

FACT SHEET FOR NPDES PERMIT WA-002447-3
City of Spokane - Riverside Park Water Reclamation Facility (POTW)
and
Spokane County (Pretreatment Program)

SUMMARY

The City of Spokane's NPDES Permit for the Riverside Park Water Reclamation Facility is proposed for reissuance. There are several issues this NPDES Permit Fact Sheet discusses:

1. The Spokane River and Lake Spokane Dissolved Oxygen TMDL, effluent nutrient (including phosphorus) concentrations and offset plans based in part on management of phosphorus from non-point sources,
2. Pretreatment and source identification and control of mercury, PCBs, PBDE, 2,3,7,8, TCDDs (one of the dioxins), and
3. Ongoing CSO control implementation and discharge notification.

The issuance of this permit is being timed to follow the approval of the Spokane River and Lake Spokane Dissolved Oxygen (DO) TMDL by the U.S. EPA. This permit implements the Spokane River DO TMDL, its waste load allocation and Managed Implementation Plan.

TABLE OF CONTENTS

I. INTRODUCTION	1
II. BACKGROUND INFORMATION	2
A. DESCRIPTION OF THE FACILITY	2
History	2
Collection System Status	2
Treatment Processes	5
Discharge Outfall.....	8
Residual Solids	8
B. PERMIT STATUS	9
C. SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT	9
D. WASTEWATER CHARACTERIZATION	9
E. SEPA COMPLIANCE	11
III. PROPOSED PERMIT LIMITATIONS.....	11
F. DESIGN CRITERIA	11
G. TECHNOLOGY-BASED EFFLUENT LIMITATIONS	13
H. SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS	15
Numerical Criteria for the Protection of Aquatic Life.....	15
Numerical Criteria for the Protection of Human Health	15
Narrative Criteria	15
Antidegradation	16
Critical Conditions.....	16
Mixing Zones.....	16
Description of the Receiving Water	16
Surface Water Quality Criteria	17
Consideration of Surface Water Quality-Based Limits for Numeric Criteria	20
Whole Effluent Toxicity	29
Human Health.....	30
Sediment Quality	31
I. GROUND WATER QUALITY LIMITATIONS	31
J. IMPLEMENTATION OF THE MANAGED IMPLEMENTATION PLAN	34
IV. MONITORING REQUIREMENTS.....	38
K. EFFLUENT LIMITS BELOW QUANTITATION.....	39
L. EFFLUENT LIMITS BELOW DETECTION	39
M. LAB ACCREDITATION	39
V. OTHER PERMIT CONDITIONS	40
N. REPORTING AND RECORDKEEPING	40
O. PREVENTION OF FACILITY OVERLOADING.....	41
P. RECLAMATION AND REUSE.....	41
Q. OPERATION AND MAINTENANCE (O&M MANUAL)	41
R. RESIDUAL SOLIDS HANDLING.....	41
S. PRETREATMENT.....	42
T. SPILL PLAN.....	44

U. COMBINED SEWER OVERFLOWS	44
V. GENERAL CONDITIONS	44
VI. PERMIT ISSUANCE PROCEDURES	45
W. PERMIT MODIFICATIONS	45
X. RECOMMENDATION FOR PERMIT ISSUANCE	45
VII. REFERENCES FOR TEXT AND APPENDICES	46
APPENDIX A - PUBLIC INVOLVEMENT INFORMATION	47
APPENDIX B - GLOSSARY	48
APPENDIX C - TECHNICAL CALCULATIONS	53
APPENDIX D - RESPONSE TO COMMENTS	61

I. 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 body of fact sheet will not be revised. Any necessary amendment due to comments and the resultant changes to the permit will be summarized in **Appendix D - Response to Comments**.

Table 1: Facility Information

GENERAL INFORMATION	
Applicant:	City of Spokane / Spokane County (Pretreatment Program)
Facility Name and Address:	Riverside Park Water Reclamation Facility 4401 N. Aubrey L. White Parkway, Spokane, WA 99205 Spokane County Division of Utilities (Pretreatment Program) 1026 W. Broadway Ave., Spokane, WA 99260-0430
Type of Treatment:	Activated Sludge, chlorine disinfection and dechlorination, seasonal phosphorus removal, partial nitrification-denitrification and pH adjustment
Discharge Location:	Spokane River w/side stream discharge at RM 67.4 Latitude: 47° 41' 43" N Longitude: 117° 28' 26" W.
Water Body ID:	Old ID WA-54-1020 & New ID QZ45UE

II. BACKGROUND INFORMATION

A. DESCRIPTION OF THE FACILITY

HISTORY

The City of Spokane completed construction of a combined storm/sanitary sewage interceptor and primary system in 1958 and expanded the treatment capacity in 1962. Major upgrades to the plant occurred in 1977. The current upgrades began in 1997 and are continuing. The 1977 upgrades are the basis for the current secondary wastewater treatment facility and seasonal phosphorus removal. The current upgrades provide an improvement in hydraulic capacity, replacing old mechanical equipment in the headworks, new screen channels, new septage receiving station, 2 new digesters, clarifiers and aeration basins; replace pumps, upgrade electrical system and telemetry and SCADA (supervisory control and data acquisition). An additional aeration basin has been added to the liquid process train with capability of denitrification. The ability to denitrify will be added to the remaining aeration basins in the next few years. The laboratory has been relocated and expanded.

The facility serves as a regional facility that provides wastewater treatment for the wastewater flows from the City of Spokane, City of Spokane Valley, Spokane County, Town of Millwood, City of Airway Heights, and Fairchild Air Force Base. The treatment plant currently provides tertiary treatment including seasonal phosphorus removal to the wastewater except during large storm events when combined storm/sanitary sewer flows cause hydraulic overloading of the collection system and treatment facility. The hydraulic overloading of the collection system results in combined sewage overflow (CSO) discharged directly to the river at 22 possible outfalls. Occasional system malfunctions can also cause dry weather discharges directly to the river at some of the CSO outfalls. Hydraulic overloading at the plant can cause an occasional bypass of the secondary portion of the treatment plant. The bypass of the secondary treatment portion has been historically regulated as a treated CSO requiring the discharge to receive primary clarification and disinfection. The primary treated portion is blended with the portion receiving secondary treatment and disinfected. The blended effluent has been in compliance with effluent limitations. Previous modifications in plant operations and the addition of dechlorination equipment has allowed for dechlorination of the CSO bypass in combination with the normally treated plant effluent.

COLLECTION SYSTEM STATUS

The 2000 census gives the City of Spokane population as 195,629 and the 2006 estimate from OFM is 201,600. The City NPDES permit application estimates that the POTW serves a population of 251,000 in the Spokane metropolitan area. The City owned collection system consists of the following:

- a. 471 miles of separated sanitary sewer
- b. 400 miles of combined sewer
- c. 356 miles of storm sewer

- d. 18 inverted siphons aka sag pipe facilities (2 are inactive)
- e. 1 Storm Sewer Lift Station
- f. 16,807 catch basins
- g. 3,121 drywells
- h. 27 lift stations
- i. 22 CSO outfalls
- j. 100+ storm sewer outfalls (now regulated by the Eastern Washington Ph II Municipal Stormwater Permit WAR-04-065)
- k. 1 WWTP outfall (includes treated CSO discharge)

