FACT SHEET FOR NPDES PERMIT WA-0023604
CITY OF CHEWELAH WASTEWATER TREATMENT PLANT

SUMMARY

The City of Chewelah built an extended aeration activated sludge (oxidation ditch) wastewater treatment system to provide treatment of their municipal wastewater to protect the quality of the Colville River. The plant started operation in December 2001. The permit limits require the plant to treat the effluent to adequately meet the low concentrations of ammonia and other oxygen demanding chemicals needed, or during the summer, partially divert effluent to existing storage lagoons as necessary to protect the river during low flows. Disinfection is done by ultraviolet light. Other toxic chemicals appear low enough that they do not require permit limits at this time.

The permit limits in the proposed permit will be divided into two seasons rather than three as in the previous permit in order to simplify the documentation. The treatment plant has been in operation for over three years (through four low-flow periods) and has demonstrated a very efficient effluent BOD and ammonia removal record. Because of this efficiency, at low influent loadings, this permit will temporarily adopt the BOD wasteload allocations and limits from the Colville River Dissolved Oxygen TMDL for the summer low-flow period from June through October. The more restrictive BOD limits are temporary and are to be in place for the five year period of this permit. They will take the place of the tiered discharge flow limits dependent on the Colville River flow. It shall not be considered backsliding if the future permit returns to the three tiered limits listed in the Colville River Dissolved Oxygen TMDL.

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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 of permits (NPDES 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 RCW defines the Department of Ecology's authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the State include procedures for issuing permits (Chapter 173-220 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), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty 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 the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Comments and the resultant changes to the permit will be summarized in Appendix D--Response to Comments.

GENERAL INFORMATION	
Applicant	City of Chewelah
Facility Name and Address	Chewelah Wastewater Treatment Plant P.O. Box 258 Chewelah, WA 99109
Type of Treatment:	Extended aeration, activated sludge (oxidation ditch) with UV disinfection
Discharge Location	Colville River – RM 38.3 Latitude: 48° 16' 25" N Longitude: 117° 44' 30" W.
Water Body ID Number	DH01PX Old Number: WA-59-1010

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

HISTORY

The City of Chewelah is located in northeast Washington with a population of approximately 2,400. The majority of its economy has been associated with mining, timber, and agriculture. The population is expected to grow by anywhere from 500 to 1,500 people by 2015.

The existing wastewater treatment plant, an extended aeration activated sludge (oxidation ditch) system with UV disinfection, was built in 2001with a design flow of 1.2 MGD and for a design 2015 population of 3,297. The exceedance of design flows, repeated failure of the old system to meet the minimum federal municipal treatment standards and degraded downstream water quality in the Colville River resulted in the need to upgrade the treatment plant from a lagoon system. A compliance order was issued by Ecology in 1991 requiring the City to complete construction of a new facility. A Facility plan was completed in 1995 and amended in December of 1996 (CH2M Hill, 1995 and 1996) with Ecology approval in February 1997.

COLLECTION SYSTEM STATUS

The City's collection system consists of approximately 80,000 feet of sewer line with one pump station. The City has not done any significant collection system work since 2002.

TREATMENT PROCESSES

The facility is an oxidation ditch designed for extended aeration with two secondary clarifiers, an aerobic sludge storage basin, sludge drying beds, and UV disinfection. The two large remaining lagoons are to be used for treatment redundancy and seasonal storage of treated effluent when extremely low flows occur in the Colville River require partial diversion of the effluent from the river outfall.

DISCHARGE OUTFALL

Secondary treated and UV disinfected effluent is discharged from the facility via a submerged pipe with no diffuser into the Colville River. Because the City's outfall was built prior to 1992, the mixing zone will be exempted from meeting the geometric restrictions, but will not exceed the maximum allowable river volume for mixing as authorized by Chapter 173-201A-100(12). The dilution factors in the mixing zone are determined based on volume of the maximum allowable portion of critical river flow (acute=2.5%, chronic=25%).

