City of Portland

National Pollutant Discharge Elimination System (NPDES)
Municipal Separate Storm Sewer System Discharge Permit

Permit Number: 101314

ANNUAL COMPLIANCE REPORT NO. SEVEN

Fiscal Year 2001-2002
(July 1, 2001 - June 30, 2002)

Prepared for:

Oregon Department of Environmental Quality

October 31, 2002

Submitted by:

City of Portland, Oregon
Multnomah County
Port of Portland
Multnomah County Drainage District No. 1
Peninsula Drainage District No. 1
Peninsula Drainage District No. 2
City of Portland
National Pollutant Discharge Elimination System
Municipal Separate Storm Sewer System Discharge Permit
Permit Number: 101314

ANNUAL COMPLIANCE REPORT
Fiscal Year 2001-02
(July 1, 2001 - June 30, 2002)

We, the undersigned, hereby submit this annual compliance report for the Municipal Separate Storm Water System Discharge Permit No. 101314, in accordance with Schedule B, Section 7 (System-Wide Report) of that permit. We certify, as required by 40 CFR Section 122.22, under penalty of law, that this document was prepared under our direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on our inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of our knowledge and belief, true, accurate, and complete. We are aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

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REPORT CONTENTS

EXECUTIVE SUMMARY

I. GENERAL INTRODUCTION

   Permit Background
   Permit Renewal
   BMP Categories
   Program Coordination
   Report Preparation and Organization
   
   Figure 1: Map of Permit Area

II. CITY OF PORTLAND

III. MULTNOMAH COUNTY

IV. PORT OF PORTLAND

V. MULTNOMAH COUNTY DRAINAGE DISTRICT NO. 1
   PENINSULA DRAINAGE DISTRICT NO. 1
   PENINSULA DRAINAGE DISTRICT NO. 2

ATTACHMENT (at end of report)
City of Portland NPDES Stormwater Permit

APPENDIX (bound separately and available upon request)
Monitoring Data
EXECUTIVE SUMMARY
EXECUTIVE SUMMARY

INTRODUCTION

This seventh Annual Compliance Report is submitted to the Oregon Department of Environmental Quality (DEQ) to fulfill reporting requirements for the City of Portland’s National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System Discharge Permit (hereinafter referred to as the stormwater permit or permit). It is submitted by the six co-permittees: the City of Portland, Multnomah County, the Port of Portland, Multnomah County Drainage District No. 1, Peninsula Drainage District No. 1, and Peninsula Drainage District No. 2. The report covers the work accomplished during the seventh fiscal year (July 1, 2001 through June 30, 2002) of the permit program.

In managing and implementing the permit program, the co-permittees work in a cooperative effort with DEQ, Metro, the Oregon Association of Clean Water Agencies (ACWA), other agencies, and the public.

PERMIT RENEWAL

DEQ issued the five-year stormwater permit on September 7, 1995. In February 2000, the City of Portland, Multnomah County, and Port of Portland submitted the permit renewal package to DEQ for the second permit term (September 1, 2000 through August 31, 2005). The best management practices (BMPs) were improved, adapted, or reorganized as needed to achieve a program that collectively reduces pollutants discharged from the MS4 system in Portland to the maximum extent practicable. Pending DEQ’s formal approval of the renewal, the co-permittees began implementing the revised BMPs described in the permit renewal during permit year six, and continued during permit year seven.

During permit year five, the drainage districts examined their role under the permit and determined they could fulfill this role effectively through memoranda of agreement (MOAs) among all the parties. As a result, they have proposed taking that approach, rather than continuing as a co-permittee, in the second five-year permit term. DEQ has not formally accepted this status change, pending review of the permit renewal; however, the drainage districts expect that DEQ will support the MOA concept as the appropriate vehicle for their participation. During year seven, the drainage districts continued an aggressive program of best management practices.

BMP CATEGORIES

As described in the permit renewal, the second-term BMPs are organized under the eight general categories shown below. These common categories serve as an overall framework and promote consistency and coordination among the co-permittees. Each co-permittee then identifies its own specific BMPs under each of the common categories.
The Annual Compliance Report includes individual reports prepared by each co-permittee. Each report describes the activities implemented and any initiated or proposed program changes. An overview of each co-permittee’s report is provided below.

CITY OF PORTLAND

During permit year seven, the City of Portland continued to implement the BMP activities identified in the permit renewal for the second five-year permit term. To ensure consistency with City policies and programs that promote resource conservation and environmental protection, the City continues to coordinate Stormwater Program activities with other City actions and programs, such as the Sustainable Portland Commission and Office of Sustainable Development, CSO Program, Willamette River Pre-design Project, watershed programs, and Endangered Species Act Program. Key activities and accomplishments for permit year seven are summarized below.

• Revised the Stormwater Management Manual for October 2002 implementation. Revisions included:
  - Increasing the requirement to mitigate impervious surface areas
  - Clarifying and simplifying requirements
  - Improving overall pollution reduction and flow control goals.
  - Including parking lot requirements and specific design details for streets

• Continued to work with the Stormwater Advisory Committee to develop stormwater management policy recommendations for existing development.

• Modified City codes to implement Stormwater Management Manual requirements and support/facilitate innovation and resource protection in stormwater planning, design, and management.

• Implemented two water quality friendly street projects, which include depressed planter strips and vegetated swales designed to collect, treat, and infiltrate stormwater.

• Continued developing an ecoroof program to provide technical assistance and minimize barriers to implementation.
Signed a Project Cooperation Agreement (PCA) with the U.S. Army Corps of Engineers (COE) for five water quality and habitat improvement projects on the Columbia Slough. The PCA implements the COE’s 1135 program. The COE funding totals $4.8 million; the City’s cost share is $1.2 million.

Continued public involvement/education activities as a significant element of the Stormwater Program. Key activities included the Naturescaping for Clean Rivers program; a variety of stormwater education activities; stewardship grant projects; ongoing participation in the Regional Coalition for Clean Rivers and Streams; and distribution of educational publications and materials.

MULTNOMAH COUNTY

Multnomah County implements a comprehensive stormwater management program countywide. The goal of the program is to reduce pollutants in stormwater runoff to the maximum extent practicable. During permit year seven, the County continued to implement the BMPs identified in the permit renewal package submitted to DEQ for the second permit cycle. The review and evaluation of County BMPs and implementation of new ones reflects the County’s commitment to adaptive management to improve stormwater quality.

Multnomah County implements and applies the entire group of BMPs throughout the County as a comprehensive Stormwater Management Program. The BMPs reported here apply only to the unincorporated land and County-owned roadways and associated storm drainage system within the Portland permit area.

During permit year seven, Multnomah County transferred the last remaining zoning and planning authority within the permit area to the City of Portland as part of the Multnomah County-Portland Compliance Project to achieve the goals of and comply with Metro’s Urban Growth Management Functional Plan. Up until January 4th, 2002 (midway into permit year seven), the County had limited land use planning responsibility for approximately 2 per cent of the permit area. Planning jurisdiction was spread out among several small unincorporated pocket areas distributed throughout the permit area. (See Figure 1 in Section I of this report.) County permitting focused on Hillside Development (HD) and Grading and Erosion Control (GEC). During this period, (the first half of permit year seven), the Multnomah County Land Use Planning Division issued a small number of HD and GEC permits to ensure that water quality is protected to the maximum extent practicable.

Through an intergovernmental agreement (IGA), the City of Portland operates and maintains all 18.76 miles of County dedicated roads and drainage within the permit area. The County retains responsibility to perform emergency repairs resulting from flooding and landslides. The County Transportation Division also retains authority to review stormwater management plans, granting a handful of permits every year to access County road ditches for limited stormwater discharge.
PORT OF PORTLAND

The Port of Portland (Port) continued its comprehensive stormwater management program during permit year seven. The stormwater program continues to evolve and improve over time through an adaptive management process. The Port’s stormwater efforts are guided by the Municipal Storm Water Management Plan (MSWMP), operating area stormwater plans, and Port environmental policies.

Section IV of this annual report contains detailed descriptions of the Port’s stormwater management efforts during permit year seven. Brief summaries are presented below to highlight key accomplishments.

Compliance with multiple stormwater permits: The Port continues to operate and manage its stormwater program and facilities effectively in accordance with multiple stormwater permits. These permits include the Municipal Permit, the 1200-COLS and the 1200-Z general permits, the 1200-CA permit for construction activities, and the anti-icing/deicing permit for the Portland International Airport (PDX).

Restructuring of Environmental Affairs: During permit year seven, the Port emphasized its commitment to protect the environment by elevating its corporate Environmental Affairs Division to “Department” status. This restructuring created a director position for the Environmental Affairs manager. The director position helps the Port define and meet its mission while incorporating sound environmental policy at the highest level of decision-making.

Public education and outreach: The Port continued with its many programs of public education and outreach. Through its Grant Program, the Port provided $56,000 in funding for 17 different environmental projects, programs, and education activities during the permit year. Enhancement projects through the Marine Riverbank Management Plan, such as the Albina Ferry Dock and West Hayden Island projects, engaged students and volunteers to actively participate in habitat enhancement efforts. Facility tours of the PDX de-icing facility and marine terminals provided opportunities for the public to learn about Port operations and stormwater management. Port staff actively participated in programs sponsored by the Columbia Slough Watershed Council, Audubon Society, and Willamette Riverkeepers. The Port Currents newsletter provided the public with regular updates on Port activities and environmental issues.

Infrastructure Improvements: The Port continued its capital investment program on stormwater infrastructure, particularly at PDX. The Port continued construction of the stormwater collection system designed to collect stormwater runoff containing anti-icing and de-icing materials at PDX. This system will control the discharge of stormwater runoff containing these materials into the Columbia Slough, consistent with requirements of the surface water discharge permit.

Employee Training: The Port continued in permit year seven to meet its commitment to keep its employees well trained. The Port regularly updates staff and tenants on a broad array of environmental topics through staff meetings, e-mail distributions, seminars, and presentations.
Key topics for the permit year included best management practices (BMPs) for stormwater management, spill response training, annual Hazardous Waste Operator (HAZWOPER) refresher training, and training for the Environmental Management System (EMS). Port staff attended a number of professional conferences, and hosted informational seminars for other agencies and organizations. Additionally, the Environmental Affairs Department conducted an internal “Stewards of the Environment” poster and e-mail campaign to encourage Port staff to incorporate environmental stewardship into daily business operations.

MULTNOMAH DRAINAGE DISTRICT NO. 1 (MCDD#1)  
PENINSULA DRAINAGE DISTRICT NO. 1 (PENN1)  
PENINSULA DRAINAGE DISTRICT NO. 2 (PENN2)

During permit year five, the drainage districts examined their role under the permit and determined they could fulfill this role effectively through memoranda of agreement (MOAs) among all the parties. As a result, they have proposed taking that approach, rather than continuing as a co-permittee, in the second five-year permit term. DEQ has not formally accepted this status change, pending review of the permit renewal; however, the drainage districts expect that DEQ will support the MOA concept as the appropriate vehicle for their participation.

During year seven under the original permit, the drainage districts continued an aggressive program of best management practices. Internal programs included:
- A comprehensive update of the districts’ emergency response manual
- Maintenance and repair of unstable bank areas
- Training of field personnel on equipment and work techniques that affect water quality

Externally, the districts worked with numerous landowners to correct or prevent problems on private property that contribute to water quality. Examples include:
- Advising on the design of drainage systems
- Correction of unstable banks
- Identifying and correcting improper construction work
- Assisting with cleanup efforts of pollution sites that caused water quality problems

Multnomah County Drainage District No. 1 (MCDD) also gained approval and funding of important water channel improvement projects that will greatly affect water quality and habitat. Chief among these projects is the multi-million dollar “1135” project, which was approved for funding by the U.S. Army Corps of Engineers. This project will create 7.5 miles of emergent wetland and shrub-scrub habitat in the Middle and Upper Columbia Slough by excavating material from the center area of the channel and depositing it to form adjacent islands and benches. Similar projects were approved and constructed at the Walker Slough adjacent to Interstate 5 and at the Wagner Mining site on the main slough. MCDD is the construction agent for these projects. The 1135 project will require three years to complete the dredging and planting of native plants. These projects have been in development for nearly 10 years and were originated and advocated by MCDD.
Section I

GENERAL INTRODUCTION
This seventh Annual Compliance Report is submitted to the Oregon Department of
Environmental Quality (DEQ) to fulfill reporting requirements for the City of Portland’s
National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm
Sewer System Discharge Permit (hereinafter referred to as the stormwater permit or
permit). It is submitted by the six co-permittees: the City of Portland, Multnomah
County, the Port of Portland, Multnomah County Drainage District No. 1, Peninsula
Drainage District No. 1, and Peninsula Drainage District No. 2. (Figure 1 is a map of the
NPDES stormwater permit area.) The report covers the work accomplished during the
seventh fiscal year (July 1, 2001 through June 30, 2002) of the permit program.

In managing and implementing the permit program, the co-permittees work in a
cooperative effort with DEQ, Metro, the Oregon Association of Clean Water Agencies
(ACWA), other agencies, and the public.

PERMIT BACKGROUND

The stormwater permit application process started in 1990. In compliance with the
NPDES timeline for stormwater permitting, the co-applicants submitted Parts 1 and 2 of
the application to DEQ in November 1991 and May 1993, respectively. In accordance
with Section 402(p) of the Clean Water Act, DEQ issued the permit on September 7,
1995.

PERMIT RENEWAL

In February 2000, the City of Portland, Multnomah County, and Port of Portland
submitted to DEQ the permit renewal for the second five-year permit term. In accordance
with EPA policy guidance, the co-permittees used a streamlined “adaptive management”
approach. The BMPs were improved, adapted, or reorganized as needed to achieve a
program that collectively reduces pollutants discharged from the MS4 system in Portland
to the maximum extent practicable. While many of the first-term BMPs focused on
planning and development, the second-term program has a greater emphasis on
implementation activities. Because the stormwater monitoring program was modified
during the first permit term, no further modifications were included for the second permit
term.

The co-permittees began to implement the revised BMPs, as described in the permit
renewal, in permit year six. Implementation of these BMPs continued in permit year
seven.

During permit year five, the drainage districts examined their role under the permit and
determined they could fulfill this role effectively through memoranda of agreement
(MOAs) among all the parties. As a result, they have proposed taking that approach,
rather than continuing as a co-permittee, in the second five-year permit term. DEQ has
not formally accepted this status change, pending review of the permit renewal; however, the drainage districts expect that DEQ will support the MOA concept as the appropriate vehicle for their participation. During year seven, the drainage districts continued an aggressive program of best management practices.

**BMP CATEGORIES**

As described in the permit renewal, the City of Portland, Multnomah County, and Port of Portland have organized their second-term BMPs under eight general categories, as shown below. These common categories serve as an overall framework and promote consistency and coordination among the co-permittees. Each co-permittee then identifies its own specific BMPs under each of the common categories.

- **PI**: Public Involvement/Education
- **OM**: Operations and Maintenance
- **IND**: Industrial/Commercial Controls
- **ILL**: Illicit Discharges Controls
- **ND**: New Development Standards
- **STR**: Structural Controls
- **PS**: Planning/System Preservation and Development
- **OA**: Other Activities
PROGRAM COORDINATION

The management and implementation of the permit program is a cooperative effort among the City of Portland’s Bureau of Environmental Services (BES), other City bureaus, the co-permittees, DEQ, Metro, the Oregon Association of Clean Water Agencies (ACWA), other agencies, and the public.

Co-Permittee Coordination

The City of Portland (as lead co-permittee) and the other co-permittees actively participated in the 3-year planning process (1990-1993) to develop the NPDES permit application and individual Stormwater Management Plans, which became the basis for the permit conditions. After submitting Part II of the application to DEQ in May 1993, the co-permittees began meeting monthly (or more often as needed) to share information about program implementation and coordination, BMP effectiveness, monitoring, and other issues related to the permit. The co-permittees discussed and coordinated the permit renewal process at a number of their monthly meetings prior to submitting the permit renewal to DEQ in February 2000.

These regular meetings have helped the co-permittees implement their Stormwater Management Programs and coordinate projects such as the City’s Industrial Discharge and Illicit Connection BMP efforts and participation in the Regional Coalition for Clean Rivers and Streams public awareness and education activities.

Coordination with Others

The co-permittees coordinated closely with other local agencies to develop the NPDES permit application and individual Stormwater Management Plans, and continue to rely on regional cooperative efforts to successfully fulfill some of the permit requirements. The co-permittees work closely with the regional government, Metro, to support programs that have a positive water quality benefit. Examples include the household hazardous waste disposal program, the GreenStreets program, and adoption and implementation of requirements to address water quality elements of Metro’s Title 3 of the Urban Growth Management Functional Plan.

Representatives from the City, Port of Portland, and Multnomah County actively participate in ACWA programs and committees to coordinate and address stormwater permit implementation issues.

REPORT PREPARATION AND ORGANIZATION

The BES stormwater management team has coordinated preparation of this Annual Compliance Report on behalf of the City and its co-permittees. In addition to the co-permittees, all affected City bureaus participated in the report preparation, most notably Water, Transportation/Maintenance, Parks, Office of Planning and Development Review, Planning, and Fire. The individual reports prepared by these other City bureaus have
been compiled into a single City of Portland report. For submittal to DEQ, the co-permittee reports have been combined into a single package with the City of Portland report.

This seventh annual report covers the period from July 1, 2001 through June 30, 2002. It includes activities that are a continuation of sixth-year activities. It does not repeat activities that were completed in previous years (i.e., it is not cumulative).

The report is organized as follows:

- **Executive Summary**--A summary of significant program activities and program status for all of the co-permittees.

- **Section I: General Introduction**--An overview of the overall permit background and regulatory information, BMP categories, program coordination, and report organization, relevant to all of the co-permittees.

- **Sections II through V**--The individual compliance reports of the co-permittees, describing implementation actions taken, program status, and any initiated or proposed program changes.

- **Attachment: City of Portland NPDES Stormwater Permit**

The report’s goal is to convey clear, succinct program information that complies with the annual reporting requirements of the NPDES permit. The report will also provide Portland City Council and other interested parties with a Stormwater Program status overview. Detailed supporting information, such as inspection reports, logs, and individual correspondence, are archived at each permitted agency and are available to DEQ upon request.
Section II

CITY OF PORTLAND
This seventh Annual Compliance Report for the City of Portland documents activities that occurred during the seventh fiscal year (July 1, 2001 through June 30, 2002) of the permit program and evaluates the status of the Stormwater Program. Key accomplishments for permit year seven include:

- Continued implementing the revised NPDES municipal permit BMPs described in the February 2000 renewal submittal for the second permit cycle.

- Revised the Stormwater Management Manual for October 2002 implementation. Conducted six-month public comment period for review draft. Some of the major revisions include:
  - Increased mitigation requirement, mandating all development projects to reduce overall impervious surface areas to the maximum extent practicable before managing stormwater runoff from those areas.
  - For clarity and simplicity, modified the trigger for stormwater management. The trigger for all new development and redevelopment is now the creation of 500 square feet of impervious surface.
  - Created one simple stormwater management facility design approach (called the “Simplified Approach for Stormwater Management”).
  - Improved overall pollution reduction and flow control goals. Revised the “70 percent TSS removal” pollution reduction standard to a function of influent water quality (i.e., the dirtier that the stormwater running off a site is, the higher the required TSS removal percentage is).
  - Included parking lot requirements and specific design details for streets.
  - Simplified landscaping requirements.
  - Simplified O&M requirements and templates.

- Continued to work with the Stormwater Advisory Committee to develop stormwater management policy recommendations for existing development.

- Modified City codes to implement Stormwater Management Manual requirements and support/facilitate innovation and resource protection in stormwater planning, design, and management.
• Implemented two water quality friendly street projects, which include depressed planter strips and vegetated swales designed to collect, treat, and infiltrate stormwater.

• Continued developing an ecoroof program to provide technical assistance and minimize barriers to implementation.

• Introduced the Healthy Portland Streams project, a citywide review of the environmental zoning program developed 14 years ago by the Bureau of Planning as part of the City’s compliance effort for state land use planning requirements.

• Signed a Project Cooperation Agreement (PCA) with the U.S. Army Corps of Engineers (COE) for five water quality and habitat improvement projects on the Columbia Slough. The PCA implements the COE’s 1135 program. The COE funding totals $4.8 million; the City’s cost share is $1.2 million.

• Continued public involvement/education activities as a significant element of the Stormwater Program. Key activities included the Naturescaping for Clean Rivers program; stormwater education activities; stewardship grant projects; ongoing participation in the Regional Coalition for Clean Rivers and Streams; and educational publications and materials.

This introduction provides background information about the City's program organization and coordination, the relationship of the Stormwater Program to other water quality programs, and relevant City budget and funding considerations. Individual activity reports for each BMP then follow.

PROGRAM ORGANIZATION AND COORDINATION

Program Authorization
The Portland City Council passed a resolution supporting the final National Pollutant Discharge Elimination System (NPDES) stormwater permit application in June 1995. In that resolution, the Council designated the Bureau of Environmental Services (BES) as the lead for the City's implementation of the Stormwater Program. In accordance with Section 402(p) of the Clean Water Act, the Oregon Department of Environmental Quality (DEQ) issued the permit on September 7, 1995. In February 2000, the City and its co-permitees submitted the permit renewal application to DEQ for the second permit cycle (September 1, 2000 through August 31, 2005). The City began implementing elements of the proposed renewal in permit year six and continued in permit year seven.

Organization/Coordination within the City
BES's Stormwater Program Manager is responsible for overall project management, compliance reporting, policy development, and coordination within the City of Portland. All BES project planning is centralized within the Planning Group and organized by watershed to enhance project coordination.

Stormwater Program activities within the City are coordinated through BMP-specific teams that include representatives from appropriate bureaus. In addition, Stormwater Program activities are
coordinated with the City’s Sustainable Portland Commission and Office of Sustainable Development. The Mayor appointed the commission to evaluate the City’s internal environmental management practices and ensure consistency with policies and programs that promote resource conservation and environmental protection.

**RELATIONSHIP TO OTHER WATER QUALITY PROGRAMS**

Although not all the following activities are specifically required as part of the NPDES permit, they are closely associated with the Stormwater Program and related to stormwater quality. BES works cooperatively with many other City bureaus on water quality issues. During permit year seven, the City continued to implement River Renaissance, a citywide, multi-objective initiative that integrates multiple programs and projects aimed at protecting and restoring the Willamette River and its tributaries.

**Combined Sewer Overflow Reduction**
The City has begun the third of four major phases to construct facilities and implement actions that will control combined sewer overflows (CSOs) to the Willamette River and Columbia Slough. The activities include a combination of roof drain disconnections, sump installation, hard-piped structural control solutions (including construction of the West Side CSO collection line), and treatment plant and pump station upgrades. Part of the CSO abatement strategy includes separating combined flows in some areas and evaluating water quality treatment alternatives for the resultant separated stormwater flows. In addition, the City is integrating approaches to address combined sewer overflows with other programs. During permit year five, the City developed the Clean River Plan, which integrates the stormwater management and watershed/fish habitat enhancement efforts addressed under the Integrated Watershed Plan (IWP) with basement flooding relief and CSO abatement.

Since 1990, Portland has reduced CSOs from 6.0 billion gallons per year to 2.8 billion gallons per year. CSO discharges to the Columbia Slough have been reduced by over 99 percent, while discharges to the Willamette River have been reduced by 42 percent.

**Sewer Separation**
In permit years six and seven, the separation of combined flows resulted in the conversion of the following CSO outfalls to stormwater-only outfalls (see Figure 1):
- SW Mill (OF#8)
- SW Jefferson (OF#8A)
- Glen Harbor, Willamette River (OF#23)
- SE Woodward Street, Willamette River (OF#29)
- SE Harrison Street, Willamette River (OF#32)
- N Van Houten Place, Willamette River (OF#48)
- N Van Buren Place, Willamette River (OF#49)
- N Fenwick Avenue, Columbia Slough (OF#61)
- N. Albina (OF #62A)
- N Vancouver Avenue, Columbia Slough (OF#63)
- N Willis Boulevard, Columbia Slough (OF#64)
**West Side Projects**
The current phase of construction focuses on controlling the 16 CSO outfalls on the west side of the Willamette River. The status of these projects is summarized below.

**Tanner Creek Stream Diversion**
Continued construction of the main separation conduit and final design of the remaining segments.

**California Pump Station Upgrade**
Examined separation alternatives compared against increases to pumping capacity. The analysis showed that the best solution for controlling overflows from the basin is a combination of sewer separation and pumping improvements. Following adoption of this preferred alternative, devised a phased approach consisting of construction of the separation improvements in 2002 and construction of pump station improvements in 2004. Completed the design of the sewer separation for California Basin and submitted it to DEQ on December 1, 2001.

**Carolina Stream Diversion Project**
Continued the design to separate stream and stormwater from the Carolina Basin (OF#03 & 04) by providing stormwater treatment and conveyance of both the stream flows and treated stormwater runoff to the river.

**SW Parallel Interceptor**
Completed construction of Segment 2 stretches (from SW Sweeney to SW Lowell, primarily along the railroad right-of-way) and started construction of Segment 1 (aligned along SW Virginia from SW Taylors Ferry to SW Sweeney).

**West Side CSO Tunnel, Shafts, Pump Station and Pipelines**
Completed the design of most components of this integrated system that includes 20,000 feet of 14-diameter tunnel at depths from 70 to 120 feet below the ground surface. The project starts north of Lowell St. and terminates with a connection to the existing Peninsular Tunnel near Greeley Ave. The pump station will have a future capacity of 220 million gallons a day (mgd), but will initially only require 100 mgd capacity to pump the West Side CSO flows to the existing Peninsular Tunnel interceptor.

Selected the construction contractor to help finalize the design and determine options for cost savings. The notice to proceed for construction was issued in September 2002.

**Influent Pump Station Capacity Improvements**
Completed the design for upgrading the Columbia Blvd. Wastewater Treatment Plant (CBWTP) Influent Pump Station from 105 mgd to 135 mgd capacity to manage the additional flows from the West Side CSO system.


**CBWTP Wet Weather Headworks**

Completed design of a new headworks structure to allow 150 mgd of wet weather flows to enter the CBWTP, in addition to the current 300 mgd headworks capacity. This project is required to treat West Side CSO flows that will arrive at the plant in Year 2006.

The City has also been conducting projects in the Sellwood Basin in Southeast Portland to control basement flooding, address structural problems, and reduce CSOs, including:

**Garthwick Combined Sewer Basin Relief**

Completed design and construction of the new combined sewer relief pipes and partial sewer separation conduits to control CSO discharges to Outfall #26A.

**Sellwood Diversion Manholes**

Completed design effort to reconstruct diversion manholes to divert Sellwood combined sewage into Insley Trunk and reduce Sellwood CSO discharges.

The Sellwood Reliever, Sellwood Interceptor Upgrade, Sellwood Diversion Manholes and the Umatilla Pump Station Upgrade projects were all delayed because of CIP funding constraints resulting from costs for the West Side CSO facilities. The Sellwood projects are on hold until 2007 when the West Side system is completed.

**Inflow Control Projects**

Other projects are in the predesign and design phases and focus on reducing stormwater inflows to the combined system using natural processes such as surface infiltration of disconnected roof and parking lot runoff. The major basin projects include:

- Beech-Essex/Oak Basin Predesign (East Willamette River Basin)
- Tanner B/Fremont/Nicolai/Balch Basin Relief Design (Northwest neighborhoods—West Willamette)
- Eastside Inflow Control Predesign Project (East Willamette River Basin)

**Columbia Slough CSO Program**

Since the completion of the Columbia Slough CSO facilities in the middle of permit year six (December 2000), the primary work performed on the facilities has consisted of operation, maintenance and monitoring, as well as addressing any concerns in an adaptive management process.

**Willamette River Predesign (Inflow Control) Project**

The Willamette River Predesign Project was initiated during permit year two to explore the cost and feasibility of onsite flow control to help reduce the size of the CSO collector pipe. This project is designed to remove inflow and to consider surface management options that also provide stormwater treatment. It is evaluating innovative "green" technologies, such as infiltration ponds, rooftop stormwater detention, bio-infiltration swales, and vegetated buffer strips, to reduce stormwater runoff to the City’s piped system and improve overall water quality. The planning and cost-effectiveness
analyses for the green solutions and inflow control, as well as the development, calibration, and execution of hydraulic and pollutant models for existing conditions, were completed during permit year three. Using these data, 48 potential sites were identified in permit year four for green solution implementation. These 48 sites will be evaluated as part of the sewer basin predesign.

In permit year six, the City initiated an area-wide assessment of the potential for green solutions and inflow controls in the Holladay, Stark, and Sullivan basins. This assessment included evaluating projects previously identified in these basins. A refined sewer system model has allowed improved simulation of the projects. The new model indicates that in the Holladay, Stark, and Sullivan sewer basins, these types of projects can provide cost-effective alternatives to pipe solutions for the relief of local basement flooding problems.

The assessment of inflow controls in the Holladay, Stark, and Sullivan basins was completed in year seven. The resulting predesign evaluation recommends construction of approximately 25 of the projects as cost-effective alternatives to pipe replacement projects. Obtaining funding for implementation of these projects will be a priority in permit year eight.

**Willamette Stormwater Control Program**

In permit year six, the City initiated a series of stormwater pilot projects called the Willamette Stormwater Control Program. The program involves partnering with commercial property owners to retrofit existing properties with stormwater controls, reducing stormwater runoff that would otherwise reach the combined sewers. The goal is to contribute funding for up to 15 individual pilot projects, which will provide needed information about the technical feasibility, cost, performance, and acceptability of these types of stormwater retrofits. In permit year six, the program recruited project proposals from the commercial community.

In permit year seven, two of the pilot projects were completed. Nine additional projects will be completed during permit year eight, for a total of 11 program projects. Documentation and monitoring for the projects will be a priority in the second half of permit year eight, resulting in a final report by the end of that permit year.

**Downspout Disconnection Program**

The Downspout Disconnection Program focuses on disconnecting downspouts at residential properties in targeted areas of the City. By removing stormwater runoff from the combined sewer system, it helps reduce CSOs and improves overall water quality. In permit year seven, 6,502 downspouts were disconnected at 3,302 homes. The program continued evaluating the expansion of the program to multi-family residential or commercial sites with less than 5,000 square feet of roof.

**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.
The South Airport Basin Project in the Columbia Slough Watershed will provide sanitary sewer service to unsewered areas in the area of Columbia Boulevard from NE 42nd to NE Colwood. Design of Phase 2 will be completed in December 2002, and construction will begin in spring 2003. Construction of Phases 1 and 2A will begin when Phase 2 is completed. Construction of Phase 3 is scheduled to begin in 2003, and construction of Phase 3A will begin when Phase 3 is completed. Trunk lines and collector lines extend from Columbia Blvd to the south and the Columbia Slough to the north and Colwood Way to the east to just west of 42nd Avenue. Design of Phase 4, which has two pump stations and pressure mains, is starting now.

Construction of a pump station and force main in the area of NE 59th and Whitaker was completed. It is not considered to be within the South Airport Basin Project, but is a key component of area sanitary service. Four additional, smaller pump stations will be designed and built as part of the South Airport Basin Project.

Watershed Programs
During permit year seven, the City continued implementing watershed programs in the Columbia Slough, Johnson Creek, Fanno Creek, Tryon Creek, and Willamette River Watersheds. The Willamette River Watershed focuses on Balch Creek, streams draining to the Willamette that are not currently addressed under a separate program (i.e., Stephens Creek), and areas affected by the Willamette River Predesign Project. BES continued to use an integrated watershed planning approach to stress comprehensive, multi-objective watershed management along geographical boundaries, coordinating the various jurisdictional and public interests within those areas.

Because of high public interest in the health of Portland's watersheds, public participation is an important element of watershed planning and implementation. During permit year seven, the City actively participated on watershed councils for the Columbia Slough, Johnson Creek, and Tryon Creek. In addition, the City fosters citizen stewardship through its Community Watershed Stewardship Program. In permit year seven, this program provided 12 grants totaling $46,374 to citizen groups to conduct watershed stewardship projects in their watersheds.

Endangered Species (ESA) Program
Water quality improvement and protection are critical objectives in establishing watershed priorities. These objectives have been heightened by the National Marine Fisheries Service’s (NMFS) March 1998 listing of steelhead trout as a threatened species under the Endangered Species Act (ESA), the listing of Chinook salmon as a threatened species in March 1999, the passage of Metro’s Stream and Floodplain Protection Plan (Title 3), and the compliance requirements of Goal 5 of Metro’s Functional Plan.

The ESA listings apply to the Lower Columbia River evolutionary significant unit. The affected area includes the Willamette River and its tributaries, upstream to Willamette Falls. Within the NPDES permit area, the main problems include water quality and habitat degradation, habitat loss, and fish passage blockage by structures such as culverts. Flows that alter stream configurations, the loss of spawning gravels, and sedimentation all negatively affect spawning habitat. Decreased water oxygen, increased temperatures, bacteria, nutrients, pH, and toxic contaminants are all water quality parameters that can also negatively impact fish. In 1996, DEQ listed the Willamette River, Johnson
Creek, Columbia Slough, and Tryon Creek as “water quality limited” for these parameters. Many of these parameters can be linked to increased stormwater runoff from urbanization and related decrease in water quality. This, in turn, results in increased sediments and associated contaminants of concern (bacteria, toxics, nutrients, and biochemical oxygen demand).

The Stormwater Program activities closely relate to ESA goals. Implementation of BMPs will mitigate stormwater quantity impacts and improve water quality. In permit year seven, the Stormwater Program continued coordination with City ESA staff on program activities related to fish impacts.

The ESA Program is preparing a review draft of a Framework for Integrated Management of Watershed and River Health. This document will describe the City’s scientific principles, goals, analytical tools, and planning and decision-making processes for watershed management to achieve watershed health. The watershed process described in the Framework will help the city simultaneously address many of its obligations under the Endangered Species Act, Clean Water Act, and Superfund laws. The Stormwater Program will be a very important aspect of that process.

Healthy Portland Streams
During permit year seven, the City initiated the public review process for the Healthy Portland Streams (HPS) project discussion draft. HPS revises the City of Portland’s existing environmental zoning and regulatory program to address Endangered Species Act listings; State Land Use Planning Goals 5, 6, 7 through Title 3 of Metro’s Urban Growth Management Functional Plan; existing and anticipated requirements of the Clean Water Act; and continued compliance with the natural resource protection requirements of Goal 5 of State Land Use Planning goals. HPS relies on a package of tools that include both regulatory and non-regulatory approaches for stream and riparian area protection. The non-regulatory, or voluntary, measures include land acquisition and donation, stewardship, and education and outreach efforts. Regulatory changes involve changes to City Code Chapter 33.430: Environmental Overlay Zones, and environmental zoning map changes to expand areas that are regulated by the Zoning Code. The project will increase the amount of protected natural resource acres in the City, improve and simplify the regulations to make them more effective and easier to implement, and increase property owner awareness of riparian areas.

Portland Harbor Superfund Site
The City is a member of the Lower Willamette Group, a coalition of businesses and public agencies that have voluntarily stepped forward to participate in the investigation and cleanup of the Portland Harbor Superfund site. During permit year seven, the group submitted to EPA the Round I remedial investigation/feasibility study (RI/FS) work plan to characterize the extent of contamination in fish and sediments in the harbor. The cleanup process will also include assessing risks to humans, wildlife, and the environment from contaminated sediments; implementing early restoration projects; implementing the identified remedial actions; addressing source control to prevent future contamination; and coordinating with other initiatives, including salmon protection and other natural resource issues.
CITY BUDGET AND FUNDING

The annual City of Portland costs for program administration, planning, development, program monitoring, public education and outreach, and demonstration project implementation have averaged approximately $795,000 annually through year seven of the permit. For the same time period, related City Stormwater Program activities have averaged $1 million per year for watershed planning and $3 million per year for implementation of capital stormwater-related pollution reduction facilities (e.g., completed construction of the Fanno Creek enhancement project at SW 45th Ave to Shattuck Road).

Because of the integral nature of the Stormwater Program with the City's normal operating functions, other costs related to implementation of the program are very difficult to quantify. Stormwater programs are primarily financed by City stormwater management charges. Utility revenue bonds and stormwater system development charges are used to finance stormwater capital projects. More details on City revenues are provided below.

Stormwater Management Charges
City Council approves revised stormwater monthly fees and SDC charges at the start of each fiscal year. Monthly 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 permit years:

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<td>Single Family Residential Charge</td>
<td>$6.89</td>
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<td>$8.78</td>
<td>$10.01</td>
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<tr>
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<td>$3.65</td>
<td>$4.01</td>
<td>$4.63</td>
<td>$5.00</td>
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At the close of FY 2001-2002, City Council increased the monthly charge for single-family residences from $10.97 to $11.42. The residential rate increased from $4.57 to $4.76 per 1,000 square feet of impervious surface per month, and the commercial rate increased from $5.00 to $5.17 per 1000 square feet of impervious area per month.

In December 2000, City Council authorized the development of a discount program for ratepayers who manage the quantity and quality of stormwater on their property. The program will provide a discount of up to 100 percent of the property component of the monthly stormwater management charge. BES is developing program criteria that will set the highest financial incentive for facilities that manage the strictest standards for quality, volume, and flow controls. BES proposes to give particular value to facilities that use vegetated surface...
infiltration. The program will be implemented as soon as the City’s utility billing system is capable of providing data processing support.

**Stormwater System Development Charges**

Formerly based on impervious area, the methodology for assessing system development charges for new development and significant redevelopment was revised in permit year three to include two components. One component represents the charge for stormwater facilities that handle runoff from individual properties. For permit year seven, this onsite portion was assessed based on $102.00 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 permit year seven, the rates were $2.77 per linear foot and $1.10 per vehicle trip. At the end of permit year seven, City Council retained the rate of $102.00 per 1,000 square feet of impervious area, but revised the frontage portion to $3.07 per linear foot and the vehicle trip portion to $1.57 per vehicle trip.

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

**Federal and State Funding**

A few stormwater projects are funded by federal programs. The Columbia Slough Watershed Program has implemented a number of stormwater-related measures using funds from an EPA Slough revitalization grant of $10 million. Fiscal year 2002-2003 (permit year eight) is expected to be the last year of that grant.

In permit year seven, the City signed a Project Cooperation Agreement (PCA) with the U.S. Army Corps of Engineers (COE) for five water quality and habitat improvement projects on the Columbia Slough. The PCA implements the COE’s 1135 program. The COE funding totals $4.8 million; the City’s 25 percent cost share is $1.2 million.

The City has also used other EPA and Federal Highway Administration funding to implement stormwater and fish-related projects. State Governor Enhancement Board grants have also helped implement watershed projects.

**ACTIVITY REPORTS**

The following pages summarize the status of the City of Portland BMPs. The following information is provided for each BMP:

- The BMP identifier (e.g., PI1) and title
- The BMP description
- Key accomplishments for permit year seven
- Challenges and solutions
- Projected major accomplishments for permit year eight (FY02-03)
PII
Implement a comprehensive stormwater/watershed Public Participation Program that includes information, education, involvement, and stewardship; evaluate and update the program annually.

KEY BMP ACCOMPLISHMENTS, PERMIT YEAR SEVEN (FY 01-02)

Naturescaping for Clean Rivers

Continued *Naturescaping for Clean Rivers* residential program, in partnership with the East Multnomah Soil and Water Conservation district (EMSWCD). Activities included:

- Conducted 16 four-hour “Naturescaping Basics” workshops, with 339 participants, in the Portland metro area.

- Conducted two “Site Planning I” workshops, with 43 participants, and one “Site Planning Feedback” session with seven participants.