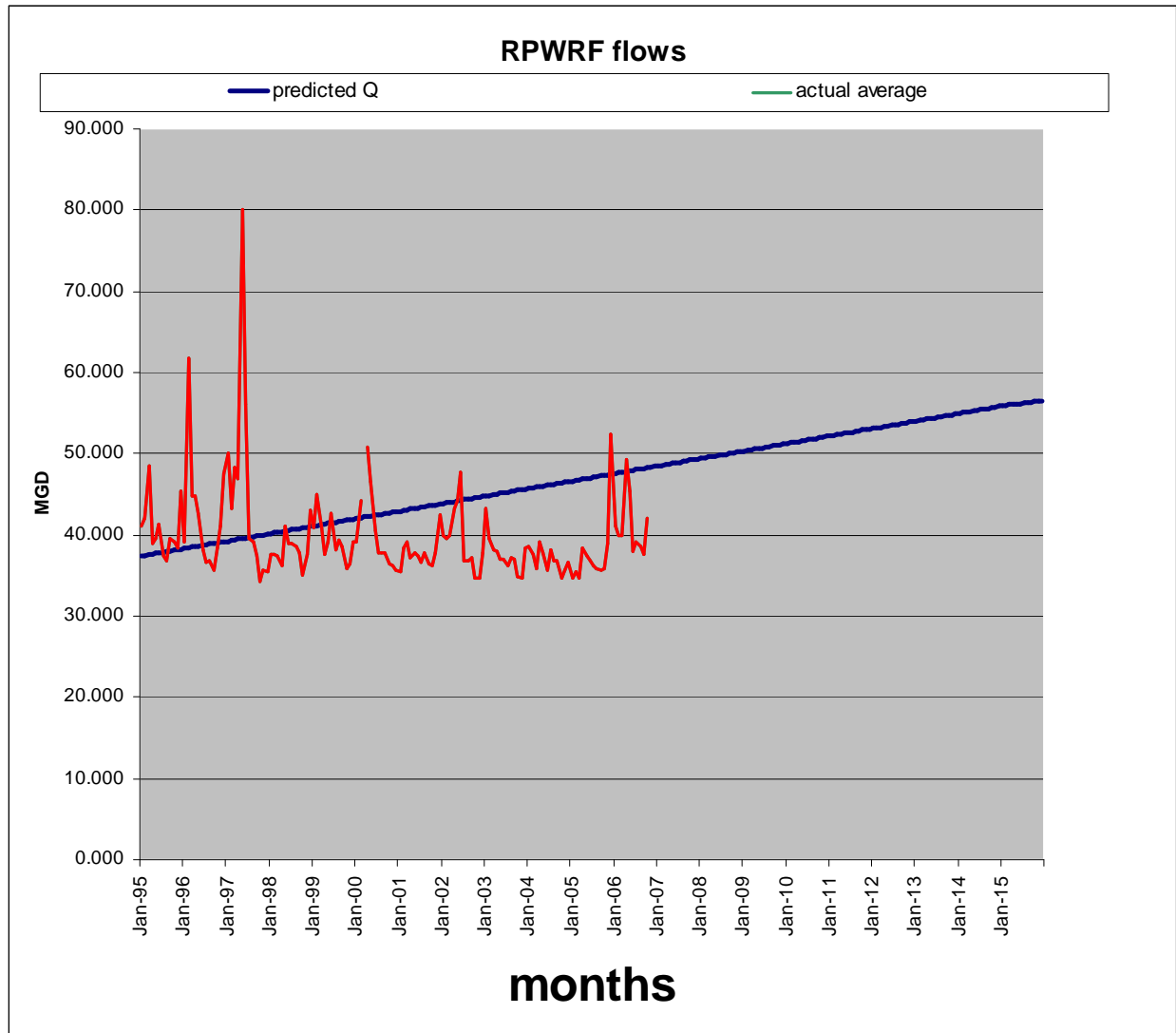
The City completed a large combined sewer separation project in 1993 which separated 186 miles of sewer in the northwestern part of the City and eliminated an estimated 86 percent of the annual untreated CSO volume discharged to the river (City of Spokane, 1998). A plan to further eliminate CSOs and meet the State's CSO requirement was approved in 1994. The City has submitted an extended CSO reduction schedule that takes CSO reduction improvements to the year 2017. In 2017, or earlier, the City's system will meet the State CSO requirement of no more than one CSO event per outfall per year.

During the previous permit, the City did an analysis of the CSO system including the treatment plant to consider if the treatment plant could be expanded to eliminate CSO discharges. The analysis concluded that the treatment could not be expanded due to constraints of the site. It is a federal requirement that analysis be updated each permit cycle. The analysis is an element of the engineering report described in the compliance section of the fact sheet and the permit compliance schedule.

The City has an ongoing program to identify and reduce infiltration and inflow and reduce water consumption. Due to these efforts, flow to the water reclamation facility has been relatively steady despite community growth. The currently approved engineering report projects a wastewater dry weather flow of 56 MGD by 2015.

The chart below shows predicted annual average flows and the actual annual average flows taken from the submitted Discharge Monitoring Reports (DMRs).

Figure 1: Predicted Annual Average Flows and Actual Annual Average Flows Taken From the Submitted DMRs



Spokane County has purchased 10 MGD of treatment plant and interceptor capacity from the City to provide conveyance and treatment of wastewater. The Spokane County 2001 Comprehensive Wastewater Management Plan estimates the sewered population served by County owned sanitary sewer collection systems as 63,859. The County owned collection system serving North Spokane and the Spokane Valley consists of 270 miles of sanitary sewer and 20 pump stations.

The County continues to implement a septic tank elimination program and construct new sewerage to expand sewer service for an estimated sewered population of 161,010 in the year 2020. The County hopes to have wastewater treatment facilities located in the western Spokane Valley substantially complete in 2011 ready for testing and start up and operational in 2012.

TREATMENT PROCESSES

Spokane's Riverside Park Water Reclamation Facility (RPWRF) is located on a 28 acre site in northwest Spokane along the north bank of the Spokane River (Figure 1). The RPWRF is considered a Class IV treatment plant and except for significant storm events, currently provides tertiary wastewater treatment, which includes conventional secondary treatment plus year round addition of alum for removal of zinc and other metals, seasonal nitrification of ammonia and seasonal chemical phosphorus removal. A fine-bubble aeration upgrade to the aeration basins provides for more efficient nitrification of ammonia.

The RPWRF treatment process units consist of the following:

- 1) Headworks with flow measurement (Parshall flumes), mechanically cleaned bar screens, (in the process of being replaced with perforated plate screens and washer/compactor for screenings) excess CSO diversion venture, and aerated grit chambers (being replaced with new grit handling equipment),
- 2) Primary clarifiers,
- 3) Aeration basins with capability to nitrify and partially denitrify,
- 4) Alum injection system for phosphorus removal,
- 5) Secondary clarifiers,
- 6) CSO storage/treatment clarifiers,
- 7) Chlorine contact basins with dechlorination,
- 8) Residual solids (sludge) treatment including anaerobic digesters with gas collection, gravity belt thickeners, and belt-filter presses (Figure 2), and
- 9) pH adjustment using magnesium hydroxide.

