# NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT Evaluation Review Report

Oregon Department of Environmental Quality  
Northwest Regional Office  
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| Permittee: | City of Portland  
1120 SW Fifth Avenue  
Portland, Oregon 97204 |
|------------|--------------------------------------------------|
| Plant Location: | Columbia Boulevard Wastewater Treatment Plant  
5001 N Columbia Boulevard  
Portland, Oregon |
| Type of Waste: | Municipal Sewage  
Combined Sewer Overflow  
Sewer System Overflow |
| Receiving Streams: | Columbia River  
Reclaimed Water  
Willamette River  
Columbia Slough  
Columbia River  
Willamette River  
Columbia Slough  
Johnson Creek  
Fanno Creek |
| Source Category: | Major Municipal |
| Proposed Action: | NPDES permit renewal |
| File Information: | WQ-Multnomah County  
File No. 70725  
EPA Reference No. OR 002690-5  
Permit Application No. 994109 |
| Source Contact: | Jim Folkerts  
Wastewater Operations Manager  
503-823-2410 |
| Preparer: | Lyle W. Christensen  
Water Quality Source Control Section  
Northwest Region  
503-229-5295 |
| Date Prepared: | September 8, 1997 |
| Preparer Signature: | [Signature] |
Overview of Proposed Action

The proposed action is to renew the NPDES permit for wastewater discharges from the City of Portland’s Columbia Boulevard treatment and sewerage system. The sewerage system includes all pipelines or conduits, pumping stations, and force mains, and all other structures, devices, appurtenances and facilities used for collecting or conducting wastes to an ultimate point for treatment or disposal.

Facility Description

General

The Columbia Boulevard Wastewater Treatment Plant (CBWTP), located at 5001 North Columbia Boulevard, is the City of Portland’s principal wastewater treatment facility. The CBWTP has been rated at 100 million gallons per day (MGD) average dry weather flow and 300 MGD peak wet weather flow. In 1995, flows ranged from about 50 MGD to nearly 200 MGD. Portions of the CBWTP are over 40 years old, but the city has been committed in recent years to aggressive improvements at this plant. Most notable have been the disinfection system improvements completed in 1991, the modifications to the secondary system completed in 1994, the addition of an outfall diffuser in 1995, and the replacement of the headworks which was completed in 1996.

The CBWTP site is located in an area of North Portland that has both industrial and residential properties. Ongoing efforts continue to be made to lessen treatment plant impacts (including odor, noise, vehicle traffic) that are associated with a large municipal sewage treatment facility. However, it must be recognized that the long term program to deal with combined sewer overflows will necessitate changes that may make this facility have greater impacts on the neighborhood aesthetics in the future.

Combined Sewer Overflow Control

Much of the older sewerage system (approximately 29,000 acres of the 82,000 acre CBWTP service area) in the City of Portland collects both storm water and municipal sewage flows (by definition- ORS 468B.005(4)- “Sewage” means the water carried human or animal wastes from residences, buildings, industrial establishments or other places, together with such groundwater and surface water as may be present). By design, these sewers will overflow untreated sewage during storm events. The City is currently under a DEQ order (Amended Stipulation and Final Order No. WQ-NWR-91-75) to reduce or eliminate the majority of these combined sewer overflows (CSOs). The upgrade of the CBWTP headworks will improve the ability of this facility to pretreat incoming flows and handle increases in flow as CSOs are captured. The next major project will involve the construction of a wet weather treatment facility for captured CSOs from the Columbia Slough. A Wet Weather Treatment Facility (WWTF) is scheduled to be added at the CBWTP site by the end of 2000. This facility will be
designed to treat captured CSOs from the Columbia Slough Consolidation Conduit (CSCC). In order to accommodate the increased flow through the Columbia Boulevard site, a second Outfall will need to be designed and constructed. This Outfall has been designated Outfall 003.

