Underground Injection Control Management Plan

■

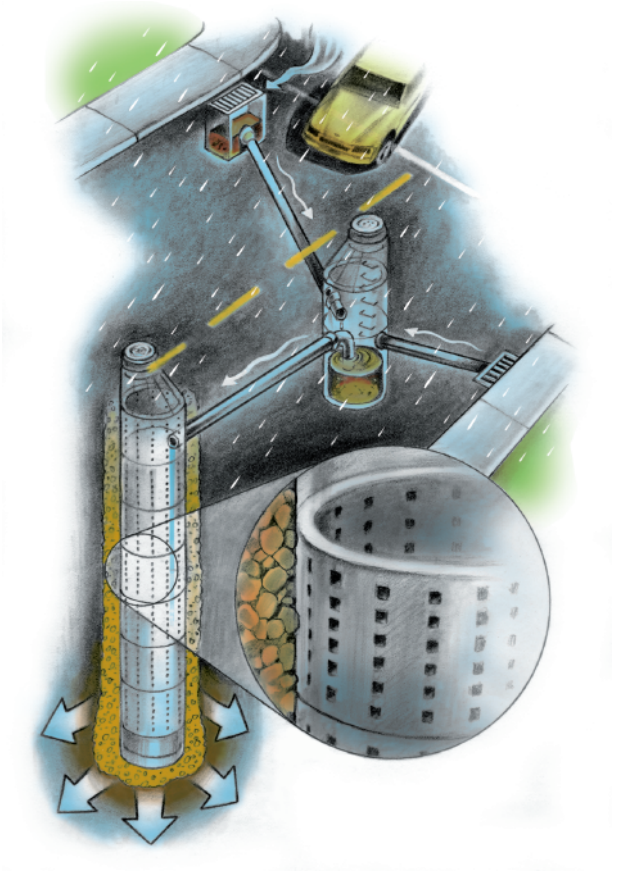
Annual Report No.3

Fiscal Year 2007 - 2008
(July 1, 2007 - June 30, 2008)

Water Pollution Control Facilities (WPCF) Permit

Class V Stormwater Underground Injection Control Systems

DEQ Permit Number 102830



November 1, 2008

Prepared by

ENVIRONMENTAL SERVICES
CITY OF PORTLAND
working for clean rivers

CITY OF PORTLAND
ENVIRONMENTAL SERVICES
1120 SW Fifth Avenue, Room 1000, Portland, Oregon 97204-1912 ▪ Sam Adams, Commissioner ▪ Dean Marriott, Director

November 1, 2008

Mr. Rodney Weick
Stormwater and Underground Injection Control Manager
Oregon Department of Environmental Quality
2020 SW 4th Avenue, Suite 400
Portland, Oregon 97201

Subject: Submittal of UICMP Annual Report No. 3
City of Portland
DEQ Water Pollution Control Facilities Permit No. 102830

Dear Rodney:

The City of Portland's Bureau of Environmental Services is pleased to submit the *Underground Injection Control Management Plan Annual Report No. 3 – Fiscal Year 2007-2008.* This document was prepared in accordance with the Water Pollution Control Facilities (WPCF) permit (DEQ Permit No.102830) for the City's Class V Stormwater Underground Injection Control Systems (UIC). The permit was issued on June 1, 2005.

The *UICMP Annual Report No. 3* summarizes programmatic activities implemented by the City in Fiscal Year 07-08 (July 1st, 2007 – June 30th, 2008), and proposed activities for the coming Fiscal Year 08-09. Section 4: Evaluation and Response, and Section 5: Corrective Actions, include activities through October 2008 in order to track and report on milestones identified in the *System-wide Assessment Follow-up Actions Workplan* (December 2006*)*. Completed activities, key accomplishments, and activities for the coming fiscal year are organized and described relative to the following four UIC program elements:

System Management summarizes citywide actions implemented under five BMP categories to prevent, minimize, and control pollutants prior to infiltration conducted during Fiscal Year 07-08. It also identifies the main projected activities for Fiscal Year 08-09.

System Monitoring summarizes the third year results of UIC monitoring conducted under the *Stormwater Discharge Monitoring Plan* (SDMP) and submitted in the second-year Stormwater Discharge Monitoring Report (July 15, 2008).

Evaluation and Response provides an overview of evaluation and response actions conducted during Fiscal Year 07-08 and the main projected activities for Fiscal Year 08-09.

Corrective Actions summarizes the corrective actions implemented during Fiscal Year 07-08 and projected main activities for Fiscal Year 08-09 to address UICs that do not meet permit requirements.

Appendix A UICs identified/constructed during Fiscal Year 07-08.

Appendix B Status of Category 2 and Category 3 UICs.

If you have questions or need additional information, please call me at 503 823-5737. I look forward to our continued collaboration on implementing the WPCF Permit.

Sincerely,

Barb Adkins
UIC Program Manager
City of Portland
Bureau of Environmental Services

Enclosures:

Underground Injection Control Management Plan Annual Report No. 3 – 3 hard copies (w/enclosed electronic copy)

Cc. UIC Project File w/ enclosures

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. 3

Fiscal Year 2007-2008
(July 1, 2007 – June 30, 2008)

November 1, 2008

Prepared By:
City of Portland, Bureau of Environmental Services

Contents

Executive Summary

1 Introduction 1-1

1.1 Overview 1-1
1.2 Overview of the UICMP 1-4
1.3 Relationship of the UICMP to the UICMP Program And UICMP Annual Reports 1-5
1.4 Other UIC Program Documents 1-5
1.5 Other Program Reporting Requirements 1-5
1.6 Legal Authority 1-8
1.7 UIC Program Staff 1-9
1.8 Minor and/or Major Permit Modifications 1-9
1.9 Status of Implementing the UICMP and Its Components 1-9
1.10 Proposed Changes to the UICMP or Its Components 1-9
1.11 Relationship to Other Water Quality Programs 1-9
1.11.1 Portland Watershed Management Plan 1-10
1.11.2 NPDES MS4 Permit 1-11
1.11.3 BES System Plan 1-12
1.11.4 Combined Sewer Overflow Reduction 1-12
1.11.5 Pretreatment Programs and Publicly Owned Treatment Works 1-12
1.11.6 Science, Fish and Wildlife Section—Endangered Species Act (ESA) Program 1-13
1.11.7 Portland Harbor Superfund Site 1-13
1.12 City Budget and Funding 1-14
1.13 Organization of the Annual Report 1-15

2 System Management 2-1

2.1 Overview 2-1
2.2 System Inventory and Assessment (SA) 2-1
2.2.1 SA-1 Key Accomplishments for FY07-08 2-1
2.2.2 SA-1 Projected Main Activities for FY08-09 2-3
2.2.3 SA-2 Key Accomplishments for FY07-08 2-3
2.2.4 SA-2 Projected Main Activities for FY08-09 2-3
2.3 Pollution Control (PC) 2-4
2.3.1 PC-1 Key Accomplishments for FY07-08 2-4
2.3.2 PC-1 Projected Main Activities for FY08-09 2-9
2.4 Education and Training (ET) 2-9
2.4.1 ET-1 Key Accomplishments for FY07-08 2-9
2.4.2 ET-1 Projected Main Activities for FY08-09 2-15
2.4.3 ET-2 Key Accomplishments for FY07-08 2-16
2.4.4 ET-2 Projected Main Activities for FY08-09 2-17
2.5 Operations and Maintenance (OM) 2-20
2.5.1 OM-1 Key Accomplishments for FY07-08 2-20
2.5.2 OM-1 Projected Main Activities for FY08-09 2-21

2.6 Policy and Regulation (PR) 2-22
2.6.1 PR-1 Key Accomplishments for FY07-08 2-22
2.6.2 PR-1 Projected Main Activities for FY08-09 2-23

3 System Monitoring 3-1
3.1 Compliance Monitoring 3-1
3.1.1 Key Accomplishments for FY07-08 3-1
3.1.2 UIC Stormwater Year 3 Monitoring Summary 3-2
3.1.3 Projected Main Activities for FY08-09 3-4
3.2 BMP Monitoring 3-4
3.2.1 Key Accomplishments for FY07-08 3-4
3.2.2 Projected Main Activities for FY08-09 3-5

4 Evaluation and Response 4-1
4.1 Fate and Transport Analyses 4-1
4.1.1 Tool Description 4-1
4.1.2 Tool Development 4-2
4.1.3 Phase 1: Category 4 UIC Groundwater Protectiveness Demonstrations 4-2
4.1.4 Phase 2: Evaluation of Vertical Separation Distance 4-3
4.1.5 Phase 3: Development of Framework for GWPD 4-4
4.1.6 Submittal of Specific GWPDs 4-4
4.2 Further Evaluation of UIC Separation Distance 4-5
4.2.1 Key Accomplishments for FY07-08 4-5
4.2.2 Projected Main Activities for FY08-09 4-6
4.3 Further Evaluation of Stormwater Pollutants Exceeding MADLs 4-6
4.3.1 Key Accomplishments for FY07-08 4-6
4.3.2 Projected Main Activities for FY08-09 4-8
4.4 Further Evaluation of UICs near Domestic Wells 4-8
4.4.1 Key Accomplishments for FY07-08 4-8
4.4.2 Projected Main Activities for FY08-09 4-10
4.5 Response Actions 4-12
4.5.1 Key Accomplishments for FY07-08 4-12
4.5.2 Projected Main Activities for FY08-09 4-13

5 Corrective Actions 5-1
5.1 Summary of UICs with Inadequate Separation Distance 5-1
5.2 Category 2 UICs 5-2
5.2.1 Key Accomplishments for FY07-08 5-2
5.2.2 Projected Main Activities for FY08-09 5-2
5.3 Category 3 UICs 5-3
5.3.1 Key Accomplishments for FY07-08 5-3
5.3.2 Eliminated Category 3 UICs 5-5
5.3.3 Category 3 UICs - No Further Action Determinations 5-6
5.3.4 New Category 3 UICs 5-6
5.3.5 Projected Main Activities for FY08-09 5-6

5.4 Category 4 UICs 5-7
5.4.1 Key Accomplishments for FY07-08 5-7
5.4.2 Summary of Category 4 UICs 5-9
5.4.3 Projected Main Activities for FY08-09 5-10

Tables

1-1 Summary of WPCF Permit Annual Report Requirements 1-2
1-2 UIC Program Documents Related to UICMP Elements 1-6
2-1 Source Control Measures 2-7
2-2 Public Education and Employee Training 2-18
5-1 Category 4 UICs Identified in Year 2 5-9
5-2 Category 4 UICs Identified in Year 3 5-10

Appendices

A Public UICs Identified/Constructed during FY07-08
B Category 2 and 3 UIC Status

Executive Summary

Introduction

This *Underground Injection Control Management Plan (UICMP)Annual Report No. 3* 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 third permit reporting year (July 1, 2007 through June 30, 2008). Section 4: Evaluation and Response, and Section 5: Corrective Actions, include activities through October 2008 in order to track and report on milestones identified in the *Systemwide Assessment Follow-up Actions* workplan (December 2006).

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 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 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 FY07-08 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, 2007, December 1, 2007, March 1, 2008, and June 1, 2008.

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

- Completed 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.

- Continued updates to the 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 proposed or identified UICs meet permit rule authorization requirements.

- Implemented the *Systemwide Assessment Follow-up Actions* workplan (December 2006) 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 from groundwater.
  - 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.

- Continued follow-up 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 approximately 1,785 complaint calls (citywide) to the City's spill hotline 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 250 inspections and follow-up inspections of businesses in the wellhead protection area. Thirteen violations were identified, most related to containment, labeling, and 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 875 source control measures at sites with high-risk characteristics or activities.

- Conducted 13,042 erosion control-related inspections of private construction sites. Inspected 256 active public construction projects with erosion control components.

- 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 2,236 sedimentation and sump manholes.

- 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.

- Developed and distributed a UIC Registration & Rule Authorization fact sheet for use by the public and City staff.

- Provided information about UIC regulations and requirements for Bureau of Development Services and BES Engineering group managers and staff in the form of overviews, trainings, and meetings.

- Initiated discussions with the Oregon Water Resources Department (OWRD) through the Oregon Association of Clean Water Agencies (ACWA) Groundwater Committee regarding issues relating to drinking water well construction rules and UIC rules.

- Initiated an evaluation process for potential changes to City code/policy to limit the installation of new domestic wells or require connection to public water supply (if available).

- Updated UIC sections of the City's 2008 *Stormwater Management Manual* (effective October 2008) regarding requirements for UIC registration, rule authorization, permitting, and decommissioning, with additional requirements for investigations in areas of shallow groundwater.

System Monitoring

- Prepared and submitted year 3 (October 2007 – 2008) UIC compliance and supplemental monitoring locations to DEQ.

- Implemented year 3 stormwater compliance and supplemental monitoring. Forty-five UIC locations were sampled in year 3 and tested for common pollutants.

- Prepared and submitted the *Annual Stormwater Discharge Monitoring Report – Year 3 – October 2007 – May 2008* to DEQ on July 15, 2008.

- Prepared and submitted year 4 (October 2008 – 2009) UIC monitoring locations to DEQ.

- Compiled and evaluated the results of the pentachlorophenol pathway investigation to assess potential program improvements.

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

Evaluation and Response[1]

- Responded to year 3 MADL exceedances. During year 3 stormwater discharge monitoring (see Section 3), four common pollutants were detected during individual sampling events at concentrations above their respective MADLs: PCP, B(a)P, DEHP, and lead.

- Responded to a heating oil release into a City-owned UIC and subsequently performed an investigation to assess the nature and extent of the release and to evaluate whether groundwater quality was protected as required by the permit. DEQ issued a "no further action" determination for this release in May 2008.

- Completed analyses of the fate and transport of selected stormwater pollutants from the point of discharge into City-owned UICs through unsaturated soil to groundwater, as identified in *UICMP Annual Report No. 2* (November 2007). Analyses were performed to assess the range of minimum separation distances and/or conditions needed to protect groundwater in accordance with OAR 340-040.

- Completed compliance determinations, based on the results of year 3 stormwater monitoring for UIC locations where year 3 pentachlorophenol annual mean concentrations exceeded the MADL.

[1] This summary primarily covers City of Portland fiscal year (FY) 2007-08 (July 1, 2007 through June 30, 2008). 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.

Corrective Action[2]

- Performed pre-design activities for the 29 Category 2 UICs, in accordance with the *Corrective Action Plan* (CAP).

- Continued implementation of the *Systemwide Assessment Follow-Up Actions* workplan (submitted to DEQ on December 1, 2006) to further evaluate City-owned UICs with potential inadequate groundwater separation distances and to develop a plan for a regional corrective action to increase the separation distance or manage stormwater using infiltration at UICs determined to be non-compliant with the permit.

- Determined that 36 UICs included on the list of 338 Category 3 UICs identified in *UICMP Annual Report No. 2* (November 2007) are compliant with permit requirements, based on field work perform in early 2008. Evaluation of these UICs was performed in accordance with the *Systemwide Assessment Follow-up Actions* workplan submitted to DEQ on December 1, 2006.

- Identified "no further action" as the recommended corrective action for 119 UICs with vertical separation distances >5 feet but <10 feet, based on the results of pollutant fate and transport analyses of selected pollutants in various geologic units. The methodology and assumptions used in the fate and transport analyses were approved by DEQ.

- Performed planning and initiated pre-design activities for all Category 3 UICs, in accordance with the CAP and *Systemwide Assessment Followup Actions* workplan.

- Reapplied the *UIC Prioritization Procedure* to Category 2 and 3 UIC locations (see Appendix B).

- Selected, implemented, and received DEQ approval for final corrective actions for the four Category 4 UICs identified in *UICMP Annual Report No. 2 – Fiscal Year 2006 – 2007*.

[2] This summary primarily covers City of Portland FY 2007-08 (July 1, 2007 through June 30, 2008). 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.

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 third fiscal year of permit implementation (July 1, 2007 through June 30, 2008). 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 domestic or public water wells
- Overall monitoring strategy, including pentachlorophenol (PCP) source identification

Table 1-1 summarizes the WPCF permit requirements for the annual report and identifies 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 4.5
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)	Section 1.8
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 3* (July 2008).
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 inspections, cleaning, and repair activities included in Section 2.5. O&M conducted as a response action described in *Stormwater Discharge Monitoring Plan.*
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

Requirement	Permit Reference	Where Requirement is Addressed in Annual Report
System Monitoring (continued)		
A summary and analysis of BMP monitoring accumulated during the annual reporting period	D(15)(l)	Section 3
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 3* (July 2008) 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 are 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 used to identify, evaluate, and prioritize actions necessary to protect groundwater and meet permit requirements.

- **Corrective Action** addresses UICs shown to be non-compliant with WPCF permit requirements through the Evaluation and Response process. It includes the process 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.

The *UICMP, Corrective Action Plan* (CAP), and *Stormwater Discharge Monitoring Plan* (SDMP) must undergo public review and comment before approval by DEQ. DEQ invited public review and comments on these documents between June 24 and July 24, 2008. DEQ approvals are pending.

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 FY07-08 (July 1, 2007 to June 30, 2008) and identifies activities planned for implementation in the next fiscal year (FY08-09).

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 Locations* (due September 1 of each year)
- *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
UIC Management Plan	Submitted December 1, 2006 DEQ Public Comment Period: June 24-July 24, 2008 DEQ Approval: October 6, 2008
Operations and Maintenance Plan	Submitted December 1, 2006 (UICMP Appendix B) DEQ Public Comment Period: June 24-July 24, 2008 DEQ UICMP Approval: October 6, 2008
Spill Prevention and Pollution Control Plan	Submitted December 1, 2006 (UICMP Appendix C) DEQ Public Comment Period: June 24-July 24, 2008 DEQ UICMP Approval: October 6, 2008
Decommissioning Procedure for Underground Injection Control Systems	Draft submitted November 1, 2006 Final submitted December 1, 2006 (UICMP Appendix D) DEQ Public Comment Period: June 24-July 24, 2008 DEQ UICMP Approval: October 6, 2008
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 DEQ Public Comment Period: June 24-July 24, 2008 DEQ Approval: October 6, 2008
BMP Monitoring Program	Submitted December 1, 2006 (UICMP Appendix E) DEQ Public Comment Period: June 24-July 24, 2008 DEQ UICMP Approval: October 6, 2008
Annual Stormwater Discharge Monitoring Report – Year 1 (October 2005 - May 2006)	Submitted July 15, 2006

UICMP Element/Document	Submittal Information
Annual Stormwater Discharge Monitoring Report – Year 2 (October 2006 - May 2007)	Submitted July 15, 2007
Annual Stormwater Discharge Monitoring Report – Year 3 (October 2007- May 2008)	Submitted July 15, 2008
Evaluation and Response/Corrective Actions	
Corrective Action Plan	Submitted July 15, 2006 DEQ Public Comment Period: June 24 – July 24, 2008 DEQ Approval: October 6, 2008
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) DEQ Public Comment Period: June 24-July 24, 2008 DEQ UICMP Approval: October 6, 2008
Prioritization Procedure	Submitted December 1, 2006 (UICMP Appendix G) DEQ Public Comment Period: June 24-July 24, 2008 DEQ UICMP Approval: October 6, 2008
Evaluation and Response Guidelines	Submitted December 1, 2006 (UICMP Appendix H) DEQ Public Comment Period: June 24-July 24, 2008 DEQ UICMP Approval: October 6, 2008
Systemwide Assessment Follow-up Actions Workplan	Submitted December 1, 2006 DEQ Approval: October 6, 2008
Category 4 UIC Corrective Actions – Groundwater Protectiveness Demonstrations	Submitted May 30, 2008 DEQ No Further Action Determination – May 30, 2008
Evaluation of Vertical Separation Distance – Groundwater Protectiveness Demonstration	Submitted May 27,2008 DEQ Approval: June 5, 2008

UICMP Element/Document	Submittal Information
Decision Making Framework for Groundwater Protectiveness Demonstrations	Submitted June 19, 2008 DEQ Approval: October 20, 2008
Category 3 UICs – Groundwater Protectiveness Demonstration – Vertical Separation Distance ≥5 Feet – No Further Action Request	Submitted June 18, 2008 DEQ Approval: October 6, 2008
Ubiquitous Pollutants – Groundwater Protectiveness Demonstration	Submitted July 17, 2008 DEQ Approval: October 6, 2008
UICs within Permit-Specified Well Setbacks – Groundwater Protectiveness Demonstration – No Further Action Request	Submitted July 24, 2008 DEQ Approval: October 6, 2008
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
Underground Injection Control Management Plan – Annual Report No. 2 - Fiscal Year 2006-2007 (July 1, 2006 – June 30, 2007)	Submitted November 1, 2007 DEQ Approval: October 14, 2008
Underground Injection Control Management Plan – Annual Report No. 3 - Fiscal Year 2007-2008 (July 1, 2007 – June 30, 2008)	Submitted November 1, 2008

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

Tracy Rauscher was added as a permanent staff position in FY 07-08.

