DEQ in writing of the Category 3 UIC locations, as required by the permit, within 30 days after completion of the compliance determination

Twenty-nine (29) Category 2 UICs were identified in the December 1, 2006 *UIC Management Plan Annual Report No. 1*. Category 3 UICs are identified in Section II of

this appendix. Four (4) Category 4 UICs were identified in the *Annual Stormwater Discharge Monitoring Report – Year 1*, dated July 2006. (Information is summarized in Section 4.4.2 of this report.) Non-compliant UICs are further discussed by category in Sections II and III of this appendix and in Section 5 of this report.

II. Identification of Category 3 UICs

Background

The *Systemwide Assessment* report (July 2006) estimated separation distance for the approximately 9,000 UICs within the City's UIC system. Through a collaborative effort with DEQ and USGS, the City was able to demonstrate that the vast majority of City-owned UICs have adequate separation distance between the bottom of the UIC and seasonal high groundwater. Of the initial UICs evaluated, approximately 400 UICs were identified as potentially having inadequate separation distance. Most of these UICs are located within the Johnson Creek/ Holgate Lake and Columbia Slough areas. This preliminary identification of UICs in areas of shallow groundwater was intended to focus further evaluation efforts needed to address or confirm separation distance status.

Of the 400 identified UICs with the potential for inadequate separation distance, twenty-two (22) were determined to not pose a threat to groundwater quality because they are associated with the City's potable water supply, and therefore were not further evaluated. Twenty-nine (29) of the UICs were identified as Category 2 UICs (due to permit conditions 5 and 6), based on field verification of the systemwide assessment results. The method for identification of the 29 locations is discussed in the *UICMP Annual Report No. 1* (December 1, 2006). The Category 2 UICs are currently being addressed in accordance with the process described in the *Corrective Action Plan*[9] (CAP), as discussed in Section 5 of this report.

The remaining 349 UICs were identified for further evaluation in accordance with the *UIC Management Plan* (UICMP)—see Appendix H - *UIC Evaluation and Response Guideline No. 1: Separation Distance*). Further evaluation tasks are identified in the *Systemwide Assessment Follow-up Actions* workplan submitted to DEQ on December 1, 2006.

Further Evaluation of Separation Distance

Further evaluation of UICs with potentially inadequate separation distance was performed in accordance with Task 1 of the *Systemwide Assessment Follow-up Actions* workplan. The following activities were completed:

- Collected and refined information regarding the physical characteristics of the identified UICs to determine compliance status and to use in pre-design activities; reviewed and evaluated, as appropriate:

[9] The *Corrective Action Plan* was submitted to DEQ for review and approval on July 15, 2006. Approval is pending.

- *Flow test data*: Historical information collected by the City that documents flow tests completed on some City-owned UICs during construction and installation.
- *As-builts*: Design drawings used to identify projected construction depth and type of UIC installation. Some as-builts had field notes that provided groundwater depth or construction depth.
- *Hansen database*: In addition to specific construction information provided in the Hansen database, field notes are sometimes entered as a separate field. In some cases, these notes contained information specific to UIC characteristics that was not identified in the standard data fields.

- Collected and refined information regarding soil and groundwater characteristics in the vicinity of the identified UICs, in accordance with the applicable portions of UIC Evaluation and Response (UICER) *Guideline No. 1: Separation Distance* (see Appendix H of the UICMP) to further evaluate separation distance. This included compiling and reviewing:
  - Water well, monitoring well, geotechnical, soil boring, and test pit logs in areas of shallow groundwater to identify subsurface soil types and estimated depths to groundwater. Information was collected from BES, City of Portland Bureau of Development Services, USGS, DEQ, and other agencies such as the Oregon Water Resources Department (OWRD).
  - Compiled and reviewed regional and local information on geologic and hydrogeologic conditions in areas of shallow groundwater.
  - Obtained and reviewed updated USGS estimates of groundwater elevations in the Portland area and estimates of seasonal groundwater fluctuations.
- Updated the City of Portland's *Estimated Depth to Seasonal High Groundwater* map, based on new information received from the USGS (draft report titled *Estimation of Depth to Groundwater and Configuration of the Water Table in the Portland, Oregon Area* - Colleague Review Draft – dated April 24, 2007). It should be noted that the information presented in that report is draft and subject to change after USGS publication of the document.
- Developed hydrogeologic conceptual site models for areas with shallow groundwater by:
  - Reviewing available well logs and boring logs not used in the development of the USGS depth to groundwater map
  - Reviewing local and regional geologic/geotechnical studies
  - Reviewing area soil maps
- Estimated separation distances for City-owned UICs, using the updated USGS 2007 data.

- Compared locations of UICs estimated to have inadequate separation distance, based on the updated 2007 USGS data and the draft provisional 2006 USGS data. Based on revisions to the depth to groundwater map, the locations of the potentially non-compliant UICs shifted slightly. Use of the 2007 USGS data resulted in adding 52 UICs to the list of potentially non-compliant UICs and removing 56 UICs from the list (i.e., a net change of 4 UICs).

Category 3 Compliance Determinations

Category 3 UICs were identified in general accordance with the *Compliance Determination Procedure* presented in Appendix F of the UICMP and Task 1 of the *Systemwide Assessment Follow-up Actions* workplan.

The compliance status of the UICs identified for further evaluation in the UICMP *Annual Report No. 1* was reevaluated, using new and refined/updated information. In accordance with the *Compliance Determination Procedure*, a "weight-of-evidence" was used to determine UIC compliance. Category 3 UICs were identified using the 2007 *Estimated Depth to Seasonal High Groundwater* map and supporting information, including:

- Verbal communication with USGS that the depth to water data are unlikely to significantly change between the revised 2007 version and the final version to be published.
- Updated and/or refined construction information for selected UICs.
- Depth to water information obtained in areas of shallow groundwater from water wells (e.g., monitoring wells, piezometers) and soil borings not included in the USGS study.
- Professional judgment.

338 UICs were identified as non-compliant Category 3 UICs due to inadequate separation distance, based on a "weight-of-evidence" compliance determination. Category 3 UIC locations are listed in Table B-1. This table includes the following information:

- Location of each non-compliant UIC.
- Nature of the non-compliant condition.
- Estimated UIC depth.
- UIC pretreatment.
- Predominant land use.
- Estimated traffic volume.
- Estimated vertical separation distance.
- Distance to nearest well (e.g., domestic, irrigation, public).
- Determination of whether the UIC is located within the 2-year time of travel (TOT) of a public supply well.
- Identification of an appropriate general response action (CAP – Step 3) that represents a preliminary corrective action. (See Section II(iv)).
- UIC priority (see Section III).

Approximately 70 of the Category 3 UICs were determined to be non-compliant, based on the assumption that they are constructed to depths of 30 feet. Consistent with the assumption in the *Systemwide Assessment*, UICs without reported depths in the City's Hansen database are assumed to have a 30-foot depth for the purpose of estimating separation distance, based on current City construction standards. Actual depths of these UICs will be obtained during pre-design and design activities.

Map B-1 is a citywide map showing the following information:

- Estimated depth to seasonal high groundwater
- Locations of the 338 Category 3 UICs
- Locations of the 29 Category 2 UICs

Map B-2 is a map of the Holgate Lake area of southeast Portland. This map presents the same information as Map B-1, but at a more detailed scale. It shows 27 of the 29 Category 2 UICs and 257 of the 338 Category 3 UICs.

Category 3 UICs were defined using the best available information at the time of the compliance determination, using a weight-of-evidence approach. The determination procedure relies on the use of known and verifiable data to increase the confidence in the determination (i.e., reduce the chance of the determination changing) and to allow the City to focus its efforts and resources on known high-priority issues to ensure groundwater protection and permit compliance. However, these compliance determinations are subject to change because of the variability and uncertainty associated with environmental and subsurface data and the preliminary nature of the data used in making the determinations. It is anticipated that field investigations and pre-design activities implemented to verify UIC depths and subsurface conditions will likely change the list of Category 3 UICs over time. If new data or information of known and verifiable quality becomes available over time, compliance determination(s) may be revisited and the UIC compliance status reclassified (e.g., UICs determined to be non-compliant may be determined to be compliant and vice versa). Updated lists of non-compliant UICs will be presented in each annual report.

Category 3 Corrective Actions

Corrective actions for Category 3 UICs will be identified, evaluated and selected in accordance with the *Corrective Action Plan* and the *Systemwide Assessment Follow-up Actions* workplan. Planning and initial pre-design activities for Category 3 UICs were initiated in FY 2006/07 under the *Systemwide Assessment Follow-up Actions* workplan and will continue in FY 2007/08. (See Sections 4.3.3 and 5.4.2 of this report.)

Corrective actions for the identified Category 3 UICs are expected to include a range of alternatives, including:

- Decommissioning.

- Increasing separation distance (e.g., backfilling, installing shallower UIC sumps, horizontal UICs).
- Utilizing surface infiltration features (e.g., swales, curb extensions) combined with overflows to new shallow UICs or an existing piped system.
- Reducing separation distance for specific UICs or groups of UICs through a groundwater protectiveness demonstration (UICMP, Appendix H, UICER Guideline No. 6).

At this time, site-specific corrective actions have not been identified for each of the Category 3 UICs. However, the general response action anticipated (i.e., preliminary corrective action category) to address the non-compliant UIC is identified in Table B-1, as described in the *Corrective Action Plan*. The anticipated correction action is subject to change as site-specific information is collected and pre-design and design activities are performed. Corrective actions will be selected that are consistent with the corrective action standards and decision criteria identified in Tables 6-2 and 6-3 of the *Corrective Action Plan*. Once a corrective action is selected for each UIC, it will be reported in subsequent UICMP annual reports.

The permit requires corrective actions for Category 3 UICs to be completed by July 15, 2011. Completion dates for Category 3 UICs are subject to change if DEQ approves a regional corrective action for addressing UICs in areas of high groundwater, as allowed by the permit.

The status (e.g., planning, pre-design, design, construction planned, construction in-progress, construction completed, protectiveness evaluation) of Category 2, 3, and 4 non-compliant UICs as of October 5, 2007 is also presented in Table B-1.

III. Prioritization of Category 2, 3, and 4 UICs

Category 2, 3, and 4 non-compliant UICs were evaluated using the *UIC Prioritization Procedure* described in Appendix G of the UICMP.

