

FACT SHEET FOR NPDES PERMIT WA0021105
CITY OF CHEHALIS WATER RECLAMATION FACILITY

SUMMARY

This permit reauthorizes the City of Chehalis' discharge to the Chehalis River. This permit covers the current discharges and discharges that will arise from the new Wastewater Treatment Plant described in Plans and Specifications of February, 2004. The City's new wastewater treatment plant, as proposed and approved, will be a reuse facility that uses 100 percent of the effluent on a hybrid poplar plantation when the flow in the River is low, thus accomplishing the requirements of the Consent Decree.

Consent Decree: The terms of Consent Decree C96-5968 RJB limit pollutant loadings at the current treatment works and require a new treatment works at a specific schedule. The consent decree contains limits for the new facility, including mass and concentration loadings for both the wet and dry seasons. Because the new facility will not discharge to surface waters during the "dry weather" period, a number of the Consent Decree's specific limits for BOD, TSS, and ammonia during those periods are replaced by the applicable reuse criteria.

Current Facility: The 1996 permit included limits based on secondary standards and WQ criteria. For parameters for which these criteria could not be met, interim limits were based on the performance possible at the Permittee's present facility. Such "performance based" interim limits were established for metals and wet weather removal rates, and must be reviewed, and if warranted adjusted closer to the criteria, each permit cycle based on the current performance of the POTW. Accordingly, the required minimum monthly average TSS removal rate was increased from 65 percent to 74 percent, and BOD removal rates were increased from 75 percent to 77 percent to reflect better performance over the last five years. These efficiencies are achievable and bring these requirements closer to the statutory requirements to remove 85 percent of BOD and TSS.

Metals Limits: The Permittee has completed water effects ratio and partitioning studies for copper, silver, and zinc. The results of these studies are incorporated in this permit. These metals have performance based interim limits in the current permit. The results of the WER studies have led to modifications to the water quality criteria for these metals as described in the fact sheet. Interim and final limits for copper were found to no longer be necessary to protect water quality. Interim and final limits for silver and zinc were retained, but final limits are for the wet season only as metals limits in the reclaimed water were not required. Since interim zinc limits were never reliably achieved, we were able to recalculate this limit. The 119.6 µg/L daily limit was replaced with 158 µg/L monthly - 281 µg/L daily limit. Interim silver limits previously were 13.5 µg/L monthly and 28.2 µg/L daily. However, our review found the Publicly Owned Treatment Works (POTW) could reliably meet silver limits of 7.7 µg/L monthly / 12.4 µg/L daily and these limits are now required.

Upon the next renewal if the new treatment works has been operating long enough, the Department of Ecology (Department) will reassess whether it is still necessary to retain silver and zinc limits. Since interim and final limits for metals are at levels which the present facility is expected to be able to reliably achieve, we do not anticipate they will be problematic for the new facility which provides a higher level of treatment.

New Facility: The accompanying permit includes limits for reuse appropriate to Class C reuse when applying reuse water at an agronomic rate and Class A reuse water when it is not agronomic to apply the wastewater. The permit also requires a crop management plan that will detail how the poplar stands will be rotated over the years to ensure a proper mix of new and mature trees.

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INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System (NPDES) of permits, which is administered by the Environmental Protection Agency (EPA). The EPA has authorized the state of Washington to administer the NPDES permit program. Chapter 90.48 Revised Code of Washington (RCW) defines the Department of Ecology's (Department) authority and obligations in administering wastewater discharge permits including full participation in the NPDES permit and any other Clean Water Act programs.

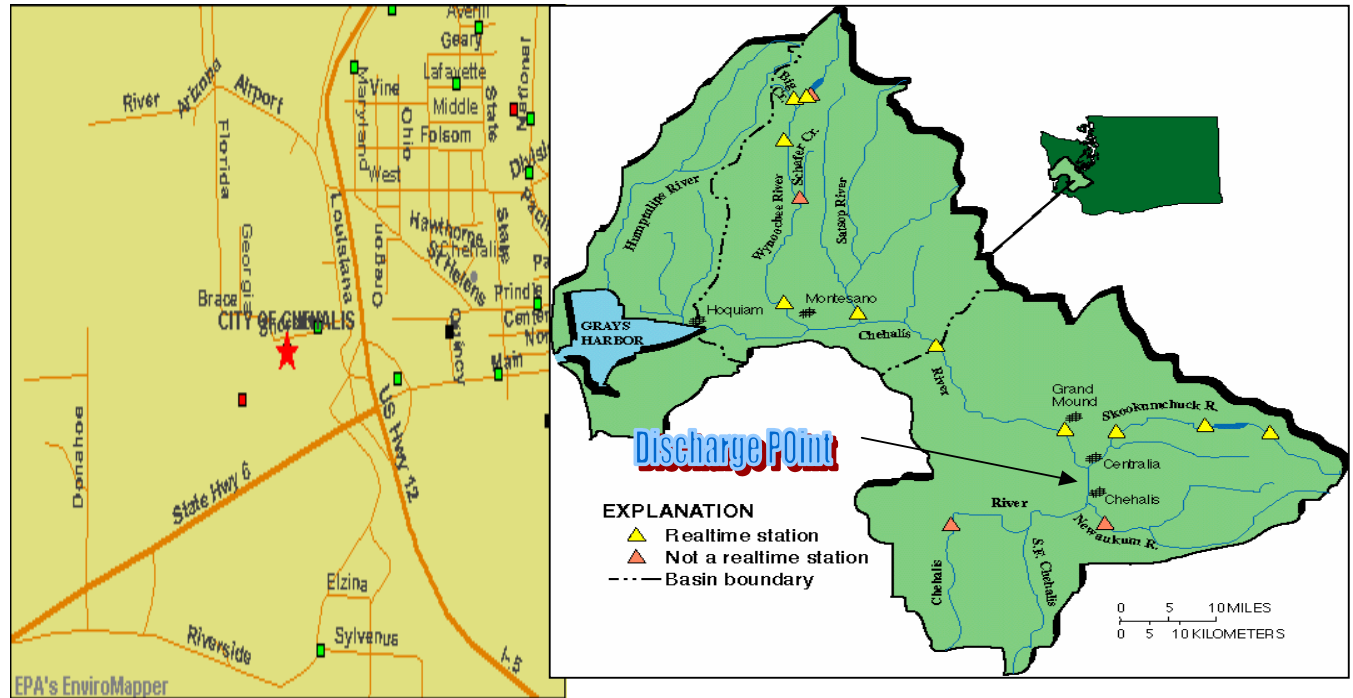
The regulations adopted by the State include procedures for issuing permits [Chapter 173-220 Washington Administrative Code (WAC)], technical criteria for discharges from municipal wastewater treatment facilities (Chapter 173-221 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), pretreatment standards and requirements for indirectly discharging facilities (Chapter 173-216 WAC), rules for delegating pretreatment programs (Chapter 173-208 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharging wastewater to waters of the state and they establish the basis for the effluent limitations and other requirements in the permit.

One requirement (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and this accompanying fact sheet. Public notice of the availability of the draft permit is required at least 30 days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the Public Notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and a response to each comment will be included in the permit file. Parties submitting comments will receive a copy of the Department's response. While the fact sheet will not be revised, comments and resultant changes to the permit will be summarized in Appendix D--Response to Comments.

GENERAL INFORMATION	
Applicant	City of Chehalis, City of Napavine, and Lewis Co. Sewer District #1
Facility Name and Address	Chehalis Wastewater Treatment Plant CURRENT: 1191 NW Shoreline Drive, Chehalis, WA 98532 NEW POTW: 420 NW Louisiana Ave. Chehalis 98532
Type of Treatment	CURRENT: Trickling Filter (fixed film) w/ chlorine disinfection NEW POTW: Sequencing Batch Reactors with UV disinfection & seasonal reuse after coagulation, filtration, and post chlorination.
Discharge Location	Chehalis River at River Mile 74.3 Latitude: 46° 39' 38" N Longitude: 122° 59' 03" W.
Water Body ID #	WA-23-1020

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BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

HISTORY

The Chehalis Wastewater Treatment Plant (WWTP) was originally constructed in 1949. The plant has undergone a number of modifications and upgrades with the assistance of state and federal grant monies. A major revision occurred in 1987-88 providing more flexibility in handling high plant flows, an additional chlorine contact chamber, and a dechlorination system.

In 1993 Chehalis developed a plan for increasing the Publicly Owned Treatment Works (POTW) hydraulic capacity to prevent overflows at the POTW. Actions completed under this plan prior to 1996 included: Raising the weirs at the splitter box serving the primary clarifier/EQ basin to allow 7.5 MGD to be directed to the primary clarifier splitter box; Modifying the primary clarifier splitter box to allow 7.5 MGD to be directed to the primary clarifier; Installing a new 7.5 MGD trickling filter feed pumps and modifying the trickling filter splitter box; Constructing a new chlorine contact tank to provide 60 minutes of detention time at 7.5 MGD; and Continuing to utilize the 1.91 million gallon volume equalization basins such that on a maximum day 7.5 MGD can be processed through the plant and 1.91 MGD can be held and fed back after flows subside allowing maximum daily flows of 9.41 MGD.

While these actions were important to increasing in hydraulic loading capability of the plant, they did not similarly increase the organic loading capacity of the trickling filter media. These modifications were taken as justification for increasing MMA BOD loadings to 4,880 lbs/day and TSS loadings of 5,125 lbs/day and max daily BOD loadings of 7,229 lbs/day and TSS loadings of 7,432 lbs/day. Current MMA BOD and TSS loadings for the plant were described in the fact sheet for the permit issued October 29, 1996 (p.12) as being 3,700 lbs/day BOD and 3,100 lbs/day TSS, and in the response to comments for the

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1996 permit were adjusted to the higher numbers. In contrast, the corresponding permitted capacity in the actual permit issued in 1996 was as described in this modification request.

COLLECTION SYSTEM STATUS

OVERVIEW: The collection system has historically experienced the intrusion of large volumes of groundwater (infiltration) and rainwater (inflow) during wet weather. This infiltration and inflow (I/I) has caused occasional bypasses of raw sewage, and the WWTP has been unable to consistently meet secondary standards for treatment of wastewater. Therefore in 1988, the Department issued the City an Administrative Order (Order No. DE 85-353), which established an aggressive I/I removal program. The historical details of how much money has been spent on I/I work is well documented on pages VI-33 to VI-36 of the City's approved General Sewer Plan titled "Chehalis, Napavine, and Lewis County Sewer District No. 1 General Sewer Plan" dated February 2001 as approved by the Department on June 5, 2001.

In November 1993, the City submitted to the Department a cost effective analysis of the collection system Infiltration/Inflow (I/I) removal program. This analysis shows that the total present worth (20 years) of the alternatives studied for further I/I removal are within two percent of each other. The Department presumed this meant that the cost effectiveness of meeting secondary treatment standards through I/I reduction was found to be statistically the same as the cost of treating the more dilute wastewater to secondary standards (85 percent removal and 30 mg/L concentration). Based on a similar presumption EPA withdrew funding for further I/I projects (see p. VI-34 of the approved GSP).

The Department therefore expected the City's new POTW to achieve 85 percent removal through treatment rather than reduction of I/I. In developing plans for the new POTW, the City found that their presumption of what level of treatment was to be provided by the POTW was different than the Department's. Rather than designing a POTW to meet 85 percent removal through advanced treatment alone, they had designed it to meet the 30 mg/L monthly average concentration standard. Along with a new POTW, they concluded in the General Sewer Plan that they would also need to do additional I/I work to reliably meet 85 percent removal for TSS.

The Department's policy is that if the POTW constructed to achieve secondary standards can not reliably achieve these standards due to more dilute wastewater, the City may request a variance with the 85 percent removal requirement. Such a request could only be granted, however, on an interim basis and if the Permittee is operating under a consent order that included the soonest feasible schedule for completing the I/I work or further treatment steps needed to meet secondary treatment standards. The additional I/I work needed to meet 85 percent removal (and applying secondary treatment) is detailed in the General Sewer Plan (see page VI-67).

If the City chooses to request an exemption to 85 percent removal, they will need to commit to complete the projects to be done up to the year 2025, when the POTW is expected to be able to reliably meet standards are included in permit conditions. This could be done by an agreed order or by inclusion in the permit. Because slight modifications to the plan are occasionally inevitable, an agreed order is preferred, with reference in the NPDES permit requiring compliance with the agreed order. Modifications to an NPDES permit are more resource intensive. Also, the City needs to determine exactly how much of an exception to 85 percent removal they required based on the expectations of the new treatment works. Because the City is (to our knowledge) still studying the utility of using the sand filters for a portion of the flow in winter when 85 percent removal is potentially problematic, this question must be answered later.

The Department has not received this information and a request for alternative limits was not included in the NPDES permit application. Therefore, and because the Department believes the new treatment works

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will do significantly better at reducing BOD and TSS concentrations during winter high flow months than is currently done, the requirement to achieve 85 percent removal has been included in the permit. The City may request a modification to this provision during the public comment period, and this request will be looked upon favorably if they have complied with the aforementioned requirements.

PLANNED PROJECTS: In the event the City wishes to request an exemption to the 85 percent removal requirement, completion of projects identified in Table VI-10 of Chehalis General Sewer Plan, 2/2001 must be made an enforceable permit requirement. This table details 13 projects which the City plans to accomplish within the next 40 years. The eleven projects listed for completion within the next 21 years (up to 2025) are identified by the General Sewer Plan as necessary to meet secondary treatment standards and therefore must be included on a compliance schedule if an exception is desired. The existence of this compliance schedule could permit deviation from 85 percent removal requirements for the POTW to the extent such a deviation is necessary. The projects listed between the date of the report and 2025 include:

Project Description	Anticipated Completion	Cost on 1998 \$
Napavine Pump Station No. 2 (Rush Road)	2001 (+)	\$1,935,000
Prindle Pump Station	2001 (+)	\$1,620,000
Riverside Pump Station	2002 (+)	\$660,000
Chehalis/Napavine/LCSD No 1 Interceptor (19Kf)	2002 (+)	\$3,420,000
South National Pump Station	2003 (+)	\$96,000
North National Pump Station	2004	\$25,000
Front Street Pump Station	2004	\$14,000
Napavine Pump Station No. 3	2005	\$44,000
Basin 1 – 2,500 ft/yr for 10 years	2007-2016	\$3,637,500
Basin 4 – 2,500 ft/yr for 12 years	2017-2028*	\$4,275,000*
Napavine Pump Station No. 1	2020	\$265,000

* Only the first five of the twelve years of scheduled Basin 4 work are anticipated as being needed to meet 85 percent removal requirements for TSS, and therefore the work required by Order for basin 4 would only be for those years. The proportional cost at 5/12 of the total is \$1,781,250.

TREATMENT PROCESSES

CURRENT: Treatment consists of grit removal and comminution with a bar screen available for backup as needed. Flow is calibrated semiannually. The plant has two primary clarifiers, trickling filters/activated sludge, and secondary clarifiers which operate in parallel to provide secondary treatment. Each unit can be isolated and taken off-line as necessary for maintenance with flows diverted to the other treatment units. The facility has three chlorine contact basins. During normal dry weather flows, only one basin (No. 2) is used. As flows increase, the other basins are brought on line. The facility provides disinfection using chlorination and dechlorination with sulphur dioxide for flows up to 7.0 MGD. Previously, excessive flows were chlorinated and discharged to the Chehalis River via an overflow weir to Outfall 002 without dechlorination. This practice has been discontinued, and the City is not requesting authorization to discharge via Outfall #2. The sludge (biosolids) is treated by anaerobic digestion and ultimately utilized by land application.

NEW: The new POTW design as identified in the approved General Sewer Plan of February 2001 and described in greater detail in Plans and Specifications of February, 2004. The proposed facility includes the following features: Initial treatment consists of two parallel ¼-inch fine screen (with a bypass bar screen for flows over 10.6 MGD) to remove rags and debris. This is followed by two cyclone grit removers sized for 13.0 MGD with a coincident grit classifier. This is followed by treatment by three sequencing batch reactor (SBR) tanks, each of which is 95' X 95' with a 23-foot maximum side water

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depth (for a total full tank volume of 4.65 Million Gallons). These tanks are supported by four 200 HP aeration blowers and four 100 HP motive pumps for circulation and jetting. One of each is for a backup device. To support complete nitrification within the SBRs, the POTW also has the ability to provide alkalinity through a caustic soda feed system (including a reserve holding tank). The SBRs discharge to either one of two equalization basins sized at 0.9 MG and 2.9 MG respectively, or to the filter feed pump station. The filter feed pump station contains four 30 HP pumps to pump the clarified effluent to coagulation and filtration treatment.

REUSE RELATED FACILITIES: Coagulant chemicals are added through inline injection of polymer and alum and then filtration is provided by rapid sand filtration tanks. Each of 16 sand filters has a cross sectional area of 50sf. The coagulant and filtration step is required by reuse regulations but bypassed for "wet season" discharge to the River. The option to use the sand filters to treat for a portion of the flow during high flow days in the wet season in order to remove 85 percent of TSS is preserved and employing the sand filters in such a manner does not violate any permit condition. After filtration the effluent is sterilized through UV disinfection units capable of treating peak flow of 13 MGD in wet season, and 3.5 MGD to the reuse standard dose of 35,000 uW*s/cm². The UV system consists of two channels with two banks each. The effluent is then discharged to the reuse building pump station, where three 50 HP vertical turbine pumps capable of 833 gpd at 173' of TDH are available to supply reuse water to the reuse force main. For Wet season flow conditions, three 30 HP low pressure (19' TDH) high volume (4,500 gpm) pumps are also available for pumping the effluent to the river under high flow situations. The line going to the reuse site is chlorinated through direct injection into the discharge pipe and will be monitored for chlorine residual at the point of application. Redundancy is achieved by using the 2.9 MG tanks for reprocessing of reuse water not meeting the reuse specifications. Reject water would receive further treatment through the coagulant and flocculant addition, sand filter, and UV unit unless it was the BOD or ammonia standard which was not met. In such cases it would be bled into the headworks again or held for direct discharge.

Grit and screenings are collected in dumpsters automatically through the screen, degritter and classifier chutes, and sent to a landfill. Waste activated sludges are further processed as biosolids through discharge to a 350,000 gallons solids holding tank which allows for intermittent operation of the belt filter press. This solids handling tank will be equipped with a 40 HP blower and jet aeration devices. The belt filter press then feeds a lime pasteurization system (RDP Technologies, Inc.) which is capable of producing a Class A biosolids product. All equipment specifications are included in division 11 (Equipment) of the Plans and Specifications for the POTW.

SBR NOTE: Considerable effort has been made to address the best reasonable expectation for SBR performance at peak flows of 13.0 MGD. The SBR volume can accommodate 5.45 MG of flow on a four hour processing cycle, and 7.3 MG on a three hour cycle when going from normal high water of 23 feet to normal minimum water level of 18.5 feet in the SBR tanks. To accommodate a peak day flow 13.0 MGD requires tanks to be drawn down to 15 feet (8 feet drawdown or .54MG) within the decant time allowed. The goal of 50 percent of the cycle to be dedicated to aeration at peak flow cannot be met, but 45 minutes for quiescent settle must. The six decant mechanisms (2/tank) are to be capable of drawing down the tank at a rate of 9,722 gpm, which requires 55 minutes to lower the tank 8 feet. Therefore at peak flow of 13 MGD, the eight each three hour cycles per day would consist of 60 minutes for fill (40 minutes of which is aerated), 20 minutes for aerated react, 45 minutes for settle, and 55 minutes of decant. While monthly average effluent standards will not likely be met on such a day, disinfection equipment is more than capable of eliminating pathogens at this flow rate, and this operational scheme can feasibly meet secondary standards applicable to weekly and monthly average conditions.

The new treatment works will be a Class IV plant. The operator in charge will therefore need to be certified as a level IV operator during normal business hours (typically eight hours/day on five days a

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week). The operator in charge of evening and weekend shifts will need to be a level III operator. The number of operators and hours of operation will need to be described in the Operations and Maintenance (O&M) Manual for the facility. Upon approval, this staffing shown in the O&M Manual will need to be maintained in accordance with the permit.

The Department has provided loan funding for the construction of a Poplar Tree plantation where wastewater will be reused at all times when there are low flows in the Centralia Reach of the Chehalis River. The Department also anticipates the construction of the new treatment works will require grant and loan funding, and has offered \$2.97 in grant, and the remainder in a zero interest loan. Ecology is obliged under the Consent Decree to make every effort to assist the City of Chehalis in securing funding for this project through grant and loan funding programs. This funding is, of course, subject to the limits of what is appropriated by the state legislature for this purpose, and the rules of the competitive application process.

The permit application shows the wastewater treatment plant receives non-domestic wastewater from several industries. Notably, the large photoprocessor, Qualex, has been a source of industrial discharge. This industry is in the process of shutting down its Chehalis plant. The City also receives wastewater from N.C. Machinery Company, Cummins Northwest, Inc., and National Frozen Food. The City recognized no other significant industrial dischargers. Previously, however, they had been scheduled to accept wastewater from a new power plant, "Tractabel, Chehalis Power." EPA had recognized this new facility was to fall under categorical standards in 40 CFR Part 423. Since the Department does not have authority to issue permits to power plants regulated under the Energy Facility Site Evaluation Council (EFSEC), EPA had directly issued them a control mechanism which included the recognition of an indirect discharge to the City of Chehalis. Because of the small mixing zone, metals discharges have been problematic for the City of Chehalis.

Distribution System and Use Area:

The distribution system consists of a force main which truncates at an application site which includes distribution headers to route the reuse water to any subsection of land. In each subsection the City is planting fast growing hybrid poplar trees. The setbacks and use for poplar trees requires only a Class C reuse water when applied at agronomic rates. However the application areas are surrounded by berms in order to accept reuse water when it is not agronomic to apply it. This qualifies as disposal through infiltration and requires a Class A reuse water. Therefore, the City's approved plans stipulate that they will provide a Class A reuse water and the permit requires this.

DISCHARGE OUTFALL

Secondary treated and disinfected effluent is discharged from the facility via a 24-inch concrete line which truncates without any diffuser at about 30' from the side bank at a depth of 4 feet below the surface of the Chehalis River when the river is flowing at 1,000 cfs. The bottom of the river is from 6 feet to 10 feet below the outfall in this vicinity. Details of the outfall are found in the report titled "City of Chehalis, Wet Weather Mixing Zone Modeling Study Engineering Report" received on March 24, 2001. The City's outfall evaluation report of June 27, 2003, called for replacing this outfall, and the City plans to do this in 2008.

RESIDUAL SOLIDS

The treatment facilities remove solids during the treatment of the wastewater. Grit, rags, scum and screenings are drained and disposed of as solid waste at the local landfill. Solids removed from the secondary clarifier are currently treated by anaerobic digestion. An existing aerobic digester is used as a

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storage unit for sludge wasted from the secondary anaerobic digester when sludge must be held prior to land spreading. The treatment facility has 10 covered sludge drying beds which are used to dry the solids. Treated biosolids are dewatered from approximately 1-6 percent solids to 15-30 percent solids in the drying beds prior to beneficial use in accordance with the City's Biosolids Management Plan.

The City's 2002 annual biosolids report (dated 1/29/03) describes an annual biosolids production of 100 metric tons, of which 65 metric tons is disposed of through a contract with Sumas, Co. Inc which applies these biosolids at a site in Horse Haven Hills (Eastern Washington). Disposal of the other 35 metric tons was through a contract with Biorecycle which further treats the biosolids and land applies them to pasture land in Lewis County. The Lewis County Environmental Health Division regulates the disposal of solid waste in Lewis County. Because the City does not land apply the biosolids themselves they are not subject to the requirement to obtain a permit from the County for application of biosolids.

A solid waste handling facility permit was issued to E. Ron Kalberg and Bio Recycling Corporation for the disposal of sludge from the Chehalis WWTP. The sludge is land applied on the Kalberg farm located near Winlock in Lewis County. The facility is located at 348 Sargent Road (Section 14, Township 12 North, Range 2 West). The land application utilizes approximately 200 acres of a 316 acre farm.

The sludge was analyzed with the Toxicity Characteristic Leaching Procedure (TCLP) in April 1992 as per Appendix II of 40 CFR Part 261, EPA Method 1311. The results reported showed that the secondary anaerobic sludge did not exhibit any toxicity due to leaching. However, because of the different land application sites for the sludge and the industrial contribution to the WWTP, it is important that the Permittee monitor the sludge.

PERMIT STATUS

The previous NPDES permit for this facility was issued on October 29, 1996. The 1996 permit placed effluent limitations on 5-day Biochemical Oxygen Demand (BOD₅), Total Suspended Solids (TSS), pH, Fecal Coliform bacteria, ammonia, copper, silver, zinc, and total residual chlorine. This permit was modified effective June 30, 2000. The modification incorporated changes to the permit reflective of the Consent Decree ordered on January 14, 2000. The permit limits applicable after the final modification to the 1996 permit include:

INTERIM EFFLUENT LIMITATIONS^a (May - October)		
Parameters	Monthly Average	Weekly Average
BOD ₅ ^b	20 mg/L, 334 lbs/day 85 percent removal	30 mg/L, 500 lbs/day
TSS ^c	25 mg/L, 417 lbs/day 85 percent removal	37.5 mg/L, 626 lbs/day
Fecal Coliform Bacteria	200/100 mL	400/100 mL
PH	shall not be outside the range of 6.0 to 9.0	
Parameters	Monthly Average	Daily Maximum
Total Chlorine Residual	0.021 mg/L	0.023 mg/L
Ammonia (NH ₃ -N)	18.6 mg/L	36.8 mg/L

INTERIM EFFLUENT LIMITATIONS^a (November - April)		
Parameters	Monthly Average	Weekly Average
BOD ₅ ^d	30 mg/L, 1000 lbs/day 75 percent removal	45 mg/L, 1500 lbs/day
TSS ^e	30 mg/L, 1000 lbs/day 65 percent removal	45 mg/L, 1500 lbs/day
Fecal Coliform Bacteria	200/100 mL	400/100 mL
PH	shall not be outside the range 6.0 to 9.0	
Parameters	Monthly Average	Daily Maximum
Total Chlorine Residual	0.023 mg/L	0.026 mg/L
Ammonia (NH ₃ -N)	12.9 mg/L	31.6 mg/L

^a The average monthly and weekly effluent limitations are based on the arithmetic mean of the samples taken with the exception of fecal coliform, which is based on the geometric mean.