RESIDUAL SOLIDS

The treatment facilities remove solids during the treatment of the wastewater at the headworks (grit and screenings), and at the secondary clarifiers, in addition to incidental solids (rags, scum,

and other debris) removed as part of the routine maintenance of the equipment. Grit, rags, scum and screenings are drained and disposed of as solid waste at the local landfill.

Sludge is aerobically stored, dried, and to be land applied under a biosolids permit administered by Ecology's Solid Waste Program. A section on solids handling and sludge treatment is in the O&M manual. A biosolids management plan will be required as part of the Biosolids Management Permit.

PERMIT STATUS

The previous permit for this facility was issued on October 19, 2000. The previous permit placed effluent limitations on 5-day Biochemical Oxygen Demand (BOD_5), Total Suspended Solids (TSS), pH, Fecal Coliform bacteria, total residual chlorine and ammonia.

An application for permit renewal was submitted to the Department on March 16, 2005 and accepted by the Department on May 23, 2005.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The facility received its last compliance inspection on September 29, 2005.

During the history of the previous permit, the Permittee has remained in compliance, based on Discharge Monitoring Reports (DMRs) submitted to the Department and inspections conducted by the Department.

WASTEWATER CHARACTERIZATION

The concentration of pollutants in the discharge was reported in the NPDES application and in discharge monitoring reports (January 2002 through April 2005). The effluent is characterized as follows:

Table 1: Wastewater Characterization

Parameter	Concentration: Average	Concentration: Range
BOD_5	4 mg/L	3.9 to 8
TSS	3 mg/L	1 to 8.5
pH	n/a	6.4 to 8.00
Fecal coliform	2 cfu/100ml	0 to 20
Dissolved oxygen	9.0 mg/L	7.1 to 11
Ammonia nitrogen	0.09 mg/L	0 to 0.6
Residual chlorine	n/a	n/a
Temperature	7.25º C to 17.5º C	
Total alkalinity	249 mg/L	227 to 264
Total phosphorous	1.87 mg/L	1.2 to 3.1
Turbidity/Transmittance	64.4 %	

SEPA COMPLIANCE

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 final limits for the treatment plant in this permit are based in part on information received in the application, information contained in the approved facility plan, the Colville River Water Quality Study (Ecology, 1997) and the Colville River Dissolved Oxygen Total Maximum Daily Load Report (Ecology, 2003). The effluent constituents in the application and facility plan were evaluated, in consultation with Ecology, 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. Ecology 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 of Ecology. The Permittee may be in violation of the permit until the permit is modified to reflect additional discharge of pollutants.

The permit limits for this proposed permit have been changed from the previous permit. The permit limits in the proposed permit will be divided into two seasons rather than three as in the previous permit in order to simplify the documentation. The treatment plant has been in operation for over three years (through four low-flow periods) and has demonstrated a very efficient effluent BOD and ammonia removal record. Because of this efficiency, at low influent loadings, this permit will temporarily adopt the BOD wasteload allocations and limits from the Colville River Dissolved Oxygen TMDL for the summer low-flow period from June through October. The temporary, more restrictive BOD limits, will take the place of the tiered discharge flow limits dependent on the Colville River flow. A detailed explanation is included in the following section on for water quality based limits.

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 Plan Amendment No.1 of the Wastewater Facilities Plan prepared by CH2M Hill and are as follows:

Table 2: Design Standards for the Chewelah WWTP.

Parameter	Design Quantity
Monthly average winter flow (max. month)	1.20 MGD
Monthly average summer flow (max. month)	0.71 MGD
Maximum Day flow (summer flow)	1.06 MGD
Average dry weather flow	0.51 MGD
Instantaneous peak flow	3.0 MGD
BOD_5 avg. influent loading (max. month)	824 lbs/day
TSS avg. influent loading (max. month)	824 lbs/day
Design population equivalent (2015)	3297

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. 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 municipal wastewater.