Prioritization includes consideration of nine criteria: separation distance, distance to drinking water wells, land use, traffic volume, distance to surface water, pre-treatment, soil permeability, water quality, and pollutant mobility. The *UIC Prioritization Procedure* was generally applied as written, except as described in the following bullets:

- Proximity to drinking water wells (e.g., domestic, irrigation, public) scores were conservatively modified to assume all wells were completed in shallow groundwater. Therefore, UICs within 500 feet of a drinking water well or within a 2-year time of travel for a public water well were assigned a high criteria score. Well completion depths, screened intervals were not considered as described in the *UIC Prioritization Procedure*.

- Predominant land use was conservatively scored, based on zoning.

- Water quality and pollutant mobility scores for Category 4 UICs were based on site-specific data.

- Water quality and pollutant mobility default values were used for Category 2 and 3 UICs.

- The evaluator's assessment score was not used. The criterion was not used because site-specific information is not available for each location.

Application of the *UIC Prioritization Procedure* results in a numeric score that places each UIC is a high, medium, or low category. This procedure was developed as a means of assessing potential adverse impacts to groundwater quality. The results are intended to be used to categorize or rank UICs for further evaluation and/or corrective action. The prioritization results are presented in the Table B-1 for Category 2, 3 and 4 UICs. Each Category of UICs is presented in Table B-1 in descending order of the prioritization scores. The prioritization results indicate that the non-compliant UICs pose a low to medium threat to groundwater quality.

The prioritization results will be used as one of the factors to rank and schedule corrective actions in accordance with the *Corrective Action Plan*. At this time, all identified Category 2, 3, and 4 UICs are being currently being addressed in accordance with the procedures described in the *Corrective Action Plan*. Prioritization and ranking may be used in the future to:

- Identify groups of UICs in accordance with the *Systemwide Assessment Follow-up Actions* workplan.
- Develop corrective project phasing.
- Implement corrective actions.

Table B-1: Category 2, 3, and 4 UIC Prioritization and Status

UIC Compliance Category	Non-compliant Condition	Hansen UIC Node Number	Location [1]	Hansen UIC Depth (ft) [2]	Sedimentation Manhole (yes/no)	Predominant Landuse	Estimated Traffic Count	2007 Separation Distance [3] (ft)	Distance to Nearest Well (ft) [4]	Within 2=year time of travel (yes/no)	UIC Priority [5]	Target Compliance Date [6]	Anticipated Corrective Action [7]	FY06-07 Project Status	FY07-08 Planned Activities
2	Separation Distance	ADU741	13100 SE RAYMOND ST	30	YES	SFR	314	-8.0	368	NO	Medium	Nov. 2010	Increase Separation Distance	Predesign	Design
2	Separation Distance	ADT737	6300 SE 142ND AVE	30	YES	SFR	14,500	-6.4	505	NO	Medium	Nov. 2010	Increase Separation Distance	Predesign	Design
2	Separation Distance	AMR712	6300 SE 142ND AVE	25.5	YES	SFR	14,500	-2.5	512	NO	Medium	Nov. 2010	Increase Separation Distance	Predesign	Design
2	Separation Distance	ADT686	12210 SE ELLIS ST	27	YES	MFR	11,461	-6.6	1,268	NO	Medium	Nov. 2010	Increase Separation Distance	Predesign	Design
2	Separation Distance	ACK372	5432 SE 118TH AVE	18	YES	MFR	369	6.7	381	NO	Medium	Nov. 2010	Increase Separation Distance	Predesign	Design
2	Separation Distance	ADU737	12790 SE STEELE ST	25	YES	SFR	1,544	-5.3	1,256	NO	Medium	Nov. 2010	Increase Separation Distance	Predesign	Design
2	Separation Distance	ADW268	5201 SE 122ND AVE	20	NO	MFR	11,953	1.3	1,187	NO	Medium	Nov. 2010	Increase Separation Distance	Predesign	Design
2	Separation Distance	ADS535	2704 SE 18TH AVE	30	YES	SFR	2,315	-5.8	2,666	NO	Low	Nov. 2010	Increase Separation Distance	Predesign	Design
2	Separation Distance	ADV195	11910 SE REEDWAY ST	30.9	YES	MFR	216	-12.8	684	NO	Low	Nov. 2010	Increase Separation Distance	Predesign	Design
2	Separation Distance	ADU739	12852 SE RAYMOND ST	26	YES	SFR	314	-9.2	688	NO	Low	Nov. 2010	Increase Separation Distance	Predesign	Design
2	Separation Distance	AMV633	13605 SE REEDWAY ST	30	YES	MFR	9,566	4.9	829	NO	Low	Nov. 2010	Increase Separation Distance	Predesign	Design
2	Separation Distance	ADU730	5239 SE 112TH AVE	30.1	YES	SFR	NA	-3.6	1,108	NO	Low	Nov. 2010	Increase Separation Distance	Predesign	Design
2	Separation Distance	ADU751	12204 SE STEELE ST	20.4	YES	MFR	11,953	1.0	1,408	NO	Low	Nov. 2010	Increase Separation Distance	Predesign	Design
2	Separation Distance	AMX684	13220 SE MALL ST	25.1	YES	SFR	186	-8.6	1,410	NO	Low	Nov. 2010	Increase Separation Distance	Predesign	Design
2	Separation Distance	ADT695	12410 SE ELLIS ST	28.9	YES	SFR	236	-7.7	1,872	NO	Low	Nov. 2010	Increase Separation Distance	Predesign	Design
2	Separation Distance	ADU742	4739 SE 128TH AVE	15	YES	SFR	1,778	1.8	858	NO	Low	Nov. 2010	Increase Separation Distance	Predesign	Design
2	Separation Distance	ADU748	4680 SE 128TH AVE	14	YES	SFR	1,877	3.2	915	NO	Low	Nov. 2010	Increase Separation Distance	Predesign	Design
2	Separation Distance	ADU747	12728 SE LONG ST	14.2	YES	SFR	1,877	3.1	952	NO	Low	Nov. 2010	Increase Separation Distance	Predesign	Design
2	Separation Distance	ACP664	5704 SE 99TH AVE	30	YES	SFR	557	4.3	2,557	NO	Low	Nov. 2010	Increase Separation Distance	Predesign	Design
2	Separation Distance	ADV128	5708 SE 99TH AVE	30	YES	SFR	557	4.2	2,559	NO	Low	Nov. 2010	Increase Separation Distance	Predesign	Design
2	Separation Distance	ANA606	12048 SE RAYMOND ST	20	NO	MFR	463	1.8	866	NO	Low	Nov. 2010	Increase Separation Distance	Predesign	Design
2	Separation Distance	AMR769	11605 SE LONG ST	31	YES	SFR	NA	1.5	526	NO	Low	Nov. 2010	Increase Separation Distance	Predesign	Design
2	Separation Distance	ADU745	12532 SE LONG ST	15	YES	SFR	195	3.8	683	NO	Low	Nov. 2010	Increase Separation Distance	Predesign	Design
2	Separation Distance	AMT956	5120 SE 118TH AVE	24	YES	MFR	369	1.3	795	NO	Low	Nov. 2010	Increase Separation Distance	Predesign	Design
2	Separation Distance	ADU746	4680 SE 127TH AVE	16	YES	SFR	286	2.2	825	NO	Low	Nov. 2010	Increase Separation Distance	Predesign	Design
2	Separation Distance	ADT427	4118 SE 132ND AVE	30	YES	SFR	NA	0.8	1,214	NO	Low	Nov. 2010	Increase Separation Distance	Predesign	Design
2	Separation Distance	AMP310	13915 SE REEDWAY ST	22.6	YES	SFR	180	6.1	561	NO	Low	Nov. 2010	Increase Separation Distance	Predesign	Design
2	Separation Distance	ACZ265	7891 SE 46TH AVE	30	YES	SFR	299	6.6	1,664	NO	Low	Nov. 2010	Increase Separation Distance	Predesign	Design
2	Separation Distance	ADT990	9703 SE CLAYBOURNE ST	30.2	YES	MFR	393	5.4	3,279	NO	Low	Nov. 2010	Increase Separation Distance	Predesign	Design
3	Separation Distance	ADW252	13001 SE HOLGATE BLVD	0	NO	COM	14,463	-0.8	343	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW251	12198 SE HOLGATE BLVD	0	NO	COM	14,463	-0.4	429	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW264	5450 SE 114TH PL	0	NO	SFR	3,642	-5.7	419	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW304	11741 SE FOSTER RD	19	NO	IND	25,775	-4.5	1,281	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW303	11501 SE FOSTER RD	0	NO	IND	25,775	-20.4	1,249	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADR046	3808 NE 156TH AVE	30	YES	MFR	13,444	-1.1	360	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT459	4344 SE 138TH PL	30	YES	SFR	735	-9.0	219	YES	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV193	5710 SE 115TH AVE	24	YES	SFR	521	-2.3	313	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW312	11540 SE FOSTER RD	18	NO	COM	25,775	-8.1	1,292	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV391	7823 NE COLUMBIA BLVD	0	NO	IND	21,309	-1.0	2,555	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV392	7824 NE COLUMBIA BLVD	0	NO	IND	21,309	-2.3	2,676	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV393	7940 NE COLUMBIA BLVD	0	NO	IND	24,196	-3.0	2,760	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ANB177	8110 NE COLUMBIA BLVD	0	NO	IND	24,196	-5.6	2,986	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADU749	12220 SE HOLGATE BLVD	24	YES	COM	5,249	4.7	275	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW281	4504 SE 122ND AVE	19	NO	COM	12,589	8.9	325	NO	Medium	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADW242	11490 SE LIEBE ST	0	NO	SFR	604	2.1	230	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ACQ013	11716 SE FOSTER RD	0	NO	MFR	25,775	-13.3	1,332	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW254	4549 SE 122ND AVE	21	NO	MFR	12,589	5.7	326	NO	Medium	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ADW253	4549 SE 122ND AVE	20	NO	MFR	12,589	7.0	371	NO	Medium	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADW276	4700 SE 122ND AVE	19	NO	MFR	12,589	6.0	477	NO	Medium	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ADT451	4490 SE 125TH AVE	20	YES	SFR	5,249	4.2	487	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADU740	13120 SE RAYMOND ST	26	YES	SFR	314	-1.9	377	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ANA609	11736 SE INSLEY ST	0	YES	MFR	369	-4.7	431	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV121	6200 SE 102ND AVE	30	YES	IND	27,607	-1.7	2,461	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADP904	8521 NE COLUMBIA BLVD	31	YES	IND	22,873	-4.4	4,008	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT423	12200 SE HOLGATE BLVD	20	YES	COM	14,463	9.4	373	NO	Medium	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADW228	5436 SE 108TH AVE	18	NO	SFR	3,826	8.4	436	NO	Medium	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	PRK140	N Victory Blvd	3	NO	POS	NA	3.2	268	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design