^b The average monthly effluent concentration for BOD₅ shall not exceed 20 mg/L or 15 percent of the respective monthly average influent concentrations, whichever is more stringent.

^c The average monthly effluent concentration for Total Suspended Solids shall not exceed 25 mg/L or 15 percent of the respective monthly average influent concentrations, whichever is more stringent.

^d The average monthly effluent concentration for BOD₅ shall not exceed 30 mg/L or 25 percent of the respective monthly average influent concentrations, whichever is more stringent.

^e The average monthly effluent concentration for TSS shall not exceed 30 mg/L or 35 percent of the respective monthly average influent concentrations, whichever is more stringent.

An application for permit renewal was submitted to the Department on December 23, 1999. Supplemental to this, additional information which the City wished to have considered in permit development was submitted on June 26, 2000. This submittal included a three page list of requested changes, the "Zinc Water Quality Analysis Report" and a disk with spreadsheet proposing how the City believes performance based limits for ammonia should be calculated. More recently, in accordance with conditions contained in the January 14, 2000, modification, a second application for permit renewal was submitted on June 27, 2003. This latter permit application is accepted and forms one of the primary bases of permit conditions.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The facility received its last inspection on June 2, 2000. A compliance inspection with sampling was conducted in June 1997 and published by the Department on January 1998.

During the history of the previous permit, the Permittee has had some difficulty achieving consistent compliance with permit conditions, based on Discharge Monitoring Reports (DMRs) submitted to the Department and inspections conducted by the Department.

DMR's) submitted to the Department between December 1, 1996, and November 2003 show the violations listed below. The data shows that during the history of the permit, the Permittee has regularly exceeded limits in the permit. The permit modification of June 2000 relaxed metals limits which have

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increased compliance somewhat; however, occasional spikes of metals are still problematic. The compliance data available to the Department for this period is reflected below (in chronological order starting from 1998):

<u>Parameter</u>	<u>Period</u>	<u>Measure</u>	<u>Reported Value</u>	<u>Limit</u>	<u>Date</u>
SILVER, TOTAL	AV4	UG/L	5.14	3.74	1/1/1998
TOTAL SUSPENDED SOLIDS	AVW	LBS/DAY	1842.5	1500	1/1/1998
AMMONIA (AS N)	MXD	MG/L	21.5	19.6	2/1/1998
SILVER, TOTAL	AV4	UG/L	7.43	3.74	2/1/1998
SILVER, TOTAL	AV4	UG/L	6.92	3.74	3/1/1998
ZINC, TOTAL	MXD	UG/L	107	76.3	3/1/1998
SILVER, TOTAL	AV4	UG/L	5.18	3.74	4/1/1998
ZINC, TOTAL	MXD	UG/L	97.9	76.3	4/1/1998
ZINC, TOTAL	MXD	UG/L	93	76.3	5/1/1998
ZINC, TOTAL	MXD	UG/L	80	76.3	6/1/1998
ZINC, TOTAL	MXD	UG/L	83	76.3	7/1/1998
ZINC, TOTAL	MXD	UG/L	103	76.3	8/1/1998
ZINC, TOTAL	MXD	UG/L	77	76.3	10/1/1998
AMMONIA (AS N)	MXD	MG/L	21.8	19.6	11/1/1998
TOTAL SUSPENDED SOLIDS	AVW	LBS/DAY	1600.9	1500	11/1/1998
TOTAL SUSPENDED SOLIDS	AVW	LBS/DAY	2142.6	1500	12/1/1998
AMMONIA (AS N)	MXD	MG/L	20.3	19.6	1/1/1999
SILVER, TOTAL	AV4	UG/L	11.5	3.74	1/1/1999
SILVER, TOTAL	MXD	UG/L	11.5	8.78	1/1/1999
TOTAL SUSPENDED SOLIDS	AVG	LBS/DAY	1579.8	1000	1/1/1999
TOTAL SUSPENDED SOLIDS	AVW	LBS/DAY	2311.9	1500	1/1/1999
TOTAL SUSPENDED SOLIDS	AVG	MG/L	33.1	30	1/1/1999
AMMONIA (AS N)	MXD	MG/L	23.7	19.6	3/1/1999
SILVER, TOTAL	AV4	UG/L	4.87	3.74	3/1/1999
AMMONIA (AS N)	AVG	MG/L	16.7	14.6	4/1/1999
AMMONIA (AS N)	MXD	MG/L	26.3	19.6	4/1/1999
ZINC, TOTAL	MXD	UG/L	88	76.3	4/1/1999
ZINC, TOTAL	MXD	UG/L	90.2	76.3	7/1/1999
ZINC, TOTAL	MXD	UG/L	85.2	76.3	8/1/1999
ZINC, TOTAL	MXD	UG/L	143	76.3	9/1/1999
ZINC, TOTAL	MXD	UG/L	102	76.3	10/1/1999
AMMONIA (AS N)	MXD	MG/L	21.8	19.6	11/1/1999
TOTAL SUSPENDED SOLIDS	AVG	MG/L	30.2	30	11/1/1999
ZINC, TOTAL	MXD	UG/L	97	76.3	11/1/1999
AMMONIA (AS N)	AVG	MG/L	17.1	14.6	12/1/1999
AMMONIA (AS N)	MXD	MG/L	37.5	19.6	12/1/1999
TOTAL SUSPENDED SOLIDS	AVW	LBS/DAY	2158.8	1500	12/1/1999

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TOTAL SUSPENDED SOLIDS	AVG	MG/L	30.9	30	12/1/1999
TOTAL SUSPENDED SOLIDS	AVW	MG/L	54.4	45	12/1/1999
AMMONIA (AS N)	AVG	MG/L	19.3	14.6	1/1/2000
AMMONIA (AS N)	MXD	MG/L	36	19.6	1/1/2000
TOTAL SUSPENDED SOLIDS	AVG	MG/L	34.7	30	1/1/2000
TOTAL SUSPENDED SOLIDS	AVW	MG/L	50.3	45	1/1/2000
AMMONIA (AS N)	AVG	MG/L	21.3	14.6	2/1/2000
AMMONIA (AS N)	MXD	MG/L	27.6	19.6	2/1/2000
BOD, 5-DAY % REMOVAL	AVG	PERCENT	73.19	75	2/1/2000
BOD5	AVG	MG/L	37.5	30	2/1/2000
BOD5	AVW	MG/L	45.5	45	2/1/2000
SILVER, TOTAL	AV4	UG/L	4.8	3.74	2/1/2000
TOTAL SUSPENDED SOLIDS	AVG	MG/L	41.8	30	2/1/2000
ZINC, TOTAL	MXD	UG/L	84	76.3	2/1/2000
AMMONIA (AS N)	AVG	MG/L	19.3	14.6	3/1/2000
AMMONIA (AS N)	MXD	MG/L	27.4	19.6	3/1/2000
AMMONIA (AS N)	AVG	MG/L	23.5	14.6	4/1/2000
AMMONIA (AS N)	MXD	MG/L	31.9	19.6	4/1/2000
COPPER, TOTAL	MXD	UG/L	26.9	26.8	4/1/2000
SILVER, TOTAL	AV4	UG/L	5.81	3.74	4/1/2000
ZINC, TOTAL	MXD	UG/L	123	76.3	4/1/2000
CHLORINE, TOTAL RESIDUAL	MXD	MG/L	0.44	0.023	8/1/2000
ZINC, TOTAL	MXD	UG/L	139	119.6	8/1/2000
AMMONIA (AS N)	AVG	MG/L	24.3	18.6	10/1/2000
AMMONIA (AS N)	MXD	MG/L	36.6	28.6	10/1/2000
ZINC, TOTAL	MXD	UG/L	159	119.6	10/1/2000
AMMONIA (AS N)	AVG	MG/L	24.9	14.6	11/1/2000
AMMONIA (AS N)	MXD	MG/L	31.2	19.6	11/1/2000
AMMONIA (AS N)	AVG	MG/L	23.6	14.6	12/1/2000
AMMONIA (AS N)	MXD	MG/L	32	19.6	12/1/2000
TOTAL SUSPENDED SOLIDS	AVG	MG/L	36	30	12/1/2000
AMMONIA (AS N)	AVG	MG/L	24	14.6	1/1/2001
AMMONIA (AS N)	MXD	MG/L	31.2	19.6	1/1/2001
AMMONIA (AS N)	AVG	MG/L	21.3	14.6	2/1/2001
AMMONIA (AS N)	MXD	MG/L	32.8	19.6	2/1/2001
AMMONIA (AS N)	AVG	MG/L	25.5	14.6	3/1/2001
AMMONIA (AS N)	MXD	MG/L	37.6	19.6	3/1/2001
AMMONIA (AS N)	AVG	MG/L	20.1	14.6	4/1/2001
AMMONIA (AS N)	MXD	MG/L	27.5	19.6	4/1/2001
ZINC, TOTAL	MXD	UG/L	170	119.6	6/1/2001
TOTAL SUSPENDED SOLIDS	AVG	MG/L	27.5	25	9/1/2001
TOTAL SUSPENDED SOLIDS	AVW	MG/L	41.9	37.5	9/1/2001
ZINC, TOTAL	MXD	UG/L	292	119.6	9/1/2001

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AMMONIA (AS N)	MXD	MG/L	27.7	19.6	11/1/2001
CHLORINE, TOTAL RESIDUAL	MXD	MG/L	0.6	0.026	11/1/2001
AMMONIA (AS N)	MXD	MG/L	22.5	19.6	12/1/2001
AMMONIA (AS N)	MXD	MG/L	20.8	19.6	1/1/2002
AMMONIA (AS N)	MXD	MG/L	33.4	19.6	2/1/2002
AMMONIA (AS N)	AVG	MG/L	17.4	14.6	3/1/2002
AMMONIA (AS N)	MXD	MG/L	26.2	19.6	3/1/2002
TOTAL SUSPENDED SOLIDS	AVG	MG/L	31.1	30	3/1/2002
TOTAL SUSPENDED SOLIDS	AVW	MG/L	60.9	45	3/1/2002
AMMONIA (AS N)	AVG	MG/L	21.5	14.6	4/1/2002
AMMONIA (AS N)	MXD	MG/L	29.4	19.6	4/1/2002
ZINC, TOTAL	MXD	UG/L	141	119.6	6/1/2002
ZINC, TOTAL	MXD	UG/L	134	119.6	7/1/2002
ZINC, TOTAL	MXD	UG/L	257	119.6	8/1/2002
COPPER, TOTAL	MXD	UG/L	57	53.5	10/1/2002
ZINC, TOTAL	MXD	UG/L	279	119.6	10/1/2002
AMMONIA (AS N)	AVG	MG/L	26.2	14.6	11/1/2002
AMMONIA (AS N)	MXD	MG/L	34.2	19.6	11/1/2002
AMMONIA (AS N)	AVG	MG/L	20.4	14.6	12/1/2002
AMMONIA (AS N)	MXD	MG/L	39.1	19.6	12/1/2002
AMMONIA (AS N)	AVG	MG/L	15.1	14.6	1/1/2003
AMMONIA (AS N)	MXD	MG/L	22	19.6	1/1/2003
AMMONIA (AS N)	MXD	MG/L	20	19.6	2/1/2003
AMMONIA (AS N)	MXD	MG/L	22.3	19.6	3/1/2003
AMMONIA (AS N)	MXD	MG/L	19.8	19.6	4/1/2003
AMMONIA (AS N)	AVG	MG/L	15.6	14.6	11/1/2003
AMMONIA (AS N)	MXD	MG/L	28.7	19.6	11/1/2003
AMMONIA (AS N)	MXD	MG/L	20.1	19.6	12/1/2003

In calendar year 2003 the only violations noted were with the limit on ammonia. These violations were further contained to winter months, but occurred in all winter months (January, February, March, April, November, and December). The violations reflect that the City does not have the ability to reliably nitrify the wastewater with the trickling filter treatment system during the winter. The 1996 permit's "performance based" permit limits for ammonia in the winter were based on historical records from prior years. Since this time, effective I/I programs and lower rainfall have increased influent concentrations of ammonia. However, the interim permit limits for ammonia have been negotiated in a consent decree which is binding upon the Department and the city.

WASTEWATER CHARACTERIZATION

The concentration of pollutants in the discharge was reported in the NPDES application dated June 27, 3003, and in discharge monitoring reports. The effluent is characterized as follows:

Table 1: Wastewater Characterization

<u>Parameter</u>	<u>Concentration</u>
Flow	1.2 MGD
Temperature (Summer)	63.3 F (17.4 C)
Temperature (Winter)	54.0 F (12.2 C)
Fecal Coliform - Ave	15.0 colonies/100 ml
BOD (5-day)	17.5 mg/L
Chlorine (Total Residual)	< 0.01 mg/L
Total Suspended Solids	18.7 mg/L
Dissolved Oxygen (average)	7.1 mg/L
pH (range)	6.1 – 7.8
Ammonia (average)	12.5 mg/L
Ammonia (max)	39.1 mg/L
Copper (max)	57 ug/L
Silver (max)	16.2 ug/L
Zinc (max)	279 ug/L
Hardness (average)	110 mg/L

PROPOSED PERMIT LIMITATIONS

Federal and state regulations require that effluent limitations set forth in a NPDES permit must be either technology- or water quality-based. Technology-based limitations for municipal discharges are set by regulation (40 CFR 133, and Chapters 173-220 and 173-221 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992.) The most stringent of these types of limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in this permit are based on information received in the application and monitoring records, reports, and plans submitted to date. The effluent constituents in the application were evaluated on a technology- and water quality-basis. The limits necessary to meet the rules and regulations of the State of Washington were determined and included in this permit. Limits and requirements necessary to meet the Dissolved Oxygen TMDL for the Chehalis River were negotiated and included in a consent decree. These conditions are also reflected in this permit as required by that Decree.

The Department does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation. Effluent limits are not always developed for pollutants that may be in the discharge but not reported as present in the application. In those circumstances the permit does not authorize discharge of the non-reported pollutants. Effluent discharge conditions may change from the conditions reported in the permit application. If significant changes occur in any constituent, as described in 40 CFR 122.42(a), the Permittee is required to notify the Department. The Permittee may be in violation of the permit until the permit is modified to reflect additional discharge of pollutants.

DESIGN CRITERIA

In accordance with WAC 173-220-150 (1)(g), flows or waste loadings shall not exceed approved design criteria. The design criteria for the new treatment facility are taken from Wastewater Facilities Plan for

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the City of Chehalis, Washington dated January, 2003. Capacities for the present facility are taken from the 1996 permit and fact sheet and are as follows:

Table 2: Design Standards for the Chehalis WWTP.

Parameter	Pre-1996 permit	1996 Final Permit	2004 Design
Monthly average flow (max. month)	4.0 MGD	4.0 MGD	6.0 MGD
Monthly average dry weather flow	2.0 MGD	2.0 MGD	3.5 MGD
Peak Day flow	13.0 MGD	13.0 MGD	13.0 MGD
BOD ₅ influent loading	3,700 lb./day	4,880 lb./day	5,490 lbs/day
TSS influent loading	3,100 lb./day	5,125 lb./day	6,680 lbs/day
Design population equivalent	13,000	14,458	25,000
Ammonia	Summer only	Summer only	830 lbs/day

The difference in loading capacity as described in the 1996 permit and its supporting fact sheet (which doesn't document the rationale for these higher loading capacities) has created different expectations for the Permittee and the Department. The Department's rules for upgrades (found in Chapter 173-221 WAC) require that trickling filters upgraded to increase capacity after 1984 must be concurrently upgraded to meet secondary treatment standards (which include 85 percent removal of BOD and TSS). Nevertheless, in the 1996 permit action, the Department decided to both recognized an increased capacity while continuing exemptions to the 85 percent removal of BOD and TSS.

While this decision is not explained in the prior fact sheet, just prior to 1996, the City completed some needed flow handling improvements as described in a 1993 report "City of Chehalis Wastewater Treatment Plant Capacity Evaluation." However, the volume of the trickling filters and media which provide the biological treatment were unchanged. These media are rocks at a depth of 6-7 feet contained in two round tanks. The media in the 66 feet diameter tank are rounded rocks 3-4 inches in diameter, and in the 90-foot diameter tank, are irregular crushed stone 4-6 inches in diameter.

This 1993 report included excerpts from a previous Engineering Report and a blueprint dated December 1986 titled "Plant Flow Pattern and Plant Design Data," which lists the organic loading capacity for the two trickling filters as 39 lbs/day/1000sf for the 90 foot diameter trickling filter, and 42 lbs/day/1000sf for the 66' diameter trickling filter (equivalent volumetric loading rates are 5.9 & 6.4 lbs/day/1000cf). While the Department's present criteria no longer address trickling filters, the Department's 1986 *Criteria for Sewage Works Design* lists acceptable standard rate trickling filter loadings in table 3 in section 3.4 as 5-25 lbs/day/1000cf. The footnote to this table reads: "Table 3 represents the allowable ranges of hydraulic loading, organic loading, media depth, and BOD removal. Modifications of these criteria will be considered on a case-by-case basis." At the high end of the range of allowable loadings, the POTW's trickling filter capacity is 2,215 lbs/day (which equates to 3,164 lbs/day at the headworks if 30 percent removal in the primary clarifiers can be achieved). The 1996 permit recognized a capacity 50 percent greater than this at 4,880 lbs/day though.

This allowable hydraulic loading capacity for standard rate trickling filters is also listed in this same table as up to 90 gpd/sf. The trickling filter surface area of 9,783 sf equates to a maximum hydraulic capacity of 0.88 MGD when applying this criteria. The Chehalis POTW has experienced flows of up to 6.0 MGD on a monthly average basis, and is seldom below 0.88 MGD on a monthly average basis.

While the Department's 1986 *Criteria for Sewage Works Design* does not recognize high rate trickling filters as appropriate for secondary treatment, the Chehalis POTW is being loaded as such. While high

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rate filters can sometimes provide good treatment, they need a recirculation ratio of 1-2 which by our previous investigation was not available in the winter at this facility.

The City of Chehalis has two polishing ponds as well to supplement their trickling filters. In the summer, these are used to provide nitrification, thus protecting the River to a greater extent than would otherwise occur. During the wet weather season, the use of these aerated polishing ponds for biological treatment is discontinued due to the need for these ponds to serve as side-line flow equalization basins. The nitrification provided through use of these ponds in the summer is required to continue by a narrative statement in the accompanying permit. Since these ponds do not provide any organic treatment value during the wet season, they do not increase the facility's year-round treatment capacity rating though.

The differences between actual and recognized capacities would normally be evidenced by occasional inability to meet secondary treatment standards; however the City is not currently required to meet 85 percent removal (an integral part of secondary standards) during winter months. Such an allowance is appropriate where a Permittee is required to meet the soonest reasonable schedule to upgrade their treatment works to achieve full secondary treatment. This is the case here, as this schedule is found in Consent Decree C96-5968 RJB, and included in the 1996 Permit by a modification in May 2000. However, the amount of deviation from 85 percent removal must be the minimum necessary. In this case, historical records indicate that the POTW can meet standards of 77 percent BOD removal and 74 percent TSS removal 95 percent of the time. Since these are more stringent criteria than presently required, they are proposed in this permit (a less stringent criteria could not be allowed due to the "anti-backsliding" provisions of the Clean Water Act).

Another important consideration is that compliance with the Department's Dissolved Oxygen TMDL requires better than secondary treatment. Therefore, even if the trickling filter system could meet all secondary treatment requirements, significant upgrades would be needed to meet ammonia limits as well. Because Consent Decree C96-5968 RJB requires upgrading the POTW to meet the treatment requirements of the Dissolved Oxygen total maximum daily loading study (TMDL), the value of reassessing the capacity of the present facility to process wastewater to full secondary treatment standards would be negligible. Therefore, the loading capacities indicative of a "High Rate" filter in the current permit are retained and continued in the accompanying permit. This is also intended to help the Permittee stay focused on the substantive requirements of the Consent Decree. These include meeting tertiary treatment requirements and curtailing discharges to the Centralia Reach within eight years of the Consent Decree.

Before being entered by the Court, the Consent Decree was signed by the Department and Chehalis and dated October 14, 1998. Fifteen months later it was signed by the Honorable Judge Robert J. Bryan (January 14, 2000). Eight years from the date the Consent Decree was entered is January 14, 2008. An extension is provided for in the Consent Decree, if rates have been raised to the hardship level and funding (as stipulated in the Consent Decree) has not been secured. While we hope the funding package we can offer is satisfactory, we can not provide the 50 percent grant and 50 percent zero interest loan described as the goal in the Consent Decree. Therefore, if the City of Chehalis has raised rates to the hardship level and desires to request it, they may be authorized up to a two-year extension (to not later than January 14, 2010) to comply with the Consent Decree. The City's rates appear to be at or near the hardship level already.

Interim limits of the Consent Decree require a degree of nitrification which is problematic for the POTW currently. This is entirely predictable from an engineering standpoint. For trickling filters loaded as "high rate" trickling filters, the Water Environment Federation (WEF) Manual of Practice projects that no nitrification can be expected to occur. A degree of nitrification is, however, required by the interim limits. While this nitrification can be provided during the summer by the additional aeration basins that

provide “extended air” treatment, this extra step is not available during the winter as those basins are used for equalization storage. This accounts for the continuing difficulties the City has experienced in complying with ammonia limits during winter months. The Department had previously offered that it would be amenable to mass based limits instead of concentration based limits for this interim period if the City would process a modification to the negotiated Consent Decree, but the City has declined to the action on the basis that they are not certain the benefits of the performance based limits, which would be more stringent in the dry weather, outweigh the legal fees and other potential drawbacks of this action. Therefore the accompanying permit includes the same interim ammonia limits as contained in the Consent Decree.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Municipal wastewater treatment plants are a category of discharger for which technology-based effluent limits have been promulgated by federal and state regulations for conventional pollutants TSS, BOD, fecal coliform, and pH. These effluent limitations are given in the Code of Federal Regulations (CFR) 40 CFR Part 133 (federal) and in Chapter 173-221 WAC (state). These regulations are performance standards that constitute all known available and reasonable methods of prevention, control, and treatment for these pollutants in municipal wastewater.

The following technology-based limits are taken from Chapter 173-221 WAC:

Table 3: Technology-based Limits.

Parameter	Limit
pH:	shall be within the range of 6 to 9 standard units.
Fecal Coliform Bacteria	Monthly Geometric Mean = 200 organisms/100 mL Weekly Geometric Mean = 400 organisms/100 mL
BOD ₅ (concentration)	Average Monthly Limit is the most stringent of the following: - 30 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L
TSS (concentration)	Average Monthly Limit is the most stringent of the following: - 30 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L

The existing permit has a water-quality based chlorine limit of .021 mg/L to .026 mg/L and the facility is able to comply with it. The proposed permit includes the same limit as required under anti-backsliding provisions of the Clean Water Act. Upon completion of the construction of the new facility, the primary disinfection mode will be ultraviolet (UV) disinfection. However, until the Operation and Maintenance manual is submitted, it is difficult to estimate whether, or how much chlorine will be used in abatement of algae and filamentous bacteria, and whether chlorine will need to be controlled to prevent pass through when used for such tasks. The new limits therefore contain the requirement to sample for chlorine when chlorine is used during or after clarification steps, but not when used for plant water or earlier process steps. Therefore the SBRs can have a chlorine spray during the react phase, but need to turn it off prior to the settling and decant phases unless they wish to confirm compliance through monitoring results.

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The following technology-based mass limits are based on WAC 173-220-130(3)(b) and 173-221-030(11)(b).

For the present facility, during in the May through October period the limiting monthly effluent mass loadings (lbs/day) were retained from the permit issued in 1996. These limits were calculated as the average dry weather design flow (2.00 mgd) x Concentration limit (20 mg/L for BOD, 25 mg/L for TSS) x 8.34 (conversion factor lb/gal) = mass limit (334 lbs/day for BOD, 417 lbs/day for TSS). Weekly average limits were calculated as one and a half times the monthly limit or 500 lbs/day for BOD, and 626 lbs/day for TSS.

Removal rates for BOD and TSS were calculated from the level at which 95 percent of months the POTW would comply with the limits as required under secondary treatment regulations reflected in both federal and state law. While the Consent Decree makes a note that removal rates will be as specified in the interim permit, the applicability of this Consent Decree is limited to the achievement of limits necessary for implementation of the Dissolved Oxygen TMDL. To wit: "This Consent Decree shall not relieve any plaintiff from any obligation to comply in full with any federal, state or local law, provided however that the dischargers' compliance with this Decree shall constitute their compliance with requirements arising under the TMDL for the Chehalis River."

The requirement to meet secondary treatment standards is a separate and independent requirement under which the Department is required to reassess the level of removal consistently achievable by the POTW. For TSS, the 95th percentile removal rate was 74.4 percent (74 percent is proposed) over the term of the last permit, and for BOD₅, the 95th percentile removal rate was 78.6 percent (77 percent is proposed). These limits were determined to be achievable based on historical performance. Only three months in the last 92 months were lower than this removal rate for TSS, and only one month of the 92 months between April 1996 and November 2003 were lower than the 77 percent removal rate proposed for BOD₅.

