

**MS4 Permit Stormwater Management Plan
for
Clackamas County Service District No. 1
and the City of Happy Valley**

Updated 5/1/2006



**Clackamas County Service District No. 1
and the City of Happy Valley**

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4)
STORMWATER MANAGEMENT PLAN**

I, the undersigned, hereby submit this National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Stormwater Management Plan in accordance with NPDES Permit Number 108016. We certify under penalty of law that this document and all attachments were prepared under our direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate 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.

Michael S. Kuenzi, Director
Water Environment Services

PERMIT HOLDER INFORMATION

CO-PERMITTEE'S NAME: **Clackamas County Service District No. 1**
(includes the City of Happy Valley)

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OTHER CO-PERMITTEES: Surface Water Mgmt. Agency of Clack. Co.
(includes the City of Rivergrove)
Clackamas County
City of Gladstone
City of Johnson City
City of Lake Oswego
City of Milwaukie
City of Oregon City
City of West Linn
City of Wilsonville
Oak Lodge Sanitary District

MS4 PERMIT STORMWATER MANAGEMENT PLAN

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1. INTRODUCTION

Background

Clackamas County Service District No. 1 (CCSD#1), the Surface Water Management Agency of Clackamas County (SWMACC), the City of Happy Valley, and the City of Rivergrove are co-permittees on the same Municipal Separate Storm Sewer System (MS4) permit. The other Phase 1 co-permittees on this same MS4 permit are the Oak Lodge Sanitary District, Clackamas County, and the following cities: Gladstone, Johnson City, Lake Oswego, Milwaukie, Oregon City, West Linn, and Wilsonville. (Phase 1 communities are generally those with a population of 100,000 or more. Clackamas County co-permittees are classified as Phase 1 communities because they meet this threshold collectively, though not separately.) The Clackamas County MS4 permit was issued by DEQ on December 15, 1995, was renewed by DEQ on March 3, 2004, and was modified by DEQ on July 27, 2005. The recently modified MS4 permit requires an Interim Evaluation Report (IER) to evaluate the effectiveness of the permittees' Stormwater Management Plans in complying with the permit's water quality protection requirements. This Stormwater Management Plan proposed for Clackamas County Service District #1 and the City of Happy Valley includes changes recommended by the IER.

A joint Stormwater Management Plan (SWMP) was developed in 1993 for CCSD#1 and SWMACC, pursuant to the (then pending) issuance of initial MS4 permits to Phase 1 communities in Oregon. The 1993 SWMP was updated in 2000. Further revisions are now proposed as part of this SWMP, which pertains only to CCSD#1 and the City of Happy Valley. (An IER and a revised SWMP are being submitted as separate documents for SWMACC and the City of Rivergrove.)

District Demographics

Clackamas County Service District No. 1 is administered by Water Environment Services (WES), a department of Clackamas County.

Clackamas County Service District No. 1 includes the following four geographic subunits:

- Fischer's Forest Park - in the Redland area
- Hoodland - in and near Welches, Wemme, and Rhododendron
- Boring - in the hamlet of Boring
- Portland metropolitan area - Only the Portland metro area subunit of CCSD#1 is regulated by the MS4 permit. The remaining subunits serve rural areas or very small urban areas that are not within the Portland metro area's urban growth boundary (UGB). This subunit is known as CCSD#1-UGB. The developed area of the City of Happy Valley lies within CCSD#1-UGB, and the remainder of Happy Valley will be annexed to CCSD#1 as it is developed. With the exception of small portions of the Cities of Gladstone and Damascus, the balance of the area in this urbanized subunit is unincorporated.

Table 1 is a summary of current land use acreage and associated runoff coefficients (taken from Section 2.4.7.1 of the Oregon Department of Transportation *Hydraulics Manual*) in CCSD#1-UGB. The runoff coefficient indicates the percentage of rainfall expected to leave a site as runoff during any given storm event.

Table 1

Land Use	Area (acres)	Runoff Coefficient
Agriculture	24	0.50
Commercial	760	0.70
Industrial	1,654	0.80
Undeveloped	337	0.20
Open Space	339	0.25
Other	44	0.35
Residential	7,623	0.60
Streets	2,320	0.90
Total	13,101	-

Table 2 lists census data for CCSD#1-UGB from the year 2000, along with growth estimates for 2005 and 2010:

Table 2

Year	2000	2005	2010
Population	49,175	53,682	58,189
ESU estimate	33,217	38,597	44,848

An equivalent service unit (ESU) is defined as 2500 square feet of impervious surface, the assumed average for a single family home. The number of ESUs listed for 2000 and 2005 are based on CCSD#1 customer billing records. The 5-year ESU growth rate from 2000 to 2005 (16%) has been projected to 2010. Excluding roadways, the amount of impervious area in CCSD#1 is projected to increase by 359 acres (6251 ESUs) between 2005 and 2010. Based on aerial mapping, new roadways (not reflected in customer billing records) are estimated to account for an additional 50% increase in impervious area, or an additional 179 acres over the next 5 years.

Appendix A shows the entire area of Clackamas County within the Portland UGB, which includes all MS4 co-permittees. Appendix B shows structural controls and outfalls in CCSD#1-UGB, and Appendix C shows sites with NPDES (1200C or 1200Z) permits.

Program Goals and Objectives

The overall goals of the Stormwater Management Plan are to:

- Reduce the discharge of pollutants from the MS4 to the maximum extent practicable (MEP)
- Protect and/or enhance the natural function of the surface water bodies that are within CCSD#1-UGB.

The specific objectives of the Stormwater Management Plan are to:

- Involve and educate the public regarding opportunities to improve surface water quality and aquatic habitat in riparian areas to minimize nonpoint source pollution
- Protect or improve the quality of the water in District's rivers, streams, and wetlands through the cost-effective use of non-structural methods (i.e. Best Management Practices). These practices shall initially be focused on preventing point and nonpoint source water pollution. If stormwater pollution cannot be prevented, it will be controlled at the source.
- Integrate the need to manage stormwater for both water quality and drainage benefits by emphasizing the use of natural systems (i.e. infiltration of stormwater into soil) whenever possible
- Coordinate among government agencies, residents, trade associations and other ratepayers and groups to reduce the level of pollutants that enter the MS4.

2. RIVERS AND CREEKS

Rivers and creeks that receive discharges from the District's MS4-permitted areas, include but aren't limited to, the following:

- Johnson Creek
- Kellogg Creek
 - Mt. Scott Creek
 - Cedar Creek
 - Mel Brook Creek
 - Dean Creek
 - Phillips Creek
- Clackamas River
 - Cow Creek
 - Carli Creek
 - Sieben Creek
 - Rose Creek
 - Sunshine Creek
 - Rock Creek
 - Graham Creek
 - Trillium Creek

3. STORM SEWER SYSTEMS

The Two Types of Separate Storm Sewer Systems

Surface-discharging storm sewer systems: In conjunction with Clackamas County's Department of Transportation and Development (DTD), the District owns or operates surface-discharging storm sewer systems in the MS4-permitted area. Most parts of the MS4-permitted surface-discharging storm sewer system are comprised of piped storm sewers, but some swales and open ditches are also present. It is important to note here

that there are many privately owned surface-discharging storm sewer systems that are present near the District's MS4-permitted systems. These privately-owned surface-discharging storm sewer systems are not regulated by the District's MS4 permit. As is required by the Schedule B(2)(b)(vi) of the MS4 permit, maps providing updated information [as described in 40 CFR §122.26(d)(1)(iii)(B)] on the location of all known components of the MS4 are being submitted to DEQ as an element of this SWMP. All new drainage systems and controls constructed through private development or public works projects are continually documented on as-built drawings and GIS maps. Many archived drawings of older systems have also been compiled and added to county databases. Known surface-discharging facilities are shown in Appendix B.

Injection-type storm sewer systems: DTD and the District jointly manage about 150 injection-type storm sewer systems that are in or near CCSD#1. Discharges from injection-type storm sewer systems are not regulated by any MS4 permit, but they are regulated by the federal Safe Drinking Water Act and Oregon's OAR 340, Division 44. The District and DTD jointly applied for an area-wide Water Pollution Control Facility (WPCF) permit from DEQ for these devices on December 19, 2001. As of January 2006, this WPCF permit had not been issued. Nearly all of these stormwater injection devices are drywells. A separate stormwater management plan guides the District's and DTD's stormwater management programs in the geographic areas that drain to drywells.

Major Outfalls

Publicly-owned storm sewers which discharge to surface waters can be divided into two categories: major and minor. The Environmental Protection Agency (EPA) defines a major outfall as one that is:

- a single pipe 36" in diameter or greater, or
- a single conveyance other than a circular pipe serving a drainage area of more than 50 acres, or
- a single pipe 12" in diameter or greater if the outfall also receives any drainage from lands zoned for industrial activity, or
- a single conveyance other than a circular pipe which receives drainage from more than two acres of land zoned for industrial activity.

Minor outfalls are all other publicly-owned storm sewer outfalls which discharge to surface waters. Twenty-nine (29) major outfalls are located in CCSD#1-UGB. In an effort to identify and, if appropriate, control illicit discharges, each major outfall receives at least one dry-weather inspection per year. See section 4.6 for more information.

Conveyance System Components and Structural Controls

The District owns and/or maintains a large number of structures that provide a stormwater treatment function. They include, but aren't limited to, the following: vegetated aboveground stormwater detention facilities, swales, sedimentation manholes, and various types of underground proprietary pollution control systems. Inventoried facilities include roughly 8000 catch basins and manholes, 255 miles of storm sewer pipe, 182 detention ponds, 750 detention pipes, and 31 treatment facilities

(swales and underground devices). Maps with the location of many of these devices are being submitted to DEQ as an element of this SWMP (see Appendix B). The District regularly evaluates opportunities to install additional structural controls. See sections 4.1 and 4.2 for more information.

4. REQUIRED SWMP ELEMENTS

According to the MS4 permit's schedule D(2)(c), the following elements are required to be present within the District's SWMP. These elements, which rely upon the implementation of Best Management Practices (BMPs), reduce the discharge of pollutants to the maximum extent practicable (MEP).

4.1 Maintenance [Schedule D(2)(c)(i)(1) and (3); Replaces 2000 SWMP Sections 4.1.1 & 4.1.3]

This section is divided into three portions:

- a) Conveyance System Components and Structural Controls
- b) Street Sweeping
- c) Other O & M for public streets

a. Conveyance System Components and Structural Controls

Description:

The conveyance system components that are maintained by the District and DTD include culverts, storm sewer lines, ditches, and inlets that are located in the right-of-way of publicly owned roads or in a storm drainage easement. The conveyance system also includes a large number of structures that provide a significant stormwater treatment function. They include, but aren't limited to, the following: vegetated aboveground stormwater detention facilities, sedimentation manholes, and various types of underground proprietary pollution control systems. The strategy for the overall system is to interdict debris and other materials before they gain entrance into the pipes. The District's maintenance focus, therefore, revolves around catch basins, pollution control manholes and other "debris capturing" structures. These facilities are regularly inspected and maintained on an as-needed basis. Maintenance records are kept by the both DTD and the District.

Implementation schedule:

This portion of our stormwater maintenance program is in a state of transition as the District accelerates its role in the overall stormwater program. DTD previously played a primary role in the District's maintenance efforts but will now be scaled back to a support role only. The District is directly responsible for maintenance agreement areas (all subdivisions constructed since 1998) and is phasing in the CCSD #1 road rights-of-way at this time.

Measurable performance indicators:

- miles of ditches maintained
- number of components inspected and/or cleaned, and/or
- mass or volume of material removed during cleaning

b. Street Sweeping

Description:

Major arterial curbed streets are swept on a regular basis. The frequency varies depending on a variety of factors (for example, traffic volumes).

Implementation schedule: Ongoing effort.

Measurable performance indicators:

- number of miles that were swept, and/or
- mass or volume of material removed during sweeping

c. Other O & M for public streets

Descriptions:

- Road repair activities: These are conducted by DTD in a manner that minimizes or prevents erosion. When possible, this work is scheduled during the dry season.
- Litter control: This involves 1) the removal of large dead animals from roadways, 2) preventing illegal solid waste dumping through signage and enforcement actions against offenders, 3) removal of illegal solid waste dumps, and 4) DTD's "Adopt A Road" program, which enlists the support for litter removal on specific road segments from individuals, families, community groups and businesses.
- Ice removal work: This is performed by DTD on certain paved streets on an as-needed basis. The frequency varies depending on a range of factors, including personnel availability, air temperature, road surface temperature, humidity, and precipitation.
- Road sanding: This enhances traction during ice/snow events. After the ice/snow event, when practical, the sand is removed from the roadway with mechanical sweeping machines.

Implementation schedule: Ongoing effort.

Measurable performance indicators:

- number of miles of road that are enrolled in the "Adopt A Road" program
- mass or volume of material removed by the "Adopt A Road" program
- number of illegal solid waste dumps that are removed
- mass or volume of material that is removed by the elimination of illegal solid waste dumping sites

4.2 Planning Procedures for New Development and Significant Redevelopment [Schedule D(2)(c)(i)(2); Replaces 2000 SWMP Section 4.1.2]

Description:

This section of the SWMP describes the planning procedures for developing, implementing, and enforcing controls to reduce the discharge of pollutants from storm sewers collecting runoff from areas of significant development or redevelopment. These controls include county-funded capital improvement projects to provide new stormwater treatment facilities in previously developed areas and regulations requiring such facilities with all new land development or redevelopment projects. All new developments are also required to infiltrate runoff from frequent low-intensity rain events in order to limit the increase in runoff volume from urban development and provide groundwater recharge to maintain dry weather instream base flows.

Implementation schedule:

- For retrofitting systems constructed prior to CCSD#1 adoption of stormwater treatment requirements in May 2000, CCSD#1 has identified five (5) major outfalls to be potentially retrofitted with stormwater treatment devices, with a portion of the funding for construction possibly eligible for EPA grant funding. Construction of these stormwater quality improvements is tentatively anticipated for the summer of 2006 or 2007. CCSD#1 plans to conduct future feasibility studies to identify additional major outfalls suitable for the installation of treatment facilities. Additional opportunities will be identified in coordination with roadway improvement projects to be planned by the Clackamas County Department of Transportation and Development. Detailed descriptions of these projects will be included in future annual reports.
- For all new developments, implementation is ongoing.

Measurable performance indicators:

- For developments occurring prior to CCSD#1 adoption of stormwater treatment requirements in May 2000, the number of new treatment or infiltration facilities installed by CCSD#1 in previously developed areas. (See implementation schedule above.)
- For developments occurring subsequent to CCSD#1 adoption of stormwater treatment requirements in May 2000, the number of treatment or infiltration facilities installed in accordance with these requirements. Between the year 2000 and 2005, it is estimated that 30 such facilities have been installed, serving 780 acres.

4.3 Flood Management Projects and Water Quality [Schedule D(2)(c)(i)(4); Replaces 2000 SWMP Section 4.1.4]

Description:

This section of the SWMP describes the procedures to assess the impact of flood management projects on water quality. In addition to the structural pollution controls discussed in Section 4.2, District regulations also require protection of vegetated corridors along stream banks to reduce temperatures, filter pollutants, and prevent erosion. If streams or wetlands are believed to be present on a property proposed for development, they must be delineated and a concurrence obtained from the Oregon Department of State Lands (DSL). Proposed construction or earthwork within the boundaries of a jurisdictional stream or wetland is referred to DSL and US Army Corps of Engineers to determine if a joint fill-removal permit is required. The District has also submitted a Flood Insurance Study (FIS) to the Federal Emergency Management Agency (FEMA) delineating the previously unmapped floodplain limits of the Rock and Richardson Creek watersheds, which have recently been annexed to the Portland metropolitan Urban Growth Boundary. Mapping these floodplains is a necessary first step to protecting their natural functions when the watersheds are urbanized.