EPA’s National CSO Control Policy identifies a number of major elements to be included in NPDES permits intended to expedite compliance with the requirements for CSO control outlined initially in the Clean Water Act to ensure protection of water quality. On June 27, 1997, the permittee submitted a report summarizing their progress towards implementation of the nine minimum CSO controls. These measures, as identified in the National CSO Control Policy, are intended to address CSO problems prior to the implementation of longer term control measures. Many of these measures were incorporated into the permittees long term control plan (CSO Facilities Plan) adopted by the Environmental Quality Commission in December 1994. This permit also includes a number of these control measures into its requirements.

**Unique Operating Conditions and Problems**

The collection and treatment system for the City of Portland is the largest (by design flow) in the State of Oregon. Groundwater concerns in East Multnomah County have required areas of previously unsewered neighborhoods to become sewered. The anticipated expenditure of about 700 million dollars on CSO projects will result in the capture of more wastewater. The expansion of the collection system and the addressing of CSO concerns will necessitate additional treatment capacity. Construction of CSO treatment facilities are but a portion of the changes anticipated in the future.

Hydraulic limitations at CBWTP occur during higher instantaneous peak flows. When this occurs, the secondary portion of the plant is unable to treat all flows and it is necessary to bypass a certain portion of the primary effluent around secondary treatment. This bypass flow is mixed with secondary effluent prior to disinfection. The U. S. Environmental Protection Agency’s 1994 CSO Policy provides that an NPDES permit can authorize a CSO-related bypass of secondary treatment under certain conditions. Documentation supporting the bypass were provided to the Department in correspondence dated June 27, 1996, from Jan Betz with the Portland Office of City Attorney.

**Outfalls**

The primary outfall for the treatment plant effluent is identified as Outfall 001. This discharge is located at river mile 105.5 of the Columbia River and occurs through a multiport diffuser located in deep water on the north side of Hayden Island. This diffuser was installed in 1995 and is designed to provide mixing under worst case conditions so that in-stream chlorine limits will be met as long as the total residual chlorine is less than
1.0 mg/l in the effluent. The regulated mixing zone for this outfall is defined as that portion of the Columbia River within 375 feet of the diffuser.

A second outfall, Outfall 002.0, is also identified in the permit for final effluent also at river mile 105.5 of the Columbia River. This outfall is on the south side of Hayden Island into the North Portland Harbor (Oregon Slough). A third and fourth outfall (002.1 and 002.2) are located on the Columbia Slough and the main Columbia River channel, respectively. These are considered as emergency bypass outfalls and discharges occur only when conditions arise that prevent or limit the use of Outfall 001. The mixing zone for the emergency bypass outfalls is a 100 foot radius around the point of discharge. Outfall 003 is the new outfall to be developed in conjunction with the wet weather treatment facility to be constructed at the Columbia Boulevard site.

A large number of other discharge points are also identified in the permit. These are the CSO discharge points and pump stations with designed sewer overflow structures. Overflows from the CSOs are prohibited during dry weather. Overflows at pump station structures are prohibited except under specified frequency storm events or as the result of an “upset” as described in Schedule F of the permit.

**Pollutants Discharged**

The permit allows City of Portland to discharge treated effluent from the wastewater treatment plant. The permit sets limits on the following pollutants: Five-day biochemical oxygen demand (BOD₅), total suspended solids (TSS), Escherichia coli (E. coli), Chlorine Residual and pH.

The permit limitations in the current permit are unchanged in the proposed permit, except that the bacteria standard has changed indicator bacteria from Fecal Coliform to E. coli and the Total Residual Chlorine limitation has been lowered.

**Pretreatment Program**

The City of Portland received final approval of its formal pretreatment program in May of 1992. Portland has a well run pretreatment program. The large industrial base in Portland requires the City to regulate 80 significant industrial users and 89 other industrial dischargers to the treatment system. Ongoing annual reviews of the pretreatment program are carried out by DEQ staff. The 1993 audit resulted in a Notice of Noncompliance (WQ-NWR-93-307) for failure to adhere to all conditions in the approved program. During the 1994 and 1995 audits of the City program, DEQ concluded that their pretreatment program was functioning well and it was found to be in compliance with the program requirements.
**Biosolids Management**

The City of Portland has an approved biosolids management plan. A portion of the biosolids produced at this site is composted and used to create a soil amendment for local landscapers. The majority of the biosolids are hauled to Northeastern Oregon for land application as a beneficial use on sites approved by the Department. The Triangle Lake Sludge Lagoon continues to be used for storage of biosolids and for side stream treatment.