Table B-1: Category 2, 3, and 4 UIC Prioritization and Status

UIC Compliance Category	Non-compliant Condition	Hansen UIC Node Number	Location [1]	Hansen UIC Depth (ft) [2]	Sedimentation Manhole (yes/no)	Predominant Landuse	Estimated Traffic Count	2007 Separation Distance [3] (ft)	Distance to Nearest Well (ft) [4]	Within 2=year time of travel (yes/no)	UIC Priority [5]	Target Compliance Date [6]	Anticipated Corrective Action [7]	FY06-07 Project Status	FY07-08 Planned Activities
3	Separation Distance	PRK142	N Victory Blvd	3	NO	POS	NA	2.8	284	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	PRK141	N Victory Blvd	3	NO	POS	NA	2.6	303	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	PRK135	N Victory Blvd	2	NO	POS	NA	4.6	434	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	AMR771	4736 SE 115TH AVE	31	YES	SFR	821	3.6	449	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT468	13630 SE CENTER ST	28.4	YES	MFR	898	2.7	455	YES	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	PRK133	N Victory Blvd	3	NO	POS	NA	3.3	490	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW241	11490 SE LONG ST	0	NO	SFR	821	5.8	494	NO	Medium	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	AAC311	1445 NE MARINE DR	0	NO	SFR	11,064	-19.6	567	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ANB185	6245 NE 80TH AVE	0	NO	IND	2,900	-26.5	1,978	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ANB179	6015 NE 80TH AVE	0	NO	IND	6,658	-16.4	2,423	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT433	12323 SE HOLGATE BLVD	21.8	YES	MFR	5,249	5.8	230	NO	Medium	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ADU733	12150 SE PARDEE ST	16.33	YES	MFR	12,589	9.6	490	NO	Medium	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADW255	4601 SE 118TH AVE	0	NO	MFR	369	3.1	395	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW229	5436 SE 109TH AVE	20.5	NO	SFR	461	3.2	444	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	AMR553	8100 SE CRYSTAL SPRINGS	30	YES	IND	895	-12.8	1,136	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW275	12150 SE HAROLD ST	22	NO	COM	11,646	-1.5	1,160	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ANA900	1839 NE MARINE DR	0	NO	SFR	11,064	-18.6	1,196	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ANA899	1801 NE MARINE DR	0	NO	SFR	11,064	-19.6	1,196	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV974	10900 NE MARX ST	16.3	NO	IND	1,714	-0.8	1,786	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ANB182	6135 NE 80TH AVE	0	NO	IND	2,900	-25.9	2,178	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT722	5920 SE 138TH PL	19	YES	SFR	735	7.6	200	NO	Medium	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADT721	13810 SE KNIGHT ST	18	YES	SFR	735	9.2	303	NO	Medium	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADV194	5524 SE 115TH AVE	18	YES	SFR	521	6.0	461	NO	Medium	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ADW261	4919 SE 122ND AVE	0	NO	MFR	12,138	-9.0	937	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADU725	4908 SE 122ND AVE	0	NO	MFR	12,138	-9.0	974	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW313	5601 SE 122ND AVE	24	NO	MFR	11,400	-3.7	1,181	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV204	5825 SE 122ND AVE	25	YES	IND	11,031	-7.5	1,460	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT682	5803 SE 122ND AVE	27	YES	IND	11,133	-11.4	1,615	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV384	8111 NE HOLMAN ST	0	NO	IND	NA	-27.1	2,314	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADU727	4903 SE 114TH AVE	30	YES	SFR	182	3.4	243	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW259	11943 SE LIEBE ST	17	NO	MFR	273	7.0	422	NO	Medium	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADW230	5440 SE 111TH AVE	0	NO	SFR	1,848	-7.5	639	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ANA587	13008 SE HOLGATE BLVD	0	NO	SFR	4,710	-14.2	894	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ANA889	11305 SE HAROLD ST	0	NO	SFR	3,295	-8.3	920	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	AMY402	11246 SE HAROLD ST	0	NO	SFR	3,295	-8.7	928	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ANA596	13033 SE HOLGATE BLVD	0	NO	SFR	4,710	-14.9	928	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ANA598	4425 SE 130TH AVE	0	NO	SFR	4,814	-12.4	970	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV385	7550 NE COLUMBIA BLVD	0	NO	IND	21,309	9.6	1,639	NO	Medium	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADV387	7616 NE COLUMBIA BLVD	0	NO	IND	21,309	7.1	1,953	NO	Medium	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADV390	7626 NE COLUMBIA BLVD	0	NO	IND	21,309	6.2	2,038	NO	Medium	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ADW302	6300 SE 103RD AVE	19	NO	IND	27,474	6.3	2,326	NO	Medium	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ADV181	10200 SE FOSTER RD	20	NO	IND	27,607	8.0	2,466	NO	Medium	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	AMX688	4406 SE 136TH AVE	22.75	YES	SFR	9,961	-4.1	647	YES	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT471	13612 SE CORA ST	21	YES	SFR	10,104	-1.0	771	YES	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT475	4241 SE 136TH AVE	27	YES	SFR	10,104	-7.7	798	YES	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ACK562	13600 SE HOLGATE BLVD	30	YES	SFR	9,961	-2.4	849	YES	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ACK563	13600 SE HOLGATE BLVD	30	YES	SFR	9,961	-2.8	867	YES	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ACK564	13600 SE HOLGATE BLVD	30	YES	SFR	9,961	-3.1	884	YES	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADR045	3737 NE 156TH AVE	30	YES	MFR	470	4.6	453	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADR047	3838 NE 154TH AVE	30	YES	MFR	13,300	-1.2	624	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV203	5918 SE 122ND AVE	30	YES	MFR	10,908	-0.9	1,096	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT690	12221 SE REEDWAY ST	27	YES	MFR	11,400	-7.3	1,308	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW310	6302 SE FOSTER PL	0	NO	MFR	25,775	5.7	1,499	NO	Medium	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ADW321	5732 SE 122ND AVE	20	NO	MFR	11,195	-3.0	1,544	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ANA563	5732 SE 122ND AVE	0	NO	MFR	11,195	-12.7	1,569	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ST17A	848 N TOMAHAWK ISLAND DR	11	YES	COM	NA	-3.4	2,882	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADU769	13600 SE HOLGATE BLVD	30	YES	SFR	4,568	-3.5	901	YES	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design

Table B-1: Category 2, 3, and 4 UIC Prioritization and Status

UIC Compliance Category	Non-compliant Condition	Hansen UIC Node Number	Location [1]	Hansen UIC Depth (ft) [2]	Sedimentation Manhole (yes/no)	Predominant Landuse	Estimated Traffic Count	2007 Separation Distance [3] (ft)	Distance to Nearest Well (ft) [4]	Within 2=year time of travel (yes/no)	UIC Priority [5]	Target Compliance Date [6]	Anticipated Corrective Action [7]	FY06-07 Project Status	FY07-08 Planned Activities
3	Separation Distance	ACK566	13400 SE RAYMOND ST	30	YES	MFR	314	8.2	160	NO	Medium	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADU770	13400 SE RAYMOND ST	30	YES	MFR	314	8.0	171	NO	Medium	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADT439	13036 SE BUSH PL	30	YES	SFR	NA	9.9	315	NO	Medium	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADU736	12332 SE LONG ST	15.5	YES	MFR	195	7.1	428	NO	Medium	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ACK389	5034 SE 114TH AVE	20	YES	SFR	182	9.0	482	NO	Medium	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADV191	11080 SE HAROLD ST	22.9	YES	SFR	3,791	-1.9	543	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW250	12160 SE HOLGATE BLVD	0	NO	COM	13,104	0.3	573	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	PRK127	N Victory Blvd	3	NO	POS	NA	-5.1	590	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	PRK125	N Victory Blvd	3	NO	POS	NA	-4.8	602	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADU735	5500 SE 121ST AVE	30	YES	MFR	4,885	-7.7	955	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADU734	5423 SE 121ST AVE	30	YES	MFR	806	-7.3	981	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	AMY600	13515 SE HOLGATE BLVD	21	YES	MFR	4,568	-4.3	1,009	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ANA589	13250 SE HOLGATE BLVD	0	YES	SFR	4,710	-19.5	1,020	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ANA590	13250 SE HOLGATE BLVD	0	YES	SFR	4,710	-19.6	1,024	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ANA591	13250 SE HOLGATE BLVD	0	YES	SFR	4,710	-19.6	1,027	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADU768	13500 SE HOLGATE BLVD	30	YES	SFR	4,568	-12.3	1,028	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ANA592	13250 SE HOLGATE BLVD	0	YES	SFR	4,710	-19.7	1,031	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ACK560	13500 SE HOLGATE BLVD	30	YES	SFR	4,568	-12.7	1,031	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADU738	5031 SE 128TH AVE	30	YES	SFR	1,544	-11.0	1,060	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADU722	5208 SE 111TH AVE	30.6	YES	SFR	2,563	-0.8	1,122	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT455	4332 SE 130TH AVE	30	YES	SFR	1,606	-7.7	1,256	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADU756	13000 SE HAROLD ST	30	YES	SFR	1,371	-1.3	1,287	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADU755	13000 SE HAROLD ST	29	YES	SFR	1,341	-3.1	1,307	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV187	10298 SE ELLIS ST	24	YES	SFR	1,051	-0.1	1,427	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT696	12319 SE RAMONA ST	20.2	YES	MFR	1,089	-2.0	1,545	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV961	7920 SE 79TH AVE	31	YES	SFR	816	-0.4	1,774	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT689	5544 SE 128TH AVE	30	YES	SFR	1,298	-7.2	1,781	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ANB108	11020 NE MARX ST	16	NO	IND	1,714	3.1	1,817	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	AMS283	12500 SE HAROLD ST	25	YES	SFR	1,477	-4.7	1,986	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV122	6300 SE 102ND AVE	21	YES	IND	27,607	7.3	2,530	NO	Medium	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADV158	6210 SE 101ST AVE	29	YES	IND	836	0.5	2,600	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW286	3039 SE TOLMAN ST	30.2	NO	SFR	1,503	-2.0	3,575	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	BGS001	800 NW 6TH AVE	12.1	NO	COM	NA	-3.5	4,458	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV244	3954 SE 136TH AVE	30	NO	MFR	10,205	2.3	560	YES	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	PRK130	N Victory Blvd	3	NO	POS	NA	-3.2	509	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	PRK129	N Victory Blvd	3	NO	POS	NA	-4.4	533	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	PRK128	N Victory Blvd	3	NO	POS	NA	-4.3	533	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	PRK136	N Victory Blvd	3	NO	POS	NA	-0.6	602	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	PRK126	N Victory Blvd	3	NO	POS	NA	-4.9	609	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW256	4745 SE 122ND AVE	20	NO	MFR	12,363	4.3	661	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	PRK137	N Victory Blvd	3	NO	POS	NA	0.0	675	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW257	4754 SE 122ND AVE	22	NO	MFR	12,363	1.5	682	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	PRK138	N Victory Blvd	3	NO	POS	NA	-0.2	721	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	PRK139	N Victory Blvd	3	NO	POS	NA	-0.4	735	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV226	11829 SE HOLGATE BLVD	0	NO	MFR	13,104	3.9	751	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW227	5350 SE 109TH AVE	0	NO	SFR	461	-1.4	784	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW262	5222 SE 113TH AVE	0	NO	SFR	450	-2.4	833	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV227	11951 SE HOLGATE BLVD	0	NO	MFR	13,104	1.8	847	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW258	4857 SE 122ND AVE	21	NO	MFR	12,261	1.3	884	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ACK357	4918 SE 122ND AVE	20	NO	MFR	12,138	0.8	988	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW265	12150 SE RAYMOND ST	16.5	NO	MFR	12,138	4.5	1,006	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV976	13100 NE SANDY BLVD	19	NO	COM	20,925	8.4	1,066	NO	Medium	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADW266	5000 SE 122ND AVE	20	NO	MFR	12,138	0.7	1,080	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW267	5021 SE 122ND AVE	20	NO	MFR	11,953	1.6	1,148	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW274	5500 SE 122ND AVE	20.2	NO	MFR	11,646	0.6	1,231	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW273	5436 SE 122ND AVE	17.5	NO	MFR	11,646	3.5	1,244	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW271	5403 SE 122ND AVE	21	NO	MFR	11,646	0.9	1,279	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design