Only two instream flood management projects have been constructed in the District: one on Phillips Creek and the other on lower Mt. Scott Creek. The Phillips Creek Flood Control Facility was constructed by the Clackamas County Development Agency in 1986, as part of the Clackamas Town Center development. The District modified this facility in 2000, with hydraulic and landscaping improvements designed to enhance its water quality functions. The Mt. Scott Creek Flood Control Facility was constructed by the Clackamas County Development Agency in 1996 after a flood event damaged industrial and commercial businesses. The District is responsible for annual maintenance of this facility. While the maintenance of this facility is routine and has been performed without incident, several issues are of concern as they relate to the operational structure. The remote nature of the area and the natural cover results in attracting a transient element to this locale. Vandalism occurs where walkway gratings are removed and dropped down the well. Additionally, padlocks are routinely cut off of gates and electrical boxes. The District is working with the Clackamas County Sheriff to tighten the security of this facility to eliminate any chance that vandalism will interfere with the operational readiness of this control structure and to reduce potentially negative environmental impacts (e.g. litter and human waste) of the transient settlement.

The majority of District flood management systems are upland facilities designed to detain runoff from developed areas. District regulations mitigate the impact of urban development on natural stream hydrology. New developments must provide detention for channel-forming (2-year recurrence interval) storm events in order to approximate pre-development runoff conditions and reduce impacts on stream function and morphology.

Implementation schedule:

CCSD#1 is currently analyzing a design methodology for retrofitting existing detention facilities in order to improve water quality performance. The District anticipates completing such retrofits as pilot projects by the year 2007. Subsequent monitoring of these modified facilities will provide a basis for retrofitting additional systems in other watersheds throughout the District. In addition, major redevelopment projects in the private sector will provide further retrofit opportunities. One such example is the nearly 100-acre Clackamas Town Center redevelopment that is currently in the plan review process. Detailed descriptions of detention retrofit projects will be included in future annual reports.

Measurable performance indicators:

- For assurance that flood management policies assess the impacts on the water quality of receiving water bodies for projects in the MS4-permitted area, the indicator will be the number of policies that are assessed and/or modified
- For assurance that existing structural flood control devices have been evaluated to determine if retrofitting the device to provide additional pollutant removal from storm water is feasible, the indicator will be the number of devices that are assessed and/or retrofitted.

4.4. Pollutants in Runoff From Closed Landfills [Schedule D(2)(c)(i)(5) and Schedule D(2)(c)(iii); Replaces 2000 SWMP Section 4.1.5]

Background:

One closed, private landfill – the Johnson Creek Landfill/Lavelle Landfill at 7600 SE Johnson Creek Blvd. – is located within CCSD#1-UGB. This landfill has been closed since 1973. As of January 2006, the exact location of the landfill and its precise dimensions are not known to CCSD#1, but it is generally understood to be on 12E29AC02400, a 6.21 acre taxlot. This lot is currently occupied by United Pipe and Supply and is owned by Stephen T. Ramsey of Vancouver, Washington. Given this lack of precise location-related knowledge, it may be theoretically possible that runoff or leachate from this landfill is capable of entering a County or District-owned surface-discharging storm sewer system.

Description:

The only known County or District-owned storm sewer system in the area downgradient from 12E29AC02400 is a storm sewer system with a major outfall. It is known as Outfall #7 (a.k.a. the SE Johnson Creek Blvd. Outfall, see Table 3). Since 1999, District personnel have performed annual dry weather field screening inspections at Outfall #7. The District expects continuation of these annual inspections. During seven years of annual inspections (1999-2005), a discharge from the landfill or the area near the landfill has never been detected. The soils in the area, both at and near the landfill, are highly pervious so any leachate that may be generated by the landfill is likely to flow down towards groundwater, not laterally towards the storm sewer system that terminates at Outfall #7. If leachate is ever determined to be flowing from this closed landfill and into

the storm sewer system that terminates at Outfall #7, control measures will be applied by the Illicit Discharge Elimination Program. United Pipe and Supply appears to occupy the surface of the land which holds the landfill. For the purposes of this section, the "landfill" is defined as that portion of the site which holds garbage that is well below the ground's surface. If stormwater flows are ever confirmed to be leaving the portion of the site which holds the closed landfill, this stormwater will be monitored by CCSD#1 in accordance with Schedule D(2)(c)(iii)(2) of the MS4 permit.

Implementation schedule: This work item has already been implemented.

Measurable performance indicators:

The measurable performance indicator is the number of outfall inspections that are performed which confirm that flow (i.e. leachate or stormwater runoff) is not leaving the closed landfill's portion of the site. If flow is ever confirmed to be leaving that portion of the site, a second measurable performance indicator, measurement of the flow's water quality, will then also apply.

4.5 Program to Reduce Pollutants in Discharges Associated With the Application of Pesticides, Herbicides and Fertilizers [Schedule D(2)(c)(i)(6); Replaces 2000 SWMP Section 4.1.6]

Description:

The program to reduce pollutants to the MEP for discharges from the MS4 that are associated with the application of pesticides, herbicides and fertilizers is divided into these five sections:

- A. Public Education
- B. Disposal of Unwanted Quantities and Containers
- C. Road Maintenance
- D. Landscape Maintenance
- E. Scientific Research

A detailed description of each of these five programmatic areas is provided below.

A. Public Education Program

WES administers a public education program which provides information that motivates workers and residents to reduce stormwater pollution that is caused by the application of pesticides, herbicides, and fertilizers in the District. Educational information is shared with the public through the use of:

- Articles in WES newsletters (*StreamLines* in CCSD#1-UGB). These newsletters are mailed to all customers along with billing statements.
- WES' website

- U.S. Geological Survey publications. WES funds have been contributed towards the generation and publication of several relevant reports, including Report 2003-4145, titled “Pesticides in the Lower Clackamas River Basin, Oregon, 2000-2001”, and Report 2004-5061, titled “Organochlorine Pesticides in the Johnson Creek Basin, Oregon, 1988-2002”.
- Through local public involvement campaigns. A recent example of a relevant public involvement campaign is one that has been launched annually over the past several years throughout the Portland Metro area by many municipal partners, including the Districts. This group is called the Regional Coalition for Clean Rivers and Streams. The most recent year’s slogan is: “Is your lawn chemical free, Maybe it should be?”
- Brochures (disseminated at the WES booth at fairs, for example)

Common topics that are addressed by this program include:

- Less harmful alternatives to the use of pesticides, herbicides, and fertilizers are provided. For example, use of ladybugs to eat insect pests is encouraged as an alternative to pesticide application.
- Information about the potential hazards to water quality, public health, and aquatic life associated with the misuse of pesticides, herbicides, and fertilizers in the District.
- Users are reminded that pesticide and herbicide products need to be used in a manner consistent with the product’s label.

Implementation schedule:

This has already been implemented. Public education/involvement campaigns addressing ways to reduce stormwater pollution caused by the application of pesticides, herbicides, and fertilizers are underway and have been recently conducted. For a description of campaigns planned for the future, contact the WES Community Relations Specialist at 503-353-4567.

Measurable performance indicators:

The primary measurable performance indicators are the number of public education/involvement campaigns that are underway, are planned for the near future, or that have been recently conducted. Other measurable performance indicators that may be used include, but aren’t limited to:

- The number of citizens who attend workshops, who visit the WES booth at fairs, or who attend presentations (at the local school, for example) on ways to reduce stormwater pollution caused by the application of pesticides, herbicides, and fertilizers.
- The number of brochures distributed that address ways to reduce stormwater pollution caused by the application of pesticides, herbicides, and fertilizers.

B. Disposal of Unwanted Quantities and Containers

When the District receives inquiries from the public about the proper disposal method for empty containers that once held pesticide/herbicide or for disposal of unwanted quantities of these products, citizens are promptly forwarded to Metro's informational phone number (503-234-3000).

Implementation schedule: This has already been implemented.

Measurable performance indicators:

The measurable performance indicator is the number of calls that Metro receives from the District in any given time period.

C. Road Maintenance

Herbicides are occasionally used by Clackamas County in road maintenance operations in the MS4-permitted area. There are very few instances where the Road Department conducts any roadside vegetation management work of any type in the MS4-permitted area. In fact, in many years, Clackamas County's Road Department applies no herbicides for roadside vegetation control in the District's permitted area. This is due to the facts that: a) most roads in the MS4-permitted area are paved, have curbs, and are served by piped storm sewer systems, and b) any vegetation present in the road right-of-way is usually part of a landscape maintained by the property's owner. In most of the instances that involve Road Department roadside vegetation management activity within the MS4-permitted area, mowing is the preferred vegetation control system. When herbicides are used, these products are always used in a manner consistent with the product's label.

Implementation schedule: This has already been implemented.

Measurable performance indicator:

The quantity of herbicide products used per zip code is the measurable performance indicator for this section. This is the same data that will be reported to Oregon's Department of Agriculture per the Pesticide Use Reporting System.

D. Landscape Maintenance

Herbicides, pesticides and fertilizers are used by Clackamas County in landscape maintenance applications around County-owned buildings and facilities. When herbicides and pesticides are used, these products are used in a manner consistent with the product's label.

Implementation schedule:

See the measurable performance indicators portion of this section. A list will be assembled and at least one meeting will be held prior to February 2009.

Measurable performance indicators:

The measurable performance indicators that apply to this section during the current MS4 permit cycle (current permit expires February 2009) are:

- To assemble a list of all County buildings and facilities in the District's MS4 permit area, and
- To meet with the proper County facilities and building maintenance personnel to inform them that herbicides, pesticides and fertilizers must be used with care in landscape maintenance applications around County-owned buildings and facilities in the District. They will also be encouraged to: a) substitute the use of these products for other, less harmful ones, b) to use less herbicide, pesticide and fertilizer, if possible, when they are used, and c) to nativescape with native plants, which are likely to need less herbicides, pesticides and fertilizers, whenever possible.

E. Scientific Research

In the case of pesticides and herbicides, given the high cost of analysis, WES jointly funds research on a periodic basis that determines if pesticides and herbicides are present in the District's stormwater and/or surface water bodies, and if present, the concentration of certain pesticides and herbicides are quantified by this research. WES funds have been contributed towards several U.S. Geological Survey studies, including Report 2003-4145, titled "Pesticides in the Lower Clackamas River Basin, Oregon, 2000-2001", and Report 2004-5061, titled "Organochlorine Pesticides in the Johnson Creek Basin, Oregon, 1988-2002".

In the case of plant fertilizer, WES conducts research on the presence of certain common plant nutrients – many of the same ones that are in common fertilizers – in the District's stormwater and/or surface water bodies on a routine basis. Although the locations where this monitoring is conducted are subject to change over time, this data is generally collected from the MS4 and from surface water bodies that receive discharges from the MS4. Although the nutrients that were monitored are subject to change over time, in FY 2004-2005, those that were monitored were: ammonia, nitrate, orthophosphate and total phosphorus. Specific details about this type of scientific research are available in the District's stormwater monitoring plan in Appendix D.

Implementation schedule: This is already being implemented.

Measurable performance indicators:

In the case of pesticides and herbicides, the measurable performance indicator for this scientific research section is the number of studies that are funded and/or supported by

the District during the current permit term. In the case of plant fertilizer, the measurable performance indicators for this scientific research section:

- Is the number of surface/stormwater samples from or near the District that are collected and analyzed, by either the District or one of its clean water partners, such as the USGS

4.6 Illicit Discharges and Spills [Schedule D(2)(c)(ii); Replaces 2000 SWMP Section 4.2]

Illicit Discharge Elimination Program (IDEP) – Description:

The District's Illicit Discharge Elimination Program (IDEP) detects, addresses, and if necessary, controls the discharge of certain wastewaters to the County's storm sewers within the MS4-permitted areas of CCSD#1. In general, illicit discharges are improper, unauthorized "point sources" of wastewater which have been discharged to surface water bodies or public storm sewer systems. Rain and melted snow are "nonpoint sources" and cannot be illicit discharges, but food-processing wastewater from a bakery could be an illicit discharge. Other common types of illicit discharges include those generated by washing fleets of vehicles or from the cleaning of machinery in a parking lot. Illicit discharges can enter public storm sewer systems in a variety of ways, such as through a hard-piped connection, through a gardening hose, or from a bucket of waste dumped directly into a storm sewer catch basin in the street.

IDEP: Prevent Illicit Discharges into MS4 [Schedule D(2)(c)(ii)(1)]

As stated in the permit, this section provides "A description of a program, including inspections, to implement and enforce an ordinance, orders or similar means to prevent illicit discharges to the municipal separate storm sewer system..."

The Illicit Discharge Elimination Program improves water quality and protects the aquatic environment by detecting, evaluating, and if necessary, controlling these improper or illegal discharges to the District's injection-type and surface-discharging storm sewer systems. The Illicit Discharge Elimination Program:

- Is the District's primary tool for preventing, detecting, addressing, and if necessary, controlling illicit discharges.
- Performs dry-weather inspections at major Clackamas County and District-owned storm sewer outfalls to identify and locate illicit discharges.
- Receives, documents, and responds to reports (from citizens, for example) of illicit discharges which are, or have been, observed.

All wastewaters that are suspected of being an illicit discharge are investigated and documented by District staff. Copies of important documents which pertain to each investigation are referred to DEQ's Northwest Region for review, as DEQ continues to reserve the right to assume a direct role in any case involving the discharge of waste to public water bodies.

Twenty-four (24) specific types of discharges, including uncontaminated pumped groundwater and discharges resulting from individual residential car washing, are defined by DEQ as non-stormwater discharges. They're allowed to be present in the MS4 as long as certain basic control steps (if deemed appropriate by the District) are taken by the discharger.

When an illicit discharge is identified, control options may be required. Control options that may be applied or recommended by the District include, but are not limited to:

- The removal of certain pollutants from the wastewater prior to discharge to the storm sewer system (i.e. cease usage of soap when washing)
- Issuance of the proper discharge permit from the State of Oregon's Department of Environmental Quality (DEQ). A discharge that has been authorized and controlled by a DEQ water quality permit is not an illicit discharge.
- Application of the wastewater to dry land with no discharge to surface waters or storm sewers. This option is inappropriate for certain types of wastewaters, discharge rates, and soil types and may require the issuance of a WPCF permit from DEQ.
- Wastewater reuse without any discharge
- Hauling the wastewater off-site for proper disposal
- With the necessary permits, discharge the wastewater to CCSD#1's sanitary sewer system.

IDEP: Prevent Non-Stormwater Discharges into MS4 [Schedule D(2)(c)(ii)(1)]

The MS4 permit also states that "...this program description must address all types of illicit discharges, however the following category of non-storm water discharges or flows must be addressed where such discharges are identified by the municipality as sources of pollutants to waters of the United States: water line flushing, landscape irrigation, diverted stream flows rising ground waters, uncontaminated ground water infiltration, uncontaminated pumped ground water, discharges from potable water sources, start up flushing of groundwater wells, aquifer storage and recovery (ASR) wells, potable groundwater monitoring wells, draining and flushing of municipal potable water storage reservoirs, foundation drains, air conditioning condensation, 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 waters, discharges of treated water from investigation, removal and remedial actions selected or approved by the Department pursuant to Oregon Revised Statute (ORS) Chapter 465, the state's environmental cleanup law; and discharges or flows from emergency fire fighting activities where discharges or flows from fire fighting are identified as not significant sources of pollutants to the waters of the state." All of these 24 non-stormwater discharges are allowed by the District to be discharged into the MS4 in CCSD#1-UGB, although this permission is frequently conditional. The control measures employed by the District – as well as the rationale for their selection – for each of those above-noted non-stormwater discharges is being included in section 4.13. This is required by the permit's Schedule B(2)(b)(iii). Section 4.13 is titled "Non-Stormwater Discharges".