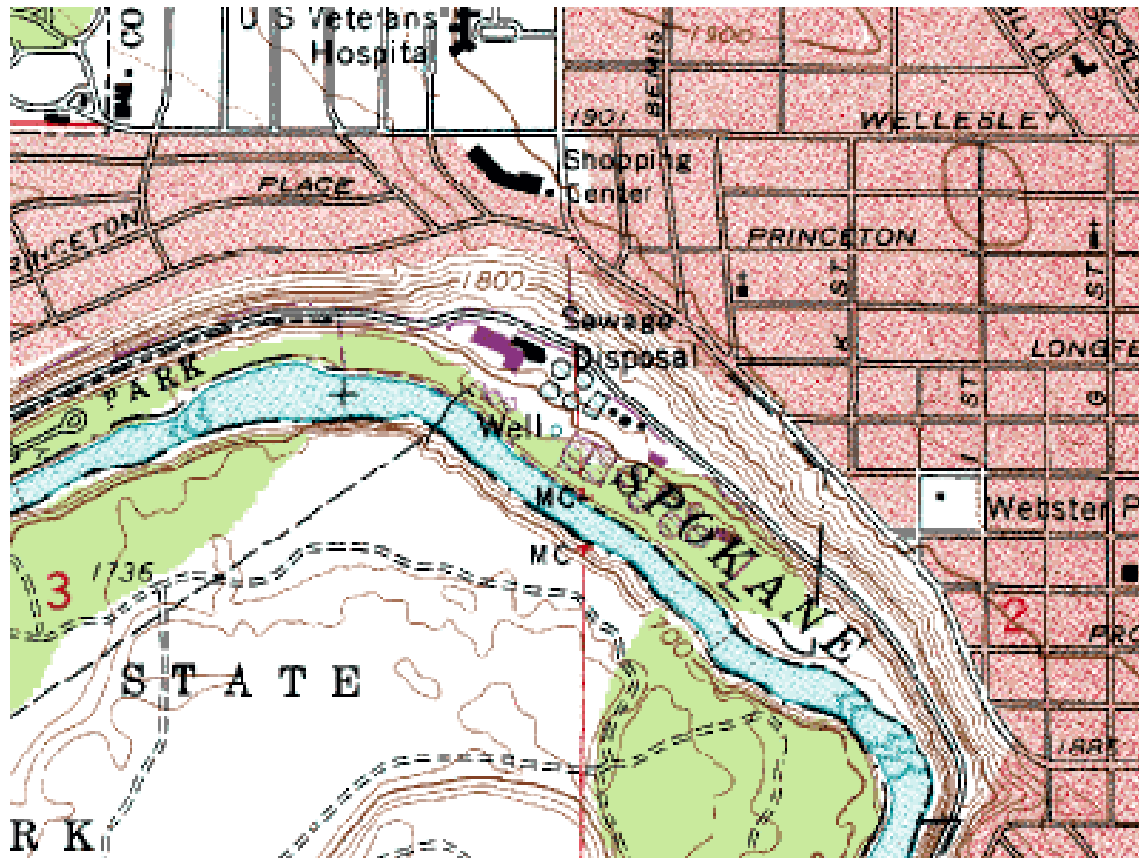
Twenty-four hour operation of the plant is performed by four person operating crews (two Class 3 and two Class 2) working in eight-hour shifts with support from additional maintenance, laboratory, and management personnel. Minimum operating crew size is a three person operating crew for limited periods of time.

The City operates a delegated industrial pretreatment program that currently has 11 Significant Industrial Users (SIUs) and Categorical Industrial Users (CIUs) under formal permit (2 industrial laundry, 1 dairy products processor (CIU), 1 juice product processor, 1 beverage bottler, 1 manufacturer of home products, 2 metal finishers (CIUs), 1 chemical supply processor, 1 pharmaceutical manufacturer (CIU), and 1 major car wash). The County also has a delegated industrial pretreatment program that currently has 9 SIUs and CIUs under formal permit (6 metal finishers (CIUs), 1 fertilizer supplier (CIU), 1 portal-potties wash, and 1 landfill ground water pump and treat). Since both the County and City have delegated industrial pretreatment programs, they are both authorized by this permit as a Co-Permittee for these pretreatment programs. The County and City have adopted an interlocal agreement that will have the City perform inspections, draft permits, and make recommendations for enforcement, with the County performing the administrative implementation and legal enforcement as well as updating the list of industrial users on the County collection system. The City will perform all the required pretreatment requirements for the City's delegated industrial pretreatment program.

*Fact Sheet for NPDES Permit WA-002447-3
City of Spokane's Riverside Park Water Reclamation Facility (the POTW) &
Spokane County Flows and Pretreatment Programs
for both the City of Spokane and Spokane County*

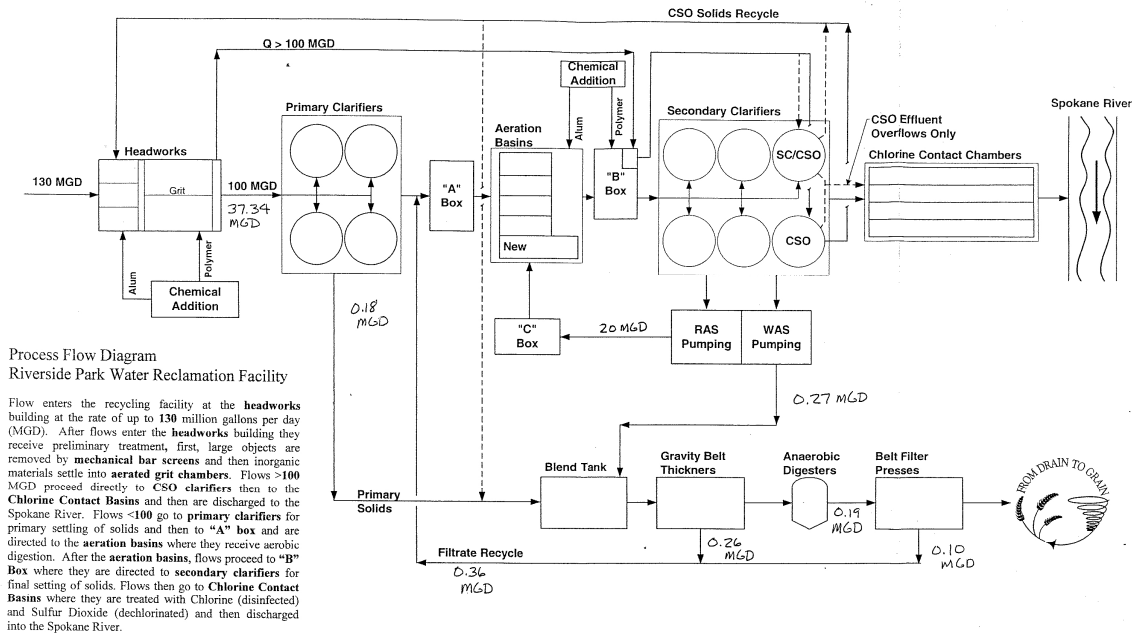
The City of Spokane and Spokane County will update all their interlocal agreements with multijurisdictional pretreatment agreements and develop other multijurisdictional agreements if needed to ensure each delegate pretreatment programs can enforce their programs legally.

Figure 2: Location map of City of Spokane Riverside Park Water Reclamation Facility



↑ Aubrey White
Parkway

Figure 3: Schematic of Treatment Process



 **City of Spokane**
 Phase 1
 Liquids Conceptual Design Report

File:Process Flow Diagram - Buildout.vsd

**Figure 9-2
 PROCESS FLOW DIAGRAM - PHASE 1**

DISCHARGE OUTFALL

Tertiary treated and disinfected effluent is discharged from the WWTP facility via a side stream discharge into the Spokane River. During CSO related peak flow, it may be necessary for the City to bypass the secondary portion of the plant. The primary treated effluent is recombined with the main waste stream from the plant prior to disinfection. The previous permit and fact sheet listed a CSO outfall 005B. That outfall is no longer operational and all flows use outfall 005A, which does ensure adequate disinfection.

In addition to the main plant's outfall, there are 22 CSO outfalls from the collection system with intermittent discharges directly to the river during significant precipitation events and during system malfunctions in dry weather.

RESIDUAL SOLIDS

The treatment facilities remove solids during the treatment of the wastewater at the headworks (grit and screenings), 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. The scum, rags and screenings are directed to the waste to energy plant.