1995 records indicate that during the calendar year, approximately 17,400 dry tons of biosolids produced by the City of Portland were land applied and 2,670 dry tons were converted into 50,000 cubic yards of compost. A Biosolids Land Application Plan dated March 22, 1996, provides a summary of current and future land application activities related to biosolids produced at CBWTP.

**Groundwater**

In 1993, City of Portland initiated a Preliminary Groundwater Monitoring Program at the Triangle Lake Sludge Lagoon. In reviewing monitoring data gathered since 1993, it was found that the data provided little usable information. This ongoing monitoring program needs to be evaluated for effectiveness.

**Stormwater**

Stormwater runoff at CBWTP is addressed by a separate General NPDES permit.

**Reclaimed Water**

A screening and ultraviolet disinfection system has been added on to the CBWTP to provide a source of in-plant water for landscape irrigation and plant needs for non-potable water. In the past, well water was used for this purpose.

This system may eventually produce water in excess of plant site need. The permittee is proposing that if final effluent (following screening and disinfection) is provided for off plant site use (golf course or park irrigation, industrial or commercial uses, etc.), then the permittee will provide the Department with the appropriate documentation to comply with Oregon Administrative Rules, Chapter 340, Division 55, “Regulations Pertaining to the Reuse of Reclaimed Water (Treated Effluent) from Sewage Treatment Plants”. If these requirements cannot be met, then no water will be released from the plant site for reuse. The permit contains monitoring and reporting requirements for this proposed system under Outfall 099.

This permit was drafted with permit limitations for Level II reclaimed water. The Level is determined by the proposed use. Level II reclaimed water, for example, can be used on golf courses without contiguous housing and on sites where public access is limited or restricted. A number of industries have expressed interest in reclaimed water for use at
nearby facilities. Should the City propose to use the reclaimed water on sites (i.e. public parks) where public access is difficult to limit, then a higher level of treatment (disinfection) will be necessary.

## Compliance History

A review of discharge monitoring reports over the past three years (93, 94 & 95) found the following permit limit excursions:

<table>
<thead>
<tr>
<th>Month</th>
<th>Parameter</th>
<th>Permit Limit</th>
<th>Reported</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 93</td>
<td>Total Suspended Solids</td>
<td>50,000 lbs (daily mass)</td>
<td>58,123 lbs</td>
</tr>
<tr>
<td>May 93</td>
<td>Chlorine Residual</td>
<td>1.5 mg/l (daily max.)</td>
<td>2.0 mg/l</td>
</tr>
<tr>
<td>June 93</td>
<td>Chlorine Residual</td>
<td>1.5 mg/l (daily max.)</td>
<td>1.9 mg/l</td>
</tr>
<tr>
<td>August 93</td>
<td>Total Suspended Solids</td>
<td>45 mg/l (weekly conc.)</td>
<td>51 mg/l</td>
</tr>
</tbody>
</table>

The above violations were addressed through Notices of Noncompliance and a Notice of Permit Violation (WQMW-NWR-93-157) issued in 1993. A Stipulation and Final Order (WQMW-NWR-93-157a) was negotiated in which a number of treatment plant improvements and modifications were agreed to be necessary to correct design problems with treatment facilities that led to the violations. Since that time, permit limits have been regularly met.

Separate compliance issues involving this permit were noted in 1994 and 1995 as the result of sewage overflows at pump stations. Ultimately, the city was assessed penalties by the Department for these events.

In early 1995, the City reported to the Department, that diversion structure improvements necessary to eliminate dry weather overflows from the collection system had been completed in response to a Stipulation and Final Order (WQMW-NWR-92-140) negotiated with the Department in 1992. Through the summer of 1995, a number of dry weather overflow events were again observed. In late 1995, a Mutual Agreement and Order (WQMW-NWR-95-329) was negotiated and finalized to address these overflow events. This Order expired in late 1996.