- Worked with numerous community partners, including the Port of Portland, Parkrose High School, Berry Botanic Garden, Mittleman Jewish Community Center, University Park United Methodist Church, and Madeline Parish Center.

Downspout Disconnection Program

Disseminated Naturescaping and stormwater information as part of the outreach and education efforts of the Downspout Disconnection Program, which included the following activities:

- Canvassed 23,000 homes, and achieved a participation rate of 45 percent

- Provided information through community events, reaching approximately 16,500 people

- Spoke at almost 40 community meetings

- Conducted watershed curriculum in which 380 students participated

- Conducted an ongoing media campaign, including events and major and local community media

- Mobilized 660 volunteers, who contributed about 3,900 volunteer hours

- Partnered with numerous community organizations and hired 20 diverse canvassers

Section II: City of Portland
**Stormwater Education Activities**

- Reached 7,029 students (grades K-12) with classroom programs that provide hands-on, interactive science education about stormwater and other environmental issues.

- Reached 10,350 students through school assembly programs.

- Involved 3,856 participants in education field programs.

- Involved 804 participants in stewardship field programs (in addition to participants in the community stewardship grant programs documented below).

- Participated in 23 community events, with a total of 2,765 event participants.

- Checked out curriculum kits to 18 Portland elementary and middle school teachers, reaching 897 students.

- Provided teacher training workshops, involving 135 participants.

- Sponsored monthly Watershed Speakers Series, aimed at the general public.

- Developed and repeatedly presented a new stormwater program option for school groups entitled “Stormwater - Soak it Up.” The 1-hour program is for grades 6-12. Students learn to identify pollutants, read aerial maps, distinguish between pervious and impervious surfaces, calculate runoff, and design greener cities. “Soak It Up” was premiered at a Slough 101 workshop with 46 participants.

- Added a new component, called “Tours of Stormwater Solutions,” to our Clean Rivers Program Guide. This 2- to 3-hour program is tailored as appropriate for grades 5 through 12. Students visit bioswales, stormwater planters, ecoroofs, porous pavement, and creative downspout disconnections. They learn how these solutions can filter pollution, slow down stormwater, and prevent erosion.

- Developed and printed a large, color graphic bioswale poster for distribution to thousands of area residents. The poster helps explain the science of bioswales and identifies sample locations for interested citizens to visit.

- Developed a new school assembly program called “River Heroes,” and presented it at 30 elementary schools within the City of Portland. The program focuses on stormwater pollution and solutions, and reached over 10,000 students.

- Presented “What’s Outside Today” weekly radio spot on KPAM, AM 860. The program relates easy-to-observe natural history phenomena to stormwater and watershed health messages. Example topics include great blue herons, mosses and ecoroofs, dragonflies, bioswales, turtles, Salmon Festival, butterflies, and trillium.
• Created interpretive signage about stormwater solutions for public sites:
  - Willamette Park bioswale, river bank restoration, and native plants
  - Stephens Creek Natural Area ecoroof
  - Lents Boys and Girls Club landscape swale

• Co-sponsored six “Canoe the Slough” events in which a total of almost 100 participants received information about urban stormwater.

• Co-sponsored the “Columbia Slough Regatta” in which 210 participants paddled the waterway and received stormwater information.

• Conducted ten "Soup on the Slough" events for 180 people, in which participants ranging from community activists to business owners and operators were introduced to stormwater and hydrology issues in the urban slough waterway.

**Stewardship Grant Projects**

• Provided stewardship grants totaling $46,374 to the following organizations:
  - Bridlemile Creek Stewards for Hamilton Park restoration
  - Portland Public Schools for bioswale and Naturescaped garden at Bridlemile Elementary School
  - Friends of Trees for restoration on Tryon Creek (erosion control check dam and 4,526 native plants)
  - Portland Public Schools for restoration along Vermont Creek and community outreach
  - Hostelling International for ecoroof on SE Hawthorne youth hostel
  - King Neighborhood Association for native plants for urban garden
  - Portland Public Schools for phase III of courtyard Naturescaping at Madison High School
  - North Parkrose Neighbors Target Area for native plants for Prescott Street Park
  - Northwest Service Academy for restoration along Crystal Springs and Johnson Creeks
  - Rose Community Development Co. for bioswale to drain roofs and parking lot
  - Springwater Corridor Restoration for plantings and education along Johnson Creek
  - St. Andrews Presbyterian Church for restoration along Fanno Creek tributary

**Education Advisory Committee**

• Continued monthly Education Advisory Committee meetings to review and advise on public participation approaches and activities.

**Regional Coalition for Clean Rivers and Streams**

Continued participation in the Regional Coalition for Clean Rivers and Streams, with the following activities:
• With an annual budget of $60,000, conducted the seventh year of the annual public awareness campaign. Coalition membership/participation includes: City of Portland/Environmental Services, Clean Water Services (formerly Unified Sewerage Agency), Water Environment Services/Clackamas County, City of Gresham, Metro, City of Vancouver, and Clark County, Washington.

• Continued to promote the basic “The River Starts Here” message through use of the storm drain graphic used in 2001. The goal of the 2002 campaign was to personalize the campaign theme and apply it to a specific home activity: home gardening. The creative messages were:
  
  What goes on your lawn, goes in the river. Use garden chemicals wisely.
  
  What goes in the garden, goes in the river. Use garden chemicals wisely.

• Used transit boards, cinema slides, and newspaper ads for the campaign, which ran from March 31, 2002 to June 30, 2002. The media buy resulted in 1.6 million impressions from the newsprint advertising. The transit buy included 96 units over four weeks. A total of 109 screens at 10 theater locations carried the transit board messages adapted to cinema slide format. Sixty-eight percent of the $60,000 budget was spent on media purchases.

Eco-logical Business Program Promotional Campaign

• The Eco-logical Business Program implemented a promotional campaign from May to July 2002 to raise awareness and communicate the importance of supporting auto shops that operate responsible environmentally conscious business practices. The campaign used newspaper advertising and an ad in the “Chinook Book” (a coupon book and resource directory for environmentally friendly services).

Bulky Waste Curbside Pickup

• Held 10 bulky waste collection events, serving 9,285 households and collecting approximately 690 tons of materials.

Publications

• Developed popular Native Plants poster with stormwater pollution messages. Distributed over 12,000 posters to Portland residents and through partners in other jurisdictions.

• Developed an ecoroof question-and-answer fact sheet to distribute to interested individuals and to post on the BES website.

• Drafted a Facilities Maintenance Handbook that will be distributed to owners of private stormwater management facilities to provide guidance on inspection and maintenance.

• Distributed a variety of educational materials at community meetings and events.
Coordination with Other City and BES Programs

- Coordinated with other City projects and programs (e.g., Endangered Species Act Program, Willamette Stormwater Control Program, watershed programs) to integrate stormwater activities and messages.

Other BMPs

Public education and involvement activities conducted as part of other BMPs are identified under those BMPs, including IND1, ILL2, ND1, ND2, PS1, PS2, and PS3.

CHALLENGES AND SOLUTIONS

None

PROJECTED MAJOR ACCOMPLISHMENTS FOR PERMIT YEAR EIGHT (FY 02-03)

The PI1 activities that have proved successful will continue in FY 02-03, including the Naturescaping for Clean Rivers program; Downspout Disconnection Program outreach and education; stormwater education activities; community stewardship grants; participation in the Regional Coalition for Clean Rivers and Streams and Eco-logical Business Program; and coordination with other BES and City programs. Specific projected activities include:

- Test a permanent marker stenciling program to see if it is a viable alternative to the spray painting technique.

- Provide free Streamwalk Games” in conjunction with the outreach assembly program for over 200 teachers to conduct their own stream surveys and discuss how stormwater fits into that picture.

- Complete and distribute a series of fact sheets about “green” stormwater approaches for existing and new development.

- Complete the Facilities Maintenance Handbook and distribute to owners of private stormwater management facilities.

- Continue dissemination of Naturescaping and stormwater information through the Downspout Disconnection Program, with a planned target of 12,000.

- Get final approval to expand the Downspout Disconnection Program to multifamily residences and commercial sites.
OM1  Develop and implement a Stormwater Maintenance Program that includes elements needed to successfully maintain and enhance performance of MS4 conveyance and treatment facilities within the City’s urban services boundary.

KEY BMP ACCOMPLISHMENTS, PERMIT YEAR SEVEN (FY 01-02)

- Convened work teams to develop the Stormwater Facilities Maintenance Plan. Worked through initial system inventory, maps prioritization criteria, and factors for rating facilities based on consequences of failure.

- Made substantial progress toward developing a Stormwater Residuals Management Plan, which will determine optimal methods for increasing the efficiency and effectiveness of residuals processing.

- Inspected all 150 detention and water quality ponds to document the condition of each facility and to identify needed cleaning and repairs.

- Wrote cleaning work orders for sumps and sedimentation manholes (2,250), ditches and culverts (335), and ponds (70).

- Repaired or constructed 230 inlets, 1,490 feet of inlet lead, 140 sumps, and 3,210 lineal feet of culvert.

- Cleaned approximately 1,900 sumps and sedimentation manholes, 15,400 catch basins, 27,000 feet of ditch, and 11,400 feet of culvert, and made 12,000 maintenance visits to various locations (multiple visits to some locations after major rain events).

- Made additional progress on the Older Sump Core Sampling project, in which contaminant levels in old and recent deposits of stormwater residuals are compared.

- Completed three sampling events demonstrating some reduction of TSS in the modified design of infiltration swales.

- Conducted an initial meeting with staff from the Oregon Department of Fish and Wildlife (ODFW) regarding protection of animal species during public stormwater facility maintenance activities.

- Improved communication, coordination, and vendor utilization in responding to spills and unknown contaminants in public rights-of-way.

- Approved repair of existing cesspools within the urban services boundary.
• Multnomah County Health permitted 29 new Specified Animal Permits and responded to 180 complaints related to domestic animals and 115 complaints related to animal waste/odor control.

CHALLENGES AND SOLUTIONS

As budgets shrink and new facilities are added, the challenge is to provide increased and improved maintenance to support water quality goals in an environment where competition for funding is very intense. New funding mechanisms and/or reprioritizing existing funding sources will be needed to adequately maintain all existing and new water quality and quantity control facilities and other parts of the sewer collection system. The Stormwater Facilities Maintenance Plan will provide needed information to prioritize maintenance needs so limited funding can be focused on the highest-priority needs.

PROJECTED MAJOR ACCOMPLISHMENTS FOR PERMIT YEAR EIGHT (FY 02-03)

• Complete Stormwater Facilities Maintenance Plan to prioritize facilities and establish inspection and maintenance schedules. Begin identification of watershed-specific weighting criteria for facility operations and maintenance plans.

• Continue to analyze the data obtained from measurements of sediment and sump manholes to refine predicted accumulation rates and provide a basis for future maintenance schedules.

• Continue the pilot monitoring program to collect data on various materials used to convert ditches to infiltration swales.

• Continue materials and product research and monitor at least two products, facilities, or activities per year, as budget allows.

• Begin identification of watershed-specific weighting criteria for facility operations and maintenance plans.

• Continue research on new and improved practices to include in the Stormwater Maintenance Management Manual.

• Complete the Stormwater Residuals Management Plan and determine optimal methods for increasing residuals processing efficiency and effectiveness.

• Request capital funding to improve an underutilized site for use as a stormwater facilities (ditches and culverts) residuals processing facility at the Columbia Boulevard Wastewater Treatment Plan.
OM2  Continue ongoing evaluation and pilot testing of improvements to operations and maintenance practices for public rights-of-way to limit pollutant discharges to the MS4 to the maximum extent practicable.

KEY BMP ACCOMPLISHMENTS, PERMIT SEVEN (FY 01-02)

- Pollution prevention teams at the Bureau of Maintenance (BOM) continued to evaluate and track maintenance procedures, work processes, and other bureau activities, including:
  - Developed and distributed an instruction card for containing and cleaning up spills. This card has been placed in all bureau vehicles to remind crews of the proper procedures for responding to spills. Instruction sheets with additional information for supervisors have also been developed.
  - Designed and implemented a Spill Report Form to be completed after crews have responded to and cleaned up a spill. The completed forms will enable the bureau to track patterns and develop recommendations to address repeated problems.
  - Designated a drop box for used cleanup materials. This drop box is covered to protect the contents from rain. This will help reduce the amount of fluids and runoff released from the box, both in the yard and along the road as the box is transported.
  - Continued pilot testing alternative methods, products, and practices to minimize impacts from street system maintenance. The field team continues to host product demonstrations from vendors, evaluate their effectiveness, and test usage of the products in the field.

- City crews routinely use catch basin inserts to capture grindings from grinding machine cleaning and washing. (A grinder is cleaned several times a week.)

- The bureau’s storeroom now carries larger pieces of absorbent pads that can be placed beneath large vehicles and pieces of equipment to capture any runoff, leaks, or spills. This is especially useful for machinery parked at job sites overnight.

- When crews work in the right-of-way and runoff is anticipated, filter fabric is placed on top of inlets to filter sediments and other pollutants. The use of filter fabric depends on the weather, the presence of rain, and the type of work being performed.

- The bureau continues to puncture and empty aerosol cans at an onsite designated aerosol can recycling facility. Bureau employees continue to be trained in appropriate techniques to empty their own cans. This helps reduce and contain the amount of hazardous waste disposed of by BOM.

- BOM is primarily using calcium magnesium acetate (CMA) as a de-icing agent, and reducing the amount of magnesium chloride (MagCl) used.
• Bureau employees attended the Pacific Northwest Pollution Control Association Water Environment School at Clackamas Community College. Training included erosion and sediment control with compost, bioswales and wetlands; ditch and roadside maintenance; and detention pond and tank maintenance.

• Managers from the bureau’s Environmental Systems Division attended the annual ACWA conference and informed staff of regulatory changes and updates that impact field operations.

• Additional cleanup supplies are now available at the bureau’s upper lot, Albina Yard. A supply cabinet has been renovated and stocked with cleanup supplies in case crews need materials in addition to those carried in their vehicles’ spill buckets.

• BOM continued work with experimental plantings, using Portland Parks and Recreation’s integrated vegetation management (IVM) approaches. The IVM, approved by the National Marine Fisheries Services under the ESA 4(d) rule to protect salmonids, requires certification of pesticide applicators. This approach is designed to minimize the need for fertilizers, pesticides, and irrigation while developing and maintaining viable landscapes.

• Selected employees attended a field trip led by Oregon Department of Fish and Wildlife to identify wildlife and habitat issues associated with maintaining pollution reduction facilities. Crews also received classroom training and now have a reference guide for use in the field. They are also modifying their work schedules to minimize impacts on wildlife.

• BOM employees attended several Regional Northwest Fish Passage programs sponsored by Clackamas and Washington counties. These programs include both technical and field-based education about the ESA, erosion control, and fish protection.

• The Bureau’s environmental team leader attended the Transportation Research Board summer conference and presented information about the bureau’s environmental program and best management practices.

• Crews continue to use cleanup kits containing a variety of products to clean and control leaks and spills. Customized kits were created for the City’s street sweepers. These vehicles have limited space and cannot accommodate the standard six-gallon buckets. The accessibility of these materials allows crews to respond to leaks quickly. Kits are routinely replenished as supplies are used.

• Responsibility for shoulder maintenance, originally a wintertime activity, has been shifted to another division within the bureau, and will now be performed as a summer activity. Performing shoulder maintenance during the summer, while the weather is dry, should reduce the amount of sediment leaving work sites.

• BOM is expanding its library of educational materials, including a video library. These materials are available to bureau employees. Topics include soil bioengineering and erosion and sediment control.
• Eighteen stormwater maintenance employees attended a three-day training on soil bioengineering to repair slope failures. There have been several opportunities to apply these new techniques.

• BOM continued to design and implement secondary containment for chemicals that are stored outside. This added level of protection prevents accidental leakage or spillage. CMA is stored in plastic, and a secondary concrete containment system will be built for BOM’s supply of magnesium chloride.

• Approximately 30 bureau employees attended an ESA training session with ODOT road maintenance crews at the City of Gresham. A trainer from NOAA Fisheries explained how the ESA impacts maintenance activities.

• BOM continues to coordinate elements of the ESA, NPDES MS4, and other environmental initiatives into a broader environmental vision, as part of the bureau’s core vision and mission of environmental stewardship.

• A law enforcement officer from the Oregon State Police made a presentation to bureau supervisors and managers about enforcement issues associated with the Oregon Plan and water pollution. Enforcement issues are now being included in the bureau’s training program for the ESA.

• BOM’s crew leader preparation manual now includes a section that summarizes the environmental mandates, laws, and requirements that affect how BOM conducts its day-to-day operations. This gives crew leaders an understanding of the environmental issues facing the bureau.

CHALLENGES AND SOLUTIONS

ESA and funding issues continue to impact sometimes-competing objectives within maintenance programs. The City continues to work with ODOT, the Federal Highway Administration, BES, regulatory agencies, and other operating bureaus to balance environmental needs with community priorities.

Over time, the increasing number of environmental initiatives and requirements has affected how BOM conducts its business. The amount of available resources to support these changes in maintenance practices has been limited. BOM has been addressing these environmental initiatives creatively and without additional resources. Another challenge has been to integrate the sometimes-competing environmental requirements and initiatives into an overarching workplan and training program. Field crews will more ably interpret and implement a single, but all-encompassing, work program.

PROJECTED MAJOR ACCOMPLISHMENTS FOR PERMIT EIGHT (FY 02-03)

• Continue to evaluate new materials and processes, pilot test tools and techniques, and monitor developments in related fields.
• Continue ongoing crew-level skill training for ESA and PDOT’s routine maintenance practices and water quality guidelines. Educational opportunities will include outside speakers, in-house training, and attendance at various workshops and conferences and Northwest Fish Passage programs.

• Continue to promote a shift in bureau culture to support environmental awareness and skills in BOM’s day-to-day activities, furthering the bureau’s efforts towards environmental stewardship.

• Expand the bureau’s environmental communication and outreach program. This includes more frequent internal communication, such as regular articles on related topics in the bureau’s weekly newsletter to employees and external messages through community outreach.

• Continue efforts to coordinate elements of the implementation plan to meet ESA, NPDES MS4, and other environmental mandates, and to work with PDOT to integrate these environmental needs and programs into work plans.

• Continue design and development of bureau “environmental consultations,” in which members of the pollution prevention field team visit BOM employees at job sites to help generate ideas to promote more environmentally protective work practices.

• Develop an ESA/water quality guidance document that will eventually replace the OM2 workplan.

• Continue to improve housekeeping skills to keep work sites and maintenance yards clean.

• Test a waterless dry-saw system for sidewalk maintenance that will reduce water use and minimize environmental impacts. The bureau has acquired all of the parts for this system and is fabricating the final blade guard vacuum attachment.

• Work toward adopting ODOT’s Routine Road Maintenance Water Quality and Habitat Guide Best Management Practices, with minor modification, as the interim guiding document for PDOT’s transportation-related maintenance activities. BOM is working with NOAA Fisheries to identify best management practices that are protective of fish.

• Begin development of a PDOT manual that covers all activities performed by BOM, not just those addressed in ODOT’s roadside maintenance manual. This manual will include best management practices for traffic maintenance, environmental systems, pest control, traffic electrical work, recycling, and sidewalk maintenance performed by BOM.
Evaluate materials storage, handling, and transportation activities at City-operated facilities to determine whether there are any adverse impacts. Where practical, implement enhancements or alterations to limit identified adverse effects.

KEY BMP ACCOMPLISHMENTS, PERMIT YEAR SEVEN (FY 01-02)

Water Bureau

- Prepared and submitted an evaluation plan for evaluating Water Bureau facilities, including tanks and reservoirs, pump stations, wellsites, and fountains.

- Continued to inventory discharges from Water Bureau facilities.

Parks and Recreation Bureau

- Provided appropriate pesticides storage devices at district headquarters.

- Continued testing nutrient levels and the presence of pesticides in surface waters for all golf courses. Based on analyses of collected data, implemented an ongoing program to address nutrient and pesticide levels that exceed standards.

- Continued the use of special equipment for precise application amounts, timing, and distribution of fertilizer on golf course fairways and greens as part of ongoing program.

- Evaluated a capture system (installed in permit year six) for oil-based products, consisting of double-walled, above-ground tank that holds all waste until it is retrieved by a vendor for recycling. Because no in-house transfer is needed, this reduces potential risk and exposure to workers and the environment.

- Continued the use of a specially formulated slow-release fertilizer on park turf, which possesses an ideal formulation of components that reduces leaching and wasted elements in runoff.

- Installed hard surface pads for mulch and organic material storage at the Washington Park district, and installed a biofiltration area to collect runoff from the pads.

- Began evaluating a pilot program at Sellwood Riverfront Park to test the efficacy of organic-based fertilizers.
CHALLENGES AND SOLUTIONS

It has been very challenging to develop evaluation criteria and rank multiple hundreds of City-owned sites. In addition to stormwater-related criteria, other environmental regulation issues must be considered in the ranking criteria. In addition, there are specific criteria related to age, size, location, and long-range plans for the various facilities. Some City bureaus are already in a master planning process for their facilities, with dedicated staff and budgets to evaluate sites, while others are simply managing their site activities. As a result, there is uneven level of effort in the City's various bureaus toward implementing this task.

PROJECTED MAJOR ACCOMPLISHMENTS FOR PERMIT YEAR EIGHT (FY 02-03)

• After facility reviews, rank sites according to the greatest potential for causing adverse impacts. Deficiencies found at the top five facilities (or all facilities if there are fewer than five) will be analyzed to determine what corrective action needs to be taken.

• Establish protocols and action plans for surface water testing through a comprehensive program. Surface water testing for pesticides and nutrient levels will be conducted at multiple state parks.

• Review BOM onsite vehicle and equipment washing facilities.

Parks and Recreation Bureau

• Evaluate paint storage practices at all yards and district maintenance sites for possible improvements.

• Examine the policy for satellite location of fertilizer containers in small storage facilities at district maintenance sites.

• Install a surface water bioswale at Irving Park to capture large-scale hard surface runoff.

• Continue to evaluate the pilot program at Sellwood Riverfront Park to test the efficacy of organic-based fertilizers.

• Continue the program to test nutrient levels and the presence of pesticides in surface waters for all golf courses, and expand the program to additional test sites in selected general park areas with surface water.

• Refurbish River Place Esplanade drain disposal, using elements approved in the revised Portland Stormwater Management Manual.
- Establish a public/private partnership to fund new cultural practices at key park sites to renovate athletic fields. This reduces fertilizer use and increases water infiltration.

- Test high-volume waste containers at three park sites to improve containment and overflow problems.

- Reduce storage needs for pesticides at individual golf course sites through an agreement with a vendor to deliver on an as-needed basis. This also shifts any transportation risks to the vendor, who has more appropriate equipment and training.
OM4 Evaluate various City discharges to the MS4, including NPDES permit identified non-stormwater discharges not addressed by BMP OM1, OM2, or OM3. Many of these discharges can be associated with operations and maintenance activities of various City bureaus. Where practical, implement enhancements or alterations to these activities to limit identified adverse effects.

KEY BMP ACCOMPLISHMENTS, PERMIT YEAR SEVEN (FY 01-02)

- The Water Bureau continued to implement a program that requires it to submit requests for discharges of potable water from flow tests of hydrants and tank and reservoir drains. Discharges are approved on a case-by-case basis with a letter of authorization. The authorization requires BMPs to reduce the impacts of flow rate, volume, and suspended solids from these activities, in addition to the state-required BMPs for chlorinated discharges. A report is required for each discharge in order to track volume and respond to any complaints.

- The Water Bureau continued to inventory discharges at various facilities, in conjunction with sumps registration and NPDES permit application work for direct discharges.

- The Water Bureau:
  - Prepared and submitted an evaluation plan for evaluating discharges.
  - Established an interagency discharges committee to develop BMPs for discharges resulting from Water Bureau operational and maintenance activities.
  - Continued to inventory Water Bureau discharges.

- BES, the Fire Bureau, and General Services worked together on the City's fire station seismic upgrade to incorporate environmental issues. Specifically, all upgrades will include washing areas that discharge to the sanitary system, with appropriate pretreatment. This will eliminate discharges of wash water to City storm or ground disposal systems. Two new stations were built with correct disposal areas, and six stations were remodeled this permit year. To date, BES has reviewed a total of four new stations and 12 remodeled stations that have gone through the building permit process. All stations have incorporated many environmental components to achieve and exceed stormwater quality goals.

- The Parks Bureau began training one staff member per district to evaluate transportation practices and procedures for container fuels and other hazardous materials, in consultation with OSHA.

- The Parks Bureau continued to evaluate O&M practices for certification and compliance within the “Salmon Safe” program. Maintenance activities are examined for their effect on water quality and aquatic system health. The current phase of Salmon Safe is a scientific review of the proposed standards.
• The Parks Bureau developed a policy for disposing waste oil and petroleum products generated at park satellite locations and identifying opportunities for reuse of recycled materials.

• The Parks Bureau participated in design, review, and construction project development for the U.S. Army Corps of Engineers’ Westmoreland/Crystal Springs renovation and expanded wetland/flood storage/habitat area.

• The Parks Bureau implemented new sediment trapping materials for Parks nursery operations to improve runoff reduction procedures.

• In partnership with BES, the Parks Bureau installed a bioswale at Willamette Park to partially treat storm water runoff from parking lot hard surfaces.

CHALLENGES AND SOLUTIONS

It has been very challenging to develop evaluation criteria and rank a large group of City activities. It has sometimes been difficult to identify what types of discharges enter the MS4, especially for non-routine, incremental, and emergency activity discharges. In addition to stormwater-related evaluation criteria, other environmental regulation issues must be considered in the ranking criteria. In addition, specific criteria related to other regulations apply to the type and location of discharge. Economics is also a major factor driving current activities. These combined factors complicate the evaluation of various City activities for impacts to the MS4.

PROJECTED MAJOR ACCOMPLISHMENTS FOR PERMIT YEAR EIGHT (FY 02-03)

• Continue to refine the process of requesting and approving discharges to the storm sewer system to other Water Bureau discharges of potable water as they are identified.

• Develop a plan for evaluating each bureau's facilities for stormwater impacts. The plan will prioritize which activities to evaluate first.

• Continue discharges inventory work at various City facilities.

• Review onsite vehicle and equipment washing at City facilities.

• Evaluate the hazardous material spill response policy and training process. Develop a plan for a new training schedule.

• Install biofiltration sites to support district work units and Washington Park headquarters.

• Refine the use of sediment trapping materials for Parks nursery operations to improve runoff reduction procedures.
The Industrial Source Control Division (ISCD) in BES is conducting most of the activities related to this BMP.

KEY BMP ACCOMPLISHMENTS, PERMIT YEAR SEVEN (FY 01-02)

- Inspected, sampled, and administered the permits for 152 industries (and associated tenants) with stormwater discharge to the MS4. Continued to perform annual compliance inspections and additional inspections, if warranted, to provide technical assistance or assess BMP implementation.

- Continued to perform inspections and evaluate the need for stormwater permits for non-permitted industries in the MS4. Performed 89 inspections during permit year seven. Identified BMPs at these industries to minimize or remove exposure of industrial activities to stormwater. Required 12 facilities to apply for a stormwater permit.

- Collected and analyzed 196 samples from 141 permitted industries. In addition, conducted a monitoring and sampling program at a selected outfall basin to evaluate the long-term impact of the Industrial Stormwater Program. Three storm events were monitored during permit year seven.

- Reviewed 309 industrial files and evaluated impacts on the storm sewer system. Based on the file review, 136 facilities had no identified impact on the storm sewer system, 12 were issued stormwater permits 3 have permits pending, and 33 were issued “no exposure certifications.” Information in the database was updated, and inspections performed as needed. Sixty-nine facilities remain under review.

- Updated all industrial files on a continual basis as information is received. The Aquarius database continues to receive improvements to track inspections, permits, stormwater drainage issues, monitoring results, and industrial information. The database modifications will enhance inclusion of pertinent information and improve reporting capabilities. Reporting capabilities have been developed for each industry that will accurately display up-to-date monitoring results for all samples taken by both the industry and the City, and will provide an annual report for all sampling results.

- Continued to use GPS to map outfalls to receiving streams from permitted industries.

- Implemented a project to identify and map all outfalls in the Columbia Slough watershed within the City and identify the source that drains to these outfalls.
Continued to reinspect industries that were previously identified as having no exposure and were not required to apply for a permit. The inspections are conducted on a five-year cycle. Industries are now being issued a no exposure certification in lieu of a permit; this certification was previously not available. The program will allow the City to effectively track these facilities. It also requires facilities to notify the City and/or DEQ if site conditions change, resulting in exposure of industrial activities to rainfall and stormwater runoff. The facilities would then be required to apply for a permit. During permit year seven, issued 33 no exposure certifications.

The City's industrial survey identified 142 industries participating in stormwater-related activities. All 142 sites were referred to the Industrial Stormwater Permit section for further evaluation.

The City authorized 17 batch discharges (with a total of approximately 1 million gallons) to be diverted from the storm sewer system to the sanitary sewer system for treatment.

Continued to develop stormwater enforcement rules that will implement City Code provisions for industrial stormwater inspections and pollution complaints.

Continued to implement activities in the following categories of industrial controls: wastewater discharge permits, accidental spill prevention plans, Pollution Complaint Program, Buildings Plan Review Section, and Fire Bureau’s SARA Title III facility review. Actions included:

- Continued remediation in the East Multnomah County Project area, including hydraulic controls in the Troutdale Sand Aquifer (TSA) and Sand and Gravel Aquifer (SGA).

- Installed plume movement controls for the east wellfield.

- Continued characterization studies and remedial efforts in the west wellfield.

Administered 107 additional permits for facilities not located in the MS4. Most are permits for direct dischargers, although some of the new permits were issued for discharge to the Port of Portland’s system.

Performed 53 inspections and evaluated the need for stormwater permits for non-permitted industries outside the MS4. Identified BMPs at these industries to minimize or remove exposure of industrial activities to stormwater. Required five industries outside the MS4 to obtain stormwater permits.

The City's BEST Program assisted industries with "green practices" that save water and energy and deal with stormwater and solid waste. In permit year seven, nine businesses were recognized for their efforts in these areas. Since the program started in 1992, 70 area businesses have won awards for projects/practices that are saving them over $12.3 million.
per year. In all, these businesses have made changes that result in the following annual reductions:

- 46.0 million kWh electricity saved
- 6.8 million therms natural gas saved
- 699,000 gallons gasoline saved
- 857 million gallons water saved
- 68,300 tons solid waste reduced
- 9.6 million miles avoided
- 107,000 tons CO2 emissions eliminated

- Under the Eco-logical Business Program, continued to work with the Pollution Prevention Team and Automotive Advisory Group for the Portland metro region to certify automotive repair and service shops. By the end of permit year seven, a total of 30 shops had been certified, with another 10 in the process of certification.

During permit year seven, continued drafting an Eco-logical Business Program for the landscape contractor sector. The program will look at design, installation, and maintenance practices.

The Eco-logical Business Program implemented a promotional campaign from May to July 2002 to raise awareness and communicate the importance of supporting auto shops that operate environmentally responsible business practices. The campaign used newspaper and “Chinook Book” advertising to promote the Eco-logical Business message.

- Developed one additional BMP handout about preventing stormwater pollution, focusing on maintaining and cleaning catch basins. The City has developed a total of 17 BMP handouts for use during inspections of industrial facilities. Pollution prevention videos are also available for loan to industries conducting staff training.

- The Industrial Stormwater Program continued to meet with Multnomah County sanitarians annually to review the flyer and poster that address best management practices for reducing stormwater pollution from restaurants. These materials are handed out by the sanitarians during their restaurant inspections.

CHALLENGES AND SOLUTIONS

Funding

PROJECTED MAJOR ACCOMPLISHMENTS FOR PERMIT YEAR EIGHT (FY 02-03)

- Continue to inspect all permitted industries in the City once per year, and conduct sampling as needed.

- Continue to inspect non-permitted industries discharging to the MS4 to evaluate the need for permits (approximately 200 per year).
- Continue certifications in the Eco-Logical Business Program with the Pollution Prevention Team and Automotive Advisory Group. The goal for permit year eight is to have 50 shops certified. Complete development and begin implementation of the landscape contractors program.

- Complete the stormwater enforcement rules, and modify code for industrial stormwater inspections and pollution complaints.

- Continue to map outfalls in the Columbia Slough watershed and identify the sources to these outfalls.
ILL1  Continue spill prevention and response programs and activities to reduce the frequency and impact of spills to the MS4.

KEY BMP ACCOMPLISHMENTS, PERMIT YEAR SEVEN (FY 01-02)

- Continued overseeing site investigation and remediation at contaminated industrial sites within the Columbia South Shore Wellfield area.

- Continued working with the Columbia South Shore Wellhead Protection Committee. The cities of Fairview, Gresham, and Portland, the community of Interlachen, and other interested parties have formed this committee to implement complementary wellhead protection area designations and regulations.

- Continued activities related to the Spill Response Program, Accidental Spill Prevention Program, tank farm policy, Hazardous Materials Response Team, Columbia South Shore, hazardous substances, and Buildings Plan Review Section. Accomplishments included:
  - Proposed new structures in the Columbia South Shore Plan District (COSS) that require building permits and will use chemicals on the site must receive Water Bureau approval before a building permit is issued. In permit year seven, approximately 95 permit applications were reviewed for hazardous materials use. All new buildings in the COSS have sealed floors and secondary containment, where necessary. Storm drains and discharge lines in loading and storage areas have valves to contain spills onsite.

- Added a spill protection page to the BES website.

- Developed a new “Report All Spills” brochure.

- Evaluated and revised industrial and spill control BMPs as part of the 2002 Stormwater Management Manual update. The BMPs provide stormwater quality and quantity management requirements for new and redevelopment.

- Conducted training for City staff on the BES spill response reporting hotline and staff response duties.

- Made a presentation to a Willamette Riverkeepers meeting about the BES spill response reporting hotline information and staff response duties.

- Completed and submitted an initial comprehensive assessment of the City’s sump system to DEQ. The initial assessment was prepared to address the rule authorization requirements in OAR 340-044-0018(3)(a): basic requirements for all stormwater injection systems. The City also submitted an updated version of sump inventory/registration information to DEQ. Continued work on developing a UIC Management Plan.
• Participated with the Oregon Association of Clean Water Agencies (ACWA) and other municipalities to develop a UIC BMP manual for injection systems that are protective of groundwater. The manual will provide technical information on siting criteria, design considerations, and O&M requirements for injection wells. Siting criteria and design recommendations will emphasize spill prevention through segregating areas that drain to injection wells from areas where spills may occur (e.g., loading docks, materials storage/use areas). A final version of the manual is expected in late 2002.

• Partnered with ACWA, other municipalities, and DEQ to develop a coordinated monitoring plan for BMPs included in the UIC BMP manual. The monitoring plan will recommend sampling and analysis methods, which will help obtain data for estimating the effectiveness of the BMPs.

CHALLENGES AND SOLUTIONS

The balance of priorities between groundwater, stormwater, and drainage continues to be a significant citywide concern. Protection of groundwater is universally supported, however, and development of the UIC Management Plan will assist in this effort.

PROJECTED MAJOR ACCOMPLISHMENTS FOR PERMIT YEAR EIGHT (FY 02-03)

• Continue duty officer training sessions.

• Continue to provide absorbent boom to Portland fire boars for response actions.

• Continue to conduct internal training to City staff on the BES spill response reporting hotline and staff response duties.

• Continue to make external presentations about the BES spill response reporting hotline and staff response duties.

• In partnership with ACWA, complete the UIC BMP manual and monitoring plan.

• Continue Regional Spill Committee quarterly meetings.

• Continue to work with the Wellhead Protection Committee to implement coordinated actions to protect the Columbia South Shore wellfield.

• Continue COSS reviews for appropriate control of hazardous materials.
Implement all elements of the Illicit Discharge Elimination Program to prevent, search for, detect, and control illicit discharges to the MS4; continue to evaluate existing properties and non-stormwater discharges.

The Illicit Discharges Elimination Program (IDEP) is conducted by the Spill Protection and Citizen Response Section within BES's Environmental Compliance Division (ECD) and the Industrial Source Control Division (ISCD).

KEY BMP ACCOMPLISHMENTS, PERMIT YEAR SEVEN (FY 01-02)

- Conducted 175 outfall inspections.
- Identified and corrected two illicit connections.
- Continued revising priority outfall list; currently tracking 101 outfalls.
- Continued dry-weather monitoring at all major outfalls during the summer sampling period; inspected/sampled all priority outfalls at least twice.
- Formulated in policy the acceptance of groundwater from foundation drains for subgrade structures in brownfields.
- Continued sampling the 19 non-stormwater discharges identified in the NPDES permit to determine their impact on the MS4. As of permit year seven, completed monitoring work on 9 of the 19 activities listed in the permit. Sampling from summer and fall of 2001 and winter and spring of 2002 included:
  - Street wash water
  - Swimming pools
  - Car washing
  - Landscape irrigation
  - Rising and pumped groundwater
  - Diverted stream flows
  - Springs
  - Riparian habitats
  (Also see BMP OA1.)
- Continued to implement measures to limit impacts from non-stormwater discharges related to City operations.
- Reviewed approximately 340 commercial and industrial building plans, and continued to improve the internal permit tracking system to provide more accurate tracking in the future.
- Continued to administer wastewater discharge permits; accidental spill prevention plans; the Pollution Complaint Program; the Buildings Plan Review Section; the Fire Bureau's SARA Title III facility review; the Spill Response Program; the tank farm policy and Hazardous
Materials Response Team; SOLV events; Metro's Recycling Information Center line; BES’s
Solid Waste and Recycling Programs; and development controls, including plans review. Related actions included:

- The BES hotline number (823-7180) receives about 1,600 calls per year regarding pollution complaints, industry information, spills, seepage discharges, and agency referrals. This hotline is staffed 24 hours a day. During the past year, 223 after-hours complaint calls were registered. The duty officer responded on-scene to 69 complaint sites during after-hours actions.

- The City continues to comply with the intent of the State Toxic Materials Reduction Act by evaluating all new chemicals used in various City facilities.

- The City's Green Team of concerned employees implemented a number of new activities to make internal environmentally friendly changes at the City of Portland. These included promoting alternative transportation to employees; promoting the recycling of difficult items such as electronics, batteries, and styrofoam; and working on a surplus supply project (including a website) where people can exchange unwanted but still reusable office equipment and supplies. The Green Team also sponsored its fifth Green Fair, with over 200 employees attending and 45 vendors exhibiting environmentally friendly products.

- Stop Oregon Litter and Vandalism (SOLV), a statewide non-profit group, retrieved approximately 531,325 pounds of debris, including: 338,200 pounds of mixed waste, 124,200 pounds of woody debris, 597 illegally dumped tires, and scrap metal totaling an estimated 54,000 pounds. In addition, SOLV planted 3,330 trees, shrubs, and native plants in parks and natural areas.

CHALLENGES AND SOLUTIONS

Consistent citywide program coverage to control illicit discharges continues to be a challenge, but the effort will be moving forward with the comprehensive watershed planning effort.

PROJECTED MAJOR ACCOMPLISHMENTS FOR PERMIT YEAR EIGHT
(FY 02-03)

- Continue to implement the IDEP and develop a workplan and schedule; integrate results into the BES mapping system.

- Continue to evaluate pipe infiltration and inflow issues and groundwater-related non-stormwater discharges. Continue to identify sampling locations and methodologies. Continue non-stormwater sampling for remaining categories.