For the present facility, loading limits during November through April for monthly effluent mass loadings (lbs/day) were also retained from the permit issued in 1996. These limits were calculated as the average wet weather design flow (4.00 mgd) x Concentration limit (30 mg/L for BOD and TSS) x 8.34 (conversion factor lb/gal) = mass limit (1,000 lbs/day for BOD and TSS). Weekly average limits were calculated as one and a half times the monthly limit or 1,500 lbs/day for BOD and TSS. The limits resulting for application of 85 percent removal requirements at the maximum recognized loading capacity would be a more stringent criteria, but 85 percent removal is not required presently between November and April.

For the new facility 85 percent removal is presumed required: Therefore, wet season effluent mass loadings (lbs/day) were calculated as follows: For the maximum monthly limit, 15 percent of the influent design loading capacity for the wet season (5,490 lbs/day for BOD, and 6,680 lbs/day for TSS) yields limits of 823.5 lbs/day for BOD (max month) and 1,002 lbs/day for TSS (max month). These values are increased by 50 percent for the maximum weekly average loading limits. This equates to 1,235 lbs/day BOD (max week) and 1,503 lbs/day TSS (max week). A maximum daily limit is also stipulated in the Consent Decree as 2,330 lbs/day (max day) for both BOD and TSS.

It may be noted that these maximum monthly average loading allowances (BOD and TSS in the wet weather final effluent limits section) are higher than in the modified 1996 permit. That is due to the fact that the design at the time of the writing of that permit modification was different. At that time it was presumed that the new POTW would have the same capacity as the existing POTW. The eventual design that was submitted and approved was for a treatment works with a larger loading capacity as reflected in the calculations above.

These values are more limiting than the product of the monthly average flow and 30 mg/L concentration limits and therefore they constitute the applicable criteria.

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For the new facility, in the dry season (as defined in the consent decree), the POTW will be discharging to Poplar tree plantation. Therefore, the applicable criteria are based on the reuse standards and are described in the reuse section of this fact sheet.

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin-wide TMDL.

NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

"Numerical" water quality criteria are numerical values set forth in the state of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in a receiving water while remaining protective of aquatic life. Numerical criteria set forth in the Water Quality Standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The state was issued 91 numeric water quality criteria for the protection of human health by the U.S. EPA (EPA 1992). These criteria are designed to protect humans from cancer and other diseases and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

NARRATIVE CRITERIA

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the state of Washington.

ANTIDegradation

The state of Washington's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when receiving waters are of higher quality than the criteria assigned, the existing water quality shall be protected. More information on the State Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

The Department has reviewed existing records and has determined that ambient water quality is lower than the designated classification criteria given in Chapter 173-201A WAC. In particular the river in the vicinity of the outfall is listed on the Department's draft 2004 listing of 303(d) impaired water bodies for Fecal Coliform, Temperature, and Dissolved Oxygen (with existing water cleanup plans). The Department's dissolved oxygen water cleanup plan for the river resulted in the conditions of Consent Decree C96-5968 RJB. The Department's Temperature water cleanup plan limits the maximum increase in ambient water temperature to 0.3 degrees C at the edge of the mixing zone during the critical season.

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The Department's draft Fecal Coliform Water Cleanup Plan proposes to rely on technology-based limits for municipal dischargers. These limits are reflected in the proposed NPDES permit. The City has chosen to achieve compliance with the temperature TMDL by removing its discharges from the river for the entire dry (critical) season of each year. The listing for fecal coliform is the basis of more stringent "end-of-pipe" limits for fecal coliform for the POTW. This, and measures required to comply with the Dissolved Oxygen cleanup plan will be completed when the facility described in 2004 Plans and Specifications is in place.

Discharges authorized by this proposed permit are specifically designed to prevent a loss of beneficial uses when compliance with final limits is attained. Until such time, the limits in the accompanying NPDES permit requires the POTW to do the best possible job given the treatment options available in order to minimize adverse impacts.

WAC 173-201A Section 030 (2) (c) (ii) (A) requires dissolved oxygen (DO) shall exceed 8.0 mg/L in Class A waters. Section 030 (9) Special Conditions: Chehalis River from Scammon Creek (River Mile (RM) 65.8) to Newaukum River (RM 75.2) - dissolved oxygen shall exceed 5.0 mg/L from June 1, to September 15. For the remainder of the year, the dissolved oxygen shall meet Class A criteria. See section below titled "Water Quality Study (TMDL)" for further explanation of the water quality in the Chehalis River.

CRITICAL CONDITIONS

Surface water quality-based limits are derived for the waterbody's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic water body uses.

MIXING ZONES

The Water Quality Standards allow the Department to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving all known, available, and reasonable methods of prevention, control and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100.

The National Toxics Rule (EPA, 1992) allows the chronic mixing zone to be used to meet human health criteria.

Both an acute and chronic mixing zone have been authorized in the past, and are authorized by the proposed permit. The concentration of pollutants at the edge of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving all known, available, and reasonable methods of prevention and control (AKART). AKART for municipal wastewater is defined in Chapter 173-221 WAC. Permit limits require AKART.

Pollutant concentrations in the proposed discharge exceed water quality criteria with technology-based controls which the Department has determined to be AKART. A mixing zone is authorized in accordance with the geometric configuration, flow restriction, and other restrictions for mixing zones in Chapter 173-201A WAC and are defined as follows:

These zones are subject to the following limitations:

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- (i) Not extend in a downstream direction for a distance from the discharge port greater than three hundred feet plus the depth of water over the discharge port, or extend upstream for a distance of over one hundred feet;
- (ii) Not utilize greater than 25 percent of the flow; and
- (iii) Not occupy greater than 25 percent of the width of the water body.

During critical conditions, dilution ratios were determined to be limited by the statutory maximum of 25 percent of river flow for chronic zone and 2.5 percent of receiving water flow for the acute zone.

May through October: For May through October, the critical low flow used in the Dissolved Oxygen TMDL is 60.2 cfs. Given this, the dilution factors were calculated as follows:

Chronic Zone: The most restrictive parameter for the mixing zone allowable under WAC 173-201A-100 is 25 percent of the 7Q10 flow which equals 15.05 cfs. The discharge volume in cfs is equal to 1.55 times the flow in MGD. The presumed flow from Chehalis is 2.45 MGD as this, (October 1997 monthly average flow), was the maximum monthly average in dry weather during the term of the last permit. Since this exceeds the flow limit for the summer months of 2.0 MGD, this actual flow is used for mixing zone calculations. This 2.5 MGD equals 3.87 cfs and equates to a concentration of 20.5 percent effluent when combined with the allowable river flow. The dilution factor (inverse ratio of effluent concentration) is **4.9:1**.

Acute Zone: The most restrictive parameter for the mixing zone under WAC 173-201A-100 is 2.5 percent of the 7Q10 flow. Following the same analysis as above (7Q10 = 60.2 cfs; and 2.5 percent of this = 1.505 cfs). During the term of the last permit the highest noted daily plant flow during the critical period was 5.59 MGD (8.66 cfs) in October 1997. Discounting any overlap from mixing zones allotted to Darigold, the concentration of wastewater will be 85.2 percent and the dilution factor equals **1.2:1**.

November – April: For November through April the dilution factors were based on the 7Q10 flow for that calendar period, which is 218.6 cfs. The percent of flow was assumed to be the control and used to determine critical chronic and acute dilution factors.

Chronic Zone: 25 percent of Chehalis River flow equals 54.65 cfs; highest monthly average flow (last three years data) = 5.03 MGD (7.80 cfs); Darigold design flow = 0.60 MGD (0.90 cfs); total flow = 8.70 cfs; effluent concentration = $8.7 / (8.7 + 54.65) = 0.137$ (13.7 percent). The inverse yields a dilution factor of **7.3:1**.

Acute Zone: 2.5 percent of Chehalis River flow equals 5.465 cfs; highest daily maximum flow (last three years data) = 11.89 MGD (18.4 cfs) in November 1998; Darigold design flow = 0.60 MGD (0.90 cfs); total flow = 19.3 cfs. This yields a maximum percentage effluent ($19.3 / (19.3 + 5.465)$) or .779 (77.9 percent) and a dilution factor (its inverse) of 1.28. Considering only Chehalis' flow yields a dilution factor of $(18.4 + 5.465) / 18.4$ or **1.3:1**.

Dry Weather: (as defined in Consent Decree C96-5968 RJB). **NO DISCHARGE** is authorized during dry weather as the Consent Decree requires that the dry weather discharge shall be downstream of the Centralia Reach, below the mouth of the Skookumchuk River. Therefore since no discharge is authorized, no mixing zone can be authorized. The City's chosen method of compliance with this requirement is to reuse 100 percent of their wastewater to grow poplar trees during the period when dry weather limits apply.

Wet Weather: (as defined in Consent Decree C96-5968 RJB) Limits for wet weather apply on the next day after the seven-day moving average flow is greater than 1,000 cfs and a single daily flow has been

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greater than 2,500 cfs. These limits continue to apply until the seven-day moving average goes below 1,000 cfs. Therefore, the Department is adopting the presumption that the equivalent 7Q10 low flow is 1,000 cfs for “wet weather” conditions.

Chronic Zone: While the effluent limit is 6.0 MGD for the maximum month, only an effluent flow volume of 4.0 MGD (6.2 cfs) has been determined to be likely to occur during a month in which flows are near 1,000 cfs. This yields a mixing zone ratio of $(6.1+250)/6.1 = 42:1$.

Acute Zone: For the acute case, the maximum anticipated daily flow when wet weather flows limits commence would be about 5.2 MGD (8.0 cfs). Mixing with 2.5 percent of stream flow would yield $(8cfs + 25cfs) / 8cfs = 4.1:1$.

Human Health Carcinogen: The mixing zone used for evaluating whether the human health criteria for carcinogens have been exceeded was based upon the ratio of highest annual average effluent flows at harmonic mean (average) river flow. The average river flow was taken to be approximately 1,000 cfs, and allowable mixing zone 25 percent of this value. The annual average effluent was 2.21 MGD (3.4cfs). The dilution factor is therefore $[(250+3.4)/3.4]$ or **74.5:1**.

Human Health Non-Carcinogen: The mixing zone used for evaluating whether the human health criteria for non-carcinogens have been exceeded was based upon the ratio of maximum monthly average effluent during dry weather and 25 percent of 30Q5 river flows (lowest monthly average flows expected in a five year period). The maximum monthly discharge in the dry season was 2.45 MGD (3.8 cfs) in October 1997, and the 25 percent of the 7Q10 flow was used in the absence of 30Q5 data. This equates to $[(15.05+3.8)/(3.8)]$ or **5.0:1 (presently)**. When “Wet Season” limits apply, this would increase since lower flow periods during the year are no longer factored in. Therefore, in corresponding rationale to how wet weather limits were derived, the mixing zone ratio would be 5.0 MGD (January 1999 monthly average flow or 7.74 cfs) **33.3:1**

Mixing zone Ratios Tabulated:

Condition	Acute MZR	Chronic MZR	HH Carcinogen	HH Non-Carcin.
May-October	1.2:1	4.9:1	74.5:1	5.0:1
November-April	1.3:1	7.3:1	74.5:1	5.0:1
Wet Season	4.1:1	42:1	74.5:1	33.3:1

DESCRIPTION OF THE RECEIVING WATER

The facility discharges to the Chehalis River which is designated as a Class A receiving water in the vicinity of the outfall with a specified Dissolved Oxygen standard (see WAC 173-201A-130 and -140). Other nearby point source outfalls includes Darigold. Characteristic uses include the following: water supply (domestic, industrial, agricultural); stock watering; fish migration; fish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation. Water quality of this class shall meet or exceed the requirements of selected and essential uses.

Mixing zones were evaluated in the study “Wet Weather Mixing Zone Modeling Study Engineering Report” submitted by the City’s consulting engineer March 24, 2001. The report did a regression analysis to determine the appropriate worst case scenario for the acute and chronic conditions. This regression

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analysis led to the mixing zone ratios above when using the 90th percentile flows for the chronic condition, and the 99th percentile flows for the acute condition, as detailed on figure 2 (page 10) of that study. The report (p.8) also notes that Westfarm Foods' discharges were included in the flow analysis.

Further descriptions of the receiving water are included in both the Dissolved Oxygen and Temperature Water Cleanup Plans. These TMDLs can be found on the web, the updated Dissolved Oxygen TMDL is at <http://www.ecy.wa.gov/pubs/0010018.pdf> and the Temperature TMDL can be found at: <http://www.ecy.wa.gov/pubs/9952.pdf>. This fact sheet will not repeat that information.

SURFACE WATER QUALITY CRITERIA

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for this discharge are summarized below. Since new criteria have been promulgated by the state of Washington, these new criteria are shown by the existing criteria:

Pollutant:	Current Criteria	New Criteria
Bacteria	Fecal Coliform levels shall not exceed 100 colony forming units/100 mL as a maximum geometric mean	E. coli organisms shall not exceed a geometric mean of 100/100 mL with no more than 10% of samples exceeding 200 / 100 mL.
Dissolved Oxygen	5.0 mg/L daily minimum between June 1 and September 15 annually. Outside these dates, 8.0 mg/L minimum on any single day	5.0 mg/L daily minimum between June 1 and September 15 annually. Outside these dates, 7.0 mg/L minimum on any single day and 9.5 mg/L as a 90-day average of daily minimums.
Temperature	18 degrees Celsius maximum or above this, incremental increases above background are limited to 0.3 degrees C.	16 degrees Celsius as a 7-day average of maximum temperatures. Incremental increases above background limited to 0.3 degrees C.
pH	6.5 to 8.5 standard units	6.5 to 8.5 standard units
Turbidity	less than 5 NTU above background	less than 5 NTU above background when background is 50 NTU or less, or a 10% increase in turbidity when the background turbidity is greater than 50 NTU.
Toxics	No toxics in toxic amounts (Appendix C evaluates criteria for toxics of concern for this discharge)	No toxics in toxic amounts

The Ambient environment is listed as being impaired for Dissolved Oxygen, Temperature, and Bacteria according to the Department's draft 2004 Water Quality Assessment. The POTW is already subject to water cleanup plans for Dissolved Oxygen and Temperature because of efforts to resolve prior listings for these pollutants. For bacteria, the results of monitoring show that fecal coliform bacteria in the ambient environment exceed the bacteria limits in the wet season. The Department has developed and is proposing a TMDL or Water Cleanup Plan to address this situation. This document can be found at: <http://www.ecy.wa.gov/pubs/0403004.pdf>. The proposed TMDL provides load allocations to municipalities. For Chehalis, the load allocation is no more stringent than the technologically based limits normally applied to municipal POTWs. Averages for fecal coliform samples are for the number of

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colony forming units as a geometric mean over the specified period. In this case, 200/100 mL of effluent as a monthly average, and 400/100 mL as a weekly average.

CONSIDERATION OF SURFACE WATER QUALITY-BASED LIMITS FOR NUMERIC CRITERIA

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near field) or at a considerable distance from the point of discharge (far field). Toxic pollutants, for example, are near-field pollutants--their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as BOD is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

The derivation of water quality-based limits also takes into account the variability of the pollutant concentrations in both the effluent and the receiving water. It also takes into account the studies done on partitioning for copper and zinc and the water effects ratios observed in the receiving environment for copper and silver. Limits are calculated based on the data from several studies done on the ambient environment. Here is a tabulation of the information that is unique to this discharge and appropriate to the critical period which is about 1,000 cfs in the receiving waters:

Pollutant	Site- specific partitioning coefficient	Site specific Water Effects Ratio	Hardness at edge of the AMZ / CMZ	Total metal Background concentration ¹	Dissolved Background concentration ¹
Copper	0.736	4.1:1	32.4 / 21.7	3.5 ug/L (T)	1.78 ug/l Diss
Silver	None (.85)	5.2:1	32.4 / 21.7	2.15 ug/L (T)	1.313 ug/l Diss
Zinc	0.457	None (1:1)	32.4 / 21.7	.132 ug/L (T)	.042 ug/l Diss

¹Appendix C, City of Chehalis Zinc Water Quality Analysis Report, April 2001. – Numbers in the table above represent 1.74 * the geometric mean of the dissolved samples for the 14 data points of that study. Sample duplicates were not included.

The critical condition for the Chehalis river is the seven day average low river flow with a recurrence interval of ten years (7Q10), however since the City is not permitted to discharge until the seven-day average flow is at least 1,000 cfs, it is appropriate to take this flow cutoff (1,000 cfs) as the 7Q10 flow. This is how the mixing zone ratios were developed for the new POTW.

Ambient data at critical conditions in the vicinity of the Chehalis outfall were taken from the Water Effects Ratio (WER) studies which included an intensive monitoring study conducted in 1996 and 1997. The ambient background data used for this permit includes the above data from the Zinc Water Quality Analysis Report, April 2001; other data in this table derives from the Copper Water Quality Analysis Report, October 2001; Silver Water Quality Analysis Report, January 2002; and Comprehensive WER Study Final Report of October 2002. The ambient metals data is tabulated in Appendix E to this fact sheet.

BOD₅--Under critical conditions the Department predicted violations of the Water Quality Standards for Surface Waters would occur due to BOD in the effluent during the dry season. To comply with this determination the City has agreed to curtail their discharges during the dry season. In concert with this decision, the permit disallows any such discharge. The technology-based effluent limitation for BOD₅ was placed in the permit during the wet season.

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The impact of BOD on the receiving water was estimated during the TMDL development process, at critical condition and with the technology-based effluent limitation for BOD₅ described under "Technology-Based Effluent Limitations" above. The calculations used to determine dissolved oxygen impacts are found in the Dissolved Oxygen TMDL document which was published by the Department. The TMDL findings, as memorialized in the Consent Decree limit the City to a mass discharge of 2,330 lbs/day of BOD and TSS during the maximum day in the wet season.

Temperature--The impact of the discharge on the temperature of the receiving water was evaluated in the Department's temperature TMDL. That document required that no impairment would occur if the POTW could keep its effect to 0.3 degrees C at the edge of the authorized mixing zones. The temperature effect was evaluated in Appendix F "Effluent Data Summary" and found to the predicted resultant temperature at the boundary of the chronic mixing zone would lead to an incremental rise is 0.05°C when ambient temperatures were 18°C or greater, and up to 15 °C at other times during the summer. During hot days, the POTWs effluent actually provides an incremental cooling which is incidental, and was not determined to be beneficial enough to outweigh the negative impacts of the effluent on dissolved oxygen during such times.

Under critical conditions there is no predicted violation of the Water Quality Standards for Surface Waters. Therefore, no effluent limitation for temperature was placed in the proposed permit.

pH--The impact of pH was modeled using the calculations from EPA, 1988. The input variables were dilution factor 42:1, upstream temperature 21°C, upstream pH 7.3, upstream alkalinity 35 (as mg CaCO₃/L), effluent temperature 20°C, effluent pH of 6, effluent pH of 9, and effluent alkalinity 100 (as mg CaCO₃/L).

Under critical conditions there is no predicted violation of the Water Quality Standards for Surface Waters. Therefore, the technology-based effluent limitations for pH was placed in the permit and temperature was not limited.

Fecal coliform--The numbers of fecal coliform were modeled by simple mixing analysis using the technology-based limit of 400 organisms per 100 ml and a dilution factor of 42:1 which will be applicable during the wet season.

Under critical conditions (beginning of discharge at river flows of 1,000 cfs) there is no predicted violation of the Water Quality Standards for Surface Waters with the technology-based limit. Therefore, the technology-based effluent limitation for fecal coliform bacteria was placed in the proposed permit.

Toxic Pollutants--Federal regulations (40 CFR 122.44) require NPDES permits to contain effluent limits for toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. This process occurs concurrently with the derivation of technology-based effluent limits. Facilities with technology-based effluent limits defined in regulation are not exempted from meeting the Water Quality Standards for Surface Waters or from having surface water quality-based effluent limits.

The following toxics were determined to be present in the discharge: ammonia, copper, silver, and zinc. Background and Effluent data for these pollutants has been tabulated in Appendixes E and F respectively. A reasonable potential analysis (Appendix G) was conducted on these parameters to determine whether or not effluent limitations would be required in this permit.

The determination of the reasonable potential for Ammonia, silver, and zinc to exceed the water quality criteria was evaluated with procedures given in EPA, 1991 (Appendix C) at the critical condition. The critical condition in this case occurs at the beginning of the discharge which is authorized at 1,000 cfs in the river in the Centralia Reach. The parameters used in the critical condition modeling are as follows:

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acute dilution factor 4.12:1, chronic dilution factor 42:1, receiving water temperature 18°C, receiving water alkalinity 21.7 (chronic) and 32.4 (acute) - as mg CaCO₃/L. Background concentrations of these pollutants are shown in Appendix E.

Water quality criteria for metals in Chapter 173-201A WAC are based on the dissolved fraction of the metal. The Permittee provided data clearly demonstrating the seasonal partitioning of the dissolved metal in the ambient water in relation to an effluent discharge for copper and zinc. The partitioning coefficients at the edge of the mixing zone was established to be 0.736 for zinc and 0.457 for copper.

Metals criteria may also be adjusted using the water effects ratio approach established by USEPA, as generally guided by the procedures in USEPA Water Quality Standards Handbook, December 1983, as supplemented or replaced. Metals criteria for silver and copper were adjusted on a site-specific basis based on studies providing data clearly demonstrating the seasonal partitioning in the ambient water in relation to an effluent discharge. The water effects ratio was not determined for zinc because it was not determined to be necessary at the time. Effluent monitoring for zinc after this decision demonstrated higher levels of zinc in the effluent which led to a permit limit for zinc.

Effluent limits were derived for ammonia, silver, and zinc, which were determined to have a reasonable potential to cause a violation of the Water Quality Standards. Effluent limits were calculated using methods from EPA, 1991 as shown in Appendix H.

Including the updated hardness data, partitioning coefficients, and Water Effects Ratios, the resultant effluent concentrations necessary to meet WQ Criteria at the edge of applicable mixing zones were calculated to be:

The current permit and Consent Decree C96-5968 RJB contain interim limits for Copper, Silver, Zinc, and ammonia as required by Chapter 173-201A WAC. Since final limits for copper were not found to be necessary, this limit will be removed from the proposed permit and performance of the POTW in removing copper will not be further discussed. The limits for silver and zinc were based on existing demonstrated performance at the time of development of these documents. Over the term of the last permit, metals removal performance has been:

	Silver	Zinc	Note:
95 percentile of data:	7.74	158.20	(corresponds to the performance based monthly limit)
99 percentile of data:	12.39	281.47	(corresponds to the performance based daily limit)
Current limits:	Silver	Zinc	
Annual:	13.50		(No annual or monthly limit was stipulated for zinc)
Daily:	28.20	119.6	

Analysis for Silver: The POTW has demonstrated through consistent removal of Silver that they can meet a daily silver limit of 12.4 ug/L and a monthly average limit of 7.7 ug/L. This is lower than the present interim limits for silver by about half. However, since this is still higher than the effluent concentrations needed to meet the water quality criteria applicable after applying the new Water Effects Ratio of 5.1, these will be the new interim permit limits until the new POTW is put in place. When the new POTW is put in operation, the applicable limits for Silver are 12 ug/L as a daily maximum and 5.6 ug/L as a monthly average.

Analysis for Zinc: The POTW has demonstrated through consistent removal of Zinc that they can meet a daily zinc limit of 281 ug/L and a monthly average limit of 158 ug/L. Prior performance had led the Department to determine that the City could meet a daily limit of 119.6 ug/l. This turned out to be based on a limited data set, causing a number of permit exceedances, and is hereby revised for the current

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permit. This performance is not sufficient to meet the effluent concentrations needed to meet the water quality criteria applicable after applying the new partitioning coefficient. Therefore, the new performance based limits will be the new interim permit limits until the new POTW is put in place. When the new POTW is put in operation, the applicable limits for zinc will be 237 ug/L as a daily maximum and 136 ug/L as a monthly average.

Analysis for Ammonia Interim Limits: Interim Effluent limits for ammonia (NH₃-N) are specified in the Consent Decree. Unlike metals interim and final limits, there was no provision to revise these limits based on further studies of partitioning and water effects ratios. Continuing non-compliance in the winter had led the Department to previously offer to concur to modifications to reflect mass based limits using historical performance on a seasonal basis. We did not possess the resources to process a modification to the Consent Decree, especially absent the City's concurrence it would support such a modification. Therefore this permit continues to reflect that interim limits specified in the Consent Decree will apply until the new facility commences operation. These interim ammonia limits are seasonal based on calendar periods May – October (18.6 mg/L monthly average, 36.8 mg/L daily maximum) and November – April (12.9 mg/L monthly average, 31.6 mg/L daily maximum).

Analysis for Ammonia Final Limits: The Consent Decree contains a maximum daily limit of 15 mg/L for ammonia, and a daily mass limit of 644 lbs/day (equivalent to 5.15 MGD at 15 mg/L). The reasonable potential analysis found that ammonia has a reasonable potential to exceed water quality criteria in the Wet season. Limits to prevent water quality impairment were established to be 11.3 mg/L (monthly average) and 22.4 mg/L (daily maximum). Since the Consent Decree contains a more stringent daily maximum limitation, that will dictate the daily maximum limit in the permit. The Consent Decree also dictates the mass limit for ammonia after the upgrade as well.

WHOLE EFFLUENT TOXICITY

The Water Quality Standards for Surface Waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent, and therefore this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

In accordance with WAC 173-205-040, the Permittee's effluent has been determined to have the potential to contain toxic chemicals. The proposed permit contains requirements for whole effluent toxicity testing as authorized by RCW 90.48.520 and 40 CFR 122.44 and in accordance with procedures in Chapter 173-205 WAC. Since the Permittee is improving pollution control in order to meet other regulatory requirements. The results of an effluent characterization for toxicity would not be accurate until after the improvements have been completed.