## Water Quality Standards

In 1992, the City conducted a mixing zone/dilution study on Outfall 001. As a result of that study, it was determined that a new outfall with a multi-port diffuser would be necessary to meet the instream water quality standard for chlorine. Construction on that outfall was completed in 1995.

Starting in 1992, whole effluent toxicity (WET) or bioassay tests were conducted monthly from May through October and once between the first of November and the end
of April. The initial reports indicated toxicity. A toxicity identification evaluation (TIE) conducted in 1993 indicated ammonia may account for the majority of the toxicity observed. The recent WET test report, included with the permittee’s application packet, shows much lower toxicity. The completion of the outfall diffuser provides dilution ratios modeled to be 92:1 at the edge of the RMZ (Regulated Mixing Zone) and 53:1 at the ZID (Zone of Initial Dilution) boundary. A review of monitoring data found that with the dilution available, the reasonable potential to exceed State water quality standards is very small. Water quality standards compliance is more thoroughly covered in two documents on file with the Department. These documents are the Outfall Mixing Zone Study, City of Portland Columbia Boulevard Wastewater Treatment Plant, Parametrix, November 1992 and the Outfalls Modifications Predesign Report, Brown and Caldwell, April 1994. Continued WET testing will be required quarterly during the first year following issuance and at least once in the year prior to the expiration of this permit.

In a series of meetings with the City of Portland preparing for the renewal of this NPDES permit, the City was asked to present a substantive discussion regarding the potential water quality issues that might arise with the capture and treatment of CSOs at the Columbia Boulevard site. Minutes from those discussions are located in the Columbia Boulevard/CSO file in the Departments Northwest Regional office. Based on those discussions, it is not expected that additional limitations or pollutant parameters from the existing permit would be necessary to address the captured CSOs.

Therefore, the permit will contain the following technology and water quality based limits which if met should allow this discharge to comply the applicable water quality standards. Based on the above described analyses, the Department has concluded that at this time additional numeric effluent limits are not needed to prevent violation of State water quality standards.

If significant changes occur in the Columbia Boulevard facility processes or the plant influent streams, the permittee is required to notify the Department. The Department would then reevaluate the need for inclusion of additional numeric effluent limits in the permit.

**Proposed Permit Limitations (Schedule A)**

The proposed permit (Schedule A) sets limits on 5-day Biochemical Oxygen Demand (BOD₅), Total Suspended Solids (TSS), pH, Escherichia Coli (E. Coli) and Total Residual Chlorine.
**BOD<sub>5</sub> and TSS**

The permit limits on BOD<sub>5</sub> and TSS are the same as the current permit. The limits are:

Outfall Number 001, 002 & 003 (Discharge to the Columbia River):

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average Effluent Concentrations</td>
</tr>
<tr>
<td></td>
<td>Monthly</td>
</tr>
<tr>
<td>Biochemical Oxygen Demand (BOD-5)</td>
<td>30 mg/l</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS)</td>
<td>30 mg/l</td>
</tr>
</tbody>
</table>

|                                          | Mass Loading*                    |
|                                          | Monthly Average lbs/day | Weekly Averages lbs/day | Daily Maximum lbs |
|                                          | 25,000 | 37,500 | 50,000 |

* Loading limits (lbs/day) are based on the average dry weather design flow of 100 MGD at this facility. Specifically, the calculation for mass loading is [concentration (in mg/l) times flow (in MGD) times a constant (8.34 lbs/gal) equals mass load]. i.e. The monthly TSS limit is calculated as follows: 30 mg/l X 100 MGD X 8.34 = 25020 lbs (25000 lbs. when rounded to two significant figures in accordance with mathematical precision). The weekly limit is one and one half times the monthly limitation and daily mass load is equal to two times the monthly limitation.

In addition to the concentration and mass limits for BOD and TSS, the permit requires a minimum monthly average BOD and TSS removal efficiency of 85% during the dry weather period (defined as May 1 through October 31). This requirement is based on Federal secondary treatment standards for sewage. During the wet weather months (defined as November 1 through April 30), because of the impact from stormwater entering the combined sewer system and in accordance with 40 CFR § 133.103 the removal efficiency may be less than 85%. The permit requires that the facility be operated as efficiently as practicable during these periods.