- Continue to remove illicit discharges to the storm sewer system as they are identified during spill response, pretreatment, or stormwater permit inspections.
Implement City Code Title 10: Erosion Control, which provides for a comprehensive, citywide erosion and construction site pollutant control program; provide training and other support as needed.

KEY BMP ACCOMPLISHMENTS, PERMIT YEAR SEVEN (FY 01-02)

- Began discussing revisions to the erosion control code (Title 10), such as inclusion of a green builder certification, simplification of plan requirements for small sites, and clarification of confusing terms and standards.

- Developed testing protocol and benchmarks for a new round of monitoring on erosion and sediment control. Identified sample sites and will begin monitoring in permit year eight. Results will be compared to similar site monitoring conducted in permit years 4 and 5. The monitoring will provide benchmarks to evaluate the effectiveness of the Title 10 program.

- Continued modifying the Office of Planning Development and Review’s (OPDR)* administrative structure for erosion control review, inspection, and enforcement, including creating new forms and procedures to help the public successfully implement erosion control.

- The Bureau of Parks and Recreation and the Bureau of Maintenance continued their commitment to erosion control education by training new employees on correct plants and techniques for erosion control.

- Implemented a formal methodology to ensure that erosion control is successful in Parks Bureau projects.

- Instituted a regional awards program to reward outstanding erosion control efforts by builders and contractors. Participation includes local jurisdictions and sponsors such as the Association of General Contractors (AGC). Contractors were nominated by local inspection professionals. The first regional awards were presented in June 2002 to the top residential and “other category” builder or contractor.

- OPDR conducted a total of 7,443 erosion control-related inspections in the following categories:
  - 3,095 pre-construction inspections
  - 455 interim compliance inspections (during construction)
  - 2,725 permanent erosion control measures inspections (at building final)
  - 1,168 final erosion control inspections (6 months after building final)

- Received and investigated 435 complaint calls through the erosion control hotline.

- Continued operation of the Soil Trader, which aided the beneficial reuse of over 197,000 yards of material. Other construction commodities, such as asphalt (crushed and rubble),

* OPDR was renamed to Bureau of Development Services in fiscal year 2002-03.
concrete (crushed and rubble), woody debris, and fencing are also part of this recycling effort. *(Note: These numbers are lower than the previous year because of considerable changes to the website, which affected service for over five months.)*

**CHALLENGES AND SOLUTIONS**

With a comprehensive program instituted, the biggest challenge is the continuing integration of enhanced erosion control efforts into the existing City design, review, and inspection systems. This integration has been aided by developing and implementing new computer tracking programs and complaint response systems and by refining interbureau roles and procedures. A code advisory committee met in permit year seven and made draft recommendations to improve the language in Title 10. In addition, OPDR facilitated meetings of an erosion control focus group to evaluate the current code and propose changes to improve it. The focus group includes staff from the Water Bureau, BES, PDOT, and OPDR as well as four private citizens.

**PROJECTED MAJOR ACCOMPLISHMENTS FOR PERMIT YEAR EIGHT (FY 02-03)**

- Continue educating new employees about erosion control and pollution prevention.

- Implement an experimental/prototype site at the Natural Resources Operating Offices on SE Foster for hard-surface water reduction into the storm sewer. The site will use plant material to reduce erosion as well as encourage water infiltration.

- Implement a prototype/example for hard-surface water reduction into the storm sewer at the parking lot of Glencoe School in SE Portland. This site will use plant material and bioengineering to reduce erosion, as well as encourage water infiltration and serve as an example for parking lot retrofits in the public and private sector.

- Finalize the code advisory committee’s recommended changes to the Erosion Control Manual and Title 10. Complete public review of the proposed revisions. Consider the erosion control focus group’s recommended changes to the code and manual.

- Evaluate the development of a citation-based enforcement program by OPDR. The program would augment the current system of correction notices and stop work notices (for more serious violations). Currently, violations in environmental zones are subject to environmental violation review by OPDR land use review planners, a costly and lengthy process.

- Continue to modify inspection processes for more effective erosion control enforcement.

- Evaluate consolidating Title 10 into Title 24.

- Conduct a second annual regional awards program to reward outstanding erosion control efforts by builders and contractors. The second regional awards will be presented to the top residential and top "other category" builder or contractor in spring 2003.
• Continue to work on contract language and permit requirements for the appropriate control of construction site dewatering activities.

• Continue to evaluate the need for continuing education for contractors and City staff, and modify or develop curricula as needed. Evaluate the viability of creating an environmental builder program that would offer incentives for trained erosion control professionals.

• Finish developing a master plan for Portland International Raceway that helps protect natural resources and prevents pollution of waterways that empty into the Columbia Slough. This plan supports the use of bioengineering and native plants in environmental zones.

• Monitor Deerhaven residential development for erosion control efforts in compliance with new Title 10 regulations.
Implement and refine stormwater management requirements for all new and redevelopment projects to minimize pollutant discharges and erosive stormwater flows. Evaluate and develop stormwater management requirements for existing development.

KEY BMP ACCOMPLISHMENTS, PERMIT YEAR SEVEN (FY 01-02)

- Continued meetings of the Stormwater Advisory Committee (SAC) to develop and refine stormwater management policies and to review and revise the Stormwater Management Manual (SWMM). On June 19, 2002, City Council accepted the SAC’s report, which recommends SWMM revisions, stormwater management policies for existing development, and possible modifications of water quality and flow control requirements.

- Developed draft policy agreements to expand BES’s authority to institute downspout disconnections on small commercial sites (<5,000 square feet) without requiring a plumbing permit.

- Revised the SWMM for implementation in October 2002. Conducted a six-month public comment period for the review draft. Some of the major SWMM revisions include:
  
  - Increased mitigation requirements. All development projects must now reduce overall impervious surface areas to the maximum extent practicable before managing stormwater runoff from those areas.
  
  - For clarity and simplicity, deleted the current three “management levels” (level 1 = <500 square feet of new or redeveloped impervious surface; level 2 = new development >500 square feet of new impervious surface; level 3 = redevelopment >500 square feet of redeveloped impervious surface). The only trigger for stormwater management is now the creation or redevelopment of 500 square feet of impervious surface.
  
  - Created one simple stormwater management facility design approach, called the Simplified Approach for Stormwater Management. This approach incorporates the previous mitigation measures, simplified approaches, and other vegetated facilities that clean and infiltrate stormwater.
  
  - Improved overall pollution reduction and flow control goals. Revised the “70 percent TSS removal” pollution reduction standard to make it a function of influent water quality (i.e., the dirtier the stormwater running off a site, the higher the required TSS removal percentage).
  
  - Included parking lot requirements and design tips.
  
  - Included specific design details for streets.
- Simplified landscaping requirements.
- Simplified O&M requirements and templates.

**CHALLENGES AND SOLUTIONS**

The two-year revision period for the SWMM has allowed BES to respond to input from developers, manual users, and City staff. The SWMM has been streamlined for ease of use, without reducing standards.

**PROJECTED MAJOR ACCOMPLISHMENTS FOR PERMIT YEAR EIGHT (FY 02-03)**

- Continue to work with the SAC to develop and refine stormwater management policies, including policies that address impacts from transportation rights-of-way.

- Develop a workplan for implementing the SAC’s June 2002 report recommendations, and provide the SAC with a mid-year status report.

- Continue to modify City codes as needed to implement SWMM requirements and to support/facilitate innovation and resource protection in stormwater planning, design, and management.

- Develop guidance specifications for building-related stormwater reuse systems (cisterns, etc.).

- Implement the 2002 SWMM revisions. Hold public workshops to discuss additional proposed changes and collect feedback.

- Design and construct a third water quality friendly streets pilot project on N. Gay Avenue, using porous pavement. (See BMP STR2.)

- Continue to monitor water quality friendly street projects for hydraulic effectiveness, pollution reduction, maintenance needs, and aesthetics.
KEY BMP ACCOMPLISHMENTS, PERMIT YEAR SEVEN (FY 01-02)

- Completed construction of the Fanno Creek enhancement project at SW 45th Ave to Shattuck Road. The goal is to improve water quality in Fanno Creek by stabilizing the streambed and banks to prevent erosion.

- Continued discussions with the Bureau of Planning to update the Willamette River Greenway code. BES is participating to ensure that stormwater outfalls are addressed.

- Completed 30 percent design of the Alsop-Brownwood flood mitigation and restoration project. Among other benefits, this project will reconnect and restore wetland functions on 60 acres of degraded wetlands to improve water quality on Johnson Creek.

- Signed a Project Cooperation Agreement (PCA) with the U.S. Army Corps of Engineers (COE) for five water quality and habitat improvement projects on the Columbia Slough. The PCA implements the COE’s 1135 program. The COE funding totals $4.8 million; the City’s 25 percent cost share is $1.2 million.

- Completed design of the Wapato Wetland water quality facility (Columbia Slough).

- Completed purchase of 10 acres at NE 148th for design of water quality facility to treat stormwater runoff from 35-acre basin.

- Completed predesign for Taylors Ferry water quality facility.

CHALLENGES AND SOLUTIONS

An ongoing challenge is coordination among various City programs (e.g., watershed, Public Facilities Plan, and CSO) to ensure that structural water quality facilities are evaluated and prioritized in a consistent manner and that water quality impacts are addressed in the design/construction of new and retrofitted flood control facilities. The integration of this BMP into BES’s watershed plans will assist in this effort.

PROJECTED MAJOR ACCOMPLISHMENTS FOR PERMIT YEAR EIGHT (FY 02-03)

- Continue to implement watershed facilities/resource plans that evaluate the NPDES listed major outfalls in the Fanno, Tryon, Columbia Slough, and Willamette watersheds.
Complete design work on the Alsop Brownwood enhancement project along the mainstem of Johnson Creek. Phased construction is to be completed in fiscal year 2009.

Continue work on COE 1135 program projects, including:

- Complete Phase II design of the NE 162\textsuperscript{nd} (wetland restoration) stormwater outfall treatment facility.
- Design a culvert replacement (bridge) over NE 33\textsuperscript{rd} at Buffalo Slough.
- Construct two replacement culverts in Whitaker Slough and two in Buffalo Slough.
- Design a restoration/revegetation plan for hillside wetland, and complete site preparation.
- Begin instream construction of a meandering channel along seven miles of mainstem of the middle slough and part of the upper slough (NE 18\textsuperscript{th} to NE 158\textsuperscript{th}).

Construct the Wapato wetland water quality facility (Columbia Slough).

Continue work on CSO stream separation diversion projects in the Carolina and Tanner Basins, which includes evaluating pollutant loading and modeling storm systems to determine the feasibility of capturing the water quality storm event in the combined system. This evaluation will assess stormwater treatment options for areas where regional stormwater facilities are impractical because of steep slopes and clay soils.

Design a passive stormwater treatment facility in the Tryon Creek Watershed at SW Taylor's Ferry and 17\textsuperscript{th} Avenue.
**KEY BMP ACCOMPLISHMENTS, PERMIT YEAR SEVEN (FY 01-02)**

- Improved overall pollution reduction and flow control goals by revising water quality design criteria for new development and redevelopment stormwater management practices in the Stormwater Management Manual. (See BMP ND2.)

- Constructed two pilot projects, using right-of-way design standards developed by the BES and PDOT “water quality friendly streets” work committee. These projects will be monitored to assess stormwater management and water quality effectiveness.
  - Lodi Lane Subdivision: Lowered planter strips for a cul-de-sac, 300 feet in length and managing drainage from about 10,000 square feet of impervious surface.
  - Ledbetter Street Jail Development: Infiltration planters for drainage from approximately 1.5 acres of impervious area.

- Continued design of several additional pilot projects using water quality friendly streets design standards.

- Completed three stormwater sampling events to evaluate the water quality benefits of two ditches previously retrofitted in accordance with water quality friendly streets design standards:
  - SW 62nd Avenue & Pomona Street—86 feet of swale
  - SW 47th Avenue & Pomona Street—157 feet of swale

- Constructed pilot projects to modify deep roadside ditches and rebuild them as compost infiltration swales:
  - 5224 SW Orchid St, 82 feet of swale
  - 5302 SW Orchid St, 110 feet of swale
  - 6939 SW 52nd Ave, 46 feet of swale
  - 9949 SW 53rd Avenue, 58 feet of swale
  - 1506 SW Spring Garden St., 159 feet of swale
  - 7740 SW 45th Avenue, 270 feet of swale
  - 5908 SW 45th Avenue, 75 feet of swale

- Participated in the development of Metro’s “Trees for Green Streets” handbook to help promote better regional approaches to street design for stormwater quality and other livability issues.
Continued to monitor previously constructed pilot stormwater management facilities for flow control and pollution removal, including the Parkrose sand filter, Russell Pond, WPCL swales, Walnut Park Police Station, Lexington Hills Pond, Hamilton Ecoroof, Buffalo Slough PRF, Whitaker Pond vault/pond, and NE 138th wet pond projects. (See OA1)

Continued and expanded work with the Portland Public School District, Centennial School District, and David Douglas School District to evaluate school site retrofits for water quality facilities.

Participated with the Portland Office of Transportation, Portland Parks and Recreation, and the Portland Development Commission on the Lents 2040 urban renewal process; completed an alternatives analysis determining where and how to manage nuisance flooding in the Lents area of Johnson Creek.

Continued to research the benefits of ecoroofs, in cooperation with the Office of Sustainable Development (OSD) and others.

Continued research into innovative stormwater management approaches in North America.

**CHALLENGES AND SOLUTIONS**

It is a continuing challenge to manage stormwater from rights-of-way without depending on piped systems. Available space is often limited for both new construction and retrofits. Protecting the road surface from potential degradation by stormwater is also an issue. The water quality friendly streets pilot projects will provide essential information about the effectiveness infiltration planters and planter strips in managing street runoff, as well as about O&M needs.

**PROJECTED MAJOR ACCOMPLISHMENTS FOR PERMIT EIGHT (FY 02-03)**

- Monitor water quality friendly streets pilot projects at Lodi Lane and Ledbetter Street.
- Design and construct a third water quality friendly streets pilot project on North Gay, using porous pavement.
- Work with OMSI to evaluate the potential to structurally correct portions of swales in order to improve performance and correct design flaws caused by Water Avenue.
- Identify, evaluate, and prioritize monitoring needs for innovative landscape/ stormwater management approaches.
- Continue to test and analyze the water quality impacts of previously constructed infiltration swales.
- Construct two new infiltration swales using sand and rock filtration layers at 839 SW Taylors Ferry Road and at 7349 SW Capitol Hill Road.
• Monitor the effectiveness of porous pavement at Multnomah Arts Center in treating and infiltrating stormwater.

• Continue work on the Lents 2040 urban renewal process.
Continue to review and modify City codes to minimize or mitigate impervious surfaces, maximize self-sustaining landscapes and vegetative cover, and minimize the need for pesticides and irrigation.

KEY BMP ACCOMPLISHMENTS, PERMIT YEAR SEVEN (FY 01-02)

- Adopted and implemented requirements along the Willamette River that satisfy the elements of Metro’s Title 3 of the Urban Growth Management Functional Plan. Title 3 establishes regional performance standards for water quality, erosion control, flood areas, and fish and wildlife habitat. The water quality standards create “water quality resource areas” that consist of “protected water features” and “vegetated corridors.” Title 3 also incorporates the “Metro Water Quality and Flood Management Areas Map,” which delineates the water quality resource areas Metro has designated for protection, and areas where flood management standards apply. Title 3 also sets rules for mapping “Title 3 wetlands” and administering maps of locally protected features.

The City is complying with the different elements of Title 3 through separate projects. The Willamette River Title 3 Water Quality Compliance project, completed this year, implements water quality protections along the Willamette. Erosion control and floodplain management have been addressed citywide with adoption of additional regulations. Water quality measures along the City’s tributaries are being addressed through the Healthy Portland Streams project (more below). The fish and wildlife protection element of Title 3 will be addressed citywide through a future project when Metro completes its analysis of regional resources.

The regulations implemented with the Willamette River Title 3 Water Quality Compliance project require a larger setback from the top of bank when new development is proposed, protecting the riparian area and associated vegetation. The setback is based on slope, with steeper slopes requiring a 200-foot setback. River-dependent uses and development are exempt from this requirement. If development cannot accommodate the setback, a review is required. The purpose of the review is to ensure that disturbance of the water quality area is minimal and that any destroyed resources are replaced.

- Initiated the public review process for the Healthy Portland Streams (HPS) project discussion draft. HPS revises the City of Portland’s existing environmental zoning and regulatory program to address Endangered Species Act listings; State Land Use Planning Goals 5, 6, 7 through Title 3 of Metro’s Urban Growth Management Functional Plan; existing and anticipated requirements of the Clean Water Act; and continued compliance with the natural resource protection requirements of Goal 5 of State Land Use Planning goals. HPS relies on a package of tools that include both regulatory and non-regulatory approaches for stream and riparian area protection. The non-regulatory, or voluntary, measures include land acquisition and donation, stewardship, and education and outreach efforts. Regulatory changes involve changes to City Code Chapter 33.430: Environmental Overlay Zones, and environmental
zoning map changes to expand areas that are regulated by the Zoning Code. The project will increase the amount of protected natural resource acres in the City, improve and simplify the regulations to make them more effective and easier to implement, and increase property owner awareness of riparian areas.

- Adopted and implemented a revised land division code, which is now part of Title 33: Zoning Code. Flood hazard and landslide hazard lands have more protection; development of smaller lots to avoid resource-rich land is allowed without special review; and development of environmentally sensitive lands requires a higher level review.

- On January 1, 2002, the City assumed authority for land use planning and implementation within 1,500 acres of unincorporated Multnomah County that are within the City of Portland urban services boundary. The City applies and administers base zones, overlay zones, and plan districts, including substantial environmental overlay zones. The City’s Title 10: Erosion Control, and the new land division code also apply in these areas.

- Began developing administrative rules for stormwater enforcement.

- Revised the Stormwater Management Manual (for October 2002 implementation) to improve the pollution removal and flow control requirements and to require the use of vegetative filters and trees to mitigate impervious area to the maximum extent practicable. (See BMP ND2.)

- OPDR began implementing code guidance (released in permit year six) for rainwater harvesting systems. The guide (available on OPDR’s website) is predominantly for single-family and two-family homes, but the basic principles could also be used for multi-family, commercial, and industrial properties. In general, collected stormwater can be used for irrigation and internal water closet related uses. OPDR is reviewing submittals of rainwater harvesting systems on larger development projects.

**CHALLENGES AND SOLUTIONS**

Conflicting or overlapping code requirements administered by different bureaus have sometimes impeded integrated landscape-based stormwater management approaches. Parks, OPDR, Planning, and BES are continuing to work cooperatively to find and correct these barriers. Land use issues are highly charged in Portland at this time. Balancing the preservation of water quality critical lands with Metro 2040 and City development density goals is an ongoing challenge.

**PROJECTED MAJOR ACCOMPLISHMENTS FOR PERMIT YEAR EIGHT (FY 02-03)**

- Continue work on Healthy Portland Streams, which includes non-regulatory and regulatory approaches for stream protection. The non-regulatory, or voluntary, measures include land acquisition and donation, stewardship, and education and outreach efforts. Regulatory changes involve changes to City Code Chapter 33.430: Environmental Zones, and
environmental zoning map changes to expand areas that are regulated by the Zoning Code. Expected completion of the project is summer 2004.

- Begin work on The River Plan for land along the Willamette River that will include policies, goals, design guidelines, zoning maps, action items, CIP projects, funding strategies, incentives, acquisition plan, and education and stewardship.

- Continue technical review of zoning, special district, urban renewal area, and other City codes to identify opportunities to improve water quality.

- Continue to implement Stormwater Management Manual requirements to use mitigation measures (including tree planting and protection) for stormwater management.

- Continue to coordinate interbureau efforts.

Continue to develop a means of encouraging landowners to protect and preserve natural areas on their land and control or eliminate erosion. Continue to purchase property with high water quality or natural resource value.

KEY BMP ACCOMPLISHMENTS, PERMIT YEAR SEVEN (FY 01-02)

- The City initiated and helped pass House Bill 3057: Riparian Tax Credit, during the 2001 Oregon state legislative session. The bill provides an exemption from city and county property taxes for portions of property that are adjacent to a waterway and meet the Division of State Lands designation as riparian land. When enacted, the legislation will offer an incentive to property owners to restore or preserve privately owned riparian areas. During 2002, the City worked with Multnomah County and the Oregon Department of Fish and Wildlife to develop the rules and administrative details of the program.

- Initiated the public review process for the Healthy Portland Streams (HPS) project discussion draft. HPS will include property owner education, stewardship, and voluntary efforts. (See BMP PS1.)

- Under BES’s Watershed Revegetation Program, many businesses and other private landowners participated in and helped fund revegetation projects on their properties and neighboring properties. (See BMP PS3.)

- Developed agreements with some of the property owners participating in the Revegetation Program and other watershed-specific projects, where the owners will ensure that plantings are preserved and maintained.

- The Johnson Creek Watershed Group began creating conservation easements with two property owners to preserve approximately 3.8 acres in the environmental zone along Johnson Creek. The conservation easement will prohibit development and disturbance in the environmental zone in perpetuity.

- The Johnson Creek Watershed Group began developing a program to work with property owners with environmentally zoned property to protect, enhance, and restore natural resources.

- The Johnson Creek Watershed Group coordinated with Metro and the City of Gresham on the Pleasant Valley Concept Plan process to create an urbanization plan for 1,500 acres in the Johnson Creek watershed that was recently annexed into the urban growth boundary. The plan calls for using green development practices for stormwater management and 200-foot buffers around waterbodies to protect and improve water quality.

- BES and OSD continued to provide technical assistance and grant funding for projects that incorporate green building principles, including stormwater pollution prevention and management.
• Took the following actions under watershed programs:

    **Johnson Creek:**
    - Purchased 7.9 acres located within or near the Johnson Creek floodplain (3.70 acres in the Lents area, 0.96 acres in the Tideman Johnson Creek area, and 3.25 in the West Lents area).
    - Planted 98,009 plants on 10,500 feet of riverbank and 20.0 acres. This included 53,294 trees, 34,615 shrubs, and 5,100 cuttings.

    **Willamette River:**
    - Planted 39,701 plants on 410 feet of riverbank and 3.9 acres. This included 25,672 trees, 12,879 shrubs, and 1,150 cuttings.

    **Columbia Slough:**
    - Planted 415,477 plants on 29,014 feet of riverbank and 105.3 acres. This included 279,101 trees, 106,926 shrubs, and 29,450 cuttings.

    **Tryon Creek and Fanno Creek:**
    - Purchased a 7,000 square-foot lot in the Fanno/Tryon Creek watershed.
    - Planted 19,509 plants on 380 feet of riverbank and 5.0 acres. This included 11,950 trees, 5,859 shrubs, and 1,700 cuttings.

• The City purchased 116 acres during permit year seven. Since the beginning of the permit, a total of 2,360 acres have been purchased, including Metro Open Space acquisitions.

**CHALLENGES AND SOLUTIONS**

The passage of House Bill 3057: Riparian Tax Credit during the 2001 Oregon state legislative session creates provision for financial incentives for property owners that will assist in preservation of private riparian areas.

**PROJECTED MAJOR ACCOMPLISHMENTS FOR PERMIT YEAR EIGHT (FY 02-03)**

• Revise the Johnson Creek Basin Plan District to more closely correlate floodplain development standards directly with the adopted FEMA maps. City Council adoption is anticipated in April 2003.

• Continue developing a plan to work with riparian and floodplain property owners within the Johnson Creek Watershed.
• Continue to purchase land for stormwater management and natural resource protection, and work with property owners to protect existing natural areas.

• Continue Watershed Program activities:

  - Purchase an estimated 5.72 acres of property in the Johnson Creek Watershed.

  - Continue plantings, with the following targets:

    Johnson Creek:        42,000 plants
    Willamette River:     16,800 plants
    Columbia Slough:      120,000 plants
    Tryon and Fanno Creek: 66,000 plants
KEY BMP ACCOMPLISHMENTS, PERMIT YEAR SEVEN (FY 01-02)

- The types of urban forestry activities have remained relatively constant since 1993, including tree maintenance, planting, preservation, and education. The Bureau of Parks and Recreation's Urban Forestry Division continues to implement the Urban Forest Management Plan.

- The Urban Forestry Division continued implementing the neighborhood Tree Liaison Program. Over 120 volunteers have been trained in the last six years. In permit year seven, 18 volunteers were trained, and tree liaisons contributed over 1,100 hours of their time to promote proper tree care throughout the City. Some of the many successful projects include neighborhood pruning workshops, school ground cleanups, and tree plantings. Urban Forestry is expanding the program by partnering with David Douglas School District and Portland Public Schools to create educational opportunities for tree liaisons to teach students about Portland's urban forest.

- The Urban Forestry Division created an educational brochure that explains the beneficial relationship between trees and fish. This brochure and five other educational brochures are free to the public and given out at public events. Urban Forestry staff and volunteers participate in more than 20 public events each summer.

- The Urban Forestry Division continued promoting street tree plantings to provide shade and water quality benefits. During permit year seven, 1,079 trees were planted in City parks and City rights-of-way, 850 of which were native.

- Researched and documented water quality (interception) functions of trees. (See BMP OA1.)

- Continued the Willamette Watershed Paired-Area Tree Canopy Assessment and Thermal Load Assessment Framework (citywide).

- Friends of Trees (FOT) uses City donations to fund a portion of its community tree-planting program, including natural area restoration projects and Youth Tree Corps program. During permit year seven, the FOT Neighborhood Trees program planted 2,313 trees in 36 neighborhoods; the Natural Area Restoration program planted 20,794 trees and shrubs at 12 sites; the School Trees program planted 1,512 trees and shrubs at 28 schools; and more than 5,000 trees were distributed through the FOT Branching Out program. Volunteers donated more than 12,000 hours to distribute and plant a total of about 30,000 trees and shrubs.

- Completed design and initiated work on numerous stream revegetation projects. (See BMP PS2.)
• The CSO downspout disconnection program provides trees to homes that disconnect. During permit years seven, 3,302 homes were disconnected.

(Note: BMP PS2 includes additional land protection and revegetation actions.)

CHALLENGES AND SOLUTIONS

Financing is always a challenge. One of the responsibilities of the Urban Forestry Coordinator is to secure grants and other funding. Funding for research may prove difficult to obtain, but potential agency partners are being sought.

PROJECTED MAJOR ACCOMPLISHMENTS FOR PERMIT YEAR EIGHT (FY 02-03)

• Continue research and documentation of water quality benefits of trees, and provide information to others.

• Review BES and other bureau specifications and standards to identify how bureaus can provide more tree planting on various types of City projects. This is especially important in light of the many temperature issues in most Portland waterways.

• Revise and implement the Urban Forestry Management Plan (in September 2002).

• Continue the Willamette Watershed Paired-Area Tree Canopy Assessment and Thermal Load Assessment Framework (citywide).

• Continue working with the Parks Bureau to review and revise the City’s Approved Street Tree List to include more native trees. Implement demonstration projects that incorporate these trees, and evaluate survivability and stormwater benefits.
KEY BMP ACCOMPLISHMENTS, PERMIT YEAR SEVEN (FY 01-02)

• Continued to implement monitoring activities in accordance with the Stormwater Monitoring Plan.

• Evaluated and streamlined monitoring reporting.

• Prepared annual monitoring report. (The monitoring report follows OA2, below.)

CHALLENGES AND SOLUTIONS

Because of the numerous anthropogenic influences on stormwater quality, it is difficult to identify and quantify trends from the existing data set. However, the data for structural BMPs (such as swales) is extensive enough to develop BMP-specific data evaluation and associated recommendations for BMP design modifications.

PROJECTED MAJOR ACCOMPLISHMENTS FOR PERMIT YEAR EIGHT (FY 02-03)

• Continue to implement and evaluate the Stormwater Monitoring Plan.

• Develop BMP-specific summaries of monitoring results from demonstration projects.

• Continue to work with co-permittees, ACWA members, and other jurisdictions to coordinate and share stormwater monitoring data.
KEY BMP ACCOMPLISHMENTS, PERMIT SEVEN (FY 01-02)

- Coordinated program activities through participation in the River Renaissance Management Team and Executive Committee.

- Continued to work with external stakeholders (Stormwater Advisory Committee) to evaluate and modify stormwater management requirements and to develop stormwater management policy recommendations for existing development.

- Met regularly (generally monthly) with co-permittees to coordinate permit activities.

- Coordinated with other jurisdictions statewide through the Oregon Association of Clean Water Agencies (ACWA); participated as board member and on water quality, stormwater, and groundwater committees.

- Coordinated with numerous other City bureaus and jurisdictions to implement BMPs (as reported under the individual BMPs).

CHALLENGES AND SOLUTIONS

Managing and evaluating the stormwater program is challenging because of the numerous programs and jurisdictions involved, as well as the many external influences on stormwater quality.

PROJECTED MAJOR ACCOMPLISHMENTS FOR PERMIT YEAR EIGHT (FY 02-03)

- Continue to work with co-permittees, City bureaus, and other jurisdictions and organizations to implement BMPs.

- Use monitoring data and other BMP effectiveness indicators to implement adaptive management and refine BMPs.
INTRODUCTION
The purpose of this monitoring report is to comply with Schedule B of Portland’s National Pollutant Discharge Elimination System (NPDES) municipal stormwater permit. The information documents stormwater quality monitoring activities conducted by the City of Portland and its co-permittees (hereinafter referred to as Portland) during permit year (PY) seven.

Prior annual monitoring reports submitted to the Oregon Department of Environmental Quality (DEQ) have included comprehensive quantitative and qualitative evaluations of the data gathered, including statistical analyses of several years of monitoring data. This seventh annual monitoring report has been condensed to provide only a summary of the monitoring activities conducted by Portland in the past year. The compiled data are provided as an appendix to the Annual Report (bound separately). Data evaluation is being included in BMP-specific technical information sheets that will serve as guidance for the design of future BMPs. (See Tasks 1 and 3, below.)

The monitoring report is organized into seven sections. This first section provides an introduction, background, and outline of the monitoring plan. The following six sections briefly summarize the objectives of each task of the monitoring plan and the accomplishments during the past year and in previous years that address the task objectives.

BACKGROUND
In 1996, the Oregon Association of Clean Water Agencies (ACWA), a consortium of cities and agencies, prepared a report called Analysis of Oregon Urban Runoff Water Quality Monitoring Data Collected from 1991 to 1996, which was a compilation and statistical analysis of available land use-based stormwater monitoring data for the state. The findings of that report indicate that stormwater quality for different land uses is reasonably well characterized by the existing data set, and that additional monitoring is not likely to significantly improve current knowledge in this area.

Based on these findings, and in an effort to answer new questions and increase the cost effectiveness of monitoring efforts, ACWA petitioned DEQ to allow modifications to the monitoring programs. Portland subsequently developed and proposed a new monitoring program, which DEQ approved on February 4, 1998.

Implementation of the new monitoring program builds upon previous monitoring efforts and more effectively directs resources toward acquiring new information to improve stormwater
management activities. To this end, monitoring objectives were established and organized into six specific tasks that make up the stormwater monitoring program:

**Task 1**: Program Planning/ Annual Report/ Review of Existing Water Quality Data  
**Task 2**: Construction Site Sampling  
**Task 3**: Structural BMP Monitoring  
**Task 4**: Comprehensive Stream Monitoring to Assess Stormwater Impacts  
**Task 5**: Continued Stormwater Monitoring at Existing Land Use Stations  
**Task 6**: Collaboration with Oregon DEQ and ACWA

The following sections list the respective tasks and their objectives and summarize the monitoring activities of the past year and previous years in a table for each task. Additionally, Table 1 summarizes the parameters analyzed at all monitoring locations during permit year seven. The data Portland collected during permit year seven is provided in table form in an Appendix to the Annual Report (bound separately).
### Summary of Parameters Analyzed During Permit Year 7

<table>
<thead>
<tr>
<th>Task 1: Program Planning/Annual Report/View of Existing WQ BMPs</th>
<th>Task 2: Structural BMP Monitoring</th>
<th>Task 3: Comprehensive Monitoring</th>
<th>Task 4: Complimentary Monitoring of Land Use Stations</th>
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**Legend:**
- X = Grab Samples
- O = Composite Samples
- Lower case indicates bioswale infiltrate samples.

Notes:
- X = Grab Samples
- O = Composite Samples
- Lower case indicates bioswale infiltrate samples.
- Lower case indicates untreated samples.
TASK 1 PROGRAM PLANNING/ANNUAL REPORT/REVIEW OF EXISTING WATER QUALITY DATA

Objectives
Task 1 has several objectives. The first objective is to compile and interpret stormwater data collected as part of watershed monitoring efforts and other monitoring studies such as the Illicit Discharges Elimination Program and the monitoring of non-stormwater discharges. The second objective is to prepare reports to evaluate data results with respect to stormwater management. The third objective is to review the monitoring program annually and prepare the annual monitoring report.

Accomplishments
To address the first objective described above, Table 2 summarizes the monitoring activities Portland completed under this task during permit year seven. To address the second objective, monitoring-related technical brochures are being developed to evaluate how effectively various BMPs reduce pollutants in stormwater discharges. Preparation of this seventh annual monitoring compliance report addresses the third objective.

Table 2
TASK 1 SAMPLING ACTIVITIES FOR PERMIT YEAR SEVEN

<table>
<thead>
<tr>
<th>Sampling Program 1</th>
<th>Number of Sampling Locations</th>
<th>Type of Samples</th>
<th>Sampling Frequency</th>
<th>Sampling Dates</th>
<th>Followup Investigations</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Illicit Discharges Elimination Program (IDEP)</em> 2</td>
<td>101</td>
<td>Grab</td>
<td>Two times</td>
<td>July 2001, August 2001, June 2002</td>
<td>2</td>
</tr>
<tr>
<td>Non-Stormwater Discharges 3</td>
<td>17</td>
<td>Grab</td>
<td>Once or twice</td>
<td>Total of 22 samples throughout FY 01/02</td>
<td>N/A</td>
</tr>
<tr>
<td>Industrial Monitoring 4</td>
<td>1</td>
<td>Composite</td>
<td>Composite samples from three events</td>
<td>10/10/01, 04/05/02, 05/05/02</td>
<td>N/A</td>
</tr>
</tbody>
</table>

1 See Table 1 for parameters analyzed.
2 IDEP has maintained a similar level of monitoring each year since 1994.
3 The types of non-stormwater discharges that were monitored were: street wash water, swimming pools, residential car washing, irrigation water, rising groundwater, groundwater infiltration, pumped groundwater, diverted stream flows, springs, and flows from riparian/wetland habitat. Types of non-stormwater discharges that were monitored in past years include fire-fighting activities, lawn watering, landscape irrigation, irrigation water, foundation drains, crawl spaces, diverted stream flows, and flows from riparian habitats and wetlands.
4 The Industrial Stormwater Program has maintained a similar level of monitoring in each of the previous two years.
TASK 2 CONSTRUCTION SITE SAMPLING

Objective
The objective of Task 2 is to conduct construction site monitoring to evaluate the impact of local construction sites on stormwater quality and evaluate the effectiveness of construction site BMPs.

Accomplishments
Table 3 summarizes the monitoring activities completed under this task during permit year seven.

<table>
<thead>
<tr>
<th>Sampling Sites¹</th>
<th>Permit Year (PY) 1-6 Number of Events Monitored</th>
<th>PY 7 Number of Events Monitored</th>
<th>PY 7 Sampling Dates</th>
<th>PY 7 Range of Event Rainfall Volumes (inches)</th>
<th>PY 7 Type of Samples Collected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lexington Hills Detention Pond</td>
<td>7</td>
<td>3</td>
<td>05/13/02 [05/28/02-05/29/02] 06/17/02</td>
<td>0.06 - 0.53</td>
<td>Grab, Composite &amp; Temperature</td>
</tr>
</tbody>
</table>

¹ See Table 1 for parameters analyzed.

Results
The Lexington Hills subdivision has been in various stages of construction for several years. All streets and utilities have now been constructed, and most of the lots have been built out. However, a number of lots remain vacant and there continues to be periodic construction activity. Therefore, the Lexington Hills detention pond continues to serve as a construction monitoring site. Flow and pollutant concentrations are also monitored at the outlet, which allows the pond to be used as a BMP monitoring site as well. Finally, the pond inlet monitoring station serves as a residential land use monitoring site, noting that some mixed land use characteristics will be present until all lots are built out.
Objective
The objective of Task 3 is to conduct monitoring to evaluate the effectiveness of existing and new BMPs to reduce pollutants in discharges and better manage stormwater.

Accomplishments
Table 4 summarizes the monitoring activities completed under this task during permit year seven.

Table 4
SUMMARY OF STRUCTURAL BMP SAMPLING ACTIVITIES

<table>
<thead>
<tr>
<th>BMP Sampled</th>
<th>Number of Sampling Locations</th>
<th>Permit Year (PY) 1-6 Number of Events Monitored</th>
<th>PY 7 Number of Events Monitored</th>
<th>PY 7 Sampling Dates</th>
<th>PY 7 Range of Event Rainfall Volumes (inches)</th>
<th>PY 7 Type of Samples Collected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Swales</td>
<td>3</td>
<td>8</td>
<td>2</td>
<td>11/13/01 12/12/01</td>
<td>0.05 - 0.17</td>
<td>Grab &amp; Composite</td>
</tr>
<tr>
<td>Walnut Park</td>
<td>1</td>
<td>4 soil cores, 2 storm-water samples</td>
<td>1²</td>
<td>7/12/01</td>
<td>N/A²</td>
<td>Soil Core</td>
</tr>
<tr>
<td>Russell Pond Bioswale</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>11/15/01 [01/18/02-01/19/02] 04/13/02</td>
<td>0.17 - 0.54</td>
<td>Grab³,⁴ &amp; Composite³</td>
</tr>
<tr>
<td>Parkrose Sand Filter</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>12/12/01 04/09/02 06/17/02</td>
<td>0.13 - 0.37</td>
<td>Grab &amp; Composite</td>
</tr>
<tr>
<td>Whitaker Ponds PRF</td>
<td>4</td>
<td>0</td>
<td>3 storm events; 1 sediment</td>
<td>02/23/02 [03/05/02-03/06/02] [03/18/02-03/19/02] 06/19/02⁶</td>
<td>0.27 - 0.96</td>
<td>Grab, Composite &amp; Sediment⁵</td>
</tr>
<tr>
<td>Buffalo Slough PRF</td>
<td>3</td>
<td>4</td>
<td>3 storm events; 1 sediment</td>
<td>[01/24/02-01/25/02] [02/06/02-02/07/02] 02/23/02 03/28/02⁶</td>
<td>0.30 - 0.53</td>
<td>Grab, Composite &amp; Sediment⁶</td>
</tr>
<tr>
<td>Hamilton Ecoroof</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>02/07/02 03/11/02</td>
<td>0.24 - 0.51</td>
<td>Grab</td>
</tr>
<tr>
<td>Lexington Hills Detention Pond</td>
<td>2</td>
<td>13</td>
<td>3</td>
<td>05/13/02 [05/28/02-05/29/02] 06/17/02</td>
<td>0.06 - 0.53</td>
<td>Grab &amp; Composite</td>
</tr>
</tbody>
</table>
See Table 1 for parameters analyzed.
One set of soil samples was collected (not during a storm event).
Stormwater sample.
Infiltrate sample.
Sample collected from Vault and Pond 1 unit.
Sample collected from Vortech

The Lexington Hills detention pond is also functioning as a construction monitoring site as the subdivision continues to be built out, and it is also considered to be a residential land use monitoring site (R3).