The following technology-based limits for pH, fecal coliform, BOD_5, and TSS are taken from Chapter 173-221 WAC are:

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

Parameter	Limit
Chlorine, Total Residual	Average Monthly Limit = 0.5 mg/L Average Weekly Limit = 0.75 mg/L

The technology-based monthly average limitation for chlorine is derived from standard operating practices. The Water Pollution Control Federation's Chlorination of Wastewater (1976) states that a properly designed and maintained wastewater treatment plant can achieve adequate disinfection if a 0.5 mg/liter chlorine residual is maintained after fifteen minutes of contact time. See also Metcalf and Eddy, Wastewater Engineering, Treatment, Disposal and Reuse, Third Edition, 1991. A treatment plant that provides adequate chlorination contact time can meet the 0.5 mg/liter chlorine limit on a monthly average basis. According to WAC 173-221-030(11)(b), the corresponding weekly average is 0.75 mg/liter.

The existing permit has a chlorine limit of 0.01 mg/L Average monthly limit and 0.02 mg/L Average Weekly limit and the facility is able to comply with it. The proposed permit includes the same limit.

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

Monthly effluent mass loadings (lbs/day) were calculated as the maximum monthly influent TSS and BOD design loading (824 lbs./day) x 0.15 = 124 lbs./day.

The weekly average effluent mass loading is calculated as 1.5 x monthly loading = 186 lbs/day.

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 total maximum daily loading study (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 disease 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 is unable to determine if ambient water quality is either higher or lower than the designated classification criteria given in Chapter 173-201A WAC; therefore, the Department will use the designated classification criteria for this water body in the proposed permit. The discharges authorized by this proposed permit should not cause a loss of beneficial uses.

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 of Ecology 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.

DESCRIPTION OF THE RECEIVING WATER

The facility discharges to the Colville River which is designated as a Class A receiving water in the vicinity of the outfall. Characteristic uses include the following:

Class A (Excellent)water supply (domestic, industrial, agricultural); stock watering; fish migration; fish and shellfish 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 for all or substantially all uses.

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:

Fecal Coliform	100 organisms/100 mL maximum geometric mean
Dissolved Oxygen	8 mg/L minimum
Temperature	18 degrees Celsius maximum or incremental increases above background
pH	6.5 to 8.5 standard units
Turbidity	less than 5 NTUs above background
Toxics	No toxics in toxic amounts

Water quality studies in the late 1980s and early 1990s identified problems related to wastewater impacts on the Colville River. The Colville River is listed on the 303(d) list for dissolved oxygen, ammonia, chlorine, fecal coliform, temperature and pH. A basin-wide receiving water study was conducted on the Colville River in the summer of 1994 to characterize existing quality and model what kinds of water quality-based limits would need to be imposed on the point source dischargers to prevent continued violations of water quality standards. The study was important to help determine design parameters for the two new municipal treatment plants planned for construction at Chewelah and Colville, the L-Bar clean-up project, and plans to correct other significant water pollution sources. The conclusions of the study resulted in proposed water quality-based limits for BOD and ammonia under the assumptions chosen to model critical conditions for the cities of Chewelah and Colville, with and without a surface water discharge from the L-Bar clean-up project (Table 3). Other on-going studies are continuing to develop plans for controlling other pollution sources in the watershed also contributing to violations of the water quality standards

CONSIDERATION OF SURFACE WATER QUALITY-BASED LIMITS FOR NUMERIC CRITERIA

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 percent river volume flow restriction and other restrictions for mixing zones in Chapter 173-201A WAC. Because the City's outfall was built prior to 1992, the mixing zone will be exempted from meeting the geometric restrictions as authorized by Chapter 173-201A-100(12). However, the mixing zone geometric dimensions shall be limited to a variable boundary defined by the effluent plume where the percent effluent is equivalent to that calculated from the maximum dilution factor. The dilution factor will be derived based on the maximum fraction of the river flow authorized for acute (2.5%) and chronic (25%) mixing zones at the established critical conditions.