Table B-1: Category 2, 3, and 4 UIC Prioritization and Status

UIC Compliance Category	Non-compliant Condition	Hansen UIC Node Number	Location [1]	Hansen UIC Depth (ft) [2]	Sedimentation Manhole (yes/no)	Predominant Landuse	Estimated Traffic Count	2007 Separation Distance [3] (ft)	Distance to Nearest Well (ft) [4]	Within 2=year time of travel (yes/no)	UIC Priority [5]	Target Compliance Date [6]	Anticipated Corrective Action [7]	FY06-07 Project Status	FY07-08 Planned Activities
3	Separation Distance	ADW269	5211 SE 122ND AVE	22	NO	MFR	11,953	1.0	1,297	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW272	5404 SE 122ND AVE	17.9	NO	MFR	11,646	3.6	1,323	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV205	5906 SE 122ND AVE	28	YES	MFR	11,031	-9.7	1,442	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT716	12140 SE RAMONA ST	28	YES	POS	11,195	-11.5	1,482	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT683	12230 SE RAMONA ST	19.5	YES	MFR	11,133	-3.6	1,593	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADU027	8434 SE 7TH AVE	30	YES	SFR	780	-5.1	1,790	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ANS138	606 N TOMAHAWK ISLAND DR	0	NO	NA	NA	-27.8	2,302	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV118	10104 SE WOODSTOCK BLVD	0	YES	IND	795	0.8	2,602	NO	Medium	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW233	5500 SE 104TH AVE	0	NO	SFR	4,096	0.5	1,045	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV188	10310 SE ELLIS ST	22	NO	SFR	1,051	1.1	1,322	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV386	7550 NE COLUMBIA BLVD	0	NO	POS	21,309	9.1	1,638	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADV388	7616 NE COLUMBIA BLVD	0	NO	POS	21,309	6.2	1,952	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ADV389	7626 NE COLUMBIA BLVD	0	NO	POS	21,309	5.4	2,038	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ANA841	9956 SE HAROLD ST	30	NO	SFR	3,892	4.9	2,354	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADU205	805 SE MARION ST	32	YES	SFR	631	-0.3	2,429	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ANA271	10000 SE WOODSTOCK CT	30	YES	IND	2,082	2.3	3,002	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	AMX686	4406 SE 135TH AVE	25.4	YES	SFR	186	-9.6	1,003	YES	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ANA601	12110 SE PARDEE ST	0	YES	MFR	124	-3.9	566	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV197	5605 SE 120TH AVE	26	YES	MFR	192	-4.4	680	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADU732	11945 SE RAYMOND ST	30	YES	MFR	491	-6.3	681	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT730	14037 SE FOSTER RD	30	YES	SFR	14,500	3.8	780	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW260	12199 SE LIEBE ST	17	NO	MFR	12,261	5.1	873	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ADV196	12010 SE REEDWAY ST	28	YES	MFR	205	-11.0	962	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT408	11599 SE HOLGATE BLVD	0	NO	SFR	10,053	9.4	997	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADV190	10402 SE ELLIS ST	21	YES	SFR	279	-0.5	1,003	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADU754	13030 SE MITCHELL ST	30	YES	SFR	178	-2.3	1,008	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADU753	13030 SE MITCHELL ST	30	YES	SFR	178	-2.3	1,010	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT454	12830 SE HOLGATE BLVD	20.3	YES	SFR	5,035	0.1	1,045	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADU731	11134 SE STEELE ST	30.1	YES	SFR	173	-1.7	1,074	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV202	5961 SE 122ND AVE	22.7	YES	MFR	11,031	3.5	1,172	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT466	4100 SE 133RD AVE	30	YES	SFR	389	-0.3	1,286	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT464	13326 SE CORA ST	25	YES	SFR	418	-2.2	1,363	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT426	4144 SE 132ND AVE	30	YES	SFR	NA	-0.8	1,399	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT687	12246 SE ELLIS ST	25	YES	SFR	224	-4.1	1,463	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	PRK011	SW Ankeny/Ash	0.5	NO	COM	NA	3.9	1,629	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV950	8318 SE 78TH AVE	26	YES	SFR	86	-8.7	1,849	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT688	12532 SE ELLIS ST	30	YES	SFR	236	-8.6	2,137	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT691	12506 SE REEDWAY ST	25	YES	SFR	187	-4.0	2,151	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV169	10064 SE WOODSTOCK BLVD	25.75	YES	IND	795	6.0	2,710	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	AMR622	13515 SE HOLGATE BLVD	21	YES	MFR	4,568	1.2	960	YES	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ANB020	13460 SE BUSH ST	0	NO	MFR	847	9.7	942	YES	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	PRK132	N Victory Blvd	3	NO	POS	NA	1.9	512	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	PRK134	N Victory Blvd	2	NO	POS	NA	4.2	524	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	PRK131	N Victory Blvd	3	NO	POS	NA	1.6	596	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ANL730	11465 SE PARDEE ST	0	NO	SFR	864	8.4	702	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADW222	5498 SE 105TH AVE	20	NO	SFR	3,946	8.8	755	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ANB021	3700 SE 134TH AVE	0	NO	SFR	870	9.8	830	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADU743	12780 SE SCHILLER ST	15.4	YES	SFR	1,778	1.6	898	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT457	13044 SE CENTER ST	30	YES	SFR	849	4.7	925	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ACK276	4906 SE 111TH AVE	0	NO	SFR	2,563	6.0	984	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ADT458	13136 SE CENTER ST	30	YES	SFR	860	3.0	986	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV328	11098 SE SCHILLER ST	0	NO	SFR	2,563	9.8	1,071	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADT453	12920 SE HOLGATE BLVD	19.6	YES	SFR	4,814	0.7	1,112	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADU757	5506 SE 130TH AVE	30	YES	SFR	1,371	1.1	1,334	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ACP887	10304 SE ELLIS ST	19	YES	SFR	1,051	4.5	1,372	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	AMT874	5712 SE 103RD AVE	20	YES	SFR	1,109	1.9	1,444	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ACP891	10246 SE ELLIS ST	20	YES	SFR	1,051	4.3	1,478	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design