IDEP: Dry-Weather Inspections [Schedule D(2)(c)(ii)(2) and (3)]

The MS4 permit requires "...A description of procedures to conduct on-going field screening activities during the life of the permit, including areas or locations that will be evaluated by such field screens; A description of procedures to be followed to investigate portions of the separate storm sewer system that, based on the results of the field screen, or other appropriate information, indicate a reasonable potential of containing illicit discharges or other sources of non-storm water. Such a description must include the location of storm sewers that have been identified for such evaluation."

This section is divided into three portions:

- a. Dry-weather outfall inspections
- b. Prohibition on cross-connections in new/re-development
- c. Regulation of onsite sewage disposal systems

a. Dry-weather outfall inspections

The purpose of dry-weather outfall inspections is to detect an illicit discharge at the outfall or confirm that they are not present. If one is detected, District staff track it upstream through the storm sewer system to the source, and then address, or if necessary, control the discharge. Illicit discharges are detected during dry-weather inspections through the use of hand-held water quality measuring equipment and through visual inspections by the inspector. When a visual inspection or a pollutant level measured at an outfall indicates that an illicit discharge may be present, an upstream investigation through the storm sewer system is performed. When the discharge's source is located, District staff cooperate with the property owner and/or business owner to evaluate, and if necessary, control the discharge.

Storm sewer outfalls in the MS4-permitted area that are owned by Clackamas County DTD and/or the District are divided into two categories: major and minor outfalls.

According to the MS4 permit and EPA, a major outfall is an outfall which:

- is a large pipe (≥ 36 " inside diameter), or
- is a conveyance other than circular pipe that serves a drainage area of more than 50 acres, or
- is a single pipe (≥ 12 " inside diameter) if it also receives any drainage from lands zoned for industrial activity, or
- is a single conveyance other than a circular pipe which receives drainage from more than two acres of land zoned for industrial activity.

The balance of the County and District-owned surface-discharging storm sewer outfalls is classified as minor. Table 3 contains basic information about all twenty-nine (29) known major outfalls in the District's MS4-permitted area.

Table 3. Major Storm Sewer Outfalls in CCSD#1's MS4-Permitted Area

OF#	Outfall Name	Receiving Stream	1° Land Use	Diameter	Material
#1	Riverside Park	Clackamas River	Industrial	36"	Concrete
#2	SE 106 th Avenue	Clackamas River	Industrial	60"	Concrete
#3	SE 120 th & Carpenter	Carli Creek	Industrial	54"	Concrete
#4	SE Capps Road	Carli Creek	Industrial	42"	Concrete
#5	SE Evelyn Street	Cow Creek	Industrial	30"	Concrete
#6	SE Wichita Avenue	Johnson Creek	Industrial	24"	Concrete
#7	SE Johnson Creek Blvd.	Johnson Creek	Industrial	12"	Concrete
#8	SE Bell Avenue	Johnson Creek	Industrial	12"	Concrete
#9	SE Mather Road	Dean Creek	Industrial	24"	Concrete
#10	SE Fuller Road	Phillips Creek	Residential	48"	Plastic
#11	SE Lawnfield Road	Dean Creek	Industrial	36"	Steel
#12	SE Pheasant Court	Mt. Scott Creek	Industrial	36"	Steel
#13	SE Linwood Avenue	Johnson Creek	Residential	54"	Concrete
#14	SE 102 nd Avenue	Cow Creek	Industrial	24"	Concrete
#15	SE Violet Avenue	Cow Creek	Industrial	12"	Concrete
#16	SE Industrial Way	Dean Creek	Industrial	36"	Concrete
#17	ODOT District 2B	Dean Creek	Industrial	30"	Concrete
#18	SE Jennifer-Railroad	Cow Creek	Industrial	42"	Concrete
#19	SE Webster Rd.	Kellogg Creek	Residential	30" x 48" oval	Steel
#20	Withycombe View	Dean Creek	Industrial	12"	Concrete
#21	Bell Station	Johnson Creek	Residential	36"	Concrete
#22	SE Southgate St. @ 82 nd Ave	Phillips Creek	Commercial	36"	Concrete
#23	Sieben Creek	Sieben Creek	Residential	48"	Steel
#24	SE Last Rd.	Cow Creek	Industrial	12"	Concrete
#25	SE Sunnyside Rd.	Phillips Creek	Commercial	Dual 72" box	Concrete
#26	SE Tolbert St.	Dean Creek	Industrial	27"	Concrete
#27	Happy Valley Park	Mt. Scott Creek	Residential	36"	Plastic
#28	Sunnyside Village	Rose Creek	Residential	42"	Plastic
#29	Sunnyside @ Sunnybrook	Mt. Scott Creek	Residential	23.6" + 35.4"	Concrete

Major outfalls are inspected by District staff for the presence of illicit discharges at least once per year. The inspections are performed during the Willamette Valley's seasonal drought (summer and early fall) and are not performed if measurable rain has fallen within the previous 24 hours. These guidelines have been set to aid in the detection of illicit discharges by avoiding rainfall and by minimizing the presence of groundwater which commonly seeps into storm sewer systems, for these relatively clean waters will dilute any illicit discharges that may be within the storm sewer system, making their detection difficult or impossible. A DEQ-approved inspection form is completed during each site visit. Data collected includes, but is not limited to, the following:

- Inspector(s) name(s)
- Date and time of visit
- Water flow (present or absent)
- If flow is present, unusual odors, colors, and floating/suspended solids are noted if they're observed. If unusual odors, colors, and/or solids are observed, an

upstream investigation for the possible presence of an illicit discharge is promptly conducted.

- If flow is present, water quality data is collected with portable, hand-held meters. Parameters monitored for usually include pH, conductivity, temperature, total residual chlorine, and total dissolved solids. If excessive levels of any pollutant are detected, an upstream investigation for the possible presence of an illicit discharge is promptly conducted.

b. Prohibition on cross-connections in new/re-development

The District prohibits cross-connections in new/redevelopments through the development and building permit review and issuance process. This system, which features plan review in the office and inspections by certified plumbing inspectors, ensures that fixtures which need to be plumbed into CCSD#1's sanitary sewer system or a private septic system are actually plumbed into those systems, preventing hundreds of illicit discharges per year.

c. Regulation of onsite sewage disposal systems

A potential source of pathogenic bacteria is septic systems that have been incorrectly installed and failing septic systems. In addition to managing CCSD#1 and SWMACC, Water Environment Services (WES) also administers the Onsite Sewage Treatment and Disposal Program in Clackamas County as an Agent of DEQ through a Memorandum of Understanding. WES regulates residential and commercial systems with a Residential Strength Waste of up to 2,500 gallons per day. Residential Strength Waste greater than 2,500 gallons per day requires a WPCF permit. The goal of the program is to reduce septic system failures, repair failing systems, permit new systems in compliance with State of Oregon Treatment rules and to have properly functioning systems throughout Clackamas County. .

To achieve this goal, WES and the County have requirements for new or replacement septic systems to meet design standards for proper function, protection of water quality, the environment, and public health. The onsite program uses the same database as that used by the County Building division to closely coordinate new construction, repairs and violations with other building permit activities. Soil Scientists conduct the inspections for Authorization Notices and for Soil Feasibility studies (used for renovations, additions, new development or changes in use). WES also implements a process to address suspected failing systems. WES is notified in a variety of ways when septic systems are suspect. When systems are suspected of less than optimum function, owners or renters contact WES to identify options and potential problems. Adjacent property owners contact WES with reports of suspected systems that are based on problems with odors, discharge onto their properties, water bodies or roadside ditches. Other County departments or local agencies may also refer a suspected system to WES for investigation. Failing systems are both a health hazard and a potential environmental hazard and, as such, are a high priority for WES to address. One goal of the onsite program is to investigate the suspected problem or complaint the same day as receiving the notice of a potential problem. The complaint becomes a high priority in 3 days and urgent in a week. If a site visit has not been performed within one

week, the activity has a higher priority than all of the other activities performed by the onsite staff.

For failing systems, once a site visit has been performed to assess the situation, if necessary, steps for needed correction are identified and a process for implementation is set forth. Time frames for repair are established with the property owners and the length of time allotted to repair is determined based on the severity of the problem. Discharges to the ground surface and into waterways are not allowed and are given as short a time as feasible for construction of repairs or alternatives. Alternatives vary from limiting the usage of the septic system (timing of laundry, for example), installing a temporary holding tank, and proceed up to vacating the premises until the problem is resolved. WES has an agreement with the County's Code Compliance Section to bring violators into compliance if other efforts are unsuccessful. All failing septic systems are an enforcement priority for the County. In addition, Clackamas County implements an advanced code compliance process for failing systems. First efforts encourage voluntary compliance. In the event this is unsuccessful, the County has the ability to levy both fines and fees for code violations. A citation of \$500 and additional civil penalties of up to \$3,500 per violation can be issued for a high priority violation.

IDEP: Spills into the MS4 [Schedule D(2)(c)(ii)(4)]

The MS4 permit requires "...A description of procedures to prevent, contain, and respond to spills that may discharge into the municipal separate storm sewer."

The District's Spill Response Program prevents, contains, and responds to spills of dangerous, hazardous and other materials in the MS4-permitted areas of CCSD#1. The District's Spill Response Program ensures that the actual or possible release of dangerous/hazardous materials to the MS4 is properly addressed. Except for minor incidents, The District's Spill Response Program personnel always coordinate closely with other agencies and departments, including Clackamas County Fire District No. 1 (and for certain incidents involving hazardous materials, the Gresham HazMat Team), DEQ, Oregon State Police, Clackamas County's Road Department, and Oregon's Department of Transportation.

The District created a draft Standard Operating Procedure (SOP) in 1999 for addressing and responding to spills of dangerous and/or hazardous materials. This SOP was revised and finalized in 2004. The 2004 SOP provides guidance to District employees who administer the Spill Response Program. Specific guidance is provided by the SOP in the following areas:

- Determining if the incident needs to be reported to Oregon Emergency Response System (OERS - see the next paragraph in this section)
- Determining if a site visit needs to be performed by District personnel. If a site visit is not to be performed, guidance on providing a proper referral of the incident to another government agency is provided
- How to conduct a safe and effective site inspection as a first responder to an incident

- How to prioritize activities at the site of a release. Heavy emphasis is placed on maintaining the personal safety of all persons, including the District's Spill Response Program representative. In addition, all District responders are obligated to call for support, if warranted, from agencies which may also have jurisdiction for the incident, including DEQ and Clackamas Fire District No. 1.
- Protecting the environment through deployment of certain spill response tools, such as granular absorbents, absorbent booms, and pads. Guidance on obtaining the assistance of environmental services companies which specialize in spill response support is also included.
- Documenting the release incident
- Incident follow-up activities

Certain incidents involving the release of pollutants in the State of Oregon must be promptly reported to the Oregon Emergency Response System (OERS) at 800-452-0311. Incidents that must be reported to OERS, as contained in OAR 340-108-0010(1), involve the release of materials in amounts greater than or equal to the following:

- If spilled into waters of the state, or escape into waters of the state is likely, any quantity of oil (or other petroleum-based fuel or lubricant) that would produce a visible oily slick, oily solids, or coat aquatic life, habitat or property with oil, but excluding normal discharges from properly operating marine engines
- If spilled on the surface of the land, any quantity of oil over one barrel (42 gallons)
- An amount equal to or greater than the quantity listed in 40 CFR Part 302-Table 302.4. This is a list of hazardous substances and their reportable quantities; see The District's 2004 SOP for this large and detailed document.
- One (1) pound of pesticide residue as defined by 340-101-0033(5)(a)
- Virtually any quantity of nerve agents (such as Sarin, VX, etc.)
- Any quantity of radioactive material, or radioactive waste

IDEP: Public Reporting [Schedule D(2)(c)(ii)(5)]

The District implements a program to promote, publicize, and facilitate public reporting of the presence of illicit discharges and other types of improper disposal of materials into the MS4. After District staff have received a report which relates to one these discharges, they investigate and, if appropriate, apply control measures.

Illicit Discharges and Spills: Through the periodic publication of articles in the District's newsletter, *Streamlines*, ratepayers are encouraged to promptly report illicit discharges and spills. This newsletter is mailed to every ratepayer in the District along with each billing statement. In a recent article, ratepayers were:

- provided with guidance on determining what an illicit discharge is
- told to keep at a safe distance and in an upwind direction from all spills
- call 911 for certain high-priority incidents

After citizens become aware of an illicit discharge or spill, they can contact District staff in person, by phone, or by email.

Other types of improper disposal of materials: Information on this is transmitted to the public through the District's newsletter, *Streamlines*. On a periodic basis, articles on various relevant topics (for examples, proper pet waste disposal and proper yard debris management) are published.

IDEP: Management of Used Oil and Toxic Materials [Schedule D(2)(c)(ii)(6)]

The MS4 permit requires "A description of educational activities, public information activities, and other appropriate activities to facilitate the proper management and disposal of used oil and toxic materials."

Through the periodic publication of articles in the District's newsletter, *Streamlines*, ratepayers are encouraged to:

- properly dispose of used oil, unused quantities of toxic materials, and toxic wastes, and
- use products that are not toxic or less toxic. This eliminates the generation of toxic waste or reduces the toxicity of the waste that is generated.

In these newsletter articles and in the direct conversations with the ratepayers that contact the District for guidance, citizens are encouraged to contact Metro for guidance on the proper disposal of used oil and toxic materials. Metro provides its services throughout the Portland metropolitan area, including all portions of the District. When customers contact the District about disposal of these items, they're usually referred to Metro's hotline (503-234-3000) or encouraged to visit the nearest household hazardous waste facility located at Metro's South Transfer Station in Oregon City. Metro implements a program that:

- Operates two household hazardous waste facilities. One of these is adjacent to the Metro South Transfer Station in Oregon City. Used oil and many types of toxic materials can be deposited here, and
- Operates Metro's hotline (503-234-3000). Callers are provided with information about the various facilities that used oil and many toxic materials can be taken to, for the household hazardous waste facility is not able to accept all types of toxic materials from all types of District ratepayers, and
- In conjunction with Clackamas County's Community Environment Division, Metro mandates that curbside recycling services be available to all curbside solid waste customers in the Districts. Used oil can be recycled at the curbside by any curbside solid waste customer in the District.

On unusual occasions when certain customers contact the District about the proper disposal methods for certain specific toxic disposal guidance (i.e. large quantity of material from an industrial customer), they're not referred to Metro, but are referred to DEQ's Hazardous Waste group.

IDEP: Seepage from municipal sanitary sewers [Schedule D(2)(c)(ii)(7)]

The MS4 permit requires "A description of controls to limit infiltration of seepage from municipal sanitary sewers to municipal separate storm sewer systems where necessary."

The District prevents exfiltration of flows from municipal sanitary sewers in the following ways:

- Through ownership of a relatively new sanitary sewer system. Most of the infrastructure in CCSD#1-UGB's sanitary sewer system has been constructed since 1974 and its condition is generally sound and free of cracks and leaks.
- Through the presence of a rigorous maintenance program involving routine cleaning and inspection of lines to ensure that there are very few leaks. Lines are inspected with a television camera on a periodic basis. Tree roots, which could cause leakage, are removed whenever identified.

The District is able to identify and control the exfiltration of flows from municipal sanitary sewers when it occurs by:

- Performing dry-weather inspections at all major outfalls on an annual basis to detect non-stormwater flows, and
- Receiving and promptly responding to reports from citizens of unusual colors, odors and solids, and
- By performing monthly instream monitoring. This monitoring is performed at all major creeks and at three (3) storm outfalls in the MS4-permitted areas of CCSD#1-UGB. This monthly monitoring can detect exfiltration of flows from municipal sanitary sewers to the MS4 in two ways: a) olfactory cues can allow a person who is collecting surface water samples to detect the presence of sewage, and b) E. coli is one of the parameters that the water samples are analyzed for. High levels of E. coli over a significant time period could prompt a special, follow-up visit to the area by District staff to attempt to locate the source(s) of the bacteria.