Results
Draft technical brochures were prepared for two BMP categories (swales and ponds) to summarize, discuss, and evaluate all data collected to date. These brochures will help developers and engineers select and design the most appropriate BMP for site-specific stormwater problems. Due to difficulties during monitoring (unaccounted stormwater and groundwater inputs), the results are inconclusive and these brochures have not been finalized.
TASK 4  COMPREHENSIVE STREAM MONITORING TO ASSESS STORMWATER IMPACTS

Objective
The objective of Task 4 is to conduct comprehensive in-stream stormwater monitoring to evaluate stormwater impacts associated with the chemical, biological, and physical characteristics of receiving waters.

Accomplishments
Table 5 summarizes the monitoring activities completed under this task during permit year seven.

<table>
<thead>
<tr>
<th>Sampling Locations</th>
<th>Permit Year (PY) 7 Number of Events Monitored</th>
<th>PY 7 Sampling Frequency</th>
<th>PY 7 Type of Samples Collected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Willamette River</td>
<td>26 Biweekly</td>
<td>Grab &amp; Continuous</td>
<td></td>
</tr>
<tr>
<td>Balch Creek</td>
<td>3 Storm events</td>
<td>Grab &amp; Composite</td>
<td></td>
</tr>
<tr>
<td>Same as OP-1 (on Table 6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Columbia Slough</td>
<td>12 Monthly</td>
<td>Grab &amp; Continuous</td>
<td></td>
</tr>
<tr>
<td>Johnson Creek</td>
<td>12 Monthly</td>
<td>Grab</td>
<td></td>
</tr>
<tr>
<td>Fanno Creek</td>
<td>12 Monthly</td>
<td>Grab</td>
<td></td>
</tr>
<tr>
<td>Tryon Creek</td>
<td>12 Monthly</td>
<td>Grab</td>
<td></td>
</tr>
</tbody>
</table>

1 See Table 1 for parameters analyzed.

Results
A data evaluation of monitoring data collected through the end of calendar year 2000 was prepared for the Columbia Slough, Willamette River, and Johnson Creek. Draft reports are available for the Columbia Slough and Willamette River, and review comments are currently being compiled. Final documents, as well as the draft document for Johnson Creek, will be available within the next few months.
TASK 5 CONTINUED STORMWATER MONITORING AT EXISTING LAND USE STATIONS

Objective
The objective of Task 5 is to continue to conduct land use characterization monitoring at four existing stations in order to assess trends.

Accomplishments
Table 6 summarizes the monitoring activities completed under this task during permit year seven.

Table 6
SUMMARY OF LAND USE SAMPLING ACTIVITIES

<table>
<thead>
<tr>
<th>Land Use Stations</th>
<th>Permit Year (PY) 1 – 6 Number of Events Monitored</th>
<th>PY 7 Number of Events Monitored</th>
<th>PY 7 Sampling Dates</th>
<th>PY 7 Range of Event Rainfall Volumes (inches)</th>
<th>PY 7 Type of Samples Collected</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1 – Fanno Creek (Residential)</td>
<td>27</td>
<td>3</td>
<td>[08/21/01-08/23/01] [10/10/01] [11/28/01]</td>
<td>0.50 - 1.55</td>
<td>Grab &amp; Composite</td>
</tr>
<tr>
<td>OP1 – Balch Creek (Open Space)</td>
<td>27</td>
<td>3</td>
<td>[08/21/01-08/23/01] [10/10/01] [11/28/01]</td>
<td>0.54 - 0.93</td>
<td>Grab &amp; Composite</td>
</tr>
<tr>
<td>M1 – NE 122nd Street (Mixed Land Use)</td>
<td>27</td>
<td>3</td>
<td>[08/21/01-08/23/01] [10/10/01] [11/28/01]</td>
<td>0.45 - 1.31</td>
<td>Grab &amp; Composite</td>
</tr>
<tr>
<td>R3 – Lexington Hills (Residential)</td>
<td>7</td>
<td>3</td>
<td>[05/13/02] [05/28/02-05/29/02] [06/17/02]</td>
<td>0.06 - 0.53</td>
<td>Grab, Composite &amp; Temperature</td>
</tr>
</tbody>
</table>

1 See Table 1 for parameters analyzed.
2 The Lexington Hills detention pond is considered to be a residential land use monitoring site, but the drainage area will exhibit some mixed land use characteristics until the subdivision is fully built out. The pond is also functioning as a construction monitoring site until build-out occurs, and it is also a detention pond BMP monitoring site.

Results
With the exception of Lexington Hills, at least one storm event with a rainfall volume above the water quality storm was collected at each land use station. One summer and two fall events were sampled at three stations and three spring events were collected at the fourth station. The results are within the range of results observed previously and do not show any statistically significant trends.
TASK 6  COLLABORATION WITH OREGON DEQ AND ACWA

Objective
The objective of Task 6 is to continue to coordinate/collaborate with state and local jurisdictions (e.g., DEQ, ACWA) to share information, minimize duplication of efforts, and try to determine if benchmarks can be recommended.

Accomplishments
The City of Portland attended and participated in ACWA’s stormwater subcommittee.
MONITORING COMPLIANCE REPORT PREPARATION

For more information regarding Portland’s stormwater monitoring program or the results that are provided in this report, contact either:

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or

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Section III

MULTNOMAH COUNTY
MULTNOMAH COUNTY STORMWATER MANAGEMENT PROGRAM

Summary

Multnomah County implements a comprehensive stormwater management program countywide. The goal of the program is to reduce pollutants in stormwater runoff to the maximum extent practicable. The program is maintained and prioritized in response to federal Clean Water Act requirements and the County’s responsibility to protect the health and welfare of its citizens.

Multnomah County is a Co-Permittee to the Portland Municipal National Discharge Elimination System (NPDES) Permit number 101314. This permit expired in August 2000. On February 29, 2000, the co-permittees submitted a permit renewal package to the Oregon Department of Environmental Quality (DEQ) for a second permit period covering September 1, 2000 through August 31, 2005. However, DEQ has not yet issued a new permit for the second five-year permit period. Consequently, Multnomah County submits this permit year seven Annual Report (Annual Report) during the interim period when the 1995 permit is still in effect. This report fulfills the reporting requirements of this original permit.

In the February 2000, permit renewal application, Multnomah County revised the Best Management Practices (BMPs) descriptions to more closely match what implementation activities are accomplished by the County. In so doing, the County developed a single set of BMPs, replacing the two different sets used previously, one for the Portland Municipal NPDES Permit and another for the Gresham Municipal NPDES Permit.

Multnomah County implements and applies the entire group of BMPs throughout the County as a comprehensive Stormwater Management Program. The BMPs reported here apply only to the unincorporated land and County owned roadways and associated storm drainage system within the Portland permit area.

Midway through permit year seven, Multnomah County transferred the last remaining zoning and planning authority within the permit area to the City of Portland as part of the Multnomah County-Portland Compliance Project to achieve the goals of, and comply with, Metro’s Urban Growth Management Functional Plan. Up until January 1, 2002, the
County had limited land use planning responsibility for approximately 2% of the permit area. Planning jurisdiction was spread out among several small unincorporated pocket areas distributed throughout the permit area (See Figure 1, Section I). County permitting focused on Hillside Development (HD) and Grading and Erosion Control (GEC). During this period, (first half of permit year seven), the Multnomah County Land Use Planning Division issued a small number of HD and GEC permits to ensure that water quality is protected to the maximum extent practicable.

The County Transportation Division continues to retain authority to review stormwater management plans, granting a handful of permits every year to access County road ditches for limited stormwater discharge. Staff reviews plans that detail the stormwater runoff effects of development and redevelopment. Discharge from the undeveloped parcel is calculated and only that volume is permitted for access to County road drainages, which are operated and maintained by the City of Portland to Portland NPDES BMP standards under an Intergovernmental Agreement (IGA) known as the Westside Maintenance Agreement. Through the IGA, the City of Portland operates and maintains all 18.76 miles of County dedicated roads and drainages within the permit area. Excess stormwater must be managed on-site and approved by the County. Under the agreement the County retains responsibility to perform emergency repairs resulting from flooding and landslides.

**Background**

The Portland Stormwater Program was initiated to comply with federal municipal NPDES regulations for municipal stormwater discharges (40 CFR 122.26(d)), issued by U.S. EPA in November 1990. These regulations required submittal by May 1993 of a two-part application for a NPDES municipal stormwater permit for discharges to waters of the U.S. from the Municipal Separate Storm Sewer System (MS4). Following acceptance of the permit application, the Oregon DEQ issued a municipal NPDES permit to all co-permittees on September 7, 1995. The initial term of the permit is five years, with expected renewal every five years thereafter. As mentioned earlier, the Portland NPDES Co-permittees have submitted a permit renewal package that, upon approval, will extend through August 31, 2005.

Prior to issuance of the municipal NPDES permit, Multnomah County recognized the importance of educating County personnel who would collectively be responsible for ensuring permit compliance. In the Fall of 1993, the County’s Stormwater Implementation Team was formed, consisting of technical and policy consultants and lead County staff. County Implementation Team members represent necessary ‘functional groups’ (See Functional Groups section, below) responsible for specific BMP
implementation tasks, and are almost entirely from the County Department of Business and Community Services, Land Use and Transportation Program.

The Team produced a Five-Year NPDES Stormwater Management Implementation Plan (1995) to provide guidance for program implementation. The plan describes the BMPs and activities, defines roles and responsibilities for the County and other co-permittees, presents the schedule and budget, describes reporting requirements, and suggests measures for evaluating the BMPs. An important component of the implementation plan is a series of reporting forms created for use by County field staff and supervisors to track program compliance and to measure success.

Following completion of the Implementation Plan, a series of work sessions were held with the entire Implementation Team to introduce and describe the use of the plan, as well as to complete quarterly reports where feasible. These reports, now semi-annual, along with the compilation of data from 14 other reporting forms/logs are organized into individual BMP files and are primarily used to prepare the accomplishments section of this Annual Report and to evaluate and monitor the progress to date of the program. Subsequently, the County implemented an automated database to assist in the capture of functional group activities.

In February 2000, permit renewal applications were submitted, as required by the Clean Water Act, 180 days prior to the permit expiration date. Both co-permittee groups (Portland and Gresham) submitted renewal packages to Oregon DEQ, outlining the continuation of the first permit term BMPs with minor changes. Multnomah County revised the BMP descriptions to more closely match what implementation activities are accomplished throughout the County. The new set of BMPs suffices for both the Portland and the Gresham co-permits. There are no longer two different sets of BMP descriptions. The new categories for both permits utilized the original Portland categories and are now:

**Second Permit Term BMP Categories Used in Permit Year 7:**

(1) Public Involvement and Education (PI),
(2) Operations and Maintenance (OM),
(3) Illicit Discharges Control (ILL),
(4) New Development Standards (ND),
(5) Structural Controls (STR),
(6) Planning/System Preservation and Development (PS), and
(7) Other Activities (OA).

---

1 Permit Year 7 is the second year of the Second Permit Term, a term of 5 years.
Public Involvement and Education (PI). These activities are designed to support a comprehensive stormwater management and watershed wide public participation program. The Best Management Practices (BMPs) in this category include: Regional Coalition for Clean Rivers and Streams, Watershed Councils, Education Materials, Staff Training and Education, Adopt-A-Road Program, Storm Drain Stenciling, Ensure Public Involvement-Capitol Improvement Plan and Program, and Report Illegal Dumping.

Operations and Maintenance (OM). These activities provide pollutant reduction controls for County Operations and Maintenance. The BMPs in this category include: Inspect and Maintain Storm Conveyance System, Street Sweeping Program, Disposal of Road Waste Materials, Minimize Use of Sanding Materials, County Truck Hauling Practices, Culvert Maintenance Program, Maintain Road Shoulders, and Ditch Cleaning/Ditch Maintenance.

Illicit Discharges Control (ILL). These activities reduce the frequency and impact of accidental non-stormwater discharges and controls illicit discharges and improper waste disposal. The BMPs in this category include: Work with Regional HAZMAT Teams, Private Truck Hauling Practices, County Contractors’ Truck Hauling Practices, Require Detention Systems with Proper Connection, Identify and Investigate Illicit Connections, Spill Prevention and Response Program, Ensure Contractors’ Damages are Addressed, and Discharges of Construction Wastes.

New Development Standards (ND). These activities provide standards to reduce pollutant discharges from new and redevelopment. The BMPs in this category include: Transfer of Urban Land Use Planning Authority, Grading Permits and Hillside Development Permits, Enforcement of Setback Requirements, and Drainage Standards for New Development.

Structural Controls (STR). These activities reduce pollutant discharges in Multnomah County drainage and flood control facilities. The BMPs in this category include: Design of Capitol Improvement Project Stormwater Quality Treatment Facilities, Retrofit of Existing Drainage and Flood Control Facilities, Facilities Design in Road Construction Projects, Review Existing Design Standards for Drainage, Inventory and Map of the Municipal Stormwater Separate Sewer System, and Constructed Wetlands.

Planning/System Preservation and Development (PS). These activities are designed to reduce pesticide use and encourage use of self-sustaining vegetation to help improve water quality. The BMPs in this category include: Selectively Use Herbicides/Pesticides, Use of Self-Sustaining and Native Vegetation/Tree Planting Programs, and Landscape in Right-of-Way Projects.
Other Activities (OA). Other Activities include other ongoing program activities and reporting that ensure pollutant discharge reduction to the maximum extent practicable. The BMPs in this category include: Develop and Manage the Stormwater Program, Assess and Evaluate the BMP Program, and Record-Keeping & NPDES Field Records.

Co-Permittee Role of Multnomah County

The County joined the City of Portland (lead applicant) and five other co-applicants in 1991 to begin the 3-year process to prepare and submit the two-part NPDES permit application. This permit application was accepted by Oregon DEQ and a permit to discharge municipal stormwater was issued September 7, 1995. The five other co-permittees were the Port of Portland, Oregon Department of Transportation (ODOT), Multnomah Drainage District No. 1 (MDD #1), Peninsula Drainage District no. 1 (PEN 1), and Peninsula Drainage District No. 2 (PEN 2). In PY4 ODOT requested review by DEQ of a new statewide permit for ODOT, effectively removing that agency as a co-permittee to the six municipal NDDES permits. During permit year five, the drainage districts proposed fulfilling their role through a Memorandum of Agreement, rather than continuing as a co-permittee. While approval is expected, DEQ has yet to approve this option pending review of the permit renewal.

Each of the participating agencies owns and/or operates a portion of the MS4 within the Portland Urban Services Boundary. Additionally, each of the agencies discharges stormwater into another agency’s system, and/or receives discharges from another agency’s system into its own. Multnomah County has been a co-permittee to the Portland Municipal NPDES Permit No. 101314 due to a small percentage (about 1-2% of total permit area) of unincorporated land within the Portland Urban Services Boundary, and the fact that it owns or operates minor portions of the MS4 (road ditches).

Diminished County Jurisdiction Within the Portland Permit Area

When the Part 2 co-application was submitted in May 1993, unincorporated County lands within the Portland NPDES permit boundary were much larger, and covered several thousand residents, mostly in SE Portland. Since then, most of these lands have been annexed to the City of Portland (December 1994). Since 1997, Multnomah County and the City of Portland’s Department of Transportation (PDOT) have operated under an IGA known as the Westside Maintenance Agreement. This contractual arrangement provides for road maintenance activities by PDOT in unincorporated Multnomah County, primarily the area known as “Dunthorpe.” The City agrees to maintain the County-owned road system to the same level of NPDES implementation as that used by PDOT throughout the rest of the Portland permit area.
Zoning and planning responsibility for the unincorporated urban pockets was transferred during midway through this permit year, as part of the Multnomah County-City of Portland Compliance Project to achieve the goals of, and comply with, Metro’s Urban Growth Management Functional Plan. Therefore, in Permit Year 7, Multnomah County jurisdiction within the Portland Permit area was further reduced.

The County continues to implement an active Stormwater Management Program throughout its jurisdiction; especially those areas outside of the Portland and Gresham NPDES permit areas. However, due to the recent transfer of zoning and land use planning authority in conjunction with the Westside Maintenance Agreement, the County no longer applies the bulk of the stormwater BMPs within the Portland permit area.

An internal review determined that Multnomah County applies specific BMPs within the New Development Standards, Illicit Discharge Control, and Operations and Maintenance BMP categories to the Portland permit area. Up until January 1, 2002, the County had limited land use planning responsibility, having reviewed less than 10 Hillside Development (HD) and Grading and Erosion Control (GEC) permits in the Portland permit area in this permit year. Due to the transfer of zoning and planning authority, the County no longer has this responsibility. However, in coordination with the City of Portland, the County currently retains review and permit authority for stormwater management to County road ditches in the unincorporated pockets within the permit area. Discharge from the undeveloped parcel is calculated and only that volume is permitted for discharge, all other stormwater must be retained on site. Permitted discharge is released into ditches operated and maintained by Portland and to Portland NPDES BMP standards under the IGA. The County reviews and grants approximately 3 to 5 of these permits within the Portland permit area in a given year, incorporating one Illicit Discharge Control BMP and one New Development and Standards BMP (See, BMP matrix).

The County does not apply any of the remaining BMP categories in the Portland permit area, although Public Involvement and Education efforts and Other Activities are applied in the permit area by virtue of their regional application.

Program Activities and County Accomplishments: Best Management Practices (BMPs) Applied in the Portland Permit Area

- Public Involvement and Education (PI)
The County's participation in public involvement and education activities is limited due to the small amount of unincorporated land and associated residents within the Portland NPDES permit area. The County is represented through its co-permittee status by the City of Portland’s efforts with the “Regional Coalition for Clean Rivers and Streams.” The residents in the permit area are informed of impacts to the storm drainage system
through the Coalition’s educational efforts via mass media (radio, movie ads, newspaper) and direct mailing. County staff are encouraged to attend and participate in stormwater workshops and meetings sponsored by the City and other local agencies. County representatives attend Watershed Council meetings and actively participate on several regional committees as part of the public involvement element.

- **Operations and Maintenance (OM)**
  The County contracts with the City of Portland for operation and maintenance of storm drainage facilities associated with roadways in the unincorporated pockets of land within the Portland Urban permit area. Computerized inventories of drainage and road appurtenances are maintained by both organizations. The County remains responsible for emergency flooding and landslide road repairs.

- **New Development Standards (ND)**
  The County transferred its zoning and land use planning responsibility for the unincorporated urban pockets, within the permit area, midway through this permit year to the City of Portland. This was a result of the Multnomah County-City of Portland Compliance Project. Up until the second half of the permit year, the County reviewed plans for new private development/development in the unincorporated portions of the Portland permit area, which were largely residential (e.g., Dunthorpe area in Southwest Portland), but no longer. The County utilized the same stormwater design guidance used area-wide by design professionals. However, the County still maintains review and permitting authority for stormwater management and discharge into the County owned right-of-way in these unincorporated pockets. Discharge from the undeveloped parcel is calculated and only that volume is permitted for discharge to County road ditches - all other stormwater must be retained on site. The County continues to implement its construction bond program, which ensures financial recovery for damage to County right-of-way or associated drainage facilities, including erosion damage.

- **Other Activities (OAs)**
  The County implemented several other activities (OAs) required by the NPDES regulations to ensure the proper management and success of the program. In general, they include:

  - Participating in the development and negotiation of the NPDES Permit conditions;
  - Developing and executing intergovernmental agreements (IGAs) with the other permittees;
♦ Overseeing modifications to the stormwater management plan and NPDES permit conditions on behalf of the County;
♦ Compiling and reviewing internal reports;
♦ Writing and submitting the annual compliance report;
♦ Coordinating and communicating with the other permittees and the City;
♦ Attending and facilitating meetings;
♦ Liaison with DEQ;
♦ Overall budget and schedule tracking; and
♦ Conducting Stormwater Implementation Team workshops at the County at least two times per year.

Functional Groups

Managers and staff in the Multnomah County Department of Business and Community Services, Transportation and Land Use Planning Divisions, implement the Stormwater Management Program. The Team includes Transportation Division Managers, Road Maintenance District Supervisors, the County Engineer, the County Emergency Management Administrator, the Planning Director, and other County staff. To ensure efficient implementation, each team member belongs to a ‘functional group’ responsible for specific BMPs, as described below.

Functional Group assignments were given to the Implementation Team to ensure active participation by the necessary staff. Assignments were made by matching appropriate staff to the BMPs directly relating to their duties. For example, the staff Engineer responsible for reviewing stormwater facility design is in the DESIGN functional group, while the staff Engineer responsible for overseeing road building contracts is in the CONSTRUCTION functional group. The nine functional groups are:

- Road Maintenance
- Construction
- Design
- Education
- Emergency Response
- Land Use Planning
- Transportation Planning
- Right-of-Way Permits
- Compliance
## Functional Group Accomplishments: Permit Year 7

### Road Maintenance

**General NPDES Roles and Responsibilities for Permit Year 7:**

The Road Maintenance section of the County Transportation Division will utilize established road maintenance procedures specifically relating to stormwater quality management. Staff will document maintenance procedures through the Stormwater Maintenance Manual and field logs and ensure that problems found in the field relating to stormwater quality and stormwater facilities are addressed.

**Key Accomplishments for Permit Year 7:**

- The Road Maintenance functional group applied BMPs throughout the County, but did not apply any BMPs in the Portland permit area. The City of Portland by agreement, maintains County owned roadways within the permit area.
- The Bridge Section began review of BMPs for bridge maintenance practices.

### Construction

**General NPDES Roles and Responsibilities for Permit Year 7**

County Engineering/Construction Group ensures through plan checking, education of contractors, specification interpretation, pre-construction meetings, and rigorous inspection and monitoring, that stormwater controls are properly considered, installed, and maintained as part of all public Capital Improvement Projects. Stormwater controls include structural and non-structural techniques and practices, which will result in reduced pollution.

**Key Accomplishments for Permit Year 7**

- The Road Construction functional group applied BMPs throughout the County, but did not apply any BMPs in the Portland permit area.
- The Bridge Engineering section installed stormwater filter inserts during a recent bridge maintenance project.

### Design

**General NPDES Roles and Responsibilities for Permit Year 7**

County Engineering/Design Group ensures through design of new projects and review of contractors’ plans that stormwater and Best Management Practice (BMP) structural measures are included and properly addressed.

**Key Accomplishments for Permit Year 7**

- Applied engineering criteria to private development plans under the Land Use Planning Division’s Hillside Development (HD) and Grading/Erosion Control (GEC) policies.
controls are considered and properly
designed for Capital Improvement Program
projects. They will promote a balance of
stormwater quality and quantity (flood
control) to the Maximum Extent Practicable
in considering stormwater facility design.

Education

**General NPDES Roles and Responsibilities for Permit Year 7:**

Multnomah County’s responsibility for
stormwater quality education is two-fold.
Public education roles are important but are
primarily the City of Portland’s NPDES
responsibilities for incorporated areas. This
change occurred due to the accelerated
Moreover, the County lost additional
jurisdictional responsibility with completion
of the Multnomah County-Portland
Compliance Project this year. Personnel
training within the County Transportation and
Land Use Divisions is still important, and is
more extensive. Training includes initiating
activities to educate and inform County staff
about the sources and solutions to stormwater
program issues.

**Key Accomplishments for Permit Year 7**

- County representatives actively
  participated in watershed activities
  within and outside the permit area
to enhance public education and
public involvement activities.
- Multnomah County staff
  participated in house division
  training and water policy review
  events.
- The County Transportation
  Division and Water Quality
  Program staff have participated in
  extensive education activities
  throughout the permit year.

Emergency Response

**General NPDES Roles and Responsibilities for Permit Year 7:**

County Emergency response personnel will
ensure water quality concerns are addressed
during emergency procedures. In particular,
staff consider how to prevent materials from
reaching the Municipal Separate Storm Sewer
System (MS4). Staff will continue to raise
awareness of emergency response personnel
(in road maintenance group) to ensure
general water quality concerns are addressed.

**Key Accomplishments for Permit Year 7**

- The Emergency Response
  functional group applied BMPs
  throughout the County, but did not
  apply any BMPs in the Portland
  permit area.
Participate in regional Committees addressing these concerns to assure necessary coordination between agencies.

**Land Use Planning and Transportation Planning**

<table>
<thead>
<tr>
<th>General NPDES Roles and Responsibilities for Permit Year 7:</th>
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<tr>
<td>County Planning staff will ensure stormwater quality management and maintenance practices are considered in land use zoning and permit requirements and applications. In particular, they will enforce land use zoning and permit requirements that may impact stormwater quality. Staff will determine whether land use planning procedures are in place to encourage sound environmental principles relating to water quality Significant Environmental Concern zones.</td>
</tr>
</tbody>
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<th>Key Accomplishments for Permit Year 7</th>
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<tr>
<td>• Implemented County Grading and Erosion Control (GEC) ordinance that requires the prevention of non-erosion pollution associated with construction such as pesticides, fertilizers, petrochemicals, solid wastes, construction chemicals, or wastewater.</td>
</tr>
<tr>
<td>• Continued inspection and enforcement activity to obtain compliance with permit conditions for erosion control and buffer zones around riparian areas.</td>
</tr>
<tr>
<td>• The County completed transfer of zoning and land use planning authority in the Portland Permit Area, January 1, 2002.</td>
</tr>
<tr>
<td>• Land Use Planning staff began revision to the Grading and Erosion Control code provisions. Final product will be substantially compliant with Metro Title 3 by placing a water quality protection overlay zone on stream and riparian areas. Will apply outside permit area.</td>
</tr>
</tbody>
</table>
Right-Of-Way Permits

General NPDES Roles and Responsibilities for Permit Year 7:

County Right-of-Way Permits Section will ensure stormwater pollution controls are considered and incorporated into permits for private and public construction projects that attach to and are in the County right-of-way. Staff will specify erosion control requirements through contractor bonding for public right-of-way projects. Staff will ensure that maintenance is conducted for life of project and immediate future.

Key Accomplishments for Permit Year 7

- Required utility companies and private contractors operating in the public right-of-way to implement pollutant and erosion control measures such as weep-drains, culvert/ditch inlets, silt socks, biobags, or hay bales.

- Continued to provide information and clarification of truck hauling practices to avoid stormwater pollution.

- Cash deposit required for temporary construction access to connect to a County road to ensure that water quality is protected and potential issues are addressed.

- Required silt sock or other approved geo-tech liner in catch basins to collect debris and sediment runoff during land-disturbing activities.

- Continued to monitor and evaluate effects of erosion control methods being implemented under an issued permit. Methods included; wash stations, graveled or paved entrances, additional street sweeping, hay bales, etc.

- Ensured plan specifications for contractors included measures to address erosion and sediment control during construction
Compliance

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<th>General NPDES Roles and Responsibilities for Permit Year 7:</th>
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<td>The Compliance Group is responsible for overall Program Development and Management, Program Assessment and Evaluation, and Program Compliance Reporting.</td>
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Key Accomplishments for Permit Year 7

- Conducted Stormwater Program management, including program implementation coordination with County staff.
- Attended all Co-Permittee Management Committee meetings (approximately monthly) and DEQ meetings relating to the Portland NPDES Co-Permit.
- Organized and facilitated two workshop sessions with Stormwater Implementation Team to track progress, update reporting information, and train staff in erosion control BMPs.
- Coordinated reporting activities with City of Portland, as lead permittee.
- Conducted program assessment throughout the year, resulting in Annual Report to DEQ.
- Enhanced automated reporting database to better capture functional group activities.

- Right-of-way inspectors continued to monitor activities within the right-of-way and to report concerns to the appropriate maintenance or enforcement section.
Best Management Practices (BMPs) and Other Activities (OAs): Accomplishments

Annual Compliance Reports for the Municipal NPDES Stormwater Permit are required to include information relating to each BMP task and schedule. The following matrices provide this information, in summary form, for each BMP. More detail is available upon request through documentation in the Multnomah County Transportation Division of the Department of Business and Community Services. In general, all BMP tasks are on schedule without modification. Modifications occurring due to the Multnomah County – Portland Compliance Project and/or road transfers are noted and explained. The following matrix provides the following information:

- √ A short description of the Best Management Practice, with BMP Number.
- √ The overall intent, goals and objectives of the Best Management Practice.
- √ The Multnomah County ‘Functional Group(s)’ designated as responsible for BMP Implementation.
- √ Key accomplishments for Permit Year 7.
- √ Assessment of Controls.
- √ Any proposed modifications or changes to the schedule or activities.
### Best Management Practices (BMPs) Matrix for Permit Year 7

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<tr>
<th>Best Management Practice</th>
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<tr>
<td>PI1. Participate in the Regional Coalition of Clean Rivers and Streams. Continue support and direct participation for public involvement and public education campaigns.</td>
<td>Participate with regional entities and cities in coordinating new and existing efforts to educate and inform the public about stormwater pollution problems, and to involve the public in developing stormwater pollution prevention programs. The County will provide support for the various public involvement and education activities provided by the Regional Coalition of Clean Rivers and Streams. The County will make staff and materials available as requested and practicable, and will grant volunteers and other clean-up groups access to the County right-of-way whenever feasible.</td>
<td>Land Use Planning Division; Transportation Division;</td>
<td>Represented through co-permittee status with City of Portland in the Regional Coalition of Clean Rivers and Streams.</td>
<td>Notes of meetings. Participation in the coalition.</td>
<td>County needs to reassign resources to this group.</td>
</tr>
<tr>
<td>PI2. Participate in local watershed councils and their activities. Present information to public regarding Multnomah County programs and regulation, particularly water quality program.</td>
<td>Educate the public about the County’s role in protecting stormwater quality and the opportunities for public participation in pollution prevention as well as public involvement and education on stormwater pollution problems by working with the local watershed councils. In addition, educate the County staff about the public’s role in protecting water quality on a watershed-wide basis.</td>
<td>Transportation Division, or Land Use Planning Division.</td>
<td>County represented on the Johnson Creek, Fairview, and Beaver Creek Watershed Councils. County also attends meetings of the Sandy River Basin Agreement. County representatives shared information and gave presentation as necessary regarding various County projects and actions. The County also sits on the Johnson Creek Interjurisdictional Committee and the Lower Willamette Agricultural Water Quality Management Area Advisory Committee.</td>
<td>Staff reports on attendance and actions.</td>
<td>On schedule. Modifications may include attending alternative watershed council meetings depending on County jurisdictional responsibilities or designating specific county staff to particular watershed councils.</td>
</tr>
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| PI3.                    | Provide information to educate and inform the public about stormwater pollution problems, and to encourage public involvement in stormwater pollution prevention programs. | Public Affairs Office, Transportation Division, and Land Use Planning Division. | • Water pollution prevention materials for public access at the County office.  
• Represented through co-permittee status with City of Portland in the Regional Coalition of Clean Rivers and Streams. | • The Regional Coalition for Clean Rivers and Streams evaluates its programs, and Multnomah County is represented in the Coalition. | On schedule.  
Need to enhance current level of involvement, update or develop new educational materials. |
| PI4.                    | Through training of County staff, minimize/eliminate the impact of on-the-job activities to the MS4 and stormwater quality. | Land Use Planning Division, Transportation Division, Other functional groups | • Multiple County division training and water policy review events include:  
ο In-house Multnomah County ESA, Underground Injection Control under the Safe Drinking Water Act and Clean Water Act regulatory update and relationship to NPDES program.  
ο In-house Multnomah County 5 year NPDES Stormwater Program: Development and Implementation plan BMP Fact Sheets.  
ο Report of Event using the County electronic data base | • Evaluation of training and County NPDES program ongoing.  
• Staff consulted to evaluate efforts.  
• County NPDES program designed for adaptive management to react and implement necessary changes. | On schedule.  
Increase presentations to staff on new stormwater BMP technologies. |

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| PI4. (BMP PI4 report continued) | Through training of County staff, minimize/eliminate the impact of on-the-job activities to the MS4 and stormwater quality. | Land Use Planning Division, Transportation Division, Other functional groups | • The County Transportation Division and Compliance Staff have participated in extensive educational activities throughout the permit year. Some of those events include:  
  o Oregon Association of County Engineers and Surveyors (OACES) seminar on phase II stormwater permitting legislation.  
  o Oregon Vegetation Management Association Convention  
  o ODOT Fall Horticultural Symposium  
  o Public Pesticide Applicators Certification Training and Licensing  
  o Underground Injection Control Issues Presentation by Oregon Association of Clean Water Agencies  
  o Association of Cleanwater Agencies Underground Injection Control devices BMP manual development  
  o Storm Water Conference 2002  
  o Fish Passage Culvert Team in the Transportation Division met many times to develop the County prioritize culvert passage problems and review solutions.  
  o Clean Water Act and ESA conference | • Evaluation of training and County NPDES program ongoing.  
  • Staff consulted to evaluate efforts.  
  • County NPDES program designed for adaptive management to react and implement necessary changes. | On schedule. Increase presentations to staff on new stormwater BMP technologies. |
| PI5. Continue to implement the Multnomah County Adopt-A-Road program to promote public awareness of litter control and impacts to roads and waterways. Increase use of volunteers and track work by volunteers, including County inmate work crews. | Educate the public regarding the storm water pollution that results from littering. Work with citizen action programs to facilitate efforts to reduce littering. | Road Maintenance (Transportation Division) | • BMP not implemented in the Portland permit area.  
  • All County roads operated and maintained by IGA with Portland.  
  • BMP implemented throughout unincorporated County jurisdiction. | • Not applicable. | On schedule. No modifications. |
| PI6. Participate in storm drain stenciling and other signage programs to promote public awareness of the importance of keeping pollutants out of storm drains. | Reduce/eliminate the illicit discharges into street storm drains to protect water quality by reducing illicit discharges and impact by the public. Educate the public about drainage ways, impacts to streams from storm sewer systems, and watershed awareness. | Road Maintenance (Transportation Division) | • BMP not implemented in the Portland permit area. The county does not have storm street drains in the Portland permit area. | • Not applicable. | On schedule. No modifications. |

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<td>PI7.</td>
<td>Ensure public involvement during two-year update process for Capital Improvement Plan and Program that addresses stormwater quality impacts and issues. Identify NPDES drainage issues and remedies on Capital Improvement Plan project scope sheets. Include in project atlas during public review process.</td>
<td>Improve public awareness of properly designed stormwater facilities’ ability to remove pollutants and protect water quality.</td>
<td>• BMP not implemented in the Portland permit area. County roads are “built out” in the permit area, thus no Capitol Improvement Projects are planned. • BMP implemented throughout unincorporated County jurisdiction.</td>
<td>• Not applicable.</td>
<td>On schedule. No modifications.</td>
</tr>
<tr>
<td>PI8.</td>
<td>Facilitate efforts to report illegal dumping of pollutants, trash, or illegal fill (dirt/soil). Work with citizen and neighborhood groups, and post signs at areas where illegal dumping may occur that encourage citizens to report incidents.</td>
<td>Control illicit discharges from illegal dumping to protect water quality.</td>
<td>• BMP not implemented in the Portland permit area. All County roads operated and maintained by IGA with Portland. County Road Maintenance crews are not available to note illegal dumping in the permit area. • BMP implemented throughout unincorporated County jurisdiction.</td>
<td>• Not applicable.</td>
<td>On schedule. No modifications.</td>
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| OM1. Inspect and maintain inlets, catch basins, sumps and stormwater conveyance system on a regular basis. Identify any known non-stormwater discharges and follow up as necessary. | Ensure that inlets, catch basins, sumps and stormwater conveyance system are maintained in a manner that reduces pollutants to the maximum extent practicable. Continue to review and revise operations and maintenance procedures as appropriate. | Road Maintenance (Transportation Division) | • BMP not implemented in the Portland permit area. The County does not have stormwater inlets on County roads in the permit area.  
• All County roads operated and maintained by IGA with Portland.  
• BMP implemented throughout unincorporated County jurisdiction. | • Not applicable.  
• Not applicable. | On schedule. Integrate the Bridge Section into stormwater control reporting where applicable. |
| OM2. Continue to implement a street sweeping program to include scheduled sweeping, equipment review, and training on a regular basis. Revise and update schedule, equipment, and training as necessary. | The objective of the street sweeping program for county roads is to reduce materials on the roadway and impacts to the stormwater system. The County will continue to review and revise the program and schedule and make improvements as appropriate. | Road Maintenance (Transportation Division) | • BMP not implemented in the Portland permit area.  
• All County roads operated and maintained by IGA with Portland.  
• BMP implemented throughout unincorporated County jurisdiction. | • Not applicable.  
• Not applicable. | On schedule.  
No modifications. |
| OM3. Continue to investigate identification of proper sites for disposal of road waste materials. Record amounts and location of material disposed. Include street sweeping collection, catch basin cleaning, sump cleaning, etc. Test for disposal using an independent lab and record/file test results. Review different disposal procedures for street sweeping vs. Vactor pad materials. Continue to investigate feasibility of decant facility for County waste materials. Work cooperatively among County divisions to reduce water quality impacts of site handling, storage, and disposal areas for material collected during road maintenance activities. Review and, if appropriate, adopt DEQ/ODOT Road Waste Management Practices. | The objective of the road waste disposal operations for county roads is to reduce materials on the roadway and impacts to the stormwater system. The goal is to identify and implement practices for disposal of road waste materials that protect water quality. Determine if current outdoor storage activities are contributing sediments to stormwater runoff. Recommend practices to control discharges as needed. | Road Maintenance (Transportation Division) | • BMP not implemented in the Portland permit area. All County roads operated and maintained by IGA with Portland.  
• BMP implemented throughout unincorporated County jurisdiction. | • Not applicable.  
• Not applicable. | On schedule.  
No modifications. |