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UIC Compliance Category	Non-compliant Condition	Hansen UIC Node Number	Location [1]	Hansen UIC Depth (ft) [2]	Sedimentation Manhole (yes/no)	Predominant Landuse	Estimated Traffic Count	2007 Separation Distance[3] (ft)	Distance to Nearest Well (ft) [4]	Within 2=year time of travel (yes/no)	UIC Priority [5]	Target Compliance Date[6]	Anticipated Corrective Action[7]	FY06-07 Project Status	FY07-08 Planned Activities
3	Separation Distance	ADT697	12427 SE RAMONA ST	20.7	YES	MFR	1,089	2.5	1,547	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ANA584	12846 SE RAMONA ST	0	NO	SFR	1,324	6.0	1,829	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ADV144	5905 SE 102ND AVE	21	YES	SFR	553	4.7	1,961	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV146	5980 SE 102ND AVE	22	YES	SFR	688	3.9	1,987	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV129	10104 SE REEDWAY ST	22	NO	SFR	606	6.8	2,000	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ACP682	5988 SE 102ND AVE	22	YES	SFR	688	4.1	2,004	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV123	5536 SE 101ST AVE	22	NO	SFR	606	7.7	2,023	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ACP656	5600 SE 101ST AVE	20	NO	SFR	606	9.7	2,024	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ACP666	10100 SE REEDWAY ST	21	NO	SFR	606	8.1	2,025	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ACP657	5600 SE 101ST AVE	21	NO	SFR	606	8.6	2,026	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADV124	5608 SE 101ST AVE	22	NO	SFR	606	7.4	2,028	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADV154	6034 SE 102ND AVE	26	YES	SFR	894	0.9	2,130	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ACP693	6036 SE 102ND AVE	22	YES	SFR	894	4.9	2,160	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV161	10004 SE HAROLD ST	30	YES	SFR	3,892	4.5	2,305	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ACP660	5608 SE 99TH AVE	30	YES	SFR	557	5.0	2,534	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ADV126	5608 SE 99TH AVE	30	YES	SFR	557	4.9	2,535	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV137	5828 SE 99TH AVE	30	YES	SFR	557	3.7	2,642	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW285	5737 SE 15TH AVE	30	NO	MFR	970	1.1	3,923	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	PRK053	SE Sherrett/SE 21st	2	NO	POS	NA	8.6	5,112	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	PRK054	SE Sherrett/SE 21st	2	NO	POS	NA	8.1	5,135	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	PRK052	SE Sherrett/SE 21st	2	NO	POS	NA	6.3	5,146	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	AMX933	3838 SE 136TH AVE	30	YES	MFR	10,240	6.3	650	YES	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	AMR610	4560 SE 136TH AVE	13	YES	MFR	9,961	9.6	741	YES	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADN954	300 NE WINCHELL ST	30	YES	IND	250	1.9	530	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	AAJ188	300 NE WINCHELL ST	30	YES	IND	250	2.5	559	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADU750	12612 SE HOLGATE BLVD	14.5	YES	SFR	5,035	6.9	719	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ADU729	12140 SE SCHILLER ST	15.9	YES	MFR	12,363	8.2	757	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADW226	5310 SE 108TH AVE	0	NO	SFR	304	1.4	802	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV332	5515 SE 105TH AVE	0	NO	SFR	304	4.5	1,008	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW248	12024 SE RAYMOND ST	18	NO	MFR	NA	3.8	1,089	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ACP889	10357 SE ELLIS ST	19	NO	SFR	279	2.3	1,104	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADN310	5120 N COLUMBIA BLVD	0	YES	IND	NA	3.5	1,112	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW224	5104 SE 109TH AVE	0	NO	SFR	461	4.2	1,210	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ACP892	10324 SE ELLIS ST	21	NO	SFR	142	1.5	1,247	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV959	8154 SE MALDEN ST	29	YES	IND	201	7.0	1,773	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ANA264	10000 SE WOODSTOCK BLVD	30	YES	IND	356	3.3	2,929	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT460	13910 SE CORA ST	16	YES	SFR	735	5.6	525	YES	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ADT448	3815 SE 131ST AVE	30	YES	SFR	759	7.4	585	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADR048	3734 NE 154TH AVE	30	YES	MFR	NA	4.0	734	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT449	13190 SE FRANCIS ST	30.8	YES	SFR	759	5.5	735	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ADT436	3938 SE 130TH AVE	30	YES	SFR	1,735	7.4	795	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADT450	12980 SE CENTER ST	30	YES	SFR	1,735	7.3	911	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADU724	5420 SE 113TH AVE	17	YES	SFR	3,295	5.2	929	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ADT456	13010 SE CENTER ST	27	YES	SFR	1,735	8.9	946	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	PRK039	SW Iowa/55th St	13	NO	POS	NA	5.2	1,248	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ADT698	12559 SE RAMONA ST	23.8	YES	MFR	1,089	6.1	1,592	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ADU686	5500 SE 101ST AVE	24	YES	SFR	3,994	8.9	2,018	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADV133	5736 SE 101ST AVE	22	YES	SFR	634	7.3	2,088	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ACP670	5740 SE 101ST AVE	21	YES	SFR	634	8.2	2,094	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADV138	5832 SE 101ST AVE	21	YES	SFR	675	7.6	2,161	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADV114	5600 SE 97TH AVE	30	YES	SFR	1,090	9.7	2,162	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ACP675	5838 SE 101ST AVE	21	YES	SFR	675	7.5	2,169	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADU707	5420 SE 99TH AVE	0	YES	SFR	4,748	9.0	2,170	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ACK084	5500 SE 99TH AVE	0	YES	SFR	4,748	8.6	2,197	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADV160	9842 SE HAROLD ST	30	YES	SFR	4,748	7.7	2,267	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADV173	6000 SE 101ST AVE	21	YES	SFR	675	7.0	2,273	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADU689	5470 SE 100TH AVE	30	YES	SFR	3,892	5.9	2,361	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design

Table B-1: Category 2, 3, and 4 UIC Prioritization and Status

UIC Compliance Category	Non-compliant Condition	Hansen UIC Node Number	Location [1]	Hansen UIC Depth (ft) [2]	Sedimentation Manhole (yes/no)	Predominant Landuse	Estimated Traffic Count	2007 Separation Distance[3] (ft)	Distance to Nearest Well (ft) [4]	Within 2=year time of travel (yes/no)	UIC Priority [5]	Target Compliance Date[6]	Anticipated Corrective Action[7]	FY06-07 Project Status	FY07-08 Planned Activities
3	Separation Distance	ADV115	5700 SE 97TH AVE	30	YES	SFR	991	7.7	2,399	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADV171	10110 SE MARTINS ST	20	YES	SFR	723	8.2	2,402	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADV951	8312 SE 75TH PL	30	YES	SFR	501	5.2	2,515	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ADV117	5790 SE 97TH AVE	30	YES	SFR	991	6.8	2,521	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ADV125	5600 SE 99TH AVE	30	YES	SFR	557	5.2	2,526	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ACP637	5798 SE 97TH AVE	30	YES	SFR	991	6.7	2,544	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ADV120	9700 SE KNIGHT ST	30	YES	MFR	991	6.4	2,756	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ADV149	6002 SE 99TH AVE	26.5	YES	SFR	557	7.0	2,788	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ACP810	6034 SE 99TH AVE	24.5	YES	SFR	557	8.6	2,809	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADV139	5900 SE 98TH AVE	26	YES	MFR	544	9.9	2,910	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADV168	6490 SE 99TH AVE	29.5	YES	MFR	557	4.6	3,037	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW289	3522 SE MARTINS ST	30	NO	SFR	628	9.2	3,055	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADV174	9704 SE YUKON ST	29.5	YES	MFR	991	7.2	3,079	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADV184	9903 SE WOODSTOCK CT	0	YES	MFR	557	4.4	3,167	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW837	8028 SE 37TH AVE	30	NO	SFR	1,809	9.6	3,818	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADT473	13820 SE GLADSTONE ST	20.9	YES	SFR	430	4.0	520	YES	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT472	13722 SE CORA ST	19	YES	SFR	413	1.2	551	YES	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT474	13658 SE CORA ST	19.7	YES	SFR	413	0.5	610	YES	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT477	4100 SE 140TH AVE	30	YES	SFR	433	2.0	736	YES	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	AMR318	13928 SE BOISE CT	25.5	YES	SFR	NA	3.9	764	YES	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	PRK113	N Crawford/Pittsburgh	6	NO	POS	NA	8.6	554	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADR053	15420 NE ALTON ST	30	YES	MFR	NA	1.2	609	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADU744	12524 SE SCHILLER ST	16	YES	SFR	416	2.3	824	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ANN967	6321 NE 66TH AVE	0	NO	SFR	439	8.5	882	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADR037	3948 NE 144TH AVE	0	NO	SFR	NA	1.0	898	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADN309	5200 N COLUMBIA BLVD	0	YES	IND	266	6.8	1,035	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ADV189	10398 SE ELLIS ST	20	YES	SFR	279	0.9	1,054	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT465	4024 SE 134TH AVE	24	YES	SFR	418	4.6	1,114	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADU758	12908 SE MITCHELL ST	21	YES	SFR	178	1.9	1,173	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT428	13110 SE GLADSTONE CT	30	YES	SFR	NA	1.2	1,220	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADW223	5015 SE 108TH AVE	0	NO	SFR	304	7.8	1,362	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ANN224	5700 SE 134TH PL	0	YES	SFR	NA	2.3	1,400	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV956	8108 SE LAMBERT ST	31	YES	MFR	492	0.1	1,535	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT463	13236 SE CORA ST	23.3	YES	SFR	419	1.9	1,543	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV130	5635 SE 102ND AVE	22	YES	SFR	440	3.7	1,734	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV135	5736 SE 102ND AVE	21	YES	SFR	426	4.0	1,791	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADV955	7916 SE LAMBERT ST	31	YES	SFR	395	4.0	1,878	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ANS554	9700 N EDISON ST	0	YES	NA	NA	3.2	3,270	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADR051	15415 NE BEECH ST	30	YES	MFR	247	8.7	763	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADQ418	4656 NE 118TH AVE	30	YES	COM	436	5.0	1,472	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ADU022	8335 SE 7TH AVE	31	YES	SFR	780	5.1	1,544	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ADU206	8635 SE 9TH AVE	30	YES	SFR	1,282	7.8	2,474	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADS534	2125 SE 18TH AVE	19	YES	SFR	2,315	5.4	2,649	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	AMQ081	8705 SE 16TH AVE	30	YES	SFR	575	9.9	3,913	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADT461	13940 SE CORA ST	19.2	YES	SFR	413	9.2	614	YES	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	AMP308	5575 SE 139TH AVE	21.4	YES	SFR	180	9.0	507	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ANA612	4706 SE 113TH AVE	30	YES	SFR	450	9.0	633	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADU726	11600 SE PARDEE ST	29.2	YES	SFR	425	5.8	645	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	AMV613	5640 SE 137TH AVE	30	YES	MFR	180	5.3	648	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ADT424	12542 SE MALL ST	20	YES	SFR	186	5.6	773	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ADW070	4225 NE 134TH AVE	19	NO	SFR	108	9.1	773	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADW041	13200 NE PRESCOTT DR	19	NO	SFR	NA	9.2	840	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ANA018	11804 SE MALL ST	0	YES	SFR	186	9.3	1,060	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADT425	13038 SE CORA ST	22	YES	SFR	422	7.2	1,527	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADT718	5538 SE 131ST AVE	30	YES	SFR	361	8.5	1,540	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADT717	13014 SE ELLIS ST	30	YES	SFR	336	7.1	1,601	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ACP890	10203 SE ELLIS ST	20	YES	SFR	490	5.9	1,646	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design