Measurable performance indicators for all of 4.6:

- Number of dry-weather inspections conducted. In 2005, 29 dry-weather inspections were conducted.
- Number of active illicit discharges that were controlled. In the period from July 1, 2004 to June 30, 2005, at least 15 illicit discharges and 12 spills were controlled.
- The number of non-stormwater discharges that are addressed, and if necessary, controlled. In the period from July 1, 2004 to June 30, 2005, at least two non-stormwater discharges were addressed and controlled.
- For the onsite sewage disposal program, the number of permits issues, inspections performed, and enforcement actions taken.

4.7 Industrial Stormwater Program [Schedule D(2)(c)(iii); Replaces 2000 SWMP Section 4.4]

The MS4 permit requires "A description of a program to monitor and control pollutants in storm water discharges to municipal systems from municipal landfills, hazardous waste treatment, disposal and recovery facilities, industrial facilities that are subject to section 313 of title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA),

and industrial facilities that the municipal permit applicant determines are contributing a substantial pollutant loading to the municipal storm sewer system.” The District’s program for chapter 4.7 is divided into these four sections:

- A. Municipal landfills
- B. Hazardous waste treatment, disposal and recovery facilities
- C. Industrial facilities that are subject to section 313 of SARA title III
- D. Other industrial facilities

Each of these above-noted four sections is addressed separately below. The MS4 permit also states that “The program must:

- Identify priorities and procedures for inspections and establishing and implementing control measures for such discharges.
- Describe a monitoring program for storm water discharges associated with the industrial facilities identified in Schedule D(2)(c)(iii), to be implemented during the term of the permit, including, at a minimum, the submission of quantitative data on the pollutant parameters included in the Department’s NPDES 1200-Z industrial general stormwater permit.”

Within each of the following four sections of 4.7, both of those additional programmatic areas (inspections & control measures and monitoring program for stormwater discharges) are addressed separately.

It is important to note here that about twenty-one (21) industrial facilities in CCSD#1-UGB are currently in possession of a 1200Z NPDES Storm Water Discharge Permit from DEQ. (These facilities are shown in Appendix C and listed in Table 4 below.) This is noted here, for in nearly all instances, 1200Z-permitted facilities have reduced stormwater pollutant loading levels if compared to their facility’s loading prior to the permit’s issuance. Loads are reduced, for a 1200Z permit holder is required to regularly collect and analyze stormwater samples to ensure that stormwater leaving the facility complies with the permit’s stringent water quality benchmarks. Benchmarks are present for many pollutants, including total lead and total suspended solids. Exceedances of even one water quality benchmark obligates the permit holder to revise their facility’s stormwater pollution control plan and best management practices in an effort to improve stormwater quality. The District has found that facilities with a 1200Z permit that have not had any exceedances of any benchmark values frequently elect to make minor facility improvements that improve stormwater quality to ensure that they do not have any exceedances of any benchmark values in the future. The District will continue to maintain a long-standing policy of referring facilities lacking a 1200Z – but are required to have one – to DEQ.

Table 4

Company Name	Address	Area	DEQ File #
Bovic Industries dba Container Bins	13109 SE 132 nd Avenue	Clackamas	103872
Consolidated Metco, Inc.	10448 SE Highway 212	Clackamas	106964
R. S. Davis Recycling, Inc.	10105 SE Mather Road	Clackamas	109850
Fred Meyer Inc.	11500 SE Highway 212	Clackamas	106748
Distribution Inc. dba FTL (site is also home to Gary Davis Trucking)	16795 SE Evelyn Street	Clackamas	107617
Gordon Trucking, Inc.	15628 SE 102 nd Avenue	Clackamas	107688
McFarlane's Bark, Inc.	13345 SE Johnson Road	Milwaukie	110259
Miles Fiberglass & Composites, Inc.	8855 SE Otty Rd	Portland	106844
SNF, Inc. dba Gem Top	8811 SE Herbert Court	Clackamas	110962
Oregon Iron Works, Inc.	9700 SE Lawnfield Road	Clackamas	107395
Precision Castparts Corp.	13340 SE 84 th Avenue	Clackamas	71920
Precision Castparts Corp.	6667 SE Johnson Creek Blvd.	Portland	110151
Precision Castparts Corp.	13350 SE Johnson Road	Milwaukie	109805
Precision Castparts Corp.	6465 SE Crosswhite Way	Portland	106157
Safety-Kleen Systems, Inc.	16540 SE 130 th Avenue	Clackamas	102806
Safeway Stores, Inc.	16800 SE Evelyn Street	Clackamas	102441
SAPA Anodizing, Inc.	9124 SE 64 th Avenue	Portland	107010
Temco Metal Products	10240 SE Mather Road	Clackamas	113713
Unified Western Grocers, Inc.	6433 SE Lake Road	Milwaukie	111951
Warn Industries, Inc.	13270 SE Pheasant Court	Milwaukie	107180
Wymore Transfer Co.	12651 SE Capps Road	Clackamas	110888

A. Municipal Landfills

Description

There are only two facilities in the District's MS4-permitted area that appear to qualify as municipal landfills:

- One is a closed landfill in CCSD#1-UGB. Schedule D(2)(c)(iii)'s requirements for that closed landfill are satisfied by the program that is described under section 4.4, which is titled "Pollutants in Runoff From Closed Landfills."
- The other qualifying facility appears to be McFarlane's Bark, Inc. in CCSD#1-UGB. The District does not – and the District believes that it is not required to – maintain a program that is mandated by schedule D(2)(c)(iii) of the MS4 permit for McFarlane's Bark, Inc.'s facility because: a) the facility does not discharge stormwater into the District's MS4, and b) the facility is currently in possession of 1200Z NPDES permit that was issued – and is administered – by the DEQ.

Inspections and Control Measures:

Not applicable. See the Description portion of this section.

Monitoring Program for Stormwater Discharges:

Not applicable. See the Description portion of this section.

Measurable performance indicators:

Not applicable. See the Description portion of this section.

B. Hazardous Waste Treatment, Disposal, and Recovery Facilities

Description:

The District is aware of only one facility in the District which meets the definition of a Hazardous Waste Treatment, Disposal and Recovery (TDR) Facility. This facility is Safety Kleen Systems' operation at 16540 SE 130th Avenue.

Inspections and Control Measures:

In general, the District will not perform any inspections of this facility given that the facility is in possession of a 1200Z NPDES Stormwater Discharge permit. This is due to the facts that: 1) the District does not act as DEQ's agent for the administration of the 1200Z permit, and 2) DEQ does not provide the District with any information on the administration of the 1200Z permit (i.e. does not share copies of reports submitted by 1200Z permit holders, does not share stormwater quality data). Exceptions to this inspection policy will be made if:

- the District is invited to visit this facility by Safety Kleen Systems
- the District is invited to visit the facility by DEQ
- the District receives a complaint or referral about the facility that pertains to an actual or potential discharge of significantly polluted stormwater to the MS4. An inspection would also be conducted in the event of a spill or illicit discharge that enters – or threatens to enter – the MS4.

Monitoring Program for Stormwater Discharges:

As was previously stated, in general, the District will not perform any inspections of the Safety Kleen Systems' facility at 16540 SE 130th Avenue in Clackamas County Service District No. 1, for they're in possession of a 1200Z NPDES Stormwater Discharge permit. Given that this permit has extensive stormwater quality monitoring requirements, the District will not monitor the facility's stormwater quality unless one of the three above-noted exceptions (see inspections and control measures) occurs.

Measurable performance indicators:

The measurable performance indicator is the presence or absence of a valid 1200Z permit for the Safety Kleen Systems' facility at 16540 SE 130th Avenue in Clackamas.

C. Industrial Facilities Subject to Section 313 of SARA Title III

Description:

Facilities that are subject to the requirements in Section 313 of SARA Title III are those required to report to U.S. EPA (via the State Fire Marshal) air, water and land discharges of certain toxic chemicals used in industrial process. The need to report is

triggered by exceeding specified threshold usage levels for certain toxic chemicals. The data in these reports are added to the EPA's Toxic Release Inventory (TRI) database. The TRI reporters have thresholds for reporting to the EPA that are much higher than those required by the State Fire Marshal under Oregon's Community Right-to-Know law. The relevant MS4 permit requirement [Schedule D(2)(c)(iii)] for this portion of the SWMP pertains only to the TRI reports to the EPA, not those reports required by the State Fire Marshal under Oregon's Community Right-to-Know law. To the best of the District's knowledge, the following facilities are subject to the reporting requirements of Section 313 of SARA Title III:

- | | |
|--------------------------------|-----------------------------------|
| 1. Miles Fiberglass & Plastics | 8855 SE Otty Road |
| 2. Warn Industries, Inc. | 13270 SE Pheasant Court |
| 3. Warn Industries, Inc. | 12900 SE Capps Road |
| 4. Safety Kleen Systems | 16540 SE 130 th Avenue |
| 5. PCC Structural Inc. | 13340 SE 84 th Avenue |
| 6. PCC Structural Inc. | 13350 SE Johnson Road |
| 7. Unified Western Grocers | 6433 SE Lake Road |

These seven (7) facilities were located during a detailed search of an EPA webpage titled Toxics Release Inventory (TRI) Program on November 28, 2005. The address of this page is: http://www.epa.gov/tri/tridata/state_data_files.htm. Reports from these facilities were present in the EPA database for 2002, the most recent year for which data is available. Reports from facilities from previous years were not used to compile this list.

Inspections and Control Measures:

In general, the District will not perform any inspections at a facility if the facility is in possession of a 1200Z NPDES Stormwater Discharge permit. This is because: 1) the District does not act as DEQ's agent for the administration of the 1200Z permit, and 2) the DEQ does not provide the District with any information on the administration of the 1200Z permit (i.e. does not share copies of reports submitted by 1200Z permit holders, does not share stormwater quality data). Exceptions to this inspection policy will be made if:

- the District is invited to visit the facility by the industry
- the District is invited to visit the facility by DEQ
- the District receives a complaint or referral about the facility that pertains to an actual or potential discharge of significantly polluted stormwater to the MS4. An inspection would also be conducted in the event of a spill or illicit discharge that enters – or threatens to enter – the MS4.

Of the above-noted seven facilities, the following six facilities are currently authorized to discharge stormwater under a 1200Z permit:

- | | |
|-------------------------------|--------------------------------|
| • Miles Fiberglass & Plastics | 8855 SE Otty Road |
| • Warn Industries, Inc. | 13270 SE Pheasant Court |
| • Safety Kleen Systems | 16540 SE 130 th Ave |
| • PCC Structural Inc. | 13340 SE 84 th Ave |
| • PCC Structural Inc. | 13350 SE Johnson Road |

- Unified Western Grocers 6433 SE Lake Road

The facility that does not have a 1200Z permit is the Warn Industries, Inc.'s facility at 12900 SE Capps Road in Clackamas. It is connected to the MS4 in the District. District personnel will seek permission from Warn Industries to conduct an inspection of the facility during the term of the MS4 permit (7/27/05 to 2/28/09). During this inspection, District personnel will attempt to determine if this facility is required to obtain a 1200Z permit. If this facility is required by the Department to obtain a 1200Z permit, and if one is obtained, the relationship between the District and the facility would be similar to the above-noted six facilities that already are in possession of a 1200Z permit. If the District and DEQ determine that this facility is not required to obtain a 1200Z permit, District personnel will ask Warn Industries, Inc. to voluntarily collect a representative sample of stormwater during one storm in the 1st rainy season following the inspection of their facility. This stormwater would then be analyzed for the 1200Z permit's pollutant parameters.

Monitoring Program for Stormwater Discharges:

As was stated above, if the District and DEQ determine that the Warn Industries, Inc. facility at 12900 SE Capps Road in Clackamas is not required to obtain a 1200Z permit, District personnel will ask Warn Industries, Inc. to voluntarily collect a representative sample of stormwater during one storm from their facility; this stormwater would then be analyzed for the 1200Z permit's pollutant parameters. In addition, CCSD#1 will ask the facility to share the data and will include the data in the relevant MS4 permit annual report to DEQ. If the data shows that one or more of the 1200Z permit's pollutant parameters was exceeded, then District personnel will ask the facility to conduct source tracking work in an effort to identify the source of the pollution, and if necessary, District personnel will ask the facility to implement control measures to improve the quality of the facility's stormwater discharges. If the facility implements control measures but the initial attempt to improve stormwater quality does not produce the required improvement, District personnel will continue to provide guidance and technical assistance until the facility's stormwater quality improves to the required level.

Measurable performance indicators:

The performance of an inspection of the Warn Industries facility at 12900 SE Capps Road is the primary measurable performance indicator. If a 1200Z permit is not required to be obtained by this facility, then successful completion of a storm monitoring event will be an additional measurable performance indicator. A 3rd measurable performance indicator will be for the District to notify Warn Industries that stormwater quality improvement is needed if a 1200Z permit is not required to be obtained by this facility, if a storm monitoring event is successfully completed, and if the laboratory data from that storm's water samples shows that improvement in the site's stormwater quality is needed.

D. Other Industrial Facilities

Description:

This section's facilities are addressed directly by the District and are those that:

- are not required to obtain a 1200Z permit, and
- that contribute a substantial load of pollutants to the MS4. This generally is determined by the District to have occurred if the facility's stormwater runoff exceeds (or is likely to exceed) the DEQ's surface water quality standards in OAR 340's Division 41.

Inspections and Control Measures:

Facilities will primarily be inspected on a complaint-driven basis, but it is possible that some inspections will be conducted by the District during source tracking activity if the District's storm event monitoring work or monthly monitoring work shows that excessive levels of one or more pollutants are present. All facilities that are the subject of a complaint will be inspected in a timely manner by District staff. The implementation of control measures for stormwater discharges from these facilities will be deemed necessary by the District if the presence of excess levels of stormwater pollution can be confirmed by the District. For instances where the presence of excess levels of pollution in stormwater has been confirmed by the District, and in the event that the discharger's initial attempts to improve stormwater quality do not produce the required improvement, then District personnel will continue to provide guidance and technical assistance until the facility's stormwater quality improves.

Monitoring program for stormwater discharges:

The presence of excess levels of pollution in stormwater can generally be confirmed by two general methods: visual and analytical. Analytical methodologies include hand-held meters, test strips (i.e. pH) and those performed by a water laboratory. The District will use visual or analytical methods at the District's discretion.

Measurable performance indicators:

- The number of inspections performed
- The number of letters, enforcement actions, or other contacts made
- If storm monitoring event monitoring work is conducted on the site's runoff, and if the laboratory data from that storm's water samples shows improvement in the site's stormwater quality is needed, a 3rd measurable performance indicator will be for the District to notify the industry that additional stormwater quality improvement is needed.

4.8 Construction Site Runoff: Structural and Non-Structural BMPs [Schedule D(2)(c)(iv); Replaces 2000 SWMP Section 4.3]

A. Procedures for Site Planning

CCSD#1 Service Area Development Review

The District reviews all development plans for new construction or redevelopment projects in the District's service area through the building permit process. All reviews are done in accordance with the Surface Water Management Rules and Regulations for CCSD#1. These regulations require submittal of an erosion prevention and sediment control plan containing methods and/or interim facilities to be constructed or used concurrently with land development. Plan submittals are required to provide details of erosion control measures, schedules for construction, and a maintenance schedule for erosion control activities.

The *Erosion Prevention and Sediment Control Planning and Design Manual* (created in 2000, and currently being updated) is offered as a resource to the development community for preparation of plans for erosion prevention and sediment control.

City of Happy Valley Service Area Development Review

As of October 1, 2005, the City of Happy Valley began to take responsibility for reviewing all development plans for new construction or redevelopment projects in the City's service area, through the land use and building permit processes. The pertinent regulations are in Sections 8 and 15 of the Happy Valley Municipal Code. These regulations require submittal of an erosion prevention and sediment control plan, which contains methods and/or interim facilities to be constructed or used concurrently with land development. Plan submittals are required to provide details of erosion control measures, schedules for construction, and a maintenance schedule for erosion control activities.