1.8 Minor and/or Major Permit Modifications

No major or minor permit modifications were initiated during FY07-08. However, on June 18, 2008, DEQ issued a permit clarification letter to BES (Rodney Weick, DEQ, to Mary Stephens, BES). The intent of that letter was to clarify that a groundwater protectiveness demonstration analysis can meet Oregon Administrative Rule (OAR) requirements and satisfy Schedule A.3 (anti-degradation) of the City's WPCF permit.

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

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 UIC program is an integral part of the watershed approach, providing protection of valuable groundwater resources within the water cycle of each watershed.

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): With the adoption of the Portland Watershed Management Plan in 2005, the Watershed Investment Fund was initiated to step up the city's investment in the protection and restoration of Portland's watershed health. For 2007-2008, WIF funding was increased from $500,000 to $1,500,000 to support 15 BES projects and five grants for community-based projects throughout the city of Portland. In addition, three projects from FY07 were carried over and received funding from the FY08 budget.

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 co-permittees submitted a permit renewal application for the third permit term to DEQ on September 2, 2008.

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 pollutants in 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 pollutants with EPA-approved total maximum daily load waste load allocations. (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 spring 2009. 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. Unlike a conventional facility plan, however, the System Plan will consider all capital and operational alternatives in developing recommendations. 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 2008 and will be completed in 2011. UIC elements will be included as part of the stormwater portion of the plan.

1.11.4 Combined Sewer Overflow Reduction

The City is in the last of four major phases of a program to control combined sewer overflows (CSOs) to the Willamette River and Columbia Slough. Activities have included a combination of stormwater inflow reductions (roof drain disconnections, sump installation, local separation) and large structural solutions (including the West Side CSO tunnel system completed in 2006 and the East Side CSO tunnel system scheduled for completion in 2011), as well as treatment plant and pump station upgrades. Since 1990, Portland has reduced CSOs from 6.0 billion gallons per year to about 2.0 billion gallons on an annual 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. Inflow reduction to the CSO is reliant on local area infiltration of stormwater, both in surface BMPs and through UICs.

1.11.5 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.

1.11.6 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 and chum 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. An important element of aquatic species protection is maintenance of base level stream flows. Infiltration via UICs helps support those stream flows..

1.11.7 Portland Harbor Superfund Site

The current Portland Harbor Superfund Study area covers about a 10-mile stretch of the Lower Willamette from below the Broadway Bridge to just upstream of the Columbia Slough confluence. 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.

Additionally, BES has an Intergovernmental Agreement with DEQ to jointly investigate and control sources of contamination discharging to the City's conveyance systems. The BES Portland Harbor program works closely with DEQ and the BES Industrial Stormwater program

to identify sites with potential contamination, evaluate stormwater and groundwater pathways, and determine appropriate controls. The interplay of UICs with groundwater resources is an important element of the evaluation of Portland Harbor.

1.12 City Budget and Funding

The City of Portland has invested more than $578.4 million in stormwater management services and facilities over the past 13 years.[3] The revenue requirements for FY07-08 totaled approximately $72.8 million, allocated as follows:

Major Program Category	Requirements	Percentage Share
Enforcement and Development Review	$ 7.4 million	10%
Watershed Program & Habitat Restoration	22.0 million	30%
Facilities Operations and Maintenance	15.2 million	21%
Capital Improvements*	28.2 million	39%
Total Revenue Requirements	**$ 72.8 million**	
* Includes debt service, facilities planning and engineering, construction engineering, and construction contracts.		

Eighty-two 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 FY08-09, the City plans to invest $75.1 million in stormwater management services and facilities. Direct monthly user fees will pay for 85 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:

	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008
Single-Family Residential Charge	$12.07	$13.30	$14.26	$16.82	$17.33
Residential rate per 1,000 square feet of impervious area	$5.03	$5.54	$5.94	$7.01	$7.22
Non-residential rate per 1,000 square feet of impervious area	$5.54	$6.06	$6.45	$7.56	$7.91

[3] The 13-year time period reflects the implementation period of the City's NPDES MS4 permit.

At the close of FY 2007-2008, City Council increased the monthly stormwater management charge for single-family residences from $17.33 to $18.55. The residential rate increased from $7.22 to $7.73 per 1,000 square feet of impervious surface per month, and the commercial rate increased from $7.91 to $8.43 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, 2008, a total of 35,031 utility ratepayers with active accounts have registered for stormwater discounts:

- 33,610 single-family residential ratepayers account for a total of 74,930,499 square feet of impervious area managed for stormwater.
- 1,421 multifamily, commercial, and industrial ratepayers account for a total of 29,731,626 square feet of impervious area managed for stormwater.

Stormwater System Development Charges

Formerly based exclusively on impervious area, the methodology for assessing system development charges (SDCs) for new development and significant redevelopment was revised in FY 1997-98 to include two components. One component represents the charge for stormwater facilities that handle runoff from individual properties. For FY07-08, this onsite portion was assessed based on $127.00 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 FY07-08, the rates were $4.07 per linear foot and $2.10 per vehicle trip. At the end of FY07-08, City Council increased the rates for stormwater system development charges to $136.00 per 1,000 square feet of impervious area, $4.27 per linear foot of frontage, and $2.23 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 FY08-09.

Section 3: System Monitoring, summarizes the third-year results of UIC monitoring conducted under the *Stormwater Discharge Monitoring Plan* (SDMP) and submitted in the *Annual Stormwater Discharge Monitoring Report, Year 3, October 2007–2008* (July 15, 2008).

Section 4: Evaluation and Response, identifies evaluation and response actions conducted during FY07-08 and projected main activities for FY08-09.

Section 5: Corrective Actions, summarizes the corrective actions implemented during FY07-08 and projected main activities for FY08-09 to address UICs that do not meet permit requirements.

Appendix A identifies UICs identified/constructed during FY07-08.
Appendix B identifies the status of Category 2 and 3 UICs.

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 organized into the following five general BMP categories and are applied to the entire UIC system on an ongoing basis.

- System Inventory and Assessment
- Pollution Control
- Education and Training
- Operations and Maintenance
- Policy and Regulation

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 FY07-08

- Submitted quarterly *UIC Registration Database* updates to DEQ on September 1, 2007, December 1, 2007, March 1, 2008, and June 1, 2008.

- Identified 99 new public UIC[4] records in quarterly *UIC Registration Database* updates:

[4] 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,

- 13 new UIC records in the September 1, 2007 database update
- 52 new UIC records in the December 1, 2007 database update
- 14 new UIC records in the March 1, 2008 database update
- 20 new UIC records in the June 1, 2008 database update

These UIC records are listed in Appendix A.

- Submitted decommissioning reports for closure of 20 UICs to DEQ.

- Completed construction on a neighborhood sump rehabilitation project in March 2008. The project was initiated in 2005; design and registration were completed in 2006/2007; and construction started in July 2007. The project added or replaced 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, initiated retrofit activities 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. The activities can be broken into the following two groups:

  1. Twenty of the 27 UIC retrofits include decommissioning of the original sump and installation of a standard sedimentation manhole and new sump, or sedimentation manhole and connection to an existing storm system. This work has gone to bid and is expected to begin in November 2008.

  2. Seven of the 27 UICs will be retrofitted by decommissioning the existing sump, installing a lined stormwater quality treatment facility such as a curb extension or swale, then piping treated flows to an existing storm system. These projects are at 50 percent design and will be constructed in summer 2009.

- Implemented an internal registration and approval process for new City-owned UICs in 2007 and continued implementation in 2008. 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.

---

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.

2.2.2 Projected Main Activities for FY08-09

- Continue design and construction of Columbia South Shore wellfield UIC upgrades.
- Continue to regularly update the *UIC Registration Database* to include new and decommissioned UICs and other relevant information.
- 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 FY07-08

- Implemented the *Systemwide Assessment Follow-up Actions* (submitted to DEQ December 1, 2006) workplan to address the approximately 950 UICs that were identified for follow-up as part of the systemwide assessment. Work was started to address and evaluate UICs that meet any of the following criteria.
  - UICs with inadequate separation distance from groundwater (see Sections 4 and 5).
  - 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 (see Section 2.3).
  - 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 (see Section 2.3).
  - UICs within close proximity to domestic or public water wells (see Sections 3 and 4).
- Continued focused monitoring program to assess water quality entering UICs within close proximity to domestic use wells (see Section 3).

2.2.4 Projected Main Activities for FY08-09

- Continue implementation of actions identified in the *Systemwide Assessment Follow-up Actions* workplan.
- 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 FY07-08

Spill Prevention and Pollution Control (SPPC) Plan

- Continued to implement 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.

- Continued work on the 20 SARA Title III facilities that were identified for short-term and long-term follow-up as part of the *Systemwide Assessment Follow-up Actions* workplan (reported on in UICMP Annual Report No. 2). The purpose of the work is to identify and address any potential threat to City-owned UICs that receive drainage from a SARA Title III facility.

- Conducted inspections of commercial/industrial properties located near domestic use wells. (See section 4 for details.)

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. SPCR staff support the entire city, including areas that use UICs for management of stormwater.

- 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 485 after-hours complaint calls (citywide). The duty officer responded on-scene to 76 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 SPCR section issued 31 warnings concerning possible violations of City Code 17.39.

- Typical training and enforcement scenarios were developed for staff members who implement the City's discharge enforcement program provisions.

- The SPCR section continued a 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 FY07-08, five two-alarm fire results resulted in pages to the duty officer.

- The BES Spill Section continued 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. In FY 07-07, 61 calls were received from towing companies. No enforcement actions were taken.

- BES and the Water Bureau installed 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."

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 Oregon Emergency Response System, 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 250 inspections and follow-up inspections of businesses in the wellhead protection. Thirteen violations were identified, most related to containment, labeling, and reporting requirements.

- Completed the fifth year of providing education and outreach to affected residents and businesses and one-on-one technical assistance to businesses to help them comply with requirements of the Columbia South Shore Well Field Wellhead Protection Program. 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 conducted bi-annually by Portland Fire inspectors. Public outreach by the Portland Water Bureau and Columbia Slough Watershed Council during permit year 3 included:

  Technical Assistance to Regulated Businesses:
  - 22 phone consultations
  - 10 site visits
  - 11 articles in Columbia Corridor Association newsletter
  - Two fire inspector trainings
  - Completion of Program Implementation Guide
  - Distribution of spill kits, required signs, and secondary containment pallets
  - Multiple presentations at Columbia Corridor Association (CCA) breakfast forums about the groundwater protection program
  - Maintenance of the CCA and PortlandOnline webpage on the protection program and requirements.

  Public Outreach
  - Slough School - groundwater module: 219 students
  - Groundwater 101: 42 participants
  - Subs on the Slough: 31 participants
  - Cycle the Well Field: 30 participants
  - Aquifer Adventure: 406 participants
  - Explorando: 540 participants

- Clean Water Festival:135 students
- Metro Hazardous Waste Round-up (no numbers available)
- Other Events with Groundwater Content (Regatta, Awards Celebration, Migratory Bird Festival, Slough and Wetlands 101)
  Total participants/contacts: 1,924

Coordination

- One coordination meeting 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.

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 875 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

Source Control Type	Johnson Creek	Willamette	Watershed Tryon Creek	Fanno Creek	Columbia Slough	Total
Exterior Bulk Storage[1]	2	5	0	0	2	**9**
Fueling [1]	1	4	1	1	7	**14**
Liquid Storage [1]	1	12	0	0	5	**18**
Material Transfer Areas/ Loading Docks [1]	4	40	0	2	23	**69**
Parking - above and below grade [1]	0	21	0	0	0	**21**
Site Dewatering [1]	0	16	0	0	0	**16**
Trash [1,3]	45	389	1	10	166	**611**
Vehicle Washing [1]	1	9	0	1	7	**18**
Grease Management[2]	14	76	0	1	39	**130**
07- 08 Totals	**37**	**572**	**2**	**15**	**249**	**875**

[1] Not all SWMM controls may have been met within the control type due to approved appeals from the requirements.
[2] Grease control totals include technical assistance
[3] Tenant improvements may have their own control or share the main building's control; therefore, it is possible for one building to be counted more than once in the same control type.

Erosion Control

- There were 5,663 active private construction permits subject to erosion control inspection. The Bureau of Development Services (BDS) conducted 13,042 erosion control-related inspections of private construction sites.

- There were 256 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 303 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. A total of six pre-issuance site visits were completed, with one of those requiring a second visit.

- Planning began for the 2009 Regional Erosion Prevention Awards, which recognize outstanding erosion control efforts by builders and contractors.

- The revised *Erosion Control Manual* was adopted as a Permanent Administrative Rule in March 2008.

Prevention of Illegal Disposal

- Continued to implement solid waste and recycling programs (curbside recycling and yard debris collection, and neighborhood cleanup collection events) to help prevent illegal dumping.

Other

– BES, the Fire Bureau, and General Services continued working together on the City's fire station seismic upgrade to incorporate environmental issues. All upgrades include washing areas with appropriate pretreatment and discharge to the sanitary system. 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.

- Completed pre-design and began design of the Tabor to the River: Brooklyn Creek Basin Program, which 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.

2.3.2 Projected Main Activities for FY08-09

- Continue to implement the *Spill Prevention and Pollution Control Plan*, including the Spill Protection-Citizen Response (SPCR) team hotline and response activities.
- Continue to 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.
- Continue to implement the *Stormwater Management Manual*.
- Continue to operate the citywide erosion and construction site pollutant control program, including the erosion control hotline.
- Continue to track and report on the type, number, and review of enforcement cases.

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 FY07-08

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 6,730 students (grades K-12) with classroom programs that provide hands-on, interactive science education about stormwater and other environmental issues.
- Involved 6,241 students (K-12) in education field programs that offer watershed investigations and field assessments, such as how to measure water quality and conduct

macroinvertebrate sampling as indicators of water quality health. Also included are stormwater tours, boat tours, and restoration experiences along streams and wetlands. In addition, 2,083 of the students combined education with natural area restoration service projects.

- Co-sponsored delivery of the assembly program: *Living Streams, Stories for Healthy Watersheds*. The assembly was presented to a combination of 13,400 elementary students, teachers and family audiences at special events within the City of Portland. The assembly focuses on stormwater pollution, what students can do to protect rivers and streams, and the relationship of stormwater pollution to wildlife health. An accompanying assembly curriculum on the BES website received 6,540 hits.

- Performed portions of the storytelling assembly, *Living Streams* at special events reaching 2,600 audience members.

- Continued to target residents of the 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. 287 youth and community members participated in related activities,

- Provided jet boat tours of the Willamette River to 535 students in the Johnson Creek, Fanno, and Willamette Watersheds. Canoe trips on the Columbia Slough were offered for 197 students in the Columbia Slough Watershed. All students completed special classroom studies and a stewardship project to be eligible. The focus of the tours was on river and slough history, how land usage impacts waterways, combined sewer overflow history, stormwater pollution, and how personal actions can help prevent stormwater pollution.

- Checked out stormwater and watershed curriculum kits to 21 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 77 participants. Worked in partnership with Portland Public Schools, PSU, and Tryon Creek State Park.

- Presented Stormwater - Soak it Up, a 75-minute classroom program for grades 4-12, and special interest groups totaling 890 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.

- Presented Tours of Stormwater Solutions to 57 students. Students visited bioswales, stormwater planters, ecoroofs, porous pavement, and creative downspout disconnections. They learned how these solutions can filter pollution, slow down stormwater, and prevent erosion.

- Presented Watershed Awareness to 820 students, grades 3-6. This program focuses on common non-point sources of pollution found in a watershed and how to prevent stormwater pollution.

- Targeted schools with onsite stormwater facilities for extended outreach. Schools included Mt. Tabor Middle School, Kelly School, and Rosa Parks School. Students learned about stormwater pollution prevention, their school's sustainable stormwater facilities and participated in maintenance activities for their facilities.

- Participated in 14 community events, with a total of 1,525 participants. These included the Children's Clean Water Festival, Columbia Slough Regatta, Explorando El Columbia Slough, Intel NW Science Expo, New Columbia Neighborhood Hot Fun in the Summertime, Pocket Park Day, Spring Break Kick-Off, Stewardship Saturday and Bioswale Festival, Portland Harbor Field Day, Reynolds Middle School Water Festival, Sustainable Living Show, Portland Public Schools Science Curriculum Fair, and the City of Portland Native American Month Brown Bag All events included stormwater pollution prevention messages.

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

Stewardship Activities and Community Events

Columbia Slough Watershed

- Co-sponsored and participated in numerous community events in which stormwater was a topic of instruction. The total attendance was approximately 3,051 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.

Willamette Watershed

- Participated in Multnomah Days, reaching 100 citizens. Provided information on watershed health for the Stephens Creek subwatershed and the Willamette Watershed in general.

- Participated in Welcome the Rain community event, reaching 20 citizens. Provided information on watershed health.

- Presented the Stephens Creek Confluence Project to the public at one open house (attended by 20 citizens) and five neighborhood association and homeowner association meetings (with 70 attendees). Created a Stephens Creek Confluence project website.

- Tabor to the River: Brooklyn Creek Basin Program integrates a variety of sewer, stormwater management, and watershed improvements in the Brooklyn Creek Basin. Accomplishments included:
  - Held four focus group studies, with 28 attendees. Presented the project to Sunnyside Environmental School (250 students, 12 adults)
  - Worked with 26 PSU students in Capstone and Community Development classes.
  - Sent a newsletter and project flyer describing the program to 17,000 property owners within the basin; sent specific project area flyers to 1,807 residents) and letters/postcards to 106 residents.
  - Created a project website.
  - Promoted a calendar of events

- Conducted active outreach to dog-owners in natural areas within the Willamette Watershed. Education focused on water quality, interaction with wildlife, and dog/human health reached over 550 participants.

Johnson Creek Watershed

- Continued working with the Johnson Creek Watershed Council and streamside property owners to encourage watershed stewardship.

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

- Conducted five public involvement events, with 150 people attending, for the East Lents Floodplain Restoration Project and the Brownwood phase of the East Powell Butte Floodplain Restoration Project.

Other

- Coordinated with stakeholders to implement Innovative Wet Weather Program projects:
  - Formed a public stakeholder group to help guide the SE Clay Green Street Project.
  - Worked with Friends of Trees to plant the Owens Corning Stormwater Project.

- Partnered with East Multnomah Soil and Water Conservation District, Metro, and many community hosts to offer Naturescaping for Clean Rivers Program. The program offers four-hour workshops to teach participants to manage their property to use native plants, stop erosion, and reduce chemical and water use. The program reached over 19,000 people at public events, and 846 participants attended workshops. The programs are offered throughout Portland and nearby suburbs. Participants can attend any workshop, regardless of location.

- BES and AmeriCorps' Northwest Service Academy co-sponsored an Americorps member to serve as BES's Stormwater Stewardship Coordinator. Coordinated multiple events focused on stormwater management and pollution prevention throughout the Willamette, Columbia Slough, Fanno, Tryon, and Johnson Creek watersheds. These included the Art of Stormwater

art display, video showings, and distribution of fact sheets and brochures, and reached at least 1,500 people.

Regional Coalition for Clean Rivers and Streams

- Continued participation in the Regional Coalition for Clean Rivers and Streams, with the following activities:
  - Worked with a local advertising agency to develop and implement a multi-year public awareness campaign.
  - A cable television public awareness announcement was developed, produced, and aired for four weeks in late summer/early fall, reaching nearly 400,000 households in the Portland metro area.
  - The Coalition's website was redeveloped throughout the winter/early spring to be more user-friendly, for a launch by summer 2008.
  - Water bill inserts carrying the Coalition's messaging/imagery from the television public awareness announcement were distributed to 214,000 Portland ratepayer accounts from March-May 2008.
  - Maintained a 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 and Signage

- June, July, August 2007: A bill message (located on the bill itself) regarding bureau's Clean River Rewards program and encouraging property owners to manage stormwater onsite was distributed to 214,000 accounts.
- September, October, November 2007: A bill insert titled "Floodplains, Watersheds, and Clean Rivers" was distributed to 214,000 accounts.
- December 2007, January, February 2008: A bill insert titled "Managing Stormwater the Natural Way" was distributed to 214,000 accounts.
- March, April, May 2008: A Regional Coalition bill insert with information and tips regarding stormwater runoff was distributed to 214,000 accounts.

- Installed interpretive signs at three Innovative Wet Weather Program (IWWP) sites.
  - Astor Elementary School
  - Metro Headquarters
  - Kelly Elementary
  - Taylors Ferry Stormwater Project

- Updated and posted fact sheets, brochures, and educational materials on the BES Sustainable Stormwater Management website. The materials included information about Green Streets, ecoroofs, stormwater management facility planting guides, green streets and other sustainable stormwater approaches. The website received over 102,000 views during FY07-08 (up almost 90,000 from the previous fiscal year).