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. The Colville River appeared to exhibit three distinct flow scenarios (very low flows in mid-late summer, moderate flows in late fall and winter, and high flow in the spring). When considering the hydrology of the river and Ecology policy for determining critical flows, it appeared that the most flexibility for developing discharge limits that still protected water quality was obtained by dividing the river into three distinct seasons (November – February, March – May, and June – October). The critical condition for each independent season of the Colville River was determined to be the seven day average low river flow with a recurrence interval of 29 years (7Q29, WA DOE, 1997). Ambient data in the vicinity of the Chewelah outfall was taken from river monitoring conducted by Ecology, Stevens County Conservation District, and USGS which considered both historical data and an intensive monitoring study conducted in the late summer of 1994. The data was used to model critical conditions of river dissolved oxygen and water quality-based limits for BOD with varying concentrations of effluent ammonia. During summer and winter critical conditions, the need to reduce effluent ammonia for the river's critical dissolved oxygen was more restrictive than toxicity-based limits for ammonia. For the season March –May, ammonia toxicity-based limits were more restrictive than those needed to protect dissolved oxygen (CH2M Hill, 1996).

The proposed permit will simplify the permit limits by combining two of the permit limit seasons (November through February combined with March through May). These seasons had the same effluent limits for each of the pollutants. The treatment plant has been in operation for almost four years, including four low flow seasons. The plant operates with very efficient BOD and ammonia removal. In order further simplify the effluent limits, the BOD limits in the summer low flow season will be set at the more restrictive numbers listed in the Colville River Dissolved Oxygen TMDL, 1997. Because of the operational track record for the Chewelah treatment plant, Ecology will temporarily set the more restrictive BOD limits for this permit period of 5 years along with the temporarily removing the tiered effluent discharge limitations.

Chewelah WWTP Effluent and Colville River Low Flow Months DMR Data Effluent and River Flow - 2002 through 2005			
Year	**Low-Flow Months**	**Colville River – Minimum Daily Flow (cfs)**	**Maximum Daily Effluent Flow (MGD)**
2002	June	98	0.49
	July	49	0.40
	August	40.6	0.29
	September	49.1	0.28
	October	58.1	0.28
2003	June	98	0.48
	July	-	-
	August	58	0.36
	September	58	0.34
	October	67	0.27
2004	June	58	0.44
	July	40	0.37
	August	41	0.30
	September	49	0.29
	October	68	0.11
2005	June	39	0.37
	July	23	0.40
	August	33	0.30
	Average =	54.5	0.34
		23 (Minimum)	0.49 (Max)

2000 – 2005 NPDES Permit River Flow Based Discharge Limits	
Colville River:	Chewelah Treatment plant:
7-Day Ave Flow @ Chewelah Outfall (cfs)	Maximum Daily Effluent Flow (MGD)
> 26.7 cfs	1.06
15.2 – 26.7	0.65
10.8 – 15.2	0.47
< 10.8	0.28

The preceding chart compiled from discharge monitoring report (DMR) data shows the lowest Colville River minimum daily flow for the month alongside the highest treatment plant daily maximum effluent discharge for that month. The decision to temporarily stop using the tiered river flow based limits on effluent discharge is based on the comparative data from the last four summers or low river flow seasons. The last four years have been at or near drought conditions with lower than average snow pack. The Colville River flow records show that the flows for all but one month were significantly above 26.7 cfs, which is the lowest flow level before the plant needs to reduce effluent discharge. During this same period the treatment plant effluent discharges have been low enough to keep the BOD and ammonia loading to the river low enough to avoid violating any of the waste load allocation limits for the treatment plant.

This permit will temporarily consolidate seasons and simplify the permit to enhance monitoring, record keeping and enforcement of the permit limits. The permit limits and seasonal divisions will be reviewed for during the application period for the next permit period. It shall not be considered backsliding if conditions warrant a return to the three tiered limits listed in the Colville River TMDL.