The grit is directed to the local MSW landfill. Biosolids removed from the clarifiers are treated, digested and applied to land near Reardan; near Deer Park and in west Spokane County under a permit from Department of Ecology's Waste to Resources Program.

B. PERMIT STATUS

The previous permit for this facility was issued on March 30, 2000 and administratively extended on April 13, 2005. The previous permit placed effluent limitations on 5-day Biochemical Oxygen Demand (BOD₅), Total Suspended Solids (TSS), pH, Cadmium, Lead, Zinc, Fecal Coliform Bacteria, with seasonal limits for Ammonia and Residual Chlorine and an 85 percent removal requirement for Total Phosphorus.

An application for permit renewal was submitted to the Department on October 29, 2004 and accepted by the Department on December 6, 2004.

C. SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The facility received its last inspection on July 7, 2009.

During the history of the previous permit, the effluent from the wastewater treatment facility has remained in compliance, based on Discharge Monitoring Reports (DMRs) submitted to the Department and inspections conducted by the Department. The city's CSO system has experienced several overflow events. The City is making improvements and has submitted the documentation required by the permit and is continuing to submit updates.

D. WASTEWATER CHARACTERIZATION

The concentration of pollutants in the discharge was reported in the NPDES application and in DMRs. The effluent is characterized as follows:

Table 2: Wastewater Characterization

	Data from NPDES application
Parameter	Concentration (average / maximum)
BOD ₅ (mg/L)	5 / 27
TSS (mg/L)	6 / 27
pH (s.u.)	range 5.83 – 8.11
Max seasonal Temp. (°C)	18.4 summer / 20.8 summer
Fecal Coliform (cfu)	19 / 1600
TP (mg/L) year round	1.6 / 4.05
TP (mg/L) summer season	0.69
TP Removal (% , summer)	90.4 / 88.8 minimum
Residual Chlorine (mg/L)	NA / 0.034
Ammonia (total, mg/L)	0.29 / 9.22
TKN (mg/L)	2.04 / 9.35

METALS (total recov.µg/L)	
Antimony	0.594 / 1.59
Arsenic	1.73 / 3.5
Beryllium	0.03 / 0.111
Cadmium	0.108 / 0.2904
Chromium	1.97 / 3
Copper	3.80 / 15.18
Lead	1.070 / 1.818
Mercury	0.022 / 0.24
Nickel	4.243 / 35.9
Selenium	1.258 / 2.92
Silver	0.151 / 0.289
Thallium	0.006 / 0.0473
Zinc	49.876 / 61.8
Hardness (as CaCO ₃)	162/193
Cyanide (total, µg/L)	Non detect
ORGANICS	
Total Phenol	Non detect
VOCs	Non detect
Acid – Extractable Compounds	Non detect
Base – Neutral Compounds	Non detect

E. SEPA COMPLIANCE

The City of Spokane prepared environmental review documents for the upgrade of the wastewater treatment plant and submitted them for agency and public review in January 2002 and again in 2005 for the digesters and other upgrades in accordance with the State Environmental Policy Act.

III. 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 in part on information received in the application. 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. 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.

F. 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 this treatment facility are taken from the “*Conceptual Design Report for the Phase I Liquid Improvements City of Spokane Advanced Wastewater Treatment Plant*” dated July 2001; prepared by CH2MHILL and are as follows:

Table 3: Design Standards for the Spokane RPWRF – design year 2015

Parameter	Dry Season (May through October)	Wet Season
Average flow, MGD	55.9	60.6
Maximum Monthly flow, MGD	59.6	79.8
Maximum Day flow, MGD	103.9	129.5
Peak Hour flow, MGD	130	130
BOD₅ influent loading, lbs/day		
Annual Average	85,100	
Maximum Month	102,120	
Maximum Day	170,200	
TSS influent loading, lbs/day		
Annual Average	85,100	
Maximum Month	102,120	
Maximum Day	170,200	
TKN influent loading, lbs/day		
Annual Average	16,300	
Maximum Month	19,560	
Maximum Day	32,600	
TP influent loading, lbs/day		
Annual Average	2,270	
Maximum Month	2,570	
Maximum Day	3,630	

The City is developing plans to increase the peak hydraulic capacity to 150 MGD.

While the maximum month design flow for the Water Reclamation Facility is 59.6 MGD and the average is 55.9 MGD, as part of the collaboration effort for the DO TMDL the anticipated flows from various sources were considered in detail. The anticipated flows were used to calculate the final effluent mass limitation in pounds per day. The City of Spokane has had a vigorous infiltration and inflow control program and water conservation program. As a result, flows have not increased. In addition, Spokane County and Airway Heights have begun projects to build satellite water reclamation facilities that will divert flow from the City of Spokane's Riverside Park Water Reclamation Facility. Through the coming five year permit cycle the projected flows are expected to be:

Table 4: Influent Flow Distribution Projections

Year	Spokane City	Spokane County	Airway Heights	RPWRF Total
2004	29.65	7.20	0.31	37.16
2005	30.09	7.75	0.37	38.21
2006	30.55	8.30	0.43	39.28
2007	31.00	8.85	0.49	40.34
2008	31.47	8.40	0.55	40.42
2009	31.94	8.95	0.61	41.50
2010	32.42	9.50	0.67	42.59
2011	32.91	10.05	0	42.96
2012	33.40	1.95	0	35.35
2013	33.90	2.40	0	36.30
2014	34.41	3.24	0	37.65
2015	34.93	4.08	0	39.01
2016	35.45	4.92	0	40.37
2017	35.98	5.76	0	41.74
2018	36.52	6.60	0	43.12
2019	37.07	6.84	0	43.91
2020	37.63	7.08	0	44.71
2021	38.19	7.32	0	45.51
2022	38.76	7.56	0	46.32
2023	39.34	7.80	0	47.14
2024	39.93	8.11	0	48.04
2025	40.53	8.42	0	48.95
2026	41.14	8.73	0	49.87
2027	41.76	9.04	0	50.80
2028	42.38	9.34	0	51.72

In the discussion that produced the “Foundational Concepts” the flow estimates were projected out 20 years with a projected average monthly flow of 41.76 MGD in 2017 and 50.80 MGD in 2027. This flow was retained for calculating the mass effluent limitations for the waste load allocations in the Spokane River and Lake Spokane DO TMDL.

G. 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, BOD₅, and TSS are taken from Chapter 173-221 WAC. They are below in Table 5:

Table 5: 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
Chlorine 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 monthly average chlorine limit of 8.5 ug/L and a daily maximum chlorine limit of 22.2 ug/L and the facility is complying with the limitations. The proposed permit includes the same limitations.

Interim monthly mass loadings (lbs/day) effluent limits for BOD₅ and TSS were calculated based on the maximum monthly design flow projected to be in effect at the end of this permit cycle, (43 MGD) x Concentration limit (30 mg/L) x 8.34 (conversion factor) = mass limit 10,759 lbs/day.

Interim monthly mass loadings (lbs/day) effluent limits for BOD₅ and TSS are also calculated as the maximum monthly influent design loading (102,120 lbs/day) x 0.15 = 10,760 lbs/day.

The interim weekly average effluent BOD₅ mass loading is calculated as 1.5 x monthly loading = 16,138 lbs/day.

The interim weekly average effluent TSS mass loading is calculated as $1.5 \times \text{monthly loading} = 16,138 \text{ lbs/day}$.

H. 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). The TMDL collaboration team and the Department of Ecology submitted a collaborative statement of *"Foundational Concepts for the Spokane River TMDL Managed Implementation Plan"* dated June 30, 2006. This was followed by the *"Spokane River and Lake Spokane Dissolved Oxygen Total Maximum Daily Load – Draft Water Quality Improvement Report"* published September 2009. The public comment period ran to October 30, 2009 with a public hearing on October 20, 2009. The final report was submitted to EPA for approval in February 12, 2010 and approved by the U.S. EPA on May 20, 2010.