The *Erosion Prevention and Sediment Control Planning and Design Manual* (created in 2005, and currently being updated) is offered as a resource to the development community for preparation of plans for erosion prevention and sediment control.

B. Requirements for Structural and Non-Structural Best Management Practices

CCSD#1 Service Area

Structural and non-structural BMPs are required by the District's erosion control regulations. Erosion control plans require specific descriptions of erosion control measures, and implementation of control measures for any erosion identified prior to

and concurrent with construction activities. Maintenance of all erosion control measures pursuant to an approved plan is the applicant's responsibility.

City of Happy Valley Service Area

Structural and non-structural BMPs are required by the City's erosion control regulations. Erosion control plans require specific descriptions of erosion control measures, and implementation of control measures for any erosion identified prior to and concurrent with construction activities. Maintenance of all erosion control measures pursuant to an approved plan is the applicant's responsibility.

C. Procedures for Identifying Priorities for Inspecting Sites and Enforcement Actions

CCSD#1 Service Area

The District inspects all construction project sites for implementation of erosion control BMPs within the District's service area. Additionally, Water Environment Services is an Agent of DEQ in the issuance and administration of NPDES 1200C permits for developments disturbing areas one acre or larger throughout unincorporated Clackamas County and, by agreement, within the Oak Lodge Sanitary District and the cities of Gladstone and Rivergrove. District staff inspects construction sites a minimum of twice during construction to verify proper implementation of required BMPs. Additional inspections are performed as necessary. Appendix C shows all known sites with 1200C permits in and around the District.

Priorities for inspection are based on site-specific characteristics (i.e., watershed, grade, percent of soil cover to be removed, construction practices, season, and proximity to sensitive areas.)

The District monitors compliance with the erosion control regulations and has the authority to issue deficiency notices, charge re-inspection fees, issue fines and stop land-disturbing development work at the site until provisions of the regulations are met.

City of Happy Valley Service Area

The City inspects all construction project sites for implementation of erosion control BMPs within the City's service area. The DEQ issues and administers NPDES 1200C permits for developments disturbing areas one acre or larger inside the city limits. City staff inspects construction sites a minimum of twice during construction to verify proper implementation of required BMPs. Additional inspections are performed as necessary.

Priorities for inspection are based on site-specific characteristics (i.e., watershed, grade, percent of soil cover to be removed, construction practices, season, and proximity to sensitive areas.)

The City monitors compliance with the erosion control regulations and has the authority to issue deficiency notices, charge re-inspection fees, issue fines and stop land-disturbing development work at the site until provisions of the regulations are met.

Recordkeeping:

Records of activities in each respective service area are maintained on file at the District or at Happy Valley City Hall. Erosion control plans are filed as well as inspection reports that describe non-compliance/enforcement actions.

D. Educational and Training Measures for Construction Site Operators

CCSD#1 Service Area

The *Erosion Prevention and Sediment Control Planning and Design Manual* (December 2000) was developed in coordination with the City of West Linn and Clean Water Services. It is available for contractors, citizens, or others involved with construction activities within the permit area. The handbook is in the process of being updated in cooperation with other jurisdictions in the Portland metro area, with Spring 2006 as the target date for completion.

The District provides information to contractors during the permit review process, including pre-construction review meetings. District staff meets with developers and contractors to discuss requirements and to visit sites to review specific requirements.

The District has initiated a voluntary certification program for erosion control through Clackamas Community College. The certification process and procedure are coordinated with other jurisdictions in Clackamas County.

In 2001, the District partnered with regional jurisdictions, the Oregon Association of General Contractors, the Homebuilders Association of Metropolitan Portland and vendors of erosion control products to create and promote the Annual Regional Erosion Prevention Awards Program. Developed to provide recognition for contractors and developers with outstanding achievements in exceeding local erosion control requirements, the program provides recipients with media recognition, peer recognition and prizes donated by vendors of erosion prevention and sediment control products and services. The Annual Regional Erosion Prevention Awards Program provides the development community with incentives to seek education regarding erosion prevention BMPs, improve BMP selection and installation, and to better monitor and maintain the BMPs used in their projects. Additional benefits of the program are to provide education for jurisdiction's inspection staff, help standardize erosion prevention requirements and reduce noncompliance with erosion control requirements. As of 2005, participants include over 25 jurisdictions in 5 counties in Oregon and southern Washington.

City of Happy Valley Service Area

The *Erosion Prevention and Sediment Control Planning and Design Manual* (December 2000), developed by Water Environment Services, the City of West Linn and Clean Water Services, is available for contractors, citizens, or others involved with construction activities within the permit area.

The City provides information to contractors during the permit review process, including pre-construction review meetings. City staff meets with developers and contractors to discuss requirements and to visit sites to review specific requirements.

The City has partnered in a voluntary certification program for erosion control through Clackamas Community College. The certification process and procedure are coordinated with other jurisdictions in Clackamas County.

In 2005, the City joined with regional jurisdictions, the Oregon Association of General Contractors, the Homebuilders Association of Metropolitan Portland and vendors of erosion control products to promote the Annual Regional Erosion Prevention Awards Program.

Measurable performance indicators for all of Section 4.8:

- Annual number of permitted, active construction projects
- Annual number of erosion control inspections
- Annual number of enforcement actions

4.9 TMDLs [Schedule D(2)(d)]

There are presently no TMDLs established for streams in CCSD#1.

4.10 303(d) Parameters [Schedule D(2)(e)]

The July 27, 2005 MS4 permit which was issued to SWMACC, The Cities of Rivergrove and Happy Valley, CCSD#1, and Clackamas County (hereafter referred to as “the co-permittees”) requires that an Interim Evaluation Report (IER) be submitted to the DEQ by May 1, 2006. One component of the IER pertains to 303(d)-listed stream and river segments in the co-permittees’ service areas.

According to the permit’s schedule D(2)(e), “The requirements of this section apply to receiving waters without established TMDL wasteload allocations. The co-permittee must qualitatively review the pollutants that are on the 2002 303(d) list that are relevant to the co-permittee’s MS4 discharges. This review and corresponding summary of proposed actions must be incorporated into the interim evaluation report. The review and summary must accomplish the following:

- i) Determine whether there is a reasonable likelihood for storm water from the MS4 to cause or contribute to water quality degradation of receiving waters through the discharge of pollutants on the 2002 303(d) list. Provide the rationale for the conclusion, including the results of an evaluation.
- ii) If the discharges from the MS4 is a contributor to specific listed pollutants, determine and describe the relationship between the 303(d) listed pollutant and the MS4 discharges.
- iii) Determine whether the BMPs in the existing SWMP are effective to address the 303(d) pollutants. If not, describe how the plan could be adapted to more appropriately address these pollutants. A summary of the rationale for this determination must also be included in the report.

If sufficient information is not available to make the determinations required above, the co-permittee must compile pertinent information necessary to adequately complete these determinations.”

The following creek and river segments which flow through or near at least one co-permittee’s service area are on the 2002 303(d) list. The parameter(s) that they’re listed for are provided for each listed segment.

Table 5

Waterbody	Watershed	Listed Reach	Parameter	Listed Season
Kellogg Creek	Kellogg Creek	RM 0 to 5	E. coli	Oct 1 st to May 31 st
Mt. Scott Creek	Kellogg Creek	RM 0 to 6.1	E. coli	Oct 1 st to May 31 st
Philips Creek	Kellogg Creek	RM 0 to 1.2	E. coli	Oct 1 st to May 31 st
Rock Creek	Clackamas River	RM 0 to 6.1	E. coli	Oct 1 st to May 31 st
Cow Creek	Clackamas River	RM 0 to 2.6	E. coli	Oct 1 st to May 31 st
Sieben Creek	Clackamas River	RM 0 to 1.8	E. coli	Oct 1 st to May 31 st
Clackamas River	Clackamas River	RM 0 to 15	E. coli	June 1 to Sept. 30 th
Johnson Creek	Johnson Creek	RM 0 to 23.7	Fecal Coliform	All Year
Clackamas River	Clackamas River	RM 0 to 22.9	Temperature	Summer
Cow Creek	Clackamas River	RM 0 to 2.6	Temperature	Summer
Johnson Creek	Johnson Creek	RM 0 to 23.7	Temperature	Summer
Johnson Creek	Johnson Creek	RM 0 to 23.7	DDT	All Year
Johnson Creek	Johnson Creek	RM 0 to 23.7	Dieldrin	All Year
Johnson Creek	Johnson Creek	RM 0 to 23.7	PAH	All Year
Johnson Creek	Johnson Creek	RM 0 to 23.7	PCB	All Year

Definitions for acronyms used in this table are:

RM = River Mile

DDT = Dichlorodiphenyltrichloroethane

PCB = Polychlorinated Biphenyls

PAH = Polynuclear Aromatic Hydrocarbons

The Willamette River’s mainstem from river mile 0 to 24.8 – the reach where Kellogg Creek, the Clackamas River and Johnson Creek join the Willamette – is on the 303(d) list for several parameters. They include mercury, manganese, iron, fecal coliform bacteria, DDT, DDE, Aldrin, PAH, PCB, dieldrin, pentachlorophenol and elevated water temperature. These 303(d) listings are not addressed in this analysis, for the MS4

areas in SWMACC, the Cities of Rivergrove and Happy Valley, and CCSD#1 do not discharge directly to the Willamette River's mainstem.

I. Reasonable Likelihood [Schedule D(2)(e)(i)]

This section addresses the likelihood that stormwater from the co-permittees' MS4 may cause or contribute to water quality degradation of receiving waters through the discharge of pollutants on the 2002 303(d) list. In no instance are the co-permittees aware of a discharge from their MS4 that has caused water quality degradation of receiving waters through the discharge of pollutants on the 2002 303(d) list. The co-permittees believe that it is possible that, for certain 303(d)-listed parameters, a discharge from their MS4 *may have contributed to* water quality degradation of receiving waters. If there is a reasonable likelihood that discharges from their MS4 *may have contributed to* water quality degradation of receiving waters, "Yes" will be present for the applicable water body, parameter, and season in Table 6.

Table 6

Waterbody	Parameter	Listed Season	Reasonable Likelihood?
Kellogg Creek	E. coli	Oct 1 st to May 31 st	Yes
Mt. Scott Creek	E. coli	Oct 1 st to May 31 st	Yes
Philips Creek	E. coli	Oct 1 st to May 31 st	Yes
Rock Creek	E. coli	Oct 1 st to May 31 st	Yes
Cow Creek	E. coli	Oct 1 st to May 31 st	Yes
Sieben Creek	E. coli	Oct 1 st to May 31 st	Yes
Clackamas River	E. coli	June 1 to Sept. 30 th	Yes
Johnson Creek	Fecal Coliform	All Year	Yes
Clackamas River	Temperature	Summer	No
Cow Creek	Temperature	Summer	No
Johnson Creek	Temperature	Summer	No
Johnson Creek	DDT	All Year	Yes
Johnson Creek	Dieldrin	All Year	Yes
Johnson Creek	PAH	All Year	Yes
Johnson Creek	PCB	All Year	Yes

II. MS4 Discharges and 303(d) Pollutants [Schedule D(2)(e)(i) & (ii)]

The rationale for the reasonable likelihood conclusions in Table 6 are provided in this section. The results of an evaluation are also provided. For the 303(d) listings with "Yes" in the reasonable likelihood column, this section also provides a determination and description of the relationship between the 303(d) listed pollutant and the MS4's discharges, given that the co-permittees have determined that the MS4 may be a contributor of these specific listed pollutants to surface waters. For the 303(d) listings with "No" in the reasonable likelihood column, this section provides an explanation for the co-permittees' determination that the MS4 does not cause or contribute to water quality degradation of receiving waters.

Reasonable Likelihood: Yes

This reasonable likelihood finding applies to the 303(d) listings for bacteria, PCBs, PAHs, DDT and dieldrin.

a) *E. coli* and Fecal Coliform

Both types of bacteria are known to the co-permittees to be, at times, discharged by their MS4 in significant concentrations. At other times, the concentrations are low. The evidence supporting this finding is substantial, as the co-permittees have collected a large number of surface water and stormwater samples over many years that have been analyzed for the presence of these bacteria.

The co-permittees believe that the MS4 does not cause, but can, under circumstances, contribute to water quality degradation of receiving waters. *E. coli* and fecal coliform bacteria, both of which are indigenous to the Northern Willamette Valley, can be directly discharged – or indirectly discharged during storm events – into the MS4 from many sources, including wild mammals, tame waterfowl in parks, wild songbirds, improperly treated human waste, pet waste, and livestock. It is the co-permittees' understanding that the co-permittees are only responsible for preventing and/or controlling the MS4's loading of *E. coli* and fecal coliform bacteria that originated in the gut of humans or in fecal material from pets and livestock. It is also the co-permittees' understanding that the co-permittees are not responsible for preventing and/or controlling the MS4's loading of *E. coli* and fecal coliform bacteria that originated in other host species, including wild, native and non-native mammals and birds.

Recent scientific evidence from studies in the Puyallup River watershed in Washington State and the Tualatin River watershed in Oregon indicates that nearly all (> 90%) of the *E. coli* in urban stormwater does not originate in the gut of humans. The Tualatin River watershed study shows that the percentage of *E. coli* present in stormwater which originated from dog feces is <20% and often is far lower. According to these studies and to anecdotal evidence available to the co-permittees, stormwater washing over fecal matter that had been deposited by a range of animals, including birds and rodents, appears to be the source of nearly all of the *E. coli* contamination in urban stormwater. The co-permittees' source tracking work has occasionally led to the identification and frequent control of specific point sources of bacteria. But far more often than not, in response to a higher concentration of bacteria from sampled water, the co-permittees have been unsuccessful when attempting to trace bacteria to a source. Recent scientific studies in Washington and Oregon have shown that the source of nearly all of the *E. coli* contamination in urban stormwater in now appears to be due to the presence of many small animal droppings scattered over a wide area.

b) DDT and Dieldrin

These 303(d) listings are limited to Johnson Creek. Dichlorodiphenyltrichloroethane, a.k.a. DDT, and dieldrin are toxic organochlorine insecticides that have been banned for at least 20 years. Historically, DDT and dieldrin were both used extensively. Examples

of typical usage included, but aren't limited to, killing mosquitoes that were in urban areas and killing insects that were present in farmed lands. Both compounds are long-lived in soils and are toxic to animals. They're also highly hydrophobic, which means they tend to bind to soil particles and the fatty tissues of animals and do not readily dissolve in water. Due to the extensive past use and the long-lived nature of these compounds, these materials are virtually ubiquitous in the environment and have been detected in virtually all media (water, soil, animal tissue, etc.).

The use of dieldrin in the United States was restricted in 1970 and all uses of products containing dieldrin were banned in 1983. In addition to being an insecticide, dieldrin is also a long-lived oxidation breakdown product of aldrin, another organochlorine pesticide. Aldrin is known to quickly break down – typically within a matter of days – into dieldrin in an animal's body or in the environment. Thus, the concentration of dieldrin in the environment is often a cumulative result of the historic use of both aldrin and dieldrin. Dieldrin is very stable in the environment and, unfortunately, does not easily break down into harmless by-products. Transport of dieldrin to surface water bodies is believed to be due, in part, to stormwater runoff. It is believed that dieldrin is also able to be dispersed in the environment by wind and volatilization as well. In upland areas, these molecules preferentially bind to soil.

DDT was banned from use in the United States in 1972. Over time, DDT breaks down to form the metabolites DDE and DDD, which are also associated with toxicological effects in animals. Transport of these molecules – DDD, DDT and DDE – to surface water bodies is believed to be due, in part, to stormwater runoff. They can also be dispersed in the environment by wind and volatilization. In upland areas, these molecules preferentially bind to soil. In water, they tend to bind to sediment, volatilize, photodegrade, or be taken up into the food chain.