**pH**

Oregon's Water Quality Standard [OAR 340-41-445(2)(d)(A)] for pH in the Columbia River within the Willamette Basin is the range 7.0 to 8.5. The proposed permit limits pH to the range 6.0 to 9.0. This limit is based on Federal secondary treatment regulations (40 CFR § 133.102) for sewage treatment facilities, and is applied to the majority of NPDES permittees in the state. At the edge of the permittee's mixing zone, the water quality standard for pH must be met. Mixing with ambient water within the mixing zone will ensure that the pH at the edge of the mixing zone meets the standard, and the Department considers the proposed permit limits to be protective of the water quality standard.

**E. coli**

OAR 340-41-445(2)(e) sets standards for organisms of the coliform group associated with fecal sources (E. coli). The standard is a 30-day log (geometric) mean of 126 organisms per 100 milliliters based on a minimum of 5 samples with no single sample exceeding 406 organisms per 100 milliliters. For Outfall 001, the permit limit for E. coli
is based on this standard; the limit is a monthly geometric mean of 126 E. coli per 100 ml, with no single sample to exceed 406 E. coli per 100 ml. The OAR provides a permittee with a method to expunge a violation for exceeding 406 E. coli. If a single sample exceeds 406 E. coli, then five consecutive resamples shall be taken at four hour intervals beginning as soon as practicable (preferably within 28 hours) after the original sample was taken. If the log mean of the five re-samples is less than or equal to 126 organisms per 100 ml, a violation is not triggered.

Toxics
In 1987 Oregon adopted in-stream water quality standards for toxics. It has generally been found that municipal facilities which discharge chlorinated effluent and are designed to meet in-stream water quality standards for chlorine, will also meet the in-stream water quality standards for other toxics. Chlorine is the most common pollutant present in toxic amounts in sewage treatment plant effluents that have been disinfected using chlorine. City of Portland uses chlorine disinfection to achieve the permit waste discharge limitations for bacteria. Oregon Administrative Rule 340-41-445(2)(p) states in part:

a. Toxic substances shall not be introduced above natural background levels in the waters of the state in amounts, concentrations or combinations which may be harmful, may chemically change to harmful forms in the environment, or may accumulate in sediments or bioaccumulate in aquatic life or wildlife to levels that adversely affect public health, safety or welfare; aquatic life; or other designated beneficial uses;

b. Levels of toxic substances shall not exceed the criteria listed in Table 20 which were based on criteria established by the United States Environmental Protection Agency (EPA) and published in Quality Criteria for Water (1986), unless otherwise noted.

However, OAR 340-41-445(4) states that the DEQ may allow a designated portion of the receiving water to serve as a zone of dilution for wastewaters and receiving waters to mix thoroughly and this zone will be defined as the mixing zone. The DEQ may suspend all or part of the water quality standards, or set less restrictive standards, in the defined mixing zone, provided that the following conditions, in part, are met:

a. The water within the mixing zone shall be free of materials in concentrations that will cause acute toxicity to aquatic life as measured by the acute bioassay method. Acute toxicity is lethality to aquatic life as measured by a significant difference in lethal concentration between the control and 100 percent effluent in an acute bioassay test. Lethality in 100 percent effluent may be allowed due to ammonia and chlorine only when it is demonstrated on case-by-case basis that immediate dilution of the effluent within the mixing zone reduces the toxicity below the lethal concentrations. The DEQ may on a case-by-case basis establish a zone of immediate dilution (ZID) if appropriate for other parameters.
b. The water outside the boundary of the mixing zone shall be free of materials in concentrations that will cause chronic (sublethal) toxicity. Chronic toxicity is measured as the concentration that causes long term sublethal effects, such as significantly impaired growth or reproduction in aquatic organisms, during a testing period based on the test species life cycle. Procedures and end points will be specified by the DEQ in the wastewater discharge permits.