WAC 173-205-030(4) allows the Department to delay effluent characterization for WET for existing facilities that are under a compliance schedule in a permit to implement technology-based controls or to achieve compliance with surface water quality-based effluent limits. Special Conditions S.12 and S.13 delay effluent characterization for WET until the completion or startup of the new or improved wastewater facility required by Consent Decree and referenced in Special Condition S1.A.

Acute toxicity tests measure mortality as the significant response to the toxicity of the effluent. Dischargers who monitor their wastewater with acute toxicity tests are providing an indication of the potential lethal effect of the effluent to organisms in the receiving environment.

Chronic toxicity tests measure various sub-lethal toxic responses such as retarded growth or reduced reproduction. Chronic toxicity tests often involve either a complete life cycle test of an organism with an

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extremely short life cycle or a partial life cycle test on a critical stage of one of a test organism's life cycles. Organism survival is also measured in some chronic toxicity tests.

The proposed permit contains requirements for whole effluent toxicity testing as authorized by RCW 90.48.520 and 40 CFR 122.44 and in accordance with procedures in Chapter 173-205 WAC. The proposed permit requires the Permittee to conduct toxicity testing for one year in order to characterize both the acute and chronic toxicity of the effluent.

If acute or chronic toxicity is measured during effluent characterization at levels that, in accordance with WAC 173-205-050(2)(a), have a reasonable potential to cause receiving water toxicity, then the proposed permit will set a limit on the acute or chronic toxicity. The proposed permit will then require the Permittee to conduct WET testing in order to monitor for compliance with either an acute toxicity limit, a chronic toxicity limit, or both an acute and a chronic toxicity limit. The proposed permit also specifies the procedures the Permittee must use to come back into compliance if the limits are exceeded.

Accredited WET testing laboratories have the proper WET testing protocols, data requirements, and reporting format. Accredited laboratories are knowledgeable about WET testing and capable of calculating an NOEC, LC₅₀, EC₅₀, IC₂₅, etc. All accredited labs have been provided the most recent version of the Department Publication # WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria* which is referenced in the permit. Any Permittee interested in receiving a copy of this publication may call the Department Publications Distribution Center 360-407-7472 for a copy. The Department recommends that Permittees send a copy of the acute or chronic toxicity sections(s) of their permits to their laboratory of choice.

When the WET tests during effluent characterization indicate that no reasonable potential exists to cause receiving water toxicity, the Permittee will not be given WET limits and will only be required to retest the effluent prior to application for permit renewal in order to demonstrate that toxicity has not increased in the effluent.

If the Permittee makes process or material changes which, in the Department's opinion, results in an increased potential for effluent toxicity, then the Department may require additional effluent characterization in a regulatory order, by permit modification, or in the permit renewal. Toxicity is assumed to have increased if WET testing conducted for submission with a permit application fails to meet the performance standards in WAC 173-205-020, "whole effluent toxicity performance standard". The Permittee may demonstrate to the Department that changes have not increased effluent toxicity by performing additional WET testing after the time the process or material changes have been made.

HUMAN HEALTH

Washington's water quality standards now include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the state by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

A determination of the discharge's potential to cause an exceedance of the water quality standards was conducted to determine pollutants of concern as required by 40 CFR 122.44(d). The reasonable potential determination was evaluated with procedures given in the Technical Support Document for Water Quality-Based Toxics Control (EPA/505/2-90-001) and the Department's Permit Writer's Manual (the Department Publication 92-109, July, 1994). The determination indicated that the discharger presently has a reasonable potential to cause a violation of water quality standards for protection of human health for dichlorobromomethane.

However, the Department has determined that the applicant's discharge is undergoing technology-based upgrades based on a Department order or permit and thus should be regulated for human health based

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criteria only after upgrades are completed. The discharge will be re-evaluated for impacts to human health at the next permit reissuance.

SEDIMENT QUALITY

The Department has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require Permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400). The Department has determined through a review of the discharger characteristics and effluent characteristics that this discharge has no reasonable potential to violate the Sediment Management Standards.

GROUND WATER QUALITY LIMITATIONS

The Department has promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100).

GROUND WATER

Information about the geology, quality, quantity, direction, etc. of the receiving ground water is included in the approved engineering report for the application site. Several areas of the application site were tested for percolation and were found to be suitable to the intended purpose. The ground is relatively flat clayey loam. The direction of groundwater travel is presumed to be generally from North (hills exist to the North) to the South (the Chehalis River is to the south). Two monitoring wells were installed to the North and one exists on the South side of the property. The permit will require groundwater monitoring prior to commencing discharge in order to get a background level.

WATER RIGHTS STATUS

The Permittee is considered the generator of the reclaimed water and RCW 90.46.120 gives the Permittee exclusive right to any water generated by the wastewater treatment facility. Use and distribution of reclaimed water is exempted from the water right permit requirements of RCW 90.03.250 and 90.44.060. State Law in RCW 90.46 requires the Permittee to compensate or mitigate any impairment which the cessation of discharge to the Chehalis River causes. The City has requested that the Department's concurrence for a plan by which mitigation for potential water rights impairments, their rights for withdrawing water from the Chehalis River are reduced by an amount equivalent to the average flows of the POTW during low flow periods of the year (1.6 cfs). The Department has concurred informally that this proposal meets the requirements to mitigate any damages the cessation of discharges causes. Therefore, if this course of action is taken, the City will be exempt from the requirement to rigorously examine potential effects of this action on all water rights downstream of their present discharge. Otherwise, the Department will need a water rights impairment self-assessment.

Notably, while several water rights permits for downstream discharges have clauses that would reduce or deny their rights to withdraw water during low flow periods, these clauses have not been exercised over the term of the last permit. Therefore, there is little cause to believe that the cessation of discharge by the POTW of their flow (about 1.0 MGD or 1.6 cfs during the critical season), which is about 2.6 percent of the 7Q10 low flows of 62 cfs would be the proximate cause of any impairment to existing water rights holders. Furthermore, a quick review of water rights holders did not discover water rights holders that are senior to the City have that have provisions in their rights which curtail their rights to withdraw water from the river during low flow condition.

Also of note is the fact that the Consent Decree requires the City to remove its outfall from its present location for a location that is further downstream, at which point river flows are roughly 25 percent greater. If complying with that requirement but not engaging in reuse, the decrease in flows in the Centralia Reach would be identical, but there would be no requirement for mitigation or compensation. Similarly this requirement for mitigation would not apply where the Permittee opts to employ land disposal of wastewater in lieu of discharge to the River.

Therefore the choice to reuse wastewater for beneficial purposes creates a burden on the POTW which does not exist in alternatives which would have equal impact on downstream water rights holders. This provision is therefore apparently at odds with the legislature's stated goal of promoting reuse and conservation. While the Department's role in a number of aspects of the reuse regulation, RCW 90.46, is specified, the section prohibiting impairment of downstream water rights holders when ceasing discharge in lieu of reuse does not specify that it is the Department's role to ensure compliance. Therefore, the issuance of this permit is not presumptive of a finding by the Department as to the impairment of water rights holders, and does not alter the ability of any person damaged by this action to seek relief and compensation as authorized under laws of the state of Washington including this provision.

PROPOSED PERMIT LIMITATIONS (R1)

The Reclaimed Water Act, Chapter 90.46 RCW requires that reclaimed water be adequately and reliably treated prior to distribution and beneficial use. State regulations require that limitations set forth in NPDES permits issued under Chapter 90.48 RCW must be either technology- or water quality-based. Municipal wastewater must also be treated using all known, available, and reasonable treatment (AKART) and not pollute the waters of the state. The permit conditions included to demonstrate compliance with these criteria are derived from the *Water Reclamation and Reuse Standards* and Chapter 173-221 WAC.

The permit also includes limitations on the quantity and quality of the reclaimed water (land applied or infiltrated to recharge groundwater via surface percolation) that have been determined to protect the quality of the ground water. The approved engineering report includes specific design criteria for this facility. Water quality-based limitations are based upon compliance with the Ground Water Recharge Criteria (RCW 90.46.080) which are the drinking water standards for the parameters noted and the Ground Water Quality Standards (Chapter 173-200 WAC) for other parameters that require regulation.

The more stringent of the water quality-based or technology-based limits are applied to each of the parameters of concern. Each of these types of limits is described in more detail below.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

All reclaimed water permits must assure that the effluent has been adequately and reliably treated so that as a result of that treatment, it is suitable for a beneficial use or controlled use that would not otherwise occur and is no longer considered a wastewater (RCW 90.46.010(40)).

The authority and duties for reclaimed water use are in addition to those already provided in law with regard to sewage and wastewater collection, treatment and disposal for the protection of public health and the safety of the state's waters. During periods in which land application is occurring, the permit requires the reclaimed water to be applied at agronomic rates.

The Water Reclamation and Reuse Standards, 1997, outline the requirements for the additional level of treatment technology as well as water quality limits necessary for public health protection during the use of reclaimed water. The standards provide four classes of reclaimed water, Classes A, B, C and D.

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This facility produces Class A reclaimed water during periods when doing groundwater recharge (when it is not agronomic to apply the wastewater). Class A is the highest quality of reclaimed water and therefore provides the broadest range of reuse opportunities. Conversely, Class A reclaimed water requires the most stringent treatment and water quality limitations. The technology and water quality requirements for the production of Class A reclaimed water are as follows:

“Class A Reclaimed Water” is reclaimed water that had been adequately and reliably treated and, at a minimum is, at all times, an oxidized, coagulated, filtered, and disinfected wastewater.

1. Oxidized is defined as wastewater in which the organic matter has been stabilized such that the biochemical oxygen demand (BOD₅) does not exceed 30 mg/L and total suspended solids (TSS) does not exceed 30 mg/L, is nonputrescible and contains dissolved oxygen.
2. Coagulated wastewater is defined as an oxidized wastewater in which colloidal and finely divided suspended matter have been destabilized and agglomerated prior to filtration by the addition of chemicals or by an equally effective method.
3. Filtered wastewater is defined as an oxidized, coagulated wastewater which has been passed through natural undisturbed soils or filter media, such as sand or anthracite, so that the turbidity as determined by an approved laboratory method does not exceed an average operating turbidity of 2 nephelometric turbidity units (NTU), determined monthly, and does not exceed 5 NTU at any time.
4. Adequate disinfection is defined as the median number of total coliform organisms in the wastewater after disinfection does not exceed 2.2 per 100 milliliters, as determined from the bacteriological results of the last seven days for which analyses have been completed, and the number of total coliform organisms does not exceed 23 per 100 milliliters in any sample.
5. A 0.5 mg/L chlorine residual shall be maintained in the reclaimed water during conveyance from the reclamation facility to the use areas.

This facility produces Class C reclaimed water during periods when application to the Poplar tree farm is agronomic. The technology and water quality requirements for the production of Class C reclaimed water are as follows:

“Class C Reclaimed Water” is reclaimed water that had been adequately and reliably treated and, at a minimum is, at all times, an oxidized and disinfected wastewater.

1. Oxidized is defined as wastewater in which the organic matter has been stabilized such that the biochemical oxygen demand (BOD₅) does not exceed 30 mg/L and total suspended solids (TSS) does not exceed 30 mg/L, is nonputrescible and contains dissolved oxygen.
2. Adequate disinfection is defined as the median number of total coliform organisms in the wastewater after disinfection does not exceed 23 per 100 milliliters, as determined from the bacteriological results of the last seven days for which analyses have been completed, and the number of total coliform organisms does not exceed 240 per 100 milliliters in any sample.
3. A 0.5 mg/L chlorine residual shall be maintained in the reclaimed water during conveyance from the reclamation facility to the use areas.

GROUND WATER QUALITY-BASED EFFLUENT LIMITATIONS

RCW 90.46.080 states that reclaimed water may be beneficially used for ground water recharge via surface percolation provided that it meets the Groundwater Recharge Criteria as measured in the ground water beneath or down gradient of the recharge project site. The groundwater recharge criteria are defined in 90.46.010 as the contaminant criteria found in the drinking water quality standards adopted by the State Board of Health pursuant to chapter 43.20 RCW and the Department of Health pursuant to Chapter 70.119A RCW. The primary drinking water standards are listed below. Drinking water is the beneficial use generally requiring the highest quality of ground water. Providing protection to the level of drinking water standards will protect a great variety of existing and future beneficial uses.

Applicable Primary Drinking Water Standards

<u>Parameter</u>	<u>Concentration</u>
Nitrate as N	10 mg/L
Nitrite as N	1 mg/L
Arsenic	50 µg/L
Cadmium	5 µg/L
Chromium	100 µg/L
Fluoride	2 mg/L
Mercury	2 µg/L
Nickel	100 µg/L
Total Trihalomethanes (TTHM)	0.10 mg/L

RCW 90.46.080 further states that if the Ground Water Recharge Criteria do not contain a standard for a constituent or a contaminant, the Department shall establish a discharge limit consistent with the goals of the Reclaimed Water Act. In order to protect existing water quality and preserve the designated beneficial uses of Washington's ground waters including the protection of human health, WAC 173-200-100 states that waste discharge permits shall be conditioned in such a manner as to authorize only activities that will not cause violations of the Ground Water Quality Standards. Additional ground water criteria as defined in Chapter 173-200 WAC and in RCW 90.48.520 for this discharge include the following:

Applicable Ground Water Quality Criteria

<u>Parameter</u>	<u>Concentration</u>
Total Dissolved Solids	500 mg/L
Chloride	250 mg/L
Sulfate	250 mg/L
Copper	1300 µg/L
Lead	15 µg/L
Manganese	50 µg/L
Silver	100 µg/L
Zinc	5000 µg/L
pH	6.5 to 8.5 standard units
Total Iron	0.3 mg/L
Toxics	No toxics in toxic amounts

MONITORING REQUIREMENTS (R2)

Monitoring, recording, and reporting are specified for the above pollutants (drinking water and ground water quality less “toxics”) at each of the three monitoring wells in order to verify that the treatment process is functioning correctly, that ground water criteria are not violated, and that reclaimed water limitations are being achieved.

RECLAIMED WATER MONITORING

The monitoring and testing schedule is detailed in the proposed permit under Condition R2. Specified monitoring frequencies take into account the quantity and variability of the reclaimed water, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

CROP MONITORING

Crop monitoring is not required other than such crop monitoring that may be identified in the Crop Management plan when approved is required in keeping with good O&M. As of the date of writing this permit the Crop Management Plan has not been developed. Therefore, the production of such a plan is a requirement of the accompanying permit.

SOIL MONITORING

Soil monitoring is not required by this permit due to the lack of established potential for the discharge to cause a degradation of beneficial soil characteristics.

VADOSE ZONE MONITORING

Vadose Zone monitoring is not required by this permit due to the lack of established potential for the discharge to cause a degradation of beneficial soil characteristics.

GROUND WATER MONITORING

The monitoring of ground water at the site is required in accordance with the Ground Water Recharge Criteria and the Ground Water Quality Standards, Chapter 173-200 WAC. The Department has determined that a potential to pollute the ground water may exist. Therefore, the Permittee is required to evaluate the impacts on ground water quality. Monitoring of the ground water at the site boundaries and within the site is an integral component of such an evaluation, and is also included under Condition R2.

REPORTING AND RECORDKEEPING (R3)

The conditions of R3 are based on the authority to specify appropriate reporting and recordkeeping requirements to prevent and control the distribution or use of inadequately treated wastewater.

RECLAIMED WATER DISTRIBUTION AND USE (R4)

These permit requirements are based on the Water Reclamation and Reuse Standards authorized in Chapter 90.46 RCW. The standards contain requirements to assure that distribution and use of reclaimed water are protective of public health and the environment at all times. These include prohibitions on bypass, alarms and storage or alternative disposal of substandard water, maintenance of operational records, cross connection control, use area restrictions and enforceable contracts and a local reclaimed water use ordinance.

OPERATIONS AND MAINTENANCE (R5)

The proposed permit contains Condition R.5 as authorized under the Water Reclamation and Reuse Standards and RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture, treatment and protection of public health and the environment.

COMPARISON OF EFFLUENT LIMITS WITH THE EXISTING PERMIT ISSUED OCTOBER 29, 1996

The last permit issued for this facility was issued on October 29, 1996, effective November 29, 1996. This 1996 permit placed effluent limitations on flow, 5-day Biochemical Oxygen Demand (BOD₅), Total Suspended Solids (TSS), pH, fecal coliform, ammonia, copper, silver, zinc, and total residual chlorine. This permit was significantly modified after Consent Decree C96-5968 RJB was signed by the Honorable Robert J. Bryan presiding at U.S. District Court, Western District of Washington in Tacoma. This Consent Decree required these modifications. The prior fact sheet documents how the Consent Decree was integrated by the June 30, 2000, Permit modifications, and that discussion is not repeated here. The below table compares the limits from the permit as modified on June 20, 2000, with the permit limits in the proposed accompanying permit.

Parameter	1996 Limits as modified 6/30/00		Proposed 2004 Permit Limits	
	Monthly Ave	Weekly Ave	Monthly Ave	Weekly Ave
BOD5 May - Oct	20 mg/L, 334 lbs/day, 85% removal	30 mg/L 500 lbs/day	20 mg/L, 334 lbs/day, 85% removal	30 mg/L 500 lbs/day
TSS May - Oct	25 mg/L 417 lbs/day 85% removal	37.5 mg/L 626 lbs/day	25 mg/L 417 lbs/day 85% removal	37.5 mg/L 626 lbs/day
BOD5 Nov - Apr	30 mg/L 1,000 lbs/day 75% removal	45 mg/L 1,500 lbs/day	30 mg/L 1,000 lbs/day 77% removal	45 mg/L 1,500 lbs/day
TSS Nov - Apr	30 mg/L 1,000 lbs/day 65% removal	45 mg/L 1,500 lbs/day	30 mg/L 1,000 lbs/day 74% removal	45 mg/L 1,500 lbs/day
BOD5 Dry Weather ⁽¹⁾	20 mg/L 500 lbs/day 85% removal	30 mg/L 751 lbs/day	30 mg/L 876 lbs/day (20 mg/L when not agronomic)	45 mg/L (30 mg/L when not agronomic)
BOD5 - low river ⁽³⁾	20 mg/L 417 lbs/day 85% removal	30 mg/L 626 lbs/day	Same as above	Same as above
BOD5 Wet Weather ⁽²⁾	30 mg/L 732 lbs/day 75% removal	45 mg/L 2,330 lbs/day	30 mg/L 823.5 lbs/day 85% removal ⁽⁵⁾	45 mg/L 1,235 lbs/day (week ave) 2,330 lbs/day (max day)
TSS - Dry Weather ⁽¹⁾	25 mg/L 500 lbs/day 85% removal	37.5 mg/L 751 lbs/day	30 mg/L 876 lbs/day	45 mg/L
TSS - low river ⁽³⁾	25 mg/L 417 lbs/day 85% removal	37.5 mg/L 626 lbs/day	Same as above	Same as above

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TSS - Wet Weather ⁽²⁾	30 mg/L 1,000 lbs/day 65% removal	45 mg/L 2,330 lbs/day	30 mg/L 1,002 lbs/day 85% removal ⁽⁵⁾	45 mg/L 1,503 lbs/day (week ave) 2,330 lbs/day (max day)
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Parameter	1996 Limits as modified 6/30/00		Proposed 2004 Permit Limits	
	Monthly Ave	Daily Max.	Monthly Ave	Daily max
Ammonia:				
May - Oct	18.6 mg/L	36.8 mg/L	18.6 mg/L	36.8 mg/L
Nov - Apr	12.9 mg/L	31.6 mg/L	12.9 mg/L	31.6 mg/L
Dry W. ⁽¹⁾		4.0 mg/L 100 lbs/day	Non-agronomic limit = 10mg/L	Non-agronomic limit 15 mg/L
Low Riv. ⁽³⁾		4.0 mg/L 83 lbs/day	Non-agronomic limit = 10mg/L	Non-agronomic limit 15 mg/L
Dry Late ⁽⁴⁾		15 mg/L 375 lbs/day	Non-agronomic limit = 10mg/L	Non-agronomic limit 15 mg/L
Wet W. ⁽²⁾		15 mg/L 644 lbs/day	11.3 mg/L 565 lbs/day	15.0 mg/L & 644 lbs/day

Parameter	1996 Limits as modified 6/30/00		Proposed 2004 Permit Limits	
	Monthly Ave	Daily Max.	Monthly Ave	Daily Max
Eff. Dry W Flow ⁽¹⁾		3.0 MGD	No river discharge 3.5 MGD to reuse	No river discharge 6.2 MGD to reuse
Effluent LR Flow ⁽³⁾		2.5 MGD		
Effluent Wet Flow ⁽²⁾		13.0 MGD	6.0 MGD	13.0 MGD
Fecal Coliform Wet Weath.	200/100 ml	400/100 ml	200/100 ml	400/100 ml
Fecal Coliform Dry W	200/100 ml	400/100 ml		2.2/100 ml (week) 23/100 ml (max day) (geometric mean conc.)
Turbidity (dry Weath)			2 NTU	5 NTU
PH		6.0 min to 9.0 max	Not set	Not set
Chlorine(T) May-Oct	0.021 mg/L	0.023 mg/L	0.021 mg/L	0.023 mg/L
Chlorine(T) Nov-Apr	0.023 mg/L	0.026 mg/L	0.023 mg/L	0.026 mg/L
Chlorine(T) Dry Weath.				0.5 mg/L minimum for reuse applications.
Chlorine(T) Wet Weath.			.023 mg/L if used	0.026 mg/L if used

Parameter	1996 Limits as modified 6/30/00		Proposed 2004 Permit Limits	
	Monthly Ave.	Daily Max	Monthly Ave.	Daily Max
Copper Interim Lim		53.5 ug/L	No limit	No limit
Copper dry	9.69 ug/L	10.63 ug/L	No limit	No limit

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Weather ⁽¹⁾				
Copper wet Weather ⁽²⁾	10.9 ug/L	12.0 ug/L	No limit	No limit
Parameter	Monthly Ave.	Daily Max	Monthly Ave.	Daily Max
Silver Interim Lim	13.5 ug/L (annual ave)	28.2 ug/L	7.7 ug/L	12.4 ug/L
Silver dry Weather ⁽¹⁾	1.27 ug/L	1.39 ug/L	No limit	No limit
Silver wet Weather ⁽²⁾	1.29 ug/L	1.41 ug/L	5.6 ug/L	12.0 ug/L
Parameter	Monthly Ave.	Daily Max	Monthly Ave.	Daily Max
Zinc Interim Lim		119.6 ug/L	158 ug/L	281 ug/L
Zinc dry Weather ⁽¹⁾	69.6 ug/L	76.3 ug/L	No limit	No limit
Zinc wet Weather ⁽²⁾	78.3 ug/L	85.9 ug/L	136 ug/L	237 ug/L

Foot Notes For Above Tables:

1. “Dry weather” limits apply on the next day after the seven-day moving average flow in the Centralia Reach of the Chehalis River falls below 1,000 cubic feet per second (cfs). Centralia Reach Flows “flow” is defined as equal to $[0.7396 * (\text{grand mound gage flow in cfs})] - 28.28$ cfs.
2. “Wet weather” limits apply the next day after the seven-day moving average flow in the Centralia Reach is greater than 1,000 cfs, and the daily flow to the Centralia Reach has been greater than 2,500 cfs at least one day of the preceding seven days.
3. “Low River” flow limits are defined as a special case of the dry weather situation where dry weather limits are in force and flow in the Chehalis River is less than 200 cfs. The chosen method of compliance with the Consent Decree avoids the need to require compliance with this more stringent criteria by removing the effluent from the River during the entire “Dry Weather” period.
4. “Late Dry Weather” is defined as a special case of the dry weather situation where dry weather limits apply and the date is between December 1, and March 14. Only ammonia has a different late dry weather limit. In the case of the 2004 permit, since 100 percent reuse precludes a discharge to surface waters during dry weather, this provision is not applicable.
5. The 85 percent removal for wet weather BOD and TSS is the technology based effluent limit as defined by secondary treatment (40 CFR Part 133). The Agreed Order notes that the final removal rate percentage criteria will be “per WAC 173-221-050.” This section allows an exception to the 85 percent removal requirements for domestic wastewater facilities that have less concentrated wastewater so long as it is not the result of excessive I/I. As the City does have excessive I/I, the City can qualify for relaxed interim limits only if the City both requests alternate limits and agrees to enter into an agreed Order to accomplish the I/I reduction projects listed in the approved General Sewer Plan (and reiterated earlier in this fact) as necessary to meet

85 percent removal. To comply with this regulation, the Permittee must request alternate limits and describe the relief required, specifically the removal rate that the new facility can reliably achieve when completed.

6. The Consent Decree requires dry weather discharges be downstream of the Centralia Reach, below the mouth of the Skookumchuk River. Since the Permittee has chosen to meet this requirement by reuse, “dry weather” limits in the table above reflect applicable reuse requirements.
7. The final limits for metals have been modified based on a study of metals in the outfall area. This study led to a site specific adjustment of water quality criteria. The Agreed Order acknowledges this process and that this would be a major permit modification. Thus is appropriate to include final metals limits in this permit reissuance. Significant new data on the POTWs performance in removing metals also led to a recalculation of performance based limits for silver and zinc where final limits are still warranted.

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

Monitoring of sludge quantity and quality is necessary to determine the appropriate uses of the sludge. Sludge monitoring is required by the current state and local solid waste management program and also by EPA under 40 CFR 503.