Table B-1: Category 2, 3, and 4 UIC Prioritization and Status

UIC Compliance Category	Non-compliant Condition	Hansen UIC Node Number	Location [1]	Hansen UIC Depth (ft) [2]	Sedimentation Manhole (yes/no)	Predominant Landuse	Estimated Traffic Count	2007 Separation Distance[3] (ft)	Distance to Nearest Well (ft) [4]	Within 2=year time of travel (yes/no)	UIC Priority [5]	Target Compliance Date[6]	Anticipated Corrective Action[7]	FY06-07 Project Status	FY07-08 Planned Activities
3	Separation Distance	ACP661	10202 SE ELLIS ST	20	YES	SFR	490	6.4	1,693	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ADV127	5610 SE 102ND AVE	21	YES	SFR	490	5.4	1,720	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ACP667	5700 SE 102ND AVE	19	YES	SFR	440	6.5	1,743	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ACP672	5800 SE 102ND AVE	19	YES	SFR	426	6.0	1,800	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ADU696	10146 SE INSLEY ST	30	YES	SFR	70	8.7	1,822	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADT984	8711 SE HENDERSON ST	28.3	YES	SFR	462	6.0	2,109	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ADU200	804 SE CLATSOP ST	32	YES	SFR	375	4.8	2,211	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT970	7300 SE 85TH AVE	32	YES	SFR	448	9.7	2,462	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ACU075	8600 SE KNAPP ST	30	YES	SFR	441	9.8	2,479	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADT971	8600 SE KNAPP ST	31	YES	SFR	441	8.3	2,484	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADT972	8630 SE KNAPP ST	30	YES	SFR	462	7.6	2,506	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADV952	8206 SE 75TH PL	30	YES	SFR	115	9.2	2,517	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADT977	8728 SE KNAPP ST	27	YES	SFR	415	9.4	2,571	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	AMQ134	6209 SE 13TH AVE	30	YES	SFR	316	3.8	2,768	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADU211	905 SE LINN ST	30	YES	SFR	450	4.8	2,782	NO	Low	July 2011	Increase Separation Distance	Planning	PreDesign/Design
3	Separation Distance	ADT978	8820 SE RURAL ST	28	YES	SFR	402	9.8	3,072	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADV170	9736 SE HENRY ST	25	YES	MFR	249	9.4	3,285	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ANA276	6422 SE 97TH AVE	30	YES	MFR	310	6.8	3,436	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ANA283	9700 SE HENRY ST	30	YES	MFR	249	6.1	3,460	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ANA284	9700 SE HENRY ST	30	YES	MFR	249	6.4	3,485	NO	Low	July 2011	Increase Separation Distance/ GWPD	Planning	PreDesign/Design
3	Separation Distance	ADT967	9090 SE COOPER ST	31	YES	SFR	334	9.8	3,899	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADR039	3650 NE 158TH AVE	30	YES	MFR	247	9.1	514	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	ADU028	8430 SE 8TH AVE	30	YES	SFR	187	9.8	1,883	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	AMU235	10325 N MACRUM AVE	30	YES	MFR	NA	8.6	2,693	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
3	Separation Distance	AMQ101	6035 SE 15TH AVE	30	YES	SFR	380	9.3	3,426	NO	Low	July 2011	GWPD	Planning	PreDesign/Design
4	MADL Exceedance	ADW577	3500 SE 112TH AVE	18	YES	COM	25,838	63.1	1,443	NO	Medium	July 2011	GWPD	Monitoring	GWPD
4	MADL Exceedance	ADQ252	4300 NE PRESCOTT ST	26.8	YES	COM	8,100	159.2	1,494	NO	Medium	July 2011	GWPD	Monitoring	GWPD
4	MADL Exceedance	AMU771	640 NE 87TH AVE	30	YES	MFR	729	143.6	5,312	NO	Medium	July 2011	GWPD	Monitoring	GWPD
4	MADL Exceedance	AAG769	6940 N MACRUM AVE	31	YES	SFR	325	62.0	4,252	NO	Low	July 2011	GWPD	Monitoring	GWPD

Notes:

[1] Addresses are not considered precise location information and are subject to change as city staff better describe the physical UIC locations relative to nearby properties.

[2] UIC depth of 0 indicates depth is not reported in the City UIC database. Depth assumed to be 30 feet for compliance determination.

[3] Separation distance based on 2007 update to USGS groundwater data.

[4] UICs near drinking water wells were scored more conservatively than described in the *UIC Prioritization Procedure (Appendix F of the UIC Management Plan (December 2006)).* UICs within 500 of a drinking water well or within a 2- year time of travel were assigned a high criteria score rather than looking at the potential susceptibility of the drinking water well to impacts from the UIC

[5] UIC priority determined in general accordance the *UIC Prioritization Procedure*. If no value was available (NA) default values were assigned. The prioritization was developed as a means of assessing potential adverse impacts to groundwater that may be associated with individual UICs and categorizing them by priority for attention. UICs are listed in this table in descending order by their numeric prioritization score and non-compliant category.

[6] Target Compliance date based on three full CIP funding cycles per the WPCF permit.

[7] Corrective action will be determined in accordance with the *Corrective Action Plan* (July 2006). At this time, information is limited to the general response action anticipated for the non-compliant UIC. Once a corrective action is selected, it will be reported in subsequent UICMP Annual Reports. Corrective actions for the identified Category 2, 3, and 4 UICs are expected to include a range of approaches including:

- Decommission
- Increase separation distance (e.g., backfilling, installing shallower UIC sumps, horizontal UICs);
- Utilize surface infiltration features (e.g., swales, curb extensions) combined with shallow UICs;
- Groundwater Protectiveness Demonstration (UICMP, Appendix H, UICER Guideline No. 6) to support reducing the separation distance for specific UICs or groups of UICs.
- No further action for specific UICs or groups of UICs through a Groundwater Protectiveness Demonstration (UICMP, Appendix H, UICER Guideline No. 6).

[8] Project Status (e.g., planning, predesign, design, construction planned, construction in-progress, construction completed, No further action decision)

Acronyms:

NA = Not Available TPD = Trips per Day
SFR = Single Family Residential MFR= Multifamily residential IND = Industrial COM = Commericial POS = Parks and Open Space
GWPD = Groundwater Protectiveness Demonstration (See UICER No. 6 presented in Appendix H of the UICMP)

Map B-1

Portland Area Corrective Action UICs
by Compliance Category
(29 Cat-2 UICs)
(338 Cat-3 UICs)
(4 Cat-4 UICs)
(371 TOTAL)

0 0.5 1 2 Miles

Legend

- City of Portland
- Surface Water
- Stream Lines
- Cat-2 UICs (29)
- Cat-3 UICs (338)
- Cat-4 UICs (4)
- All City-Owned UICs

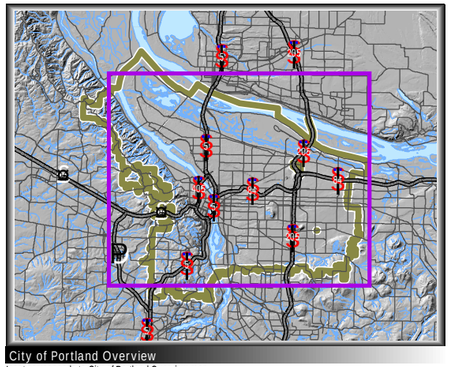
2007 Estimated Depth to Seasonal High Groundwater 20-ft Contours
Source: Draft USGS Portland Area Depth to Groundwater. Ranges in Feet.

- <20
- 20-40
- 40-60
- 60-80
- 80-100
- >100

City of Portland Environmental Services
Systems Analysis
Spatial Analysis and Modeling

Printing Date : Oct 11, 2007

This map was produced in support of the City of Portland's Water Pollution Control Facilities Permit #102830 for Class V Stormwater Underground Injection Control Systems, issued by Oregon Department of Environmental Quality on June 1, 2005.
Data were compiled from various sources. This product was developed through digital means and may be updated without notification. No warranty is made by the City of Portland Bureau of Environmental Services as to the accuracy, reliability, or completeness of these data. Data shown are to be used for reference purposes only; maps should not be used to determine jurisdictional authority, ownership, or operations and maintenance responsibilities.



City of Portland Overview
Inset corresponds to City of Portland Overview map

State of Oregon Overview
Inset corresponds to main map

UNDERGROUND INJECTION CONTROL PROGRAM MAP

Produced by Systems Analysis: Map Request 4456 (JRGB) September 4th, 2007 \\Cassio\GIS2\PROJECTS\7750\TASK\Task3N_Compliance_Evaluation\MXD\MapB-1_Cat234_B.mxd

Map B-2

Corrective Action UICs
by Compliance Category - SE Portland

0 0.125 0.25 0.5 Miles

Legend

- City of Portland
- Surface Water
- Stream Lines

Compliance Category

- Cat-2 UIC (27 shown on map)
- Cat-3 UIC (257 shown on map)
- Cat-4 UIC (1 shown on map)
- All City-Owned UICs

2007 Estimated Depth to Seasonal High Groundwater 10-ft Contours

Source: Draft USGS Portland Area Depth to Groundwater. Ranges in Feet.

<10	40-50	80-90
10-20	50-60	90-100
20-30	60-70	>100
30-40	70-80	

City of Portland
Environmental Services
Systems Analysis
Spatial Analysis and Modeling

Printing Date : Oct 11, 2007

This map was produced in support of the City of Portland's Water Pollution Control Facilities Permit #102830 for Class V Stormwater Underground Injection Control Systems, issued by Oregon Department of Environmental Quality on June 1, 2005.