BOD_5—Under critical conditions the impact of BOD on the receiving water was modeled using QUAL2E software. Very restrictive seasonal-based BOD_5 and ammonia effluent limits were found to be necessary to be protective of the river dissolved oxygen criterion during critical (7Q29) flows and therefore were imposed instead of the technology-based limitation. The City looked at many different treatment alternatives all of which required that the citizens of the Chewelah must pay more than what normally would be considered economically reasonable using Ecology's financial aid guidelines. According to the City's facility plan, the economic restraints for the new treatment plant would prevent the design from including effluent filtration. Without filtration, the plant will not reliably meet the extremely low BOD and ammonia concentrations required to meet the summer maximum loading limits if the entire effluent flow is discharged to the river.

An interim alternative to achieving very low summer concentrations will be to require the plant to meet an alternative technology-based limit and then divert a portion of the treated effluent to the storage lagoons to meet the mass loading limit for BOD and ammonia when Colville River flows are low. Typical permit limits require that the maximum loading for the seasonal critical condition (7Q29) be met during that season regardless of actual flow in the river. However, the ability to adjust the discharge volume to provide some flexibility in management of the BOD loading is an added control. This volume management of the discharge allows flexibility for quick, incremental adjustment to the maximum loading while protecting river water quality using flow-based intervals for river flows above the 7Q29. Calculation of allowable loading above the 7Q29 flow was done by using a linear extrapolation of the estimated dilution using annual estimated 7-day low flows in the river with recurrence intervals of 10-year, 5-year and 1-year.

Modeling dissolved oxygen using QUAL2E for the different river flows with changes in loading would be the most appropriate method for determining these loads. However, until actual data for effluent flow and quality are measured from the new plant and more river monitoring is performed, these estimates of allowable discharge volume are reasonable until the next evaluation of the system is completed in 2008. The volume of effluent that could be discharged

to meet that maximum load was determined by using the maximum weekly average effluent concentration (25 mg/L) from the approved plans and specifications. The maximum allowable daily load for various summer river flow and the equivalent effluent volume that would meet those loads (no safety factor) are as follows:

Colville River Flow (cfs @ Chewelah)	Estimated allowable BOD loading with dilution (lbs/day)	Effluent Flow (MGD) resulting in max allowable load to river @ 25 mg/L BOD
Summer STP design flow	221	1.06 (design flow)
26.7 (7Q1)	238	1.14
15.2 (7Q5)	136	0.65
10.8 (7Q10)	97	0.47
6.6 (7Q29)	59	0.28

The existing permit limits includes a safety factor that was incorporated into the limits so that allowable loading is never exceeded. This was accomplished by requiring that within any given river flow increment, the effluent flow limit was based on the next lowest river-flow incremental allowable load. Using this method minimizes the amount of time that the actual effluent loading is at the maximum allowable loading. The proposed permit will temporarily eliminate the river flow tiers for this permit period of five years. The proposed permit, having taken into account the operational record of the plant and the river low flow season records, lowers the BOD limits thus keeps the effluent loading from violating the water quality standards.

Temperature –The effluent temperature during summer critical conditions is projected to be lower than the correlating river temperature and is projected to not have a negative impact on the river. Effluent and river temperature monitoring will be required so that future temperature evaluations can be made on effluent from the new plant.

Fecal coliform—Because the river has had exceedance of fecal coliform standards and dilution is minimal, the treated effluent must meet the Class A surface water standards at the end of pipe in the summer (100/200). During the winter, the technology-based effluent limitation for fecal coliform bacteria was used (200/400).

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: chlorine, ammonia, heavy metals, and very low levels of some organic chemicals common to municipal waster water. Water quality-based limits for chlorine and ammonia will prevent their toxicity.

Previous metals data from Ecology's last Class 2 inspection on December 17, 1990, showed that effluent was relatively low in metals at the time of sampling. No reasonable potential analysis was performed for metals and organics with the old plant data in the previous permit since the

new activated sludge treatment plant is much more efficient at removing these pollutants from the water. The effluent metals monitoring results from the Receiving Water and Effluent Metals study, submitted to Ecology in October 2004, also showed that the effluent was relatively low in metals.

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.

Toxicity caused by unidentified pollutants is not expected in the effluent from this discharge as determined by the screening criteria given in Chapter 173-205 WAC. Therefore, no whole effluent toxicity testing is required in this permit. However, more effluent quality will be obtained during this permit cycle along with assessments of the connected industrial users. Based on the new information, the Department may require effluent toxicity testing in the future if there is potential toxicity present in the effluent.