The monitoring schedule is detailed in the proposed permit under Condition S.2 (for periods when wet weather discharge conditions allow discharge to the Chehalis River or discharge is otherwise occurring. Condition R.2 includes monitoring for reuse water as discussed before. Specified monitoring frequencies take into account the quantity and variability of discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring. The required monitoring frequency is consistent with agency guidance given in the current version of the Department’s *Permit Writer’s Manual* (July 1994) for a tertiary treatment facility with a monthly average flow capacity of 6.0 MGD.

As a POTW receiving wastewater from non-domestic sources, the City of Chehalis is required to have local limits and periodically confirm the technical basis of such limits. This requires the POTWs influent, primary clarifier effluent, final effluent, and sludges to be sampled for toxic pollutants in order to characterize the industrial input. Sampling is also done to determine if pollutants interfere with the treatment process or pass through the plant to the sludge or the receiving water. The monitoring data will be used by the City of Chehalis to confirm that local limits are appropriate for the existing and planned commercial and industrial users.

LAB ACCREDITATION

With the exception of certain parameters the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, *Accreditation of Environmental Laboratories*. The laboratory is currently accredited for the analytes for which it performs analyses.

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The conditions of S3 are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-220-210).

PREVENTION OF FACILITY OVERLOADING

Overloading of the treatment plant is a violation of the terms and conditions of the permit. To prevent this from occurring, RCW 90.48.110 and WAC 173-220-150 require the Permittee to take the actions detailed in proposed permit requirement S.4 to plan expansions or modifications before existing capacity is reached and to report and correct conditions that could result in new or increased discharges of pollutants. Condition S.4 restricts the amount of flow.

OPERATION AND MAINTENANCE (O&M)

The proposed permit contains Condition S.5 as authorized under RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment. The proposed permit requires submission of an updated O&M manual for the new wastewater treatment facility including reuse components and the reuse application site.

RESIDUAL SOLIDS HANDLING

To prevent water quality problems the Permittee is required in permit Condition S7 to store and handle all residual solids (grit, screenings, scum, sludge, and other solid waste) in accordance with the requirements of RCW 90.48.080 and State Water Quality Standards.

The final use and disposal of sewage sludge from this facility is regulated by U.S. EPA under 40 CFR 503, and by the Department under Chapter 70.95J RCW and Chapter 173-308 WAC. The disposal of other solid waste is under the jurisdiction of the Lewis County Health Department.

Requirements for monitoring sewage sludge and recordkeeping are included in this permit. This information will be used by the Department to develop or update local limits and is also required under 40 CFR 503.

PRETREATMENT

An industrial user survey is required to determine the extent of compliance of all industrial users of the sanitary sewer and wastewater treatment facility with federal pretreatment regulations (40 CFR Part 403 and Sections 307(b) and 308 of the Clean Water Act), with state regulations (Chapter 90.48 RCW and Chapter 173-216 WAC), and with local ordinances.

The Permittee shall, in consultation with the Department, reevaluate its local limits in order to prevent pass through or interference after sampling required for the recalculation of local limits has been performed. Upon determination by the Department that any pollutant present causes pass through or interference, or exceeds established sludge standards, the Permittee shall establish new local limits or revise existing local limits as required by 40 CFR 403.5. In addition, the Department may require revision or establishment of local limits for any pollutant that causes an exceedance of the Water Quality Standards or established effluent limits, or that causes whole effluent toxicity. In order to develop these

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local limits, the Department will provide environmental criteria or limits for the various pollutants of concern.

The Department may modify this permit to incorporate additional requirements relating to the establishment and enforcement of local limits for pollutants of concern. Any permit modification is subject to formal due process procedures pursuant to state and federal law and regulation.

Federal and State Pretreatment Program Requirements

Under the terms of the addendum to the “Memorandum of Understanding between Washington Department of Ecology and the United States Environmental Protection Agency, Region 10” (1986), the Department has been delegated authority to administer the Pretreatment Program [i.e. act as the Approval Authority for oversight of delegated Publicly Owned Treatment Works (POTWs)]. Under this delegation of authority, the Department has exercised the option of issuing wastewater discharge permits for significant industrial users discharging to POTWs which have not been delegated authority to issue wastewater discharge permits.

There are a number of functions required by the Pretreatment Program which the Department is delegating to such POTWs because they are in a better position to implement the requirements (e.g. tracking the number and general nature of industrial dischargers to the sewerage system). The requirements for a Pretreatment Program are contained in Title 40, part 403 of the Code of Federal Regulations. Under the requirements of the Pretreatment Program [40 CFR 403.8(f)(1)(iii)], the Department is required to approve, condition, or deny new discharges or a significant increase in the discharge for existing significant industrial users (SIUs) [40 CFR 403.8 (f)(1)(i)].

The Department is responsible for issuing State Waste Discharge Permits to SIUs and other industrial users of the Permittee's sewer system. Industrial dischargers must obtain these permits from the Department prior to the Permittee accepting the discharge [WAC 173-216-110(5)] (Industries discharging wastewater that is similar in character to domestic wastewater are not required to obtain a permit. Such dischargers should contact the Department to determine if a permit is required.). Industrial dischargers need to apply for a State Waste Discharge Permit 60 days prior to commencing discharge. The conditions contained in the permits will include any applicable conditions for categorical discharges, loading limitations included in contracts with the POTW, and other conditions necessary to assure compliance with state water quality standards and biosolids standards.

The Department requires this POTW to fulfill some of the functions required for the Pretreatment Program in the NPDES permit (e.g. tracking the number and general nature of industrial dischargers to the sewage system). The POTW's NPDES permit will require that all SIUs currently discharging to the POTW be identified and notified of the requirement to apply for a wastewater discharge permit from the Department. None of the obligations imposed on the POTW relieve an industrial or commercial discharger of its primary responsibility for obtaining a wastewater discharge permit (if required), including submittal of engineering reports prior to construction or modification of facilities (40 CFR 403.12(j) and WAC 173-216-070 and WAC 173-240-110, et seq.).

Wastewater Permit Required

RCW 90.48 and WAC 173-216-040 require SIUs to obtain a permit prior to discharge of industrial waste to the Permittee's sewerage system. Supporting provisions in the City of Chehalis' NPDES permit prohibit the POTW from accepting industrial wastewater from any such dischargers without such dischargers providing proof of prior authorization from the Department.

Requirements for Routine Identification and Reporting of Industrial Users

The NPDES permit requires the Permittee to "take continuous, routine measures to identify all existing, new, and proposed SIUs and potential significant industrial users (PSIUs) discharging to the Permittee's sewerage system." Examples of such routine measures include regular review of business tax licenses for existing businesses and review of water billing records and existing connection authorization records. Sewage collection system maintenance personnel and the City's building code enforcement staff are expected to be diligent during performance of their jobs in identifying and reporting as-yet unidentified industrial dischargers. Local newspapers, telephone directories, and word-of-mouth should also be used to identify new or existing discharges. The POTW is required to notify all potential industrial dischargers, in writing, of the business's responsibility to apply for a state waste discharge permit prior to discharge to the POTW and to include the City's notification in their letter to the Department. The Department will then take steps to solicit a state waste discharge permit application.

Requirements for Performing an Industrial User Survey

This POTW has the potential to serve significant industrial or commercial users and is required to perform an Industrial User Survey. The goal of this survey is to develop a list of Significant Industrial Users (SIUs) and Potential SIUs. Equally important, the survey should provide sufficient information about industries which discharge to the POTW to determine which of them require issuance of state waste discharge permit or other regulatory controls. An Industrial User Survey is an important part of the regulatory process used to prevent interference with treatment processes at the POTW and to prevent violations of water quality standards. The Industrial User Survey also can be used to contribute to the maintenance of sludge quality, so that sludge can be a useful biosolids product rather than an expensive waste problem. An Industrial User Survey is a more rigorous method for identifying existing, new, and proposed significant industrial users and potential significant industrial users than the continuing efforts expected of POTWs. Guidance for conducting IU Surveys is available in electronic format from the Department as "Conducting an Industrial User Survey."

Duty to Enforce Discharge Prohibitions

This provision prohibits the POTW from authorizing or permitting an industrial discharger to discharge certain types of waste into the sanitary sewer. The first portion of the provision prohibits acceptance of pollutants which cause pass through or interference. The definitions of pass through and interference are in Appendix B of the fact sheet.

The second portion of this provision prohibits the POTW from accepting certain specific types of wastes, namely those which are explosive, flammable, excessively acidic, basic, otherwise corrosive, or obstructive to the system. In addition wastes with excessive BOD, petroleum based oils, or which result in toxic gases are prohibited to be discharged. The regulatory basis for these prohibitions is 40 CFR Part 403, with the exception of the pH provisions which are based on WAC 173-216-060.

The third portion of this provision prohibits certain types of discharges unless the POTW receives prior authorization from the Department. The discharges include cooling water in significant volumes, stormwater and other direct inflow sources, and wastewaters significantly affecting system hydraulic loading, which do not require treatment.

Support by the Department for Developing Partial Pretreatment Program by POTW

The Department is committed to providing technical and legal assistance to the Permittee in fulfilling joint obligations such as developing adequate sewer use ordinances, establishing IU Survey requirements, developing notification procedures, enforcement guidelines, and developing and reassessing local limits.

SPILL PLAN

The Department has determined that the Permittee stores a quantity of chemicals at the new facility that have the potential to cause water pollution if accidentally released. The Department has the authority to require the Permittee to develop best management plans to prevent this accidental release under section 402(a)(1) of the Federal Water Pollution Control Act (FWPCA) and RCW 90.48.080.

The proposed permit requires the Permittee to develop and implement a plan for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs.

OUTFALL EVALUATION

Proposed permit condition requires the Permittee to conduct an outfall inspection and submit a report detailing the findings of that inspection. The purpose of the inspection is to determine the condition of the discharge pipe and diffusers and to determine if sediment is accumulating in the vicinity of the outfall.

GENERAL CONDITIONS

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual municipal NPDES permits issued by the Department.

PERMIT ISSUANCE PROCEDURES

PERMIT MODIFICATIONS

The Department may modify this permit to impose numerical limitations, if necessary to meet Water Quality Standards, Sediment Quality Standards, or Ground Water Standards, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to protect human health, aquatic life, and the beneficial uses of waters of the state of Washington. The Department proposes that this permit be issued for five years.

REFERENCES FOR TEXT AND APPENDICES

Environmental Protection Agency (EPA)

1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.
1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.
1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.
1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.
1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

Metcalf and Eddy.

1991. Wastewater Engineering, Treatment, Disposal, and Reuse. Third Edition.

Tsivoglou, E.C., and J.R. Wallace.

1972. Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Washington State Department of Ecology.

Laws and Regulations(<http://www.ecy.wa.gov/laws-rules/index.html>)

Permit and Wastewater Related Information
(<http://www.ecy.wa.gov/programs/wq/wastewater/index.html>)

Washington State Department of Ecology.

1994. Permit Writer's Manual. Publication Number 92-109

Water Pollution Control Federation.

1976. Chlorination of Wastewater.

Wright, R.M., and A.J. McDonnell.

1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(E2). (Cited in EPA 1985 op.cit.)

Washington State Department of Ecology, 1993. Guidelines for Preparation of Engineering Reports for Industrial Wastewater Land Application Systems, Ecology Publication # 93-36. 20 pp.

Washington State Department of Ecology and Department of Health, 1997. Water Reclamation and Reuse Standards, Ecology Publication # 97-23. 73 pp.

Washington State Department of Ecology 1998. Chapter E-1, Criteria For Sewage Works Design, Ecology Publication # 98-37. 50 pp

Washington State Department of Ecology, 1996. Implementation Guidance for the Ground Water Quality Standards, Ecology Publication # 96-02.

Washington State Department of Health, 1994. Design Criteria for Municipal Wastewater Land Treatment, 10 pp

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public notice of application was published on July 12, 2003, and July 19, 2003, in the *Daily Chronicle* to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department will publish a Public Notice of Draft (PNOD) on September 3, 2004, in the *Daily Chronicle* to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Carey Cholski
Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775.

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the 30-day comment period to the address above. The request for a hearing shall indicate the interest of the party and the reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least 30 days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within 30 days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (360) 407-6277, or by writing to the address listed above.

This permit and fact sheet were written by David J. Knight P.E.

APPENDIX B--GLOSSARY

Acute Toxicity--The lethal effect of a pollutant on an organism that occurs within a short period of time, usually 48 to 96 hours.

AKART-- An acronym for "all known, available, and reasonable methods of prevention, control, and treatment".

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation --The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month (except in the case of fecal coliform). The daily discharge is calculated as the average measurement of the pollutant over the day.

Average Weekly Discharge Limitation -- The highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week. The daily discharge is calculated as the average measurement of the pollutant over the day.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD₅--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD₅ is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of a treatment facility.

CBOD₅ – The quantity of oxygen utilized by a mixed population of microorganisms acting on the nutrients in the sample in an aerobic oxidation for five days at a controlled temperature of 20 degrees Celcius, with an inhibitory agent added to prevent the oxidation of nitrogen compounds. The method for determining CBOD₅ is given in 40 CFR Part 136.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity--The effect of a pollutant on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Combined Sewer Overflow (CSO)--The event during which excess combined sewage flow caused by inflow is discharged from a combined sewer, rather than conveyed to the sewage treatment plant because either the capacity of the treatment plant or the combined sewer is exceeded.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the percent removal requirement. Additional sampling may be conducted.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing a minimum of four discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots).

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Continuous Monitoring --Uninterrupted, unless otherwise noted in the permit.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Dilution Factor--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the effluent fraction e.g., a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Engineering Report--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial User-- A discharger of wastewater to the sanitary sewer which is not sanitary wastewater or is not equivalent to sanitary wastewater in character.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Infiltration and Inflow (I/I)--"Infiltration" means the addition of ground water into a sewer through joints, the sewer pipe material, cracks, and other defects. "Inflow" means the addition of precipitation-caused drainage from roof drains, yard drains, basement drains, street catch basins, etc., into a sewer.

Interference -- A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal and;

Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), sludge regulations appearing in 40 CFR Part 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Major Facility--A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

Minor Facility--A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone--A volume that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in State regulations (Chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the State of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both State and Federal laws.

Pass through -- A discharge which exits the POTW into waters of the--State in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation), or which is a cause of a violation of State water quality standards.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Potential Significant Industrial User--A potential significant industrial user is defined as an Industrial User which does not meet the criteria for a Significant Industrial User, but which discharges wastewater meeting one or more of the following criteria:

- a. Exceeds 0.5 % of treatment plant design capacity criteria and discharges <25,000 gallons per day or;
- b. Is a member of a group of similar industrial users which, taken together, have the potential to cause pass through or interference at the POTW (e.g. facilities which develop photographic film or paper, and car washes).

The Department may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

Quantitation Level (QL)-- A calculated value five times the MDL (method detection level).

Significant Industrial User (SIU)--

- 1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N and;
- 2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blow-down wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement (in accordance with 40 CFR 403.8(f)(6)).

Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.

*The term "Control Authority" refers to the Washington State Department of Ecology in the case of non-delegated POTWs or to the POTW in the case of delegated POTWs.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, wetlands, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids are the particulate materials in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

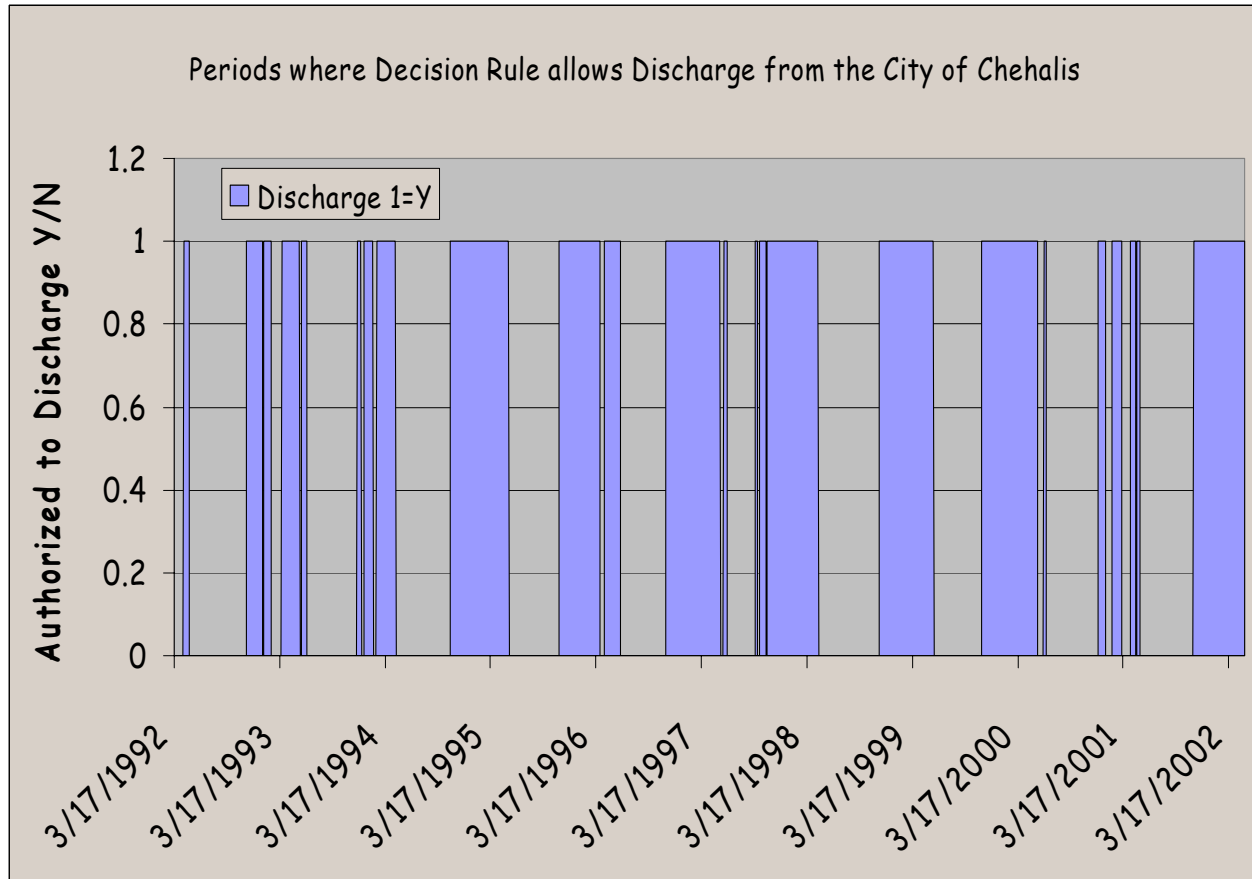
*FACT SHEET FOR NPDES PERMIT WA0021105
CITY OF CHEHALIS WATER RECLAMATION FACILITY*

Upset--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit--A limit on the concentration or mass of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

APPENDIX C—POTW LAYOUT AND DESIGN

APPENDIX D—HISTORICAL CHEHALIS RIVER FLOW ANALYSIS



TRANSITION DATES FROM SWITCHING FROM DRY TO WET WEATHER LIMITS:

Date	Chehalis River At:			Applicable Limits
	Grand Mound	Centralia Reach	7-day moving ave	
3/17/1992	1,200 cfs	859 cfs	859 cfs	Dry Weather Limits Apply
4/18/1992	8,670 cfs	6,384 cfs	3,622 cfs	Wet Weather Limits Apply
5/9/1992	910 cfs	645 cfs	2,629 cfs	Dry Weather Limits Apply
11/23/1992	5,320 cfs	3,906 cfs	2,949 cfs	Wet Weather Limits Apply
1/17/1993	1,050 cfs	748 cfs	2,509 cfs	Dry Weather Limits Apply
1/22/1993	7,000 cfs	5,149 cfs	2,949 cfs	Wet Weather Limits Apply
2/16/1993	1,060 cfs	756 cfs	2,635 cfs	Dry Weather Limits Apply
3/24/1993	7,490 cfs	5,511 cfs	3,300 cfs	Wet Weather Limits Apply
5/26/1993	1,100 cfs	785 cfs	2,500 cfs	Dry Weather Limits Apply
6/2/1993	3,800 cfs	2,782 cfs	2,805 cfs	Wet Weather Limits Apply
6/20/1993	935 cfs	663 cfs	2,342 cfs	Dry Weather Limits Apply
12/10/1993	10,200 cfs	7,516 cfs	3,309 cfs	Wet Weather Limits Apply

*FACT SHEET FOR NPDES PERMIT WA0021105
CITY OF CHEHALIS WATER RECLAMATION FACILITY*

12/25/1993	993 cfs	706 cfs	2,674 cfs	Dry Weather Limits Apply
1/3/1994	5,120 cfs	3,758 cfs	3,103 cfs	Wet Weather Limits Apply
2/4/1994	1,120 cfs	800 cfs	2,430 cfs	Dry Weather Limits Apply
2/15/1994	4,160 cfs	3,048 cfs	2,753 cfs	Wet Weather Limits Apply
4/24/1994	1,080 cfs	770 cfs	2,466 cfs	Dry Weather Limits Apply
10/29/1994	2,260 cfs	1,643 cfs	2,606 cfs	Wet Weather Limits Apply
5/21/1995	1,020 cfs	726 cfs	1,636 cfs	Dry Weather Limits Apply
11/9/1995	14,300 cfs	10,548 cfs	3,042 cfs	Wet Weather Limits Apply
3/31/1996	1,200 cfs	859 cfs	2,628 cfs	Dry Weather Limits Apply
4/14/1996	5,280 cfs	3,877 cfs	3,067 cfs	Wet Weather Limits Apply
6/10/1996	1,140 cfs	815 cfs	2,748 cfs	Dry Weather Limits Apply
11/15/1996	3,250 cfs	2,375 cfs	2,978 cfs	Wet Weather Limits Apply
5/21/1997	1,200 cfs	859 cfs	2,866 cfs	Dry Weather Limits Apply
6/2/1997	3,070 cfs	2,242 cfs	3,082 cfs	Wet Weather Limits Apply
6/15/1997	970 cfs	689 cfs	1,674 cfs	Dry Weather Limits Apply
9/20/1997	1,610 cfs	1,162 cfs	1,717 cfs	Wet Weather Limits Apply
9/26/1997	741 cfs	520 cfs	1,238 cfs	Dry Weather Limits Apply
10/5/1997	10,900 cfs	8,033 cfs	2,269 cfs	Wet Weather Limits Apply
10/27/1997	1,190 cfs	852 cfs	2,051 cfs	Dry Weather Limits Apply
10/31/1997	16,400 cfs	12,101 cfs	3,657 cfs	Wet Weather Limits Apply
4/26/1998	1,270 cfs	911 cfs	3,467 cfs	Dry Weather Limits Apply
11/22/1998	13,800 cfs	10,178 cfs	4,823 cfs	Wet Weather Limits Apply
5/30/1999	1,020 cfs	726 cfs	4,760 cfs	Dry Weather Limits Apply
11/12/1999	8,520 cfs	6,273 cfs	5,582 cfs	Wet Weather Limits Apply
5/24/2000	1,040 cfs	741 cfs	4,540 cfs	Dry Weather Limits Apply
6/14/2000	3,480 cfs	2,546 cfs	4,782 cfs	Wet Weather Limits Apply
6/23/2000	895 cfs	634 cfs	3,144 cfs	Dry Weather Limits Apply
12/19/2000	2,510 cfs	1,828 cfs	3,275 cfs	Wet Weather Limits Apply
1/16/2001	1,220 cfs	874 cfs	1,946 cfs	Dry Weather Limits Apply
2/6/2001	4,410 cfs	3,233 cfs	2,304 cfs	Wet Weather Limits Apply
3/11/2001	1,100 cfs	785 cfs	1,520 cfs	Dry Weather Limits Apply
4/12/2001	3,700 cfs	2,708 cfs	1,801 cfs	Wet Weather Limits Apply
4/30/2001	1,650 cfs	1,192 cfs	1,608 cfs	Dry Weather Limits Apply
5/2/2001	3,970 cfs	2,908 cfs	1,933 cfs	Wet Weather Limits Apply
5/14/2001	1,050 cfs	748 cfs	1,778 cfs	Dry Weather Limits Apply
11/15/2001	17,500 cfs	12,915 cfs	3,499 cfs	Wet Weather Limits Apply
5/11/2002	1,160 cfs	830 cfs	3,155 cfs	Dry Weather Limits Apply

There were ten POTW flows over 3.5 MGD during non-discharge days in years '95-'00: 1995 – 4.55 MGD and 3.75 MGD, 1996 – 3.99 MGD and 3.65 MGD, 1997 – 5.59 MGD, 5.16 MGD, 3.83 MGD, and 3.92 MGD 1998 – 6.96 MGD and 5.94 MGD, 1999 - none over 3.07 MGD, 2000 - none over 2.28 MGD. On each of these days Centralia Reach flows were > 1000 cfs, and in 8/10 days, the 7-day running average flow was > 1000 cfs.