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

- 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 and distributed project informational materials entitled "Stephens Creek Confluence Project," "SW Texas Green Street," and "Oaks Bottom Wildlife Refuge Projects."

- Created two educational signs for River East's stormwater management infrastructure in the Willamette Watershed.

- Completed and installed a Kelly School bioswale educational sign in the Johnson Creek Watershed.

- Produced two UIC informational fact sheets. One is a general fact sheet that discusses the stormwater management benefits of UICs, and the other provides an overview of the UIC program and the WPCF permit requirements and how both are protective of groundwater.

- Developed and distributed a UIC Registration & Rule Authorization fact sheet.
  - Distributed the fact sheet at the trade permit counter to UIC owners, operators, and contractors.
  - Mailed the fact sheet to 1,975 licensed plumbers in Multnomah County.

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 3, 30 shops were certified in the City of Portland, including 7 City-owned garages.

- Reformatted the automotive checklist and increased the number of programmatic requirements.

- 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 three landscape designers, two full-service firms and one specialty organics firm that all do work in the City of Portland.

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

BEST Business Center

- The BEST Business Center assists Portland businesses with resources and information to help them green their operations. The BEST Business Center is run by the Office of Sustainable Development, in partnership with the Portland Water Bureau, Portland Development Commission, Metro, Pacific Power, and Portland General Electric. Each year, OSD recognizes Portland's most sustainable businesses with the BEST Awards. In 2008, eight businesses received the BEST Award for their efforts to reduce waste and toxics, conserve energy, develop green products and services, and promote sustainable food systems.

2.4.2 Projected Main Activities for FY08-09

- 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.

- 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 FY 08-09 is to have three more auto shops certified and four more landscape services certified in the City of Portland.

- Incorporate new UIC fact sheets into community outreach activities.

- Update the stormwater UIC website. Incorporate new fact sheets, depth to groundwater maps, and links to the *Stormwater Management Manual*, DEQ website, and other appropriate agencies.

- Continue participation in the BEST Program.

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 FY07-08

- UIC staff provided outreach to Bureau of Development Services (BDS) and Bureau of Environmental Services Engineering group managers and staff in the form of overviews, trainings, and meetings to provide programmatic information, updates, and contact with DEQ. Table 2-2 identifies specific dates and staff.

  - Coordinated a meeting between DEQ, BES, and BDS to share information about the state UIC program, discuss priorities, identify issues, and provide a general question and answer session.

  - Provided a programmatic overview to BES Engineering staff regarding the importance of notification for new UICs and rule authorization and decommissioning requirements.

  - Provided a program overview to the BDS trade permit staff to ensure permit counter staff are informed of the permit and programmatic requirements and notify private property owners and builders of the UIC registration, rule authorization, and decommissioning requirements.

- The BES Spill Section presented a StormWatch video to 50 Bureau of Maintenance (BOM) staff and managers to increase awareness and show how to prevent stormwater contamination.

- Conducted training 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. Thirteen new BOM employees were oriented during the past fiscal year.

2.4.4 Projected Main Activities for FY08-09

- Continue to conduct training to City staff on the BES spill response hotline and staff response duties. Continue duty officer training sessions.
- Continue to develop information focused on groundwater protection and UICs for City staff.
- Continue to coordinate with BES engineering and construction groups to identify any UIC process issues and data gaps.
- Continue to coordinate with 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.

Table 2-2
Public Education and Employee Training

Public Education and Outreach	
Date	**Activity/Participants**
8/17/07	UIC Fact Sheet Meeting with Linc Mann (BES) Discuss elements of internal/external fact sheet
8/21/07	Stormwater Management Manual Meeting #2 (Mary Stephens, Barb Adkins): System Development Division: Elizabeth Reese, Lana Danaher, Sun Noble Discussion of UIC section recommendations and implication for implementation
Employee Training	
Date	**Activity/Participants**
7/10/07	BES/BDS UIC Meeting Introduction of staff, identification of priorities, next steps
7/23/07	Meeting with Eric Engstrom, BDS (now Principal Planner with Planning Bureau) Eric outlined land-use process and land-use law. Discussed why current DEQ UIC review timeline violates land-use deadlines.
8/6/07	Meeting with Kevin Kilduff, BDS, Plan Review & Permitting Services, Process Management and MPG Projects Kevin described special projects related to permitting process.
8/20/07	DEQ Fee Implementation Discussion with BDS (Barb Adkins, Mary Stephens) Eric Engstrom, Planning Bureau, Principal Planner Mike Ebeling, BDS, Site Development Discussion of fee implementation dates and DEQ commitments.
8/28/07	UIC Permit History & Program Implementation Presentation with BDS & BES Mary Stephens presented the history of the UIC permit and program development & implementation since permit issuance. Barb Adkins presented the DEQ fee implementation process thus far. Attendees: Andy Peterson, Plan Review & Permitting Services Manager Mike Ebeling, Site Development Bill Freeman, BDS, Retired Dawn Uchiyama, System Development George Helm, Site Development Joe Blanco, System Development Mary King, Site Development Eric Engtrom, Planning Bureau, Principal Planner Ross Caron, Site Services Manager
11/27/08	BES Engineering Presentation UIC staff presented history of UIC rules & permit along with City's UIC program overview to East Willamette Pipe Rehab/Specs Division. Discussed importance of notifying UIC program of new UIC construction, rule authorization & decommissioning. Provided decommissioning soil sampling costs. Attendees: Steven Burger, Brandon Wilson, John Houle, Kurt Robinson, Colleen Harold, Helena Abernathy, Terence Chan, Michael Sisler

Employee Training (continued)	
Date	**Activity/Participants**
12/12/07	BES & BDS Development Staff Meeting (Mary Stevens, Barb Adkins) UIC staff provided DEQ update & discussed over-the-counter permit issues. Follow-up with plumbing contractor outreach (mailing and over-the-counter), coordination with DEQ & Plumbing Board, and changes to trade permit intake forms. Attendees: Carolyn Bywater, Trade Permits Section Manager- retired Mike Ebeling, Site Development Joe Blanco, System Development Lana Danaher, System Development Division Manager Bill Freeman, BDS, retired Eric Engstrom, Planning Bureau, Principal Planner Ross Caron, Site Services Manager
3/26/08	BDS & BES Meeting with DEQ (Barb Adkins). Meeting with DEQ, BDS, and BES. DEQ provided programmatic overview and outlined program issues and priorities. BDS discussed land-use and permitting issues identified that conflict with state UIC program. Good discussion with suggestion of additional smaller follow-up technical meetings to address specific issues. DEQ suggested additional coordination meetings particularly to provide communication for process, UIC notification, and addressing specific issues that arise. Attendees: DEQ: Rod Weick, Judy Johndahl, Beth Moore Carolyn Bywater, Trade Permits Section Manager-retired Erin Mick, Site Development Mike Ebeling, Site Development Ross Caron, Site Services Manager Douglas Morgan, Site Development, Supervising Engineer Eric Engstrom, Planning Bureau, Principal Planner Ken Carlson, Plumbing Inspections Manager Joe Blanco, System Development
5/20/08	BDS Trade Permits, Records, & Resources Staff UIC staff provided a program overview to trade permitting staff about the UIC program, the City's permit, the need to notify property owners and builders of the UIC registration/rule authorization requirements. Discussed the recently updated trade permit application to include UICs on the form and the UIC inspection fee (associated with plumbing code) beginning July 1, 2008. BDS will query the database weekly for UIC applications and forward information to DEQ. Attendees: Anne Pfaff, Chris Corr, Gayle Gardner, Huong Nguyen, Kathie Drake, Lisa Baumgartner, Robyn Harris, Tony Aguon, Viktor Palchey, Carolyn Bywater, Janette Silleck.

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 FY07-08

Facility Maintenance

- Implemented the UICMP *Operations and Maintenance Plan*.
- Initiated work orders to the Bureau of Maintenance to address UICs identified as having inadequate maintenance access.
- Initiated discussions with Other City bureaus to standardize operations and maintenance procedures for UICs on City property, based on the O&M templates established in the City's *Stormwater Management Manual*.
- Made 6,178 facility 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 approximately 10,800 inlets (citywide).
- Cleaned 2,236 sedimentation and sump manholes.
- Repaired or constructed 319 inlets, 1,800 linear feet of inlet lead, and 4,130 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 103 linear feet from ditches to swales (porous shoulder).
- Used UIC stormwater quality monitoring data to evaluate the relationship between stormwater quality, maintenance frequency, and traffic volumes.

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. This includes:
  - Following ODOT's *Routine Road Maintenance Water Quality and Habitat Guide Best Management Practices.*
  - Tracking and removing abandoned erosion control devices.
  - Using the trenchless liner repair system.
  - Using bio-pillows for sediment control on impervious surfaces and hydrocarbon-absorbing booms to trap sediment, oil, and grease while cleaning the grinding machine.
  - Using low-disturbance sign installation methods to avoid or minimize digging.
  - Using mild cleaners, with no solvents, to clean signs.
  - Monitoring weather conditions during asphalt grinding.
  - Hand-applying asphalt to prevent these materials from entering the storm drain system
  - Placing bio pillows and oil-absorbent booms before entering storm drains.
  - Using water-based asphalt emulsions and biodegradable asphalt release agents.

- BOM staff continued to look at piloting new materials and applications directed toward enhancing water quality.

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 FY08-09

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

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

- Continue 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 work orders for Maintenance Bureau 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.

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 FY07-08

Development Review Process and UICs

- Key staff from BES and BDS continued evaluation of the review and approval process for private UICs, identifying issues and process gaps and identifying strategies for a more streamlined and consistent registration process for both public and private UICs.

Policy Initiatives

- Initiated discussion with Oregon Water Resources Department (OWRD) through the ACWA Groundwater Committee regarding issues relating to the water supply well construction rules and UIC rules.

- Initiated an evaluation process for potential changes to City code/policy to limit the installation of new domestic wells or require connection to public water supply (if available).

- Modified the BDS plumbing permit application to include UIC tracking information for new construction of private facilities.

Regional Coordination

- The City participated in the ACWA Groundwater Committee:
  - Established quarterly coordination meetings between DEQ and municipalities.
  - Developed a priority list for the DEQ UIC program, based on municipality needs.

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 FY07/08, the SAC provided review of *Stormwater Management Plan* revisions and recommendations for modifications, input on implementation of the Green Streets Program, and review and comment on the 2008 *Stormwater Management Manual*. The SAC also met jointly with the Watershed Science Advisory Group (WSAG) to discuss implementation of the Portland *Watershed Management Plan* and merging of the two committees.

Grey to Green Initiative

- The City adopted the Grey to Green initiative, including a 5-year goal to implement over 43 acres of ecoroofs and more than 900 Green Streets citywide as a way to improve watershed health. The initiative includes a "1% for Green" fund to invest in Green Street projects.

Stormwater Management Manual Revision

- Completed the 2008 revision of the *Stormwater Management Manual* (effective October 2008). Updated UIC sections included:
  - Updated information regarding requirements for UIC registration, rule authorization, permitting, and decommissioning.
  - Added a new requirement for depth to groundwater investigation for areas of shallow groundwater.
  - Added a link to the *Estimation of Depth to Ground Water and Configuration of Water Table in the Portland, Oregon Area*, prepared by the USGS.

Land Acquisition

- The Johnson Creek Willing Seller Program acquired approximately 1.29 acres of floodplain property in FY 07-08. Since June 1997, 74 properties have been purchased, totaling approximately 128 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 FY08-09

- Continue discussion/initiate collaboration with the Oregon Water Resources Department for resolution of identified issues relating to the construction of water supply wells and UIC codes.

- Continue the evaluation process for potential City code or policy changes to limit installation of new water supply 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 to work with the Stormwater Advisory Committee (or similar advisory committee) 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 provide training and technical assistance on the *Stormwater Management Manual* to City staff and the development community**.**

- Continue implementation of the Grey to Green initiative.

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 FY07-08

- Submitted year 3 (October 2007 – 2008) UIC compliance and supplemental monitoring locations to DEQ on August 31, 2007. Supplemental monitoring locations were selected to assess the quality of stormwater discharged to UICs located near domestic or public water wells.

- Implemented year 3 stormwater compliance and supplemental monitoring. Forty-five UIC locations were sampled in year 3 and tested for common pollutants.

- Compiled and evaluated year 3 stormwater data. Notified DEQ of year 3 annual mean concentration exceedances of the permit's maximum allowable discharge limits (MADLs) on July 11, 2008.

- Prepared and submitted the *Annual Stormwater Discharge Monitoring Report – Year 3 – October 2007 – May 2008* to DEQ on July 15, 2008. The report results are summarized in Section 3.1.2, below.

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

- Prepared and submitted year 4 (October 2008 – 2009) UIC monitoring locations to DEQ on August 29, 2008, including 30 compliance monitoring locations selected in accordance with the SDMP and 10 new supplemental UIC monitoring locations located near domestic or public water wells.

3.1.2 UIC Stormwater Year 3 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 2007 and May 2008. 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 3 since they were detected using EPA test methods for analysis of the common pollutants. Field and laboratory data collected during year 3 met the data quality objectives defined in the SDMP.

Forty-five UIC locations, stratified based on estimated traffic volume (>1,000 vehicle trips per day [TPD] and <1,000 TPD), were sampled in year 3, as follows:

- Thirty UICs selected to implement the year 3 compliance monitoring (i.e., monitoring network) described in the SDMP:
  - Panel 3 (15 rotating UIC locations sampled in permit years 3 and 8)
  - Panel 6 (15 fixed UIC locations sampled in permit years 1 through 10)

- Five UIC locations (P1_1, P2_5, P2_7, P2_13, and P2_14) carried over from year 2 monitoring because of an exceedance of the permit-defined MADL for pentachlorophenol (PCP).

- Ten supplemental UICs located near domestic or public water wells (See Section 4.4.1).

Year 3 Results [5]

- Twelve of 14 common pollutants and one PPS analyte (2,4-D) were detected in year 3.

- Four pollutants—PCP, di(2-ethylhexyl)phthalate [DEHP], benzo(a)pyrene [B(a)P] and lead—were detected in year 3 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[6].

- Twenty-eight ancillary pollutants (i.e., pollutants detected using 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 24 and 98 percent)

[5] A full discussion of monitoring methodology and results can be found in the *Annual Stormwater Discharge Monitoring Report – Year 3* (July 2008).

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

during the individual sampling events are polycyclic aromatic hydrocarbons (PAHs). Of the PAHs detected, naphthalene had the highest concentration (1.28 µg/L).

Annual Mean Concentrations

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

- Annual geometric mean concentrations for six UIC locations (P6_1, P6_4, P6_14, P2_5, P2_13, and P2_14) exceeded the MADL for PCP (1.0 µg/L). Annual geometric means for these locations range from 1.1 to 1.7 µg/L, slightly above the MADL.

- Annual geometric mean concentrations for DEHP, B(a)P, 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[7] UICs. The annual mean concentration of PCP exceeded the MADL for a second year in the following UIC locations: P2_5, P2_13, and P2_14 (See *Annual Stormwater Discharge Monitoring Report – Year 3*, July 2008.) These Category 4 UICs are further discussed in Section 5.

Preliminary Trend Analysis

Years 1, 2, and 3 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, year 3)
- Traffic categories (i.e., <1,000 TPD; ≥1,000 TPD)
- Sample panels (e.g., Panel 1, Panel 2, Panel 3, Panel 6, supplemental panels [SP1 and SP2]).

In general, the box plots prepared for years 1, 2, and 3 data are very similar for each variable. For the pollutants evaluated (lead, dissolved lead, PCP, 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 slightly higher in the ≥1,000 TPD traffic category than in the <1,000 TPD category and very similar between sample panels.

[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.

Response Actions

Section 4 summarizes the actions taken during the year 3 wet season (October 2007 – May 2008) 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 the *Annual Stormwater Discharge Monitoring Report – Year 3*, dated July 2008.

3.1.3 Projected Main Activities for FY08-09

- Select UIC locations for year 4 monitoring (i.e., Panel 4 [compliance monitoring], supplemental panel). (Note: UIC locations were submitted to DEQ on August 31, 2008.)

- Implement year 4 UIC compliance and supplemental monitoring in accordance with the SDMP. Year 4 monitoring will include priority pollutant screen (PPS) analyses during Event 1 for Panel 4 and the supplemental panel. If PPS analytes are detected during Event 1, additional monitoring will be performed in accordance with the permit and the SDMP.

- Document, analyze, and report results of the 2008-2009 (year 4) stormwater monitoring in the *Annual Stormwater Discharge Monitoring Report – Year 4*. This report will be submitted to DEQ by July 15, 2009.

- 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 water wells meet permit MADLs and are protective of groundwater quality (See Section 4).

- Initiate planning and selection of year 5 compliance, and year 4 carryover, if any, stormwater monitoring locations.

- Notify DEQ of year 5 stormwater monitoring locations by September 1, 2009.

3.2 BMP Monitoring

3.2.1 Key Accomplishments for FY07-08

- Compiled and evaluated the results of the pentachlorophenol pathway investigation to assess potential program improvements for improving the quality of stormwater entering the UIC system. Results were presented in the *Annual Stormwater Discharge Monitoring Report – Year 3*.

- Selected five demonstration projects to increase the separation distance between shallow groundwater and the bottom of the UIC (see Section 5.2).

- Completed 90 percent engineering design and project specifications for the five demonstration projects for internal City review (see Section 5.2).

3.2.2 Projected Main Activities for FY08-09

- Finalize engineering design and bid specifications for the demonstration projects for contractor procurement (See Section 5.2).

- Construct and implement demonstration projects to increase the separation distance between shallow groundwater and the bottom of the UIC (see Section 5.2).

- Reevaluate the need for and/or the objectives of the *BMP Monitoring Plan*, based on the results of the UIC stormwater discharge monitoring program and the groundwater protectiveness demonstrations.

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 stormwater discharge monitoring) activities to assess UIC compliance status. It also defines the process and criteria used to identify, evaluate, and prioritize actions necessary to protect groundwater and meet permit requirements.

4.1 Fate and Transport Analyses

The permit requires the City to identify compliance response and corrective actions for UICs that do not meet stormwater discharge limits, minimum requirements for vertical separation distance, or other permit conditions. The permit and DEQ's *Fact Sheet and Class V Underground Injection Control (UIC) Permit Evaluation* report (DEQ, 2005) identify several types of activities the City may use to evaluate and/or demonstrate that groundwater is protected in accordance with OAR 340-040. These activities include groundwater monitoring, risk assessment, structural retrofitting of UICs, UIC decommissioning, or other actions as directed or approved by DEQ. The term "risk assessment" as referenced in the permit and as used in the *UIC Management Plan* (BES, 2006) is used to indicate the evaluation of potential risk for adverse impacts to groundwater quality, as defined by OAR 340-040 and OAR 340-044, associated with stormwater discharged into City-owned UICs.

Stormwater entering City-owned UICs is discharged into subsurface soil, infiltrates through the soil (i.e., unsaturated zone), and eventually recharges groundwater. Prior to entering the unsaturated zone, large-size particulate matter (which stormwater pollutants may be sorbed to) falls out of suspension into a sump (e.g., sediment trap ring) at the bottom of the UIC. Pollutant concentrations at the point stormwater enters groundwater are expected to be significantly lower than the input concentration. Pollutant concentrations would be reduced as the pollutant travels from the UIC vertically downward though unsaturated soil into groundwater by various physical processes (advection, dispersion, dilution, diffusion, volatilization, sorption/desorption), chemical reactions (ion exchange, complexation, abiotic transformation), and biological activity (aerobic and anaerobic biodegradation).

The permit allows for unsaturated zone soils to function as part of the water quality treatment system. To ensure that the unsaturated zone functions as intended as part of the treatment system, a vertical separation distance sufficient to reduce pollutant concentrations in infiltrating stormwater to levels protective of drinking water quality must be maintained. An evaluation tool, described below, was developed to assess the effectiveness of the unsaturated zone.

4.1.1 Tool Description

As used in this document and in the UICMP, a Groundwater Protectiveness Demonstration (GWPD) is defined as the collective analysis performed to evaluate and document whether stormwater pollutant concentrations entering a UIC are reduced to levels protective of drinking water at the point the infiltrated stormwater reaches groundwater. DEQ has agreed that pollutant

fate and transport analysis is an appropriate method to evaluate risk and document groundwater protection.

The GWPD tool is a solute transport spreadsheet model developed to evaluate the reduction by unsaturated soil of stormwater pollutant concentrations entering the UIC before the infiltrated stormwater reaches groundwater. The tool is used to evaluate the fate and transport of pollutants in different geologic units by modifying the appropriate physical and chemical input parameters to characterize the properties of the geologic materials and pollutants.