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<td>OM4.</td>
<td>Investigate the potential to reduce use of sanding materials for seasonal and anti-icing operations. Continue testing of alternative anti-icing methods and materials (e.g., CMA). Prohibit the use of salt or glycol on the roadways. Collect sanding material distributed during anti-icing events as soon as feasible. Continue collection and recycling of sand (anti-icing material) throughout the County’s portion of the permit area.</td>
<td>Road Maintenance (Transportation Division)</td>
<td>• BMP not implemented in the Portland permit area. All County roads operated and maintained by IGA with Portland. • BMP implemented throughout unincorporated County jurisdiction.</td>
<td>• Not applicable.</td>
<td>On schedule. No modifications.</td>
</tr>
<tr>
<td>OM5.</td>
<td>Review County truck hauling practices with field crews annually. Recommend revisions (if necessary) to limit occurrence of leaks, spills, or other releases. Revise operations and maintenance manual as necessary to reduce potential pollutants. Continue to test and evaluate asphalt release agents for truck and tool cleanup, which use “environmentally-friendly” products.</td>
<td>Road Maintenance (Transportation Division)</td>
<td>• BMP not implemented in the Portland permit area. All County roads operated and maintained by IGA with Portland.</td>
<td>• Not applicable.</td>
<td>On schedule. No modifications.</td>
</tr>
<tr>
<td>OM6.</td>
<td>Continue culvert maintenance program to inspect and maintain culverts in ways that minimize impacts to water quality. Consider opportunities to retrofit culverts to provide better water quality treatment. Continue to maintain culvert inventories. Make distinction as to whether culverts are fish passage culverts and adhere to appropriate maintenance procedure.</td>
<td>Road Maintenance (Transportation Division)</td>
<td>• BMP not implemented in the Portland permit area. All County roads operated and maintained by IGA with Portland. • BMP implemented throughout unincorporated County jurisdiction.</td>
<td>• Not applicable.</td>
<td>On schedule. No modifications.</td>
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<tr>
<td>OM7.</td>
<td>Maintain right-of-way and road shoulders in ways that avoid and prevent future adverse water quality impacts. Review slide repair procedures in the Multnomah County Road Maintenance Operations Manual (RMOM). Continue review of current maintenance practices.</td>
<td>Road Maintenance (Transportation Division)</td>
<td>• BMP not implemented in the Portland permit area. All County roads operated and maintained by IGA with Portland. • No records of emergency road repairs or cleaning in the permit area.</td>
<td>• Not applicable.</td>
<td>On schedule. No modifications.</td>
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<td>OM8</td>
<td>Control/reduce amount of sediments and pollutants discharged to the receiving waters. Sediments attract and adhere to other pollutants (heavy metals, oil/grease) and increased turbidity/sedimentation on channel bottoms impairs water quality and fish habitat.</td>
<td>Road Maintenance (Transportation Division)</td>
<td>• BMP not implemented in the Portland permit area. All County roads operated and maintained by IGA with Portland. • BMP implemented throughout unincorporated County jurisdiction.</td>
<td>• Not applicable.</td>
<td>On schedule. No modifications.</td>
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<td>Reduces the frequency and impact of accidental nonstormwater discharges and controls illicit discharges and Improper Waste Disposal (ILL)</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>ILL.1. Continue to work with regional HAZMAT teams on policy matters concerning water quality impacts. Continue cooperative agreements with other agencies to ensure spills are responded to and cleaned quickly. If necessary, clarify and/or improve procedures to ensure effective interagency coordination and rapid response.</td>
<td>Improve procedures to ensure effective interagency coordination and communication, and rapid response. Train staff about water quality impacts from spills. Currently most staff is aware of safety issues, but not necessarily environmental impacts.</td>
<td>Emergency Response (Transportation Division)</td>
<td>• BMP not implemented in the Portland permit area. The County does not respond to HAZMAT spills in the permit area. • BMP implemented throughout unincorporated County jurisdiction.</td>
<td>• Not applicable.</td>
<td>On schedule. No modifications.</td>
</tr>
<tr>
<td>ILL.2. Review reporting of and action for noticeable private truck hauling practices causing discharges to County roads and the stormwater conveyance system. Work with County inspection officers for immediate response.</td>
<td>Control discharges from truck hauling activities to the extent that they are impacting the County right-of-way.</td>
<td>Transportation Division</td>
<td>• BMP not implemented in the Portland permit areas. The County does not initiate Capitol Improvement Projects or Right-Of-Way work in the permit area. Therefore, the County does not have the jurisdiction to regulate private trucks for stormwater impacts.</td>
<td>• Not applicable</td>
<td>On schedule. No modifications.</td>
</tr>
<tr>
<td>ILL.3. Implement requirements to control discharges from County contractors’ truck hauling practices to ensure that materials do not leak, spill or otherwise release contaminants onto roadways or open space where they may be washed into storm drains or waterways. Continue to require erosion control measures in contract specifications. Review permit requirements with contractors for fueling, cleaning trucks, etc. during project. Develop a monitoring process to ensure control of discharges.</td>
<td>Control discharges from truck hauling and maintenance activities to the extent that they are impacting the County right-of-way (ROW). Enforce erosion control measures to reduce sediment discharge to County ROW. Monitor to ensure control over regulated contractors’ activities.</td>
<td>Construction &amp; Right-of-Way (Transportation Division)</td>
<td>• BMP not implemented in the Portland permit area. The County does not initiate Capitol Improvement Projects or Right-Of-Way work in the permit area. Therefore, the County does not have the jurisdiction to regulate private trucks for stormwater impacts.</td>
<td>• Not applicable.</td>
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| ILL4. Continue to require detention systems with proper connection to the right-of-way and/or the MS4 and/or surface or subsurface infiltration. Review new development permit applications for sedimentation manholes, catch basins, etc., which reduce pollutants to the maximum extent practicable. Continue to require installation of pollution plates on new inlets. | Assure that the design standards in place adequately address water quality issues throughout the permit area. | Design Right of Way Permits (Transportation Division) | • County requires any new development requesting drainage into County right-of-way to limit drainage to that which would occur naturally without impervious surface.  
  • Land Use Planning requires erosion and sediment controls as part of Grading and Erosion Control (GEC) permits. | • Records kept of GEC inspection activities.  
  • Records kept of public utility inspection activities. | On schedule. 
  No modifications. 
  Land Use Planning transferred zoning and planning authority within the permit area to Portland midway through this permit year per the Multnomah County-Portland Compliance Project. |
| ILL5. Continue to implement a field program to identify and investigate illicit connections (from sanitary sewers and/or commercial wastewater sewers) to the storm sewer system. Develop procedures for inspection and follow-up solutions, and include in Operations Manual. | The objective of this BMP is to remove non-stormwater discharges to the MS4. By identifying, investigating, and solving cross-connections and other illicit discharges, waste can be sent to the appropriate system. | Road Maintenance (Transportation Division) | • BMP not implemented in the Portland permit area.  
  • All County roads operated and maintained by IGA with Portland. Portland will identify illicit connections during road maintenance activities.  
  • BMP implemented throughout unincorporated County jurisdiction. | • Not applicable. | On schedule. 
  No modifications. |
| ILL6. Continue to manage the spill prevention and response program that reduces the frequency and impact of accidental non-stormwater discharges to the MS4. Improve use of absorbent materials for quick response to minor spills of oil or fluid. Keep records of incidents and response. Continue to coordinate appropriate incidents with cities. Revise County Road Maintenance Operation Manual (RMOM), if necessary, to include clear instructions for field personnel in the event of a spill. | Prevent spills to the maximum extent practicable and improve response to accidental non-stormwater discharges to reduce the frequency and overall impact of spills to the stormwater system. | Road Maintenance & Emergency Response (Transportation Division) | • BMP not implemented in the Portland permit area.  
  • The County does not respond to spills in the permit area. The City of Portland responds to spills in the permit area.  
  • BMP implemented throughout unincorporated County jurisdiction. | • Not applicable. | On schedule. 
  No modifications. |

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| ILL7. Continue to implement incentives or requirements for County contractors to ensure that damages (from erosion and sediment deposition) are addressed and paid for by dischargers. Continue to require cash deposits, performance-payment bonds, final inspections and other mechanisms to ensure compliance with permit requirements. Continue pre-construction meetings to disseminate information about requirements to prevent damages during road construction projects. | Continue to require those responsible for damage and water quality pollution to pay the clean-up costs. By implementing conditions that ensure damage will be reversed and paid for, the objective of this BMP is to promote practices that will not cause damage in the first place. This BMP is intended to apply to contractors hired to construct County projects, including road repair and construction, and associated projects. | Construction, Design, and Right of Way Permits (Transportation Division) | • BMP not implemented in the Portland permit area. County roads are “built out” in the permit area, thus no Capitol Improvement Projects are planned.  
• BMP implemented throughout unincorporated County jurisdiction. | • Not applicable. | On schedule. No modifications. |
| ILL8. Implement a program to reduce/eliminate discharges of all other pollutants (other than sediment) from road construction and related sites (paints, solvents, metals, etc.). Establish or improve regulations or policy as necessary. Continue inspection as part of daily routine. Continue record-keeping system for reporting any incidents of pollutants or debris. Provide training program to staff to monitor for pollution control. | Eliminate/reduce discharge of all pollutants from construction sites which adversely impact stormwater and receiving water quality. | Construction & Land Use Planning (Transportation and Land Use Planning Divisions) | • BMP not implemented in the Portland permit area. County roads are “built out” in the permit area, thus no Capitol Improvement Projects are planned.  
• All County roads are operated and maintained by IGA with Portland.  
• BMP implemented throughout unincorporated County jurisdiction. | • Not applicable. | On schedule. No Modifications. |

Standards to reduce pollution from new and redevelopment (ND).

ND1. Continue to coordinate transfer of urban land use planning authority from the County to the cities, which ensures continuous application of NPDES roles and responsibilities prior to transfer. | Much of the urban area is outside of County jurisdiction as it has been annexed to Portland or Gresham. As this area is transferred, the County will continue to coordinate to ensure continuous land use planning services including NPDES roles and responsibilities. | Land Use Planning (Land Use Planning Division) | • The County completed the transfer of zoning and land use planning authority within the permit area to the City of Portland, January 2002, per the Multnomah County-City of Portland Compliance Project to achieve the goals of, and comply with, Metro’s Urban Growth Management Functional Plan.  
• Land use planning responsibility ceased in the Portland permit area mid-way through this permit year. | • Operations internally reviewed by staff for completeness and accuracy.  
• On-going training improves accuracy of Hillside Development and Grading and Erosion Control applications. | On schedule. No modifications. |

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<tr>
<td>ND2. Continue permitting grading permits and hillside development permits per County zoning code.</td>
<td>Control/reduce amount of erosion and sediments discharged to the receiving waters. Sediments attract and adhere to other pollutants (heavy metals, oil/grease) and increased turbidity/sedimentation on channel bottoms impairs water quality and fish habitat.</td>
<td>Land Use Planning (Land Use Planning Division)</td>
<td>• Land use zoning and permit authority within the Portland permit area was primarily limited to the several small “urban pockets” (e.g. Dunthorpe) up until January 2002. • During PY 7, a few GEC permits were issued for the Portland permit area. The permit applications were reviewed for compliance with County water quality and fish and wildlife habitat protection standards.</td>
<td>• Operations internally reviewed by staff for completeness and accuracy. • On-going training maintains accuracy of Hillside Development and Grading and Erosion Control applications. • Permitted operations inspected by LUP staff.</td>
<td>On schedule. No modifications. Land Use Planning transferred zoning and planning authority within the permit area to Portland midway through this permit year per the Multnomah County-Portland Compliance Project.</td>
</tr>
<tr>
<td>ND3. Continue to enforce land use zoning and permit requirements, which may impact stormwater quality. Continue to enforce setback requirements from Designated significant streams and identified waterways.</td>
<td>Preserve significant vegetated areas adjacent to water bodies to reduce stormwater runoff and the pollutants carried with it.</td>
<td>Land Use Planning (Land Use Planning Division)</td>
<td>• Land use zoning and permit authority within the Portland permit area was primarily limited to the several small “urban pockets” (e.g. Dunthorpe) up until January 2002. • Land Use Planning continued to respond to complaints of potential impacts to riparian areas or surface waters with enforcement against un-regulated earth disturbance activities.</td>
<td>• Operations internally reviewed by staff for completeness and accuracy. • On-going training maintains accuracy of Hillside Development and Grading and Erosion Control applications. • Enforcement actions are reviewed and documented.</td>
<td>On schedule. No modifications. Land Use Planning transferred zoning and planning authority within the permit area to Portland midway through this permit year per the Multnomah County-Portland Compliance Project.</td>
</tr>
<tr>
<td>ND4. Apply County drainage standards for all new development and redevelopment, both public and private. Revise drainage standards as needed to clarify requirements for stormwater facilities related to new private development and redevelopment.</td>
<td>Adequately control discharge of stormwater for both water quantity and quality purposes.</td>
<td>Land Use Planning (Land Use Planning Division)</td>
<td>• LUP continued to require detention systems with proper connection to the Right-Of-Way where applicable. • All planned connections to the County right of way reviewed by engineers in the Transportation Division. • Drainage standards have been reviewed in-house. No revisions made in PY7.</td>
<td>• Operations internally reviewed by staff for completeness and accuracy. • On-going training maintains accuracy of Hillside Development and Grading and Erosion Control applications.</td>
<td>On schedule. No modifications. Land Use Planning transferred zoning and planning authority within the permit area to Portland midway through this permit year per the Multnomah County-Portland Compliance Project.</td>
</tr>
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</table>

**Pollution reduction in Multnomah County drainage and flood control facilities (STR)**

**STR1.** Conduct plan checks of stormwater quality treatment facilities that are included in capital improvement projects to assure they follow standard design criteria that include stormwater quality considerations, and that the appropriate facility is selected for the intended purpose.

- The goal of this BMP is to ensure that appropriate design standards are established to reduce the discharge of pollutants from sites to the maximum extent practicable. Design (Engineering, Transportation Division)
- BMP not implemented in the Portland permit area. County roads are “built out” in the permit area, thus no Capital Improvement Projects are planned. BMP implemented throughout unincorporated County jurisdiction.
- Not applicable.

**STR2.** When major repair is needed, develop and implement retrofit of

- Continue sump replacement and retrofit of flood control facilities in the Portland permit area.
- The County does not have flood control facilities in the Portland permit area.
- Not applicable.

On schedule.

Integrate Bridge Section into Implementation Team in PY 8.
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<tr>
<td>existing public drainage and flood control facilities (sumps, retention basins, drainage channels, bioswales, trash racks, sediment trap devices, etc.) where practicable to improve water quality. Install new systems using current standards.</td>
<td>facilities to improve pollutant reduction aspects of existing drainage and flood control facilities.</td>
<td>Transportation Division</td>
<td>• The Bridge Engineering section installed stormwater filter inserts during a recent bridge maintenance project.</td>
<td>No modifications. Integrate Bridge Section into Implementation Team in PY 8.</td>
<td></td>
</tr>
<tr>
<td>STR3. Ensure that any facilities built in conjunction with road construction projects consider long-term water quality protection, where feasible.</td>
<td>Ensure that drainage/flood control and water quality facilities built as part of road construction projects protect stormwater quality beyond the construction period.</td>
<td>Design and Construction (Engineering, Transportation Division)</td>
<td>• BMP not implemented in the Portland permit area. County roads are “built out” in the permit area, thus no Capitol Improvement Projects are planned. • All County roads operated and maintained by IGA with Portland. BMP implemented throughout unincorporated County jurisdiction. • The Bridge Engineering section installed stormwater filter inserts during a recent bridge maintenance project.</td>
<td>• Not applicable.</td>
<td>On schedule. Integrate Bridge Section into Implementation Team in PY8.</td>
</tr>
<tr>
<td>STR4. Review existing design standards for drainage, flood control, and water quantity facilities for applicability to water quality. Review water quality criteria issued by the City of Portland and others for use as guidance documents. Modify design standards if necessary.</td>
<td>Consider design standards used in the region to better address water quality issues when permitting drainage and water quantity facilities (other than road construction), both private and public.</td>
<td>Design (Engineering, Transportation Division)</td>
<td>• Design standards not reviewed during this permit year.</td>
<td>• Not applicable.</td>
<td>On schedule. New function group representative will review responsibility and tasks. Consider timing for a design standards review.</td>
</tr>
<tr>
<td>STR5. Continue to inventory and map the municipal storm sewer system. Improve knowledge of the County system to facilitate identification of problem areas and implementation of control programs in strategic locations. Allocate staff resources to ensure continued map updates.</td>
<td>Ensure County storm sewer mapping is accurate. This BMP supports the MS4 by providing valuable information allowing the County to effectively accomplish other elements of the NPDES permit requirements.</td>
<td>Design (Engineering, Transportation Division)</td>
<td>• Inventory maps updated as projects are constructed. • Maintained accuracy of County stormwater system maps. • Inventory maps updated with additional information field pursuant to UIC rules.</td>
<td>• Accuracy maintained via map updates as projects are constructed.</td>
<td>On schedule. No modifications.</td>
</tr>
<tr>
<td>STR6. Ensure through contract agreements that constructed wetlands and adjacent facilities built in conjunction with road projects are properly designed to reduce the effects of pollutants in stormwater and runoff, as well as impacts to the wetlands themselves.</td>
<td>Provide stormwater quality protection benefits through use of natural resource areas such as wetlands.</td>
<td>Design (Engineering, Transportation Division)</td>
<td>• BMP not implemented in the Portland permit area. County roads are “built out” in the permit area, thus no Capitol Improvement Projects are planned. • All County roads operated and maintained by IGA with Portland.</td>
<td>• Not applicable.</td>
<td>On schedule. No modifications.</td>
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<tr>
<td>Designed to reduce pesticide use and encourage use of self-sustaining vegetation to help improve water quality (PS).</td>
<td>Road Maintenance, Vegetation Management (Transportation Division)</td>
<td>• BMP not implemented in the Portland permit area. All County roads operated and maintained by IGA with Portland. • BMP implemented throughout unincorporated County jurisdiction.</td>
<td>• Not applicable.</td>
<td>On schedule. No modifications.</td>
<td></td>
</tr>
<tr>
<td>PS1. Continue to implement vegetation management procedures as in the Road Maintenance and Operations Manual (RMOM) to assure that water quality impacts are addressed. Include annual Oregon Department of Agriculture and EPA certification for pesticide applicators. Selectively use pesticides wherever applicable. Continue to improve application practices and train personnel to reduce pollutants to the maximum extent practicable.</td>
<td>Reduce pesticide use as means of improving impacts to water quality. Implement existing/improved practices to ensure that pollutants discharged from and into County rights-of-way (roads, ditches) are reduced to the maximum extent practicable.</td>
<td>Land Use Planning Division, Transportation Division</td>
<td>• County Land Use Planning promotes use of native vegetation as Grading and Erosion Control permit conditions.</td>
<td>Reviewed and tracked current plans and requirements.</td>
<td>On schedule. No modifications.</td>
</tr>
<tr>
<td>PS2. Promote use of native vegetation on public and private projects. Support government tree-planting programs that reduce pollutant impacts to receiving streams. Utilize existing native plant lists for development review.</td>
<td>Reduce pesticide use and encourage use of self-sustaining vegetation as means of improving water quality.</td>
<td>Transportation Planning (Transportation Division)</td>
<td>• BMP not implemented in the Portland permit area. BMP implemented throughout unincorporated County jurisdiction. • All County roads operated and maintained by IGA with Portland.</td>
<td>• Not applicable.</td>
<td>On schedule. No modifications.</td>
</tr>
<tr>
<td>PS3. Ensure specifications for landscape in right-of-way projects require the use of low-impact species. Encourage use of self-sustaining, non-invasive vegetation that reduces the need for pesticides, fertilizers, and water.</td>
<td>Reduce pesticide use and encourage use of self-sustaining, non-invasive vegetation as means of improving water quality. Implement existing/improved practices to ensure that pollutants discharged from and into County rights-of-way (roads, ditches) are reduced to the maximum extent practicable.</td>
<td></td>
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| **OA1.**  Develop and manage the Stormwater Program **to ensure compliance** with the NPDES permit. Implement cost-effective, practical BMPs and activities that are designed to reduce stormwater pollution to “the maximum extent practicable,” given the County’s unique conditions.  | Develop and manage the County’s stormwater program to ensure compliance with the NPDES permit. Develop and implement cost-effective, practical BMPs and activities that are designed to reduce stormwater pollution to the "maximum extent practicable." | Compliance  
- Modified reporting procedure and record keeping methodology for greater efficiency.  
- Organized and presented updates regarding Endangered Species Act/Salmon recovery program to introduce key concepts to Stormwater Implementation team.  
- Provided regulatory updates of Clean Water Act; TMDL and NPDES programs, and Underground Injection Control program.  
- Facilitated work sessions with County staff related to program implementation and reporting.  
- Attended co-permittee meetings to represent the County's interests and coordinate reporting activities.  
- Conducted informal surveys of staff responsible for functional group’s BMP tasks.  
- Conducted meeting of functional group representatives to review BMP implementation and accomplishments.  | On schedule. Modifications of program upon evaluation where necessary. |

| **OA2.**  On a continuous basis, and especially annually, **assess and evaluate the BMP program** to ensure use of available resources, and make recommendations for improvements in program implementation tasks. Designate County staff to compile/summarize records for each BMP. Utilize BMP record-keeping system for evaluation of progress at regular work sessions with Stormwater Implementation Team.  | Assess and evaluate program to ensure the best use of available resources and make recommendations for continuous improvement. | Compliance  
- Worked with record keeping system for use by the County staff to track work done in the field, meetings attended, etc.  
- Worked with County staff to compile individual BMP files for evaluation of progress at several work sessions with entire Stormwater Implementation Team.  
- Began inclusion and review of BMPs for the Bridge Section into the County NPDES stormwater program.  | On schedule. Due to new staff, evaluation of program efficiencies will be conducted. |

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<tr>
<td>OA3. Review annually and update as needed the Road Maintenance Operations Manual (RMOM), including procedures regarding water quality impacts to receiving streams. Continue to keep field records of maintenance activities.</td>
<td>Use record keeping to track performance of BMPs over-time and to determine level of water quality protection provided. Adjust Stormwater Program through adaptive management based on results reported in annual reports.</td>
<td>Transportation Division</td>
<td>• BMP not implemented in the Portland permit area. All County roads operated and maintained by IGA with Portland. • BMP implemented throughout unincorporated County jurisdiction.</td>
<td>• Not applicable.</td>
<td>On schedule. No modifications.</td>
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Section IV

PORT OF PORTLAND
ANNUAL REPORT

MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) PERMIT (NO. 101314)

October 14, 2002

Prepared for:
PORT OF PORTLAND
121 NW Everett Street
Portland, OR 97209

Prepared by:
VIGIL-AGRIMISP, INC.
4504 SW Corbett Ave.
Portland, OR 97209
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0 INTRODUCTION</td>
<td>3</td>
</tr>
<tr>
<td>2.0 PORT OF PORTLAND PROPERTIES</td>
<td>4</td>
</tr>
<tr>
<td>3.0 ORGANIZATIONAL STRUCTURE AND COMMITMENT</td>
<td>6</td>
</tr>
<tr>
<td>4.0 STORMWATER MONITORING DATA</td>
<td>7</td>
</tr>
<tr>
<td>5.0 BMP ACCOMPLISHMENTS FOR PERMIT YEAR SEVEN (2001-2002)</td>
<td>9</td>
</tr>
</tbody>
</table>
APPENDIX

EXHIBIT 1: MARINE TERMINALS (MARINE) AND PORTLAND INTERNATIONAL AIRPORT (PDX) TENANTS

EXHIBIT 2: PDX STORMWATER BMP SORBENT BOOM MAINTENANCE SCHEDULE

EXHIBIT 3: PDX OIL-WATER SEPARATOR CLEANING PROGRAM

EXHIBIT 4: MARINE DRY SEASON OBSERVATIONS, 2001

EXHIBIT 5: MARINE 2001 DRY SEASON OUTFALL INVESTIGATION OUTFALLS #: RG7.5PP, RG10PP, SJ25PP, RG13PP LAB ANALYSIS FOR OUTFALL # RG13PP

EXHIBIT 6: MARINE STORMWATER MONITORING RESULTS FOR THE 1200-Z & 1200-COLS NPDES PERMITS

EXHIBIT 7: PDX 2001 DRY SEASON OBSERVATIONS, 2001

EXHIBIT 8: PDX STORMWATER MONITORING RESULTS FOR THE 1200-COLS NPDES PERMIT (SCHEDULE B MONITORING REPORT, PP. 14 – 35)

EXHIBIT 9: VANPORT WETLANDS MONITORING RESULTS

EXHIBIT 10: SAMPLE ENFORCEMENT LETTERS (PROPERTIES)
1.0 INTRODUCTION

The Port manages stormwater runoff from its properties to protect the environment, to minimize flood damage, to prevent nuisance conditions from developing, and for public safety. The Oregon Department of Environmental Quality (DEQ) regulates stormwater runoff from Port properties through Municipal Separate Storm Sewer System (MS4) Discharge Permit No. 101314 (Municipal Permit) and other NPDES stormwater permits.

As a co-permittee authorized to operate under the Municipal Permit, the Port is required to report its accomplishments during each permit year. This document is the Port’s annual report, as required by Schedule B, Section 6 & 7 of the Municipal Permit. The 2001-2002 year represents the seventh permit year, and the second year of the second 5-year permit term.

The following sections of this annual report document the results of the Port’s stormwater management efforts during the past permitting year. The report emphasizes the efforts and activities associated with individual Best Management Practices (BMPs). All exhibits referenced throughout the following sections are compiled at the end of the section, unless stated otherwise.


2.0 PORT OF PORTLAND PROPERTIES

The Port owns approximately 6,600 acres within the City of Portland (City) Urban Services Boundary. This acreage includes three operating areas and undeveloped properties, such as wetland mitigation sites. Operating areas consist of the Portland International Airport (PDX), five Marine Terminals, and several industrial parks occupied by commercial tenants.

2.1 Portland International Airport

PDX comprises an area of approximately 3200 acres and is located in northeast Portland between the Columbia River and the Columbia Slough. The facility is owned and operated by the Port and it serves numerous aviation-related tenants. Stormwater runoff from the PDX property discharges into the Columbia Slough through a series of nine outfalls authorized under the NPDES General 1200-COLS Industrial Stormwater Discharge Permit. This permit is specifically structured to address Columbia Slough Total Maximum Daily Load (TMDL) parameters, including dissolved oxygen (DO), pH, nutrients, bacteria, and toxics. With the exception of the Oregon Air National Guard, PDX tenants whose operations require stormwater permits are co-permitees with the Port under a 1200-COLS Permit. PDX also holds an NPDES Construction Excavation Wastewater Permit and an NPDES Anti-icing/Deicing Waste Discharge Permit. All tenants at PDX who conduct deicing activities are required to be co-permitees under the Anti-icing/Deicing Permit, or to get their own permit.

2.2 Marine Terminals

The Marine Terminals operating area consists of four active terminals and one inactive terminal, collectively occupying approximately 1,100 acres. These areas are located along both the Willamette and Columbia Rivers and handle the shipping, receiving, and temporary storage of finished goods, agricultural products, and raw materials. Terminals 2, 4, 5, and 6 (T-2, T-4, T-5, and T-6, respectively) are active shipping terminals managed by the Port’s Marine Department, while Terminal 1 (T-1) is an industrial property managed by the Port’s Properties Division. T-1 does not support marine activities at this time. The Port holds both a 1200-Z (Columbia River) and 1200-COLS (Columbia Slough) NPDES permit for this facility. The majority of the other terminals are leased to various tenants who may hold their own NPDES permits.

2.3 Industrial Parks

The Port Properties Division manages Port-owned industrial parks, including Swan Island, Port Center, Mocks Landing, Rivergate, Portland International Center (PIC), Troutdale Industrial Park, and Brookwood Corporate Park. The Troutdale (75 acres) and Brookwood (22 acres) properties are located outside of the Municipal Permit area and are not discussed further in this report. The remaining areas occupy approximately 1,700 acres. The Port leases approximately 80% of its industrial park property to private commercial operators. Many of these tenants hold
industrial discharge NPDES permits. Additionally, all Port tenants may be required to obtain a 1200-C General NPDES Permit for new construction or development.

2.4 Undeveloped Properties

The Port Properties Division manages approximately 900 acres of undeveloped property within the Urban Services Boundary. Areas include West Hayden Island, Albina Dock, undeveloped property beneath the Broadway Bridge, and several wetland mitigation sites. The mitigation sites cover approximately 650 acres and feature a variety of wetland types (i.e., emergent, scrub-shrub, forested, etc.).
3.0 ORGANIZATIONAL STRUCTURE AND COMMITMENT

During this permit reporting year, the Port’s Executive Director emphasized the organization’s commitment to protecting the environment by elevating the Environmental Services Division (ESD) to “Department” status. This reorganization provided the opportunity to introduce a new director position to head the department. The new Environmental Affairs (EA) Department, as it is now called, carries equal authority within the organization to carry out Port-wide environmental policies and programs. The EA Department maintains its responsibilities for the Municipal Permit and the Municipal Stormwater Management Plan (MSWMP).

Port operating areas that are located within the Urban Services Boundary include PDX, Marine Terminals, and several industrial properties. The Port’s Properties Division (Properties) manages the Industrial Park areas, as well as many mitigation sites. Operating areas with NPDES Industrial Stormwater Discharge Permits are required to prepare and maintain Stormwater Pollution Control Plans (SWPCP) for their facilities. As a means of coordinating Port-wide programs and Port policies, program managers meet regularly with Port operating area staff.

The Water Resource Coordination Group (WRCG) includes environmental staff from the corporate office, operating areas, and engineering. The group meets monthly, and is responsible for coordination on Port-wide stormwater policy issues, permit matters, training, and communication. The Environmental Affairs Water Resource Program Manager (also the MS4 Permit Manager) serves as the lead for the WRCG.
4.0 STORMWATER MONITORING DATA

The Port submitted a Municipal Stormwater Monitoring Program to DEQ on April 8, 1998. Under this program, the first permit term monitoring components included industrial permit stormwater sampling, dry season monitoring, deicing monitoring, tenant monitoring, and best management practices (BMP) effectiveness monitoring. The Port concluded its BMP effectiveness monitoring during the first permit term, and other monitoring programs have continued or have been modified as needed.

Monitoring components of the second permit term include industrial permit stormwater sampling associated with the NPDES 1200-COLS and 1200-Z permits, and dry season monitoring. The Port also voluntarily monitors water quality at select mitigation sites. The BMP sections of this report (Port-OA3 and Port-Ill3) and the appendix summarize the Port’s monitoring results for this reporting year.

The Municipal Permit also requires land-use characterization monitoring. An interagency agreement with the City of Portland (City), signed August 5, 1999, commits the Port to paying a percentage of the monitoring costs until 2005 for these efforts. The City is responsible for carrying out the land-use characterization monitoring.

The Port collects and submits monitoring data to DEQ for other NPDES permits, as listed below. Much of this data is not included in the Municipal Permit annual report, but can be made available through the Port or DEQ upon request.

- Anti-icing/Deicing Waste Discharge NPDES Permit, No. 101647 (PDX)
- Construction Dewatering Waste Discharge NPDES Permit, No. 101588 (PDX)
- 1200-CA Stormwater Discharge NPDES (Port-wide)

4.1 Industrial Permit Monitoring

The Appendix includes monitoring data collected during the permit year from stormwater outfalls at PDX and T-6. These monitoring data are required by the 1200-COLS and 1200-Z industrial stormwater permits. This monitoring data is included in this report because it is representative of discharges from some of the Port areas having industrial activities. Pollutant load calculations for these outfalls were not performed this permit year because previous evaluations have failed to yield meaningful results.

4.2 Dry Season Inspection Monitoring

The Port’s dry season monitoring effort is part of the Illicit Discharge Detection and Removal Program (IDDRP) and is designed to detect non-stormwater discharges from Port-owned outfalls. Dry season monitoring occurs on a 5-year rotation with certain priority outfalls being monitored annually, such as those at PDX. If a discharge is observed from an outfall, a sample is collected and sent to an independent laboratory for analysis. The Port uses the results of the
analysis, combined with observed field conditions, to identify the discharge source and to assess associated risks. Port staff schedule follow-up investigations and inspections as necessary. The Appendix presents dry season monitoring data collected during the permit year.
## 5.0 BMP ACCOMPLISHMENTS FOR PERMIT YEAR SEVEN (2001-2002)

### 5.1 General BMP Categories

The Port and its co-permittees developed eight general BMP categories during the permit renewal process for the second term of the MS4 Permit (Municipal Permit). These general categories provide a framework for co-permittees to improve consistency and coordination. Within these categories, each co-permittee identifies specific BMPs that apply to their respective operations. The eight general BMP categories are listed below:

<table>
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<td><strong>Public Involvement/Education (PI)</strong></td>
<td>Inform and educate the public, business, industry, and government about the causes of stormwater pollution and its effects on local streams and rivers; to encourage active participation in pollution reduction efforts.</td>
</tr>
<tr>
<td><strong>Operation and Maintenance (OM)</strong></td>
<td>Improve existing and/or implement new operation and maintenance practices for public streets, sewers, and other facilities that reduce the amount of pollutants entering the storm sewer system and waterways.</td>
</tr>
<tr>
<td><strong>Industrial/Commercial Controls (IND)</strong></td>
<td>Reduce and control industry and commercial discharges to the storm sewer system from runoff and production practices.</td>
</tr>
<tr>
<td><strong>Illicit Discharges Controls (ILL)</strong></td>
<td>Develop a program to investigate, find, and eliminate illicit discharges to the stormwater system (illicit discharges include both illicit connections and illegal dumping).</td>
</tr>
<tr>
<td><strong>New Development Standards (ND)</strong></td>
<td>Ensure that pollutant controls are applied in project planning, during construction phases, and for existing projects.</td>
</tr>
<tr>
<td><strong>Structural Controls (STR)</strong></td>
<td>Incorporate onsite stormwater quality and transport systems into design standards for new and remodeled development; to evaluate, construct/retrofit, and monitor appropriate stormwater treatment and transport systems for both existing and new development.</td>
</tr>
<tr>
<td><strong>Planning/System Preservation and Development (PS)</strong></td>
<td>Develop incentives and policies for preservation of natural areas; to modify zoning codes to improve water quality</td>
</tr>
<tr>
<td><strong>Other Activities (OA)</strong></td>
<td>Ensure program coordination, management, evaluation, and monitoring.</td>
</tr>
</tbody>
</table>
5.2 Port-specific BMP Categories

The Port developed fifteen Port-specific BMPs consistent with the framework established with the other co-permitees:

<table>
<thead>
<tr>
<th>BMP Code</th>
<th>BMP Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port-PI1</td>
<td>Conduct public outreach and support programs that increase public awareness of the importance of water quality protection.</td>
</tr>
<tr>
<td>Port-PI2</td>
<td>Inform employees and tenants of new stormwater pollution control efforts and activities in each Port operating area. Provide guidance for implementing the programs, where applicable. Participate with the City of Portland and community groups in promoting educational programs that relate to Port operations.</td>
</tr>
<tr>
<td>Port-OM1</td>
<td>Evaluate and update stormwater maintenance practices that affect water quality at stormwater quality facilities.</td>
</tr>
<tr>
<td>Port-OM2</td>
<td>Evaluate operations and maintenance of Port roads and vehicle maneuvering areas to determine water quality impacts. Recommend procedures or practices to reduce the discharge of pollutants to the stormwater system.</td>
</tr>
<tr>
<td>Port-OM3</td>
<td>Review landscape maintenance practices. Recommend the use of vegetation that reduces the need for pesticides, herbicides, fertilizers, and water, where practical.</td>
</tr>
<tr>
<td>Port-IND1</td>
<td>Develop a program to reduce the discharge of pollutants to the stormwater system from existing and developing industries on Port property, particularly focused on those that are not already regulated by other NPDES requirements.</td>
</tr>
<tr>
<td>Port-ILL1</td>
<td>Review required spill response procedures in each operating area. Refine procedures as necessary, including improving interagency coordination.</td>
</tr>
<tr>
<td>Port-ILL2</td>
<td>Provide information to employees and tenants on where and how to properly dispose of oil, antifreeze, pesticides, herbicides, paints, solvents, and other potentially harmful materials.</td>
</tr>
<tr>
<td>Port-ILL3</td>
<td>Detect and control illicit connections and discharges to the stormwater system.</td>
</tr>
<tr>
<td>Port-ILL4</td>
<td>Reduce the potential for illegal dumping through active property management.</td>
</tr>
<tr>
<td>Port-ND1</td>
<td>Apply practical erosion and sediment controls to reduce pollutant discharges at construction sites on properties being developed by the Port.</td>
</tr>
<tr>
<td>Port-STR1</td>
<td>When warranted and appropriate based on available water quality monitoring</td>
</tr>
</tbody>
</table>
data, develop procedures for construction, maintenance, and monitoring of water quality facilities.

<table>
<thead>
<tr>
<th>Port-OA1</th>
<th>Coordinate with applicable agencies working on regulatory aspects of water quality protection, including watershed management, combined sewer overflows, solid waste and recycling, and industrial waste and source control. Cooperate with agencies to implement new source or non-point source control practices where water quality data indicate the need for stormwater quality improvement.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port-OA2</td>
<td>Promulgate policy and practices to address stormwater pollution issues on all Port property.</td>
</tr>
<tr>
<td>Port-OA3</td>
<td>Monitor stormwater to characterize typical discharges to the Port’s municipal system.</td>
</tr>
</tbody>
</table>

The remainder of this report describes the activities within each of these BMP categories during the past permit year.
The Port supports a variety of public outreach programs and events focused on increasing public awareness of water quality issues. The Port’s support and participation ranges from hosting public events to funding environmental programs through grants to actively coordinating with other organizations on public outreach campaigns.

KEY ACCOMPLISHMENTS, PERMIT YEAR SEVEN (FY 01-02)

- The Port participated in the “Naturescaping for Clean Rivers” Program with the East Multnomah Soil & Water Conservation District and the Portland Bureau of Environmental Services. The program covers environmentally sensitive landscaping and gardening practices. The Port hosted a free public workshop at its corporate office during the permit year.

- The Port’s Public Outreach Manager was responsible for many of the Port’s environmental outreach programs. Responsibilities included educational exhibits, the grants program, and a newsletter called Port Currents. The newsletter provides information to the public on environmental and community issues involving the Port.

- The Port’s Grant Program provided $56,000 in funding for various environmental projects, programs, and education activities during the permit year. The Port’s proposal evaluation process (developed during the previous permit year) helped determine the level of support and participation the Port would provide. The process also facilitated the tracking of labor, expenses, and financial support. The recipients of Port grants included the following:
  - Oregon Environmental Council - Business and Environment Forum - $5000
  - Oregon Trout - Salmon Watch Environmental Education - $2500
  - WolfTree - Watershed Ecology Education Program - $2500
  - Willamette Riverkeepers - Guide to Natural Resources - $2500. We had previously given them $7000 for a canoe/kayak trip last year.
  - Institute for the Northwest - Environmental Matters Lecture series - $5000
  - Ecotrust- Sustainability Now workshops- $2000
  - Oregon Natural Step Network - Sustainability conference - $2000
  - Sustainable Northwest - Sustainability conference. $2000
  - Columbia Slough Watershed Council - $11,250
  - 40 Mile Loop Land Trust - $3000. For a map of the 40 Mile loop.
  - Coalition for a Livable Future - sponsorship of next edition of their magazine, Connections - $2000. This issue will be entitled "River City- Healthy Watersheds for All."
  - Tualatin Riverkeepers - Muddy Water Watch, erosion prevention project - $3000
• Leadership Oregon Institute - Leadership training for emerging leaders in agricultural Oregon - $2000
• Lower Columbia River Estuary Partnership (LCREP)- Sponsorship of Founders Night Dinner on Sept. 21, and of education programs associated with LCREP. $2000
• Society for Ecological Restoration - 2003 Regional Conference. The conference focuses on ecosystem restoration. $2000

• The Port continued to distribute informational flyers during public outreach events, detailing the Port’s efforts to promote water quality protection.

• The Port took part in educational events sponsored by environmental groups and organizations, including the Columbia Slough Watershed Council (CSWC), Audubon Society, and Willamette Riverkeepers. Events included open houses, kayak tours of the Portland Harbor, and the Columbia Slough Regatta.

• As a member of the CSWC, the Port has actively participated in the Council’s efforts to develop a Watershed Action Plan for the Columbia Slough. The comprehensive plan is funded through grants from the Oregon Watershed Enhancement Board (OWEB), Environmental Protection Agency (EPA), and DEQ, and seeks to identify enhancement and restoration opportunities, water quality improvement projects, educational and recreational projects and programs within the watershed. The CSWC’s efforts have included public outreach, meetings, soliciting input from key stakeholders, and the compilation of an extensive annotated bibliography of the watershed to be located on the internet for public use.

• The Port conducted a public tour of the PDX deicing facility through coordination with the CSWC.

• The Port participated in the Stop Oregon Litter and Vandalism (SOLV) program, involving public clean-up efforts along the Columbia Slough’s streambanks.

• The Marine staff performed outreach as part of the Riverbank Management Plan and the Marine Terminals Master Plan (MTMP). These projects enlisted the participation of the public and included the following:
  o Albina Ferry Dock Riverbank - This project was conducted through a partnership with the Salmon Corps, NOAA, the Port, and students from New York City's Pace University. The work involved the planting of native vegetation along a 900-ft stretch of riverbank, opposite Terminal 1 on the Willamette River. The Port provided the project site and funding for materials, equipment, and project planning.
  o The Marine Department contracted with the Multnomah Youth Council (MYC) to manage a portion of shoreline along West Hayden Island for a three-year period. The students are currently working on the last year of the contract. The work has involved the development and management of a “green space” plan for the south shore of West Hayden Island. On-site efforts have included erosion mitigation,
non-native vegetation removal, the re-introduction of native species, and an experiment to evaluate various techniques of re-introducing native vegetation.