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 the 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 the 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 water body'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 Spokane River which has the following use designations (Table 602 of Chapter 173-201A):

1. Aquatic life uses (salmonid spawning, rearing, migration);
2. Primary contact recreation;
3. Water supply uses (domestic, industrial, agricultural, stock); and
4. Miscellaneous uses (wildlife habitat, harvesting, commerce/navigation, boating, aesthetics).

Water quality of this class shall meet or exceed the requirements for all or substantially all uses.

The Spokane River basin encompasses over 6,000 square miles in Washington and Idaho. The Spokane River begins at the outlet of Lake Coeur d'Alene and flows west 112 statute miles to the Columbia River. The river flows through the cities of Post Falls and Coeur d'Alene in Idaho, and through the large urban areas of Spokane and Spokane Valley. Other cities in the basin include Wallace and Kellogg, upstream from Lake Coeur d'Alene, and Liberty Lake, Deer Park, and Medical Lake.

The flow regime for the Spokane River is dictated largely by freezing temperatures in the winter followed by summer snowmelt. Prior to the 401 Avista dam relicensing, the annual harmonic mean flow was approximately 2,154 cfs as the river crosses the Idaho border. Flow increased to 2,896 cfs downstream of Spokane, reflecting the influx of groundwater through this river reach.

In Idaho, point source outfalls to the Spokane River include the City of Coeur d'Alene, Hayden Area Regional Sewer Board POTW, and the City of Post Falls POTW and the stormwater discharges associated with those cities. In Washington, points sources include Liberty Lake POTW and Kaiser Aluminum (both upstream from the Permittee), and the City of Spokane AWTP.

Significant nearby non-point sources of pollutants to the Spokane River include stormwater from the City of Spokane; and sources from Latah Creek (or Hangman Creek), Little Spokane River and Coulee/Deep Creek.

SURFACE WATER QUALITY CRITERIA

Applicable criteria are defined in Chapter 173-201A WAC for aquatic life, recreation, and water supply uses. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for this discharge are summarized below in Table 6:

Table 6: Surface Water Quality Criteria

Fecal Coliforms	Must not exceed a geometric mean value of 100 colonies/100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 200 colonies/100 mL
Dissolved Oxygen	8 mg/L (lowest one day minimum) When a waterbody's D.O. is lower than the criteria (or within 0.2 mg/L of the criteria) and that condition is due to natural conditions, then human actions considered cumulatively may not cause the D.O. of that water body to decrease more than 0.2 mg/L. For lakes, human actions considered cumulatively may not decrease the D.O. concentration more than 0.2 mg/L below natural conditions.
Total Dissolved Gas	Shall not exceed 110 percent of saturation at any point of sample collection.

Temperature	<p>1) 7-DADMax (7-day average of the daily maximum temperatures) of 17.5°C (63.5°F)</p> <p>2) Temperature shall not exceed a 1-DMax of 20.0°C due to human activities.</p> <p>3) When natural conditions exceed a 1-DMax of 20.0°C, no temperature increase will be allowed which will raise the receiving water temperature by greater than 0.3°C;</p> <p>4) Nor shall such temperature increases, at any time, exceed $t = 34/(T + 9)$.</p>
pH	Within the range of 6.5 to 8.5 with a human-caused variation within the above range of less than 0.5 units.
Turbidity	5 NTU over background when the background is 50 NTU or less; or a 10 percent increase in turbidity when the background turbidity is more than 50 NTU.
Toxics	No toxics in toxic amounts.

In addition, from Long Lake Dam (river mile 33.9) to Nine Mile Bridge (river mile 58.0), the average euphotic zone concentration of Total Phosphorus (as P) shall not exceed 25 ug/L during the period of June 1 to October 31.

In 1989, the Spokane River Phosphorus Management Plan was adopted to meet the 25 ug/L Total Phosphorus criteria. This plan set Total Phosphorus limits for each point source discharger to the Spokane River.

The Department routinely assesses available water quality data on a statewide basis. The results are submitted to the Environmental Protection Agency (EPA) as an "integrated report" to satisfy Sections 303(d) and 305(b) of the federal Clean Water Act. This report lists water quality for a particular location in one of five categories, as recommended by EPA. Categories one through four represent the 305(b) Report which is the overall status of water quality in the State. Category 5 represents waters on the 303(d) list which are the known polluted waters in the State.

A Total Daily Maximum Load (TMDL) must be developed for each water body on the 303(d) list. The purpose of a TMDL is to determine the amount of pollution a water body can receive while still meeting water quality standards. Maximum allowable pollution from various sources are established as either individual waste load allocations (WLAs) for point source or load allocations (LAs) for non-point sources.

For the Spokane River, multiple segments are on the Department's 2004 303(d) list. Water quality is not meeting standards for: Dissolved Oxygen, Temperature, Dissolved Gas, Fecal Coliform Bacteria, Total PCBs, and Dioxin.

The DO TMDL report has been approved by the U.S. EPA Region 10 office. The PCB TMDL report will be finished as a technical support document to guide source control and cleanup activities. There are not yet TMDLs prepared for the Temperature, Dissolved Gas, Fecal Coliform Bacteria, and Dioxin listings.

In the 305(b) Report, the Spokane River also includes category 1, 2, and 4a waters. Category 1 waters are where standards are being met; category 2 waters are where the data are not sufficient for listing as impaired, but there still may be a concern about water quality; and category 4a is for waterbodies that have an approved TMDL. There have been approved TMDLs for metals (Cadmium, Lead and Zinc) and Total Phosphorus (discussed above) on the Spokane River.

In response to the Dissolved Oxygen 303(d) listings, the Department prepared a draft TMDL report for the Spokane River and Lake Spokane (Ecology, 2004). The report recommends substantial reductions in Phosphorus, Carbonaceous Biological Oxygen Demand (CBOD), and Ammonia discharged to the Spokane River from both point and non-point sources. The reductions apply during the season from April through October.

As a result of this draft report, Ecology, NPDES point source dischargers, and other interested parties formed the Spokane River Collaboration to cooperatively address the low dissolved oxygen concentrations in the Spokane River.

Ecology revised the draft 2004 TMDL and released it for public comment in 2007 and 2008. These 2007 and 2008 TMDL drafts still contained very stringent wasteload allocations, but also accounted for non-point pollution sources, and anticipated that pollutant trading might be used to help the point source dischargers meet their load allocations. Despite this improvement, these draft TMDLs were flawed in two ways:

1. They did not consider Avista's responsibility for the impacts caused by Long Lake Dam.
2. They assumed that the impacts of the Idaho dischargers were set by the NPDES permits EPA had proposed even though those permits did not contain discharge limits stringent enough to meet Washington's water quality standards when considered cumulatively with Washington sources (see Appendix H).

To develop a TMDL that will achieve compliance with Washington water quality standards, Ecology developed a revised TMDL based on modeling that now assesses the cumulative impact of all dischargers and accounts for the impacts of Long Lake Dam on dissolved oxygen in Lake Spokane. Because all the impacts causing the water quality impairment are considered, the proportional share that each discharger bears is less than in earlier draft TMDLs. The new wasteload allocations for the point source dischargers, assumed reductions in the Idaho discharges, load allocations for non-point sources, and the improvements that Avista will make to mitigate the effect of the dam, give assurance that compliance with water quality standards will be achieved. The final Water Quality Improvement Report was submitted to EPA for approval in February 2010.