4.1.2 Tool Development

The GWPD tool was developed using a phased approach under DEQ oversight. The purpose of the phased approach was to allow the tool to be developed in a methodical manner. Phase 1 focused on the development of the methodology and assumptions to be used in evaluating a limited number of UICs with a single issue (MADL exceedance) and a single pollutant (PCP). Phase 2 built on the results of the Phase 1 and incorporated DEQ's comments on the Phase 1 results. Phase 2 expanded the Phase 1 methodology to evaluate two issues (vertical separation distance and potential MADL exceedance) and multiple pollutants representative of stormwater entering the City's UIC system. Phase 3 included applying the results of Phase 2 to a wider range of UIC issues.

Phase 1 and Phase 2 were developed with active DEQ input and oversight, achieved in part through scheduled bimonthly meetings. DEQ comments and suggestions were incorporated into the analyses throughout the tool development process. The primary purpose of these ongoing meetings was to develop the approach and specific methodologies to be used to evaluate pollutant fate and transport through unsaturated soil in order to determine if stormwater discharges to City-owned UICs were reasonably likely to result in adverse impacts to groundwater quality.

A list of representative stormwater pollutants was selected based on frequency of detection, mobility, persistence, and toxicity. This representative list was used to evaluate whether decreases in vertical separation distance would be reasonably likely to result in stormwater discharges adversely impacting groundwater quality as a drinking water resource.

4.1.3 Phase 1: Category 4 UIC Groundwater Protectiveness Demonstrations

The first phase of tool development evaluated four non-compliant Category 4 UICs (see Sections 4.3 and 5.4) identified following the second year (2006-2007) of stormwater discharge monitoring. These UICs were identified as Category 4 because annual mean PCP concentrations in stormwater exceeded the MADL for two consecutive years. A one-dimensional mathematical fate and transport equation and site-specific parameter values (e.g., soil type, contaminant concentration) were used to evaluate and document whether stormwater pollutant concentrations entering the UIC are reduced to levels protective of drinking water at the point the infiltrated stormwater reaches groundwater. BES submitted the following documents to DEQ for review and approval, which demonstrated that groundwater quality is protected and supported "no

further action" (NFA) determinations as the recommended corrective action for the four identified Category 4 UICs:

1. *Category 4 UIC Corrective Actions - Groundwater Protectiveness Demonstrations.* Prepared by GSI Water Solutions Inc. (GSI) and EnviroIssues under the direction of the BES UIC Program staff. This technical memorandum is dated April 7, 2008.
2. *Peer Review of UIC Category 4 Groundwater Protectiveness Demonstration – Draft dated March 3, 2008*. Prepared by S.S. Papadopulos & Associates (SSP&A). BES retained SSP&A to perform an independent review of the draft GSI technical memorandum. SSP&A's memorandum is dated April 6, 2008.
3. *Category 4 – UICs Corrective Action.* Letter from Rod Struck, BES, to Rodney Weick, DEQ, informing DEQ that BES had identified the GWPD (i.e., risk assessment) as the selected corrective action for the four Category 4 UICs. This letter requested DEQ approval of the selected corrective action and NFA determinations.
4. *Category 4 UICs – Corrective Actions.* This April 15, 2008 letter (Rod Struck, BES, to Rodney Weick, DEQ) provides a table showing how key comments made by SSP&A (April 6, 2008) were incorporated into the final GSI technical memorandum dated April 7, 2008.

The documents listed above were developed with DEQ input, and the final documents were reviewed and approved by DEQ. DEQ's comments on these documents were provided in an April 29, 2008 electronic mail (Rodney Weick, DEQ, to Rod Struck, BES). DEQ concluded that the methodology and assumptions used in the analyses presented in these documents provide a good analytical tool for evaluating pollutant transport in unsaturated zone soil beneath City-owned UICs.

DEQ issued an NFA determination for the four Category 4 UICs on May 30, 2008. A copy of this letter is included in the *Decision Making Framework for Groundwater Protectiveness Demonstrations* (City of Portland, June 2008).

4.1.4 Phase 2: Evaluation of Vertical Separation Distance

The second phase of tool development included building on the methodology and assumptions developed in Phase 1 to evaluate whether a vertical separation distance (i.e., the distance between the bottom of a UIC and seasonal high groundwater) of < 10 feet is protective of groundwater. Phase 2 was developed with DEQ participation and input. Phase 2 expanded the analyses performed in Phase 1 from a single issue (MADL exceedance) and single pollutant (PCP) to multiple issues (MADL exceedance, separation distance) and multiple pollutants. Phase 2 included incorporation of DEQ's April 29, 2008 comments on the Phase 1 technical memorandum and SSP&A recommendations. In this phase, a range of site parameters specific to the Portland area, and representative pollutants, were evaluated and incorporated into the analyses. The results of this evaluation were used to identify site-specific conditions and pollutant concentrations that would be protective of groundwater for separation distances of 5 and 7 feet. The results of Phase 2 are presented in the technical memorandum, *Evaluation of Vertical Separation Distance - Groundwater Protectiveness Demonstration*s dated May 27, 2008. DEQ approved this technical memorandum on June 5, 2008. A copy of this memorandum

and DEQ's approval are included in the *Decision Making Framework for Groundwater Protectiveness Demonstrations.*

4.1.5 Phase 3: Development of Framework for GWPD

The last phase of work involved developing the *Decision Making Framework for Groundwater Protectiveness Demonstrations*, based upon the methodology, assumptions, and results of the Phase 1 and 2 analyses. Phase 3 included applying the results of Phase 2 to a wider range of UIC issues and conditions that might be expected to exist in Portland and developing protocols for consistently applying the GWPD tool to determine whether a particular set of UIC site conditions is protective of groundwater and where further evaluation or corrective action is required. The *Decision Making Framework for Groundwater Protectiveness Demonstrations*, submitted to DEQ in June 2008, includes the protocols for applying the GWPD tool to UICs that fall within four specific categories identified during permit negotiations and permit implementation:

- UICs with inadequate separation distance
- UICs located within permit-specified setbacks from domestic or public water wells
- UICs with stormwater concentrations exceeding permit-specified MADLs at end-of-pipe where stormwater enters the UIC
- UICs that have ubiquitous stormwater pollutants (e.g., PCP in stormwater)[8]

In addition, a groundwater fate and transport analysis was performed and included in the *Decision Making Framework for Groundwater Protectiveness Demonstrations* to demonstrate that identified domestic and public water wells located within permit UIC setbacks (i.e., Category 2 and Category 3 UICs, both non-compliant because of inadequate vertical separation distances) are protected pending the completion of corrective actions. DEQ approved the *Decision Making Framework for Groundwater Protectiveness Demonstrations* on October 20, 2008.

4.1.6 Submittal of Specific GWPDs

The City applied the *Decision Making Framework for Groundwater Protectiveness Demonstrations* to evaluate specific issues identified during permit negotiations and permit implementation and identified in the *UICMP Annual Report No. 2* (November 2007). These issues are listed in the following bolded bullets, followed by the title(s) of the GWPD submitted for DEQ review and approval.

---

[8] Ubiquitous pollutants are defined as "pollutants frequently detected in stormwater as a result of their widespread, non-point source origin, such as PCP associated with treated wood utility poles found throughout the urban environment" (*Ubiquitous Pollutants Groundwater Protectiveness Demonstration,* submitted to DEQ July 17, 2008). They have also been defined as "a pollutant detected in the City's Year 1 and Year 2 Stormwater Discharge Monitoring Program at a detection frequency of > 75% and with a concentration of $\geq$50% of the MADL (*Decision Making Framework for Groundwater Protectiveness Demonstrations,* submitted to DEQ July 19, 2008).

- **UICs with inadequate separation distance** (see Section 4.2)
  - *Evaluation of Vertical Separation Distance - Groundwater Protectiveness Demonstration.* Prepared by GSI Water Solutions for the City of Portland. Submitted to DEQ for Approval in May 2008. This document concluded that UICs with > 5 feet of vertical separation are protective of groundwater at stormwater discharge concentrations > 100 times permit MADLs. DEQ approved this document in a letter titled "Approval of *Evaluation of Vertical Separation Distance, Groundwater Protectiveness Demonstration* Model," dated June 5, 2008, from Rodney Weick, DEQ NWR Stormwater and UIC Program Manager, to Mary Stephens, BES UIC Program.
  - *Category 3 UICs – Groundwater Protectiveness Demonstration – Vertical Separation Distances ≥ 5Feet – No Further Action Request.* Prepared by the City of Portland Bureau of Environmental Services and submitted to DEQ on June 18, 2008. This document requests DEQ approval of NFA determinations as appropriate corrective actions for 119 Category 3 UICs. DEQ approval was obtained on October 6, 2008.
- **UICs with stormwater concentrations exceeding permit-specified MADLs at end-of-pipe where stormwater enters the UIC** (see Section 4.3)

  BES submitted several documents to DEQ for review and approval, demonstrating that groundwater quality is protected at Category 4 UICs. These documents are listed in Section 4.1.3.
- **UICs located within permit specified setbacks from domestic or public water wells** (see Section 4.4)
  - *UICs within Permit-Specified Well Setbacks - Groundwater Protectiveness Demonstration – No Further Action Request.* Prepared by the City of Portland Bureau of Environmental Services. Submitted to DEQ for review and approval in July 2008. DEQ approval was obtained on October 6, 2008.
- UICs that have ubiquitous stormwater pollutants (e.g., PCP in stormwater)
  - *Ubiquitous Pollutants - Groundwater Protectiveness Demonstration.* Prepared by the City of Portland Bureau of Environmental Services. Submitted to DEQ for approval in July 2008. DEQ approval was obtained on October 6, 2008.

4.2 Further Evaluation of UIC Separation Distance

4.2.1 Key Accomplishments for FY07-08

- Performed further evaluation of UICs with potential inadequate separation in accordance with the *Systemwide Assessment Follow-Up Actions* workplan (submitted to DEQ on December 1, 2006). (See Section 5.3).

- Continued evaluation and selection of corrective action alternatives for UICs determined to be non-compliant with the permit (See Sections 5.2 and 5.3).

- Identified and evaluated additional UICs with potential inadequate separation as new data became available. Performed compliance determinations on UICs identified to have potentially inadequate separation distance. Reported and prioritized newly identified Category 3 UICs to DEQ in accordance with the permit requirements (see Section 5.3).

4.2.2 Projected Main Activities for FY08-09

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

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

- Apply the protocols in the *Decision Making Framework for Groundwater Protectiveness Demonstrations* to any new UICs identified with vertical separation distances >5 feet to determine if groundwater is protected or corrective action is required. Projected timeframe: Ongoing.

4.3 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 4.5.

4.3.1 Key Accomplishments for FY07-08

- Reported MADL exceedances to DEQ within 7 days following receipt of validated analytical data. Thirty-five sample concentrations from 15 UIC locations exceeded the MADL of 1.0 µg/L for PCP. Ten individual sample concentrations from six UIC locations exceeded the MADL of 50.0 µg/L for lead. Fifteen individual sample concentrations from 13 UIC locations exceeded the MADL of 6.0 µg/L for DEHP.

- Identified three new noncompliant Category 4[9] UICs in the July 2008 *Annual Stormwater Discharge Monitoring Report – Year 3* (see Section 5.4).

- Evaluated sample results collected along the potential PCP migration pathway from suspect wooden utility poles to the UIC sedimentation manhole (*UICER Guideline 5: Source Specific Investigation Monitoring*). See the *Annual Stormwater Discharge Monitoring Report – Year 3*, Appendix H, dated July 2008, 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.

- Completed stormwater pollutant fate and transport analyses of pentachlorophenol in Category 4 UICs (identified in year 2) from the point of discharge to shallow groundwater to demonstrate concentrations are attenuated by unsaturated soils prior to reaching groundwater and therefore protective of groundwater quality in accordance with Oregon Administrative Rules 340-040 (see Sections 4.1 and 5.4).

- Developed a decision-making tool for evaluating MADL exceedances (PCP and other pollutants, as appropriate) to determine if groundwater is protected in accordance with the permit or if corrective action is required (see Section 4.1). The tool, developed with DEQ input, is presented in the following document:
  - *Decision Making Framework for Groundwater Protectiveness Demonstrations.* Prepared by the City of Portland Bureau of Environmental Services and submitted to DEQ on June 18, 2008. DEQ's approval was obtained on October 20, 2008.
- Extrapolated stormwater discharge monitoring data and potential MADL exceedances to the entire population of City-owned UICs. Specific data extrapolation results are presented in the following documents submitted to DEQ for review and approval:
  - *Ubiquitous Pollutants - Groundwater Protectiveness Demonstration.* Prepared by the City of Portland Bureau of Environmental Services. Submitted to DEQ for approval in July 2008. DEQ's approval was obtained on October 6, 2008.
  - *UICs within Permit-Specified Well Setbacks - Groundwater Protectiveness Demonstration – No Further Action Request.* Prepared by the City of Portland Bureau of Environmental Services. Submitted to DEQ for approval in July 2008. DEQ's approval was obtained on October 6, 2008.

- Evaluated ubiquitous pollutants (e.g., PCP) in stormwater discharges in accordance with *UICER Guideline No. 7 -Regional Assessment of Problem* presented in the UICMP (BES, 2006) and the *Decision Making Framework for Groundwater Protectiveness Demonstrations* submitted to DEQ in June 2008. This evaluation is presented in the following report:

[9] 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.

- *Ubiquitous Pollutants - Groundwater Protectiveness Demonstration.* Prepared by the City of Portland Bureau of Environmental Services. Submitted to DEQ for approval in July 2008. DEQ's approval was obtained on October 6, 2008.

4.3.2 Projected Main Activities for FY07-08

- Implement year 4 stormwater compliance monitoring, and report MADL exceedances in accordance with the permit and QAPP.
- Apply the protocols in the *Decision Making Framework for Groundwater Protectiveness Demonstrations* to the newly identified Category 4 UICs (see Section 5.4).

4.4 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.

Stormwater 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 *Systemwide 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 07-08 to evaluate UICs near domestic wells.

4.4.1 Key Accomplishments for FY07-08

- 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 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 3 supplemental monitoring location. Sampling and analyses were performed in accordance with the SDMP. No annual geometric pollutant concentration exceeded its MADL concentration at any of the supplemental monitoring locations.
- Evaluated and presented results in the *Annual Stormwater Discharge Monitoring Report – Year 3* (July 2008).
- Extrapolated stormwater discharge monitoring data and potential MADL exceedances to the entire population of City-owned UICs. Data extrapolation results are presented in the following documents submitted to DEQ for review and approval:
  - *Ubiquitous Pollutants - Groundwater Protectiveness Demonstration.* Prepared by the City of Portland Bureau of Environmental Services. Submitted to DEQ for approval in July 2008. DEQ's approval was obtained on October 6, 2008.
  - *UICs within Permit-Specified Well Setbacks - Groundwater Protectiveness Demonstration – No Further Action Request.* Prepared by the City of Portland Bureau of Environmental Services. Submitted to DEQ to DEQ for approval in July 2008. DEQ's approval was obtained on October 6, 2008.
- Met with DEQ on a regular basis to discuss the City's general approach to evaluating and demonstrating groundwater protection through site-specific and regional fate and transport modeling (see section 4.1).
- Completed 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. The results of the fate and transport analyses were submitted in the following documents to DEQ for review and approval:
  1) *Decision Making Framework for Groundwater Protectiveness Demonstrations.* Prepared by the City of Portland Bureau of Environmental Services and submitted to DEQ on June 18, 2008. DEQ's approval was obtained on October 20, 2008.
  2) *Ubiquitous Pollutants - Groundwater Protectiveness Demonstration.* Prepared by the City of Portland Bureau of Environmental Services and submitted to DEQ on July 17, 2008. DEQ's approval was obtained on October 6, 2008..
  3) *UICs within Permit-Specified Well Setbacks - Groundwater Protectiveness Demonstration – No Further Action Request.* Prepared by the City of Portland Bureau of Environmental Services. Submitted to DEQ for review and approval in July 2008. DEQ's approval was obtained on October 6, 2008.
- Identified and addressed a subset of the Category 2 and Category 3 UICs with inadequate vertical separation distance located near domestic groundwater wells. The City is actively evaluating corrective actions for non-compliant UICs with separation distances <5 feet 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. In addition, a groundwater fate and transport analysis was performed and included in the *Decision Making Framework for Groundwater Protectiveness Demonstrations* to demonstrate that identified domestic and public water wells located within permit UIC setbacks (i.e., Category 2 and Category 3 UICs, both non-compliant due to inadequate vertical separation distances) are protected, pending the completion of corrective actions.

- Developed and submitted 10 new supplemental monitoring locations to DEQ to be sampled during permit year 4 (BES letter to DEQ dated August 29, 2008). Completion of Year 4 supplemental monitoring will result in a total sample size of 30 UICs in proximity to domestic or public wells.

- Performed additional evaluation of domestic and public wells located within permit defined setbacks from UICs. This evaluation is documented and the updated well information used in the *UICs within Permit-Specified Well Setbacks - Groundwater Protectiveness Demonstration – No Further Action Request* submitted to DEQ in July 2008. Specifically, the following work was completed:
  - Collected additional information and performed field visits to verify the location or existence of domestic or irrigation wells that could not be field verified during Systemwide Assessment activities.
  - Summarized and presented information regarding depths and screened intervals of domestic and public wells located near UICs

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

- Initiated discussion with OWRD through the ACWA Groundwater Committee regarding identified issues relating to the water well construction rules and UIC rules.

- Initiated an evaluation process for potential changes to City code/policy to limit the installation of new domestic wells or require connection to the public water supply (if available).

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

4.4.2 Projected Main Activities for FY08-09

- Collect Year 4 stormwater quality data. Continue to collect stormwater monitoring data and evaluate the quality of stormwater entering UICs near domestic or public wells, including:
  - Implement annual UIC compliance monitoring (see Section 3). Projected timeline: October 2008 – May 2009.
  - Implement supplemental stormwater quality monitoring. Year 4 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 2008 – May 2009.

  - Document the quality of stormwater discharged to UICs located near domestic or public water wells. Supplemental sampling results will be included in the *Annual Stormwater Discharge Monitoring Report – Year 4*. The report is due to DEQ by July 15, 2009.

- Evaluate 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: October 2008 – November 1, 2009.
  - Evaluate whether or not UIC compliance monitoring results are representative of stormwater discharging to UICs near domestic wells.
  - Identify pollutants, if any, that exceed permit limits (e.g., PCP) during individual sampling events or annual geometric mean concentration (see Section 4.3).
  - Verify the results of the *UICs within Permit-Specified Well Setbacks - Groundwater Protectiveness Demonstration – No Further Action Request.* This document was prepared by the City of Portland Bureau of Environmental Services and submitted to DEQ for approval in July 2008. DEQ's approval was obtained on October 6, 2008.

- Continue evaluation of the factors that could impact stormwater quality discharged to public UICs near domestic wells. Implement site-specific or programmatic actions that prevent adverse impacts to stormwater or groundwater. For FY 08-09, efforts will focus on the actions listed below. Projected timeline: November 2008 – July 2009.
  - Continue to explore the potential for the OWRD to notify the City if new water supply wells (e.g., irrigation, domestic) are installed within the City.
  - Continue discussion/initiate collaboration with the OWRD through ACWA for resolution of identified issues relating to the construction of water well construction rules and UIC rules.
  - Continue the evaluation process for potential City code or policy changes to limit installation of new domestic water wells or require connection to public water supply (if available).within the City of Portland
  - Check with the Portland Water Bureau for 2-year time of travel estimate updates.

- Continue corrective action engineering pre-design and design activities on Category 2 and Category 3 UICs identified as having inadequate separation distance and located near domestic wells. The City is actively evaluating corrective action alternatives for 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. A detailed description of the City's efforts to address Category 2 and Category 3 UICs is provided in Sections 5.2 and 5.3 this report.

4.5 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 2007 are described in this section.

4.5.1 Key Accomplishments for FY07-08

- Cleaned 10 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 3 sampling or due to PCP annual geometric concentration exceedances in Year 2 during stormwater event sampling. (See the *Annual Stormwater Discharge Monitoring Report – Year 2*, dated July 2007, for more information.)

- Implemented *UIC Evaluation and Response Guidelines* (UICER) No 6. in response to year 3 MADL exceedances (see section 4.1). During year 3 stormwater discharge monitoring (see Section 3), four common pollutants were detected during individual sampling events at concentrations above their respective MADLs: PCP, B(a)P, DEHP, and lead.

- Responded to a spill of approximately 200 gallons of heating oil into a City-owned sump on October 2007. The oil entered a catch basin, a sedimentation manhole, and the first of two sumps completed in series. Emergency corrective actions measures were taken by cleanup contractors hired by the heating oil company. Soil sampling was conducted on November 15, 2007 adjacent to the sump. The results of this investigation are documented in the following:
    - *Results of Environmental Sampling and Analysis for Stormwater Sump ACJ517 on SE 62nd Avenue, Portland ECSI #4893.* Technical Memorandum prepared by the City of Portland, submitted to DEQ on March 13, 2008.
    - *Corrective Action Summary, Magnitude and Extent of Contamination, and Request for Closure.* Report prepared on behalf on Montag Oil by Bergeson-Boese & Associates, Inc. Submitted to DEQ on March 13, 2008.
    - *No Further Action (NFA) determination.* DEQ issued an NFA for this release (ESCI No. 4893; OERS 07-2467) in a letter dated May 23, 2008.