- Marine staff conducted a one-day workshop for the Native American Youth Association Summer School Program. Staff led students through a native plant identification exercise, a water quality lab, and a riverbank and facility tour.
- Marine staff participated in Willamette and Columbia River tours sponsored by the City of Portland and the Oregon Planning Association. The tours highlighted watershed qualities and addressed long-term planning issues.
- Marine staff conducted 20 van tours of the Maine Terminals and conducted four open houses as part of the Marine Terminal Master Plan (MTMP) update, currently underway.

- PDX staff participated in “Jammin’ for Salmon”, an environmental festival with a significant environmental education component.

- PDX staff hosted de-icing presentations during the “Bring Your Child to Work Day” and a visit by the Native American Youth Association’s Science Camp

- Properties staff hosted public site visits to habitat enhancement projects. The visits provided an explanation of activities and practices being implemented. The Port also makes available information about its Mitigation Program activities through its website.

**CHALLENGES AND SOLUTIONS**

- The Port gets many requests for support of public projects and education programs through its Grants Program. The Port’s evaluation process helps prioritize them and efforts are made to dispense monies for as many grants as possible; however, the financial grant requests consistently exceed the funds available.

**PROJECTED MAJOR ACCOMPLISHMENTS FOR NEXT PERMIT YEAR**

- Port staff will participate in the Wy-Kan-Ush-Pum/Indian Art Northwest Festival (formerly “Jammin’ for Salmon”), an event presented by the Columbia River Inter-Tribal Fish Commission that will feature music, storytelling, and art to honor salmon and salmon cultures. The Port will help fund the event and host an environmental education booth, highlighting the Port’s Outreach Program and Environmental Targets and Objectives.

- The Port will participate in the River City Celebration, a festival located along Portland’s East Bank Esplanade. Port staff will host an environmental education booth featuring water quality test demonstrations, an overview of the Port’s Environmental Targets and Objectives, and additional Port Outreach Program information.
• EA staff will initiate a new public outreach campaign for pollution prevention using curb/pavement markers. The colorful markers will be installed at storm drains and catch basins as a reminder to the public, including tenants and employees, that stormwater drains to natural streams. The EA will also distribute posters and brochures to describe the outreach campaign. The Port anticipates completing the first phase of the curb marker installations by December 2002.

• Port environmental and public affairs staff will use the Port’s restructuring to highlight the Port’s commitment to protecting the environment.

• The Port will continue to administer grants through its Grants Program.

• Public affairs staff will continue to publish the *Port Currents* newsletter.

• The Port will continue to remain active as a member of the CSWC, and provide assistance to complete the CSWC’s Action Plan for the Columbia Slough Watershed.

• Port staff will continue to identify and provide opportunities for public awareness and education on the importance of water quality protection.
Port-PI2  Inform employees and tenants of new stormwater pollution control efforts and activities in each Port operating area. Provide guidance for implementing the programs, where applicable. Participate with the City of Portland and community groups in promoting educational programs that relate to Port operations.

The Port continues to educate and inform staff and tenants on stormwater pollution control and water quality management. The Environmental Affairs (EA) Department and operating areas maintain copies of training agendas, lists of attendees, and presentation summaries.

KEY ACCOMPLISHMENTS, PERMIT YEAR SEVEN (FY 01-02)

- The Port’s Executive Director distributed emails and a news release to Port staff that promoted environmental awareness as an essential component of the Port’s long-term business strategy.

- The Port trained staff and tenants through seminars, educational meetings, information exchanges, and presentations. Subjects covered included the following:
  - Deicing/anti-icing “awareness training” (i.e., BMPs and spill prevention and response protocols)
  - Construction Dewatering and Erosion Control
  - Contaminated Soils Issues
  - Occupational Safety and Health Administration (OSHA) Hazardous Waste Operator (HAZWOPER) training annual refresher course for Port staff with previous 24- and 40-hour training
  - Port’s Environmental Management System (EMS)
  - Spill Prevention Control and Countermeasures (SPCC) Plans
  - Stormwater Quality Policies and Procedures
  - Municipal Permit monitoring requirements and procedures
  - Pesticide application licensing requirements, regulations, and techniques

- The Port distributed emergency response contact information via email, outlining the Port’s approach for disseminating future updates to employees. Contact information is kept current on the PortNet computer system and on the first page of the Port telephone directory. Port employees may request an updated “green card” (wallet-size reference card with emergency contact information) from EA. The Port also tracks cardholders to help in the efficient distribution of updated cards.

- Port staff attended the following professional conferences:
  - American Society of Civil Engineers—Dredging, Key Technologies for Global Prosperity
  - Environmental Law Education Center—Dredging, Sediment Management, and Channel Deepening; Stormwater 2002; Endangered Species Act; TMDLs and the Clean Water Act
Port staff hosted informational seminars and meetings for other agencies and organizations.

The Port maintains copies of stormwater-related documents, such as management plans, programs, procedures, and policies for tenant review and edification.

PDX staff distributed the PDX Stormwater Pollution Control Plan (SWPCP) for co-permittee review during its revision and update in 2002.

The Port’s Environmental Tenant Management Program establishes a formal procedure for relaying environmental policies and information to tenants. The program designates Tenant Coordinators within each operating area to help select of the most appropriate outreach forum and to encourage tenant participation.

The Port requires, as a condition of being a PDX industrial permit co-permittee, that tenants attend Port-sponsored training events and co-permittee meetings, conduct employee education on the SWPCP and the Spill Response Plan, and submit to the Port documentation of permit compliance upon request.

EA staff conducted an internal “Stewards of the Environment” poster and email campaign to encourage Port staff to incorporate environmental stewardship into daily business operations. Topics covered include natural resources, water quality, water conservation, energy conservation, and waste reduction.

The Port’s operating areas, divisions, and departments collaborated on the development of Environmental Objectives and Targets for the organization. These establish quantitative goals for reducing environmental impact. Progress towards achieving the goals is tracked via the PortNet computer system and is accessible to Port staff.

EA staff and operating area managers relayed pertinent stormwater information to employees and tenants via email and during staff meetings.

EA staff distributed throughout the Port informational materials covering upcoming conferences, training seminars, and stormwater-related environmental issues. Materials included brochures, reports, documents, and pamphlets.

The Marine Tenant Program included regular meetings to inform Tenant Coordinators of new stormwater pollution control efforts and activities.
included informational updates, such as new technologies or equipment to be used during spill response.

- PDX staff hosted BMP Committee meetings with tenants every two months. Topics covered include inspection protocols, information on stormwater programs, BMPs, and anti-icing/deicing issues.

**CHALLENGES AND SOLUTIONS**

- The Port will work to improve employee access to environmental information that supports stormwater programs (data, procedures, maps, etc.), and staff will receive additional orientation and training on the EMS and GIS systems as needed.

- Port staff will continue to review and revise Port-tenant agreements and development standards to improve consistency and to ensure that the documents direct tenants to carry out proper stormwater management practices.

**PROJECTED MAJOR ACCOMPLISHMENTS FOR NEXT PERMIT YEAR**

- The Properties Division will develop and implement a new Stormwater Management Plan during the next permit year. The plan provides general guidance for property managers, summarizes stormwater management issues generally, and includes specific methods to be used by tenants for stormwater control.

- Environmental and public affairs staff will continue to make strides in encouraging all Port staff to incorporate environmental stewardship into daily business operations.

- The Port’s Environmental Objectives and Targets will continue to serve as a quantitative way for the Port to mark its progress towards meeting internal environmental goals, including the protection of water resources through appropriate stormwater management practices.

- The Port will work towards providing better access to stormwater plans, programs, procedures, policies, and other stormwater documents by making electronic copies available through the EMS and PortNet computer system.
Port-OM1 Evaluate and update stormwater maintenance practices that affect water quality at stormwater quality facilities.

The Port’s operating areas have developed and implemented specific stormwater maintenance practices to address Port and tenant operations. Many of the maintenance practices are well established and consistently meet the requirements of NPDES and other permits:

- Anti-icing/Deicing Waste Discharge NPDES Permit, No. 101647 (PDX)
- Construction Dewatering Discharge NPDES Permit, No. 101588 (PDX)
- 1200-CA Stormwater Discharge NPDES Permit (Port-wide)
- 1200-COLS Industrial Discharge NPDES Permit
- 1200-Z Industrial Discharge NPDES Permit

Operating area staff are responsible for evaluating practices at their respective facilities, and for updating site-specific Stormwater Pollution Control Plans (SWPCP) or other environmental management plans as needed. The Environmental Affairs Department (EA) and the Port’s Municipal Stormwater Management Plan (MSWMP) provide general guidance on stormwater management issues. The Appendix presents lists of inspection and maintenance schedules at PDX to convey typical frequencies. The list is not all-inclusive.

The Port has recently coordinated with the Multnomah County Drainage District (MCDD) to develop an Intergovernmental Agreement (IGA) that covers the maintenance of ditches, pipes, and sumps within the Portland International Center (PIC) and portions of PDX. The Port will finalize this agreement during the next permit year.

KEY ACCOMPLISHMENTS, PERMIT YEAR SEVEN (FY 01-02)

- Marine staff completed routine stormwater maintenance activities throughout the permit year. Activities included catch basin inspection and cleaning, oil/water separator maintenance, inlet filter maintenance and replacement, and facility sweeping.

- Marine staff tracked maintenance and environmental inspection activities through the Marine Maintenance computer system.

- Marine staff continued to track waste disposal records in the series of notebooks, referred to as the "Waste Stream Management Book". One of the notebooks contains manifests for the different marine terminals, another contains profiles and the third contains analytical data, landfill permits, etc.

- Marine staff continued stormwater BMPs on leased Marine Terminal properties through its Tenant Program. Pollution control practices include the following:
  - Using “dry cleaning” techniques (e.g., sweeping) for outdoor surfaces cleaning
  - Directing contaminated runoff to sanitary sewers instead of storm sewers
  - Incorporating landscaped areas into facility design
- Stenciling storm drains with “Storm Drain – No Dumping” or similar warnings
- Using lead-free, water-based paints when painting asphalt or other ground features

- PDX staff regularly performed the following routine maintenance practices:
  - Boom deployment, maintenance, and/or replacement
  - Inlet filter installation, maintenance, and/or replacement
  - Detention/quiescent pond cleaning
  - Vegetative swale maintenance
  - Oil/water separator maintenance
  - Outfall maintenance
  - Catch basin inspection and cleaning
  - Facility Sweeping
  - Preventative maintenance inspections of USTs, ASTs, and industrial activity areas

- PDX staff incorporated bio-swales in the design of the PIC employee parking lot.

- Properties staff expanded a program of catch basin and outfall inspection and maintenance to include the following additional Port-owned stormwater systems:
  - Time-Oil Road field basins and drain pipes (Rivergate)
  - Outfall and ditches serving the South Industrial Yard (Rivergate)
  - Outfalls and “long pond” behind RREEF warehouses (Rivergate)
  - Several basins at Berth 311 (Swan Island)
  - All of the basins and the outfall at Port Center (Swan Island)
  - The basin and outfall at the McCarthy Park extension (Swan Island)
  - The basins serving the ship repair yard parking lot (Swan Island)
  - All tenant-owned outfalls discharging onto Port property (Rivergate, Swan Island)
  - Field basins serving the Mocks Landing rail siding

- Properties staff managed landscaped areas within the Industrial Parks and Marine Terminals to provide stormwater quality improvements. Crews removed and disposed of vegetative debris, scrap metal, and miscellaneous garbage. They composted or chipped vegetative debris to create mulch, and they disposed of metal and miscellaneous garbage at appropriate facilities (e.g., recycling centers, landfills).

- Properties staff continued contracts for parking lot sweeping at the Port Center, Port Center II, and the McCarthy Park Extension.

- Properties crews cleaned the Property Maintenance Department shop (with backpack blowers), cleaned storm drains and catch basins, maintained bio-bags and oil bags at catch basins, and managed the annual cleaning contract for Industrial Park catch basins.

- The Port revised inspection and maintenance schedules as necessary.
CHALLENGES AND SOLUTIONS

- The Port is working to develop a complete and comprehensive collection of stormwater maps that illustrate the locations of structural stormwater infrastructure and controls (e.g., oil/water separators). Properties staff have conducted extensive field reviews to document the type, size, and locations of stormwater infrastructure at several industrial properties. Staff will work with the Engineering Department to have these facilities added to the Port’s stormwater system maps.

PROJECTED MAJOR ACCOMPLISHMENTS FOR NEXT PERMIT YEAR

- The Port’s Construction Dewatering Discharge NPDES Permit, No. 101588 will expire, and the Port will apply for a new permit.

- The Port will finalize its IGA with the MCDD concerning maintenance activities during the next permit year.

- Marine crews plan to decommission a trench drain at the CDC building that is unnecessary and has become a maintenance problem.

- Additional portions of PDX’s de-icing stormwater system infrastructure will be constructed, and operation and maintenance plans will be developed for the facility.

- The operation and maintenance of Port stormwater infrastructure will continue at present levels, unless concerns develop that warrant modifications to maintenance frequency.

- The Port is working to complete stormwater system maps for Swan Island and Rivergate Industrial Parks.

- The Port will begin requiring contractors to submit electronic as-built drawings for new developments, showing the locations of stormwater structures and controls.
Port of Portland
NPDES Municipal Permit Annual Report

Port-OM2 Evaluate operations and maintenance of Port roads and vehicle maneuvering areas to determine water quality impacts. Recommend procedures or practices to reduce the discharge of pollutants to the stormwater system.

Each of the Port’s operating areas maintains the roads and pavements in their respective areas. Site-specific Stormwater Pollution Control Plans (SWPCP) provide general guidance on stormwater issues that pertain to road maintenance. Maintenance tasks performed on Port roads and pavement areas include sweeping, deicing, surface repairs, and painting.

KEY ACCOMPLISHMENTS, PERMIT YEAR SEVEN (FY 01-02)

- Each of the Port’s operating areas swept their facilities on a regular basis. PDX crews swept the airfield and PDX construction contractors swept paved construction sites daily; Marine crews (T-6) swept their facility bi-annually; and Properties staff contracted with private service providers to have their facilities (Industrial Parks) swept on a regular basis.

- The Port placed swept materials in storage bins or stockpiled them to prevent contact with stormwater runoff. When appropriate, the Port tested materials for hazardous waste content and, when detected, properly disposed of the material.

- Operating area staff (maintenance and environmental) maintained sampling and disposal-tracking records and files.

- Port environmental staff continued to address PDX deicing activities with the assistance of consultants, co-permittees, the Department of Environmental Quality (DEQ), and the City’s Bureau of Environmental Services (BES).


- The Port carried out a major capital investment in its new de-icing collection system at PDX. The facility is designed to protect water quality by collecting de-icing stormwater runoff and controlling its discharge into receiving waters or the sanitary sewer. PDX continued to also use trench drains at concourses C and D, and Glycol Recovery Vehicles (GRVs) for glycol collection.

- The PDX Deicing and Anti-Icing Runoff Control Program set the strategy for controlling, collecting, and disposing of deicing and anti-icing materials. The Port requires co-permittees to comply with the deicing permit and the Columbia Slough TMDL compliance schedule. (The TMDL requires discharges to the Columbia Slough to comply with numeric waste load allocations by October 31, 2003.)
Tenant construction at PDX included the installation of manufactured stormwater treatment control devices, such “Stormceptors,” at tenant properties at PDX.

PDX Deicing Permit co-permittees carried out stormwater BMPs in their routine activities, including the use of forced-air deicing methods for aircraft, employment of a two step chemical application process for pavement deicers, varied aircraft deicing material mix ratios based on ambient temperatures (to be performed by the airlines), and conducting ongoing research on new deicing technologies.

The Port carried out routine pavement maintenance throughout the year, including surface repairs and painting. Crews employed specialized tools and techniques to properly handle waste and cleaning products. The Port used indoor storage areas, equipment wash-bays, debris unloading areas, and toluene recovery systems in its pavement maintenance operations.

**CHALLENGES AND SOLUTIONS**

No unusual challenges presented themselves during the previous year with regard to roadway or pavement maintenance. (The Appendix features an example letter from the Properties Division to a tenant that instructs the tenant to repair damaged pavement, as well as address additional stormwater concerns.)

**PROJECTED MAJOR ACCOMPLISHMENTS FOR NEXT PERMIT YEAR**

The Port will continue to maintain roadways and other pavement in ways that minimize water quality impacts from stormwater runoff.

PDX’s new deicing collection system will be completed and become fully operational.
Properties staff are responsible for the landscaping and property maintenance of the Port’s Industrial Parks, Marine Terminals, and mitigation sites. PDX staff handles landscaping and property maintenance at its facility. The Port often coordinates with the City to provide landscaping plans for natural resource enhancement projects on Port-owned property, such as areas within the Columbia Slough watershed.

**KEY ACCOMPLISHMENTS, PERMIT YEAR SEVEN (FY 01-02)**

- The PDX and Properties maintenance crews carried out operating area-specific best management practices (BMPs) for landscaping activities. For example, maintenance BMPs at PDX address “over spray” from fertilizer application at the edge of landscaped areas. The use of small spreaders near curbsides minimizes the potential for fertilizers entering stormwater systems.

- Properties maintenance crews worked under a set of established environmental goals. These goals were frequently discussed during regular staff meetings, as were the Port policies and procedures used to achieve them. PDX maintenance crews developed similar goals for their area. Examples are listed below.
  - Minimize the use of pesticides, fertilizers, and irrigation
  - Recycle organic materials through use as mulch and compost in landscaping
  - Protect wetlands and areas with native vegetation

- Properties staff began developing a Properties Stormwater Management Plan. Tenant outreach for the plan will commence during the 2002-2003 permit year.

- The Properties staff has developed a 3-year database of pesticide, herbicide, and fertilizer usage in preparation for the implementation of the plan.

- Maintenance crews worked to improve native species diversity and establishment along watercourses. Their efforts included providing for increased densities of native plants along banks for soil stability and shade, mechanical methods of weed removal rather than chemical use in areas adjacent to watercourses, fencing out cattle from wetland areas, and protection of plants against animal foraging to improve growth through the year.

- Maintenance crews continued the Integrated Pest Management (IPM) program on landscaped areas during the permit year. The Port employed a variety of techniques, including biological controls, physical controls (e.g., mowing, burning, flooding, grazing) and cultural selection (i.e., the selection of the proper plant species for the area) to minimize chemical applications. In addition, maintenance crews conducted field surveys to assess pest conditions and limit unnecessary chemical applications.
• Maintenance crews continued the practice of mechanical weed removal, aeration, slow-release fertilizers, mulch applications, and drip irrigation.

• The Port sustained a practice of planting native plant species that require less pesticides, fertilizers, and irrigation.

• The Port required chemical applicators to be licensed and to have received approximately eight hours of continuing education training, annually.

• Maintenance crews implemented pollution control measures including adherence to manufacturer’s instructions; use of appropriate pesticide containment and storage areas; proper disposal of pesticide containers, dead vermin and pests, and other related wastes; adherence to guidelines provided by agencies such as the Department of Agriculture (USDA) and Oregon Department of Agriculture.

• Maintenance crews attended local agency meetings and worked with the USDA and the Portland Parks and Recreation Department to stay current on vegetation management, pesticide application licensing requirements, regulations, and techniques.

• Maintenance crews played an active role in riverbank mitigation. They continued to be involved with riverbank mitigation projects, performing a variety of landscape planting and general maintenance activities.

• Marine staff added two new BMPs through its Marine Tenant Program that pertain to landscaping. The BMPs include the following:
  o BMP017 – Building & Grounds Maintenance—covers proper landscape maintenance practices for stormwater protection.
  o BMP018 – Fumigation & Pesticide Use—covers techniques and considerations for chemical application that relate to stormwater protection.

**CHALLENGES AND SOLUTIONS**

• Many of the challenges associated with stormwater pollution from landscape maintenance have been met. Properties and PDX landscape maintenance staff consistently meet the established environmental goals outlined above.

• The Port conducts ongoing information reviews to stay current on the most environmentally-friendly methods and techniques for pest and weed control, and to carry out general maintenance.

**PROJECTED MAJOR ACCOMPLISHMENTS FOR NEXT PERMIT YEAR**

• Properties staff will complete and implement the Properties Stormwater Management Plan.
• The Port will continue to minimize its use of pesticides, fertilizers, and irrigation.

• The Port will continue to use environmentally sensitive landscape maintenance practices, such as using recycled organic materials for mulch and compost.

• The Port will continue to recognize and protect natural areas and native vegetation.

• Port staff will continue to develop a preferred pesticides, herbicides, and fertilizers list.
Port of Portland

NPDES Municipal Permit Annual Report

Port-IND1 Develop a program to reduce the discharge of pollutants to the stormwater system from existing and developing industries on Port property, particularly focused on those that are not already regulated by other NPDES requirements.

The Port addresses pollutant discharges to its stormwater systems through lease agreements and stormwater use agreements. These agreements cover substantive and procedural issues, such as property inspections, stormwater permits, BMPs, training of tenant personnel, and spill response requirements. Port Ordinance No. 361 also authorizes Port staff to inspect tenant facilities, restrict connections to the Municipal Separate Storm Sewer System (MS4) and to impose penalties to known violators.

Additional agreements and contract provisions help control pollutant discharges to the Port’s stormwater system. These include, but are not limited to, construction dewatering agreements, storage tank use agreements, right-of-entry permits, operating permits, and mobile fueling permits.

The Appendix lists the tenants on Port-leased property with NPDES permit responsibilities. The list is not all-inclusive.

KEY ACCOMPLISHMENTS, PERMIT YEAR SEVEN (FY 01-02)

- Port staff continued the Environmental Tenant Management Policy, allowing for Port oversight of tenant operations. The procedures covered under the policy include the following topics:
  - Coordination of tenant environmental management activities
  - Development and selection of standard environmental language for tenant agreements (e.g., leases, permits, right-of-entry, easements)
  - Communication with, and education of, tenants
  - Implementation of inspections and audits of tenant facilities

- The Port required new developments with proposed UICs to meet the Oregon Department of Environmental Quality’s UIC certification requirements.

- Marine staff continued to implement the Marine Tenant Program with several best management practices (BMPs) pertaining to stormwater, such as the following:
  - BMP012 — Underground Storage Tanks (UST) and Above Ground Storage Tanks (AST)—relates to requirements for proper handling and storage of materials.
  - BMP017 — Building and Grounds Maintenance— covers proper pavement maintenance practices for stormwater protection.

- Marine staff continued to conduct regular inspections of Port-leased properties. The department inspects annually for environmental safety, facility maintenance, and engineering compliance.
• Properties staff continued the Property Mitigation Program with monitoring efforts of sediment and water quality. Collected data help establish baseline conditions at mitigation sites. The program also includes native plantings to reduce the use of chemicals for weed control.

• Properties staff conducted an extensive survey of Port and tenant activities to quantify the number of regulatory permit holders and to assess spill potential. This information will be used to develop outreach goals associated with the Properties Stormwater Management Plan.

CHALLENGES AND SOLUTIONS

• The Port has hundreds of tenants that are on lease agreements that have been in effect for many years. Some of these tenants and their activities have not been well documented in the past. The Properties Division, in particular, has made extensive efforts to review tenant operations and stormwater management practices.

• To improve consistency of Port-tenant agreements and contracts, the Port has begun drafting models (templates) for these documents. The models include standard stipulations for stormwater management. The Port revises lease agreements whenever possible to achieve stormwater management objectives and to address tenant concerns.

• The Appendix contains an example letter from the Properties Division to a tenant that outlines a number of stormwater drainage issues. This letter provides an example of the Port’s oversight of tenant operations.

PROJECTED MAJOR ACCOMPLISHMENTS FOR NEXT PERMIT YEAR

• The new Properties Stormwater Management Plan, due to be completed next permit year, will provide guidance to property managers and industrial tenants on proper stormwater management procedures.

• Departments will continue to review the industrial tenants under their jurisdiction to determine their activities and potential impact on stormwater quality.

• Development standards for industrial areas will be reviewed and updated, as necessary, to include standards that require proper stormwater management facilities and operation and maintenance of these facilities.

• The Port will continue to implement the City of Portland’s Stormwater Manual and its new well field protection manual requirements for facilities within the well field wellhead protection boundary.
Port of Portland  
NPDES Municipal Permit Annual Report

| Port-ILL1 | Review required spill response procedures in each operating area. Refine procedures as necessary, including improving interagency coordination. |

The Port’s Environmental Emergency Preparedness and Response Plan (POPS-EMR-003) involves the development of emergency & spill response plans for the Port’s operating areas and properties. The Port has consequently developed the documents listed below. The plans establish reporting protocols for spills, define roles and responsibilities, identify notification requirements, and address other general safety issues.

- (Draft) Emergency Response Plan for the Properties Division (December 2001)
- Portland International Airport Spill Response Procedures (June 2002)
- Spill Prevention Control and Countermeasures Plan and Spill Response Procedures, Portland International Airport, Portland Oregon (July 2002)
- Spill Response Plan for Marine Terminals (May 2001)

Tenant Spill Response Plans are required by certain operating area industrial stormwater permits (1200-COLS and 1200-Z) and the Port uses lease agreements and/or stormwater use agreements as an internal implementation mechanism for these requirements. Tenants are required to prepare a plan, maintain on-site spill response kits, and provide proper training to employees.

Emergencies and spills on Aviation properties are reported directly to the PDX Communications Center; emergencies and spills on Marine properties (excluding Terminal 1) are reported to the Marine Security Office; and for areas outside the boundaries of Aviation and Marine Terminals (excluding Terminal 1), the Port maintains a 24-hour Environmental Hotline (Hotline) as the principal means of reporting environmental emergencies. Hotline calls are routed through the PDX Communications Center to an answering service provider that contacts a trained Properties Responder.

The Port distributes biannually to appropriate staff wallet-size cards, known as “green cards,” that list emergency phone numbers and contact information. Others may also request the cards. Emergency contact information is also kept current on the PortNet computer system and on the first page of the Port telephone directory. The Port tracks cardholders to help efficient distribute card revisions.

**KEY ACCOMPLISHMENTS, PERMIT YEAR SEVEN (FY 01-02)**

- Port staff encouraged tenants without Spill Prevention and Response Plans to develop them for their facilities. New Stormwater Use Agreements obligate tenants to comply with Port Stormwater Pollution Control Plans (SWPCP), including Best Management Practices (BMP) for spill prevention and response.
- The Port’s new Stormwater Management Plan for Class V Stormwater Injection Systems (UICs) addresses spill prevention and response.
• PDX and Marine staff completed Spill Prevention and Response Plan training. Training is conducted annually, or as needed (e.g., for new employees), and covers procedures and techniques.

• PDX staff continued best management practices (BMP) for its and co-permittee operations that specifically, or generally, pertains to spills. These include the following:
  o BMP #1—Spill Response
  o BMP #2—Hazardous Materials Storage and Use
  o BMP #3—Vehicle, Equipment, & Aircraft Washing
  o BMP #4—Aboveground Storage Tank Spill Prevention
  o BMP #5—Aircraft Deicing and Anti-icing Operations
  o BMP #6—Portable Glycol Above Ground Storage Tank Spill Prevention
  o BMP #7—Aircraft Sanitary Waste Disposal
  o BMP #8—Regulated Waste Identification and Disposal
  o BMP #9—Aircraft Fueling Operations
  o BMP #10—Underground Storage Tank Spill Prevention

• The Port is part of the City’s Spill Committee and participated in City-sponsored “spill responders” training and a mock event for response training.

• Marine staff participated in spill response programs through the Maritime Fire and Safety Association and the Clean Rivers Co-op.

• Properties staff completed its (Draft) Emergency Response Plan during the permit year. The Plan establishes Properties’ role in emergency/spill response, and covers reporting procedures, “reportable quantities,” agency and internal notification requirements, hazardous waste concerns, and general safety.

• Properties staff developed spill prevention practices under its Stormwater Management Plan, currently in development.

• Properties staff developed maps of Swan Island and other areas under their management that will be added to the Port’s geographic information system (GIS).

CHALLENGES AND SOLUTIONS

• Violations to stormwater use agreements and lease agreements occasionally occur. While the Port maintains and exercises its authority to inspect tenant facilities and operations, there is no formalized process or schedule for doing so. The Port’s continued development of the EMS, GIS, and Checking & Corrective Action Program will improve its oversight of tenant operations and help eliminate spill potential.
PROJECTED MAJOR ACCOMPLISHMENTS FOR NEXT PERMIT YEAR

- The Port will continue to develop its information resources to provide greater oversight of Port, tenant, and contractor operations.
The Port regularly distributes information to employees and tenants on the proper disposal of hazardous materials. Staff and tenant meetings are the most common forums for training and information sharing. The Port hosts monthly BMP Committee meetings at PDX and quarterly tenant meetings at the Marine Terminals (T-6). The Port provides specialized training on hazardous waste handling to staff.

The Port’s Risk Management group maintains a Port-wide inventory of hazardous materials used throughout Port-managed properties.

**KEY ACCOMPLISHMENTS, PERMIT YEAR SEVEN (FY 01-02)**

- The Port distributed hazardous waste information and updates to operating area staff and tenants.
- Environmental staff and maintenance crews worked together to improve staff awareness of the proper handling, storage, and disposal of hazardous wastes.
- The Port provided refresher course training to staff members with previous 24- and 40-Hour OSHA Hazardous Waste Operators (“HAZWOPER”) training.
- Marine staff continued Best Management Practices (BMP) under its Tenant Program that address hazardous waste issues, including the following:
  - BMP012—Bulk Liquid Storage Tanks
  - BMP018—Fumigation and Pesticide Management
- PDX crews continued to use a toluene recovery system to separate hazardous waste constituents (toluene) from paint and to allow for its proper recycling and/or disposal.
- Properties staff drafted two BMPs that address vehicle washing and waste management to be included in the Properties Stormwater Management Plan. The plan will be completed during the next permit year.

**CHALLENGES AND SOLUTIONS**

- Outreach efforts and distributed information do not always effectively change behaviors that relate to chemical materials handling and disposal. The Port will investigate developing a means of assessing how well its programs influence behavior.
PROJECTED MAJOR ACCOMPLISHMENTS FOR NEXT PERMIT YEAR

- The Port will work towards developing a preferred pesticide, herbicide, fungicide, and fertilizer list.
During the 1996-1997 permit year, the Port finalized written procedures for its Illicit Discharge Detection and Reduction Program (IDDRP). The procedures cover the following topics:

- Enforcement of Port Ordinance 361
- Dry season and wet season field monitoring
- Priority and schedule of major outfall inspections
- Discharge sampling, tracking, and elimination

The Port documents spill prevention and response procedures in the IDDRP, as required by 40 CFR 122.26 (d)(2)(iv)(B); however, each operating area maintains separate area-specific spill response procedures.

The Port originally based its “priority outfall” designations on the results of a 1996 study and previous inspections. Outfalls have since been added or removed from the priority listing as data supports the status change.

Port staff collects lab analysis samples and complete “in-field” screening analyses when they detect non-stormwater discharges. The Port analyzes field samples for a list of parameters developed to help identify illicit discharge sources. Port-OA3 BMP provides additional information on non-stormwater discharges observed during the monitoring year.

KEY ACCOMPLISHMENTS, PERMIT YEAR SEVEN (FY 01-02)

- Port staff inspected all of the Port’s priority outfalls per the Municipal Permit, updating the priority listings as appropriate. Environmental staff compiled and reviewed inspection and monitoring data to assess the impacts of non-stormwater discharges.

- Port operating area staff conducted wet season runoff observations and monthly preventative maintenance inspections of potential significant material leakage or spillage areas and industrial activity areas in accordance with the respective stormwater permit requirements.

- Port staff monitored manholes and outfalls during the dry season. Discharge or standing water was observed at Marine Terminal outfalls (SJ25PP, RG13PP, RG10PP, and RG7.5PP), at PDX outfalls (1B, 4, 5, 6, 7, 8, and the Basin 2 Detention Pond), and at a few industrial properties. The investigation and follow-up results of these flows are briefly described below. Most non-stormwater discharges were found to be permissible discharges, as defined by 40 CFR 122.26 (d)(2)(iv)(B)(1).

  - RG7.5PP (Marine) – Port staff attributed the small discharge observed flowing through the pipe to an air conditioner located on the roof of a nearby building. The air conditioner condensate drains to the runoff pipe that leads to the manhole.
This source is permissible and there was no exposure to potential contamination. No further action was necessary.

- **RG10PP (Marine)** – Port staff observed a pool of water at the outfall, but no flow in the pipe. Garbage and sediment was found, and algal growth was noted. Port staff is working to identify the source of the ponded water, and assess its water quality.

- **SJ25PP (Marine)** – Port staff observed flow through the pipe and determined the source to be condensation from nearby air conditioners, located within a tenant’s space. This source is permissible and there was no exposure to potential contamination. No further action was necessary.

- **RG13PP (Marine)** – Port staff observed flow at a manhole and at an outfall. The ground surrounding the manhole was moist and ponding was found in a nearby ditch. There is a previous record of discharge within this outfall network during dry season. The Port contracted Columbia Analytical Services to perform analytical tests on collected water samples. Port staff also informed the tenant’s environmental contact of the discharge. Results from the sample analysis indicated compliance with the permit, and no further action was necessary.

- **1B (PDX)** – Port staff observed 1 – 2 inches of standing water in the ditch with no appearance of flow. The water was clear and its condition acceptable. Port staff considered a field analysis to be unnecessary, and no further action was taken.

- **2, West Detention Pond (PDX)** – Port staff observed a small amount of discharge (less than 1 inch depth) in the pond, but attributed the flow to groundwater. Past observations and information supports this determination. Water conditions were consistent with naturally occurring conditions, and Port staff considered a field analysis to be unnecessary. No further action was taken.

- **4, Central Quiescent Pond (PDX)** – Port staff observed a trickle of flow (less than 1-inch depth) from the outfall pipe. The flow was attributed to groundwater infiltration into stormwater pipes based upon past years’ experience and observations, and no further action was taken.

- **5 (PDX)** – Port staff observed no flow from the Port’s outfall pipe on the Columbia Slough however, backwater from the Slough into the outfall pipe was observed. No further action was necessary nor taken.

- **6 East Quiescent and Detention Ponds (PDX)** – Port staff observed standing water in the detention pond and quiescent ponds upstream of the Port’s outfall to the Columbia Slough. There was no flow from these ponds to the Slough because the pumps were not operating. They determined that flow would occur if the pumps were running. These ponds have historically retained water all through the year. Port staff considered a field analysis to be unnecessary, and no further action was taken.
Port of Portland

NPDES Municipal Permit Annual Report

7 (PDX) – Port staff observed a small amount of discharge (less than 1 inch depth) in the outfall pipe to McBride Slough, a tributary of the Columbia Slough. Construction upstream of the inspection site included a water-routing bypass structure. After field investigation, staff attributed flow to groundwater infiltration. No further action was necessary or taken.

8 (PDX) – Port staff observed standing water in the pipe, but no flow. Despite some woody debris at the pipe outfall (attributed to beaver activity), water conditions appeared normal. There is a large system of ditches upstream of this outfall which historically hold water all through the year. Port staff considered a field analysis to be unnecessary, and no further action was taken.

[Industrial property] (Properties) – Properties staff observed dry season flow leaving a City of Portland-owned basin. They reported the observation to the City for follow-up and no further action was taken.

Watumull Properties, Swan Island (Properties) – Properties staff observed dry season flow from a PVC pipe draining a number of catch basins on tenant property. They determined the discharge to be cooling water coming from a private tenant pipe that connects to the Port’s stormwater system. The tenant was contacted and no further action was taken. The Appendix contains the letter sent to the tenant to address the discharge.

- Marine staff provided oversight for the installation of four new double-walled storage tanks.

CHALLENGES AND SOLUTIONS

- Port staff continued efforts to restrict improper cleaning practices, such as the practice of allowing “wash water” to enter the stormwater system instead of the sanitary sewer system. An incident occurred at Terminal 6 during the permit year, whereby a tenant was observed rinsing the pavement with water during a routine inspection. Port staff ordered the immediate halt of the activity, reported the incident to DEQ (on January 11, 2002), and conducted subsequent refresher training for employees and tenants. Additionally, the Port cleaned out the storm sewer system located within the “rinse incident” area.

PROJECTED MAJOR ACCOMPLISHMENTS FOR NEXT PERMIT YEAR

- The Properties Division will expand its dry season inspection schedule to include more outfalls at industrial properties.

- The Port will continue with regular inspection of stormwater facilities.
The Port will continue its efforts to control illicit connections and discharges to its stormwater facilities through its existing programs. Operating area staff will continue to conduct dry and wet season monitoring and facilities inspections. The Port will continue to train employees and tenants to prevent illicit connections and discharges. No new programs are planned for the next permit year, at this time.
Port of Portland

NPDES Municipal Permit Annual Report

The Port continues to develop procedures for reducing the potential for illegal dumping and abandoned waste. Most illegal dumping occurs when tenants vacate Port-owned properties and abandon wastes in the process. The current property management procedures are generally effective at controlling the problem. Regular environmental audits and inspections of tenant operations under the Port’s Environmental Tenant Management Policy is an effective tool for preventing violations.

Properties landscaping maintenance staff perform sweeps of Port property weekly and schedules pick-ups for the end of the week. The Property maintenance crew picks up debris piles that are found on Port properties and haul them to the landfill or transfer station. The Port has an agreement with the City of Portland whereby City crews pick up illegally dumped materials found in the roadway right-of-ways.

The Port secures much of its property with fences and locked gates, limiting accesses to potential violators. In areas where public access must be maintained, the Port posts signs and warnings against illegal dumping.

KEY ACCOMPLISHMENTS, PERMIT YEAR SEVEN (FY 01-02)

- The Port increased its security presence during the permit year.
- The Port maintained contracts with environmental contractors for the disposal of hazardous waste materials.
- Properties staff coordinated with operating area staff to investigate violations, search for abandoned waste, and identify responsible parties.
- The Properties Division and PDX Maintenance crews continued rapid response and clean-up to reported violations.

CHALLENGES AND SOLUTIONS

- Properties staff reported an incident involving a tenant’s wind-blown trash at PIC. The problem was addressed through thorough clean-up and follow-up tenant outreach.

PROJECTED MAJOR ACCOMPLISHMENTS FOR NEXT PERMIT YEAR

- The Port will continue to manage illegal dumping with existing approaches and programs. No new efforts are planned for the next permit reporting period.
Port-ND1 Apply practical erosion and sediment controls to reduce pollutant discharges at construction sites on properties being developed by the Port.

The Port incorporates erosion and sediment control best management practices (BMP) in its many plans, policies, and programs. The Port maintains a Construction Stormwater Discharge NPDES 1200-CA permit, File No. 101018 (Port-wide), and its tenants may be required to obtain 1200-C NPDES permits for their construction projects. The Port’s construction specifications include erosion control requirements and apply to all Port projects, regardless of size.

The Port’s NPDES Construction Dewatering Discharge Permit, No. 101588 regulates the discharge of excavation wastewater at the PDX and PIC facilities to the storm sewer system.

KEY ACCOMPLISHMENTS, PERMIT YEAR SEVEN (FY 01-02)

- The Port revised and updated its dewatering specifications during the permit year. The Port also continued to implement erosion control specifications (initiated during the previous permit year) that reference the City of Portland’s Erosion Control Manual.