APPENDIX E—BACKGROUND DATA SUMMARY

Chehalis River at Chehalis Ambient Monitoring Results from
 "City of Chehalis Zinc Water Quality Analysis Report, April 2001, appendix C"

Fall Data Date	Dissolved concentrations			total concentrations			River Flow
	Copper	zinc	silver	copper	zinc	silver	
8/7/1997	1.130 ug/L	0.100 ug/L	0.019 ug/L	1.540 ug/L	0.170 ug/L	0.074 ug/L	213. cfs
8/15/1997	0.997 ug/L	4.500 ug/L	0.019 ug/L	1.320 ug/L	2.840 ug/L	0.028 ug/L	138. cfs
8/15/1997	0.959 ug/L	3.950 ug/L	0.019 ug/L	1.280 ug/L	3.720 ug/L	0.022 ug/L	138. cfs
8/21/1997	0.901 ug/L	0.857 ug/L	0.029 ug/L	1.210 ug/L	0.869 ug/L	0.129 ug/L	139. cfs
8/28/1997	1.180 ug/L	0.224 ug/L	0.083 ug/L	1.610 ug/L	0.446 ug/L	0.035 ug/L	122. cfs
9/4/1997	1.050 ug/L	0.379 ug/L	0.029 ug/L	1.430 ug/L	0.277 ug/L	0.086 ug/L	144. cfs
9/11/1997	1.040 ug/L	1.570 ug/L	0.020 ug/L	1.390 ug/L	0.530 ug/L	0.039 ug/L	144. cfs
9/17/1997	1.300 ug/L	0.464 ug/L	0.038 ug/L	7.300 ug/L	4.670 ug/L	0.097 ug/L	439. cfs
9/25/1997	0.916 ug/L	0.464 ug/L	0.018 ug/L	1.510 ug/L	0.622 ug/L	0.087 ug/L	191. cfs
10/2/1997	1.030 ug/L	0.746 ug/L	0.023 ug/L	2.880 ug/L	1.720 ug/L	0.101 ug/L	169. cfs
10/9/1997	1.160 ug/L	0.884 ug/L	0.029 ug/L	4.370 ug/L	3.370 ug/L	0.210 ug/L	202. cfs
10/15/1997	0.845 ug/L	0.804 ug/L	0.017 ug/L	1.780 ug/L	1.560 ug/L	0.090 ug/L	904. cfs
10/23/1997	0.653 ug/L	0.724 ug/L	0.017 ug/L	1.290 ug/L	1.270 ug/L	0.106 ug/L	1,177. cfs
<u>10/30/1997</u>	<u>1.400 ug/L</u>	<u>1.160 ug/L</u>	<u>0.017 ug/L</u>	<u>5.540 ug/L</u>	<u>5.680 ug/L</u>	<u>0.176 ug/L</u>	<u>1,355. cfs</u>
AVERAGE:	1.040 ug/L	1.202 ug/L	0.027 ug/L	2.461 ug/L	1.982 ug/L	0.091 ug/L	391. cfs
90th Percentile:	1.264 ug/L	3.236 ug/L	0.035 ug/L	5.189 ug/L	4.385 ug/L	0.162 ug/L	
1.74 * geo. mean	1.780 ug/L	1.313 ug/L	0.042 ug/L	3.500 ug/L	2.150 ug/L	0.132 ug/L	

FACT SHEET FOR NPDES PERMIT WA0021105
CITY OF CHEHALIS WATER RECLAMATION FACILITY

APPENDIX F—EFFLUENT DATA SUMMARY / ANALYSIS

	SILVER(T)	ZINC(T)			
	UG/L	UG/L			
			1-Aug-00	2.30	139.00
			1-Sep-00	0.89	0.51
1-Dec-96	4.36	40.30	1-Oct-00	7.00	159.00
1-Jan-97	4.39	51.30	1-Nov-00	2.60	57.00
1-Feb-97	3.27	43.20	1-Dec-00	0.80	31.00
1-Mar-97	2.00	50.80	1-Jan-01	2.50	64.00
1-Apr-97	9.73	70.60	1-Feb-01	0.10	20.00
1-May-97	1.07	111.00	1-Mar-01	0.20	18.00
1-Jun-97	1.90	113.00	1-Apr-01	0.20	13.00
1-Jul-97	2.20	137.00	1-May-01	0.50	64.00
1-Aug-97	1.48	99.90	1-Jun-01	1.10	170.00
1-Oct-97	2.73	109.00	1-Jul-01	0.40	106.00
1-Nov-97	7.76	91.60	1-Aug-01	0.40	71.70
1-Dec-97	1.60	45.00	1-Sep-01	1.10	292.00
1-Jan-98	5.14	54.20	1-Oct-01	1.00	72.00
1-Feb-98	7.43	66.60	1-Nov-01	0.50	56.30
1-Mar-98	8.20	107.00	1-Dec-01	1.20	2.10
1-Apr-98	5.18	97.90	1-Jan-02	1.10	59.00
1-May-98	0.90	93.00	1-Feb-02	0.60	48.00
1-Jun-98	1.10	80.00	1-Mar-02	1.60	80.00
1-Jul-98	2.00	83.00	1-Apr-02	1.40	65.00
1-Aug-98	0.68	103.00	1-May-02	0.40	57.00
1-Sep-98	2.73	60.40	1-Jun-02	5.10	141.00
1-Oct-98	1.36	77.00	1-Jul-02	7.00	134.00
1-Nov-98	0.80	42.00	1-Aug-02	3.70	257.00
1-Dec-98	4.60	45.00	1-Sep-02	3.77	84.00
1-Jan-99	11.50	59.00	1-Oct-02	16.20	279.00
1-Feb-99	1.00	49.00	1-Nov-02	4.50	72.00
1-Mar-99	2.10	73.00	1-Dec-02	3.20	43.00
1-Apr-99	1.32	88.00	1-Jan-03	3.56	64.20
1-May-99	0.70	70.00	1-Feb-03	1.25	40.70
1-Jun-99	0.90	75.00	1-Mar-03	2.80	30.00
1-Jul-99	1.20	90.20	1-Apr-03	4.10	102.00
1-Aug-99	0.80	85.20	1-May-03	2.00	62.00
1-Sep-99	2.10	143.00	1-Jun-03	1.40	102.00
1-Oct-99	1.20	102.00	1-Jul-03	0.60	63.00
1-Nov-99	1.70	97.00	1-Aug-03	1.50	73.00
1-Dec-99	2.40	28.00	1-Sep-03	0.70	72.60
1-Jan-00	0.80	48.00	1-Oct-03	0.90	91.00
1-Feb-00	4.80	84.00	1-Nov-03	0.35	90.00
1-Apr-00	5.81	123.00	Max	16.20	292.00
1-May-00	1.51	75.80	Number	82.00	82.00
1-Jun-00	1.30	93.00	COV	1.051	0.613
1-Jul-00	1.80	111.00			

FACT SHEET FOR NPDES PERMIT WA0021105
CITY OF CHEHALIS WATER RECLAMATION FACILITY

Chehalis Effluent effect on River Temperature

Date:	Effluent Temp F	River Temp F	Effluent Temp C	River Temp C	Diff (C)	River Flow cfs	POTW Flow MGD	MZ Temp Effect (+)
9/1/2000	66	60.5	18.9	15.8	3.1	171	1.10	0.1259
9/2/2000	65		18.3			172	1.15	
9/3/2000	65		18.3			175	1.03	
9/4/2000	65		18.3			180	1.05	
9/5/2000	65.5	60.5	18.6	15.8	2.8	185	1.09	0.1050
9/6/2000	66	61	18.9	16.1	2.8	190	1.06	0.0995
9/7/2000	66.5	61	19.2	16.1	3.1	194	1.00	0.1003
9/8/2000	66	61	18.9	16.1	2.8	199	1.14	0.1023
9/9/2000	66		18.9			204	1.12	
9/10/2000	66		18.9			209	1.17	
9/11/2000	65.5	59.5	18.6	15.3	3.3	215	1.18	0.1168
9/12/2000	66	60.5	18.9	15.8	3.1	221	0.92	0.0811
9/13/2000	67	61.5	19.4	16.4	3.1	224	1.02	0.0896
9/14/2000	67	63.5	19.4	17.5	1.9	224	1.01	0.0562
9/15/2000	68.5	65.5	20.3	18.6	1.7	221	0.99	0.0476
9/16/2000	69		20.6			217	1.04	
9/17/2000	69		20.6			210	1.10	
9/18/2000	69.5	68	20.8	20.0	0.8	201	1.08	0.0286
9/19/2000	68.5	67	20.3	19.4	0.8	192	1.02	0.0285
9/20/2000	67	65	19.4	18.3	1.1	187	1.07	0.0407
9/21/2000	66	64	18.9	17.8	1.1	184	1.01	0.0388
9/22/2000	65	61	18.3	16.1	2.2	184	1.04	0.0806
9/23/2000	65		18.3			184	1.03	
9/24/2000	69		20.6			183	1.06	
9/25/2000	63.5	55.5	17.5	13.1	4.4	183	1.02	0.1591
9/26/2000	64	57.5	17.8	14.2	3.6	181	0.98	0.1249
9/27/2000	64	56	17.8	13.3	4.4	180	0.95	0.1499
9/28/2000	64	57	17.8	13.9	3.9	177	1.04	0.1468
9/29/2000	65	59	18.3	15.0	3.3	174	1.20	0.1472
9/30/2000	62		16.7			174	1.53	

The limiting criteria is to not increase ambient water temperature by more than 0.3 degrees C at the edge of the mixing zone boundary when ambient temperatures are 18°C or higher. This table, taken using data from the current critical period shows that the temperature effect at the mixing zone boundary is not more than 0.16°C over the month, and not more than 0.05°C when river temperatures are 18C or higher. The data shows that the current situation is not likely to violate WQ standards. With the current requirement to remove the discharge from the river during the entire dry weather season where temperature effects are critical, and currently approved plans to accomplish this at the earliest possible date, the long term outlook does not dictate further temperature based requirements at this juncture beyond monitoring of the effluent and ambient environment when discharges are occurring.

FACT SHEET FOR NPDES PERMIT WA0021105
CITY OF CHEHALIS WATER RECLAMATION FACILITY

EFFLUENT REMOVAL RATE ANALYSIS:

Month	TSS % Removal	BOD5 % Removal	Month	TSS % Removal	BOD5 % Removal
1-Mar-96	92.67	94.25	1-Apr-00	82.05	90.39
1-Apr-96	90.7	91.66	1-May-00	93.1	93.5
1-May-96	93.83	96.59	1-Jun-00	95.09	95.06
1-Jun-96	95.78	97.48	1-Jul-00	94.45	96.53
1-Jul-96	91.72	96.36	1-Aug-00	91.99	95.63
1-Aug-96	95.46	97.46	1-Sep-00	87.98	93.53
1-Sep-96	96.09	97.01	1-Oct-00	87.33	91.4
1-Oct-96	94.55	95.42	1-Nov-00	84.69	92.93
1-Nov-96	75.08	83.17	1-Dec-00	74.2	89.2
1-Dec-96	67.31	78.71	1-Jan-01	86.99	92.26
1-Jan-97	77.1	81.3	1-Feb-01	95.27	92.46
1-Feb-97	86.7	88	1-Mar-01	93.86	88.21
1-Mar-97	85.1	88.6	1-Apr-01	83.35	90.54
1-Apr-97	92.8	93.9	1-May-01	89.33	94.55
1-May-97	90.09	93.87	1-Jun-01	90.18	93.79
1-Jun-97	95.02	94.78	1-Jul-01	92.54	94.14
1-Jul-97	93.46	95.38	1-Aug-01	89.2	93.16
1-Aug-97	96.86	97.59	1-Sep-01	87.61	93.76
1-Sep-97	92	92	1-Oct-01	92.7	93.8
1-Oct-97	87.69	88.85	1-Nov-01	74.89	81.11
1-Nov-97	88.11	77.23	1-Dec-01	81.48	83.71
1-Dec-97	82.44	86.73	1-Jan-02	79.25	81.63
1-Jan-98	77.48	78.25	1-Feb-02	86.33	88.02
1-Feb-98	82.07	85.28	1-Mar-02	75.44	85.31
1-Mar-98	84.8	86.31	1-Apr-02	85.3	90.09
1-Apr-98	85.45	91.26	1-May-02	92.38	95.67
1-May-98	89.15	91.23	1-Jun-02	96.86	95.26
1-Jun-98	91.95	90.49	1-Jul-02	97.59	97.1
1-Jul-98	92.61	92.37	1-Aug-02	96.78	95.61
1-Aug-98	94.21	94.18	1-Sep-02	94.31	94.81
1-Sep-98	95.63	94.77	1-Oct-02	90.92	93.18
1-Oct-98	95.26	95.17	1-Nov-02	85.08	89.09
1-Nov-98	86.44	87.87	1-Dec-02	80.28	87.36
1-Dec-98	77.21	77.59	1-Jan-03	86.4	90.93
1-Jan-99	78.85	85.2	1-Feb-03	83.21	90.44
1-Feb-99	70.3	82.1	1-Mar-03	74.46	83.27
1-Mar-99	78.25	88.43	1-Apr-03	84.65	89.14
1-Apr-99	89.04	89.18	1-May-03	93.08	94.76

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1-May-99	93.55	93.27	1-Jun-03	95.89	95.8
1-Jun-99	95.15	94.92	1-Jul-03	97.57	97.16
1-Jul-99	96.2	96.75	1-Aug-03	97.9	97.42
1-Aug-99	96.67	97.06	1-Sep-03	96.93	96.23
1-Sep-99	97.6	97.65	1-Oct-03	96.3	96.2
1-Oct-99	97.5	97.52	1-Nov-03	82.4	91.04
1-Nov-99	80.06	84.14	95%ile	74.4%	78.6%
1-Dec-99	85.19	83.6	Proposed:	74% TSS	77% BOD
1-Jan-00	67.72	78.39	3 of last 92 months < 74% TSS removal		
1-Feb-00	66.08	73.19	1 of last 92 months < 77% BOD5 removal.		
1-Mar-00	77.71	84.57			

APPENDIX G—REASONABLE POTENTIAL CALCULATIONS

Determination of Reasonable Potential to Violate Metals Criteria

at the Edge of the Mixing Zone.

Based on EPA/505/2-90-001

INPUT	POLLUTANT		
	COPPER	SILVER	ZINC
Hardness at acute mixing zone boundary	32.40	32.40	32.40
Hardness at chronic mixing zone boundary	21.70	21.70	21.70
Confidence Level and Probability Basis:	0.95	0.95	0.95
Coefficient of Variation for the Effluent Concentration (CV) (0.6 or a calculated CV if there are more than 10 data points):	0.60	0.60	0.60
Number of Effluent Samples or Data Points (ND):	80.00	80.00	80.00
Highest Effluent Concentration or Value (HV):	57.00	16.2	292
Dilution Factors (1/{Effluent Volume Fraction}) or plumes model			
Acute Receiving Water Dilution Factor:	4.12	4.12	4.12
Chronic Receiving Water Dilution Factor:	42.50	42.50	42.50
Water Quality Criteria (Dissolved for metals)			
Acute (one-hour) Criteria:	5.88 ug/L	0.50 ug/L	44.04 ug/L
Chronic (4-day) Criteria:	3.08 ug/L	N/A	28.64 ug/L
Site Specific Partitioning Coefficient (use 1 or default if not established)	0.457	0.85	0.736
Site Specific Water Effects Ratio (enter 1 if not established)	4.10	5.2	1
Adjusted Water Quality Criteria (Total Metal - Includes site specific Partitioning and WER's)			
Acute (one-hour) Criteria:	52.79 ug/L	3.04 ug/L	56.11 ug/L
Chronic (4-day) Criteria:	27.60 ug/L	N/A	36.48 ug/L
Upstream Receiving Water Concentration (Total):			
Upstream Concentration for Acute Condition (7Q10): 95th%-tile	3.50	0.13	2.15
Upstream Concentration for Chronic Condition (7Q10): 90th%-tile	3.50	0.13	2.15
MECB: 1-20 data points, geomean * 1.74; >20 calculate 90th %-tile			
OUTPUT			
Percentile Represented by the Highest Concentration in Data Set			
$(p_n) = (1 - \text{confidence level})^{1/ND}$	0.96	0.96	0.96
Normal Distribution Value for 95th Percentile	1.64	1.64	1.64
Normal Distribution Value for 96th Percentile	1.79	1.79	1.79
$^2 = \ln(CV^2 + 1)$	0.31	0.31	0.31
C95 = $\exp(1.645\text{Sigma} - 0.5\text{Sigma}^2)$	2.13	2.13	2.13
C96 = $\exp(1.79\text{Sigma} - 0.5\text{Sigma}^2)$	2.31	2.31	2.31
Reasonable Potential Multiplier = C95/C96	0.92	0.92	0.92
Maximum Expected Concentration of Pollutant in Effluent (MEC):	52.60	14.95	269.47
Acute - Concentration of Pollutant at the Edge of the Mixing	15.42	3.73	67.03

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Zone (CP):

Chronic - Concentration of Pollutant at the Edge of the Mixing

Zone (CP):

4.66 0.48 8.44

Concentration at the Edge of the Acute Mixing Zone (CP) with
.95 trans fact.:

22.84 22.84 22.84

Concentration at the Edge of the Chronic Mixing Zone (CP)with
.95 trans fact:

22.84 22.84 22.84

Reasonable Potential to Violate Acute Criteria at the Edge of the
Mixing Zone (RP):

NO

YES	YES
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Reasonable Potential to Violate Chronic Criteria at the Edge of
the MZ (RP):

NO

NO

NO

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Parameter	Metal Criteria Translator as decimal	Metal Criteria Translator as decimal	WER	Ambient Conc. (metals as dissolved) ug/L	State Water Quality Standard (dissolved)		Max concentration at edge of...		LIMIT REQ'D?	Max effluent conc. measured (total recoverable) ug/L	# of sample <i>n</i>	Multiplier	Acute Dil'n Factor	Chronic Dil'n Factor
	Acute	Chronic			Acute	Chronic	Acute Mixing Zone ug/L	Chronic Mixing Zone ug/L						
Zinc (summer)	0.996	0.996	1.0	1.310	65.44	43.15	172.06	51.25	YES	292.00	83	0.91	1.5 5	5.30
Zinc (winter)	0.996	0.996	1.0	1.310	46.57	29.53	111.59	17.35	YES	292.00	83	0.91	2.4 0	16.50
Zinc (wet weather)	0.736	0.736	1.0	1.310	44.04	36.48	51.87	6.21	YES	292.00	83	0.91	4.1 2	42.50
Copper (summer)	0.856	0.856	1.0	1.780	9.14	4.65	29.51	9.89	YES	57.00	82	0.92	1.5 5	5.30
Copper (winter)	0.856	0.856	1.0	1.780	6.26	3.17	19.69	4.38	YES	57.00	82	0.92	2.4 0	16.50
Copper (wet weather)	0.457	0.457	4.1	1.780	24.13	12.61	7.15	2.30	NO	57.00	82	0.92	4.1 2	42.50
Silver (summer)	0.996	1.000	1.0	0.042	1.109	1000	9.62	2.86	YES	16.20	80	0.92	1.5 5	5.30
Silver (winter)	0.996	1.000	1.0	0.042	0.556	1000	6.23	0.95	YES	16.20	80	0.92	2.4 0	16.50
Silver (wet weather)	0.850	1.000	5.2	0.042	2.582	1000	3.12	0.39	YES	16.20	80	0.92	4.1 2	42.50

Washington State water quality standards can be found on the Department's homepage at <http://www.ecy.wa.gov/programs/wq/wastewater/index.html>

APPENDIX H—PERMIT LIMIT CALCULATIONS

Dilution (Dil'n) factor is the inverse of the percent effluent concentration at the edge of the acute or chronic mixing zone.



Statistical variables for permit limit calculation

Permit Limit Calculation Summary

PARAMETER	Acute Dil'n Factor	Chronic Dil'n Factor	Metal Criteria Translator	Metal Criteria Translator	Max. Auth.	Ambient Concentration	Water Quality Standard Acute	WER Adjusted Acute WQ Criteria	Water Quality Standard Chronic	WER Adjusted Chronic WQ Criteria	Average Monthly Limit (AML)	Maximum Daily Limit (MDL)	Coeff. Var. (CV) <i>decima l</i>	# of Samples per Month <i>n</i>
			Acute	Chronic	WER	ug/L	ug/L		ug/L		ug/L	ug/L		
Zinc (summer)	1.55	5.30	0.736	0.736	1.000	2.15	65.44	65.44	43.15	43.15	78.1	136.2	0.61	2.00
Zinc (winter)	2.40	16.50	0.736	0.736	1.000	2.15	46.57	46.57	29.53	29.53	84.7	147.8	0.61	2.00
Zinc (wet weather)	4.12	42.50	0.736	0.736	1.000	2.15	44.04	44.04	28.64	28.64	136.2	237.4	0.61	2.00
Silver (summer)	1.55	5.30	0.850	0.850	5.200	0.13	1.11	5.77			4.9	10.4	1.04	2.00
Silver (winter)	2.40	16.50	0.850	0.850	5.200	0.13	0.56	2.89			3.7	7.9	1.04	2.00
Silver (wet weather)	4.12	42.50	0.850	0.850	5.200	0.13	0.50	2.58			5.6	12.0	1.04	2.00
Ammonia (wet weather)	4.12	42.50	1.000	1.000	1.000	25.00	5900.00	5900.00	1002.00	1002.00	11,336	24,230	1.04	2.00

NOTE: WER"s are authorized only to the extent they are necessary to meet WQ standards

APPENDIX I—RESPONSE TO COMMENTS

Comments from the City of Chehalis, signed by the City Manager, Mr. David Campbell, were received by the Department on September 30, 2004, at Southwest Regional Offices. The comments consisted of 19 pages typed with 51 numbered items. Several topics were addressed within the same comment number, letters have been used to differentiate the topics (these letters do not appear in the City's comments). Since the file was not provided electronically, the responses attempt to capture the essence of each comment, but please refer to the comments from the City for additional clarity.

Comment 1:

This comment noted typographical error in section S2.

Response 1:

The numbering was corrected to address this comment.

Comment 2:

This comment noted a typo on the table of contents.

Response 2:

Table corrected.

Comment 3.A:

This comment requests correction of a numbering error.

Response 3.A:

That correction was made.

Comment 3.B:

The comment also asks for spill control plan to be due a year later in concert with the beginning of operations at the new facility.

Response 3.B:

That request was granted.

Comment 3.C:

The comment asks that the summary of reports reflect the annual review of the spill plan.

Response 3.C:

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That request was granted.

Comment 3.D:

The comment asks that in S12.A instead of having to sample within 90 days and report within another 60 days, the permit simply reflect that the Permittee must report within 150 days of the Declaration of Construction.

Response 3.D:

This request was granted and it was clarified that this is the submittal date for the first of four quarterly reports.

Comment 3.E:

The comment refers to the acute toxicity summary report and asks for changes to make the requirements clearer.

Response 3.E:

We have added wording to S12.A to make it clear that we want the Permittee to submit quarterly data within 150 days of the Declaration of Construction and for three more quarters thereafter, and to submit a report summarizing this data within 90 days after the last of these four quarterly samples are taken.

Comment 4.A:

This comment asks for changes to the due date for summary reports due under sections S12.E and S13.E to be due a year earlier so that the data will be available for the next permit application.

Response 4.A:

While the Permittee may submit these reports earlier, the confusion was caused by the summary of submittals listing a permit renewal application due date of December 1, 2008. We intend to make this permit term five years and for the permit application to be due six months prior to the expiration of the permit. The permit will be issued approximately November 1, 2004, and therefore the Permittee will not be required to submit a reapplication until May 1, 2009, which is in keeping with the requirements under sections S12.E and S13.E to submit these reports by March 1, 2009. Section G7 already reflects the application is due six months prior to expiration, but the table of submittals was changed to reflect that this is May 1, 2009.

Comment 4.B:

The second part of this comment basically asks for the same clarifications that comment 3 ask for the acute toxicity reporting be made for chronic toxicity reporting.

Response 4.B:

The changes described for S12.A were made to S13.A.

Comment 4.C:

The third part asks for the Department to strike section S14, which requires the Permittee to conduct an outfall evaluation every two years. The comment acknowledges that the Permittee has evaluated their outfall in 2003 and that their report showed that the outfall needs to be replaced, and that it plans to replace the outfall.

Response 4.C:

The permit condition in question reflects that the Department needs to know how the outfall is doing until it is replaced, and how any new outfall would be holding up. The Department is counting on this commitment to replace the existing diffuser structure as it is the basis for the mixing zone ratios which were granted the city in this permit. Without a new diffuser before the permit expires, we would have little confidence that the mixing zone ratios of 4.12:1 (acute) and 42.5:1 (chronic) could be met. Unfortunately, our review shows that we overlooked including requirements to perform a mixing zone analysis which is a typical condition for any new outfall. Furthermore, the most severe settling of a new outfall structure would generally occur within the first few years and it's important to inspect new outfalls within a year or two of their construction to ensure that the integrity of the structure has not been compromised by such settling. We have therefore added a mixing zone study to this condition, but required the outfall evaluation only once – concurrent with the mixing zone study.

Comment 5.A:

This comment basically asserts that the language of the permit expanded the concept of nitrification protection during the low flow season to months of December to March 15th where it was not intended to apply. The comment objects to requirements to apply reuse water to the poplar plantation and to meet total nitrogen limits in low flow winter conditions. This position is echoed in similar comments 13.c, 13.d, 19.E, 41, and 48.

Response 5.A:

While criteria for BOD and TSS are differentiated only by river flow, the Consent Decree allows the City to discharge a higher concentration, (up to 15 mg/L), of ammonia during winter low flow periods between December 1st through March 14th (versus only up to 4.0 mg/L during low flow periods between March 15th and November 30th).

However, the Consent Decree required that all dry weather discharges shall be downstream of the Centralia Reach and below the mouth of the Skookumchuk River. To satisfy this requirement, the City proposed that whenever "Dry Weather Limits" were to apply, the City would generate a reuse water and discharge to a Poplar tree plantation/infiltration gallery. The Department agreed that this would be acceptable in lieu of moving the outfall downstream, but explained this meant creating a Class A nitrified wastewater product when it was not agronomic to apply reuse water to the trees due to their seasonal uptake. The City understood this requirement and designed a treatment facility to produce, a Class A reuse product with a total nitrogen content of 10 mg/L or less that could be discharged to the ground on the Poplar site without risk of groundwater contamination. They also included burms in the design so that water would

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not flow off the site during such periods. The City also designed monitoring wells and was informed of the parameters we would like monitored.