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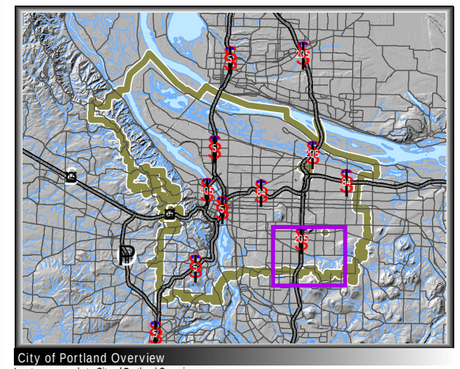

City of Portland Overview
Inset corresponds to City of Portland Overview map

State of Oregon Overview
Inset corresponds to main map

UNDERGROUND INJECTION CONTROL PROGRAM MAP

Produced by Systems Analysis: Map Request 4456 (JRGB) September 4th, 2007 \\Cassio\GIS2\PROJECTS\7750\TASKS\Task3N_Compliance_EvaluationMXD\MapB-2_Cat234_B.mxd

Appendix C
SARA Title III Inspection Summary

Appendix C

Sara Title III Inspection Summary

Overview

The City of Portland's water pollution control facilities (WPCF) permit requires an inventory of all UICs that receive stormwater or other fluids from industrial and commercial properties that store, handle, or use hazardous or toxic materials in quantities requiring registration under the federal Superfund Amendment and Reauthorization Act (SARA) Title III. As part of the City of Portland's *Systemwide Assessment* report (submitted July 15, 2006), 78 UICs were identified that receive drainage from 69 SARA Title III facilities. Based on site visit characterizations, 49 of those SARA Title III facilities were identified as having site activities with the potential to impact stormwater or other drainage entering a public UIC. Based on this initial assessment, these 49 sites were subsequently identified as requiring follow-up assessments, including site inspections to identify and address any potential threats to City-owned UICs. The details of this work are described in the *Systemwide Assessment Follow-Up Actions* workplan (submitted December 1, 2006). The workplan focuses on evaluating potential stormwater discharges from SARA Title III facilities and preventing pollutants at these facilities from entering the City's UIC system. The goals of the work are to:

- Evaluate and verify UIC drainage catchments.
- Identify and verify potential pollutant sources within the drainage catchments.
- Implement source control measures to minimize the potential for pollutants from SARA Title III facilities to be discharged in stormwater to City-owned UICs.

To meet these goals the City's follow-up actions are divided into the following two tasks.:

i. UIC drainage catchment assessment, including facility site inspections.
ii. Implementation of source control measures to minimize the potential for pollutants from SARA Title III or commercial/industrial facilities to be discharged in stormwater to City-owned UICs.

The following sections provide the details and results of the work completed during fiscal year 06/07.

UIC Drainage Catchment Assessment

The first steps of the follow-up activities were to evaluate and refine identified UIC drainage catchments. This involved the following tasks:

- Refinement of catchment information. (Verify UIC drainage catchments to determine if the private facility drains to a public UIC)

- Identification of potential pollutant sources (within verified UIC drainage catchments).
- Facility site visits.

Prior to conducting follow-up facility site visits, City of Portland Bureau of Environmental Services (BES) staff evaluated UIC drainage catchments identified during the systemwide assessment. GIS-based maps were updated to include the most recent aerial photographs of the site, topography, sanitary lines, storm sewer lines, and public UIC systems. In addition, any site-specific location details obtained during the systemwide assessment work, such as sink and floor drains, roof drains, or onsite storm inlets, were assessed. An evaluation of the most current available site information, combined with a complete review of plumbing records and permits associated with each SARA Title III site, allowed staff to develop a more accurate estimate of the disposal/ destination of all stormwater from the site prior to the facility visit. This allowed BES staff to update and confirm the delineated portions of the site that potentially drained to City-owned UICs. Staff also reviewed DEQ Profiler and BES Source Control Database reporting, noting all reports of contamination, permit violations, or complaints related to spills or poor housekeeping.

During May and June 2007, BES staff conducted 49 site facility visits. Staff verified catchments by comparing aerial maps and plumbing records with the existing onsite infrastructure. During dry weather, staff evaluated drainage patterns by observing topography and fine sediment patterns on pavement and other visual indicators to verify the accuracy of the UIC drainage catchment. During rain events, staff simply followed sheet flow from the site to verify UIC drainage catchments.

Staff also verified mapped locations of inlets to UICs, sedimentation manholes, and UICs that were thought to be receiving drainage from the SARA Title III facility. Staff then noted the condition and characteristics of the inlets, removed the lids to the sedimentation manholes and UICs, and photographed them individually.

As part of the site facility visits, staff observed and evaluated eight categories of site activities that have the potential to introduce pollutants to stormwater:

1. Vehicle and equipment maintenance
2. Vehicle and equipment washing
3. Fueling
4. Material transfer/loading docks
5. Above-ground storage of liquid materials
6. Exterior storage of bulk materials
7. Solid waste and recyclables storage
8. Outdoor manufacturing

Staff documented and photographed site activities; interviewed staff, managers, and owners; and identified any activity with the potential for a migration pathway to a public UIC. Staff also used the site facility visits to confirm BES's source control database information concerning the types of activities expected to be found onsite.

Results
Table C-1 shows the results of the inspections of the 49 facilities. The table provides the following information:

- Date of follow-up inspection.
- Potential issues that were identified during the systemwide assessment activities.
- Issues identified during the systemwide assessment that were still an issue after follow-up inspection.
- Additional issues identified during the follow-up facility inspection.
- Mechanism to address all identified issues.
- Identification of the need for short-term and long-term follow-up to address identified issues.

All 49 sites that were inspected will receive a follow-up letter documenting the findings of the site visit. For sites where specific actions are necessary to limit any potential impacts to stormwater, one or more of the five mechanisms identified under Source Control Implementation, below, will be recommended. The details of the mechanism that will be used will be unique to each individual site. Specifics of the recommendations will be maintained in hard copy files by BES staff. All recommendations will be consistent with Portland City Code 17.39, the requirements of the City's WPCF permit #102830, and the City's *Stormwater Management Manual*.

The results of the follow-up facility inspections were:

- 30 of the 49 inspected sites addressed the issues identified in the *Systemwide Assessment* report prior to the follow-up inspection and will require no further follow-up actions.

- 16 of the 49 facilities were requested to implement an action to address a site activity identified either during the original systemwide assessment or follow-up inspection. (Table C-1 identifies the category of site activity to be addressed.) Actions recommended for these sites are relatively straightforward and can be implemented without significant capital investment, usually involving changes in site practices rather than structural changes. These sites will require limited follow-up to confirm that the proposed action or actions were implemented.

- 3 of the 49 sites were identified for long-term follow-up. Larger issues that will require more complex solutions involving structural changes and site practices were identified on these sites. It is anticipated that BMP actions at these facilities may take a longer time period to implement. City staff will continue to work with these businesses to address their issues on a longer-term basis.

Source Control Implementation
Upon completion of the site facility visits, staff developed site-specific recommendation for individual sites where one or more activities demonstrated the potential to introduce

pollutants to stormwater. The recommendations will involve the use of one or more of the five following mechanisms.

- **Site Visit Follow-up Letters**. After completion of the facility visit, the City will document the meeting with a follow-up letter sent to the facility representative. This letter will document the results of the meeting, identify additional information needed, or identify the City's expectations for future stormwater-related activities.

- **Education and Training**. Education and training may be provided to increase facility awareness of issues associated with UIC requirements (e.g., city, state and federal regulations) and the potential impacts to groundwater associated with stormwater discharges to the subsurface. This training could include use of fact sheets, guidance, signage, or other materials to educate employees about stormwater pollutants and UICs. Educational efforts may also include discussion of resources available from DEQ, EPA, and other agencies and organizations regarding stormwater management and BMPs. The City may provide limited training regarding potentially applicable BMPs.

- **Technical Assistance.** Technical assistance, often provided during site visits or inspections, provides technical information tailored to help individual facilities comply with pertinent regulations. The City will work with the identified facility owner or representative to identify potential pollutant sources and to minimize or eliminate the potential of pollutants entering stormwater. In addition, the City may also refer facilities to DEQ for technical assistance (e.g., DEQ's Hazardous Waste Program or Toxic Use Reduction Program).

- **BMP Implementation.** The City will help the identified facility owner or operator identify potentially applicable structural or nonstructural BMPs. BMPs will be identified using the City of Portland *Stormwater Management Manual*, DEQ's *BMPs for UICs* (DEQ, 1998; http://www.deq.state.or.us/wq/groundwa/uicbmp.htm), or other available sources. The City will also assist or provide oversight in developing the scope and schedule for implementation of selected BMPs by the facility. In addition, the City may provide recommendations for selecting BMP performance measures.

- **Follow-up Facility Visits.** The City will conduct a follow-up visit(s) to verify that identified site issues have been addressed. If identified issues are not addressed within an appropriate time frame, the City may, as necessary and appropriate:
  - Initiate enforcement activities.
  - Install temporary BMPs (e.g., berms, catchbasin closure) or permanent structural BMPs (e.g., vegetated swales) to prevent stormwater pollutants from entering the City's UIC.
  - Refer the facility to DEQ for further evaluation, permitting, and/or investigation under the appropriate regulatory authority (e.g., Water Quality, UIC, Environmental Cleanup, Solid Waste, Hazardous Waste, UST).