- Port staff continued to conduct erosion control training sessions with Port engineers and construction inspectors.

- Port staff regularly addressed erosion control compliance issues during tenant meetings, pre-construction meetings, weekly construction meetings, and monthly site inspections.


- EA and PDX environmental staff continued to develop permit compliance procedures for the NPDES Construction Dewatering Discharge Permit. PDX staff remained responsible for initial and monthly sampling, data compilation, and report submission for PDX projects. EA staff provided technical oversight and assistance. Dewatering permit compliance procedures included the following:
  - De-watering plans
  - De-watering Agreements
  - Sampling and analysis
  - Review of results
  - Discharge treatment as necessary to meet permit requirements for release to the storm sewer system
  - Visual monitoring of discharge quality
  - Data submission to DEQ
• PDX incorporated manufactured stormwater control devices on new construction projects, such as “Downstream Defenders” on the Alderwood Street extension. The project included several new catch basins and bioswales for water quality improvements.

• The Port’s multiple operating areas and Properties Division coordinated to ensure contractor adherence to Erosion Control Plans on all Port projects. Examples of projects that occurred during the permit year and that involved intra-agency coordination included the following:
  o Aviation employee parking lot
  o NE Alderwood Street construction project
  o Aviation spoils stockpiles in PIC
  o Mitigation site construction at the Vanport wetlands site
  o T-5 mitigation site
  o Randall site
  o The mitigation area around the Wapato jail
  o Tenant construction projects at the Port’s industrial parks.

CHALLENGES AND SOLUTIONS

• Educating new contactors on the Port’s required construction practices remains a challenge for Port staff. The Port continues to seek effective ways of improving project administration and the management of contractor activities.

• Construction of the aviation employee parking lot during a rainy period resulted in sediment-laden runoff. Future construction projects will incorporate stormwater controls prior to initiating major soil disturbing activities. Major construction efforts that involve grading and earth movement will be planned for typically dry periods, when possible.

PROJECTED MAJOR ACCOMPLISHMENTS FOR NEXT PERMIT YEAR

• The Port will release and implement revised construction specifications in new contracts. The revisions incorporated the information that was previously referenced from a handbook, titled “Required Environmental Practices for Construction”.

• Marine staff will continue to provide planning oversight for stormwater improvements and bioswales at T-4 (Toyota). Work will also include restoration of a portion of the T-4 waterfront. Construction is planned for 2004.

• The Port will apply for a renewal of its Construction Dewatering Discharge NPDES Permit, No. 101588 for PDX/PIC.
• The Port will continue to train employees on proper erosion and sediment control methods, and will provide orientation on the City’s new erosion control manual and other professional references.
Port of Portland

NPDES Municipal Permit Annual Report

When warranted and appropriate based on available water quality monitoring data, develop procedures for construction, maintenance, and monitoring of water quality facilities.

The Port updates and revises its procedures for construction, maintenance, and monitoring water quality facilities on an as needed basis. The Port frequently participates in, and contributes to, projects aimed at improving water quality within the Columbia Slough Basin, Columbia River, and Willamette River.

KEY ACCOMPLISHMENTS, PERMIT YEAR SEVEN (FY 01-02)

- Port staff continued to regularly monitor and inspect stormwater systems, as required by NPDES permits or as needed.
- Marine staff installed new filters at catch basins and is in the process of conducting a filter media pilot test for Basin 5.
- Construction continued on PDX’s new deicing collection system infrastructure. The facility is designed to re-direct stormwater flows from the existing storm sewer system into either a 13 million gallon detention pond or a 2 million gallon tank, depending on BOD concentration. The flow diverters are linked to biological oxygen demand (BOD) sensors.

CHALLENGES AND SOLUTIONS

- There are many ways to provide treatment for stormwater. The challenge is to find the best approach or technology for specific applications, such as for development projects or for the retrofitting of existing infrastructure.
- Structural methods of treating stormwater containing dilute concentrations of pollutants have generally not been as effective as reported by manufacture’s literature. These structural controls appear to work best in areas with higher concentrations of pollutants, such as construction sites where stormwater runoff may contain sediments. Source control continues to provide the best opportunity to control dispersed and dilute sources of stormwater pollution.

PROJECTED MAJOR ACCOMPLISHMENTS FOR NEXT PERMIT YEAR

- Marine staff identified two catch basins in high sediment areas and one trench drain in a high maintenance area (CDC building) as candidates for decommissioning. The work is anticipated to occur during the next permit year.
- PDX staff anticipate cleansing drainage basin Nos. 2 and 4 (central) quiescent ponds.
- PDX’s new deicing system will be fully operational during the next permit year.
- Properties staff plan to use filterbags on some inlets (may use new “wool” filter material for bags).
The Port dedicates extensive staff time and resources towards coordination with agencies and organizations working on water quality issues. The Port’s environmental staff regularly attend public meetings and hearings covering stormwater regulations and new technologies. They also sit on many work groups and advisory committees.

KEY ACCOMPLISHMENTS, PERMIT YEAR SEVEN (FY 01-02)

- The Port continued to develop its Environmental Management System (EMS), which integrates agency coordination on environmental issues. The EMS also promotes consistency among stormwater management policies, programs, and plans.

- The Port coordinated with the Multnomah County Drainage District to develop an Intergovernmental Agreement (IGA) for the maintenance of ditches, pipes, and sumps within the Portland International Center (PIC) and portions of PDX.

- As a member of the CSWC, the Port has actively participated in the Council’s efforts to develop a Watershed Action Plan for the Columbia Slough, including coordination with other agencies proposing activities along the Slough. The comprehensive plan is funded through grants from OWEB, EPA, and DEQ, and seeks to identify enhancement and restoration opportunities, water quality improvement projects, educational and recreational projects and programs within the watershed. The CSWC’s efforts to compile an extensive annotated bibliography on the watershed for public use involved significant agency involvement.

- The Port remained actively involved with a variety of groups and organizations with projects aimed at improving source and non-point source control practices. Groups and projects included the following:
  - Columbia Slough Watershed Council (CSWC)
  - Lower Columbia River Estuary Program (LCREP)
  - Oregon Association of Clean Water Agencies (ORACWA)
  - BES Revegetation Program
  - Willamette Restoration Initiative (WRI)
  - City of Portland’s River Renaissance and South Shore Wellfield Wellhead Protection Program

- The Port coordinated with regulatory agencies, including the U.S. Army Corps of Engineers (USACE), Oregon Division of State Lands (DSL), the Oregon Department of Environmental Quality (DEQ), the Multnomah County Drainage District (MCDD),
and the City of Portland Bureau of Environmental Services (BES) on a variety of wetland mitigation and enhancement projects. Projects and accomplishments include the following:
  o Vanport Wetlands (formerly “Radio Tower Site”) Site
  o PIC Mitigation Site
  o Cascade Station
  o Rivergate Enhancement Project

CHALLENGES AND SOLUTIONS

- A common challenge among agencies is addressing the multiple environmental initiatives (regulations, plans, programs etc.) from a watershed perspective. It can be difficult to meet the needs of multi-jurisdictional (federal, state, local) programs and regulations, while also integrating them into a broader watershed perspective.

- The Port did not have any unusual challenges associated with interagency coordination on stormwater management issues during the past permit period. Port staff continue to coordinate with their counterparts in other agencies through participation in various committees, councils, and groups, as outlined above. The Port continues to strive to coordinate its efforts to properly manage stormwater and protect water quality with the efforts of others.

PROJECTED MAJOR ACCOMPLISHMENTS FOR NEXT PERMIT YEAR

- The Port will continue to actively coordinate its stormwater management efforts with the efforts of others through active participation in appropriate groups and committees.

- The Port will implement the new Well Field Program for existing and new developments.

- The Port will continue to work with DEQ and other Municipalities to incorporate TMDLs into the Municipal Permit Programs.

- The Port will continue its active membership with the CSWC to complete and implement the CSWC Action Plan.
The Environmental Affairs Department (EA) is responsible for promulgating general policy and program direction to the Port operating areas. Several existing programs including the Environmental Management System (EMS), Commitments Database, Environmental Water Resources Policy, Environmental Tenant Management Program, and Riverbank Management Plan remain in effect and continue to be expanded. A relatively new Natural Resource Assessment and Management Plan (NRAMP) is currently in the process of being developed.

Operating area staff ensure compliance with stormwater regulations and make efforts to meet the Port’s Environmental Targets and Objectives. The EA provides guidance to operating area staff on the development, refinement, and implementation of policies and practices. The Port documents and maintains policy updates in area-specific Stormwater Pollution Control Plans (SWPCP) and other appropriate documents.

KEY ACCOMPLISHMENTS, PERMIT YEAR SEVEN (FY 01-02)

- The Port developed a Stormwater Management Plan for Class V Underground Injection Systems (UIC). Class V stormwater injection systems include stormwater drywells, infiltration trenches, and similar systems that do not drain to open surface water. Port staff worked to inventory, assess, and register all known UIC facilities, and to certify them by July 1, 2002 or schedule closures.

- The Port continued to update and improve its Geographic Information System (GIS) data to include stormwater facilities and land-use information. Through its GIS system, the Port has developed maps for planning and evaluating stormwater issues and policies.

- The Port continued to develop the Natural Resource Assessment and Management Plan (NRAMP) to include spatial and temporal data for Port properties. The plan address the following:
  - Inventories, maps, and assessments of natural resources
  - Identification of desired future conditions
  - Development of resource and land management models and strategies
  - Identification of resource protection, enhancement, and restoration opportunities

The NRAMP serves as a planning tool for future development at the Port, and will therefore influence stormwater management. The NRAMP identifies sensitive resource areas and strategies for impact avoidance, minimization, mitigation, and project design. Information in the NRAMP is also stored in the Port’s Geographical Information System (GIS) database, allowing Port staff to query site-specific information for planning and land management purposes.
• EA continues to develop the EMS. The following list represents significant elements of the EMS that were developed during the permit year.

  o Environmental Procedures—The Port continued to develop, refine, and implement environmental procedures that describe how to carry out policies and manage environmental permits.

  o Environmental Aspects/Impacts Analysis—The Port made an extensive effort to identify significant environmental aspects and impacts within its operations. Environmental staff used the information to establish Environmental Objectives and Targets for the organization and to prioritize Port expenditures and resources.

    The Port’s 2001/2002 Environmental Objectives and Targets include: (1) reduce greenhouse emissions, (2) minimize impacts to water quality (including stormwater discharge quality), (3) reduce waste generation and hazardous materials use, (4) minimize impacts to Natural Resources, and (5) implement the EMS. Each objective has between one and four associated quantitative targets that are monitored throughout the year.

  o Environmental Training Program—The Port conducted an EMS audit to assess the Port’s internal EMS usage and training needs. The results and recommendations of this effort allowed managers to project EMS training needs.

  o EMS Training—The Port provided EMS “general awareness” training to all Port staff and “procedure-specific training” to select staff.

  o Commitments Database—The Port maintained an environmental commitment-tracking database that supports the EMS program. The database tracks the Port’s environmental permits and compliance requirements. The Port provides training to the select staff on how to utilize the database’s various search and reporting features.

  o Environmental Water Resources Policy—The Port worked to improve consistency in best management practice (BMP) development, documentation, interpretation, implementation, and evaluation through new written procedures.

  o Environmental Planning Policy—The Port improved upon its written procedures for environmental permits. The procedures help ensure consistency in permit acquisition, amendment, maintenance, renewal, expiration, termination, and transfer.

• The Port continued to manage tenants through the Environmental Tenant Management Program in a manner that protects the Port’s assets and environmental resources. The Port’s environmental programs encourage responsible environmental stewardship. The program covers the following topics:

  o Coordination of tenant environmental management activities
- Development and selection of standard environmental language for tenant agreements (e.g., leases, permits, right-of-entry, easements)
- Tenant communications and education
- Implementation of inspections and audits of tenant facilities

- The Port began developing standard models (templates) for legal agreements and contracts. The models serve to promote consistent environmental language on leases, agreements, and contracts, including those shown below. They will also be linked to the Ports Environmental Management System.
  - Tenant Stormwater Use Agreements
  - Lease Agreements
  - Right-of-Entry Permits
  - Mobile Fueling Permits

- The Port’s development of Tenant Coordinators proved to be a successful and effective means of disseminating information to tenants. Tenant coordinators were responsible for selecting appropriate forums for information sharing between the Port and tenants. A group of coordinators met regularly to discuss environmental issues. Accomplishments over the past year include the development and/or continuation of the following:
  - Stormwater BMPs for tenants
  - Annual Tenant Environmental Excellence Award

- Marine staff updated the Stormwater Pollution Control Plan (SWPCP) in response to a new 1200-COLS permit. Previously, marine outfalls were covered under the 1200-Z permit. Now, Marine staff manage a 1200-Z and a 1200-COLS permit for the industrial outfalls. The updated SWPCP combines both permits under a single plan.

- Port staff began updating its Marine Terminal Master Plan (MTMP), involving a comprehensive appraisal of Port infrastructure, such as stormwater systems and controls.
  - As part of the MTMP, Marine staff prepared a Strategic Environmental Assessment Public Review document that addresses potential environment impacts at Marine Terminals and the Port’s programs established to address them.

- Marine staff updated the Spill Response Plan and will continue to refine it through the next permit year. Revisions include stipulations for leak detection systems and double-walled construction on above ground storage tanks (AST).

- Marine staff maintained Water Quality Management Plans for the dredge re-handling facility and for each dredging project.

- The Port continued to implement the Riverbank Management Plan (initiated in 1998) to provide the basis for planning, maintenance and construction decisions for the riverbanks at Marine Terminals. The Plan integrates environmental planning with land use planning, and takes a comprehensive view of Marine Terminal infrastructure. The plan calls for ongoing surveying, monitoring, and BMPs.
The Port created several new PDX staff positions to support stormwater and natural resources operations. One of those new positions is a De-icing Specialist.

PDX and co-permittee staff reviewed and updated the Port and Co-Permittee SWPCP in accordance with 1200-COLS Permit requirements.

The Port continued to implement the Mitigation Management Program and Plan (initiated in 1997). Mitigation sites are designed to provide a number of wildlife and community benefits, and are based upon adaptive management techniques. The plan includes detailed maintenance and monitoring schedules.

CHALLENGES AND SOLUTIONS

The Port continues to strive to coordinate its many stormwater management efforts and responsibilities associated with its multiple stormwater-related permits. Internal work groups like the Water Resources Coordination Group, which consists of environmental staff from the corporate office and operating areas, help the Port maintain quality and consistency in its stormwater management efforts.

The Port continues to improve upon its internal reporting processes for the Municipal Permit. Environmental staff are currently evaluating the frequency and format of data gathering efforts.

PROJECTED MAJOR ACCOMPLISHMENTS FOR NEXT PERMIT YEAR

A new Properties stormwater management plan will provide guidance to property managers and industrial tenants on proper stormwater management procedures.

The Port is developing a Permit Management Plan/Manual for all operating areas. The manuals will guide Port staff through the management of environmental permits.

The Port’s “Environmental Objectives and Targets” for the upcoming 2002-2003 permit year include the following: (1) Develop a Stormwater Management Plan for Port industrial Parks by September 2002; (2) Complete pollution prevention curb marker installations (as discussed above) by December 2002; (3) Identify and evaluate Port’s potential sources of Temperature Impact to Columbia Slough by June 2003; (4) Develop the Marine Environmental Action Plan by June 2003. A new Environmental Objective is “Consider Design for the Environment (DFE) for Planning, Construction, and Procurement”.

Future projects under Marine Terminals’ Riverbank Management Plan include improvements at Berth 413 at T-4 for the Toyota Project, and various maintenance, clean-up, and re-vegetation projects at the other Marine Terminals.
• The Port will develop a new EMS procedure on the management of the Municipal Permit.

• The Port will develop a new EMS procedure on the management of the environmental information contained in the Port’s GIS.
Port of Portland

NPDES Municipal Permit Annual Report

Port-OA3  
Monitor stormwater to characterize typical discharges to the Port’s municipal system.

The Port’s Stormwater Monitoring Program, submitted to DEQ in 1998, defines the Port’s approach to meeting the Municipal Permit monitoring requirements. The Port submits results from industrial permit stormwater sampling and dry season monitoring, as well as results from voluntary stormwater monitoring at select mitigation sites, to fulfill the requirements. The Appendix contains a compilation of those sampling and monitoring efforts.

Monitoring of best management practice (BMP) effectiveness ceased after the first permit term. However, the Port remains committed to ensuring that BMPs are both effective and efficient. The City collects land use characterization data, as required by the Municipal Permit, with financial support from the Port.

The Port’s Annual Report submittals to DEQ for the 1200-COLS and 1200-Z permits includes locations and comprehensive explanations for benchmark exceedances, and therefore those exceedances are only briefly covered herein. Refer to those reports for additional information.

As stated in Section 4.0, the Port collects and submits monitoring data to DEQ for the NPDES stormwater permits listed below. Much of this data is not included in the Municipal Permit, but is available through the Port or DEQ upon request.

- Anti-icing/Deicing Waste Discharge NPDES Permit, No. 101647 (PDX)
- Construction Dewatering Discharge NPDES Permit, No. 101588 (PDX)
- 1200-CA Stormwater Discharge NPDES (Port-wide)
- 1200-COLS Industrial Discharge NPDES Permit
- 1200-Z Industrial Discharge NPDES Permit

KEY ACCOMPLISHMENTS, PERMIT YEAR SEVEN (FY 01-02)

- The Port performed industrial permit compliance monitoring, dry season inspection monitoring (see BMP “Port-ILL3”), and site-specific monitoring of wetland mitigation sites during the permit year.

- Port staff collected industrial stormwater samples from representative outfalls at PDX and Marine Terminals in accordance with respective industrial stormwater permit requirements. The samples collected represent water quality of runoff from a wide range of industrial, commercial, and transportation Port and co-permittee activities. The Appendix contains copies of these reports.

- Port staff monitored several mitigation sites for sediment and water quality through its Property Mitigation Program.
CHALLENGES AND SOLUTIONS

- Data management continues to be a challenge given the large amount of monitoring data collected across all Port stormwater programs. The Port continues to explore options and funding for developing an appropriate database for its monitoring data.

- The Port (PDX) continues to improve its capabilities to analyze data trends from year to year.

- The establishment of “background levels” for parameters continues to be a difficult task. The complexity of interaction, the number of interdependent variables, and the temporal and spatial variability limit an investigator’s ability to quantify impacts resulting from an individual activity. The Port will continue to seek better ways of establishing background levels and evaluating potential impacts.

PROJECTED MAJOR ACCOMPLISHMENTS FOR NEXT PERMIT YEAR

- Operating area staff will continue to collect stormwater monitoring data consistent with requirements of the Port’s general and specific NPDES stormwater permits.

- The Port will continue to provide financial support to the City of Portland for its land use stormwater monitoring and characterization work, according to the intergovernmental agreement.

- The Port will assess the need for database management tool.
<table>
<thead>
<tr>
<th>DATE</th>
<th>FLOATING SOLIDS</th>
<th>COLOR/FOAM</th>
<th>OIL &amp; GREASE</th>
<th>TEMP (COLS only)</th>
<th>WEATHER</th>
<th>MONITOR'S INITIALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 7/30/01</td>
<td>Clear</td>
<td>Clear</td>
<td>None</td>
<td>pH = 6.7-6.8</td>
<td>little rainfall</td>
<td>TD</td>
</tr>
<tr>
<td>Aug 8/22/01</td>
<td>Clear</td>
<td>Clear</td>
<td>None</td>
<td>pH = 6.6-6.8</td>
<td>1/2&quot;</td>
<td>TD</td>
</tr>
<tr>
<td>Sept 9/25/01</td>
<td>Clear</td>
<td>Clear</td>
<td>None</td>
<td>pH = 6.7-6.9</td>
<td>1/3&quot;</td>
<td>TD</td>
</tr>
<tr>
<td>Oct 10/29/01</td>
<td>Clear</td>
<td>Clear</td>
<td>None</td>
<td>pH = 6.7-6.9</td>
<td>.3&quot;</td>
<td>TD</td>
</tr>
<tr>
<td>Nov 11/25/01</td>
<td>None</td>
<td>Cloudy/No</td>
<td>None</td>
<td>pH = 6.9-7.0</td>
<td>Wet</td>
<td>TD</td>
</tr>
<tr>
<td>Dec 12/28/01</td>
<td>None</td>
<td>Cloudy/No</td>
<td>Light</td>
<td>pH = 6.8-7.0</td>
<td>Rainy</td>
<td>TD</td>
</tr>
<tr>
<td>Jan 1/30/02</td>
<td>None</td>
<td>Clear/No</td>
<td>None</td>
<td>pH = 6.9-7.0</td>
<td>Wet</td>
<td>ME</td>
</tr>
<tr>
<td>Feb 2/21/02</td>
<td>None</td>
<td>Cloudy/No</td>
<td>None</td>
<td>pH = 6.8-7.0</td>
<td>Rainy</td>
<td>ME</td>
</tr>
<tr>
<td>March 3/29/02</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>No Flow</td>
<td>ME</td>
</tr>
<tr>
<td>April 4/29/02</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>No Flow</td>
<td>ME</td>
</tr>
<tr>
<td>May 5/28/02</td>
<td>None</td>
<td>Cloudy/No</td>
<td>Light</td>
<td>pH = 6.8-6.9</td>
<td>Wet</td>
<td>ME</td>
</tr>
<tr>
<td>June 6/18/02</td>
<td>Light</td>
<td>Cloudy/No</td>
<td>None</td>
<td>pH = 7.1-7.2</td>
<td>Rainy</td>
<td>ME</td>
</tr>
</tbody>
</table>

* If an oil/grease sheen is detected, a sample must be taken and have analyzed.

Notes:
10/2001 Basin 5 removed from 1200-Z. Basin 5 now has its own 1200-COLS.
### Stormwater Monthly Visual and Temperature Monitoring Results for 2001-2002
Port of Portland Terminal 6

<table>
<thead>
<tr>
<th>Date</th>
<th>Floating Solids</th>
<th>Color/Foam</th>
<th>Oil &amp; Grease</th>
<th>Temp (COLS only)</th>
<th>Weather</th>
<th>Monitor's Initials</th>
</tr>
</thead>
<tbody>
<tr>
<td>July</td>
<td>None</td>
<td>Cloudy/None</td>
<td>None</td>
<td>pH = 7</td>
<td>Wet</td>
<td>TD</td>
</tr>
<tr>
<td>Aug</td>
<td>None</td>
<td>Cloudy/None</td>
<td>Light</td>
<td>48 °F pH = 6.8</td>
<td>Rainy</td>
<td>TD</td>
</tr>
<tr>
<td>Sept</td>
<td>None</td>
<td>Clear/None</td>
<td>None</td>
<td>45 °F pH = 7.2</td>
<td>Wet</td>
<td>ME</td>
</tr>
<tr>
<td>Oct</td>
<td>None</td>
<td>Cloudy/None</td>
<td>Light</td>
<td>49 °F pH = 6.9</td>
<td>Rainy</td>
<td>ME</td>
</tr>
<tr>
<td>Nov 11/25/01</td>
<td>None</td>
<td>Cloudy/None</td>
<td>None</td>
<td>pH = 7</td>
<td>Wet</td>
<td>TD</td>
</tr>
<tr>
<td>Dec 12/28/01</td>
<td>None</td>
<td>Cloudy/None</td>
<td>Light</td>
<td>48 °F pH = 6.8</td>
<td>Rainy</td>
<td>TD</td>
</tr>
<tr>
<td>Jan 1/30/02</td>
<td>None</td>
<td>Clear/None</td>
<td>None</td>
<td>45 °F pH = 7.2</td>
<td>Wet</td>
<td>ME</td>
</tr>
<tr>
<td>Feb 2/21/02</td>
<td>None</td>
<td>Cloudy/None</td>
<td>Light</td>
<td>49 °F pH = 6.9</td>
<td>Rainy</td>
<td>ME</td>
</tr>
<tr>
<td>March 3/29/02</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>No Flow</td>
<td>ME</td>
</tr>
<tr>
<td>April 4/9/02</td>
<td>Light</td>
<td>Sl. Dirty/No</td>
<td>Light</td>
<td>58.8 °F pH = 7.7</td>
<td>Rainy</td>
<td>ME</td>
</tr>
<tr>
<td>May 5/28/02</td>
<td>None</td>
<td>Cloudy/None</td>
<td>Light</td>
<td>60.6 °F pH = 7.0</td>
<td>Wet</td>
<td>ME</td>
</tr>
<tr>
<td>June 6/18/02</td>
<td>Light</td>
<td>Cloudy/None</td>
<td>None</td>
<td>63 °F pH = 6.9</td>
<td>Rainy</td>
<td>ME</td>
</tr>
</tbody>
</table>

* If an oil/grease sheen is detected, a sample must be taken and analyzed.

Notes:

- 10/2001 Basin 5 removed from 1200-Z. Basin 5 now has its own 1200-COLS.
EXHIBIT 1: Storm Water Monitoring PDX Drainage Basins 1A, 1B, 2, 4, 5, 6, 7, and 8

Monitoring Location: PDX Basin No. 1A

<table>
<thead>
<tr>
<th>Monitoring Parameter</th>
<th>Analytical Method</th>
<th>Method Reporting Limit</th>
<th>Benchmark</th>
<th>Fall Sampling Event¹ (11/28/01)</th>
<th>Spring Sampling Event¹ (4/9/02)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Chemistry:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Suspended Solids (TSS)</td>
<td>EPA 160.2</td>
<td>5</td>
<td>50</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>Phosphorus, Total</td>
<td>EPA 365.3</td>
<td>0.01</td>
<td>0.16</td>
<td>0.13</td>
<td>0.39</td>
</tr>
<tr>
<td>E. Coli</td>
<td>SM 9223B</td>
<td>1 Units: MPN/100ml</td>
<td>406 counts/100 ml</td>
<td>517</td>
<td>1550</td>
</tr>
<tr>
<td>Biochemical Oxygen Demand 5 (BOD5)</td>
<td>EPA 405.1</td>
<td>4</td>
<td>33</td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Oil and Grease, Total (HEM)</td>
<td>1664</td>
<td>5.0</td>
<td>10</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>Oil &amp; Grease, Non-Polar (SGT-HEM)</td>
<td>1664</td>
<td>5.0</td>
<td>10</td>
<td>N/A²</td>
<td>ND</td>
</tr>
<tr>
<td>pH</td>
<td>150.1</td>
<td>0 – 14 SU</td>
<td>6.5-8.5 SU</td>
<td>7.06³</td>
<td>6.9³</td>
</tr>
<tr>
<td><strong>Metals:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Copper, Total</td>
<td>EPA 200.7</td>
<td>0.010</td>
<td>0.036</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>Lead, Total</td>
<td>EPA 239.2</td>
<td>0.002</td>
<td>0.006</td>
<td>ND (EPA Method 200.9)</td>
<td>ND</td>
</tr>
<tr>
<td>Zinc, Total</td>
<td>EPA 200.7</td>
<td>0.010</td>
<td>0.24</td>
<td>0.027</td>
<td>0.017</td>
</tr>
</tbody>
</table>

¹ Chemical analyses performed by Columbia Analytical Services, Inc., Kelso, WA.
² The sample was not treated with silica gel due to the fact the total extractable result was non-detect and by definition, the non-polar portion is also non-detect
³ pH measured in field using a Oakton ® pHTestr 2 meter and is reported in standard pH units (SU).

ND = Not detected at the method reporting limit
N/A = Not applicable or not established
EXHIBIT 1 cont.: Storm Water Monitoring PDX Drainage Basins 1A, 1B, 2, 4, 5, 6, 7, and 8

Monitoring Location: PDX Basin No. 1B

<table>
<thead>
<tr>
<th>Monitoring Parameter</th>
<th>Analytical Method</th>
<th>Method Reporting Limit</th>
<th>Benchmark</th>
<th>Fall Sampling Event (^1) (10/23/01)</th>
<th>Spring Sampling Event (^1) (4/9/02)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Chemistry:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Suspended Solids (TSS)</td>
<td>EPA 160.2</td>
<td>5</td>
<td>50</td>
<td>11</td>
<td>30</td>
</tr>
<tr>
<td>Phosphorus, Total</td>
<td>EPA 365.3</td>
<td>0.01</td>
<td>0.16</td>
<td>0.17</td>
<td>0.51</td>
</tr>
<tr>
<td>E. Coli</td>
<td>SM 9223B</td>
<td>1</td>
<td>406 counts/100 ml</td>
<td>2420</td>
<td>1120</td>
</tr>
<tr>
<td>Biochemical Oxygen Demand 5 (BOD5)</td>
<td>EPA 405.1</td>
<td>4</td>
<td>33</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>Oil &amp; Grease, Total (HEM)</td>
<td>1664</td>
<td>5.0</td>
<td>10</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>Oil &amp; Grease, Non-Polar (SGT-HEM)</td>
<td>1664</td>
<td>5.0</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>pH</td>
<td>150.1</td>
<td>0 – 14 SU</td>
<td>6.5-8.5 SU</td>
<td>6.9 (^2)</td>
<td>6.9 (^2)</td>
</tr>
<tr>
<td><strong>Metals:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Copper, Total</td>
<td>EPA 200.7</td>
<td>0.010</td>
<td>0.036</td>
<td>ND</td>
<td>0.011</td>
</tr>
<tr>
<td>Lead, Total</td>
<td>EPA 239.2</td>
<td>0.002</td>
<td>0.006</td>
<td>0.0029</td>
<td>0.0113</td>
</tr>
<tr>
<td>Zinc, Total</td>
<td>EPA 200.7</td>
<td>0.010</td>
<td>0.24</td>
<td>0.027</td>
<td>0.033</td>
</tr>
</tbody>
</table>

\(^1\) Chemical analyses performed by Columbia Analytical Services, Inc., Kelso, WA.
\(^2\) pH measured in field using a Oakton \textsuperscript{®} pHTestr 2 meter and is reported in standard pH units (SU).

ND = Not detected at the method reporting limit
N/A = Not applicable or not established
EXHIBIT 1 cont.: Storm Water Monitoring PDX Drainage Basins 1A, 1B, 2, 4, 5, 6, 7, and 8

Monitoring Location: PDX Basin No. 2

<table>
<thead>
<tr>
<th>Monitoring Parameter</th>
<th>Analytical Method</th>
<th>Method Reporting Limit</th>
<th>Benchmark</th>
<th>Fall Sampling Event (^1) (10/23/01)</th>
<th>Spring Sampling Event (^1) (4/9/02)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Chemistry:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Suspended Solids (TSS)</td>
<td>EPA 160.2</td>
<td>5</td>
<td>50</td>
<td>11</td>
<td>25</td>
</tr>
<tr>
<td>Phosphorus, Total</td>
<td>EPA 365.3</td>
<td>0.01</td>
<td>0.16</td>
<td>0.12</td>
<td>0.28</td>
</tr>
<tr>
<td>E. Coli</td>
<td>SM 9223B</td>
<td>1</td>
<td>406 counts/100 ml</td>
<td>365</td>
<td>178</td>
</tr>
<tr>
<td>Biochemical Oxygen Demand 5 (BOD5)</td>
<td>EPA 405.1</td>
<td>4</td>
<td>33</td>
<td>ND</td>
<td>7</td>
</tr>
<tr>
<td>Oil &amp; Grease, Total (HEM)</td>
<td>1664</td>
<td>5.0</td>
<td>10</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>Oil &amp; Grease, Non-Polar (SGT-HEM)</td>
<td>1664</td>
<td>5.0</td>
<td></td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>pH</td>
<td>150.1</td>
<td>0 – 14 SU</td>
<td>6.5-8.5 SU</td>
<td>6.92(^2)</td>
<td>6.92(^2)</td>
</tr>
<tr>
<td><strong>Metals:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Copper, Total</td>
<td>EPA 200.7</td>
<td>0.010</td>
<td>0.036</td>
<td>ND</td>
<td>0.015</td>
</tr>
<tr>
<td>Lead, Total</td>
<td>EPA 239.2</td>
<td>0.002</td>
<td>0.006</td>
<td>0.0052</td>
<td>0.0051</td>
</tr>
<tr>
<td>Zinc, Total</td>
<td>EPA 200.7</td>
<td>0.010</td>
<td>0.24</td>
<td>0.073</td>
<td>0.057</td>
</tr>
</tbody>
</table>

\(^1\) Chemical analyses performed by Columbia Analytical Services, Inc., Kelso, WA.

\(^2\) pH measured in field using a Oakton \(®\) pHTestr 2 meter and is reported in standard pH units (SU).

ND = Not detected at the method reporting limit
N/A = Not applicable or not established
EXHIBIT 1 cont.: Storm Water Monitoring PDX Drainage Basins 1A, 1B, 2, 4, 5, 6, 7, and 8

Monitoring Location: PDX Basin No. 4

<table>
<thead>
<tr>
<th>Monitoring Parameter</th>
<th>Analytical Method</th>
<th>Method Reporting Limit</th>
<th>Benchmark</th>
<th>Fall Sampling Event ¹ (10/23/01)</th>
<th>Spring Sampling Event ¹ (4/9/02)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>General Chemistry:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Suspended Solids (TSS)</td>
<td>EPA 160.2</td>
<td>5</td>
<td>50</td>
<td>14</td>
<td>19</td>
</tr>
<tr>
<td>Phosphorus, Total</td>
<td>EPA 365.3</td>
<td>0.01</td>
<td>0.16</td>
<td>0.08</td>
<td>0.17</td>
</tr>
<tr>
<td>E. Coli</td>
<td>SM 9223B</td>
<td>1 Units: MPN/100ml</td>
<td>406 counts/ 100 ml</td>
<td>56</td>
<td>64</td>
</tr>
<tr>
<td>Biochemical Oxygen Demand 5 (BOD5)</td>
<td>EPA 405.1</td>
<td>4</td>
<td>33</td>
<td>ND</td>
<td>6</td>
</tr>
<tr>
<td>Oil &amp; Grease, Total (HEM)</td>
<td>1664</td>
<td>5.0</td>
<td>10</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>Oil &amp; Grease, Non-Polar (SGT-HEM)</td>
<td>1664</td>
<td>5.0</td>
<td></td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>pH</td>
<td>150.1</td>
<td>0 – 14 SU</td>
<td>6.5-8.5 SU</td>
<td>7.18²</td>
<td>7.0²</td>
</tr>
<tr>
<td><strong>Metals:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Copper, Total</td>
<td>EPA 200.7</td>
<td>0.010</td>
<td>0.036</td>
<td>ND</td>
<td>0.016</td>
</tr>
<tr>
<td>Lead, Total</td>
<td>EPA 239.2</td>
<td>0.002</td>
<td>0.006</td>
<td>0.0025</td>
<td>0.0043</td>
</tr>
<tr>
<td>Zinc, Total</td>
<td>EPA 200.7</td>
<td>0.010</td>
<td>0.24</td>
<td>0.072</td>
<td>0.064</td>
</tr>
</tbody>
</table>

¹ Chemical analyses performed by Columbia Analytical Services, Inc., Kelso, WA.
² pH measured in field using a Oakton ® pHTestr 2 meter and is reported in standard pH units (SU).

ND = Not detected at the method reporting limit
N/A = Not applicable or not established
EXHIBIT 1 cont.: Storm Water Monitoring PDX Drainage Basins 1A, 1B, 2, 4, 5, 6, 7, and 8

Monitoring Location: PDX Basin No. 5

<table>
<thead>
<tr>
<th>Monitoring Parameter</th>
<th>Analytical Method</th>
<th>Method Reporting Limit</th>
<th>Benchmark</th>
<th>Fall Sampling Event (^1) (10/23/01)</th>
<th>Spring Sampling Event (^1) (4/9/02)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>6.5-8.5 SU</td>
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\(^1\) Chemical analyses performed by Columbia Analytical Services, Inc., Kelso, WA.
\(^2\) pH measured in field using a Oakton ® pHTestr 2 meter and is reported in standard pH units(SU).

ND = Not detected at the method reporting limit
N/A = Not applicable or not established
EXHIBIT 1 cont.: Storm Water Monitoring PDX Drainage Basins 1A, 1B, 2, 4, 5, 6, 7, and 8

Monitoring Location: PDX Basin No. 6

<table>
<thead>
<tr>
<th>Monitoring Parameter</th>
<th>Analytical Method</th>
<th>Method Reporting Limit</th>
<th>Benchmark</th>
<th>Fall Sampling Event (^1) (10/23/01)</th>
<th>Spring Sampling Event (^1) (4/9/02)</th>
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\(^1\) Chemical analyses performed by Columbia Analytical Services, Inc., Kelso, WA.

\(^2\) pH measured in field using a Oakton ® pHTestr 2 meter and is reported in standard pH units (SU).

ND = Not detected at the method reporting limit
N/A = Not applicable or not established
EXHIBIT 1 cont.: Storm Water Monitoring PDX Drainage Basins 1A, 1B, 2, 4, 5, 6, 7, and 8

<table>
<thead>
<tr>
<th>Monitoring Parameter</th>
<th>Analytical Method</th>
<th>Method Reporting Limit</th>
<th>Benchmark</th>
<th>Fall Sampling Event ¹ (10/23/01)</th>
<th>Spring Sampling Event ¹ (4/9/02)</th>
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<td>6.5-8.5 SU</td>
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¹ Chemical analyses performed by Columbia Analytical Services, Inc., Kelso, WA.
² pH measured in field using a Oakton ® pHTestr 2 meter and is reported in standard pH units (SU).

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EXHIBIT 1 cont.: Storm Water Monitoring PDX Drainage Basins 1A, 1B, 2, 4, 5, 6, 7, and 8

Monitoring Location: PDX Basin No. 8

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</tr>
</tbody>
</table>

\(^1\) Chemical analyses performed by Columbia Analytical Services, Inc., Kelso, WA.

\(^2\) pH measured in field using an Oakton \(^\circledR\) pHTestr 2 meter and is reported in standard pH units (SU).