The co-permittees believe that the MS4 does not cause, but do believe that (under certain circumstances) it can contribute to, water quality degradation of receiving waters in the Johnson Creek watershed. This is supported by several recent studies that have been conducted in the watershed by the USGS and by the Interjurisdictional Committee (IJC) for Johnson Creek. The USGS studies involved the use of the USGS laboratory in Colorado and the IJC's study involved the use of the laboratory at Texas A & M University. Through these studies, it has been determined that:

- The bulk of the loading of DDT (and breakdown products) and dieldrin was already in the creek at the point where it entered Gresham's city limits. The watershed above this point is rural, dominated by agricultural and rural residential land uses. The concentration of these insecticides in the creek's water is actually diluted as it flows through the urban, MS4-permitted portion of the watershed.
- DDT (and breakdown products) can be discharged by MS4s, although in many instances, DDT is present at such low levels that instream water quality standards aren't exceeded.
- Dieldrin can be discharged by MS4s, although in nearly all instances, dieldrin is either undetectable or is only present at low levels that do not exceed the instream water quality standard.

c) Polynuclear Aromatic Hydrocarbons (PAHs)

This section applies only to the 303(d) listing for PAHs in Johnson Creek. They are also called Polycyclic Aromatic Hydrocarbons. PAHs are a group of more than a hundred organic hydrocarbon compounds that each have two or more benzene rings. PAHs are typical components of asphalt, petroleum-based fuels, oils, and greases. They're also generated as by-products when carbon compounds aren't completely combusted. PAHs are one of the most prominent groups of chemicals that are found in smoke, soot, and engine exhaust and can be released by a range of sources, including but not limited to, furnaces, automobile exhaust, fireplaces, cigarette smoke, coal and oil-fired power plants, incinerators, forest fires, and volcanic eruptions.

When released directly into the atmosphere, PAHs may attach to small particles and be transported for considerable distances before falling back to earth as dust or in precipitation. PAHs can also enter surface water bodies if they're attached to particles that have been washed from upland soils or off of impervious surfaces by stormwater. PAHs have been found in precipitation in pristine, undeveloped areas around the world. Although they're present in low concentrations virtually everywhere, PAHs can occasionally reach elevated concentrations as a result of certain industrial activities, such as areas that are often downwind of an incinerator's gas plume. PAHs can also migrate from a material containing PAHs in high concentrations, such as a creosote-based wood preservative. PAHs can leach from creosote-treated wood in utility poles, railway ties, bridges, and pilings into freshwater, ground water, and soil.

Some PAHs degrade slowly in the environment, and sediments are a "sink" where these chemicals tend to concentrate. PAHs that are dissolved in water can be "taken up" by plants and then re-released back into water or into soil when the plant dies and decomposes or is burned. Some PAHs can also accumulate in the tissues of certain organisms.

The co-permittees believe that the MS4 does not cause, but do believe that (under certain circumstances) it may be able to contribute to, water quality degradation of receiving waters in the Johnson Creek watershed. Although the co-permittees have not collected data on the PAH concentration in discharges from their MS4, the co-permittees do have some data on the presence of 16 different PAHs in discharges from some co-permittee-owned/operated stormwater injection devices. These devices inject stormwater into the earth. This data was collected during an ongoing study that is overseen by Oregon's Association of Clean Water Agencies (ACWA). The study received support in the first two years from GeoSyntec Consultants. This stormwater quality data set was assembled during a three year period from stormwater samples collected from drywells and a perforated horizontal storm sewer pipe in Oregon's Willamette Valley. To date, four to seven storms have been sampled at each of the study's seven stormwater injection devices. The following ten PAHs were never detected in the stormwater at any site: Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(ghi)perylene, Benzo(k)fluoranthene,

Chrysene, Dibenzo(a,h)anthracene, and Indeno(1,2,3-cd)pyrene. The following six PAHs were detected in the stormwater at one or more site during one or more storms, but only at levels which are far below those that have been set to protect human health and aquatic life: phenanthrene, fluoranthene, pyrene, fluorene, benzo(b)fluoranthene, and naphthalene.

d) Polychlorinated Biphenyls (PCBs)

This section applies only to the 303(d) listing for PCBs in Johnson Creek. PCBs are no longer produced in the United States, but are still commonly found in the environment. PCBs are a family of closely related chemicals with 209 different chemical configurations included in this family.

There are no known natural sources of PCBs. PCBs have been used as coolants and lubricants in transformers, capacitors, and other electrical equipment because they don't burn easily and are good insulators. The manufacture of PCBs was stopped in the United States in 1977. Products made before 1977 may still contain PCBs, however. These products may include fluorescent lighting fixtures, electrical devices that contain PCB capacitors, electrical transformers, slide-mounting media for microscopes, and hydraulic systems. If present in these products, PCB will seldom be encountered in a pure state, but the oil mixtures used in electrical components can have very high proportions (60% or more) of PCBs.

PCBs resist being broken down into byproducts because they have a very stable molecular structure. PCBs are very persistent in soil and water, with no known breakdown processes other than slow degradation by microbes. They are practically insoluble in water but are very soluble in fats, waxes and oils. The result is that they tend to accumulate, particularly in animal fats and in sediments of lakes, rivers and streams. PCB-contaminated sediments in lakes, rivers, or streams can slowly release PCBs back into the water, from which it eventually evaporates. If soil is contaminated with PCBs, it tends to adhere to the soil, but it may slowly evaporate, so PCBs may not necessarily reach ground water if they're present in soil with deep groundwater. When PCBs do evaporate, they can be carried long distances; they have been found in snow and seawater in and near Antarctica.

The co-permittees believe that the MS4 does not cause, but do believe that (under certain circumstances) it may be able to contribute to, water quality degradation of receiving waters in the Johnson Creek watershed. Although the co-permittees have not collected any data on the presence or absence of PCBs in discharges from their MS4 in the Johnson Creek watershed, the co-permittees are aware of one instance in the Kellogg Creek watershed where PCBs were found to be present within sediments that were trapped in the MS4. In that instance, major hazardous waste cleanup work overseen by DEQ was conducted at, and just downgradient from, the Portable Equipment Salvage Co. site at 10281 SE Mather Road in 1994 and 1995. In 1994, the public storm sewer system serving this facility was carefully cleaned with a vacuum truck and the solid/liquid waste, including the PCBs, was hauled off and properly

disposed of. In 1996, the DEQ issued a Certificate of Completion for this site's cleanup work.

Reasonable Likelihood: No

This finding only applies to the 303(d) listings for elevated water temperature. To the best of the co-permittees' knowledge, stormwater discharges from the MS4 are below instream temperature standards. This finding, that stormwater discharges from the MS4 are below instream temperature standards, is also in the Department's draft Willamette River TMDL for temperature.

Dry-weather discharges from the MS4 can be above instream temperature standards. Dry-weather discharges from the MS4 are addressed by the District's Illicit Discharge Elimination Program (IDEP). Illicit discharges, if present, are detected and controlled by the District's IDEP, but certain non-stormwater discharges, with necessary controls, are allowed to be present in the MS4. Please see the relevant section of the SWMP for more information about the co-permittees' control measures and the rationale for their selection for each of the twenty-four (24) non-stormwater discharges listed in Schedule A(1)(3) of the MS4 permit.

III. BMP Effectiveness [Schedule D(2)(e)(iii)]

This Stormwater Management Plan effectively addresses all of the co-permittees' 303(d) listings. Table 7 identifies the BMPs which are currently being implemented by the co-permittees that reduce loadings of 303(d)-listed pollutants in stormwater from their MS4. In some instances, such as for PCBs, the co-permittees have a limited amount of analytical data which quantifies the effectiveness of their BMPs, so this tabular format was utilized to display some of this section's relevant information.

"Effectiveness categories" are used in Table 7 to describe the ability of any given BMP to address the source(s) or the surrogate of the 303(d)-listed pollutant. The co-permittees' evaluation of the current BMPs in Table 7 utilizes the following "effectiveness categories":

- S for Source. This yields an expected reduction at the source(s) of stormwater contamination by the 303(d)-listed pollutant. This is also used when the BMP is expected to prevent the pollutant from contaminating stormwater in the first place.
- R for Reduction. This is expected to yield a direct reduction in the level of the 303(d)-listed pollutant in stormwater.
- T for total suspended solids (TSS). This yields an expected reduction of TSS. Many of the co-permittees' 303(d)-listed pollutants, if found in stormwater, tend to be attached to small, suspended solid particles, so a reduction of TSS levels in stormwater is expected to yield a lower concentration of the 303(d)-listed pollutant in stormwater.
- I for Indirect. This yields expected indirect benefits that support the reduction of the 303(d)-listed pollutant in stormwater runoff (for example, a public involvement campaign that encourages owners to pick up their dog's waste, reducing E. coli levels in stormwater).

- N. No reduction in the level of this pollutant is expected.

These categories apply to both structural and non-structural BMPs. As Table 7 shows, one or more BMPs address each of the 303(d)-listed pollutants. The co-permittees believe that the implementation of these BMPs provides an overall reduction in the loadings of their 303(d)-listed pollutants in stormwater.

Table 7

BMP	E. coli	DDT	Dieldrin	PAHs	PCBs
O & M: Conveyance System Components	R	T	T	T	T
O & M: Significant Structural Controls	R	T	T	T	T
O & M: Street Sweeping	R	T	T	T	T
O & M: Other O & M (i.e. garbage removal)	N	N	N	N	N
Planning Procedures for New/Redevelopment	S	S	S	S	S
Closed Landfills	N	N	N	N	N
Reducing Pesticide, Fertilizer & Herbicide Use	N	I	I	I	I
Illicit Discharge Elimination & Spill Program	S	S	S	S	S
Industrial Stormwater Program	S/R/T	S/R/T	S/R/T	S/R/T	S/R/T
Erosion Control Program	N	T	T	T	T
Public Involvement Program	I	I	I	I	I

E. coli and fecal coliform

Certain O & M structural BMPs, such as a well-vegetated, man-made wetland, are expected to reduce bacteria levels through filtration and residence time (which increases the bacterial die-off rate). Street sweeping is expected to pick up some fecal material that had been deposited by birds and pets, yielding a modest bacteria reduction. The Illicit Discharge Elimination & Spill Program will eliminate sources of bacterial contamination of stormwater by human wastes in the event of a leak or spill. The Industrial Stormwater Program can prevent or eliminate the contamination of stormwater by bacteria from certain types of sources of bacterial contamination. Some of the Public Involvement Program's campaigns, such as those that encourage owners to pick up their dog's waste, will indirectly reduce bacteria levels in stormwater.

PCBs, PAHs, DDT, and Dieldrin in the Johnson Creek watershed

All four of these 303(d)-listed pollutants, if they're present in stormwater, are at least somewhat likely to be attached to or associated with small, suspended solid particles. Therefore, a reduction of TSS levels in stormwater is expected to yield a lower concentration of these 303(d)-listed pollutants in stormwater being discharged from the co-permittees' MS4 in the Johnson Creek watershed. When structural BMPs are present, they're expected to reduce stormwater's TSS levels. The Illicit Discharge Elimination & Spill Program will eliminate the source of 303(d)-listed pollutants in the event that a leak or spill contains one or more of these pollutants. The Industrial Stormwater Program can prevent, eliminate, or reduce the contamination of stormwater by these pollutants; however, the performance that is obtained will depend on the specific set of control measures that are implemented by the business/property owner. For construction sites where a significant area (over 600 square feet) is being

developed or redeveloped, erosion control permits administered by the co-permittees will reduce the amount of TSS, and thus the concentration of 303(d)-listed pollutants in stormwater. Some of the Public Involvement Program's campaigns, such as those that encourage citizens to minimize off-site soil erosion during and after yard landscaping work, will indirectly reduce the levels of these 303(d)-listed pollutants in stormwater.

4.11 Public Involvement [Schedule D(2)(f); Replaces 2000 SWMP Section 4.2.6]

Introduction

A variety of communications strategies are implemented each year to increase citizen awareness of programs and services provided by the District, strengthen the department's identity within the community, and expand information-sharing efforts.

Throughout the year, the District creates awareness in both the public and the business sectors about the impact of stormwater pollution on the health of the region's rivers and streams. Awareness messages and involvement activities have been designed to educate area residents, students, and businesses about their personal link to water quality and healthy salmon runs. The goal through these social marketing activities and events is to build public awareness, foster understanding, and change daily behavior or business practices to help improve stormwater quality, which will ultimately affect the health of our rivers.

Through citizen and stakeholder involvement, business workshops and public education programs, the District continues to successfully engage the public and other jurisdictions in decision-making. The District continues to seek out opportunities to maintain an ongoing dialogue with customers, the public, and other utilities, businesses, and students in the region.

District Public Awareness Activities

Publications

The District continues to add and modify publications on natural gardening, groundwater protection, and surface water to its "Request for Publications" page on the Community Outreach website and to its information kiosk in the administration office.

Bill Inserts

Bill inserts or the appropriate service district newsletter is mailed with the customer's account statement. Recent bill inserts have included promotions such as the all-natural lawn care kit from the Regional Coalition for Clean Rivers and Streams.

District Customer Packets

Informative packets are sent to new customers or picked up at events. The District packet contains information on water quality and conservation tips, best management

practices, as well as an insert reply card for those interested in tours, public speaking engagements and presentations.

Water Environment Services Website

Launched in 2003 for the purpose of posting all available information and data about the watersheds within Clackamas County, the site continues to grow with information and resources. The site includes, by watershed, links to watershed groups, education and outreach, events, and research and data. Included are links to BMPs, permit requirements and information, Heritage Tree Program, Wildlife Habitat/Riparian Area incentive programs, and other resources. As a result of the 2004 Customer Values and Satisfaction Survey, the WES website will undergo a major revamp in 2006. The goal is to focus on information needs of users, improve ease of use and navigation, and improve and maintain a consistent District identity throughout the site.

News Releases and Media Coverage

The District continues to coordinate and enhance news sharing with the media, and increase citizen awareness and understanding of program issues. A variety of press releases are disseminated via the media listserv and interested parties listserv during the course of the year to inform citizens of public meetings, recruitment ads to serve on the surface water management citizens' advisory committee, volunteer opportunities for watershed restoration projects, and community outreach events.

Events and Volunteer Activities

The District sponsors and/or participates in events throughout the year that engage volunteers in activities and learning opportunities that help protect water quality, improve stream corridors and enhance wildlife habitat. Some of the major events are summarized below:

Adult & Youth Programs

The District continues to enhance its elementary school programs, which were developed and are presented by the Clackamas Community College's John Inskeep Environmental Learning Center and professional storyteller, Will Hornyak. In addition, the District supports community-wide adult and youth programs, including naturescaping workshops, watershed assistance programs, and high school scholarships.

Storm Drain Stenciling

The District provides this program to help reduce the improper disposal of pollutants from entering area streams. The program alerts individuals of the connection between streets and nearby waterways.

Intergovernmental Coordination

Clackamas County Hazardous Mitigation Committee

The District participates in countywide planning to address emergency management issues. This includes mapping of topography, floodplains, existing stormwater systems, and determining priorities for updating and creating FEMA maps.

Clackamas River Basin Council

The Clackamas River Basin Council meets monthly. CCSD#1 supports the Basin Council with funding, staff time and resources, and with a voting representative for the Special Districts stakeholder group. Staff also participates on the Executive Committee and Strategic Planning sessions for the watershed council.

Clackamas Subbasin Local Advisory Committee (LAC)

Staff serves on the LAC to review and update the Clackamas Subbasin Agriculture Water Quality Management Plan. The LAC finished its work in February 2005 and submitted the following: Clackamas Biennial Review report to the Board of Agriculture, the Clackamas Agriculture Water Quality Management Area Plan, and the Education Program to the Department of Agriculture.