The Department has also completed a draft Total Maximum Daily Load (TMDL) assessment for PCBs in the Spokane River (Ecology, 2006). The proposed TMDL is based on meeting a downstream Spokane Tribe water quality PCB criterion of 3.37 pg/l. While the PCB TMDL has been delayed, clean up efforts are in progress and this proposed permit includes monitoring of toxics including PCBs and development of cleanup plans as contaminated sites are identified. The City is developing management plans for PCBs in stormwater and CSOs.

EPA rules (40 CFR Subpart K (44 FR 32954-5)) do provide for the use of narrative limitations rather than numeric effluent limitations.

The Spokane River also regularly violates water quality criteria for Zinc. Criteria for Lead and Cadmium are also frequently exceeded, especially at higher flows. In 1999 the Spokane River Metals TMDL was completed to address these water quality exceedences (Ecology, 1999). Specific WLAs applicable to the Permittee are discussed in the next section below.

The Spokane River is not specifically listed for Mercury. However, the effluent from the POTW is monitored for Mercury. From January 2002 through May, 2005 the effluent concentration for Mercury on occasion exceeded or equaled the chronic water quality criteria for Mercury (0.012 ug/L). With consideration of dilution the water quality criterion for Mercury would not be exceeded outside the authorized mixing zone nor does the maximum effluent concentration reported in the NPDES permit application exceed the reasonable potential criterion for Mercury. Nevertheless the permit's pretreatment section does require action to be taken.

The potential for effluent temperature impacts during the critical low flow season were checked with a simple dilution model. The input variables were dilution factor 3.96, upstream temperature 16.8°C in 2005, and an effluent temperature 20.2°C. The water quality standards were recently revised downward to better protect cold water fish species.

The Department's ambient monitoring station is well upstream of the POTW and temperature data is highly variable. Instream monitoring of ambient water temperatures by the Permittee immediately upstream of the outfall and downstream of the mixing zone is necessary before analyzing for reasonable potential to exceed the temperature standard.

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 Biological Oxygen Demand (BOD) is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating surface water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

In the reasonable potential calculation, 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 (seasonal 7Q20).

The dilution factors of effluent to receiving water that occur within these zones have been determined at the critical condition and have been determined to be (from Appendix D):

Table 7: Dilution Factors of Effluent to Receiving Water That Occur Within Mixing Zones

Dilution Factors	Low River Flow Period (July – October)	High River Flow Period (November – June)
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	Acute	Chronic	Acute	Chronic
Aquatic Life	1.17	3.96	1.23	6.40
Human Health, Carcinogen	12.75 (annually based)			
Human Health, Non-carcinogen	5.19 (annually based)			

The critical seasonal flow conditions for the Spokane River at the Spokane WWTP are the seven day average low river flow with a recurrence interval of twenty years (7Q20). The critical flow was calculated from the sum of the 7Q20 flows from the USGS gages at Spokane River @ Spokane, Hangman Cr. @ Spokane, and 200 cfs groundwater inflow. Ambient water quality data at critical seasonal conditions in the vicinity of the WWTP outfall was determined from both historical data, intensive monitoring data collected by the City of Spokane, and 3 separate sets of continuous Hydrolab Datasonde monitoring obtained during the summer of 1998. During the summer of 1998, Spokane River (Spokane River @ Spokane) lowest 7-day average flow (845 cfs) approached the 7Q10 flow of 757 cfs for that station.

The critical ambient background data used for the previous NPDES and this permit includes the following:

Table 8: Critical Ambient Background Data used for the Previous NPDES and this Permit

Parameter	Value used (low river flow)	Value used (high river flow)
7Q20 low flow	805.5 cfs	1532.1 cfs
7Q10 low flow used in yr. 2004 Spokane River DO TMDL model	578 cfs	---
Temperature	20.3°C	15.3
pH (high)	8.5 s.u.	8.27 s.u.
Dissolved Oxygen	8.0 mg/L	8.5 mg/L
Chlorine	0.0 mg/L	0.0 mg/L
Total Ammonia-N	0.22 mg/L	0.3 mg/L
Fecal Coliform	20 cfu	20 cfu
Hardness	82.9 mg/L	58.4 mg/L
Cadmium	Because background concentrations caused by sources in Idaho exceed water quality criterion, limits for Cadmium, and Lead are performance – based. Zinc has a water quality based limitation consistent with the Spokane River Metals TMDL	
Lead		
Zinc		
Arsenic	0.0 µg/L	0.0 µg/L
Copper	0.372 µg/L	0.372 µg/L
Mercury	0.0013 µg/L	0.0031 µg/L
Silver	0.0204 µg/L	0.048 µg/L

The impacts of dissolved oxygen deficiency, temperature, pH, fecal coliform, chlorine, ammonia, metals, and other toxics were determined as shown below, using the dilution factors described above.

CBOD₅, Ammonia, and Total Phosphorus - The Spokane River and Lake Spokane (Long Lake) dissolved oxygen TMDL report sets WLAs for total phosphorus, CBOD₅, and ammonia for each NPDES discharger to the Spokane River. The TMDL's managed implementation plan outlines the approach Ecology will take to meet these WLAs and ultimately achieve the water quality standard for dissolved oxygen in Lake Spokane.

This approach is spread over a twenty year managed implementation plan (MIP). During the first ten years of the MIP, efforts focus on phosphorus reduction to the Spokane River.

For the Riverside Park Water Reclamation Facility, the first 5 years is needed to install technologies to achieve the limits of technology for phosphorus reduction and implement offset creation and management techniques. The second 5 years will optimize treatment operations, implement offset creation and management techniques and then data collection to establish scientifically defensible and supportable data sets for use in the Ten Year Assessment.

Before the end of the first ten years of the MIP, a thorough assessment will provide any necessary information to guide actions for the second ten year period. These second period actions will include continuation of successful measures conducted in the first 10 years, such as operation of the phosphorus treatment technology and other permanent phosphorous reduction efforts. They may also include new actions such as additional treatment technologies, consideration of river oxygenation, and/or reconsideration of Water Quality Standards applied to the River and Lake Spokane. If new information from the "Ten Year Assessment" justifies relaxing the WLAs and the WQBELs, the WQBELs will be relaxed. If so, the following section in federal regulation regarding "anti-backsliding" is applicable:

122.44(l) Reissued permits.

*1) **Except as provided in paragraph (l)(2) of this section** when a permit is renewed or reissued, interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under Sec. 122.62.)*

(2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.

*(i) **Exceptions**--A permit with respect to which paragraph (l)(2) of this section applies may be renewed, reissued, or modified to contain a less stringent effluent limitation applicable to a pollutant, if--*

Information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance; or

Ecology will establish WLAs and WQBELs on the best scientific information and interpretation available based on the facts that the "Ten Year Assessment" produces. Ecology will also examine and revise as needed the implementation of water quality based effluent limitations in terms of long term average versus monthly averages or maximums.

Phosphorus – In the Spokane River and Lake Spokane Dissolved Oxygen Total Maximum Daily Load – Water Quality Improvement Report, Table 3 gives the model input parameters.

The DO TMDL uses a dry weather flow of 50.80 MGD to calculate the mass of the final water quality based effluent limitations (WQBELs). Based on assumptions including weekly sampling, a seasonal average of 42 ug/L was used for model inputs from the RPWRF. Table 5 gives the resulting Waste Load Allocations (WLAs) based on modeling scenario #1. The U.S. EPA model needed to express its input in average monthly lbs/day.

Based on best professional judgment the Department and dischargers agreed that 50 ug/L was the Limit of Technology (LOT) for phosphorus removal at a municipal wastewater treatment plant on an average seasonal basis during the collaboration for the development of the Foundational Concepts.