ND = Not detected at the method reporting limit
N/A = Not applicable or not established
EXHIBIT 2: Monthly Temperature Data, PDX Drainage Basins 1A, 1B, 2, 4, 5, 6, 7, and 8

<table>
<thead>
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<th>Date</th>
<th>Sample Site</th>
<th>Qualifier</th>
<th>Temperature °F</th>
<th>Analytical Method</th>
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<tr>
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<tr>
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DB = PDX Drainage Basin
## EXHIBIT 2 cont.: Monthly Temperature Data, PDX Drainage Basins 1A, 1B, 2, 4, 5, 6, 7, and 8

<table>
<thead>
<tr>
<th>Date by Month</th>
<th>Date</th>
<th>Sample Site</th>
<th>Qualifier</th>
<th>Temperature F</th>
<th>Analytical Method</th>
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DB = PDX Drainage Basin
EXHIBIT 2 cont.: Monthly Temperature Data, PDX Drainage Basins 1A, 1B, 2, 4, 5, 6, 7, and 8

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<tr>
<th>Date by Month</th>
<th>Date</th>
<th>Sample Site</th>
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<th>Analytical Method</th>
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<tr>
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DB = PDX Drainage Basin
EXHIBIT 2 cont.: Monthly Temperature Data, PDX Drainage Basins 1A, 1B, 2, 4, 5, 6, 7, and 8

<table>
<thead>
<tr>
<th>Date by Month</th>
<th>Date</th>
<th>Sample Site</th>
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<th>Temperature F</th>
<th>Analytical Method</th>
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DB = PDX Drainage Basin
EXHIBIT 3: Follow-up to 2000 – 2001 Annual Report

Terminal Expansion South Wells – Phosphorus Sampling, PDX Drainage Basin 6

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<tr>
<th>Well Identification</th>
<th>PDX Drainage Basin</th>
<th>Screen Depth (feet)</th>
<th>Aquifer Zone</th>
<th>Phosphorus, Total (mg/L) EPA 365.4 1\textsuperscript{st} quarter March 22, 2002</th>
<th>Phosphorus, Total (mg/L) EPA 365.4 2\textsuperscript{nd} quarter April/May 2002</th>
<th>1200-COLS Phosphorus Benchmark (mg/L)</th>
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<tbody>
<tr>
<td>MW-4</td>
<td>6</td>
<td>5 - 15</td>
<td>Shallow</td>
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<td>0.805</td>
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<td>5 - 15</td>
<td>Shallow</td>
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<td>0.311</td>
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EXHIBIT 4: Monitoring Conducted under Permit. No. 101588 - Construction Dewatering, PDX Drainage Basin 7 and 6

<table>
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<th>pH (SU)</th>
<th>TSS (mg/L)</th>
<th>Turbidity (NTU)</th>
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<td>11</td>
<td>12</td>
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<td>7</td>
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<td>7.3</td>
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NTU = Nephelometric Turbidity Unit
SU = Standard Unit
**EXHIBIT 5: Monitoring Conducted under Permit. No. 101647 - Deicing, PDX Drainage Basins 2, 4, 6, and 7**

<table>
<thead>
<tr>
<th>PDX Drainage Basin</th>
<th>Date Time</th>
<th>BOD (mg/L)</th>
<th>Temperature at Celsius</th>
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<tbody>
<tr>
<td>002</td>
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<td>4</td>
<td>10.6</td>
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<tr>
<td>002</td>
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<td>4 U</td>
<td>9.7</td>
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<tr>
<td>002</td>
<td>12/18/01 9:40</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>002</td>
<td>1/4/02 11:40</td>
<td>4 U</td>
<td>9.9</td>
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<tr>
<td>002</td>
<td>1/15/02 14:25</td>
<td>4 U</td>
<td>10</td>
</tr>
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<td>002</td>
<td>2/1/02 11:30</td>
<td>4</td>
<td>9.2</td>
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<tr>
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<td>4 U</td>
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<td>3/1/02 10:20</td>
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U = analyte included in the analysis, but not detected; J = estimated Value
EXHIBIT 5, cont.: Monitoring Conducted under Permit. No. 101647 - Deicing, PDX Drainage Basins 2, 4, 6, and 7

<table>
<thead>
<tr>
<th>Basin</th>
<th>Date</th>
<th>Time</th>
<th>BOD (mg/L)</th>
<th>Temperature at Celsius</th>
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<tbody>
<tr>
<td>006</td>
<td>12/18/01</td>
<td>10:40</td>
<td>12</td>
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<td>006</td>
<td>1/15/02</td>
<td>15:20</td>
<td>4 U</td>
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</tr>
<tr>
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<td>12:30</td>
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<td>16</td>
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<tr>
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<td>3/26/02</td>
<td>13:20</td>
<td>4 U</td>
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</tr>
<tr>
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<td>4/11/02</td>
<td>10:20</td>
<td>4 U</td>
<td>12.6</td>
</tr>
<tr>
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<td>4/24/02</td>
<td>10:20</td>
<td>4 U</td>
<td>12</td>
</tr>
</tbody>
</table>

U = analyte included in the analysis, but not detected
J = estimated Value
EXHIBIT 6: Monitoring Conducted for the BIOX BOD Meter Pilot Project, PDX Drainage Basin 6

Sampling Results for the Deicing Storm Water System Pilot Test
Portland International Airport, Portland, Oregon
Sampling Location: PDX Drainage Basin 6

<table>
<thead>
<tr>
<th>Date</th>
<th>BOD5-1 (mg/L)</th>
<th>BOD5-2 (mg/L)</th>
<th>BOD5-3 (mg/L)</th>
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<td>3</td>
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<tr>
<td>11/9/2001</td>
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<td>4U</td>
<td>4U</td>
</tr>
<tr>
<td>11/12/2001</td>
<td>49</td>
<td>44</td>
<td>49</td>
</tr>
<tr>
<td>11/13/2001</td>
<td>44</td>
<td>43</td>
<td>50</td>
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<tr>
<td>11/14/2001</td>
<td>5</td>
<td>5</td>
<td>5</td>
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<tr>
<td>11/20/2001</td>
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<td>4</td>
</tr>
<tr>
<td>11/20/2001</td>
<td>4U</td>
<td>4U</td>
<td>4U</td>
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<tr>
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<td>4U</td>
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<td>12/5/2001</td>
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<td>4</td>
<td>4</td>
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<tr>
<td>12/14/2001</td>
<td>9</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>12/18/2001</td>
<td>12</td>
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<td>11</td>
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<td>12/26/2001</td>
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<td>4</td>
<td>4</td>
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<td>1/4/2002</td>
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<td>24</td>
<td>26</td>
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<tr>
<td>1/22/2002</td>
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<td>328</td>
<td>349</td>
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<td>2/1/2002</td>
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<td>72</td>
<td>61</td>
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<td>2/15/2002</td>
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<td>2</td>
<td>1.9</td>
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<tr>
<td>2/22/2002</td>
<td>9</td>
<td>9</td>
<td>9</td>
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<td>3/1/2002</td>
<td>3J</td>
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<td>2J</td>
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<tr>
<td>3/8/2002</td>
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<td>2</td>
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<td>3/15/2002</td>
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<td>2U</td>
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</tr>
<tr>
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<td>2U</td>
</tr>
<tr>
<td>4/11/2002</td>
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<td>3</td>
</tr>
<tr>
<td>4/18/2002</td>
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<td>4</td>
</tr>
<tr>
<td>4/24/2002</td>
<td>4U</td>
<td>4U</td>
<td>4U</td>
</tr>
<tr>
<td>4/30/2002</td>
<td>4U</td>
<td>4U</td>
<td>4U</td>
</tr>
</tbody>
</table>

J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL
U = The compound analyzed for, but was not detected ("ND") at or above the MRL/MDL
EXHIBIT 7: Monitoring Conducted for Storm Water Investigations, PDX Drainage Basins 8 and 9

<table>
<thead>
<tr>
<th>Sampling Location</th>
<th>PDX Drainage Basin 8 Turbidity</th>
<th>PDX Drainage Basin 9 Turbidity</th>
<th>24-hr Rain</th>
<th>Notes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>Upstream NTU</td>
<td>At Outfall</td>
<td>Downstrm</td>
<td>Ratio to BG (1)</td>
</tr>
<tr>
<td>13-Dec-01</td>
<td>41.4(2)</td>
<td>123.0</td>
<td>75.1</td>
<td>181%</td>
</tr>
<tr>
<td>14-Dec-01</td>
<td>66.9(2)</td>
<td>64.8</td>
<td>50.5</td>
<td>75%</td>
</tr>
<tr>
<td>15-Dec-01</td>
<td>32.5(2)</td>
<td>49.7</td>
<td>45.3</td>
<td>139%</td>
</tr>
<tr>
<td>16-Dec-01</td>
<td>20.1</td>
<td>30.6</td>
<td>17.9</td>
<td>72%</td>
</tr>
<tr>
<td>17-Dec-01</td>
<td>4.2</td>
<td>5.4</td>
<td>5.3</td>
<td>21%</td>
</tr>
<tr>
<td>18-Dec-01</td>
<td>21.5</td>
<td>33.0</td>
<td>30.5</td>
<td>122%</td>
</tr>
<tr>
<td>19-Dec-01</td>
<td>15.2</td>
<td>40.0</td>
<td>23.1</td>
<td>92%</td>
</tr>
<tr>
<td>20-Dec-01</td>
<td>11.1</td>
<td>44.9</td>
<td>18.4</td>
<td>74%</td>
</tr>
<tr>
<td>21-Dec-01</td>
<td>10.6</td>
<td>31.4</td>
<td>16.0</td>
<td>64%</td>
</tr>
<tr>
<td>22-Dec-01</td>
<td>6.8</td>
<td>25.2</td>
<td>12.9</td>
<td>52%</td>
</tr>
<tr>
<td>23-Dec-01</td>
<td>6.1</td>
<td>15.0</td>
<td>7.9</td>
<td>32%</td>
</tr>
<tr>
<td>24-Dec-01</td>
<td>11.0</td>
<td>16.9</td>
<td>13.0</td>
<td>52%</td>
</tr>
<tr>
<td>25-Dec-01</td>
<td>9.1</td>
<td>19.8</td>
<td>13.0</td>
<td>52%</td>
</tr>
<tr>
<td>26-Dec-01</td>
<td>12.0</td>
<td>21.0</td>
<td>16.0</td>
<td>64%</td>
</tr>
<tr>
<td>27-Dec-01</td>
<td>10.0</td>
<td>19.0</td>
<td>10.0</td>
<td>40%</td>
</tr>
<tr>
<td>28-Dec-01</td>
<td>13.0</td>
<td>21.0</td>
<td>15.0</td>
<td>60%</td>
</tr>
<tr>
<td>29-Dec-01</td>
<td>12.8</td>
<td>16.7</td>
<td>13.0</td>
<td>52%</td>
</tr>
<tr>
<td>30-Dec-01</td>
<td>12.4</td>
<td>16.0</td>
<td>12.4</td>
<td>50%</td>
</tr>
<tr>
<td>31-Dec-01</td>
<td>15.8</td>
<td>17.3</td>
<td>14.1</td>
<td>56%</td>
</tr>
</tbody>
</table>

Notes:
(1) Ratio to BG = (Downstream [NTU] / 90th percentile [NTU]) x 100; Calculated 90th percentile = 25 NTU
(2) Upstream turbidity exceeded 90th percentile value on Dec. 13, 14 and 15; therefore, the upstream sample was used to establish background for this sampling event.
(3) Upstream and downstream measurements taken approximately 50 feet from the outfall.
"--" = Not measured.
Boxed value indicates downstream turbidity exceeds ambient background (25 NTU), or 10 percent increase above upstream measurement when upstream exceeds ambient background.
EXHIBIT 7, cont.: Monitoring Conducted for Storm Water Investigations, PDX Drainage Basins 8 and 9

<table>
<thead>
<tr>
<th>Location</th>
<th>Date</th>
<th>PDX Drainage Basin 8 Turbidity</th>
<th>PDX Drainage Basin 9 Turbidity</th>
<th>24-hr</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Measured in field using Hach 2100-P turbidimeter</td>
<td>Measured in field using Hach 2100-P turbidimeter</td>
<td>Rain (inches)</td>
</tr>
<tr>
<td>Sample</td>
<td>Location</td>
<td>Ratio to BG (1)</td>
<td>Ratio to BG (1)</td>
<td>24-hr</td>
</tr>
<tr>
<td></td>
<td>Upstream</td>
<td>(NTU)</td>
<td>At Outfall</td>
<td>(percent)</td>
</tr>
<tr>
<td>1-Jan-02</td>
<td>13.8</td>
<td>89.9</td>
<td>37.1</td>
<td>148%</td>
</tr>
<tr>
<td>2-Jan-02</td>
<td>17.8</td>
<td>25.6</td>
<td>21.0</td>
<td>84%</td>
</tr>
<tr>
<td>3-Jan-02</td>
<td>20.8</td>
<td>26.6</td>
<td>21.8</td>
<td>87%</td>
</tr>
<tr>
<td>4-Jan-02</td>
<td>18.2</td>
<td>18.8</td>
<td>17.1</td>
<td>68%</td>
</tr>
<tr>
<td>5-Jan-02</td>
<td>18.8</td>
<td>23.1</td>
<td>20.1</td>
<td>80%</td>
</tr>
<tr>
<td>6-Jan-02</td>
<td>21.6</td>
<td>24.5</td>
<td>22.8</td>
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</tr>
<tr>
<td>7-Jan-02</td>
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<td>54.2</td>
<td>42.7</td>
<td>171%</td>
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<tr>
<td>8-Jan-02</td>
<td>24.4</td>
<td>62.4</td>
<td>44.2</td>
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<td>9-Jan-02</td>
<td>10.3</td>
<td>30.6</td>
<td>15.9</td>
<td>64%</td>
</tr>
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<td>10-Jan-02</td>
<td>8.8</td>
<td>30.1</td>
<td>18.0</td>
<td>72%</td>
</tr>
</tbody>
</table>

Notes:
1. Ratio to BG = (Downstream [NTU] / 90th percentile [NTU]) x 100; Calculated 90th percentile = 25 NTU
2. Upstream turbidity exceeded 90th percentile value on Dec. 13, 14 and 15; therefore, the upstream sample was used to establish background for this sampling event.
3. Upstream and downstream measurements taken approximately 50 feet from the outfall.
   "--" = Not measured.
   Boxed value indicates downstream turbidity exceeds ambient background (25 NTU), or 10 percent increase above upstream measurement when upstream exceeds ambient background.
EXHIBIT 7, cont.:  Monitoring Conducted for Storm Water Investigations, PDX Drainage Basins 8 and 9

<table>
<thead>
<tr>
<th>Date</th>
<th>Turbidity (NTU)</th>
<th>Oil &amp; Grease (mg/L)</th>
<th>TSS (mg/L)</th>
<th>Rain</th>
<th>Field Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(percent)</td>
<td>EPA Method 1664</td>
<td>EPA Method 160.2</td>
<td>(inches)</td>
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</tr>
<tr>
<td>PDX Drainage Basin 8</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>20-Dec-01</td>
<td>&lt;5</td>
<td>26</td>
<td>44.9</td>
<td>11.1</td>
<td>18.4</td>
</tr>
<tr>
<td>3-Jan-02</td>
<td>&lt;5</td>
<td>17</td>
<td>26.6</td>
<td>20.8</td>
<td>21.8</td>
</tr>
<tr>
<td>17-Jan-02</td>
<td>&lt;5</td>
<td>&lt;10</td>
<td>20.1</td>
<td>10.4</td>
<td>13.6</td>
</tr>
<tr>
<td>31-Jan-02</td>
<td>&lt;5</td>
<td>&lt;10</td>
<td>20.9</td>
<td>10.5</td>
<td>7.7</td>
</tr>
<tr>
<td>22-Feb-02</td>
<td>&lt;5</td>
<td>18</td>
<td>32.7</td>
<td>9.3</td>
<td>13.2</td>
</tr>
<tr>
<td>28-Feb-02</td>
<td>&lt;5</td>
<td>37</td>
<td>54.9</td>
<td>14.5</td>
<td>22.5</td>
</tr>
<tr>
<td>14-Mar-02</td>
<td>&lt;5</td>
<td>10</td>
<td>27.9</td>
<td>16.1</td>
<td>18.4</td>
</tr>
<tr>
<td>28-Mar-02</td>
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<td>&lt;10</td>
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<td>9.3</td>
<td>10.4</td>
</tr>
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<td>11-Apr-02</td>
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<td>19.9</td>
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<td>11.4</td>
</tr>
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<td>25-Apr-02</td>
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<td>19.2</td>
<td>3.4</td>
<td>5.1</td>
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<td>PDX Drainage Basin 9</td>
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<td>&lt;10</td>
<td>9.6</td>
<td>12.5</td>
<td>13.2</td>
</tr>
<tr>
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<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>17-Jan-02</td>
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<td>9.9</td>
<td>10.7</td>
<td>10.1</td>
</tr>
<tr>
<td>31-Jan-02</td>
<td>&lt;5</td>
<td>&lt;10</td>
<td>8.7</td>
<td>9.0</td>
<td>8.6</td>
</tr>
<tr>
<td>22-Feb-02</td>
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<td>&lt;10</td>
<td>9.8</td>
<td>9.1</td>
<td>10.4</td>
</tr>
<tr>
<td>28-Feb-02</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>14-Mar-02</td>
<td>&lt;5</td>
<td>&lt;10</td>
<td>12.1</td>
<td>16.5</td>
<td>15.0</td>
</tr>
<tr>
<td>28-Mar-02</td>
<td>&lt;5</td>
<td>&lt;10</td>
<td>10.9</td>
<td>10.8</td>
<td>10.3</td>
</tr>
<tr>
<td>11-Apr-02</td>
<td>&lt;5</td>
<td>&lt;10</td>
<td>12.0</td>
<td>9.5</td>
<td>9.1</td>
</tr>
<tr>
<td>25-Apr-02</td>
<td>--</td>
<td>--</td>
<td>5.6(2)</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

Notes:

(1) Ratio to BG = (Downstream [NTU] / 90th percentile [NTU]) x 100; Calculated 90th percentile = 25 NTU
(2) Average turbidity of samples collected 50 feet upstream and downstream during no flow condition.

"--" = Not measured.
EXHIBIT 8: Monitoring Conducted for Storm Water Investigations, PDX Drainage Basin 7

<table>
<thead>
<tr>
<th>Location</th>
<th>Date/Time</th>
<th>TSS (mg/L) EPA Method 160.2</th>
<th>Turbidity NTU EPA Method 180.1</th>
<th>Visual Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDX Drainage Basin 7¹</td>
<td>11/28/01 at 1120</td>
<td>218</td>
<td>162</td>
<td>Turbid</td>
</tr>
<tr>
<td>Alderwood Bridge ²</td>
<td>11/28/01 at 1700</td>
<td>151</td>
<td>93</td>
<td></td>
</tr>
<tr>
<td>Outfall from McBride Slough to Columbia Slough</td>
<td>11/28/01 at 1700</td>
<td>Unable to sample because of safety concerns</td>
<td></td>
<td>No visible plume</td>
</tr>
<tr>
<td>Alderwood Bridge</td>
<td>11/29/01 at 0755</td>
<td>58</td>
<td>18</td>
<td>Normal conditions, well mixed, no discernible flow in McBride Slough</td>
</tr>
<tr>
<td>PDX Drainage Basin 7¹</td>
<td>11/30/01 at 0910</td>
<td>No sample collected because no visible plume</td>
<td>No visible plume</td>
<td></td>
</tr>
<tr>
<td>Alderwood Bridge ²</td>
<td>11/30/01 at 0910</td>
<td>21</td>
<td>10.9</td>
<td>Clear</td>
</tr>
<tr>
<td>Outfall from McBride Slough to Columbia Slough</td>
<td>11/30/01 at 1023</td>
<td>Unable to sample because of safety concerns</td>
<td>No visible plume</td>
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¹PDX Drainage Basin 7 outfall discharges to McBride Slough  
²Approximately ¼ mile downstream of PDX Drainage Basin 7
EXHIBIT 9: Monitoring Conducted for Storm Water Investigations, PDX Drainage Basin 1A

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## VANPORT WETLANDS MONITORING RESULTS

### NW SWALE

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* sample contained sediment from bottom along with surface water

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## EXPO (N. DITCH)

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SG-2
## VANPORT WETLANDS MONITORING RESULTS

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## SW DRAIN

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May 13, 2002

Basin Street Associates
c/o Norris & Stevens
520 SW 6th Avenue
Portland OR 97204
Attn: Scott Perry

RE: Basin Street Associates property, 5820 N Basin Avenue
Compliance Proposal Dated March 13, 2002

The Port of Portland is pleased to accept your proposal which we received by mail on May 2 and which we reviewed with Scott Perry on May 8.

We understand that two items will be addressed in 2002:
1. Storm water drainage now exiting the NE corner of the GI Trucking lot will be routed into a sedimentation basin and two drywells to be installed per the design by Maul Foster Alongi. Our engineering department is presently reviewing these drawings.
2. Storm water exiting catch basins in the ATC Leasing lot, which are connected to the City of Portland storm water system, will be equipped with catch basin inserts to lower sediment and grease concentrations. When you decide upon an initial brand of insert, could you please submit the manufacturer’s data sheet.

We further understand and accept your proposal to address two other items:
3. Pavement on the south side of the GI Trucking lot will be repaired in the summer of 2003.
4. Pavement on the east side of the GI Trucking lot will be repaired in the summer of 2004.

If I can further assist you please call me at 503-944-7662.

Sincerely,

Dean McCargar
Property and Development Services
August 15, 2002

Watumull Properties
c/o Trammel Crow
8625 SW Cascade Avenue, Suite 500
Beaverton, Oregon 97008
Attention: Lisa Johnson

Re: Storm water outfall at 5617 N Basin Avenue, Portland, Oregon

Dear Ms Johnson:

A recent dry weather inspection of storm water outfalls on Swan Island found that there was a continuous flow from the PVC pipe serving the catch basins for your tenant Office Depot. You are probably aware that the point of discharge is actually on Port owned property.

Could you please investigate the source of this water flow and determine that it conforms with the enclosed list of allowable discharges under the Municipal Storm Water Permit. It is also possible that your tenant has obtained an NPDES permit for industrial process water or storm water discharges.

We would appreciate written notice from you within two weeks regarding your findings or actions regarding this matter. Thanks for taking time to look into this. If you need additional information please call me at 503-944-7662.

Sincerely,

Dean McCargar
Property and Development Services
APPENDIX

EXHIBIT 1: MARINE TERMINALS (MARINE) AND PORTLAND INTERNATIONAL AIRPORT (PDX) TENANTS

EXHIBIT 2: PDX STORM WATER BMP
SORBENT BOOM MAINTENANCE SCHEDULE

EXHIBIT 3: PDX OIL-WATER SEPARATOR CLEANING PROGRAM

EXHIBIT 4: MARINE DRY SEASON OBSERVATIONS, 2001

EXHIBIT 5: MARINE 2001 DRY SEASON OUTFALL INVESTIGATION OUTFALLS #: RG7.5PP, RG10PP, SJ25PP, RG13PP
LAB ANALYSIS FOR OUTFALL # RG13PP

EXHIBIT 6: MARINE STORMWATER MONITORING RESULTS FOR THE 1200-Z & 1200-COLS NPDES PERMITS

EXHIBIT 7: PDX 2001 DRY SEASON OBSERVATIONS, 2001

EXHIBIT 8: PDX STORMWATER MONITORING RESULTS FOR THE 1200-COLS NPDES PERMIT
(SCHEDULE B MONITORING REPORT, PP. 14 – 35)

EXHIBIT 9: VANPORT WETLANDS MONITORING RESULTS

EXHIBIT 10: SAMPLE ENFORCEMENT LETTERS (PROPERTIES)
LIST OF MARINE TENANTS
January 11, 2005

TERMINAL 1 (Across Front)
Western Int. Forest Products
(Bear Springs) Warehouse 4
2303 NW Front, Portland, OR 97209
Recuts and sizes lumber for distribution

TERMINAL 2 ADMINISTRATION BUILDING
(Offices)
Alexander Gow
3556 NW Front Ave., #350, 97210
National Cargo Bureau
3556 NW Front Ave. #385, 97210
PM&O Line
3556 NW Front Ave., 97210
PMA
3556 NW Front Ave., 97210
SSA
3556 NW Front Ave., #360, 97210
U.S. Customs
“Tower” Building, T-2
3556 NW Front Ave.
Yokota International
3556 NW Front, Suite 380

TERMINAL 2 FACILITY
SSA
3556 NW Front Ave., #360, 97210
Breakbulk cargo terminal

TERMINAL 4
Cargill
Municipal Terminal No. 4
11000 N. Lombard, Portland, OR 97203
Grain Elevator
Cereal Foods
11040 N. Lombard, Portland, OR 97203
Flour mill
Foss Maritime
Tie-up at T-4 (water access only)
Kinder Morgan Bulk Terminals
11040 N. Lombard, Portland, OR 97203
Dry bulk cargo loading operation (soda ash)
International Raw Materials
11040 N. Lombard, Portland, OR 97203
Liquid bulk terminal facility
Rogers Terminal & Shipping
11040 N Lombard, Portland, OR 97203
Gearlocker – equipment storage and repair
Toyota Motor Sales
10400 N Lombard, Portland, OR 97203
Automobile import and distribution facility

TERMINAL 5
Alcatel Submarine Network, Inc.
15540 N. Lombard St., 97203
Fiber optic manufacturing and distribution facility
(No longer occupy building)
Columbia Grain, Inc.
15660 N. Lombard St., 97203
Grain terminal
Portland Bulk Terminals
15550 N Lombard, 97203
Dry bulk terminal (potash)

Rivergate
Georgia Pacific
13333 N. Rivergate Blvd., 97203
distribution warehouse

TERMINAL 6
American Honda Motor Co.
6399 N. Marine Drive, 97203
Automobile import and distribution facility
Auto Warehousing Company
6347 N. Marine Drive, 97203
Automobile processing and distribution
Hyundai Motor America
8235 N. Marine Drive, 97203
Automobile import and distribution facility
Marine Terminal Corporation
7201 N. Marine Drive, 97203
T6 Stevedoring
<table>
<thead>
<tr>
<th>NAME &amp; ADDRESS</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>T1</strong></td>
<td></td>
</tr>
<tr>
<td>Bear Springs (Western Intl. Forest Products)</td>
<td><strong>Other T1 tenants (not part of Marine, part of Properties instead) include:</strong> Benson Industries, ILWU Local 92 Office Lease, vessel “Beaver State” at B104, Multnomah County Sheriff’s Office, Port of Cascade Locks, High-Temp NW, Inc., Tristar Transload</td>
</tr>
<tr>
<td>Warehouse 4</td>
<td>2303 NW Front, 97209</td>
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<td></td>
<td></td>
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<tr>
<td><strong>T2</strong></td>
<td></td>
</tr>
<tr>
<td>Stevedoring Services of America</td>
<td>Permit: 1200Z (exp. 6/30/02)</td>
</tr>
<tr>
<td>3556 NW Front Avenue, #360, 97210</td>
<td>Tenants with office leases: Alexander Gow, Yokota International, National Cargo Bureau, PM&amp;O Line, PMA, US Customs</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>T4</strong></td>
<td></td>
</tr>
<tr>
<td>Cargill</td>
<td></td>
</tr>
<tr>
<td>Municipal Terminal No. 4</td>
<td>11000 N. Lombard, 97203</td>
</tr>
<tr>
<td>Cereal Foods</td>
<td></td>
</tr>
<tr>
<td>11040 N. Lombard, 97203</td>
<td></td>
</tr>
<tr>
<td>Foss Maritime</td>
<td>Tie-up at T4 (water access only)</td>
</tr>
<tr>
<td>Kinder Morgan Bulk Terminals</td>
<td>Permit: 1200Z (exp. 6/30/02)</td>
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<tr>
<td>11040 N. Lombard, 97203</td>
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</tr>
<tr>
<td>International Raw Materials</td>
<td>Permit: 1200Z (exp. 6/30/02)</td>
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<tr>
<td>11040 N. Lombard, 97203</td>
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</tr>
<tr>
<td>Oregon Steel Mills</td>
<td>Terminal Use Agreement only (not lease)</td>
</tr>
<tr>
<td>Rogers Terminal and Shipping</td>
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<td>11040 N. Lombard, 97203</td>
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</tr>
<tr>
<td>Toyota Logistics Services, Inc</td>
<td>Permit: 1200Z (exp. 6/30/02); 1500A (exp. 6/30/05)</td>
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<td>10400 N. Lombard, 97203</td>
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<tr>
<td>Port of Portland</td>
<td>Permit: 1500A (exp. 6/30/05)</td>
</tr>
<tr>
<td></td>
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<tr>
<td><strong>T5</strong></td>
<td></td>
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<tr>
<td>Alcatel Submarine Networks, Inc.</td>
<td>Permit: GEN01 (cooling water/heat pump) (exp. 7/31/01)</td>
</tr>
<tr>
<td>15540 N. Lombard, 97203</td>
<td>NOTE: Alcatel no longer occupies building.</td>
</tr>
<tr>
<td>Portland Bulk Terminals</td>
<td>Permit: NPDES permit #101377 (exp. 4/3/01)</td>
</tr>
<tr>
<td>15550 N. Lombard, 97203</td>
<td></td>
</tr>
<tr>
<td>Columbia Grain</td>
<td>Permit: 1200Z (exp. 6/30/02)</td>
</tr>
<tr>
<td>15660 N. Lombard, 97203</td>
<td></td>
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<tr>
<td>Georgia-Pacific Corp.</td>
<td></td>
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<tr>
<td>13333 N. Rivergate Blvd., 97203</td>
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<td></td>
<td></td>
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<tr>
<td><strong>T6</strong></td>
<td></td>
</tr>
<tr>
<td>Auto Warehousing Company</td>
<td>Permit: 1200COLS (exp. 12/21/04)</td>
</tr>
<tr>
<td>6347 N. Marine Drive, 97203</td>
<td></td>
</tr>
<tr>
<td>Marine Terminals Corporation</td>
<td>No Permits – see Port of Portland T6</td>
</tr>
<tr>
<td>7201 N. Marine Drive, 97203</td>
<td></td>
</tr>
<tr>
<td>American Honda Motor Company</td>
<td>No Permits</td>
</tr>
<tr>
<td>6399 N. Marine Drive, 97203</td>
<td></td>
</tr>
<tr>
<td>Hyundai Motor America</td>
<td>Permit: 1200COLS (exp. 12/21/04)</td>
</tr>
<tr>
<td>8235 N. Marine Drive, 97203</td>
<td></td>
</tr>
<tr>
<td>Port of Portland</td>
<td>Permit: 1200Z (exp. 6/30/02); 1200COLS (exp. 12/21/04); 1200CA (portwide); MS4 (portwide)</td>
</tr>
</tbody>
</table>
Section V

MULTNOMAH COUNTY DRAINAGE DISTRICT NO. 1
(MCDD#1)

PENINSULA DRAINAGE DISTRICT NO. 1 (PENN 1)

PENINSULA DRAINAGE DISTRICT NO. 2 (PENN 2)
MULTNOMAH COUNTY DRAINAGE DISTRICT NO. 1
PENINSULA DRAINAGE DISTRICT NO. 1
PENINSULA DRAINAGE DISTRICT NO. 2

NPDES MS4
ANNUAL COMPLIANCE REPORT
FISCAL YEAR 2001-2002

During permit year five, the drainage districts examined their role under the permit and
determined they could fulfill this role effectively through memoranda of agreement
(MOAs) among all the parties. As a result, they have proposed taking that approach,
rather than continuing as a co-permittee, in the second five-year permit term. DEQ has
not formally accepted this status change, pending review of the permit renewal;
however, the drainage districts expect that DEQ will support the MOA concept as the
appropriate vehicle for their participation.

During year seven under the original permit, the drainage districts continued an
aggressive program of best management practices. Internal programs included:
• A comprehensive update of the districts’ emergency response manual
• Maintenance and repair of unstable bank areas
• Training of field personnel on equipment and work techniques that affect water
  quality

Externally, the districts worked with numerous landowners to correct or prevent
problems on private property that contribute to water quality. Examples include:
• Advising on the design of drainage systems
• Correction of unstable banks
• Identifying and correcting improper construction work
• Assisting with cleanup efforts of pollution sites that caused water quality problems

Multnomah County Drainage District No. 1 (MCDD) also gained approval and funding
of important water channel improvement projects that will greatly affect water quality
and habitat. Chief among these projects is the multi-million dollar “1135” project,
which was approved for funding by the U.S. Army Corps of Engineers. This project
will create 7.5 miles of emergent wetland and shrub-scrub habitat in the Middle and
Upper Columbia Slough by excavating material from the center area of the channel and
depositing it to form adjacent islands and benches. Similar projects were approved and
constructed at the Walker Slough adjacent to Interstate 5 and at the Wagner Mining site
on the main slough. MCDD is the construction agent for these projects. The 1135
project will require three years to complete the dredging and planting of native plants.
These projects have been in development for nearly 10 years and were originated and
advocated by MCDD.
Appendix A

CITY OF PORTLAND NPDES STORMWATER PERMIT
RE: Municipal Separate Storm Sewer Discharge Permit
File Number 108015
Multnomah County

We have completed our review of your permit application and the comments received regarding the preliminary draft permit which was mailed to you for review on January 6, 1995, as well as comments received during the May 3 public hearing and participation period, and have issued the enclosed National Pollutant Discharge Elimination System (NPDES) Waste Discharge Permit.

We greatly appreciate the effort the City and Co-permitees have expended in putting together what we hope will be a model storm water program.

This permit will be considered as the final action on permit application number 995938.

If you are dissatisfied with the conditions or limitations of this permit, you have 20 days to request a hearing before the Environmental Quality Commission or its authorized representative. Any such request shall be made in writing to the Director and shall clearly state the grounds for the request.

You are urged to carefully read the permit and take all possible steps to comply with the conditions established. If you have questions regarding the permit, please contact Paul Keiran at (503) 229-5937.

Sincerely,

Neil J. Mullane
Manager
Water Quality Source Control
Northwest Region

Enclosure
ISSUED TO CO-PERMITTEES:

City of Portland
1120 SW Fifth Avenue
Room 400
Portland OR 97204-1972

Multnomah County
Port of Portland
Oregon Department of Transportation
Multnomah County Drainage District #1
Peninsula Drainage District #1
Peninsula Drainage District #2

SOUCES COVERED BY THIS PERMIT:

All Existing and New Discharges of Storm Water From the Municipal Separate Storm Sewer System Within the City of Portland Urban Services Boundary

RECEIVING STREAM INFORMATION:


Hydro Code: 22=WILL, 10=COLU County: Multnomah

* These water bodies have been designated, or drain to water bodies that have been designated, as water quality limited.

# Total Maximum Daily Loads/Waste Load Allocations/Load Allocations have been established for these water bodies.

DESCRIPTION OF SYSTEM:

Municipal Separate Storm Sewer System

EPA REFERENCE NO: ORS 108015

Issued in response to Application No. 995938 received May 26, 1993 and Addendum No. 1 to the application, dated May 17, 1994.

This permit is issued based on the land use findings in the permit record.

Tom Bispham, Administrator
Northwest Region

September 7, 1995

Date

PERMITTED ACTIVITIES

Until this permit expires or is modified or revoked, the co-permittees are authorized to implement a storm water management program to reduce the contribution of pollutants in storm water to the maximum extent practicable and to discharge storm water to public waters in conformance with all the requirements and conditions set forth in the attached schedules as follows:

Schedule A - Controls and Limitations ........................................ 2
Schedule B - Minimum Monitoring and Reporting Requirements .......... 3
Schedule C - Compliance Conditions and Schedules ....................... *
Schedule D - Special Conditions .............................................. 4
General Conditions .................................................................... Attached

* The standard Schedule C is omitted from this permit because the Storm Water Management Program and addenda (SWMP) identifies the compliance items and schedules required by the co-permittees and Schedule B requires an annual status report on the SWMP.
Controls and Limitations for Storm Water Discharges from Municipal Separate Storm Sewer Systems

1. The co-permittees shall maintain compliance with this permit and implement the Storm Water Management Program and addenda (SWMP) as submitted in the National Pollutant Discharge Elimination System (NPDES) permit application Parts 1 and 2 (including amendments) currently approved by the Department, and hereby incorporated into this permit by reference, in order to comply with the following conditions required by the Clean Water Act:

   a. Reduce the discharge of pollutants to the maximum extent practicable from the municipal separate storm sewer system (MS4).

   b. Effectively prohibit non-storm water discharges into the MS4 unless such discharges are otherwise permitted by an existing NPDES permit or special permit issued for short term activities pursuant to OAR 340-14-050. The following category of non-storm water discharges need not be prohibited from entering the MS4, provided appropriate control measures (if needed) to minimize the impacts of such sources, are developed under the SWMP: water line flushing; landscape irrigation; diverted stream flows; rising ground waters; uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)) to separate storm sewers; uncontaminated pumped ground water; discharges from potable water sources; foundation drains; air conditioning condensate; irrigation water; springs; water from crawl space pumps; footing drains; lawn watering; individual residential car washing; flows from riparian habitats and wetlands; dechlorinated swimming pool discharges; street wash water and discharges or flows from fire fighting activities only where such discharges or flows are identified as significant sources of pollutants to waters of the United States.

Each co-permittee shall be deemed to be in compliance with (a) and (b) above by implementing the SWMP for the MS4s within the co-permittees’ jurisdiction.

2. The Department has developed or will be developing total maximum daily loads (TMDLs) including a subsequent implementation program for several of the receiving streams listed on page 1 of this permit. The Department will enter into a memorandum of agreement (MOA) with each of the designated management agencies that describes the activities that they will complete and the time frames for completion of these tasks. The Department will utilize the MOAs in conjunction with this permit as the regulatory tool to insure compliance with the stormwater component of the TMDL program. The MOAs will establish mutually agreeable commitments for each jurisdiction. Compliance with the stormwater component of the MOA will constitute compliance with the TMDL provision of this permit.
Minimum Monitoring and Reporting Requirements (unless otherwise approved in writing by the Department)

1. Storm Water Sampling Points
   The co-permittees shall monitor storm water from the sampling points specified in the approved SWMP.

2. Storm Selection Criteria
   The co-permittees shall sample storms which are representative of climatic conditions within the area served by the MS4 as specified in the approved SWMP.

3. Monitoring Frequency and Parameters to be Monitored
   The frequency of sampling storms and the parameters to be analyzed shall be as specified in the approved SWMP.

4. Sampling Waiver
   In the event the co-permittees are unable to collect or analyze any sample or pollutant parameter due to circumstances beyond the co-permittee's control, a written explanation of the circumstances that prevented the collection or analysis shall be submitted to the Department in the annual report. The co-permittee shall exercise due diligence in collecting and analyzing all samples as required by this Schedule. Circumstances beyond the control of the co-permittee may include abnormal climatic conditions (e.g., fewer storms in the annual reporting period than typically are representative of climatic conditions); weather conditions that make the collection or analysis of samples unsafe or impracticable (e.g., storms of such intensity that sampling would present an unreasonable safety risk); or unavoidable equipment failures caused by weather conditions or other conditions beyond the control of the co-permittee (provided that operator error is not a condition beyond the control of the co-permittee). If more than one sampling event is missed at any storm water sampling point, then re-sampling at that point will occur within twelve months of the second missed storm event.

5. Monitoring Adjustments
   In the event that monitoring at an individual location or for an individual parameter is determined by the co-permittees and the Department to be unproductive, the Department will delete or change the monitoring by a permit action letter.

6. Reporting Procedures
   Monitoring data shall be summarized to include concentrations of each pollutant for each monitoring site for each storm event monitored, compared to previously collected data, and reported as directed in Condition 7 of this Schedule.

7. System-Wide Report
   The co-permittees shall submit by September 1, 1996, and annually thereafter a coordinated system-wide report, for the fiscal year July 1 - June 30, containing:

a. A description of the activities undertaken to implement the components of the SWMP;

b. A description of any changes made, initiated or proposed, to the SWMP;

c. A summary of data, including monitoring data required by Schedule B, that is accumulated throughout the reporting year; and

d. Any water quality improvements or degradation that have been identified.
Special Conditions

1. Each co-permittee shall maintain, through ordinance, interagency agreement, or other means, adequate legal authority to implement and enforce the provisions of this permit.

2. Each co-permittee shall be responsible for the portion of the system-wide report applicable to their individual jurisdiction. Individual co-permittees shall not be held responsible for the noncompliance of another co-permittee with the conditions of this permit.

3. Each co-permittee shall manage storm water in accordance with the current SWMP approved by the Department. Insignificant changes to management activities as described in the approved SWMP may be made without written approval of the Department. Insignificant changes are modifications of implementation tasks within a management activity that do not change the intent or overall implementation schedule of that activity. No significant changes shall be made in storm water management activities as described in the approved SWMP without the prior written approval of the Department.

   All changes to the SWMP shall be summarized in the annual report required by Schedule B.

4. The preparation and submittal of a system-wide annual report as required by Schedule B shall be coordinated by the City of Portland.

5. Permit coverage may be terminated for a single co-permittee without terminating coverage for other co-permittees.