That the Consent Decree allows a lesser degree of nitrification for discharges to the River downstream of the Skookumchuk is not relevant to a discharge to ground in an area of the river where discharge is prohibited during low river flow. The requirements to produce a Class A reuse product with a total nitrogen limit of 10.0 is based on the need to protect groundwater quality. This provision is unrelated to the Dissolved Oxygen TMDL, and is only related to the Consent Decree by the way that the City chose to satisfy the conditions of the Consent Decree. These provisions are therefore retained. The Permittee is advised that modifications to the Consent Decree would be required to allow a discharge to the Chehalis River above the designated dry weather discharge point during the period March 15, through November 30. Alternatively, once the facility is constructed, the Consent Decree could likely be terminated in accordance with termination provisions on page 17 (section XIII) of the Consent Decree.

City does not want to have to apply reuse water to the poplar plantation or meet ammonia limits in low flow winter conditions (their comments 5.A, 13.c, 13.d, 19.E, 41, 48 discuss their position). We will clarify that we will be amenable to considering terminating the Consent Decree when we receive the completion of construction of the new POTW. This would allow us to then modify the permit to allow discharges (so long as they did not exceed water quality criteria) during the winter months.

Comment 5.B:

The second comment refers to “Item 3, the first line...” This actually pertains to condition S1.C.3 on page 9 of the permit. The comment asks that when the 7-day average flow dips below 1,000 cfs the City have three days instead of one day to cease discharge to the River.

Response 5.B:

The proposed permit language is already more generous than what was agreed to in the Consent Decree, which says: “Dry weather limits apply on the next day after the 7-day moving average flow goes below 1,000 cfs and on all subsequent days until the wet weather limits apply.” The logistics of actually knowing what the daily flows are on a day is in time to switch the discharge over before the next day (which is what the consent decree actually requires) was considered unreasonable given that the Permittee must shift from a direct discharge to a reuse system. Therefore, the permit requires that the City not discharge for more than one day after this trigger is met. If the City desires greater flexibility, it must request a modification to the Consent Decree as it is already interpreted as liberally as possible.

Comment 6:

This comment asks for more generous mixing zone ratios for the current POTW based on a statistical evaluation included in Appendix D of the comprehensive WER final report.

Response 6:

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This appendix did a statistical analysis of the wastewater flows during the “dry” and “wet” seasons for both the current and future situations. This analysis supports that for the May through October “Summer” and November through April “Winter” conditions, based on historical relative flows of the POTW and river, and using the upper boundary, the mixing zone ratios of the City’s table (see Comment 6) are theoretically possible. The below table represents our view of the statutory maximum allowable amount of river water, and the statistically based amount of POTW effluent exceeded by 2 percent of the samples [which the chart calls the “upper boundary”, but which 25 of the 1,200 samples (2 percent) exceed].

	Summer	Winter
River Flow	60.2 cfs	218.6 cfs
POTW Flow (upper conf. limit)	1.8 MGD (2.8 cfs)	1.85 (2.9 cfs)
AMZR (POTW+2.5%River)/POTW	1.54:1	2.9:1
CMZR (Chronic mixing zone ratio)	6.4:1	20.0:1

The above numbers represent what I would take as reasonable estimates of maximum possible dilutions for Chehalis for Summer and Winter. These ratios are somewhat lower than determined in Appendix D of the *Comprehensive WER Study Final Report* for the Summer because I did not accept the extrapolation below the lowest river flow for which the POTW had data (about 110 cfs). These mixing zone ratios assume 1) no increases in flow due to new customers, and 2) this amount of mixing is achieved at the centerline of the plume within the statutory boundaries of the acute and chronic mixing zones. Neither of these presumptions are conservative or supported in the text of the study.

The Department’s policy for freshwater mixing is that dilution zone ratios are based on the dilution realized at the center of the effluent plume at the edge of the mixing zone boundaries. Centerline dilution is often only half of the average dilution realized by a wastewater plume. This means that to realize the above theoretical maximum mixing zone ratios, the effluent plume would have to encompass 5 percent and 50 percent of the river flow at 30 feet and 300 feet downstream respectively. While mixing with 5 percent of river water at the acute mixing boundary might not be as difficult to show, it is far less likely that the effluent has mixed with 50 percent of the river flow within 300 feet of the outfall given the low turbulence and low current velocity situation at the critical conditions. Therefore, the mixing zone ratios of appendix D for the current situation were rejected for all but theoretical considerations (e.g. what would mixing be if there was a better diffuser?).

Our incorporation of mixing zone ratios for the future situation did allow a similar methodology for establishing mixing zone ratios for the future situation. The upper confidence boundary of present POTW flows at a river flow of 1000cfs was found to be 5.2 MGD. This flow was accepted for the present permit cycle; however it will need to be increased as flows and flow projections increase. The maximum theoretical mixing presumption is based on the assurances of the Permittee that a new outfall diffuser will be installed to provide better mixing than the open ended pipe currently used to discharge wastewater. If this is not done, mixing zone ratios in the next permit cycle will likely be significantly lower.

Our intention is that a dye study will be needed to confirm that the actual mixing is achieved at the edge of the mixing zones when the new outfall diffuser is installed.

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In the near term, however, it is really quite inconsequential as to whether the mixing zone ratios of the previous permit are continued for the current situation (as was done), or whether these mixing zone ratios are increased based on the acceptance of the flow dependency (supported by data), and the presumption that the maximum allowable mixing is achieved at the respective acute and chronic boundaries (not supported by the study and rejected as inappropriate). The BOD and TSS performance is presently below the minimum required of secondary treatment (85 percent removal), and the ammonia limits are set by the Consent Decree. Only the interim metals limits could possibly be affected. The analysis of metals limits that would be required in the present situation actually did include more generous mixing zone ratios for comparison. Note that this analysis appears on page 58 of the fact sheet, in appendix G. This analysis shows that even if larger mixing zone ratios were realized by applying this flow dependency, and installing a diffuser or performing a dye study, or both, the City would still need limits on Zinc, Copper, and Silver.

The items under item S1.D(ii) of concern to the City where they repeated the mixing zone ratios of the table were deleted.

Comment 7:

The City requests the lower sampling frequency for BOD, TSS, and ammonia of the current permit (3/week) be retained rather than increase to 5/week as would typically be required for a POTW over 5.0 MGD capacity.

Response 7:

After due consideration, this request was granted due to the typical flows for the POTW being so much lower than their maximum rated capacity. The permit for Centralia requires only 3/week sampling because of this rationale, and this was a consideration as well.

Comment 8.A:

The comment asks to change the biosolids sampling point from “digested sludge” to “lime stabilized and dried sludge.”

Response 8.A:

The intent is for sampling of the sludge in it’s final state prior to it’s use or disposal. The requested change is therefore appropriate and is accepted.

Comment 8.B:

The City requests metals analysis be switched to quarterly to be consistent with minimum sampling required by biosolids rules.

Response 8.B:

This sampling performs a needed double check of the City’s pretreatment efforts, and is therefore retained as quarterly.

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Comment 8.C:

The City request ambient monitoring for copper and zinc be removed.

Response 8.C:

This data is needed for ongoing assessment of the effects of the discharge on the river, and the river's assimilative capacity for these metals.

Comment 8.D:

The City requests ambient salinity monitoring be deleted.

Response 8.D:

Agreed.

Comment 9.A:

Monitoring requirements were numbered incorrectly.

Response 9.A:

Monitoring requirements were renumbered as requested.

Comment 9.B:

The City asks to delete bi-weekly calibration of turbidity meters in lieu of manufacturer's recommendations.

Response 9.B:

The City provides no indication of what the manufacturer's recommended frequency is, or how much work it is to calibrate the meter. The requirement was changed to be "when Class A water is being generated."

Comment 9.C:

The permittee wanted wording on accreditation dealing with crops and soils removed.

Response 9.C:

This change was made.

Comment 10:

The City asks for clarification of what CAS stands for.

Response 10:

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This stands for Chemical Abstract Service. A tool to find CAS number for a compound can be found at <http://www.cdpr.ca.gov/docs/monster/monster2.htm>.

Comment 11.A:

Typo on Section S4.

Response 11.A:

The noted typo on Section S4 was corrected.

Comment 11.B:

Another comment reflects that the listed peak flow limit for maximum dry weather period should be for the peak day.

Response 11.B:

The peak flow capacity reflects the approved plans for this facility though, and was not changed to a more generous interpretation that the facility could handle 6.2 MGD over the peak day. While the Department does not require reporting of peak flows on each day, this criteria appropriately reflects the POTWs instantaneous flow capacity.

Comment 12:

Minor typographical error on page 19.

Response 12:

Minor typographical error on page 19 was corrected “violate” vs. “violation.”

Comment 13.A:

Minor typographical error on page 20.

Response 13.A:

Minor typographical error on page 20 corrected.

Comment 13.B:

Comment asks for “treatment to reduce nitrogen” rather than “nitrified” because sometimes they will de-nitrify as well.

Response 13.B:

The term is defined in Metcalf and Eddy’s *Wastewater Engineering*, fourth edition, on page 611: “Nitrification is the term used to describe the two-step biological process in which ammonia (NH₄-N) is oxidized to nitrite (NO₂-N) and nitrite is oxidized to nitrate (NO₃-N).” Further treatment, including the further reduction of nitrogen by de-nitrification, is not prohibited by this definition. In fact, it would be necessary. At the

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risk of confusion as to whether the Department meant to allow merely filtration of organic nitrogen compounds (without nitrification), which we did not, we will make this change.

Comment 13.C:

The City forwards concerns about their ability to nitrify in the winter.

Response 13.C:

For further discussion see the response to comment 5.A. Throughout development of the City's plans, the Department has attempted to clearly establish and repeatedly reiterate this important requirement as a prerequisite to applying the City's reclaimed wastewater to land when there would be no agronomic uptake of nutrients anticipated. The Consent Decree prohibits discharge upstream of the confluence of the Skookumchuk River when "Dry Weather Final Limits" apply. Therefore, the City's plans have been to apply the wastewater to the poplar tree plantation whenever flows in the Chehalis are below the threshold flows which trigger these dry weather limits. The approved plans acknowledge that this requirement was anticipated.

Comment 13.D:

The City also forwards concerns that the Dissolved Oxygen water cleanup plan was not designed to apply in cold winter months, and therefore they should not have to nitrify to discharge wastewater to land during these months.

Response 13.D:

See the response to Comment 5.A.

Comment 14.A:

Comment first asks for the turbidity requirements to be deleted for Class C reuse water.

Response 14.A:

This request was granted, and the requirement removed (p.21).

Comment 14.B:

The comment asks to delete footnote 'd' from the first table in section R1.A.

Response 14.B:

The Department agrees.

Comment 14.C:

This comment asks for averaging to be done for the samples in a given month, rather than 30 running days for incomplete months.

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Response 14.C:

This is a more stringent requirement, but if the reduced work overshadows the higher potential risk of noncompliance to the Permittee, we are agreeable. Therefore, we accepted this request, and have modified the footnote accordingly.

Comment 14.D:

The comment asked for a clarification in footnote g (renumbered to footnote f by the prior comment).

Response 14.D:

That clarifying wording was added.

Comment 14.E:

The comment request “total nitrogen” be revised to “nitrate nitrogen.”

Response 14.E:

Ammonia would not be captured if this change was made, and ammonia would turn into nitrates and would be equally likely to cause groundwater contamination as nitrates. Also, since there is very little organic nitrogen because the effluent is filtered, almost all nitrogen would be in the form of ammonia or nitrates. This proposed change was not made.

Comment 15:

Two clarifications to the footnotes were proposed.

Response 15:

Two clarifications to the footnotes were proposed and modifications were made to provide this requested clarity.

Comment 16:

The city request monitoring of the influent and disinfected reclaimed water be revised from 5/week and daily to 3/week for BOD and TSS.

Response 16:

This modification was made.

Comment 17:

The City asks for the sampling point be changed from the spigot at the reuse facility to the monitoring point downstream of the UV disinfection for certain parameters which we asked them to sample for at the application site since they do not have a composite sampler at the reuse site.

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Response 17:

This request was accommodated by modifying footnote 'a' on page 24.

Comment 18.A:

The request is to delete temperature monitoring for the reclaimed water as they do not see the purpose of it and no criteria apply.

Response 18.A:

This request was accommodated, however a baseline of temperature data would be important for the Permittee if they, at some future date wish to gain the authorization to discharge to the river during the winter low flow conditions (from December 1 to March 15 of each year when the flows in the Chehalis river are low enough to trigger application of the "dry weather" criteria).

Comment 18.B:

Comment wanted turbidity (footnote A) to be read in "secondary effluent" prior to filtration.

Response 18.B:

That was the intended sampling point, and the footnote was corrected to accommodate this comment.

Comment 18.C:

Comment wanted the reading of the turbidity meter every four hours dropped because they do not have resources to have someone read the turbidimeter every four hours.

Response 18.C:

The condition is designed to have the POTW collect four-hour average or instantaneous data points from their turbidimeter such that there are at least six data points each day taken each four-hour period from which to derive an average daily value. If the turbidimeter averages over a 24-hour period, this average can be reported. The POTW doesn't have to have someone read the meter every four hours, but just needs to collect and maintain either continuous or discrete data to comply with reuse standards. Data should be maintained for five years.

Comment 19.A:

The City requests that static well water elevation be changed from feet above sea level to NGVD29.

Response 19.A:

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So long as a topographic map of the application site with NGVD29 elevations are marked can be produced, this is acceptable. A footnote was added to formalize this condition.

Comment 19.B:

Comment requested groundwater monitoring be dropped because they will be producing a Class A reuse water for purposes of groundwater recharge through surface percolation.

Response 19.B:

Such monitoring, however, is a standard requirement in such situations and the requirement must be kept.

Comment 19.C:

Comment requested only drinking water criteria be listed under Groundwater Enforcement Limitations in Section R1 (page 22) because drinking water is the “highest use.”

Response 19.C:

While the highest priority use of water is for drinking, other uses must be protected as well. Criteria for protection of groundwater are found in Chapter 173-200 WAC and those criteria which we believed applicable to this discharge are included in this table.

Comment 19.D:

Comment asks for deletion of groundwater monitoring for pollutants without drinking water criteria listed in Section R1 (Namely temperature, dissolved oxygen, pH, conductivity, TKN, total coliform bacteria, calcium, magnesium, sodium, bicarbonate, and carbonate).

Response 19.D:

This monitoring is needed for several reasons. First of all, when there is an increase in concentrations of pollutants which do have criteria, these additional monitoring values help us understand why the increase occurred, whether this is anomalous data, and what is happening with the water chemistry. Secondly, these are criteria which are a concern for degradation, and significant degradation of any parameter is prohibited by state regulation. Thirdly, some actually have criteria but it's just not listed in the table. For example, the WQ criteria of Chapter 173-200 WAC for groundwater pH is 6.5 to 8.5, and for total coliform bacteria is 1/100ml. Therefore, the conditions were retained.

Comment 19.E:

Comment again requested not to have to land apply effluent December 1 – March 15.

Response 19.E:

This comment is address in the responses to comments 5 and 13. Please read those responses for the rationale why this request can not be accommodated.

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Comment 19.F:

The City requests tiered monitoring for parameters for which no degradation has been shown and are a low risk to be degraded.

Response 19.F:

This should be considered when there is a large enough baseline established, but that will not be until the next permit.

Comment 20.A:

The annual cross-connection control report should be listed under the summary of submittals.

Response 20.A:

The Department agrees.

Comment 20.B:

The City requests the submittal of reuse monitoring reports be clarified to reflect it begins only after the application of reuse water begins.

Response 20.B:

This change was made to section R3.B (first sentence).

Comment 21.A:

Change R4 first sentence to read S2 and R2 instead of S4.

Response 21.A:

This typographical error was corrected.

Comment 21.B:

Period after "permit" in S4.A should be removed.

Response 21.B:

Typographical error was corrected.

Comment 21.C:

The Permittee desires language in R4.A authorizing distribution to other public and private entities for commercial and industrial uses consistent with DOE and DOH requirements.

Response 21.C:

In cases where a municipality desires the ability to employ water reuse in a more flexible manner, the Department has specific boilerplate language which requires a water reuse plan. This plan would be updated annually as new uses are added. This language was added as an optional report the City could provide if it desired to increase its authorized uses of the reuse water. This adds no new burden on the City, but clarifies the information the Department requires before new uses are added.

R.4. G. WATER REUSE PLAN (NEW SECTION)

Prior to distributing reuse water to new uses and locations (other than listed in section R4.A) the Permittee shall prepare a water reuse plan. The plan shall be submitted to the Departments of Health and Ecology at least 60 days prior to the date when approval is requested. If an approval letter or no comments are received within this 60 day period the plan shall be considered approved. Once developed, the Permittee shall review the plan at least annually for accuracy and update the plan whenever new uses or users are proposed to be added to the distribution system. A copy of the revised plan shall be submitted to the Departments of Health and Ecology. The plan shall contain at least the following:

1. A summary description of the proposed water reuse system from the approved Engineering Report, and any modifications thereto;
2. A description of the reuse distribution system;
3. A listing of the uses, users, and locations of reuse sites.
4. An evaluation of each reuse site to include:
 - a. The estimated volume of reclaimed water use,
 - b. The means of application, and
 - c. For irrigation or surface percolation uses, the application rates, water balance, expected agronomic uptake, potential to impact ground water or surface water at the site, background water quality and hydrogeological information necessary to evaluate potential water quality impacts.

Comment 22:

This comment asks for the annual loading rate analysis required under R4.F.1 be included in the summary of submittals.

Response 22:

This was added.

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Comment 23:

This comment asks for the Department to allow a Class II rather than a Class IV operator to be in charge during all regularly schedule shifts provided that no operational changes are made and to be able to get telephonic approval from a Class III or IV operator in such cases.

Response 23:

The intent of the Department's rules on wastewater operators is for a certified operator at the rated level of the POTW to be present and making operational decisions at the facility. While we can not accommodate this request, we did modify the wording to allow one grade lower operator certifications for the present trickling filter facility (as is reflected in the current NPDES permit for the facility). This provides the City approximately two years to get any additional operator certifications (if needed).

Comment 24:

This comment asks to change "distribution" to "reclaimed water distribution system" to complete this phrase for greater clarity.

Response 24:

This was done.

Comment 25:

This comment asks to clarify that the City can route flows around the sand filters without it being called a "bypass" which is prohibited.

Response 25:

The POTW employs additional treatment steps to meet reuse requirements. Routing flows around these components, or not taking additional steps (such as adding coagulant) is not considered a bypass. However, state law requires the employment of "all known, available, and reasonable means of treatment and prevention of pollution." To do the best it can, the Department expects the POTW to employ all means available to meet NPDES permit conditions, including use of these components to the maximum extent practicable, in an effort to reduce the magnitude or duration of non-compliance with any term or condition of the NPDES permit. This includes the expectation that the POTW will use these components, to the extent feasible, to allow the POTW to meet the standards of 85 percent removal of BOD and TSS as required by state and federal regulations if they would otherwise not be capable of meeting these criteria.

Comment 26:

This comment requests O&M manual updates be due in July rather than January.

Response 26:

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This change was made to the permit.

Comment 27:

This comment requests the need for a new IU Survey be deleted from the permit in lieu of an annual update. Unfortunately, the POTW has experienced upsets, pass through, and interference all from non-domestic wastewater within the past few months. The feedback from the POTW during this time was that they do not have the staff to track down the source of the discharges which were causing the problems.

Response 27:

Rather than fining the City for these violations, we are promoting the City to have a larger presence at tributary businesses. This IU Survey requirement will foster this, and while it would be a reasonable requirement even without the recent problems, it is a necessary part of the Department's response to the recent events at the POTW.

Comment 28:

The comment objects to the prohibition against counting residual solids removed at one POTW as headworks loadings again at their POTW as the POTW presently does not accept such loadings.

Response 28:

If the POTW were to change this policy based on their greater capacity to process solids at their new facility, such solids would need to be introduced downstream of the influent sampling device or subtracted from headworks loadings. This makes this requirement clear, and this clarification is important to retain.

Comment 29:

The City asks to clarify if the initial and updated spill control plan contents are the same.

Response 29:

They are, and the permit was modified to make this clearer and correct a typographical error which they pointed out.

The comment also asks what is the difference between the Spill Control Plan and the Stormwater Pollution Prevention Plan (SWPPP) that the City is preparing. The difference is primarily that this plan is required of nearly every POTW regardless of whether they have a discharge of stormwater, whereas the SWPPP is only required of this POTW if it discharges stormwater to a surface water or storm drainage system that discharges to surface water and has over 1.0 MGD of capacity. Neither would prohibit integrating the requirements of both into one document, although it would need to be submitted under both this and the Stormwater permit. The components of a SWPPP (see Ecology Publication number 04-10-030) are generally far more inclusive than the minimum requirements stipulated in Section S10 of the NPDES permit. Therefore, it is likely that an acceptable SWPPP would fulfill the requirements here.

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Comment 30:

This comment asks for sampling for WET toxicity not to begin until at least 150 days after the POTW has been operating.

Response 30:

This is in contrast to comments 3 and 4 which ask for the Department to clarify that the first WET report is due within 150 days after the completion of construction.

Comment 30 also says that this change would make this condition consistent with the Summary of Permit Report Submittals. This is not entirely correct. The permit conditions as drafted require sampling to begin within 90 days after startup, and to report within another 60 days (meaning it would be 150 days total before the Department gets the first of four quarterly samples). After three more quarterly WET tests are done, the POTW also has to summarize all of these results. This is the second report due under S12.A and S13.A. There is obviously some confusion here, but if the City wants an extra 60 days to perform the sampling (which seems to be the case) we will adjust the wording to grant this extension. This change also amends our response to comments 3 and 4.

Comment 31:

This comment notes a typographical error in S12.B.

Response 31:

This was corrected. It also notes that the last paragraph of S13.B should be included in S12.B. Actually the last two paragraphs of S12.B and S13.B (with the exception of different mixing zone ratios) are virtually identical, however they are in opposite order, which likely caused this confusion. No change was made to the permit language.

Comment 32:

This comment asks the reference to the limit for acute toxicity be changed in S12.D to reference S12.C rather than S12.B.

Response 32:

Both sections S12.B and S12.C reinforce that the limit for acute toxicity is no acute toxicity detected in a test concentration representing the ACEC (24.4 percent effluent). Therefore, this condition was not modified.

Comment 33:

This comment asks for the date for the submittal of the monitoring for toxicity that is to be submitted for the permit application be changed from March 1, 2009, to March 1, 2008, to allow resubmittal of an application by December 1, 2008.

Response 33:

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The application will not, however, be due before May 1, 2009, which should give the POTW plenty of time to obtain results from this sampling. The Department will be flexible in accepting WET results from an earlier date if WET sampling needs to be done earlier to allow the City to get its NPDES permit application in earlier. No further changes were needed to satisfy this comment as G7 in the summary of submittals was already revised.

Comment 34:

This comment asks to clarify whether two or three species are required for Chronic toxicity testing, and asks for flexibility in using one of three types of daphnids as is provided for in Acute testing.

Response 34:

The Alga was believed to be important to the confirmation that the effluent is not harmful to receiving waters and must be retained, however we have deleted this species. The flexibility requested in choice of the daphnid was provided.

Comment 35:

This comment asks for references to the ACEC to be deleted in place of the CCEC.

Response 35:

The trigger for whether a chronic limit applies, however, is based on whether the effluent demonstrates toxicity at the ACEC concentration. The limit is based on the CCEC though. The permit accurately reflects these rules and requirements.

Comment 36:

This comment asks for the date to be changed.

Response 36:

Please see the response to comment 33 as the same rationale holds in response to this concern.

Comment 37:

The city request the outfall inspection be deleted as they are going to replace their outfall.

Response 37:

Please refer to the response to the second part of comment 4.

FACT SHEET COMMENTS:

The below comments were taken as the City's input to the factual basis for permit conditions. Whereas fact sheet contents do not impose any requirement on the Permittee, a changed basis for a permit condition could lead to a change in the permit condition.

Comment 38:

This comment summarizes data of the fact sheet and requests limits for TSS and BOD remain at their current level of 65 percent and 75 percent respectively (as required in the prior permit). The City's position is that more stringent limits will not improve performance.

Response 38:

The Department's rationale for including performance based limits is well documented in the fact sheet. When permits are written, the Department reviews the applicable criteria and performance data. Where criteria are applicable but can not be met by a POTW (such as the removal rates here), the POTW is given performance based limits which represent a level of treatment which the POTW can achieve 95 percent of the time, and the POTW is placed on a schedule to build the facilities needed to meet the standards reliably. If between one permit and the next the POTW does better, the result is lower interim limits in an intervening permit. This ratcheting down of interim limits until final limits can be met is in keeping with the Department's policy. While it means that POTWs which are not capable of meeting secondary treatment standards will be in non-compliance occasionally, this occasional non-compliance reinforces the need to continue with POTW improvements at as rapid a pace as possible. In this case, however, we have concern that the reference in the consent decree at the bottom of page 9 relating to minimum percent removal that states "Interim limits as in permit dated October 29, 1996," could be construed as a binding agreement to keep the prior removal percentages, and therefore the prior percentages were restored.