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).

This Permittee has no discharge to ground and therefore no limitations are required based on potential effects to ground water.

COMPARISON OF EFFLUENT LIMITS WITH THE EXISTING PERMIT ISSUED OCTOBER 19, 2000.

There are several changes to the existing permit's effluent limits:

- The two time periods during higher river flow periods – "spring" (March – May) and "winter" (November – February), will be combined in this proposed permit but will keep the same limits as in the existing permit.
- The tiered effluent flow limits based on river flow during the summer will be temporarily eliminated.
- The BOD limits during the "summer" (June – October) period will be changed from 15 mg/L average monthly and 25 mg/L average weekly to 10 mg/L average monthly and 15 mg/L average weekly.

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. 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 Ecology's *Permit Writer's Manual* (July 1994) for an activated sludge plant with an average design flow of less than 2 MGD.

The existing permit turbidity monitoring requirement will be changed in the proposed permit to level of UV transmittance monitoring. The UV transmittance has been recorded for over three years. The lower limit of 55% transmittance was determined from the DMR records and the manufacturer's recommendations.

Other monitoring requirement changes:

- The effluent phosphorous sampling frequency will be changed from once per week to once every two weeks.
- The frequency for measuring the depth of water in the storage lagoons will be changed from once per week through the entire year to once per week only during the time that wastewater is diverted to the lagoons and for two weeks after.
- The frequency for monitoring the Colville River parameters will be changed from once every two weeks to once per month during the May through October period.

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 at the Chewelah treatment plant is accredited for alkalinity, ammonia, biochemical oxygen demand (BOD/CBOD), dissolved oxygen, pH, phosphorous (total persulfate), total suspended solids and fecal coliform.

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.

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 Ecology under Chapter 70.95J RCW and Chapter 173-308 WAC. The disposal of other solid waste is under the jurisdiction of the Northeast Tri-County Health Department.

PRETREATMENT

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 of Ecology (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 sixty 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. This provision prohibits the POTW from accepting industrial wastewater from any such dischargers without authorization from the Department.

Requirements for Routine Identification and Reporting of Industrial Users

The NPDES permit requires non-delegated POTWs 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. System maintenance personnel can also be diligent during performance of their jobs in identifying and reporting as-yet unidentified industrial dischargers. Local newspapers, telephone directories, and word-of-mouth can also be important sources of information regarding new or existing discharges. The POTW is required to notify an industrial discharger, in writing, of their responsibilities regarding application for a State waste discharge permit and to send a copy of the written notification to the Department. The Department will then take steps to solicit a State waste discharge permit application.

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 has committed to providing technical and legal assistance to the Permittee in fulfilling these joint obligations, in particular assistance with developing an adequate sewer use ordinance, notification procedures, enforcement guidelines, and developing local limits and inspection procedures.

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 5 years.

REFERENCES FOR TEXT AND APPENDICES

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1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.

1991. Technical Support Document for Water Quality Toxics Control. EPA/505/2-90-001.

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1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.

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

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

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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

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

1997. Colville River Water Quality: Pollutant Loading Capacity and Recommendations for Total Maximum Daily Loads. Publication Number 96-349.

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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(EE2). (Cited in EPA 1985 op.cit.)

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to issue 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.

The Department will publish a Public Notice of Draft (PNOD) on February 9, 2006, in The Independent 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:

Water Quality Permit Coordinator
Department of Ecology
Eastern Regional Office
4601 North Monroe Street
Spokane, WA 99205-1295

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (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 thirty (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 thirty (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, (509) 329-3567, or by writing to the address listed above.

This permit and the fact sheet were written by Patrick McGuire.

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.

BOD_5--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 BOD_5 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.

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--TECHNICAL CALCULATIONS

Several of the Excel® spreadsheet tools used to evaluate a discharger's ability to meet 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 D--RESPONSE TO COMMENTS