Furthermore, 40 CFR § 122.44 (d) states that each NPDES permit shall include any requirement necessary to achieve water quality standards established under Section 303 of the Clean Water Act. Section (d) of 40 CFR § 122.44 also states that the limitations must control all pollutants or pollutant parameters (either conventional, nonconventional or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have a reasonable potential to cause, or contribute to an excursion above any water quality standard, including state narrative criteria for water quality. Section (d) also states that when the permitting authority determines that a discharge causes, has a reasonable potential to cause, or contributes to an instream excursion above the allowable ambient concentration of a state numeric criteria for an individual pollutant, the permit must contain effluent limits for that pollutant.

According to EPA's 1986 Quality Criteria for Water (commonly known as the Gold Book) and OAR 340-41, Table 20, chlorine concentrations of 11 ug/l and 19 ug/l can result in chronic and acute chlorine toxicity, respectively, in fresh waters.

To meet the in stream chlorine concentrations, the permittee installed a multiport diffuser in 1995. The design criteria for the outfall diffuser provided for a minimum of 53 to 1 dilution (in the zone of initial dilution) and using the permit limit derivation procedures outlined in Chapter 5 (page 103) of EPA's Technical Support Document For Water Quality-based Toxics Control (EPA/505/2-90-001, March 1991)(TSD), monthly average and daily maximum limits for chlorine were calculated for the permit. This calculation results in a maximum daily limit is 1.0 mg/l and a monthly average of .41 mg/l.**

**These numbers were derived using the formulas in Tables 5.1 and 5.2 of the TSD. The CV used was the EPA recommended default value of 0.6 and the number of monthly samples was assumed to be 30(daily sampling). The probability basis used was the 99th percentile in all calculations.

The permittee argued that the limitations were very conservative and that exceeding a 1.0 mg/l limit would not necessarily result in an in-stream water quality violation. The chlorine limit established for this permit, requires the permittee to provide a detailed explanation of any excursion above 1.0 mg/l. If that explanation provides a substantive argument to indicate that the in-stream limitations were not exceeded, then the excursion will not be considered a violation of the permit. By monitoring chlorine on a continuous basis, the use of a monthly average permit limit on chlorine is not warranted. If City of Portland does not install continuous monitors, then a monthly average would be necessary to account for the statistical variability of the sampling regime.
Minimum Monitoring and Reporting Requirements (Schedule B)

Periodic monitoring and reporting is required for this facility. The frequency for the monitoring generally follows a monitoring matrix developed by the Department in 1992. Considering the size of this discharge, the frequency often exceeds the matrix recommendations. Changes from the previous permit’s monitored parameters are summarized below...

**Influent**

When the Columbia Slough Consolidation Conduit (CSCC) brings captured CSOs into the treatment plant, the wet weather treatment facility influent will need to be monitored. This monitoring will be at the same frequency and for the same parameters as the CBWTP. The monitoring of Phenols was dropped from the permit. Phenol is not a pollutant of concern under the pretreatment program, so phenol monitoring is neither necessary nor useful. Molybdenum and Selenium were added to the nine (9) current metals listed to be monitored as toxics. Though the metals are to be monitored weekly, it is required that the results will be tabulated and submitted as part of the annual pretreatment program report. Thorium 232 is no longer monitored as part of this permit. The source of this material has been restricted/removed from the collection system. City of Portland intends to continue to monitor its biosolids stream for this parameter.

**Effluent**

The addition of the CSCC will require expanded wet weather treatment and a new outfall (003). Discharges through the new outfall will be monitored at the same frequency and for the same parameters as the existing outfall.

Flow monitoring of the effluent flows will be required. E. coli replaces Fecal Coliform as the indicator bacteria monitored to verify disinfection. Off plant site discharges through the reclaimed water outfall (099) will be monitored for Total Coliform. Biomonitoring will be required at a quarterly frequency for one year. If the results indicate the effluent is toxic outside the prescribed mixing zones, additional biomonitoring is required. The same metals monitored in the influent will be monitored in the effluent. The permittee citing minimal variability in the sample results taken for pretreatment metals monitoring, requested reduced frequency (monthly rather than weekly) for metals monitoring on the effluent. Weekly samples will continue to be taken for influent metals monitoring. Toxic removal rates will be calculated monthly for each of the metals and cyanide. This information will be reported annually with the pretreatment program report.