Table C-1 SARA Title III Follow Up Inspection Results								
BES UIC ID	**Business Name**	**Business Address**	**Potential Issues Identified in Systemwide Assessment**	**Site Visit Date**	**Issues Identified During Systemwide Assessment Remaining after Follow-up Site Visit**	**Additional Potential Issues Identified during Follow-up Site Visit**	**Mechanism to Address Issues**	**Follow-up**
ADQ893	AL's AUTOMOTIVE SERVICE CTR	3445 NE 82ND	Fueling Vehicle/Equipment Maintenance Area	6/14/2007	None	Waste Storage Stored materials	Follow-up Visit, Tech Assistance, Follow-up Letter	Limited / Short-term
ADT056 & ADT061	AMIGOS/OROSCO AUTO REPAIR	12920 SE STARK ST	Fueling Vehicle/Equipment Maintenance Area Waste Storage	5/29/2007	None	None	Follow-up Visit, Tech Assistance, Follow-up Letter	None
ADV500	Beaver Towing Inc.	9111 NE Halsey	Vehicle/Equipment Maintenance Area Waste Storage	5/23/2007	None	None	Follow-up Visit, Follow-up Letter	None
ABN212 & ADR971	BILAL MAHAD LLC	12128 E BURNSIDE	Fueling	5/30/2007	None	None	Follow-up Visit, Follow-up Letter	None
ADT309	CHARLIES TIRE FACTORY	4215 SE 82ND AVE	Wash Area - Auto Wash Area - Heavy Equipment Vehicle/Equipment Maintenance Area Chemical Storage Waste Storage	6/21/2007	Wash Area Waste Storage	None	Follow-up Visit, Tech Assistance, Follow-up Letter	Limited / Short-term
AMP944	Craftsman Body & Paint	414 NE 80th Ave	Wash Area - Auto	5/22/2007	None	Waste Storage	Follow-up Visit, Tech Assistance, Education and Training, Follow-up Letter	Limited / Short-term
ADT392	CURTIS TRAILERS INC	10177 & 10178 SE POWELL BLVD (office building) 10043-10305 SE Powell (business)	Wash Area - Auto Fueling Vehicle/Equipment Maintenance Area Chemical Storage Waste Storage Other Storage Manufacturing Area	6/27/2007	None	None	Follow-up Letter, Tech Assistance, Follow-up Visit	None
ADS251 & ADW462	FIRESTONE	12141 SE DIVISION ST	Vehicle/Equipment Maintenance Area Waste Storage	5/29/2007	None	None	Follow-up Letter, Tech Assistance, Follow-up Letter	None
ADU051 & ADU043	FURBISH CHEMICAL SUPPLY	7953 SE 13TH	Wash Area - Auto Chemical Storage	5/23/2007	Wash Area	None	Follow-up Visit, Tech assistance, Follow-up Letter	Limited / Short-term
ADT053	International Collision Repair	12436 SE Stark St	Wash Area - Auto Wash Area - Heavy Equipment Waste Storage	6/20/2007	None	None	Follow-up Visit, Follow-up Letter	None
ADT053	INT'L COLLISION REPAIRS INC	12444 SE STARK ST	Wash Area - Auto Wash Area - Heavy Equipment Waste Storage	Same site as above	same site as above	same site as above	same site as above	None
ANA737	JAMALS AM-PM	1511 NE 102ND AVE	Fueling Waste Storage Other Storage	5/30/2007	Other Storage	None	Follow-up Visit, Tech Assistance, Follow-up Letter	Limited / Short-term
ADQ922	JERRYS TRANSMISSIONS	7631 NE SANDY BLVD	Waste Storage	* out of business	None	NA	Out of business	None
ADU026 & ADU062	K & K COLOR LAB INC.	8302 SE 13th Ave 8302-8308 13th (Taxlot)	Waste Storage Other Storage	5/24/2007	None	None	Follow-up Visit, Tech Assistance, Follow-up Letter	None
ADS947	KELLY MOORE PAINT CO INC	1414 SE 82ND AVE	Chemical Storage	5/29/2007	None	None	Follow-up Visit, Tech assistance, Follow-up Letter	None
ANA245	Khan FNS LLC	16150 SE STARK ST	Fueling	5/30/2007	None	None	Follow-up Visit, Follow-up Letter	None
ANB155 & ANB157	L & M Construction Chemicals	6510 NE Columbia Blvd	Chemical Storage Waste Storage	5.30/07	None	Loading dock	Follow-up Visit, Tech assistance, Follow-up Letter	Limited / Short-term
ADR712	MIDAS MUFFLER SHOP	11750 NE HALSEY ST	Vehicle/Equipment Maintenance Area Waste Storage	5/30/2007	None	None	Follow-up Visit, Follow-up Letter	None
ADP515	PIERENS AUTOMOTIVE	2105 N KILLINGSWORTH	Vehicle/Equipment Maintenance Area Waste Storage	6/1/2007	Vehicle/equipment maintenance	Exterior Storage of Bulk Materials Above Ground Storage of Liquid Materials	Follow-up Visit , Tech Assistance, Follow-up Letter	Limited / Short-term

Table C-1 SARA Title III Follow Up Inspection Results								
BES UIC ID	**Business Name**	**Business Address**	**Potential Issues Identified in Systemwide Assessment**	**Site Visit Date**	**Issues Identified During Systemwide Assessment Remaining after Follow-up Site Visit**	**Additional Potential Issues Identified during Follow-up Site Visit**	**Mechanism to Address Issues**	**Follow-up**
ANA762	Pioneer Oil	9270 NE Glisan	Fueling Waste Storage	5/16/2007	None	None	Follow-up Visit, Tech Assistance, Education and Training, Follow-up Letter	None
ADP240	PORTLAND RECYCLING TEAM II	2005 N PORTLAND BLVD	Waste Storage Other Storage	6/15/2007	Waste Storage Other Storage	None	Follow-up Visit, Tech Assistance, BMP Implementation, Follow-up Letter	Long-term
ADP390	PORTLAND SCHOOL DISTRICT 1J	7200 NE 11TH AVE	Chemical Storage Waste Storage	5/30/2007	None	None	Follow-up Visit, Follow-up Letter	None
ADP981	PORTLAND SCHOOL DISTRICT 1J	4906 NE 6TH AVE	Waste Storage	6/27/2007	None	None	Follow-up Visit, Follow-up Letter	None
AMT127	PORTLAND SCHOOL DISTRICT 1J	5210 N Kerby	Loading Receiving Areas	6/27/2007	None	None	Follow-up Visit, Follow-up Letter	None
AMY572	QWEST CORPORATION	5230 NE COLUMBIA BLVD	Wash Area - Auto	2/9/2006	None	None	Follow-up Visit, Follow-up Letter	None
ADN485	SCHUCK'S AUTO SUPPLY	5915 NE SANDY BLVD	Vehicle/Equipment Maintenance Area Waste Storage Other Storage	6/19/2007	None	None	Follow-up Visit, Follow-up Letter	None
ADP964	SCHUCK'S AUTO SUPPLY	5212 NE MLK BLVD	Vehicle/Equipment Maintenance Area Waste Storage Other Storage	6/11/2007	None	None	Follow-up Visit, Follow-up Letter	None
ADU300	SPAR-TEK INDUSTRIES INC	2221 N ARGYLE ST	Fueling Vehicle/Equipment Maintenance Area Waste Storage	5/30/2007	None	Outdoor manufacturing	Follow-up Visit, Tech Assistance, BMP Implementation, Follow-up Letter	Long-term
ADS541 & ADS542	TOMS AUTO PAINTING & BODY	8449 SE POWELL BLVD	Wash Area - Auto Chemical Storage Waste Storage Other Storage	5/30/2007	Washing Waste Storage	None	Follow-up Visit, Tech Assistance, Follow-up Letter	Limited / Short-term
AMY572	UNITED RENTALS NORTHWEST	5413 NE COLUMBIA BLVD	Wash Area - Auto	NA	None	NA	Does not drain to UIC	None
AAF126 & ADN372	St. Johns Tire Center	7301 N Lombard St	Loading Receiving Area	5/24/2007	None	None	Follow-up Visit, Follow-up Letter	None
ADP135	Express Lube	3436 N Lombard St	Vehicle/Equip Maintenance Area Other Storage Waste Storage/Dumpsters	5/18/07	None	None	Follow-up Visit, Follow-up Letter	None
ADP896	Steel Yard Inc The	6880 NE Columbia Blvd	Loading Receiving Area Other Storage	5/24/2007	Other Storage	None	Follow-up Visit, Tech Assistance, Education and Training, Follow-up Letter	Limited / Short-term
ADQ128	Trellis West PC	4933 NE 31st Ave	Waste Storage/Dumpsters	NA	None	NA	Out of business	None
ADQ224	Turton's Automotive	4601 NE Killingsworth St 4602 NE Killingsworth St 4600 NE Killingsworth St	Loading Receiving Area Wash Area - Auto	5/25/2007	None	Waste Storage	Follow-up Visit, Tech Assistance, Follow-up Letter	Limited / Short-term
ADR508	Munnell & Sherril Inc	1163 NE 63rd Ave	Loading Receiving Area	5/27/2007	None	None	Follow-up Visit, Tech Assistance, Follow-up Letter	None
ADR668	Gateway Hardware	10414 NE Halsey St	Loading Receiving Area Chemical Storage Waste Storage/Dumpsters	6/19/2007	None	None	Follow-up Visit, Tech Assistance, Follow-up Letter	None
ADR865	M & N Plastics	38 SE 97th Ave	Loading Receiving Area	6/21/2007	None	Wash Area	Follow-up Visit, Tech Assistance, Follow-up Letter	Limited / Short-term

Table C-1
SARA Title III Follow Up Inspection Results

BES UIC ID	Business Name	Business Address	Potential Issues Identified in Systemwide Assessment	Site Visit Date	Issues Identified During Systemwide Assessment Remaining after Follow-up Site Visit	Additional Potential Issues Identified during Follow-up Site Visit	Mechanism to Address Issues	Follow-up
ADR895	Fischer Automotive	325 NE 100th Ave	Indoor Work Area Entrances	5/23/2007	None	Vehicle Maintenance	Follow-up Letter, Tech Assistance	Limited / Short-term
ADR934	Ron Tonkin Grand Tourismo	426 NE 102nd Ave	Vehicle/Equip Maintenance Area	6/11/2007	None	None	Follow-up Visit, Follow-up Letter	None
ADS227	Portland Sand & Gravel	10717 SE Division St	Waste Storage/Dumpsters	5/31/2007	None	Wheel wash needed	Follow-up Visit, Tech assistance, BMP Implementation, Follow-up Letter	Long-term
ADS631	Custom Automotive Restoration	3400 SE 122nd Ave	Loading Receiving Areas Wash Area - Auto	5/25/2007	None	None	Follow-up Visit, Tech Assistance, Follow-up Letter	None
ADT012	Integrity Auto Inc	539 SE 122nd Ave	Loading Receiving Areas	5/18/2007	None	None	Follow-up Visit, Follow-up Letter	None
ADU860	Woodstock Hardware	4430 SE Woodstock Blvd	Waste Storage/Dumpsters	6/19/2007	None	None	Follow-up Visit, Follow-up Letter	None
ADV067	Division Transmission Center	8509 SE Foster Rd	Other Storage Waste Storage/Dumpsters	5/29/2007	Other Storage Waste Storage	None	Follow-up Visit, Tech Assistance, Follow-up Letter	Limited / Short-term
ADV073	Kadel's Portland Auto Body	8230 SE Woodstock Blvd	Loading Receiving Areas	6/19/2007	Waste Storage	Vehicle Washing	Follow-up Visit, Tech Assistance, Follow-up Letter	Limited / Short-term
	Kadel's Portland Auto Body	8206 SE Woodstock Blvd	Indoor Work Area Entrances	Same site as above	same site as above	same site as above	same site as above	Limited / Short-term
ADV074	Kadel's Portland Auto Body	8308 SE Woodstock Blvd	Waste Storage/Dumpsters	Same site as above	same site as above	same site as above	same site as above	Limited / Short-term
ANA577	Ron's Hot Wash To Go Inc	6537 SE 131st Ave	Chemical Storage	5/31/2007	None	None	Follow-up Visit, Follow-up Letter	None