However, the DO TMDL uses a 50 ug/L LOT as a monthly maximum for total phosphorus for all dischargers. TMDLs deal with maximum daily loads and strive for equality among sources. A consistent maximum monthly load, based on a 50 ug/L LOT for TP, accomplishes that.

The U.S. EPA converted a 50 ug/L maximum month to a seasonal average of 42 ug/L; based on assumptions of performance, log normal data distributions and sampling frequency for the Riverside Park Water Reclamation Facility. While performance data for wastewater treatment removing nutrients to low levels exist, the data sets are heavily influenced by significant quantities of data at the detection limit. It will take time to collect data from the as yet un-built treatment facility to derive a reliable statistical basis for better conversion of a maximum limit to monthly and weekly averages. There are no assurances that a log normal distribution will be present for all parameters of interest to make the appropriate conversions.

In the DO TMDL, WLA are set based on a seasonal average effluent concentration. For the Riverside Park Water Reclamation Facility, the equivalent mass is 17.8 lbs/day based on a flow of 50.8 MGD with an effluent concentration of 42 ug/L.

The Department and the Spokane River dischargers have funded a study to determine if all the total phosphorus in the wastewater effluent is biologically available for growth of aquatic organisms. The DO TMDL assumes 100% of the TP is available for growth. Preliminary results of the bio-available study indicate the fraction of TP available for growth is less than 1.

The Water Environment Research Foundation and CH2M-Hill have published studies indicating that in wastewater the digestion step of the total phosphorus analysis introduces compounds that interfere with a reliable, reproducible analytical result. Successful compliance monitoring requires reliable, reproducible results. A surrogate for the total phosphorus analysis appears to be desirable. Wastewater experts (The City of Spokane's Next Level of Treatment Peer Review Group) have suggested that the analysis for total reactive phosphorus is such an analysis.

The Permittee will be required to submit a report establishing a ratio of total phosphorus to total reactive phosphorus and a ratio of total reactive phosphorus to bio-available phosphorus.

CBOD₅ - For the Riverside Park Water Reclamation Facility, RPWRF, the DO TMDL projects that compliance requires the effluent CBOD₅ concentration be less than 4.2 mg/L. The effluent limitation will express this as a mass limit for the season March 1 to October 31 of 1,778 lbs/day.

Ammonia - The interim ammonia limits are based on a potential for toxics impacts. The final effluent limits also considered the potential for toxic impacts with a resulting final daily maximum effluent limitation based on chronic toxicity. The ammonia limitations imposed by the DO TMDL are more stringent than limits required based on toxicity when the reasonable potential does exist.

The reasonable potential spreadsheet was used for each season. For the winter season, the low flow was for January 2001 and there was no reasonable potential. Winter is generally not a high flow period for the POTW. But, January 2006 was an exception and was used for a POTW flow (52.4 MGD).

For the spring season, the low flow was for March 2001 and there was no reasonable potential. For the fall season, the low flow was for October 2006 and there was no reasonable potential. For the summer season, the low flow was for August 2001 and there was a reasonable potential.

As with total phosphorus in the previous "Foundational Concepts," seasonal averages were given for a spring, summer and fall season. In the DO TMDL the U.S. EPA converted these seasonal averages to monthly maximums and the monthly maximums to monthly averages based on assumptions of performance, log normal data distributions and sampling frequency. The spring season now also includes March.

The 3 seasons will have an average mass per day limit:

1. For the season of March 1 to May 30, the allowable mass of NH_3 is 351 lbs/day.
2. For the season of June 1 to September 30, the allowable mass of NH_3 is 88.9 lbs/day.
3. For the season of October 1 to October 31, the allowable mass of NH_3 is 351 lbs/day.

For the 3 parameters above, federal rules normally require effluent limitations to be expressed in terms of monthly and weekly averages and sometimes daily maximums for a toxicant. 40 CFR122.45(d) does allow that if the normal monthly averages, weekly averages and daily maximum are impractical, alternatives such as an annual or seasonal limit may be appropriate. For the Spokane River and Spokane Lake system impractical means the water body does not respond in a measurable way to short term variations. Therefore, long term trend analysis and measurements descriptive of long term trends such as seasonal averages and seasonal totals are appropriate. For the municipal dischargers to the Spokane River and Spokane Lake system impractical also means that reliable data sets with log normal distributions for conversion of maximums to averages do not exist. In Chesapeake Bay, EPA recognized that temperature affected plant performance resulting in a skewed data set, making it impracticable to establish monthly and weekly averages. For Chesapeake Bay U.S. EPA cited reasons of temperature affecting plant performance resulting in a skewed data set. A skewed data set can also result when the low end of the data set is determined by the detection limit. Both reasons are currently present, leading to the conclusion that it is currently impracticable to establish monthly and weekly effluent limitations for all 3 parameters.

pH - The impact of pH during the critical low flow season was modeled using the calculations from EPA, 1988. The input variables were dilution factor 3.96, upstream temperature 16.8°C, upstream pH 8.5, upstream alkalinity 103 (as mg CaCO₃/L), effluent temperature 20.2°C, effluent pH of 6, effluent pH of 8, and effluent alkalinity 99 (as mg CaCO₃/L).

Under critical conditions there was no predicted violation of the Water Quality Standards for Surface Waters for pH. Water quality-based ammonia limits are derived using the assumption of certain maximum pH in the effluent. Therefore, the technology-based effluent limitation was used for minimum pH (6.0) and a performance-based limit (99%tile of historic effluent data from 2/93 – 8/97) was used for the upper pH limit (7.8). 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 3.96.

Under critical conditions there is no predicted violation of the Water Quality Standards for Surface Waters caused by the treatment plant discharge meeting the technology-based limit. Therefore, the technology-based effluent limitation for fecal coliform bacteria was placed in the proposed permit.

There is evidence that the fecal coliform criterion is violated during significant CSO events from outfalls upstream of the WWTP discharge. This issue is being addressed under the compliance schedule for CSO reduction.

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 a few organic compounds were also detected (see Table 2). A reasonable potential analysis was conducted on these parameters to determine whether or not effluent limitations would be required in this permit.

Ammonia removal for DO TMDL compliance will generally result in ammonia concentrations well below toxic levels. The exception is noted above and results in a daily maximum effluent limitation for the “summer” season.

The Spokane River has a TMDL for the heavy metals, cadmium, lead and zinc. The TMDL requires permit limits based on the more stringent of two methods to define effluent limits. The more stringent effluent limitations for cadmium and lead are based on the treatment performance of the facility plus 10% as laid out in the heavy metals TMDL. For zinc the more stringent effluent limit is a water quality based effluent limit. For cadmium and lead the stringent effluent limitation is the performance based limitation.

The performance-based limits for the Riverside Park Water Reclamation Facility were developed from low-level analytical data for dissolved metals obtained in the effluent sampling conducted by the City from January 2008 through July 2009.

The Department does low level monitoring of heavy metals in the Spokane River. For cadmium and lead, the exceedances of the water quality criteria are no longer routine. However, zinc concentrations in the Spokane River still routinely exceed the water quality criterion. The Water quality standards have been revised to reflect new information on partitioning of metals and toxicity that resulting in a higher maximum limitation but a lower average concentration.

There have not been violations of the metals effluent limitations by the City of Spokane water reclamation facility.

The Spokane River is also listed for violating criteria for total Polychlorinated Biphenyls (PCBs). Lake Spokane is also listed for violating water quality standards for 2,3,7,8 TCDDs, also known as Dioxins and Furans. While, a separate TMDL for these pollutants has been drafted, completion has been delayed. Monitoring of the Riverside Park Water Reclamation Facility influent and effluent for these pollutants is appropriate. Source identification is occurring and some subsequent cleanup activities are being implemented. Recent ambient monitoring also indicates the presence of polybrominated diphenyl ethers (PBDE). As an initial step toward future source identification, the wastewater influent and effluent will be monitored for PBDE.