- Performed additional stormwater discharge sampling, in accordance with *UICER Guideline No. 4 – Source Identification*, to verify the effectiveness of cleaning the UIC system subject to a heating oil release during Event 1 of year 3. (See references listed in previous bullet.)

5 Corrective Actions

The Corrective Actions program element addresses UICs that are determined to be non-compliant with WPCF permit requirements through the Evaluation and Response process. This program includes the processes 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 UICs with Inadequate Separation Distance

The *Systemwide Assessment* report (BES 2006) estimated vertical separation distance for the approximately 9,000 UICs within the City's UIC system. Through a collaborative effort with DEQ and the U.S. Geological Survey (USGS), the City was able to demonstrate that most City-owned UICs have adequate separation distance between the bottom of the UIC and seasonal high groundwater. The *Systemwide Assessment* report identified 400 UICs as potentially having inadequate separation distance (i.e., less than 10 feet). Most of these UICs are located within the Johnson Creek/ Holgate Lake and Columbia Slough areas.

Of the 400 identified UICs with the potential for inadequate separation distance, 22 were determined not to pose a threat to groundwater quality because they are associated with the City's potable water supply and do not receive stormwater. These UICs include vault drains, aquifer storage and recovery wells, and tank overflows. Because these locations are associated with the City's potable water supply system, they pose no threat to groundwater and were previously authorized by DEQ for continued use.

Twenty-nine of the UICs were identified as Category 2 UICs based on field verification of inadequate vertical separation distances. The method for identification of the 29 locations is discussed in the *UICMP Annual Report No. 1* (BES, 2006). Corrective actions for the Category 2 UICs currently are being selected and will be designed and implemented in accordance with the *CAP* (BES, 2006). The status of the Category 2 UICs is discussed in Section 5.2.

UICMP Annual Report No. 1 (BES, 2006) identified 349[10] of the UICs for further evaluation. The compliance status of these UICs was reevaluated, using new and refined/updated information (e.g., updated USGS depth to water measurements) obtained from the further evaluation activities performed in accordance with the *Systemwide Assessment Follow-up Actions* work plan (BES, 2006) and the *Evaluation and Response* program element described in the *UICMP* (BES, 2006). The *UICMP Annual Report No. 2* (BES, 2007) identified 338 UICs as non-compliant Category 3 UICs because of inadequate separation distance. Approximately 70 of the Category 3 UICs were determined to be non-compliant, based on an assumed depth of 30 feet (i.e., UIC completion depths were unknown). The status of the Category 3 UICs is discussed in Section 5.3.

[10] 400 UICs with potentially inadequate separation distance identified in the *Systemwide Assessment* minus 22 UICs that receive potable water minus 29 identified Category 2 UICs equals 349 UICs for further evaluation.

5.2 Category 2 UICs

The permit defines Category 2 UICs as those identified as non-compliant during the Systemwide *Assessment*. Twenty-nine (29) Category 2 UICs were identified and prioritized in *UICMP Annual Report No. 1* (December 2006). The permit requires Category 2 UIC corrective actions to be completed by November 1, 2010.

5.2.1 Key Accomplishments for FY07-08

- Performed engineering pre-design evaluation of potential corrective alternatives for Category 2 UICs, including collecting and evaluating available information:
  - Reviewed in-house UIC flow test, as-built, and other data.
  - Characterized UIC drainage basins and flow estimates.
  - Worked with vendors of commercial vendors of manufactured subsurface stormwater infiltration units.
  - Met with Portland Department of Transportation and internal BES groups regarding feasibility of corrective action alternatives.

- Continued internal BES team meetings to facilitate coordination and communication between the Category 2 UIC project and the regional evaluation of UICs in shallow groundwater (i.e., Category 3 UICs).

- Initiated engineering design activities for five Category 2 UIC corrective actions that will be used as demonstration projects to evaluate technologies to increase separation distance (*Systemwide Assessment Follow-up Actions* workplan - Task 2). These five projects were selected from the list of 29 Category 2 UICs. Construction will not completed in fall 2008 as initially planned for these five. Following selection and design, two of the projects were determined not to be implementable. Vendors of manufactured subsurface infiltration units were unable to satisfy Portland Department of Transportation requests for stamped engineering verification of unit traffic ratings claimed in vendor literature.

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

5.2.2 Projected Main Activities for FY08-09

- 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. FY08-09 activities will include:
  - Complete engineering pre-design and final selection of corrective action alternatives by individual UIC to increase separation distance or manage stormwater using infiltration, in accordance with the CAP. Target completion: November 2008.

- Complete engineering design and development of project specifications for selected corrective actions for Category 2 UICs. Target completion: July 2009.

- Develop a schedule and budget for construction of Category 2 corrective actions. Projected timeframe: July 2009.

- Bid, award, and issue notice to Proceed for Category 2 corrective actions. Projected timeframe: November 2009.

- Initiate construction of Category 2 corrective actions. Projected timeframe: November 2009 – June 2010.

- Complete engineering design and project specifications for UIC demonstration projects (Phase 1) to increase vertical separation distance. FY08-09 activities include:

  - Complete engineering design and project specifications. Target completion date: November 2008.

  - Bid, award, and issue notice to proceed for Category 2 demonstration projects. Projected timeframe: March 2009.

  - Complete construction of the demonstration projects. Target completion: May 2009.

- Meet with DEQ on a periodic basis to:

  - Provide an overview of work completed to date, schedule, issues, etc.

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

5.3 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.

5.3.1 Key Accomplishments for FY07-08

- Performed further evaluation actions on 70 of the 338 Category 3 UICs identified in *UICMP Annual Report No. 2* (BES, 2007). UIC depths were not available for these UICs, so work was initiated in early 2008 to clean and obtain depths from them. Separation distances calculated using the new depth measurements indicated that 33 of the 70 Category 3 UICs have a separation distance of $\geq$10 feet. As a result, it was determined that these 33 UICs are compliant with the permit, and they were removed from the Category 3 list. Appendix B

(Table B-2) lists the previously identified Category 3 UICs that were determined to be compliant with the permit-required separation distances.

- Determined that three Category 3 UICs no longer exist or are not UICs. The City's database was updated and these UICs were removed from the list of Category 3 UICs. Appendix B (Table B-3) lists the previously identified Category 3 UICs that no longer exist or are not UICs.

- Identified three new Category 3 UICs and notified DEQ in writing within 30 days after completion of the compliance determination, in accordance with the permit. Appendix B (Table B-4) lists new 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 FY08-09 activities

- Continued pre-design activities for Category 3 UICs in accordance with the scope and schedule of the *Systemwide Assessment Follow-Up Actions* work plan, and coordinated with efforts for Category 2 UICs to the extent practicable (see Section 5.2). Specifically:
  - Selected and initiated design of demonstration projects to increase separation distance.
  - Defined and developed preliminary groups of UICs with similar characteristics or where similar technologies may be applicable in developing corrective action alternatives.
  - Initiated development and evaluation of corrective action alternatives to increase UIC separation distance or manage stormwater using surface infiltration facilities at individual Category 3 UICs with vertical separation distances <5 feet.
  - Continued discussions with DEQ regarding moving toward a regional corrective action for Category 2 and 3 non-compliant UICs. Initiated development of preliminary scope(s), schedule(s), and budget(s) for design and implementation of a regional corrective action approach.
  - Met with DEQ on a periodic basis to provide an overview of work completed to date and to discuss next steps.

- Performed 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 4.1).

- Identified "no further action" as an appropriate corrective action response (see Permit Schedule D, Section 12(c)) for 119 Category 3 UICs with separation distances ≥5 feet, based on pollutant fate and transport analyses that demonstrated that groundwater quality is protected as a drinking water resource, in accordance with Oregon Administrative Rules (OAR) 340-040 (see Section 4.1).

- Submitted a "no further action" request to DEQ for review and approval of groundwater protectiveness demonstrations as the selected corrective action for 119 Category 3 UICs with separation distances ≥5 feet in June 2008. DEQ conditionally approved the requested NFAs in their October 6, 2008 letter to BES. Appendix B (Table B-5) lists the 119 UICs with DEQ approved NFAs.

- Developed an updated prioritized list of the 186 remaining Category 3 UICs. Appendix B (Table B-6) lists remaining Category 3 UICs.

- Continued developing a regional corrective action plan for DEQ approval.

- Met with DEQ on a periodic basis to:
  - Provide an overview of work completed to date.
  - Discuss development of an enforceable regional corrective action plan or order to address Category 3 UICs.

5.3.2 Eliminated Category 3 UICs

Further evaluation of Category 3 UICs identified in *UICMP Annual Report No. 2* (BES, 2007) was conducted during pre-design activities. Because UIC depths were not available for approximately 70 Category 3 UICs, the City initiated work in early 2008 to clean and obtain depths at these UICs. Separation distances calculated using the new depth measurements indicated that 33 of the 338 Category 3 UICs have a separation distance of ≥10 feet. Therefore, these UICs are compliant with the permit and removed from the Category 3 list. Consideration of the actual UIC depths reduces the number of Category 3 UICs from 338 to 305. Appendix B presents a list (Table B-2) of the previously identified Category 3 UICs determined to be compliant with the permit requirements.

This annual report documents the elimination of three additional UICs from the November 2007 Category 3 list because since they either no longer exist or were determined to be an outfall and not a UIC. That information reduces the number of Category 3 UICs from 305 to 302. Table B-3 presents a list of previously identified Category 3 UICs that no longer exist or are not UICs.

The evaluation of the UICs described above is presented in *Category 3 UICs – Groundwater Protectiveness Demonstration – Vertical Separation Distances ≥5 Feet – No Further Action Request.* This report was submitted to DEQ for review and approval in June 2008. DEQ's approval was obtained on October 6, 2008

5.3.3 Category 3 UICs - No Further Action Determinations

The City identified "no further action" as the recommended corrective action for 119 UICs with vertical separation distances ≥5 feet, based on the results of pollutant fate and transport analyses of described in Section 4.1. NFAs are identified as appropriate corrective actions under the Schedule D, Section 12(c) of the WPCF permit. The corrective actions were selected in accordance with the *Corrective Action Plan* (*CAP*; BES, 2006a). The technical basis for demonstrating that stormwater discharges into these City-owned UICs with separation distances ≥ 5 feet are protective of groundwater in accordance with Oregon Administrative Rules (OAR) 340-040 and for requesting the "no further action" determinations is provided in the *Category 3 UICs – Groundwater Protectiveness Demonstration – Vertical Separation Distances ≥5 Feet – No Further Action Request* report. The report was submitted to DEQ for review and approval in June 2008. The NFA report was approved with conditions by DEQ on October 6, 2008.

Consideration of the 119 Category 3 NFAs reduces the number of Category 3 UICs from 302 to 183. The 119 UICs with NFAs are listed in Appendix B, Table B-5.

5.3.4 New Category 3 UICs

Two new Category 3 UICs were identified by City Bureau of Maintenance field inspections, and one new Category 3 UIC was identified as part of an update process to the City's Hansen system. These three UICs were identified as non-compliant because of inadequate vertical separation distances. As required by the permit, they were reported to DEQ as non-compliant within 30 days, in the June 1, 2008 and September 1, 2008, quarterly database reports (*Underground Injection Control Database Reports* [BES, 2008). The compliance determination for UICs AAV769 and ANW740 is based on an assumed depth of 30 feet; the actual UIC depths are unknown. The compliance determination for AMQ411, an infiltration inlet, is based on an assumed depth of 3 feet. UICs less than 5 feet deep are required to have a minimum 5 feet of separation distance between the bottom discharge point of the UIC and the seasonal high groundwater. Summary information for these UICs is presented in Appendix B, Table B-4. This information increases the number of Category 3 UICs from 183 to 186.

These new Category 3 UICs must undergo corrective action no later than June 30, 2012, or on an alternate schedule if DEQ approves these UICs as part of a regional corrective action.

5.3.5 Projected Main Activities for FY08-09

- Corrective actions for the remaining 186 Category 3 UICs (see Appendix B, Table B-6) will be completed as follows:
  - UICs with separation distance < 5 feet (183 UICs) will be completed by July 15, 2011 or in accordance with a DEQ-approved regional corrective action plan.
  - New Category 3 UICs identified in this annual report (three UICs) will be completed by July 15, 2012 or in accordance with a DEQ-approved regional corrective action plan.

- Continue pre-design activities for Category 3 UICs in accordance with the scope and schedule of the permit and *Systemwide Assessment Follow-Up Actions* workplan. Specifically, continue and complete task 2 and task 3 of Section 2 of the workplan, including:
  - Complete design and construct Category 2 demonstration (Phase 1) projects to increase separation distance (see Section 5.2). Target completion date: May 2009.
  - Continue discussions with DEQ regarding moving toward a regional corrective action for selected non-compliant UICs. 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 pursuing a regional corrective action for completion of the Category 3 UICs. 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. Projected timeline: November 2008 – July 2009.
  - Develop and evaluate alternatives to increase separation distance or manage stormwater using infiltration, by individual UICs and/or groups of Category 3 UICs. 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 2008 – July 2009.

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. At this time, site-specific corrective actions have not been identified for each of the remaining 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-6. The anticipated correction action is subject to change as site-specific information is collected and pre-design and design activities are performed.

5.4 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.

5.4.1 Key Accomplishments for FY07-08

- Identified three new Category 4 UICs, based on the results of the year 3 stormwater monitoring data (see Sections 3 and 4.3).

- In accordance with the permit, notified DEQ of the three newly identified Category 4 UICs in writing within 7 days after verification of the annual mean concentration exceeding the MADL. (See BES letter to DEQ dated July 11, 2008 and *Annual Stormwater Discharge Monitoring Report –Year 3*, dated July 15, 2008.) 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

- Met with DEQ on a regular basis between January 2008 and June 2008 to discuss the approach, methodology, assumptions, uncertainties and general guidelines for:
  - Evaluating the fate and transport of PCP at the four Category 4 UICs identified in July 2007 (*Annual Stormwater Discharge Monitoring Report –Year 2)* and November 2007 (*UICMP Annual Report No. 2)*.
  - Demonstrating groundwater protection in accordance with Oregon Administrative Rules 340-040.

- Completed stormwater pollutant fate and transport analyses (*UICER Guideline No. 6a: Fate and Transport Analysis*) of pentachlorophenol in Category 4 UICs from the point of discharge to shallow groundwater to demonstrate 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 summarized below.
  - Prepared a conceptual site model (CSM) of potential transport pathways for pentachlorophenol discharge to a UIC.
  - Assessed the fate and transport of pentachlorophenol in the vadose zone (unsaturated soil), discharge into groundwater (dilution), and migration in groundwater (dilution, advection, biodegradation, etc.).
  - Met with DEQ on a regular periodic basis to discuss the evaluation approach, specific input parameters, preliminary results, etc.
  - Documented and submitted the results of site-specific groundwater protectiveness demonstrations to DEQ for the four Category 4 UIC locations (P1_1, P6_1, P6_7, P6_14) in which the annual mean pentachlorophenol exceeded the MADL in years 1 and 2 (see list of documents in Section 4.1.3) .
  - Received a NFA determination from DEQ (letter dated May 30, 2008) stating that PCP concentrations are attenuated (i.e., treated, removed) by subsurface soils and that it could therefore be concluded that stormwater discharges to the subject UICs are protective of beneficial uses of groundwater and public health and the environment, as required by OAR 340-040.

5.4.2 Summary of Category 4 UICs

Category 4 UICs Identified in Year 2

Following completion of the year 2 monitoring, UICs in which the annual mean concentration exceeded the MADL for two consecutive years were identified as Category 4 UICs in the July 2007 *Annual Stormwater Discharge Monitoring Report – Year 2*. Table 5-1 lists the Category 4 UICs identified following the second year of monitoring.

Table 5-1: 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 PCP Conc. (µg/L)	Year 2 Annual Geometric PCP Conc. (µg/L)	Year 3 Annual Geometric PCP Conc. (µg/L)
P1_1	6940 N. Macrum Ave.	AAG769	< 1000	73	1.1	1.2	0.5
P6_1	3500 SE 112th Ave.	ADW577	≥ 1000	64	1.2	1.0	1.3
P6_7	608 NE 87th Ave.	ADV645	< 1000	148	2.0	1.8	0.6
P6_14	4289 NE Prescott St.	AD1252	≥ 1000	64	1.5	1.4	1.5

Corrective actions for Category 4 UICs listed above were identified, evaluated, and selected in accordance with the *Corrective Action Plan* (CAP) (2006). The 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*. The groundwater protectiveness demonstrations were developed with DEQ input, and the final documents were reviewed and approved by DEQ (see Section 4.1). DEQ issued an NFA determination for the four Category 4 UICs on May 30, 2008. A copy of that letter is included in the *Decision Making Framework for Groundwater Protectiveness Demonstrations.*

Category 4 UICs Identified in Year 3

Following completion of the year 3 monitoring, UICs in which the annual mean concentration exceeded the MADL for two consecutive years were identified as Category 4 UICs in the July 2008 *Annual Stormwater Discharge Monitoring Report – Year 3*. Table 5-2 lists Category 4 UICs.

The year 3 annual mean concentration of pentachlorophenol exceeded the MADL for a third consecutive year in two (P6_1, P6_14) of the four (P1_1, P6_1, P6_7, and P6-14) UICs identified in Year 2 as non-compliant Category 4 UICs. Geometric mean concentrations for two of these UICs are less than 0.6 µg/L (P1_1, P6_7). The proposed corrective action for these UICs is a groundwater protectiveness demonstration. The GWPD will be performed in accordance with the *Decision Making Framework for Groundwater Protectiveness Demonstrations.*

Table 5-2: Category 4 UICs Identified in Year 3

Location Code	Approximate Address	BES UIC No.	Traffic Category (Trips per Day)	Separation Distance [a] (ft)	Year 2 Annual Geometric Mean Pentachlorophenol Concentration (µg/L)	Year 3 Annual Geometric Mean Pentachlorophenol Concentration (µg/L)
P2_5	10150 SE Ankeny St.	ADR885	≥ 1,000	158	3.2	1.7
P2_13	4107 SE Reedway St.	ADU790	≥ 1,000	58	1.9	1.1
P2_14	8409 N. Woolsey Ave.	AAH289	≥ 1,000	55	2.5	1.3

a The estimated separation distance is defined as the approximate depth in feet from the bottom-most perforation in the UIC to the approximate seasonal-high groundwater level. The bottom-most perforation is defined as the bottom of the UIC minus 2 feet. Two feet were added to all separation distance calculations to account for the standard depth of the sediment trap ring on standard City UIC design.

5.4.3 Projected Main Activities for FY08-09

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 four Category 4 UICs identified in 2007 *(UICMP Annual Report No. 2* and *Annual Stormwater Discharge Monitoring Report –Year 2)* were completed and approved by DEQ in May 2008, over 3 years in advance of the permit-required corrective action date of July 2011.

Corrective actions for the Category 4 UICs identified in 2008 (as identified in this report and *Annual Stormwater Discharge Monitoring Report –Year 3)* must be completed by July 2012.

The following actions are planned for FY08-09:

- Apply the *Decision Making Framework for Groundwater Protectiveness Demonstrations* (City of Portland, 2008) to the three individual Category 4 UICs identified in Section 5.4.2 to assess whether groundwater quality is protected in accordance with Oregon Administrative Rules 340-040. The demonstration is intended to meet DEQ's risk assessment protocols. Projected timeframe: October 2008 – February 2009.

- Present the results of the groundwater protectiveness demonstration to DEQ. Results will either be submitted in a brief technical memorandum or in *UICMP Annual Report No. 4* to be submitted to DEQ by November 1, 2009. Target completion date: February 2009.