Clackamas River Water Providers

Staff attends several Clackamas River Watershed Management Group meetings during the year. Other group members include the five public water districts that divert, treat and sell the Clackamas River's waters, Portland General Electric, the Bureau of Land Management, The U.S. Geological Survey (USGS), and the U.S. Forest Service.

Coordinating Council for Salmon and Steelhead Recovery

Provide Salmon Recovery Coordination on several levels, including in the recent past, a 10-county Lower Columbia ESU coordination effort, the Portland-area ESA Coordinators Meeting, and currently, internally at Clackamas County. The District serves as the County's department leads on the ESA and staff coordinates meetings for eight departments of the County.

Johnson Creek Interjurisdictional/Technical Committee

Staff chairs the Interjurisdictional Committee (IJC), which provides coordination amongst the jurisdictions on joint projects, monitoring and exchange of information. A monitoring subcommittee has been established to determine data needs for Johnson Creek and make recommendations to the Interjurisdictional Committee for funding.

Johnson Creek Watershed Council

The Johnson Creek Watershed Council meets monthly. CCSD#1 fills one of the jurisdictional positions on the Council Board and supports the Council with funding, staff time and resources. Additional meetings take place monthly for a variety of subcommittees.

Low Impact Development

Ongoing coordination with Clackamas County's Planning Division to allow development with methods that reduce curbs and impervious areas. The District works closely with the Building, Engineering, and Planning Divisions of the County's Department of Transportation and Development to explore possible changes to development standards that would reduce surface water impacts.

North Clackamas Surface Water Management Citizens' Advisory Committee

The North Clackamas Surface Water Management Citizens' Advisory Committee (NCSWMCAC) meets on a bi-monthly basis. The twelve NCSWMCAC members advise the District on surface water and stormwater management standards, regulations, and policies for CCSD#1. The meeting dates and locations are publicized in advance and open to the general public.

NPDES Clackamas County Co-Permittee Meetings

Establishes forum for discussion of Best Management Practices, coordination of the annual report, and stormwater issues of interest to each permittee.

Oregon Division of State Lands (DSL)

Staff schedules meetings as needed with the Oregon DSL to discuss coordination issues and specific projects.

Oregon Association of Clean Water Agencies (ACWA)

District staff serves on the Board of ACWA as the chair of the Finance Committee. Staff also attends regular meetings of the Groundwater, Stormwater and Public Education Committees.

Pollution Prevention Outreach (P2O) Team

Staff attends several Pollution Prevention Outreach (P2O) Team meetings during the year. The P2O Team is comprised of representatives from state and local government agencies in the greater Portland metropolitan area that works toward achieving a cleaner environment through cooperative efforts. Improving the water quality of discharges to and from storm sewer systems continues to be one of the P2O Team's highest priorities.

Regional Coalition for Clean Rivers and Streams

In response to shared needs to meet NPDES municipal stormwater permit requirements, the District joined with a number of other jurisdictions in 1994 to form the Regional Coalition for Clean Rivers and Streams to develop and implement a five-year coordinated pollution prevention awareness campaign. Members of the Regional Coalition of Clean Rivers and Streams (RCCRS) include the City of Portland, Clean Water Services, City of Gresham, and the Clean River Partners of Clackamas County (Milwaukie, Rivergrove, Gladstone, Happy Valley, Oak Lodge Sanitary District, Wilsonville, Lake Oswego, Oregon City and West Linn) to combine resources in developing an advertising campaign that addresses stormwater in the Metro area. Another 5-year agreement was signed with all participants in 2005.

Statewide Stormwater Summit

This event is sponsored by the Oregon Association of Clean Water Agencies (ACWA) to share water quality information between MS4 permit holders and among ACWA members.

Stop Oregon Litter & Vandalism (SOLV)

The District participates with Clean Water Services, City of Portland, and other parties to sponsor staff for SOLV to assist with volunteer projects for stream restoration work: TeamUp. In addition, the District staff works with SOLV to assist property owners with their projects.

USGS' Continuous Monitoring Stations

The District, in partnership with the cities of Gresham, Happy Valley, Milwaukie, Portland, Multnomah County and the U.S. Geological Survey, contributes funds towards the operation of five continuous monitoring stations in the Johnson Creek. Four stations provide real-time flow and temperature data while the fifth station provides only temperature data. In addition, two stations now provide continuous turbidity data.

Water Resources Policy Advisory Committee (WRPAC)

Staff provides membership and alternate membership to the Water Resources Policy Advisory Committee. The committee reviews issues related to improving water quality, preserving natural resources, buffer requirements, and sharing of environmentally relevant information around the region.

4.12 Monitoring Program [Schedule B(1)]

The District is currently evaluating a coordinated monitoring plan with many of the other MS4 phase 1 co-permittees. The evaluation is anticipated to be completed in the Spring of 2006. Final recommendations are not available at this time, but will be incorporated into the next annual report. If such an approach is deemed to be feasible by the interested co-permittees, then implementation would begin in July 2007. Until this evaluation process and resultant recommendations are completed, the District will continue to implement the monitoring plan included in Appendix D. A preliminary draft of the coordinated monitoring plan is also included, for informational purposes only.

The District has reviewed, and in some instances, updated its surface/stormwater monitoring plan to address the requirements in the MS4 permit, including but not limited to, the objectives in schedule B(1)(b). Updates that have been made include:

- The addition of annual storm event monitoring work at three Major outfalls
- The addition of hardness as a monthly monitoring program parameter
- The removal of the routine, instream monitoring location on Sieben Creek at SE Sunnyside Road, for ongoing construction work at this site has prevented safe access to this monitoring location since July 2005, and it is anticipated that safe access will not be available to this monitoring location again until 2007.

The revised surface/stormwater monitoring plan for the MS4-permitted areas in CCSD#1:

- Meets the monitoring requirements that are within the current MS4 permit, issued July 27, 2005, and
- Meets the requirements that are present within the Three Basin Rule (OAR 340-041-470) for those areas that drain into the Clackamas River watershed, and
- Allows the District to track the long-term progress of the SWMP towards achieving improvements in receiving water quality if improvements in receiving water quality are needed, and
- Explains how the proposed monitoring program fulfills each of the objectives in schedule B(1)(b), and
- Will yield information that can be used to support the adaptive management process that could lead to refinements of the SWMP, and
- The protocols that will be used for quality assurance/quality control for sample collection and analysis are consistent with the quality assurance protocols described in the Department's 2004 303(d) List/Delist Data Submittals Minimum Data Requirements."

4.13 Non-Stormwater Discharges [Schedule B(2)(b)(iii)]

The July 27, 2005 MS4 permit which was issued to SWMACC, The Cities of Rivergrove and Happy Valley, CCSD#1, and Clackamas County (hereafter referred to as "the co-permittees") requires that an Interim Evaluation Report (IER) be submitted to the DEQ by May 1, 2006. One component of the IER is an identification of the "...appropriate control measures and the rationale for the selection of these BMPs, or the rationale for why BMPs are deemed not necessary" for each of the twenty-four (24) non-stormwater discharges that are listed in Schedule A(1)(3) of the permit if that discharge is expected to occur in a co-permittee's area. According to Schedule A(1)(3) of the MS4 permit, the 24 non-stormwater discharges "...need not be addressed by the co-permittee's illicit discharge program, provided appropriate BMPs, if needed, to minimize the impacts of such sources are developed under the SWMP...". The 24 non-stormwater discharges are divided into the following ten (10) categories in this document:

1. Potable water sources

- water line flushing
- discharges from potable water sources
- start up flushing of groundwater wells
- aquifer storage and recovery (ASR) wells
- potable groundwater monitoring wells
- draining and flushing of municipal potable water storage reservoirs

2. Excess Irrigation flows

- landscape irrigation
- irrigation water

- lawn watering
3. Groundwater
 - rising ground waters
 - uncontaminated groundwater infiltration (i.e. infiltrating into the MS4)
 - uncontaminated pumped ground water
 - foundation drains
 - springs
 - water from crawl space pumps
 - footing drains
 4. Flows from surface water bodies
 - diverted stream flows
 - flows from riparian habitats and wetlands
 5. Air conditioning condensate
 6. Individual residential car washing
 7. Dechlorinated swimming pool discharges
 8. Street wash waters
 9. Discharges of treated water from investigation, removal and remedial actions selected or approved by the Department pursuant to Oregon Revised Statute (ORS) Chapter 465, the state's environmental cleanup law
 10. Discharges or flows from emergency fire fighting activities (where discharges or flows from fire fighting are identified as not a significant source of pollutants to waters of the state)

The co-permittees currently allow, though often only with controls in place, the discharge of all 24 of these discharges to the co-permittees' MS4s. The 24 discharges will be addressed on a category-specific basis in the balance of this document.

Category 1: Flows from Potable Water Sources

This category's six discharge types are:

- water line flushing
- discharges from potable water sources
- start up flushing of groundwater wells
- aquifer storage and recovery wells
- potable groundwater monitoring wells
- draining and flushing of municipal potable water storage reservoirs

Do these discharge types occur in the co-permittees' MS4 area? Yes

The appropriate control measures which are applied: The Department of Environmental Quality's (DEQ) has already provided clear guidance on the appropriate control measures for this category of nonstormwater discharges. This guidance was provided in a document, dated May 19, 1997, titled "Management Practices for the Disposal of Chlorinated Water". The DEQ has also issued a Fact Sheet which addresses this same subject area. Titled "Management Practices for the Disposal of Chlorinated Water", the Fact Sheet was last updated on October 2, 2000. The Fact Sheet appears to contain similar or identical recommendations if compared to the May 1997 guidance.

The co-permittees have notified all of the public water districts that operate in the co-permittees' MS4 area that they expect the public water districts to fully implement this guidance at all times. Meetings were held where a photocopy of this guidance from DEQ, an informational letter from the District, and a copy of a map of the co-permittees' MS4 were provided to one or more representatives from each public water district. Meetings or phone conversations were held with these districts on the following dates:

- Clackamas River Water August 31, 1998
- Mt. Scott Water District May 10, 1999
- Damascus Water District May 18, 1999
- Oak Lodge Water District June 10, 1999

Note that the Mt. Scott Water District and the Damascus Water District merged to form the Sunrise Water Authority in November 2000.

The rationale for the selection of these control measures (or the rationale for why control measures are deemed not necessary): The co-permittees believe that the DEQ's work in this area in 1996 and 1997, which culminated in the issuance of the May 1997 guidance titled "Management Practices for the Disposal of Chlorinated Water" and the issuance of the Fact Sheet titled "Management Practices for the Disposal of Chlorinated Water", last updated on October 2, 2000, constitute sufficient controls for releases of potable water into the co-permittees' MS4.

On a customer notification-driven or complaint-driven basis, the co-permittees will investigate – and if necessary, apply further controls to – any potable water discharges that are alleged to contain excessive pollutant levels. In these instances, the relevant co-permittee's Illicit Discharge Elimination Program will be mobilized to address the discharge. Flows which may not possess the required water quality will be investigated, and if necessary, controlled until the quality of the water improves to the appropriate level. Access to the MS4 will be denied to flows that do not achieve the appropriate water quality level.

Category 2: Excess Irrigation Flows

This category's three discharge types are:

- landscape irrigation
- irrigation water
- lawn watering

Do these discharge types occur in the co-permittees' MS4 area? Yes

The appropriate control measures which are applied: The appropriate control measures which are applied by the co-permittees are housed within the co-permittees' respective public involvement programs. Through these programs, dischargers of excess irrigation flows are encouraged to:

- Control their irrigation volume, timing and rate to conserve water, a precious resource, while providing the maximum benefit to the plants being watered. Ideally, dischargers would apply their controls in such a manner where they would cease to contribute any irrigation-related flows to the MS4. This message is also provided by most or all of the public water districts operating in the co-permittees' service areas.
- Install "naturescaped" landscaping. Naturescaped spaces frequently utilize native, drought-tolerant, and disease-tolerant plants, reducing the need for water, as well as herbicides, insecticides, and fertilizer.
- Minimize or avoid the use of herbicides, insecticides, and fertilizer, which if implemented by tenants and property/business owners, will improve the quality of the water if excess irrigation flows are discharged into the MS4.

On a customer notification-driven or complaint-driven basis, the co-permittees will investigate – and if necessary, apply further controls to – any excess irrigation flows alleged to contain excessive pollutant levels. In these instances, the relevant co-permittee's Illicit Discharge Elimination Program will be mobilized to address the discharge. For irrigation waters that were piped to the irrigation site as potable water from a public water supplier, chlorine may continue to be present in any excess irrigation flows that are discharged to the MS4. In these instances, the discharger will be expected to adhere to the potable water guidance and fact sheet from DEQ (see Nonstormwater Discharges Category 1).

The rationale for the selection of these control measures (or the rationale for why control measures are deemed not necessary): The quality of excess irrigation flows from urban lands is generally understood to be of good or high quality. Flows which may not possess the required water quality referred to the District via customer complaint and/or notification will be investigated, and if necessary, controlled until the water quality improves to the appropriate level. Access to the MS4 will be denied to excess irrigation flows that do not achieve the appropriate water quality level.

Category 3: Groundwater-Based Flows

This category's seven discharge types are:

- rising ground waters
- uncontaminated groundwater infiltration (i.e. infiltrating into the MS4)
- uncontaminated pumped ground water
- foundation drains
- springs
- water from crawl space pumps
- footing drains

Do these discharge types occur in the co-permittees' MS4 area? Yes

The appropriate control measures which are applied: None, unless the quality of the groundwater-based flow is suspected of being, is known to be, or is reasonably likely to become contaminated. If the quality of the groundwater-based flow is suspected of being, is known to be, or is reasonably likely to become contaminated, the relevant co-permittee's Illicit Discharge Elimination Program (IDEP) will be mobilized to address the discharge. In nearly all of the instances where the IDEP is mobilized for a nonstormwater discharge within category 4, the flow type is expected to be uncontaminated pumped groundwater. The IDEP will ensure that if the pumped groundwater is discharged to the MS4, it will be uncontaminated by the time it enters the MS4. Contaminated pumped groundwater is not – and will not be – allowed to be discharged to the co-permittees' MS4 unless an NPDES permit has been obtained by the discharger.

The rationale for the selection of these control measures (or the rationale for why control measures are deemed not necessary): The quality of groundwater that is discharged or infiltrates into the MS4 is generally understood to be of good or high quality. Flows which may not possess the required water quality referred to the District via customer complaint and/or notification will be investigated, and if necessary, controlled until the quality of the water improves to the appropriate level. Access to the MS4 will be denied to groundwater-based flows that do not achieve the appropriate water quality level.

Category 4: Flows from Surface Water Bodies

This category's two discharge types are:

- diverted stream flows
- flows from riparian habitats and wetlands

Do these discharge types occur in the co-permittees' MS4 area? Yes

The appropriate control measures which are applied: None.

The rationale for the selection of these control measures (or the rationale for why control measures are deemed not necessary): The quality of the water in the surface water bodies that lie within or flow through the co-permittees' service areas is generally very good. The co-permittees implement an extensive surface water monitoring program, and surface water quality generally ranges from satisfactory to good. In addition, one co-permittee, CCSD#1, has a substantial set of data on diverted stream flow quality in the SE 106th Avenue storm sewer basin. This diverted stream flow's water quality is generally good.

Category 5: Air Conditioning Condensate

This category's single discharge type is:

- Air conditioning condensate

Does this discharge type occur in the co-permittees' MS4 area? Yes

The appropriate control measures which are applied: None

The rationale for the selection of these control measures (or the rationale for why control measures are deemed not necessary): No adverse effects have been noted or observed by the co-permittees. The co-permittees are not aware of any adverse effects that have been noted or observed by others. Air conditioning condensate is comprised of water that had been condensed from atmospheric water vapor onto the surface of the air conditioning unit, so the only pollutants that could reasonably be expected to be present in air conditioning condensate are those that came from the surrounding air – in trace quantities – along with the water molecules.