**Biosolids**

The terminology for beneficially recyclable wastewater developed residual solids has changed from sludge to biosolids. Biosolids metals (trace inorganics) monitoring has added Molybdenum and Selenium but dropped Chromium and Silver. Dioxin monitoring will only be done quarterly at high resolution. All biosolids monitoring shall be done at the frequency specified in the permit, but the reporting of this information will be through an annual report.
**Groundwater**
The permit specifies groundwater monitoring for the Triangle Lake solids lagoon area. The Triangle Lake lagoon is used for solids storage and wastewater polishing. This monitoring will provide a basis for deciding whether management changes will be necessary at the site.

**Reuse**
If reclaimed water is used off of the treatment plant site, the usage and quality will be monitored. Flow, pH and total coliform will need to be monitored.

**Columbia Slough CSOs**
Monitoring of the influent pump station for flow and elevation of wastewater in the wet well is required. This flow measurement may be used for the purposes of monitoring flow to the wet weather treatment facility as long as no other flows enter the wet weather treatment train. If a portion of flow into the existing headworks is transferred to wet weather treatment, then the total flow through the wet weather treatment train would be different than the influent pump station flow. Additionally, ongoing monitoring and reporting of CSO events along the Columbia Slough will be required by this permit.

**Compliance Conditions (Schedule C)**
The proposed permit contains four compliance conditions. They are:

1. The permittee must complete modeling the mixing and dilution/dispersion of the proposed new outfall (003) within one year of permit issuance. As the new outfall is likely to conflict with the mixing zone of the existing outfall (001) to the Columbia River, it is expected that the modeling will be done on both outfalls. The permit will need to be reopened to include a mixing zone for Outfall 003 and if necessary, to modify the mixing zone for outfall 001 prior to any discharge from the new outfall.

2. This condition requires the permittee to review the ongoing monitoring program at the Triangle Lake Solids Lagoon. It is hoped that by reviewing the existing data, the monitoring and evaluation of future data can be made more usable. At present, it appears the existing data does not provide a means to evaluate groundwater impacts at this site.

3. The City of Portland has the potential to provide reclaimed wastewater beyond the needs of the plant site alone. If the permittee decides to provide reclaimed water for off plant site uses, the permittee is required to provide the Department with a management plan in accordance with OAR Division 55.
4. This condition requires the permittee, in the event that any compliance date is missed, to notify the Department no later than 14 days following the lapsed compliance date.

Special Conditions (Schedule D)
The proposed permit includes nine special conditions. They are:

1. This condition requires that all biosolids be handled in accordance with the current biosolids management plan approved by the Department.

2. A reopener for biosolids related issues that may be modified during the life of the permit is provide by this condition.

3. The bioassay test will be conducted in accordance with this condition.

4. The permittee is required to comply with OAR 340-49, “Regulations pertaining to Certification of Wastewater System Operator Personnel” by ensuring that the wastewater treatment and collection systems are supervised by operators certified at the grade levels specified on page 2 of the permit.

5. This condition establishes some of the minimum requirements for meeting OAR 340-55, regarding the necessary documentation for providing reclaimed water to off plant site users.

6. On June 27, 1996, the City provided the Department with a written justification for bypassing secondary treatment in accordance with the EPA’s CSO Control Policy. This condition is intended to provide sanction to the practice of bypassing of secondary treatment due to the design and nature of a combined sewer system.

7. This condition provides a reopener clause to allow modification of the permit.

8. The City is required to have a public awareness/notification program in place to inform citizens about the CSOs.

9. The permittee is required to notify the Department’s Regional office of any malfunction so corrective action can be coordinated between the permittee and the Department.
Pretreatment Program (Schedule E)
Conditions related to the proper implementation of a pretreatment program in accordance with 40 CFR § 403 are listed.

General Conditions (Schedule F)
The General Conditions applicable to all holders of NPDES permits are listed. These are divided into the following sections: Standard Conditions; Operation and Maintenance of Pollution Controls; Monitoring and Records; Reporting Requirements; and Definitions.