Appendix A
Public UICs Identified/Constructed During FY07-08

Date UIC Reported	BES Unit ID	UIC DEQ ID	EPA UIC Classification	Current Status	UIC Location	Traffic Volume	Pre-treatment Type
9/1/2007	ANS261	10102-9374	Class V Injection Well	UC	604 SE 119TH AVE	<1000	Sed MH
12/1/2007	ANS639	10102-9390	Class V Injection Well	UC	12135 NE FARGO ST	<1000	Sed MH
12/1/2007	ANS554	10102-9440	Class V Injection Well	UC	9700 N EDISON ST	<1000	Sed MH
12/1/2007	ANS643	10102-9391	Class V Injection Well	UC	10723 NE FARGO ST	<1000	Sed MH
3/1/2008	ANV092	10102-9447	Class V Injection Well	UC	3928 SE 125TH AVE	<1000	Sed MH
3/1/2008	AAZ610	10102-9449	Class V Injection Well	AC	11926 NE FARGO ST	<1000	No Sed MH
6/1/2008	ANW740	10102-9478	Class V Injection Well	AC	6457 NE 66TH AVE	<1000	No Sed MH
9/1/2007	AAZ476	10102-9378	Class V Injection Well	AC	3265 NE 108TH AVE	<1000	No Sed MH
3/1/2008	AAZ478	10102-9450	Class V Injection Well	AC	11000 NE KLICKITAT ST	<1000	Sed MH
12/1/2007	ANT892	10102-9435	Class V Injection Well	AC	8823 N DANA AVE	<1000	Sed MH
6/1/2008	AAV821	10102-9475	Class V Injection Well	AC	3900 NE 142ND AVE	<1000	No Sed MH
12/1/2007	ANT796	10102-9429	Class V Injection Well	AC	4903 N MCCOY CT	<1000	Sed MH
9/1/2007	ANQ699	10102-9383	Class V Injection Well	AC	4602 NE BROADWAY	<1000	No Sed MH
12/1/2007	ANS967	10102-9397	Class V Injection Well	AC	14026 SE ALDER ST	<1000	Sed MH
12/1/2007	ANT672	10102-9414	Class V Injection Well	AC	8960 N DWIGHT AVE	>1000	Sed MH
3/1/2008	ANV282	10102-9451	Class V Injection Well	PA	12300 NE HALSEY ST	>1000	No Sed MH
12/1/2007	ANS526	10102-9389	Class V Injection Well	UC	3484 SE 122ND AVE	>1000	Sed MH
12/1/2007	ANT474	10102-9403	Class V Injection Well	AC	4720 N TRENTON ST	>1000	Sed MH
12/1/2007	ANT487	10102-9404	Class V Injection Well	AC	8985 N FISKE AVE	>1000	Sed MH
12/1/2007	ANT817	10102-9434	Class V Injection Well	AC	4432 N MCCOY CT	>1000	Sed MH

Date UIC Reported	BES Unit ID	UIC DEQ ID	EPA UIC Classification	Current Status	UIC Location	Traffic Volume	Pre-treatment Type
12/1/2007	ANT721	10102-9424	Class V Injection Well	AC	4430 N TRENTON ST	>1000	Sed MH
9/1/2007	ANQ373	10102-9379	Class V Injection Well	AC	10200 NE HANCOCK ST	>1000	No Sed MH
12/1/2007	ANT513	10102-9407	Class V Injection Well	AC	9610 N FISKE AVE	>1000	Sed MH
12/1/2007	ANS681	10102-9393	Class V Injection Well	UC	12300 NE HALSEY ST	>1000	Sed MH
9/1/2007	ANS098	10102-9373	Class V Injection Well	AC	3550 SE 92ND AVE	>1000	Sed MH
9/1/2007	ANQ533	10102-9382	Class V Injection Well	AC	9950 SE STARK ST	>1000	No Sed MH
3/1/2008	ANV287	10102-9448	Class V Injection Well	AC	4510 NE 112TH AVE	>1000	Sed MH
12/1/2007	ANT526	10102-9409	Class V Injection Well	AC	9030 N NEWMAN AVE	Not Available	Sed MH
12/1/2007	ANT779	10102-9439	Class V Injection Well	AC	9611 N WOOLSEY AVE	Not Available	Sed MH
9/1/2007	ANS138	10102-9386	Class V Injection Well	AC	Not Available	Not Available	Sed MH
9/1/2007	ANR916	10102-9385	Class V Injection Well	AC	14641 E BURNSIDE ST	Not Available	Sed MH
12/1/2007	ANT798	10102-9430	Class V Injection Well	AC	4903 N MCCOY CT	Not Available	Sed MH
9/1/2007	ANR484	10102-9372	Class V Injection Well	AC	3834 NE 110TH WAY	Not Available	Sed MH
12/1/2007	ANT649	10102-9412	Class V Injection Well	AC	4628 N FESSENDEN ST	Not Available	Sed MH
9/1/2007	ANR203	10102-9384	Class V Injection Well	AC	5300 SE 137TH AVE	Not Available	Sed MH
12/1/2007	ANT655	10102-9413	Class V Injection Well	AC	9312 N NEWMAN AVE	Not Available	Sed MH
12/1/2007	ANT660	10102-9416	Class V Injection Well	AC	9214 N DWIGHT AVE	Not Available	Sed MH
12/1/2007	ANT666	10102-9415	Class V Injection Well	AC	4625 N TRENTON ST	Not Available	Sed MH
12/1/2007	ANT802	10102-9431	Class V Injection Well	AC	4720 N MCCOY CT	Not Available	Sed MH
12/1/2007	ANT541	10102-9408	Class V Injection Well	AC	8945 N NEWMAN AVE	Not Available	Sed MH

Date UIC Reported	BES Unit ID	UIC DEQ ID	EPA UIC Classification	Current Status	UIC Location	Traffic Volume	Pre-treatment Type
12/1/2007	ANS742	10102-9396	Class V Injection Well	UC	5202 N EMERSON DR	Not Available	Sed MH
12/1/2007	ANT705	10102-9421	Class V Injection Well	AC	9636 N WOOLSEY AVE	Not Available	Sed MH
12/1/2007	ANS671	10102-9394	Class V Injection Well	UC	Not Available	Not Available	Sed MH
12/1/2007	ANS660	10102-9392	Class V Injection Well	UC	Not Available	Not Available	Sed MH
12/1/2007	ANS696	10102-9399	Class V Injection Well	UC	Not Available	Not Available	Sed MH
12/1/2007	ANT778	10102-9426	Class V Injection Well	AC	9611 N WOOLSEY AVE	Not Available	Sed MH
9/1/2007	ANS325	10102-9375	Class V Injection Well	UC	8808 N TYNDALL AVE	Not Available	No Sed MH
12/1/2007	ANT772	10102-9438	Class V Injection Well	AC	4510 N FESSENDEN ST	Not Available	Sed MH
9/1/2007	R00032	10102-9370	Class V Injection Well	UC	6212-6300 NE KILLINGSWORTH ST	Not Available	Sed MH
12/1/2007	ANT555	10102-9410	Class V Injection Well	AC	9234 N NEWMAN AVE	Not Available	Sed MH
12/1/2007	ANT591	10102-9411	Class V Injection Well	AC	4625 N TRENTON ST	Not Available	Sed MH
12/1/2007	ANT767	10102-9428	Class V Injection Well	AC	9330 N WOOLSEY AVE	Not Available	Sed MH
9/1/2007	R00031	10102-9369	Class V Injection Well	UC	6212-6300 NE KILLINGSWORTH ST	Not Available	Sed MH
12/1/2007	ANS682	10102-9402	Class V Injection Well	UC	Not Available	Not Available	Sed MH
12/1/2007	ANT744	10102-9427	Class V Injection Well	AC	9302 N WOOLSEY AVE	Not Available	Sed MH
6/1/2008	ANY927	10102-9463	Class V Injection Well	UC	11710 NE FREMONT ST	Not Available	No Sed MH
12/1/2007	ANT700	10102-9420	Class V Injection Well	AC	9536 N DWIGHT AVE	Not Available	Sed MH
3/1/2008	R00066	10102-9456	Class V Injection Well	UC	3570 NE Lombard Ct	Not Available	Sed MH
3/1/2008	R00068	10102-9457	Class V Injection Well	UC	11724 SE Ankeny St	Not Available	Sed MH
6/1/2008	AAV826	10102-9476	Class V Injection Well	AC	3808 NE 142ND AVE	Not Available	No Sed MH

Date UIC Reported	BES Unit ID	UIC DEQ ID	EPA UIC Classification	Current Status	UIC Location	Traffic Volume	Pre-treatment Type
6/1/2008	AAV840	10102-9477	Class V Injection Well	AC	3800 NE 142ND AVE	Not Available	No Sed MH
6/1/2008	AAV769	10102-9474	Class V Injection Well	AC	4022 NE 142ND AVE	Not Available	No Sed MH
6/1/2008	ANY917	10102-9459	Class V Injection Well	UC	10310 NE PRESCOTT ST	Not Available	No Sed MH
6/1/2008	R00116	10102-9460	Class V Injection Well	UC	10410 NE Prescott St	Not Available	Sed MH
3/1/2008	R00060	10102-9454	Class V Injection Well	UC	11100 NE Morris St	Not Available	Sed MH
6/1/2008	R00118	10102-9462	Class V Injection Well	UC	11434 NE Fremont Ct	Not Available	Sed MH
3/1/2008	R00058	10102-9453	Class V Injection Well	UC	11120 NE Siskiyou St	Not Available	Sed MH
6/1/2008	R00120	10102-9464	Class V Injection Well	UC	11724 NE Fremont St	Not Available	Sed MH
6/1/2008	ANY930	10102-9465	Class V Injection Well	UC	11926 NE FREMONT ST	Not Available	No Sed MH
6/1/2008	R00122	10102-9466	Class V Injection Well	UC	11933 NE Fremont St	Not Available	Sed MH
6/1/2008	ANY941	10102-9467	Class V Injection Well	UC	12122 NE FREMONT ST	Not Available	No Sed MH
6/1/2008	R00124	10102-9468	Class V Injection Well	UC	12115 NE Fremont St	Not Available	Sed MH
6/1/2008	ANY950	10102-9469	Class V Injection Well	UC	14220 NE FREMONT ST	Not Available	No Sed MH
6/1/2008	R00126	10102-9470	Class V Injection Well	UC	14220 NE Fremont St	Not Available	Sed MH
6/1/2008	ANY958	10102-9471	Class V Injection Well	UC	14329 NE FREMONT ST	Not Available	Sed MH
6/1/2008	R00128	10102-9472	Class V Injection Well	UC	14329 NE Fremont St	Not Available	Sed MH
6/1/2008	ANY923	10102-9461	Class V Injection Well	UC	11434 NE FREMONT ST	Not Available	No Sed MH
12/1/2007	ANS612	10102-9395	Class V Injection Well	UC	10510 NE RUSSELL ST	Not Available	Sed MH
12/1/2007	ANT681	10102-9417	Class V Injection Well	AC	4532 N NEWARK ST	Not Available	Sed MH
12/1/2007	ANT691	10102-9419	Class V Injection Well	AC	4530 N FESSENDEN ST	Not Available	Sed MH

Date UIC Reported	BES Unit ID	UIC DEQ ID	EPA UIC Classification	Current Status	UIC Location	Traffic Volume	Pre-treatment Type
12/1/2007	ANT692	10102-9436	Class V Injection Well	AC	4530 N FESSENDEN ST	Not Available	Sed MH
12/1/2007	ANT701	10102-9437	Class V Injection Well	AC	9536 N DWIGHT AVE	Not Available	Sed MH
6/1/2008	ANY959	10102-9473	Class V Injection Well	UC	14509 NE FREMONT ST	Not Available	No Sed MH
12/1/2007	ANT726	10102-9423	Class V Injection Well	AC	9118 N WOOLSEY AVE	Not Available	Sed MH
12/1/2007	ANT735	10102-9422	Class V Injection Well	AC	8960 N WOOLSEY AVE	Not Available	Sed MH
12/1/2007	ANT812	10102-9433	Class V Injection Well	AC	4606 N MCCOY CT	Not Available	Sed MH
3/1/2008	R00062	10102-9455	Class V Injection Well	UC	12321 NE Halsey St	Not Available	Sed MH
12/1/2007	ANT807	10102-9432	Class V Injection Well	AC	4709 N MCCOY CT	Not Available	Sed MH
12/1/2007	ANT676	10102-9418	Class V Injection Well	AC	9332 N DWIGHT AVE	Not Available	Sed MH
12/1/2007	ANT771	10102-9425	Class V Injection Well	AC	4510 N FESSENDEN ST	Not Available	Sed MH
12/1/2007	R00065	10102-9398	Class V Injection Well	UC	8985 N Fiske Ave	Not Available	Sed MH
12/1/2007	R00067	10102-9400	Class V Injection Well	UC	9305-9325 N Fiske Ave	Not Available	Sed MH
12/1/2007	R00071	10102-9405	Class V Injection Well	UC	9521-9541 N Fiske Ave	Not Available	Sed MH
12/1/2007	R00072	10102-9406	Class V Injection Well	UC	4711-4737 N Fessenden St	Not Available	Sed MH
3/1/2008	ANU661	10102-9443	Class V Injection Well	UC	2800 SE 137TH AVE	Not Available	Sed MH
3/1/2008	ANU664	10102-9444	Class V Injection Well	UC	2826 SE 136TH AVE	Not Available	Sed MH
3/1/2008	ANU901	10102-9445	Class V Injection Well	UC	3935 N MONTANA AVE	Not Available	Sed MH
3/1/2008	ANW049	10102-9452	Class V Injection Well	AC	14130 NE GLISAN ST	Not Available	Sed MH
12/1/2007	ANS723	10102-9401	Class V Injection Well	UC	Not Available	Not Available	Sed MH

Appendix B
Category 2 and 3 UIC Status

Table B-1: Category 2 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	USGS 2007 Depth to GW (ft)	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]	FY07-08 Project Status	FY08-09 Planned Activities
2	Separation Distance	ADU741	13100 SE RAYMOND ST	30	YES	SFR	314	20	-8	368	NO	Medium	Nov. 2010	Infiltration Swale	Predesign	Design
2	Separation Distance	ADT737	6300 SE 142ND AVE	30	YES	SFR	14,500	22	-6	505	NO	Medium	Nov. 2010	Horizontal UIC	Predesign	Design
2	Separation Distance	AMR712	6300 SE 142ND AVE	25.5	YES	SFR	14,500	21	-3	512	NO	Medium	Nov. 2010	Infiltration Swale	Predesign	Design
2	Separation Distance	ADT686	12210 SE ELLIS ST	27	YES	MFR	11,461	18	-7	1,268	NO	Medium	Nov. 2010	Shallow Sump	Design	Construction Completion
2	Separation Distance	ACK372	5432 SE 118TH AVE	18	YES	MFR	369	23	7	381	NO	Medium	Nov. 2010	Infiltration Swale	Predesign	Design
2	Separation Distance	ADU737	12790 SE STEELE ST	25	YES	SFR	1,544	18	-5	1,256	NO	Medium	Nov. 2010	Infiltration Swale	Predesign	Design
2	Separation Distance	ADW268	5201 SE 122ND AVE	20	NO	MFR	11,953	19	1	1,187	NO	Medium	Nov. 2010	Horizontal UIC	Design	Construction Completion
2	Separation Distance	ADS535	2704 SE 18TH AVE	30	YES	SFR	2,315	22	-6	2,666	NO	Low	Nov. 2010	Horizontal UIC	Predesign	Design
2	Separation Distance	ADV195	11910 SE REEDWAY ST	30.9	YES	MFR	216	16	-13	684	NO	Low	Nov. 2010	Horizontal UIC	Predesign	Design
2	Separation Distance	ADU739	12852 SE RAYMOND ST	26	YES	SFR	314	15	-9	688	NO	Low	Nov. 2010	Infiltration Swale	Predesign	Design
2	Separation Distance	AMV633	13605 SE REEDWAY ST	30	YES	MFR	9,566	33	5	829	NO	Low	Nov. 2010	Shallow Sump	Design	Construction Completion
2	Separation Distance	ADU730	5239 SE 112TH AVE	30.1	YES	SFR	NA	25	-4	1,108	NO	Low	Nov. 2010	Shallow Sump	Predesign	Design
2	Separation Distance	ADU751	12204 SE STEELE ST	20.4	YES	MFR	11,953	19	1	1,408	NO	Low	Nov. 2010	Infiltration Swale	Predesign	Design
2	Separation Distance	AMX684	13220 SE MALL ST	25.1	YES	SFR	186	15	-9	1,410	NO	Low	Nov. 2010	Infiltration Swale	Predesign	Design
2	Separation Distance	ADT695	12410 SE ELLIS ST	28.9	YES	SFR	236	19	-8	1,872	NO	Low	Nov. 2010	Shallow Sump	Predesign	Design
2	Separation Distance	ADU742	4739 SE 128TH AVE	15	YES	SFR	1,778	15	2	858	NO	Low	Nov. 2010	Infiltration Swale	Design	Construction Completion
2	Separation Distance	ADU748	4680 SE 128TH AVE	14	YES	SFR	1,877	15	3	915	NO	Low	Nov. 2010	Infiltration Swale	Predesign	Design
2	Separation Distance	ADU747	12728 SE LONG ST	14.2	YES	SFR	1,877	15	3	952	NO	Low	Nov. 2010	Infiltration Swale	Predesign	Design
2	Separation Distance	ACP664	5704 SE 99TH AVE	30	YES	SFR	557	32	4	2,557	NO	Low	Nov. 2010	Infiltration Swale	Predesign	Design
2	Separation Distance	ADV128	5708 SE 99TH AVE	30	YES	SFR	557	32	4	2,559	NO	Low	Nov. 2010	Infiltration Swale	Predesign	Design
2	Separation Distance	ANA606	12048 SE RAYMOND ST	20	NO	MFR	463	20	2	866	NO	Low	Nov. 2010	Infiltration Swale	Predesign	Design
2	Separation Distance	AMR769	11605 SE LONG ST	31	YES	SFR	NA	30	1	526	NO	Low	Nov. 2010	Shallow Sump	Predesign	Design
2	Separation Distance	ADU745	12532 SE LONG ST	15	YES	SFR	195	17	4	683	NO	Low	Nov. 2010	Horizontal UIC	Design	Construction Completion
2	Separation Distance	AMT956	5120 SE 118TH AVE	24	YES	MFR	369	23	1	795	NO	Low	Nov. 2010	Infiltration Swale	Predesign	Design
2	Separation Distance	ADU746	4680 SE 127TH AVE	16	YES	SFR	286	16	2	825	NO	Low	Nov. 2010	Infiltration Swale	Predesign	Design
2	Separation Distance	ADT427	4118 SE 132ND AVE	30	YES	SFR	NA	29	1	1,214	NO	Low	Nov. 2010	Shallow Sump	Predesign	Design
2	Separation Distance	AMP310	13915 SE REEDWAY ST	22.6	YES	SFR	180	27	6	561	NO	Low	Nov. 2010	Horizontal UIC	Predesign	Design
2	Separation Distance	ACZ265	7891 SE 46TH AVE	30	YES	SFR	299	35	7	1,664	NO	Low	Nov. 2010	Shallow Sump	Predesign	Design
2	Separation Distance	ADT990	9703 SE CLAYBOURNE ST	30.2	YES	MFR	393	34	5	3,279	NO	Low	Nov. 2010	Shallow Sump	Predesign	Design

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] Final corrective action will be determined during design in accordance with the *Corrective Action Plan* (July 2006). Once a final corrective action is selected, it will be reported in Annaul UICMP reports.