This comment also asks that the Summary Page clarify why a crop management plan is mentioned in the fact sheet and not in the permit. Typically, if a Permittee intended to apply Class C water, the Permittee would be required to develop an "Irrigation and Crop Management Plan" as described in Guidelines for Preparation of Engineering Reports for Industrial Wastewater Land Application System (Ecology, 1993). This would include two principal features: 1) A hydraulic loading analysis that addresses: monthly water use and water balance showing precipitation (inches); evapotranspiration (inches); wastewater applied (inches); supplemental water, if any (inches); and total water applied (inches). 2) A nutrient loading analysis to include: monthly crop uptake (lbs/acre) of total nitrogen; total nitrogen applied (lbs/acre); and total nitrogen stored in the soil and retained in the crop (lbs/acre). Total nitrogen refers to total Kjeldahl N plus nitrate+nitrite-N.

The difficulty the Department experience in this regard relates to attempts to require this in the appropriate section without requiring the duplication of effort. In attempting to streamline these conditions in this manner, these expectations were placed in section S4.F, but the nutrient loading analysis was erroneously omitted. A sentence has been added to relate this expectation in the report which is due now on July 15, 2006, and annually thereafter. The Department appreciates this omission being pointed out.

Comment 39:

Comment adds some historical perspective.

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Comment 40:

Comment adds additional historical record.

Comment 41:

Comment asks that the permit be revised to not require land application December 1 through March 15.

Response 41:

See the response to comment 5.A for the Department's response to this request.

This comment also proposes the reference to Qualex be deleted since they have closed their Chehalis plant. The Department has noted in the fact sheet that Qualex is in the process of shutting down this plant. As of the drafting of this permit the Department was still working to ensure the site can be properly abandoned and concentrated wastes will not be sent to the POTW as a result of this closure.

The third part of this comment discusses metals. The sentence in question notes: Because of a small mixing zone, metals discharges have been problematic for the City of Chehalis. The Permittee wants recognition of the WER study. This occurs later in the fact sheet.

Comment 42:

The City again requests BOD and TSS removal be restored to prior removal rates. It asserts that the data provided only indicates they can meet 66 percent TSS removal and 74 percent BOD removal.

Response 42:

While the City's assessment is not reflective of a 95 percent confidence level, the topic is discussed in detail on page 16 of the permit fact sheet (third and fourth paragraphs). The actual data and the 95 percentile value are included on pages 54 and 55 of the permit fact sheet. Nonetheless, we will restore the prior percentage removal requirements as stated in our response to comment 38.

Comment 43:

This comment asks for increased mixing zone ratios. This comment is address already where it appeared as comment 6.

Response 43:

Please refer to the response to comment 6 here as well. Only the wet weather chronic mixing zone should be changed form 42 to 42.5 (It appears correctly in the permit as 42.5 already).

Comment & Response 44:

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The comment and response are the same as comment 43.

Comment 45:

In this comment “The city requests the Department re-evaluate the calculations that show a permit limit for silver will be needed for the new treatment plant using the following data taken from the data set in the Fact Sheet (page 52)...” (Data tables for Silver and Zinc follow.)

Response 45:

The Department does not concur most of the data provided. First, the mixing zone ratios are incorrect. In fact, mixing zone ratios for the new facility are not even listed. The comment lists acute and chronic mixing zone ratios for summer and winter conditions. The new treatment plant, however, has mixing zone ratios only for “dry weather” which is based on the flow in the Chehalis River. Revisiting the mixing zone ratios for Summer (May-October) and Winter (November – April) requires a mixing zone study which would involve two dye studies. These would need to be done at as low a river flow as reasonably possible, and at a river flow which most closely resembled the Winter low flow. Then a mixing zone model would be selected and calibrated to these results based on the conditions during the study. Then the model would be used to predict the mixing zone ratios at the actual critical conditions by plugging in the critical conditions. The Water Effects Ratio study which the City performed was not a mixing study. It was not billed as such to the Department, and is missing these critical components that would allow it to serve as a mixing study. All it did was establish a theoretical relationship between flows in the river and flows from the POTW. Therefore, the Department did not and still does not accept it as fulfilling that function. A mixing study is needed for the future condition, and mixing zone ratios from the prior permit are continued for the present POTW.

Secondly, the Water Effects Ratios are proposed in this comment are not accepted by the Department. By the Department’s assessment, the best WER that we can authorize for Silver is 5.1 whereas this comment requests it be 6.38. The City lists a WER up to 5.22 for Zinc, but the City did not even do the WER study for zinc. It would have been impossible to have established a WER for Zinc. A WER study requires assessing the relative toxicity of laboratory water and river water to a specific pollutant (the dissolved form of the metal in this case). This study was only performed for copper and silver. The WER for copper accepted by the Department for the “Wet Weather” situation is 4.2.

Thirdly, the metals translator listed for zinc is also listed as 0.457, whereas this is actually the wet weather Chemical Translator Ratio (CTR) we recognized for copper. The CTR we recognized for zinc based on the partitioning study was 0.736 for the high flow situation (where river flows were 1,000 cfs). The default CTR of 0.996 for zinc was determined to be appropriate for the dry weather situation.

Fourthly, the 95th percentile metals concentrations used in calculating the reasonable potential were pretty accurate when the data is seasonally partitioned. The City had not previously asked us to partition the data this way, and this data, when used to calculate reasonable potential still shows that the existing plant needs metals limits (actually for all three metals), however there is no need for metals limits for the new POTW.

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Fifth, our review also evaluated whether the WER data meets various QC checks such as confirming the toxicity in synthetic laboratory water is similar to the established criteria, whether the ratio of total to dissolved during the test matches the partitioning study, and whether beginning and ending concentrations of the metal were within tolerances during toxicity tests. There were some anomalous data which may have led to dismissal of the WER in its entirety as inconclusive. Half of the tests are designed to confirm that the concentration of dissolved metal in synthetic laboratory water which causes an average lethal dose is close to the water quality criteria. Our expectation was that results should be within 50 percent of the criteria to demonstrate the validity of the study. Results for eight of eleven tests were outside of this range with lethal concentrations (LC50) ranging from 1.5 percent to 670 percent of the criteria. We also expected the results to be put in terms of the dissolved concentrations. The partitioning coefficients were previously determined to translate from dissolved to total, and therefore we had to reinterpret the data based on dissolved concentrations. Rather than reject the study as not meeting the QA/QC standards, we decided to accept the ratio of the toxicity actually observed in river water to the water quality criteria as the WER where the criteria is higher than the toxicity observed in laboratory water. For example, if the study shows a concentration causing 50 percent mortality (LC50) of 2.0 ug/L in river water with a hardness of 31, and the criteria is .46 ug/L at this hardness, this ratio (4.1) would be the WER unless the study found that the LC50 in laboratory water was higher than the water quality criteria (in which case it would be reduced by that ratio). This latter situation occurred in 2/12 cases. In one case the data was inconclusive, and in another the QC goals were not met. This provided three WER's for each copper and silver for dry weather, and two each for wet weather. These were average to obtain dry and wet weather average WER's, and these were included in our analysis.

Comment 46:

The City again requests BOD and TSS removal rates remain in the interim.

Response 46:

This is addressed in the response to comment 38.

Comment 47:

The turbidity limits of 2.0NTU and 5.0 NTU should be clarified as applying only to Class A reuse water.

Response 47:

In fact, this is a correct assertion, and because this was an unintended error on the Department's part, the permit was modified to remove the turbidity limits when producing Class C reuse water (this was brought up in a prior comment already). This response to comments serves as the basis, as the fact sheet (by the Department policy) is amended by the response to comments rather than by editing.

Comment 48:

The City request relief from low flow winter requirements to land apply their wastewater.

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Response 48:

This is addressed in the response to comment number 5A.

Comment 49:

This comment asks the Department to sort the POTW's effluent metals data for silver and zinc (in Appendix F of the fact sheet) by summer and winter periods, and accordingly evaluate the effluent data for these metals seasonally to derive seasonal limits.

Response 49:

The Department has reviewed this data and there is a distinct seasonal difference for zinc, and therefore the seasonal analysis was done for both metals. There are two ways to determine the 95th percentile of the effluent metals data. One way is to take the maximum value and multiply it by a factor based on the number of samples which converts it to the 95th percentile value presuming a log-normal distribution. The other way is to take the 95th Percentile value of the data set directly. I had used the former method, but based on this request have revised the spreadsheet to use the latter method. I set the multiplier to 1 and the actual 95th percentile value was entered into the reasonable potential spreadsheet in the "maximum effluent concentration" column. Doing this confirms that there is no reasonable potential for copper, silver, or zinc for the "wet weather" season (when flows in the Chehalis river are over 1,000 cfs). The draft permit (see page 10) had not included final effluent limits for these metals.

I also noted that some of the data was not consistent or was confusing in certain regards.

Mixing Zones: The mixing zone ratios granted for the "wet weather" season, were 4.12:1 for acute, and 42.5:1 for chronic mixing zones. Other than the Department's position that we need a dye study to confirm these after the POTW begins discharge through its new diffuser, these appear to be a consensus. The continuance of the prior established acute and chronic mixing zones are contested. As relayed previously, the Department does accept that there is a linkage between river and effluent flows; however, we do not accept that the outfall pipe realizes the maximum mixing at the edge of the acute and chronic mixing zone boundaries. This requires a mixing zone study with tracer dye and calibration to a mixing model. As the City had considered installing a new diffuser before building the new POTW, the reasonable potential spreadsheet appearing on page 58 of the fact sheet was used to evaluate whether limits would be needed if these theoretically possible mixing zone ratios (based on the flow dependency) were achieved. This would, however, still require a confirmatory mixing zone study. Our analysis there found that interim limits for copper, silver, and zinc would still be needed regardless of whether the flow-dependant mixing zone ratios were realized. The reasonable potential spreadsheet was revised to clarify what the currently recognized mixing zone ratios are and is included at the end of this appendix in response to these comments.

Metals Criteria Translators: The wet weather Chemical Translator Ratio (CTR – a.k.a. partitioning coefficient) for zinc was adjusted from .996 to .736 for the wet season. The default CTR was retained for the low flow season. Since both "Summer" and "Winter" critical flow conditions involve flows commensurate with the dry season, the "dry weather" CTR was applied to both of these current situations. For Copper, the CTR was adjusted to .856 for the dry weather condition (applied to "Summer" and "Winter"), and

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was found to be .457 for the wet weather condition. For Silver, no adjustment was able to be made to the default partitioning coefficient of 0.85 for either flow condition.

Water Effects Ratios: Site specific water effects ratios for copper and silver were evaluated. There were two significant differences in the way that WERs were proposed to be calculated and how the Department believes they must be calculated for this study. First, the dissolved concentration must be used to establish the relationship between the criteria (which is in dissolved), and EPA laboratory toxicity (which was dissolved). The utility of the “total” metals data should be to validate the CTRs, not to develop WERs. Secondly, the ratio of toxicity in synthesized laboratory water (LC50) to the toxicity which EPA found in laboratory water (LC50) must be found to be similar to validate the use of the laboratory water toxicity. Where it is not (and in 8 of 11 runs it was not within 50 percent to 150 percent) the WER must be limited to the ratio of the LC50 in river water (dissolved) to the Water Quality criteria (as dissolved). The Department believes that this approach allows us to obtain legitimate WERs even though in 8 of 11 tests the data quality objectives were not met for the ratio of laboratory water LC50 to the EPA reference LC50 for laboratory water.

1. **NOTE:** There are a total of 24 WET tests conducted. While there was no numbering of the tests provided, they have been numbered so that in comments it will be clear what test is referenced.

Test	Round	Season	Pollutant	Water	Species	Hardnes	Ave Diss LC50	WQC at sameHard	Lab to EPA Ratio=.5-1.5?	WER based on Diss
1	1	Dry	Copper	Lab	C.D.	91	9.15	15.57	.59	
2	1	Dry	Copper	Site	C.D.	39.5	21.7	7.1		3.06
3	1	Dry	Silver	Lab	C.D.	94	.065	3.1	.021	
4	1	Dry	Silver	Site	C.D.	38	1.17	.65		1.8
5	2	Dry	Copper	Lab	C.D.	94	3.96	16.05	.25	
6	2	Dry	Copper	Site	C.D.	38	23.98	6.84		3.5
7	2	Dry	Silver	Lab	C.D.	94	.046	3.1	.015	
8	2	Dry	Silver	Site	C.D.	38	1.4	.65		2.14
9	2	Dry	Copper	Lab	O.M.	94	27.7	16.0	1.73	
10	2	Dry	Copper	Site	O.M.	38	49.2	6.8		4.2
11	2	Dry	Silver	Lab	O.M.	94	17.4	3.1	5.6	
12	2	Dry	Silver	Site	O.M.	38	16.2	.65		4.4
13	1	Wet	Copper	Lab	C.D.	93	10.4	15.9	.65	
14	1	Wet	Copper	Site	C.D.	28	21.9	5.13		4.27
15	1	Wet	Silver	Lab	C.D.	93	.86	3.05	.28	
16	1	Wet	Silver	Site	C.D.	28	2.27	.39		5.86
17	2	Wet	Copper	Lab	C.D.	101	8.57	17.2	.5	
18	2	Wet	Copper	Site	C.D.	31	22.9	5.64		4.05
19	2	Wet	Silver	Lab	C.D.	101	.74	3.5	.21	
20	2	Wet	Silver	Site	C.D.	31	1.98	.46		4.3
21	2	Wet	Copper	Lab	O.M.	101	**	17.2		

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Test	Round	Season	Pollutant	Water	Species	Hardnes	Ave Diss LC50	WQC at sameHard	Lab to EPA Ratio=.5-1.5?	WER based on Diss
22	2	Wet	Copper	Site	O.M.	31	**	5.64		Unk.
23	2	Wet	Silver	Lab	O.M.	101	23.7	3.51	6.7	
24	2	Wet	Silver	Site	O.M.	31	28.9	.46	(Q/C failed)	9.32

(C.D. = Ceriodaphnia Dubia, O.M. = Onyrinkus Mykiss)

Comment 50:

This comment again revisits the BOD and TSS removal rates claiming more stringent limits only mean they will violate the permit more often.

Response 50:

The Department's policy is based on the premise that where treatment to meet applicable criteria can not be met (in this case 85 percent removal), interim limits will be established. Such limits should be set at a level where they can be met 95 percent of the time (based on the last five years of performance) in order to lead municipalities to continue to be diligent in operating their existing POTW as best they can. This also helps spur completion of new construction at the soonest possible date. For an explanation of the Department's determination, see the prior response to comment number 38.

Comment 51:

This comment requests redoing the reasonable potential calculations using different data after they meet with the Department.

Response 51:

The Department has made every attempt to perform the analysis objectively using fair and honest assessments, and with absolutely no interest in skewing the outcome in any way. In response to the numerous comments of the City, the Department has revisited every conclusion and presumption important to the analysis of appropriate permit terms and conditions. The revised reasonable potential calculations show that the City does not require final limits for any metals, but must still be subject to interim metals limits. The WER evaluation potentially establishes some precedents for review of WER studies, and the Department has attempted to consider these in its review. Despite the City's commitment to construct a new facility at a date much earlier than is required, it would be inappropriate to attempt to evaluate the data in the manner most favorable to the maximum theoretically possible mixing, the lowest possible partitioning ratio, and the greatest possible water effects ratio. While we agree to meet with the City to hash out these differences, we have expended considerable effort to re-review these documents, and hope that the clarifications provided here in this document may suffice.

Reasonable Potential Spreadsheet

Parameter	Metal Criteria Translator as decimal	Metal Criteria Translator as decimal	WER	Ambient Conc. (metals as dissolved) ug/L	State Water Quality Standard (dissolved)		Max concentration at edge of...		LIMIT REQ'D?	Max effluent conc. (total) ug/L	# of sample <i>n</i>	Multiplier	Acute Dil'n Factor	Chronic Dil'n Factor
					Acute ug/L	Chronic ug/L	Acute Mixing Zone ug/L	Chronic Mixing Zone ug/L						
Zinc (summer)	0.996	0.996	1.0	1.310	65.44	43.15	213.53	53.28	YES	257.00	83	1.00	1.20	4.90
Zinc (winter)	0.996	0.996	1.0	1.310	46.57	29.53	75.59	15.05	YES	102.00	83	1.00	1.35	7.30
Zinc (wet weather)	0.736	0.736	1.0	1.310	44.04	38.91	19.21	3.05	NO	102.00	83	1.00	4.12	42.50
Copper (summer)	0.856	0.856	3.6	1.780	32.90	16.74	37.59	10.55	YES	57.00	82	0.92	1.20	4.90
Copper (winter)	0.856	0.856	3.6	1.780	22.54	11.42	33.61	7.67	YES	57.00	82	0.92	1.35	7.30
Copper (wet weather)	0.457	0.457	4.2	1.780	24.71	12.92	7.15	2.30	NO	57.00	82	0.92	4.12	42.50
Silver (summer)	0.850	1.000	2.8	0.042	3.106	1000	4.97	1.46	YES	7.00	80	1.00	1.20	4.90
Silver (winter)	0.850	1.000	2.8	0.042	1.557	1000	5.17	1.16	YES	8.20	80	1.00	1.35	7.30
Silver (wet weather)	0.850	1.000	5.1	0.042	2.532	1000	1.72	0.23	NO	8.20	80	1.00	4.12	42.50
Ammonia (wet weather) (as nitrogen)	1.00	1.00	1.00	0.025	5.900	1.34	10.10	1.00	YES	37.50	40	1.11	4.12	42.50

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PARAMETER	Acute Dil'n Factor	Chronic Dil'n Factor	Metal Criteria Translator Acute	Metal Criteria Translator Chronic	Max. Auth. WER	Ambient Concentration ug/L	Quality Standard Acute ug/L	Adjusted Acute WQ Criteria	Water Quality Standard Chronic ug/L	Adjusted Chronic WQ Criteria	Monthly Limit (AML) ug/L	Maximum Daily Limit (MDL) ug/L	Coeff. Var. (CV) decimal	# of Samples per Month n
Zinc (summer)	1.20	4.90	0.996	0.996	1.00	2.15	65.44	65.44	43.15	43.15	50.2	70.9	0.54	1.00
Zinc (winter)	1.35	7.30	0.996	0.996	1.00	2.15	46.57	46.57	29.53	29.53	37.0	50.0	0.46	1.00
Zinc (wet weather)	4.12	42.50	0.736	0.736	1.00	2.15	44.04	44.04	28.64	28.64	161.9	237.4	0.61	1.00
Silver (summer)	1.20	4.90	0.850	0.850	2.80	0.13	1.11	3.11	1000.00	2800.00	2.7	5.2	1.28	1.00
Silver (winter)	1.35	7.30	0.850	0.850	2.80	0.13	0.56	1.56	1000.00	2800.00	1.2	2.0	0.86	1.00
Silver (wet weather)	4.12	42.50	0.850	0.850	5.10	0.13	0.50	2.53	1000.00	5100.00	6.6	11.8	1.04	1.00
Copper (summer)	1.20	4.90	0.856	0.856	3.60	1.78	9.14	32.90	4.65	16.74	19.2	28.0	0.60	1.00
Copper (winter)	1.35	7.30	0.856	0.856	3.60	1.78	6.26	22.54	3.17	11.42	14.6	21.4	0.60	1.00
Copper (wet weather)	4.12	42.50	0.457	0.457	4.20	1.78	5.88	24.71	3.08	12.92	88.6	129.2	0.60	1.00
Ammonia (wet weather)	4.12	42.50	1.000	1.000	1.000	25.00	5900.0	5900.0	1002.00	1002.00	7,409	24,230	1.04	12.00

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The following comments were received by the City of Chehalis on November 22, 2004. The letter is from the City Manager, David Campbell. The comments were not received within the 30-day public notice period, but the Department is addressing the City's comments due to the extent of changes that were made to prior comments which then led to further comments. The Department's intent in addressing a second round of comments from the City is to ensure that prior comments were addressed in a manner that is clear and understandable, and that the rationale for not addressing prior comment in the manner desired was understood.

Comment 1:

Page 6, S13.A: This section has a typo showing "1210 days" rather than "210 days."

Response 1:

Typo has been fixed.

Comment 2:

Page 7, S1.B, ammonia monthly average: Please clarify the verbiage "minimize by using polishing ponds." By "polishing ponds" we assume you mean the aeration basins/activated sludge system. Can this be changed to read "minimize by using aeration basins provided nitrification does not jeopardize other permit limits?"

Response 2:

The presumption is correct, and therefore the clarification is apparently unnecessary. As this wording was not commented on during the open public notice period the comment is also untimely.

Comment 3:

Page 8, footnote d: The minimum removal should be 25 percent, not 23 percent.

Response 3:

Permit was changed from 23 percent to 25 percent.

Comment 4:

Page 8, footnote e: The minimum removal should be 35 percent, not 26 percent.

Response 4:

Permit was changed from 26 percent to 35 percent.

Comment 5:

Page 11, chronic mixing zones *ii*: We understand you are going to delete the reference to the chronic dilution ratios.

Response 5:

Chronic dilution ratios was deleted from *ii*.

Comment 6:

Page 12, influent sampling point. Can DOE remove the verbiage “after screening and grit removal” from this table? Our new plant is designed to sample the influent prior to screening and grit removal but before the inclusion of other side streams (i.e., the in-plant pump station). We believe note 6 on Page 14 indicates that sampling after screening and grit removal is an option, not a requirements.

Response 6:

The Department will make this change but still has concerns regarding rags and other debris. The design of the sampling apparatus may need to be specifically designed to avoid fouling by debris.

Comment 7:

Page 12, influent and effluent pH monitoring: We request the sampling frequency of “continuous” be changed to “daily.” Although we may monitor pH at the headworks continuously for pretreatment reasons, we see no need to monitor the effluent on a continuous basis.

Response 7:

The Department will not make this change. The new water quality criteria of Chapter 173-201A proposed for adoption by EPA measure water quality as a seven-day average of daily maximum temperatures. Therefore, it is important to obtain the maximum and average temperatures at the POTW each day in estimating temperature effects.

Comment 8:

Page 12, effluent metals minimum sampling frequency. Is this requirement for quarterly metals testing intended as a final limit with note 3 or is it intended to apply as an interim limit as well?

Response 8:

The requirement for quarterly metals testing is intended for both final and interim limits.

Comment 9:

Page 12, influent and effluent ammonia sample type: Past sampling of the wastewater for ammonia has been by daily grab sample. Does Ecology really want ammonia analyzed from a 24-hour composite sample?

Response 9:

The Department does want ammonia analyzed from a 24-hour composite sample.

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Comment 10:

Page 13, sludge sampling point: The sampling point for the priority pollutants should be changed to "lime stabilized."

Response 10:

This change was made to the permit.

Comment 11:

Page 13, receiving water minimum sampling frequency for flow: Shouldn't this be a final limit only and have note 3 attached?

Response 11:

While this data was believed to be potentially useful before the final limits in evaluating the anticipated POTWs request for modification of the DO TMDL, the City can download this data and include it with their request if desired. Therefore this requested change was made.

Comment 12:

Page 13, receiving water sample point for pH: We request the sampling point for pH be 50 to 200 feet upstream of the outfall so that it is consistent with the sampling points for other receiving water parameters.

Response 12:

This change has been made to the permit.

Comment 13:

Page 22, dissolved oxygen sample point: Please explain the need to sample prior to filtration; we request this sample requirement be deleted.

Response 13:

Reclaimed water has dissolved oxygen requirements all reclaimed water facilities has to meet which requires the Department to include this provision.

Comment 14:

Pages 23 & 24, turbidity sample type: On page 23 it is listed as a grab sample and when continued on page 24, it is listed as a recording meter. The recording meter seems consistent with note c.

Response 14:

The sample type has been changed to recording meter only.

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Comment 15:

Page 24, coagulant and coagulant aid units: We request the units be changed from “lbs” to “gallons.” The chemicals will be fed from totes and are not set up to be weighed.

Response 15:

The change was made to the permit from lbs to gallons.

Comment 16:

Page 24, total coliform sampling frequency: We believe “daily” sampling for total coliform is excessive and request the frequency be changed to “three times per week when producing reclaimed water.”

Response 16:

The Department will not make this change as this was determined necessary and appropriate.

Comment 17:

Page 24, B. Groundwater Monitoring: We have already designated the numbers for the monitoring wells and they are already labeled on our drawings. Please change the numbering system you have included under this section in the permit to be consistent with what we are using. Please change the northern-most well to #3 (not #1) and the southeastern well to #1 (not #3).

Response 17:

This change was made to the permit.

Comment 18:

Page 30, B. O&M Program, 4th line: Please change “distribution system” to “reclaimed water distribution system.”

Response 18:

This change does not need to be made as there is no confusion as to what is meant. It is not a significant description that needs to be changed.

Comment 19:

Page 38, S11.A: The first paragraph requires a mixing zone evaluation. Please add the requirement for a mixing zone analysis within 12 months of constructing a new outfall to the Summary of Permit Report Submittals.

Response 19:

This change has been made.

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Comment 20:

Page 41, C. Monitoring for Compliance with an Effluent Limit for Acute Toxicity: On page 45, paragraph C, there is a paragraph that indicates chronic toxicity testing may be eligible (under certain conditions) to be removed from future permits. Is this also the case for acute toxicity testing? If so, then shouldn't this be identified in this section?

Response 20:

The permit was not changed. The Department considers the need for testing for both acute and chronic toxicity each time it writes a permit regardless of whether this policy is specifically mentioned or reinforced in the permit.

Comment 21:

Page 41, D. Response to Noncompliance with an Effluent Limit for Acute Toxicity, first line: We believe the reference to Section B should be Section C or the reference should be changed to B and C.

Response 21:

The reference is correct, and therefore this condition is not changed other than to make it clear in section D what sections B and C are concerned with.

Comment 22:

Page 44, 3rd paragraph: Change the "2100 days" to "210 days."

Response 22:

This change has been made to the permit.

Comment 23:

Page 47, S14: Since we will be replacing our outfall, we understand that you will consider rewording or deleting the requirement to perform an evaluation of the existing outfall.

Response 23:

This change has previously been made to the permit.