Category 6: Individual Residential Car Washing

This category's single discharge type is:

- Individual residential car washing

Does this discharge type occur in the co-permittees' MS4 area? Yes

The appropriate control measures which are applied: The appropriate control measures which are applied by the co-permittees are largely housed within the co-permittees' respective public involvement programs. Through these programs, citizens who engage in individual residential car washing are:

- First, encouraged to consider washing with mild, readily degradable soap on a porous surface (i.e. lawn, loose gravel) in an area with deep groundwater so that the washing-related wastewater fully soaks into – and is treated by – the earth without posing any threat to groundwater quality, and
- Second, if they cannot or will not wash on (or upgradient of) a porous surface, they're encouraged to consider having their vehicle washed at a commercial car

washing facility. These facilities usually discharge treated wastewater to public sanitary sewer systems, eliminating any possible adverse impact to storm sewers, surface waters, or groundwater, and

- Lastly, if the wastewater is to be discharged to the MS4 they're asked to:
 - a) Wash only on an infrequent basis, if possible, and
 - b) To wash exteriors only (no undercarriages, transmissions, or engines), and
 - c) Use only mild, readily degradable soap, and
 - d) Use the minimum amount of soap possible during washing, and
 - e) Pour any excess quantities of soapy waters (in the wash bucket, for example) into their home's sink or toilet after washing the vehicle.

On a customer notification-driven and/or complaint-driven basis, the co-permittees will investigate – and if necessary, apply further controls to – any individual residential car washing-related wastewaters that are alleged to contain excessive pollutant levels. In these instances, the relevant co-permittee's Illicit Discharge Elimination Program will be mobilized to address the discharge.

The rationale for the selection of these control measures (or the rationale for why control measures are deemed unnecessary): Wastewaters generated by individual residential car washing that are discharged to the MS4 are expected to usually:

- Be discharged infrequently from any single source, and
- Be from the washing of exteriors only (no undercarriages, transmissions, or engines), and
- Not be discharged from a large number of locations in any given storm sewer basin on any given day, and
- Contain a small discharge volume, and
- Contain only mild, readily degradable soap, and
- Contain only modest levels of pollution that in many instances is treated by a downgradient storm sewer system structure (i.e. vegetated stormwater pond).

Category 7: Dechlorinated Swimming Pool Discharges

This category's single discharge type is:

- Dechlorinated swimming pool discharges

Does this discharge type occur in the co-permittees' MS4 area? Yes

The appropriate control measures which are applied: The appropriate control measures which are applied by the co-permittees are largely housed within the co-permittees' respective public involvement programs. Through these programs, citizens who wish to discharge waters from pools or hot tubs are:

- First, encouraged to consider discharging the wastewater to a public sanitary sewer line or septic system, if possible.
- Second, if they cannot or will not discharge to a public sanitary sewer line or septic system, they're encouraged to consider discharging to land or vegetation

in a manner where 100% of the water infiltrates, evaporates, and/or transpires without causing a nuisance condition. If this option is selected, if the land to be watered is not owned by the discharger, the property owner's permission must first be obtained, and

- Lastly, if the wastewater is to be discharged to the MS4, the citizen is notified that the pool/spa water must be checked with a test kit and verified to have no detectable level of disinfectant – or a significant level of any other pollutant, such as chlorophyll from an algae bloom – prior to discharge. Spas that are disinfected with silver may not be discharged to the MS4 or to a co-permittee-owned/operated drywell.

The rationale for the selection of these control measures (or the rationale for why control measures are deemed unnecessary): The controls which are utilized by the co-permittees are identical to those found within a DEQ fact sheet titled “Disposal of Chlorinated Water from Swimming Pools and Hot Tubs”. Although this fact sheet is not dated and has no writer's initials, it was on the DEQ's website on November 22, 2005. This DEQ fact sheet can be found at this address:

<http://www.deq.state.or.us/wq/wqfact/ChlorinatedWaterPools.pdf>

Category 8: Street Wash Waters

This category's single discharge type is:

- Street wash waters

Does this discharge type occur in the co-permittees' MS4 area? Yes

The appropriate control measures which are applied: The co-permittees expect dischargers of street washing-related waters to their MS4 to adhere to the requirements contained within Schedule A(3)(a)(ii) of the DEQ's 1700A NPDES permit. This permit states the following: “The washing of roads, parking lots, sidewalks, and other paved surfaces is permitted (without needing to have a 1700A in the discharger's possession) provided (that) chemicals, soaps, detergents, steam, or heated water are not used, and surfaces are swept prior to washing.” The 1700A permit which is currently in effect has been administratively extended; it was issued in March 1998 and expired in January 2003. In addition:

- On a customer notification-driven and/or complaint-driven basis, for sites where street washing is taking place that are not currently operating with a state or co-permittee-issued erosion control permit, the co-permittee's Illicit Discharge Elimination Program will investigate and apply further controls to any street washing-related wastewaters that were generated with: a) additives, or b) that were generated without a pre-wash sweep, or c) that contain excessive levels of pollutants even if the washing was done with a pre-wash sweep and was generated without the use of additives.

- For sites currently operating with an erosion control permit (these are primarily limited to construction sites), the co-permittee's Erosion Control Program will ensure that additives are not used and that street surfaces are swept prior to washing. The Erosion Control Program will also ensure that additional pollution removal structures, such as filter sacks in catch basins, are deployed if deemed necessary. The Erosion Control Program will respond to any complaints and notifications received from the public. The Erosion Control Program will also investigate and apply further controls to any street washing-related wastewaters that contain excessive levels of pollutants even if the washing was done with a pre-wash sweep and was generated without the use of additives.

The rationale for the selection of these control measures (or the rationale for why control measures are deemed unnecessary): The controls utilized by the co-permittees are identical to those found within the DEQ-issued 1700A NPDES permit, which regulates the discharge of street washwaters to surface water bodies.

Category 9: Discharges Pursuant to Oregon Revised Statute Chapter 465

This category's single discharge type is:

- Discharges of treated water from investigation, removal and remedial actions selected or approved by the Department pursuant to Oregon Revised Statute (ORS) Chapter 465, the state's environmental cleanup law

Does this discharge type occur in the co-permittees' MS4 area? Yes

The appropriate control measures which are applied: The DEQ actively regulates this type of discharge, and the co-permittees generally do not elect to apply any additional controls. Any given co-permittee may:

- Require that a proposed discharge of this type undergo advanced pre-treatment prior to discharge to the MS4, or
- State that the discharge is not allowed to enter the co-permittee's MS4. In the unusual instances where this type of discharge is not allowed to enter the co-permittee's MS4, CCSD#1's sanitary sewer system, if available in that geographic area, is generally offered as an alternative discharge option. If CCSD#1's sanitary sewer system is not available, but another public sanitary sewer system is (The City of Lake Oswego's system near SWMACC, for example), permission from that sanitary sewer provider to discharge to their system would need to be sought by the proposed discharger. If CCSD#1's sanitary sewer system is offered as an alternative discharge option by CCSD#1, all of the relevant regulations must be met and the appropriate discharge and connection fees must be paid.

The rationale for the selection of these control measures (or the rationale for why control measures are deemed not necessary): The controls are: a) for the flows to undergo advanced pre-treatment prior to discharge to the MS4, or b) to deny access to

the co-permittee's MS4. If either of these controls were to be applied, the co-permittee would likely do so to protect one or more outstanding beneficial uses, such as a major public drinking water source or a significant run of native salmon or steelhead. Another instance where these controls may be applied could involve a proposed discharge which contains significant quantities of a pollutant which, at the time of the discharge, while unregulated by DEQ, would be known to the co-permittee to be – or strongly suspected of being – harmful to aquatic life or to public health.

Category 10: Discharges or Flows from Emergency Fire Fighting Activities

This category's single discharge type is:

- Discharges or flows from emergency fire fighting activities where discharges or flows from fire fighting are identified as not significant sources of pollutants to waters of the state.

Does this discharge type occur in the co-permittees' MS4 area? Yes

The appropriate control measures which are applied: At this time, controls are only applied on a case-specific basic. Controls may include, but aren't limited to:

- If it is deemed to be safe to do so, fire department personnel may elect to use smaller amounts of water or foam while suppressing the fire during the final stage of fire suppression, minimizing the total volume of runoff that is generated, while not compromising their ability to protect public safety and health.
- Providing advanced pre-treatment to remove pollution from the flows: a) prior to their entry to the MS4, or b) at the MS4 outfall and prior to the entry of the pollution into the environment. At this time, this control is only applied if fire department personnel or a co-permittee determine that the fire suppression flows contain excessive levels of pollution.
- Denial of access to the co-permittee's MS4. At this time, this control is only applied if fire department personnel or a co-permittee determine that the fire suppression flows contain excessive levels of pollution. In this instance, alternative discharge and/or disposal methods for the fire suppression flows may include, but aren't limited to:
 - a) land application (i.e. flows soak into ground)
 - b) evaporation (only works well when air and ground temperatures are relatively high)
 - c) irrigation
 - d) discharge to a public sanitary sewer system
 - e) transporting the wastewater offsite to a location where the flows can be processed and properly disposed of

The rationale for the selection of these control measures (or the rationale for why control measures are deemed unnecessary): At this time, the co-permittees acknowledge that under certain circumstances, flows from fire suppression activities can be significant sources of pollutants to waters of the state. An example of this

occurred on March 14, 2004 in the City of Portland, when a facility operated by Thermo Fluids caught fire. The resulting wastewater entered Johnson Creek, though apparently not through the City's MS4, killing about 2,600 fish and many other organisms

As was stated previously, if it is deemed to be safe to do so, fire department personnel may elect to use a smaller amount of water or foam while fighting the fire during the final stage of fire suppression, minimizing the total volume of runoff that is generated. This practical approach to fire suppression flow management – which would lower the total load of pollutants that enter the MS4 – is already being implemented at certain incidents at this time, for it also saves water (and foam if it is being used on the incident).

The application of the other two controls – advanced treatment of the wastewater or denial of access to MS4 – is prohibitively expensive and impossible to implement in most instances, given the fact that:

- Fire departments in the co-permittees' service area do not appear to have the ability to access portable wastewater treatment systems that can be quickly and safely set up and operated at the scene of a fire, given their limited budgets. These same fire departments' personnel do not have the training or the time to then operate a portable wastewater treatment system at or near the scene of the fire.
- Massive volumes of wastewater are generated during a typical fire suppression event and yards, streets, and other areas that are nearby and downgradient from a fire are rarely able to store any of the fire suppression flows. Baker-type tanks can be rented to store the wastewater, but fire departments in the co-permittees' service area do not appear to have the funds to be able to quickly mobilize many portable storage tanks. These same fire departments' personnel do not have the training or the time to then pump the fire suppression flow into tanks, to treat the flows from the tanks, and/or to drain the tanks and properly dispose of the wastewater.
- Vactor-type trucks can move some flows off-site, but they only hold small volumes (about 1,000 gallons) of wastewater, so a very large number of trips to an appropriate wastewater disposal point would be needed. It can take several hours (or possibly more than a day) just to get a vactor-type truck to the scene of a fire. Even if a vactor-type truck is available on short notice, the cost to operate the truck and to properly dispose of the wastewater is very high with this system.
- Fire suppression flows cannot be drained into a public sanitary sewer system on a "real time basis" (i.e. during the fire suppression activity), for the wastewater must be tested for the presence of various pollutants first. It can take several days for laboratory data to be made available, and as was already mentioned in this section, places to properly store significant volumes of fire suppression flows are rarely – if ever – present.

5. FUNDING, STAFF, AND EQUIPMENT [Replaces 2000 SWMP Section 4.5]

Funding

The Stormwater Management Program for CCSD#1 is funded through 3 primary sources: monthly stormwater utility fees, systems development charges (SDCs), and permit fees.

The monthly fees are separated into 2 categories: program fees and maintenance agreement fees. All CCSD#1 customers pay the monthly program fee of \$6 per Equivalent Service Unit (ESU) which is defined as one single family residence or 2500 square feet of impervious surface for nonresidential customers. New single family residential customers since 1998 also pay a monthly maintenance agreement fee of \$3 per ESU which is dedicated for maintenance of local subdivision stormwater conveyance, detention, treatment, and infiltration facilities. In the July 2004 to June 2005 fiscal year, CCSD#1 collected approximately \$3 million in program fees and \$160,000 in maintenance agreement fees.

SDCs are collected from new development and dedicated to planning, design, and construction of additional stormwater infrastructure capacity needed to accommodate growth. The current SDC rate is \$205 per ESU. In the July 2004 to June 2005 fiscal year, CCSD#1 collected approximately \$240,000 in SDCs.

Permit fees for stormwater and erosion control plan review and inspection are collected with every new development application. The current stormwater plan review fee is \$250 per subdivision or commercial/industrial development and \$50 per single family residential building permit. The erosion control review and inspection fee is \$450 for the first acre, plus \$80 per additional acre for subdivisions and commercial/industrial developments, while new single family residences are charged a flat rate of \$300. In the July 2004 to June 2005 fiscal year, CCSD#1 collected approximately \$356,000 in stormwater and erosion control permit fees.

Staff

In March 2004, WES implemented a department-wide reorganization to more effectively utilize staff and resources. The former Surface Water Management section was integrated with the other sections of WES (Planning and Engineering, Environmental Permitting and Laboratory Services, and Environmental Services.) The staffing levels listed below are dedicated both the CCSD#1 and SWMACC.

Environmental Services

Stormwater System Maintenance

- 0.2 FTE Program Manager
- 2.0 FTE Surface Water Technicians
- 1.0 FTE Collection System Technician
- 0.5 FTE Seasonal Employees

- Have also contracted with DTD for 1 FTE

Planning and Engineering Services

Planning, development review, capital projects, and erosion control.

- 0.2 FTE Program Manager
- 0.2 FTE Development Review Supervisor
- 1.0 FTE Administrative Support
- 0.5 FTE Senior Civil Engineer
- 0.5 FTE Civil Engineer
- 1.0 FTE Surface Water Technician
- 1.5 FTE Plan Reviewer
- 1.5 FTE Erosion Control Inspectors
- 0.5 FTE Single Family Plan Reviewer
- Additional staff through DTD for floodplain and miscellaneous land use issues.

Environmental Permitting and Laboratory Services

MS4 Permit compliance (Field Screening, Inspection of Illicit Connections, Management of Programs, Industrial Storm Water and Monitoring) within two service districts.

- 0.2 FTE Program Manager
- 0.6 FTE Surface Water Technician
- 0.2 FTE Sample Collection (through Compliance Services).
- 0.2 FTE Additional staff performs spill response, laboratory analysis on samples and continuous surface water monitoring

Public Involvement and Outreach

Development of brochures, public awareness materials, inter-jurisdictional coordination on public education, public meetings and workshops, etc.

- 0.6 FTE Community Relations Specialist
- 0.2 FTE Surface Water Technician

Environmental Policy Review and Implementation

- 1.0 FTE Environmental Policy Analyst

Equipment

Stormwater management activities require a range of equipment. This equipment is owned by the County Road Department or by WES. Additional equipment is rented or contracted out. A partial list of equipment used for storm water management activities includes:

- Combination Vacuum/Hydrocleaner trucks
- Regenerative air sweepers
- 1/2 ton utility vehicles
- Dye testing and smoke testing equipment
- Sampling stations and sampling gear
- Volunteer stream restoration tool trailer

WES created specifications, purchased, and took delivery of an Aquatech® Series B-10 Combination Cleaner in the latter portion of the 2004-2005 reporting year. This will enhance WES' stormwater maintenance efforts and free DTD's combination cleaner to focus on roadway/transportation issues outside CCSD#1 and SWMACC.

APPENDIX A

Clackamas County MS4 Areas and Co-Permittees

APPENDIX B

Known Structural Controls and Outfalls in CCSD#1

APPENDIX C

Known NPDES Permit Sites in and around CCSD#1

APPENDIX D

CCSD#1 Monitoring Plan