[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

Table B-2: Category 3 UICs Determined to be Compliant Due to 2008 Depth Measurements

Hansen UIC Node Number	Location [1]	2007 Hansen UIC Depth (ft) [2]	2008 Hansen UIC Depth (ft) [a]	Sed Manhole (yes/no)	Predominant Landuse	Estimated Traffic Count (TPD)	2008 Estimated Separation Distance [4] (ft)	Distance to Nearest Well (ft) [5]	Within 2-year time of travel (yes/no)	Reason Removed from November 2007 Category 3 UIC List	Compliance Status
ADV227	11951 SE HOLGATE BLVD	0	19	NO	MFR	13,104	13	847	NO	UIC depth measurement	Compliant
ADV226	11829 SE HOLGATE BLVD	0	19	NO	MFR	13,104	15	751	NO	UIC depth measurement	Compliant
ADT423	12200 SE HOLGATE BLVD	0	18	YES	COM	14,463	11	369	NO	UIC depth measurement	Compliant
ADT408	11599 SE HOLGATE BLVD	0	19.5	NO	SFR	10,053	20	997	NO	UIC depth measurement	Compliant
ANB021	3700 SE 134TH AVE	0	21	NO	SFR	870	19	830	NO	UIC depth measurement	Compliant
ANB020	13460 SE BUSH ST	0	18.5	NO	MFR	847	21	942	YES	UIC depth measurement	Compliant
ADU707	5420 SE 99TH AVE	0	28	YES	SFR	4,748	11	2,170	NO	UIC depth measurement	Compliant
ANA584	12846 SE RAMONA ST	0	16.5	NO	SFR	1,324	19	1,829	NO	UIC depth measurement	Compliant
ADW224	5104 SE 109TH AVE	0	20.2	NO	SFR	461	14	1,210	NO	UIC depth measurement	Compliant
ADV328	11098 SE SCHILLER ST	0	16.5	NO	SFR	2,563	23	1,071	NO	UIC depth measurement	Compliant
ACK276	4906 SE 111TH AVE	0	20.3	NO	SFR	2,563	16	984	NO	UIC depth measurement	Compliant
ADW223	5015 SE 108TH AVE	0	20	NO	SFR	304	18	1,362	NO	UIC depth measurement	Compliant
ADW226	5310 SE 108TH AVE	0	20	NO	SFR	304	11	802	NO	UIC depth measurement	Compliant
ADW241	11490 SE LONG ST	0	19	NO	SFR	821	17	494	NO	UIC depth measurement	Compliant
ADW242	11490 SE LIEBE ST	0	18	NO	SFR	604	14	230	NO	UIC depth measurement	Compliant
ADW255	4601 SE 118TH AVE	0	19	NO	MFR	369	14	395	NO	UIC depth measurement	Compliant
ADV332	5315 SE 105TH AVE	0	18	NO	SFR	304	16	1,008	NO	UIC depth measurement	Compliant
ADW310	6302 SE FOSTER PL	0	20	NO	MFR	25,775	16	1,499	NO	UIC depth measurement	Compliant
ADV184	9903 SE WOODSTOCK CT	0	21	YES	MFR	557	13	3,167	NO	UIC depth measurement	Compliant
ADR037	3948 NE 144TH AVE	0	18	NO	MFR	NA	13	898	NO	UIC depth measurement	Compliant
ADV386	7550 NE COLUMBIA BLVD	0	20.1	NO	POS	21,309	19	1,638	NO	UIC depth measurement	Compliant

Table B-2: Category 3 UICs Determined to be Compliant Due to 2008 Depth Measurements

Hansen UIC Node Number	Location [1]	2007 Hansen UIC Depth (ft) [2]	2008 Hansen UIC Depth (ft) [a]	Sed Manhole (yes/no)	Predominant Landuse	Estimated Traffic Count (TPD)	2008 Estimated Separation Distance[4] (ft)	Distance to Nearest Well (ft) [5]	Within 2-year time of travel (yes/no)	Reason Removed from November 2007 Category 3 UIC List	Compliance Status
ADV391	7823 NE COLUMBIA BLVD	0	18	NO	IND	21,309	11	2,555	NO	UIC depth measurement	Compliant
ADV390	7626 NE COLUMBIA BLVD	0	19.75	NO	IND	21,309	16	2,038	NO	UIC depth measurement	Compliant
ADV389	7626 NE COLUMBIA BLVD	0	20.1	NO	POS	21,309	15	2,038	NO	UIC depth measurement	Compliant
ADV388	7616 NE COLUMBIA BLVD	0	18.4	NO	POS	21,309	18	1,952	NO	UIC depth measurement	Compliant
ANN967	6321 NE 66TH AVE	0	19	NO	SFR	439	19	882	NO	UIC depth measurement	Compliant
ADV387	7616 NE COLUMBIA BLVD	0	14.1	NO	IND	21,309	23	1,953	NO	UIC depth measurement	Compliant
ADV385	7550 NE COLUMBIA BLVD	0	18.2	NO	IND	21,309	21	1,639	NO	UIC depth measurement	Compliant
ADN309	5200 N COLUMBIA BLVD	0	15.3	YES	IND	266	21	1,035	NO	UIC depth measurement	Compliant
ADN310	5120 N COLUMBIA BLVD	0	20.4	YES	IND	NA	13	1,112	NO	UIC depth measurement	Compliant
PRK054	SE Sherrett/SE 21st	2	2	NO	POS	NA	5135	5,135	NO	5' separation required	Compliant
PRK053	SE Sherrett/SE 21st	2	2	NO	POS	NA	5112	5,112	NO	5' separation required	Compliant
PRK052	SE Sherrett/SE 21st	2	2	NO	POS	NA	5146	5,146	NO	5' separation required	Compliant

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] UIC depth measured in February/March 2008. Depths reported in the City UIC database.

[4] Separation distance based on 2007 update to USGS groundwater data and revised UIC depth.

[5] Includes domestic, irrigation, or public wells.

Acronyms:

NA = Not Available TPD = Trips per Day

SFR = Single Family Residential MFR= Multifamily residential IND = Industrial COM = Commericial POS = Parks and Open Space

Table B-3: UICs Removed From November 2007 Category 3 List

Hansen UIC Node Number	Location [1]	Hansen UIC Depth (ft) [2]	Sedimentation Manhole (yes/no)	Predominant Landuse	Estimated Traffic Count (TPD)	Estimated Separation Distance[3] (ft)	Distance to Nearest Well (ft) [4]	Within 2-year time of travel (yes/no)	Reason Removed from November 2007 Category 3 UIC List
ADW252	13001 SE HOLGATE BLVD	0	NO	COM	14,463	-1	343	NO	Sump system could not be located. Stormwater from this catchment discharges to ACE765.
ANA563	5732 SE 122ND AVE	0	NO	MFR	11,195	-13	1,569	NO	Sump has been abandoned.
ANS138	606 N TOMAHAWK ISLAND DR	0	NO	NA	NA	-28	2,302	NO	Determined to be a stormwater outfall.

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] Includes domestic, irrigation, or public wells.

Acronyms:

NA = Not Available TPD = Trips per Day

MFR= Multifamily residential COM = Commericial

Table B-4: Newly Identified Category 3 UICs

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	USGS 2007 Depth to GW (ft)	2008 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]
3	Separation Distance	AAV769	4022 NE 142ND AVE	0	NO	SFR	NA	27.9	0	809	NO	Low	July 2012	Increase Separation Distance
3	Separation Distance	AMQ114	8801 N VANCOUVER AVE	0	NO	IND	NA	6.4	3	811	NO	Low	July 2012	Increase Separation Distance
3	Separation Distance	ANW740	6457 NE 66TH AVE	0	NO	SFR	439	22.3	-6	1089	NO	Low	July 2012	Increase Separation Distance

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.

Acronyms:

NA = Not Available TPD = Trips per Day
SFR = Single Family Residential MFR= Multifamily residential IND = Industrial COM = Commericial POS = Parks and Open Space

Table B-5: Category 3 UICs with ≥ 5 feet Vertical Separation Distance and "No Further Action Determinations"

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	USGS 2007 Depth to GW (ft)	2008 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]	Approved Corrective Action [7]
3	Separation Distance	ADW251	12198 SE HOLGATE BLVD	21	NO [8]	COM	14,463	27.6	9	429	NO	Medium	July 2011	GWPD - NFA
3	Separation Distance	ADW281	4504 SE 122ND AVE	19	NO [8]	COM	12,589	25.9	9	325	NO	Medium	July 2011	GWPD - NFA
3	Separation Distance	ADW276	4700 SE 122ND AVE	19	NO [8]	MFR	12,589	23.0	6	477	NO	Medium	July 2011	GWPD - NFA
3	Separation Distance	ADW253	4549 SE 122ND AVE	20	NO [8]	MFR	12,589	25.0	7	371	NO	Medium	July 2011	GWPD - NFA
3	Separation Distance	ADW254	4549 SE 122ND AVE	21	NO [8]	MFR	12,589	24.7	6	326	NO	Medium	July 2011	GWPD - NFA
3	Separation Distance	ADW228	5436 SE 108TH AVE	18	NO [8]	SFR	3,826	24.4	8	436	NO	Medium	July 2011	GWPD - NFA
3	Separation Distance	ADT433	12323 SE HOLGATE BLVD	21.8	YES	MFR	5,249	25.6	6	230	NO	Medium	July 2011	GWPD - NFA
3	Separation Distance	ADU733	12150 SE PARDEE ST	16.3	YES	MFR	12,589	23.9	10	490	NO	Medium	July 2011	GWPD - NFA
3	Separation Distance	AMX933	3838 SE 136TH AVE	30	YES	MFR	10,240	34.3	6	650	YES	Medium	July 2011	GWPD - NFA
3	Separation Distance	AMR610	4560 SE 136TH AVE	13	YES	MFR	9,961	20.6	10	741	YES	Medium	July 2011	GWPD - NFA
3	Separation Distance	ADV393	7940 NE COLUMBIA BLVD	20	NO [8]	IND	24,196	25.0	7	2,760	NO	Medium	July 2011	GWPD - NFA
3	Separation Distance	ADV392	7824 NE COLUMBIA BLVD	21.2	NO [8]	IND	21,309	25.7	7	2,676	NO	Medium	July 2011	GWPD - NFA
3	Separation Distance	ADT460	13910 SE CORA ST	16	YES	SFR	735	19.6	6	525	YES	Medium	July 2011	GWPD - NFA
3	Separation Distance	ADV194	5524 SE 115TH AVE	18	YES	SFR	521	22.0	6	461	NO	Medium	July 2011	GWPD - NFA
3	Separation Distance	ADT722	5920 SE 138TH PL	19	YES	SFR	735	24.6	8	200	NO	Medium	July 2011	GWPD - NFA
3	Separation Distance	ADT721	13810 SE KNIGHT ST	18	YES	SFR	735	25.2	9	303	NO	Medium	July 2011	GWPD - NFA
3	Separation Distance	ADW259	11943 SE LIEBE ST	17	NO [8]	MFR	273	22.0	7	422	NO	Medium	July 2011	GWPD - NFA
3	Separation Distance	ADW302	6300 SE 103RD AVE	19	NO [8]	IND	27,474	23.3	6	2,326	NO	Medium	July 2011	GWPD - NFA
3	Separation Distance	ADV181	10200 SE FOSTER RD	20	NO [8]	IND	27,607	26.0	8	2,466	NO	Medium	July 2011	GWPD - NFA
3	Separation Distance	ADV976	13100 NE SANDY BLVD	19	NO [8]	COM	20,925	25.4	8	1,066	NO	Medium	July 2011	GWPD - NFA
3	Separation Distance	ADT439	13036 SE BUSH PL	30	YES	SFR	NA	37.9	10	315	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADT461	13940 SE CORA ST	19.2	YES	SFR	413	26.4	9	614	YES	Low	July 2011	GWPD - NFA
3	Separation Distance	ADU770	13400 SE RAYMOND ST	30	YES	MFR	314	36.0	8	171	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADU736	12332 SE LONG ST	15.5	YES	MFR	195	20.6	7	428	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ACK566	13400 SE RAYMOND ST	30	YES	MFR	314	36.2	8	160	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ANA609	11736 SE INSLEY ST	17	YES	MFR	369	23.3	8	431	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ACK389	5034 SE 114TH AVE	20	YES	SFR	182	27.0	9	482	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADV122	6300 SE 102ND AVE	21	YES	IND	27,607	26.3	7	2,530	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADW250	12160 SE HOLGATE BLVD	21	NO [8]	COM	13,104	28.3	9	573	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADW260	12199 SE LIEBE ST	17	NO [8]	MFR	12,261	20.1	5	873	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADV169	10064 SE WOODSTOCK BLVD	25.8	YES	IND	795	29.7	6	2,710	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADV118	10104 SE WOODSTOCK BLVD	23	YES	IND	795	28.8	8	2,602	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADW222	5498 SE 105TH AVE	20	NO [8]	SFR	3,946	26.6	9	752	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ANL730	11465 SE PARDEE ST	0	NO [8]	SFR	864	36.4	8	702	NO	Low	July 2011	GWPD - NFA

Table B-5: Category 3 UICs with ≥ 5 feet Vertical Separation Distance and "No Further Action Determinations"

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	USGS 2007 Depth to GW (ft)	2008 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]	Approved Corrective Action [7]
3	Separation Distance	ADV129	10104 SE REEDWAY ST	22	NO [8]	SFR	606	26.8	7	2,000	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADV124	5608 SE 101ST AVE	22	NO [8]	SFR	606	27.4	7	2,028	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADV123	5536 SE 101ST AVE	22	NO [8]	SFR	606	27.7	8	2,023	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ACP657	5600 SE 101ST AVE	21	NO [8]	SFR	606	27.6	9	2,026	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ACP656	5600 SE 101ST AVE	20	NO [8]	SFR	606	27.7	10	2,024	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ACP660	5608 SE 99TH AVE	30	YES	SFR	557	33.0	5	2,534	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ACP666	10100 SE REEDWAY ST	21	NO [8]	SFR	606	27.1	8	2,025	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADW837	8028 SE 37TH AVE	30	NO [8]	SFR	1,809	37.6	10	3,818	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADW289	3522 SE MARTINS ST	30	NO [8]	SFR	628	37.2	9	3,055	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADU750	12612 SE HOLGATE BLVD	14.5	YES	SFR	5035	19.4	7	719	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADU729	12140 SE SCHILLER ST	15.9	YES	MFR	12,363	22.1	8	757	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADV959	8154 SE MALDEN ST	29	YES	IND	201	34.0	7	1,773	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADT436	3938 SE 130TH AVE	30	YES	SFR	1,735	35.4	7	795	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADT448	3815 SE 131ST AVE	30	YES	SFR	759	35.4	7	585	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADT449	13190 SE FRANCIS ST	30.8	YES	SFR	759	34.3	5	735	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADT456	13010 SE CENTER ST	27	YES	SFR	1,735	33.9	9	946	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADT450	12980 SE CENTER ST	30	YES	SFR	1,735	35.3	7	911	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ACK084	5500 SE 99TH AVE	0	YES	SFR	4,748	36.6	9	2,197	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADU689	5470 SE 100TH AVE	30	YES	SFR	3,892	33.9	6	2,361	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADU724	5420 SE 113TH AVE	17	YES	SFR	3,295	20.2	5	929	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADV160	9842 SE HAROLD ST	30	YES	SFR	4,748	35.7	8	2,267	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADU686	5500 SE 101ST AVE	24	YES	SFR	3,994	30.9	9	2,018	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADT698	12559 SE RAMONA ST	23.8	YES	MFR	1,089	27.9	6	1,592	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADV139	5900 SE 98TH AVE	26	YES	MFR	544	33.9	10	2,910	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADV138	5832 SE 101ST AVE	21	YES	SFR	675	26.6	8	2,161	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADV133	5736 SE 101ST AVE	22	YES	SFR	634	27.3	7	2,088	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADV149	6002 SE 99TH AVE	26.5	YES	SFR	557	31.5	7	2,788	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADV171	10110 SE MARTINS ST	20	YES	SFR	723	26.2	8	2,402	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADV173	6000 SE 101ST AVE	21	YES	SFR	675	26.0	7	2,273	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADV174	9704 SE YUKON ST	29.5	YES	MFR	991	34.7	7	3,079	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADV125	5600 SE 99TH AVE	30	YES	SFR	557	33.2	5	2,526	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ACP670	5740 SE 101ST AVE	21	YES	SFR	634	27.2	8	2,094	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ACP675	5838 SE 101ST AVE	21	YES	SFR	675	26.5	7	2,169	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADV120	9700 SE KNIGHT ST	30	YES	MFR	991	34.4	6	2,756	NO	Low	July 2011	GWPD - NFA

Table B-5: Category 3 UICs with ≥ 5 feet Vertical Separation Distance and "No Further Action Determinations"

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	USGS 2007 Depth to GW (ft)	2008 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]	Approved Corrective Action [7]
3	Separation Distance	ACP637	5798 SE 97TH AVE	30	YES	SFR	991	34.7	7	2,544	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADV115	5700 SE 97TH AVE	30	YES	SFR	991	35.7	8	2,399	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADV114	5600 SE 97TH AVE	30	YES	SFR	1,090	37.7	10	2,162	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ACP810	6034 SE 99TH AVE	24.5	YES	SFR	557	31.1	9	2,809	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADV117	5790 SE 97TH AVE	30	YES	SFR	991	34.8	7	2,521	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADV951	8312 SE 75TH PL	30	YES	SFR	501	33.2	5	2,515	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	AMQ081	8705 SE 16TH AVE	30	YES	SFR	575	37.9	10	3,913	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADU022	8335 SE 7TH AVE	31	YES	SFR	780	34.1	5	1,544	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADS534	2125 SE 18TH AVE	19	YES	SFR	2,315	22.4	5	2,649	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADU206	8635 SE 9TH AVE	30	YES	SFR	1,282	35.8	8	2,474	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADQ418	4656 NE 118TH AVE	30	YES	COM	436	33.0	5	1,472	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADR051	15415 NE BEECH ST	30	YES	MFR	247	36.7	9	763	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADW262	5222 SE 113TH AVE	18	NO [8]	SFR	450	25.6	10	833	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADW227	5350 SE 109TH AVE	19	NO [8]	SFR	461	26.6	10	784	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADW070	4225 NE 134TH AVE	19	NO [8]	SFR	108	26.1	9	773	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADW041	13200 NE PRESCOTT DR	19	NO [8]	SFR	NA	26.2	9	840	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	PRK113	N CRAWFORD\PITTSBURGH	6	NO [8]	POS	NA	14.6	9	554	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	PRK039	SW IOWA/55th ST	13	NO [8]	SFR	NA	18.2	5	1,248	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ANA601	12110 SE PARDEE ST	16.5	YES	MFR	124	24.1	10	566	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ANA018	11804 SE MALL ST	32	YES	SFR	186	37.3	7	1,060	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADT424	12542 SE MALL ST	20	YES	SFR	186	23.6	6	773	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADT425	13038 SE CORA ST	22	YES	SFR	422	27.2	7	1,527	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADU696	10146 SE INSLEY ST	30	YES	SFR	70	36.7	9	1,822	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	AMP308	5575 SE 139TH AVE	21.4	YES	SFR	180	28.4	9	507	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	AMV613	5640 SE 137TH AVE	30	YES	MFR	180	33.3	5	648	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADT718	5538 SE 131ST AVE	30	YES	SFR	361	36.5	9	1,540	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADT717	13014 SE ELLIS ST	30	YES	SFR	336	35.1	7	1,601	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ANA612	4706 SE 113TH AVE	30	YES	SFR	450	37.0	9	633	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADU726	11600 SE PARDEE ST	29.2	YES	SFR	425	33.0	6	645	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADV127	5610 SE 102ND AVE	21	YES	SFR	490	24.4	5	1,720	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ACP661	10202 SE ELLIS ST	20	YES	SFR	490	24.4	6	1,693	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ACP667	5700 SE 102ND AVE	19	YES	SFR	440	23.5	6	1,743	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ACP672	5800 SE 102ND AVE	19	YES	SFR	426	23.0	6	1,800	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ACP890	10203 SE ELLIS ST	20	YES	SFR	490	23.9	6	1,646	NO	Low	July 2011	GWPD - NFA

Table B-5: Category 3 UICs with ≥ 5 feet Vertical Separation Distance and "No Further Action Determinations"

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	USGS 2007 Depth to GW (ft)	2008 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]	Approved Corrective Action [7]
3	Separation Distance	ANA284	9700 SE HENRY ST	30	YES	MFR	249	34.4	6	3,485	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ANA283	9700 SE HENRY ST	30	YES	MFR	249	34.1	6	3,460	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ANA276	6422 SE 97TH AVE	30	YES	MFR	310	34.8	7	3,436	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADV170	9736 SE HENRY ST	25	YES	MFR	249	32.4	9	3,285	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADV952	8206 SE 75TH PL	30	YES	SFR	115	37.2	9	2,517	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADT978	8820 SE RURAL ST	28	YES	SFR	402	35.8	10	3,072	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADT977	8728 SE KNAPP ST	27	YES	SFR	415	34.4	9	2,571	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADT972	8630 SE KNAPP ST	30	YES	SFR	462	35.6	8	2,506	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADT971	8600 SE KNAPP ST	31	YES	SFR	441	37.3	8	2,484	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADT970	7300 SE 85TH AVE	32	YES	SFR	448	39.7	10	2,462	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADT984	8711 SE HENDERSON ST	28.3	YES	SFR	462	32.3	6	2,109	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADT967	9090 SE COOPER ST	31	YES	SFR	334	38.8	10	3,899	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ACU075	8600 SE KNAPP ST	30	YES	SFR	441	37.8	10	2,479	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	AMQ101	6035 SE 15TH AVE	30	YES	SFR	380	37.3	9	3,426	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADU028	8430 SE 8TH AVE	30	YES	SFR	187	37.8	10	1,883	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	ADR039	3650 NE 158TH AVE	30	YES	MFR	247	37.1	9	514	NO	Low	July 2011	GWPD - NFA
3	Separation Distance	AMU235	10325 N MACRUM AVE	30	YES	MFR	NA	36.6	9	2,693	NO	Low	July 2011	GWPD - NFA

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 reported in November 2007. Depth assumed to be 30 feet for compliance determination. UIC depths measured in early 2008.

[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

[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

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

[7] "No further action" was approved as an appropriate corrective action in accordance with Permit Schedule D, Section 12 (c) for 119 Category 3 UICs with vertical separation distances >5 feet. The Category 3 UICs – Groundwater Protectiveness Demonstration – Vertical Separation Distances >5 Feet – No Further Action Request provides the basis for determining groundwater quality is protected as a drinking water resource, in accordance with Oregon Administrative Rules (OAR) 340-040. DEQ approved the NFA request with conditions in a letter dated October 6, 2008.

[8] Potential conditions apply to the NFA (see DEQ's October 6, 2008 letter).

Acronyms:

NA = Not Available TPD = Trips per Day GWPD= Groundwater Protectiveness Demonstration NFA - No Further Action
SFR = Single Family Residential MFR= Multifamily residential IND = Industrial COM = Commericial POS = Parks and Open Space

Table B-6: Prioritized Category 3 UICs with < 5 feet Vertical Separation Distance

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	USGS 2007 Depth to GW (ft)	2008 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]	FY07-08 Project Status	FY08-09 Planned Activities
3	Separation Distance	ADW264	5450 SE 114TH PL	0.0	NO	SFR	3,642	22.3	-6	419	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADW304	11741 SE FOSTER RD	19.0	NO	IND	25,775	12.5	-5	1,281	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADR046	3808 NE 156TH AVE	30	YES	MFR	13,444	26.9	-1	360	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ACK562	13600 SE HOLGATE BLVD	30	YES	SFR	9,961	25.6	-2	849	YES	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ACK563	13600 SE HOLGATE BLVD	30	YES	SFR	9,961	25.2	-3	867	YES	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ACK564	13600 SE HOLGATE BLVD	30	YES	SFR	9,961	24.9	-3	884	YES	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADT475	4241 SE 136TH AVE	27	YES	SFR	10,104	17.3	-8	798	YES	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADT471	13612 SE CORA ST	21	YES	SFR	10,104	18.0	-1	771	YES	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	AMX688	4406 SE 136TH AVE	22.8	YES	SFR	9,961	16.6	-4	647	YES	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADW303	11501 SE FOSTER RD	19	NO	IND	25,775	7.6	-9	1,249	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ANB177	8110 NE COLUMBIA BLVD	0	NO	IND	24,196	22.4	-6	2,986	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADU769	13600 SE HOLGATE BLVD	30	YES	SFR	4,568	24.5	-4	901	YES	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADT459	4344 SE 138TH PL	30	YES	SFR	735	19.0	-9	219	YES	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADW312	11540 SE FOSTER RD	18	NO	COM	25,775	7.9	-8	1,292	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADV193	5710 SE 115TH AVE	24	YES	SFR	521	19.7	-2	313	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADV244	3954 SE 136TH AVE	30	NO	MFR	10,205	30.3	2	560	YES	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADP904	8521 NE COLUMBIA BLVD	31	YES	IND	22,873	24.6	-4	4,008	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADU749	12220 SE HOLGATE BLVD	24	YES	COM	5,249	26.7	5	275	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ACQ013	11716 SE FOSTER RD	20	NO	MFR	25,775	14.7	-3	1,332	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ANB179	6015 NE 80TH AVE	19.5	NO	IND	6,658	11.6	-6	2,423	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADT451	4490 SE 125TH AVE	20	YES	SFR	5,249	22.2	4	487	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	AMX686	4406 SE 135TH AVE	25.4	YES	SFR	186	13.8	-10	1,003	YES	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADU740	13120 SE RAYMOND ST	26	YES	SFR	314	22.1	-2	377	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADV121	6200 SE 102ND AVE	30	YES	IND	27,607	26.3	-2	2,461	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADV974	10900 NE MARX ST	16.3	NO	IND	1,714	13.5	-1	1,786	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	AMR622	13515 SE HOLGATE BLVD	21	YES	MFR	4,568	20.2	1	960	YES	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADT468	13630 SE CENTER ST	28.4	YES	MFR	898	29.1	3	455	YES	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	AMR771	4736 SE 115TH AVE	31	YES	SFR	821	32.6	4	449	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ANB185	6245 NE 80TH AVE	0	NO	IND	2,900	1.5	-26	1,978	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ST17A	848 N TOMAHAWK ISLAND DR	11	NO	COM	NA	7.6	-3	2,882	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADW275	12150 SE HAROLD ST	22	NO	COM	11,646	18.5	-1	1,160	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADW229	5436 SE 109TH AVE	20.5	NO	SFR	461	21.7	3	444	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	AMR553	8100 SE CRYSTAL SPRINGS BLVD	30	YES	IND	895	15.2	-13	1,136	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ANB182	6135 NE 80TH AVE	17	NO	IND	2,900	2.1	-13	2,178	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADV204	5825 SE 122ND AVE	25	YES	IND	11,031	15.5	-7	1,460	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADW313	5601 SE 122ND AVE	24	NO	MFR	11,400	18.3	-4	1,181	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADT682	5803 SE 122ND AVE	27	YES	IND	11,133	13.6	-11	1,615	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADR047	3838 NE 154TH AVE	30	YES	MFR	13,300	26.8	-1	624	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADR045	3737 NE 156TH AVE	30	YES	MFR	470	32.6	5	453	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADV384	8111 NE HOLMAN ST	14	NO	IND	NA	0.9	-11	2,314	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design

Table B-6: Prioritized Category 3 UICs with < 5 feet Vertical Separation Distance

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	USGS 2007 Depth to GW (ft)	2008 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]	FY07-08 Project Status	FY08-09 Planned Activities
3	Separation Distance	PRK142	N Victory Blvd	3	NO	POS	NA	5.8	3	284	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	PRK133	N Victory Blvd	3	NO	POS	NA	6.3	3	490	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	PRK135	N Victory Blvd	2	NO	POS	NA	6.6	5	434	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	PRK141	N Victory Blvd	3	NO	POS	NA	5.6	3	303	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	PRK140	N Victory Blvd	3	NO	POS	NA	6.2	3	268	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	AAC311	1445 NE MARINE DR	10	NO	SFR	11,064	8.4	0	567	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ANA596	13033 SE HOLGATE BLVD	0	NO	SFR	4,710	13.1	-15	928	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ANA587	13008 SE HOLGATE BLVD	0	NO	SFR	4,710	13.8	-14	894	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADT472	13722 SE CORA ST	19	YES	SFR	413	18.2	1	551	YES	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADT473	13820 SE GLADSTONE ST	20.9	YES	SFR	430	22.9	4	520	YES	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADT474	13658 SE CORA ST	19.7	YES	SFR	413	18.2	0	610	YES	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADT477	4100 SE 140TH AVE	30	YES	SFR	433	30.0	2	736	YES	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	AMR318	13928 SE BOISE CT	25.5	YES	SFR	NA	27.4	4	764	YES	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	AMY402	11246 SE HAROLD ST	0	NO	SFR	3,295	19.3	-9	928	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ANA889	11305 SE HAROLD ST	0	NO	SFR	3,295	19.7	-8	920	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADU727	4903 SE 114TH AVE	30	YES	SFR	182	31.4	3	243	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADW286	3039 SE TOLMAN ST	30.2	NO	SFR	1,503	26.2	-2	3,575	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ANB108	11020 NE MARX ST	16	NO	IND	1,714	17.1	3	1,817	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ANA900	1839 NE MARINE DR	10	NO	SFR	11,064	9.4	1	1,196	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ANA899	1801 NE MARINE DR	10	NO	SFR	11,064	8.4	0	1,196	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	BGS001	800 NW 6TH AVE	12.1	NO	COM	NA	8.6	-4	4,458	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADW321	5732 SE 122ND AVE	20	NO	MFR	11,195	15.0	-3	1,544	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADT690	12221 SE REEDWAY ST	27	YES	MFR	11,400	17.7	-7	1,308	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADV203	5918 SE 122ND AVE	30	YES	MFR	10,908	27.1	-1	1,096	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADU027	8434 SE 7TH AVE	30	YES	SFR	780	22.9	-5	1,790	NO	Medium	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ACK560	13500 SE HOLGATE BLVD	30	YES	SFR	4,568	15.3	-13	1,031	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ANA592	13250 SE HOLGATE BLVD	0	YES	SFR	4,710	8.3	-20	1,031	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ANA591	13250 SE HOLGATE BLVD	0	YES	SFR	4,710	8.4	-20	1,027	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ANA590	13250 SE HOLGATE BLVD	0	YES	SFR	4,710	8.4	-20	1,024	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ANA589	13250 SE HOLGATE BLVD	0	YES	SFR	4710	8.5	-19	1,020	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	AMY600	13515 SE HOLGATE BLVD	21	YES	MFR	4,568	14.7	-4	1,009	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADU768	13500 SE HOLGATE BLVD	30	YES	SFR	4,568	15.7	-12	1,028	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADT455	4332 SE 130TH AVE	30	YES	SFR	1,606	20.3	-8	1,256	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	AMS283	12500 SE HAROLD ST	25	YES	SFR	1,477	18.3	-5	1,986	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADU755	13000 SE HAROLD ST	29	YES	SFR	1,341	23.9	-3	1,307	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADU734	5423 SE 121ST AVE	30	YES	MFR	806	20.7	-7	981	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADU756	13000 SE HAROLD ST	30	YES	SFR	1,371	26.7	-1	1,287	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADU735	5500 SE 121ST AVE	30	YES	MFR	4,885	20.3	-8	955	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADV191	11080 SE HAROLD ST	22.9	YES	SFR	3,791	19.0	-2	543	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADU738	5031 SE 128TH AVE	30	YES	SFR	1,544	17.0	-11	1,060	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design

Table B-6: Prioritized Category 3 UICs with < 5 feet Vertical Separation Distance

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	USGS 2007 Depth to GW (ft)	2008 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]	FY07-08 Project Status	FY08-09 Planned Activities
3	Separation Distance	ADT696	12319 SE RAMONA ST	20.2	YES	MFR	1,089	16.2	-2	1,545	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADT689	5544 SE 128TH AVE	30	YES	SFR	1,298	20.8	-7	1,781	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADU722	5208 SE 111TH AVE	30.6	YES	SFR	2,563	27.8	-1	1,122	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADV158	6210 SE 101ST AVE	29	YES	IND	836	27.5	0	2,600	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADV187	10298 SE ELLIS ST	24	YES	SFR	1,051	21.9	0	1,427	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADV961	7920 SE 79TH AVE	31	YES	SFR	816	28.6	0	1,774	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADU205	805 SE MARION ST	32	YES	SFR	631	29.7	0	2,429	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ANS554	9700 N EDISON ST	30	YES	IND	838	31.2	3	3,270	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADW272	5404 SE 122ND AVE	17.9	NO	MFR	11,646	19.5	4	1,323	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADW261	4919 SE 122ND AVE	21	NO	MFR	12,138	19.0	0	937	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADW266	5000 SE 122ND AVE	20	NO	MFR	12,138	18.7	1	1,080	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADW267	5021 SE 122ND AVE	20	NO	MFR	11,953	19.6	2	1,148	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADW269	5211 SE 122ND AVE	22	NO	MFR	11,953	21.0	1	1,297	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADW271	5403 SE 122ND AVE	21	NO	MFR	11,646	19.9	1	1,279	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADW265	12150 SE RAYMOND ST	16.5	NO	MFR	12,138	19.0	5	1,006	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADW273	5436 SE 122ND AVE	17.5	NO	MFR	11,646	19.0	4	1,244	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADW274	5500 SE 122ND AVE	20.2	NO	MFR	11,646	18.8	1	1,231	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADW258	4857 SE 122ND AVE	21	NO	MFR	12,261	20.3	1	884	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADW257	4754 SE 122ND AVE	22	NO	MFR	12,363	21.5	2	682	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ACK357	4918 SE 122ND AVE	20	NO	MFR	12,138	18.8	1	988	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADT683	12230 SE RAMONA ST	19.5	YES	MFR	11,133	13.9	-4	1,593	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADT716	12140 SE RAMONA ST	28	YES	POS	11,195	14.5	-12	1,482	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADU725	4908 SE 122ND AVE	19	NO	MFR	12,138	19.0	2	974	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADW256	4745 SE 122ND AVE	20	NO	MFR	12,363	22.3	4	661	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADV205	5906 SE 122ND AVE	28	YES	MFR	11,031	16.3	-10	1,442	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	PRK011	SW Ankeny/Ash	0.5	NO	COM	NA	4.4	4	1,629	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3 (new)	Separation Distance	AAV769	4022 NE 142ND AVE	0	NO	SFR	NA	27.9	0	809	NO	Low	July 2012	Increase Separation Distance	Planning/Predesign	Predesign/Design
3 (new)	Separation Distance	ANW740	6457 NE 66TH AVE	0	NO	SFR	439	22.3	-6	1,089	NO	Low	July 2012	Increase Separation Distance	Planning/Predesign	Predesign/Design
3 (new)	Separation Distance	AMQ114	8801 N VANCOUVER AVE	0	NO	IND	NA	6.4	3	811	NO	Low	July 2012	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ANA598	4425 SE 130TH AVE	15.6	NO	SFR	4,814	15.6	2	970	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADW230	5440 SE 111TH AVE	19	NO	SFR	1,848	20.5	4	639	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADW233	5500 SE 104TH AVE	0	NO	SFR	4,096	28.5	0	1,045	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ANA841	9956 SE HAROLD ST	30	NO	SFR	3,892	32.9	5	2,354	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADV188	10310 SE ELLIS ST	22	NO	SFR	1,051	21.1	1	1,322	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ANA271	10000 SE WOODSTOCK CT	30	YES	IND	2,082	30.3	2	3,002	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADW285	5737 SE 15TH AVE	30	NO	MFR	970	29.1	1	3,923	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	PRK125	N Victory Blvd	3	NO	POS	NA	-1.8	-5	602	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	PRK127	N Victory Blvd	3	NO	POS	NA	-2.1	-5	590	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADT454	12830 SE HOLGATE BLVD	20.3	YES	SFR	5,035	18.4	0	1,045	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design

Table B-6: Prioritized Category 3 UICs with < 5 feet Vertical Separation Distance

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	USGS 2007 Depth to GW (ft)	2008 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]	FY07-08 Project Status	FY08-09 Planned Activities
3	Separation Distance	ADV202	5961 SE 122ND AVE	22.7	YES	MFR	11,031	24.2	3	1,172	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADT466	4100 SE 133RD AVE	30	YES	SFR	389	27.7	0	1,286	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADT464	13326 SE CORA ST	25	YES	SFR	418	20.8	-2	1,363	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADT426	4144 SE 132ND AVE	30	YES	SFR	NA	27.2	-1	1,399	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADU754	13030 SE MITCHELL ST	30	YES	SFR	178	25.7	-2	1,008	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADU753	13030 SE MITCHELL ST	30	YES	SFR	178	25.7	-2	1,010	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADT691	12506 SE REEDWAY ST	25	YES	SFR	187	19.0	-4	2,151	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADT688	12532 SE ELLIS ST	30	YES	SFR	236	19.4	-9	2,137	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADT687	12246 SE ELLIS ST	25	YES	SFR	224	18.9	-4	1,463	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADU732	11945 SE RAYMOND ST	30	YES	MFR	491	21.7	-6	681	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADU731	11134 SE STEELE ST	30.1	YES	SFR	173	26.4	-2	1,074	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADT730	14037 SE FOSTER RD	30	YES	SFR	14,500	31.8	4	780	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADV950	8318 SE 78TH AVE	26	YES	SFR	86	15.3	-9	1,849	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADV196	12010 SE REEDWAY ST	28	YES	MFR	205	15.0	-11	962	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADV197	5605 SE 120TH AVE	26	YES	MFR	192	19.6	-4	680	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	PRK137	N Victory Blvd	3	NO	POS	NA	3.0	0	675	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	PRK138	N Victory Blvd	3	NO	POS	NA	2.8	0	721	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	PRK139	N Victory Blvd	3	NO	POS	NA	2.6	0	735	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	PRK136	N Victory Blvd	3	NO	POS	NA	2.4	-1	602	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	AAJ188	300 NE WINCHELL ST	30	YES	IND	250	30.5	3	559	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	PRK126	N Victory Blvd	3	NO	POS	NA	-1.9	-5	609	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	PRK128	N Victory Blvd	3	NO	POS	NA	-1.3	-4	533	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	PRK129	N Victory Blvd	3	NO	POS	NA	-1.4	-4	533	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	PRK130	N Victory Blvd	3	NO	POS	NA	-0.2	-3	509	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADN954	300 NE WINCHELL ST	30	YES	IND	250	29.9	2	530	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADT453	12920 SE HOLGATE BLVD	19.6	YES	SFR	4,814	18.3	1	1,112	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADT458	13136 SE CENTER ST	30	YES	SFR	860	31.0	3	986	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADT457	13044 SE CENTER ST	30	YES	SFR	849	32.7	5	925	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADU757	5506 SE 130TH AVE	30	YES	SFR	1,371	29.1	1	1,334	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADV161	10004 SE HAROLD ST	30	YES	SFR	3,892	32.5	4	2,305	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADU743	12780 SE SCHILLER ST	15.4	YES	SFR	1,778	15.0	2	898	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADT697	12427 SE RAMONA ST	20.7	YES	MFR	1,089	21.2	3	1,547	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADV126	5608 SE 99TH AVE	30	YES	SFR	557	32.9	5	2,535	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADV144	5905 SE 102ND AVE	21	YES	SFR	553	23.7	5	1,961	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADV137	5828 SE 99TH AVE	30	YES	SFR	557	31.7	4	2,642	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADV146	5980 SE 102ND AVE	22	YES	SFR	688	23.9	4	1,987	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADV154	6034 SE 102ND AVE	26	YES	SFR	894	24.9	1	2,130	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	AMT874	5712 SE 103RD AVE	20	YES	SFR	1,109	19.9	2	1,457	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ACP682	5988 SE 102ND AVE	22	YES	SFR	688	24.1	4	2,004	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ACP693	6036 SE 102ND AVE	22	YES	SFR	894	24.9	5	2,160	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design

Table B-6: Prioritized Category 3 UICs with < 5 feet Vertical Separation Distance

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	USGS 2007 Depth to GW (ft)	2008 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]	FY07-08 Project Status	FY08-09 Planned Activities
3	Separation Distance	ACP891	10246 SE ELLIS ST	20	YES	SFR	1051	22.3	4	1,478	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ACP887	10304 SE ELLIS ST	19	YES	SFR	1,051	21.5	5	1,372	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADR048	3734 NE 154TH AVE	30	YES	MFR	NA	32.0	4	734	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADW248	12024 SE RAYMOND ST	18	NO	MFR	NA	19.8	4	1,089	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ANA264	10000 SE WOODSTOCK BLVD	30	YES	IND	356	31.3	3	2,929	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADR053	15420 NE ALTON ST	30	YES	MFR	NA	29.2	1	609	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADV168	6490 SE 99TH AVE	29.5	YES	MFR	557	32.1	5	3,037	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	PRK132	N Victory Blvd	3	NO	POS	NA	4.9	2	512	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	PRK134	N Victory Blvd	2	NO	POS	NA	6.2	4	524	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	PRK131	N Victory Blvd	3	NO	POS	NA	4.6	2	596	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADT465	4024 SE 134TH AVE	24	YES	SFR	418	26.6	5	1,114	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADT428	13110 SE GLADSTONE CT	30	YES	SFR	NA	29.2	1	1,220	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADT463	13236 SE CORA ST	23.3	YES	SFR	419	23.2	2	1,543	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADU758	12908 SE MITCHELL ST	21	YES	SFR	178	20.9	2	1,173	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADU744	12524 SE SCHILLER ST	16	YES	SFR	416	16.3	2	824	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADV135	5736 SE 102ND AVE	21	YES	SFR	426	23.0	4	1,791	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADV130	5635 SE 102ND AVE	22	YES	SFR	440	23.7	4	1,734	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADV190	10402 SE ELLIS ST	20	YES	SFR	279	18.5	1	1,003	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADV189	10398 SE ELLIS ST	20	YES	SFR	279	18.9	1	1,054	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ACP892	10324 SE ELLIS ST	21	YES	SFR	142	20.5	2	1,247	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ACP889	10357 SE ELLIS ST	19	YES	SFR	279	19.3	2	1,104	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADV956	8108 SE LAMBERT ST	31	YES	MFR	492	29.1	0	1,535	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADV955	7916 SE LAMBERT ST	31	YES	SFR	395	33.0	4	1,878	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADU211	905 SE LINN ST	30	YES	SFR	450	32.8	5	2,782	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	AMQ134	6209 SE 13TH AVE	30	YES	SFR	316	31.8	4	2,768	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ADU200	804 SE CLATSOP ST	32	YES	SFR	375	34.8	5	2,211	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design
3	Separation Distance	ANN224	5700 SE 134TH PL	0	YES	SFR	NA	30.3	2	1,400	NO	Low	July 2011	Increase Separation Distance	Planning/Predesign	Predesign/Design

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

[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

[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.

Acronyms:

NA = Not Available TPD = Trips per Day
SFR = Single Family Residential MFR= Multifamily residential IND = Industrial COM = Commericial POS = Parks and Open Space

Printed on recycled paper.