The Clean Water Act has a goal of no discharge. For pollutants which are subject to pass through or partial pass through a wastewater treatment plant, such as PCBs, the permit will require identifying and eliminating the source the of PCBs (also Dioxins, Furans, and PBDEs) into the collection system.

This is consistent with the state's basic Water Pollution Control Statute, Chapter 90.48 RCW and implementing rules (Ch. 173-216 WAC, Ch 173-220 WAC) beginning with the directive to "require the use of all known available and reasonable methods by industries and others to prevent and control the pollution of the waters of the state of Washington." The permit writer's manual includes guidelines for appropriate BMPs in, Chapter XII. Based on collection system monitoring results, this permit proposes source identification and cleanup activities following the administrative procedures for BMPs.

Source control will be difficult as common products such as some inks, paint, caulking and bar soap contain PCBs as manufacturing byproducts well above water quality standards. What sources can be found and are controllable should be found and controlled or eliminated.

The determination of the reasonable potential for the compounds identified in the effluent characterization (Table 1) which exceeded the water quality criteria end-of-pipe were evaluated with procedures given in EPA, 1991 (Appendix D) at the critical seasonal conditions.

The seasonal critical conditions used to model aquatic toxicity are as follows:

	Winter Season (Nov – Feb)		Spring Season (March – May)		Summer Season (June – Sept)		Fall Season (Oct.)	
Parameter	Effluent	River	Effluent	River	Effluent	River	Effluent	River
pH (s.u.)	6.96	8.24	7.45	8.5	7.26	8.5	7.16	8.33
Temperature (°C)	16.6	10.6	16.8	12	21.2	19.7	18.7	13.9
Alkalinity (mg CaCO ₃ /L)	70	50	74	38	76	44	79	82
Hardness (mg CaCO ₃ /L)	50	55	50	36	50	71	50	100

Effluent limits were derived for ammonia and chlorine which were determined to have a reasonable potential to cause a violation of the Water Quality Standards after mixing. Effluent limits for silver and mercury were eliminated from this permit since new data obtained from using ultra low level analyses show that there is currently no reasonable potential for the WWTP effluent to cause exceedances of the water quality criterion for these parameters.

Effluent limits were calculated using methods from EPA, 1991 as shown in Appendix D. The resultant water quality-based effluent limits based on **toxicity** are as follows:

	Winter Season (Nov – Feb)		Spring Season (March – May)		Summer Season (June – Sept)		Fall Season (Oct.)	
Parameter	Monthly Ave.	Daily Max.	Monthly Ave.	Daily Max.	Monthly Ave.	Daily Max.	Monthly Ave.	Daily Max.
Ammonia, Total as N						7.5 mg/L		
Chlorine, Total Residual	8.5 µg/L	22.2 µg/L	8.5 µg/L	22.2 µg/L	8.5 µg/L	22.2 µg/L	8.5 µg/L	22.2 µg/L

Ammonia and chlorine limits have become less stringent than those in the last permit due to several different source of new information. The new information was used in calculating the revised limits. One factor for the chlorine limit was the use of an acute mixing zone description as result of the City's mixing zone study. This study provides new information that demonstrates more initial dilution of the effluent before having to meet the acute criteria.

The U.S. EPA has also been revising the sensitivity of salmonids to ammonia. In addition, the collection of much more river and effluent data was used to better model the critical conditions of temperature and pH at the edge of the mixing zone.

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.

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 sublethal 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 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.

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 of Ecology 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 Ecology Publications Distribution Center 360-407-7472 for a copy. Ecology recommends that Permittees send a copy of the acute or chronic toxicity sections(s) of their permits to their laboratory of choice.

The WET tests during effluent characterization indicate that no reasonable potential exists to cause receiving water acute toxicity, and the Permittee will not be given an acute WET limit and will only be required to retest the effluent prior to application for permit renewal in order to demonstrate that acute 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. Proposed upgrades however should result in less potential for effluent toxicity in the discharge.

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

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.

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. Proposed upgrades however should result in less potential for effluent toxicity in the discharge.

The previous permit has required WET testing every other month. The testing has shown 100 % survival for the acute test and usually 100% survival and reproductive success in the chronic wet testing.

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).

The Department has determined that the effluent is likely to have chemicals of concern for human health. The discharger's high priority status is based on the discharger's status as a major discharger and knowledge of data or process information indicating regulated chemicals occur in the discharge,

A determination of the discharge's potential to cause an exceedance of the water quality standards was conducted 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 (Ecology Publication 92-109, July, 1994).

The determination indicated that the discharge has a reasonable potential to cause a violation of the human health-based water quality standards for arsenic. The calculated permit limits would be as follows:

Arsenic, Total Recoverable	Monthly Ave. 0.23 µg/L	Daily Max. 0.46 µg/L
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However, there is considerable uncertainty of the appropriateness of the human health-based arsenic criteria and the chemical availability of arsenic in the effluent.

Due to the uncertainties of the criteria, available analytical methods for arsenic, and natural sources of arsenic in the environment, Ecology's Water Quality Program management has decided not to include human health-based limits for arsenic in permits. Instead, monitoring of the effluent will be required so that the necessary data will be available to assess the need for a permit modification if or when needed.

SEDIMENT QUALITY

The Department has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health for marine waters and general considerations to consider for freshwaters.

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).

Section 173-204-400 provides guidance to evaluate the potential for sediment impacts. Local conditions being a key consideration:

- 1) Stream velocity is highly unlikely to result in deposition.
- 2) Sediment substrate is coarse sand, gravel and boulders.
- 3) WWTP TSS is low.

It is the Department's opinion that there is no potential for this discharge to cause a violation of sediment quality standards. If the Department determines in the future that there is a potential for violation of the Sediment Quality Standards, an order will be issued to require the Permittee to demonstrate that either the point of discharge is not an area of deposition or, if the point of discharge is a depositional area, that there is not an accumulation of toxics in the sediments.

I. 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.

Table 9: Comparison of Interim Effluent Limits with the Existing Permit Issued, March 30, 2000

Main Plant Outfall 005A		Low Flow Season (July – Oct)		
Parameter	Existing Limits (conc./mass, ppd)		Proposed Limits (conc./mass, ppd)	
	Monthly Ave.	Average Weekly	Monthly Ave.	Average Weekly

*Fact Sheet for NPDES Permit WA-002447-3
City of Spokane's Riverside Park Water Reclamation Facility (the POTW) &
Spokane County Flows and Pretreatment Programs
for both the City of Spokane and Spokane County*

BOD ₅ (mg/L)	30 / 10,759	45 / 16,138	Same	
TSS (mg/L)	30 / 10,759	45 / 16,138	Same	
Fecal Coliform (cfu/100 mL)	200	400	Same	
pH (s.u.)	6.0 – 7.8		Same	
Phosphorus (total, mg/L) Through Oct. 31	85% minimum monthly avg. removal		0.63	1.11
Parameter	Monthly Ave.	Max. Daily	Monthly Ave.	Max. Daily
Ammonia (total, mg/L)	1.61 / 577	6.33 / 2,270	Same	Same
Chlorine (total resid, µg/L)	8.5 / 3.0	22.2 / 8.0	Same	Same
Cadmium (Tot. Rec, µg/L)	0.188	0.327	0.076	0.233
Lead (Tot. Recov, µg/L)	1.98	3.18	0.772	1.34
Zinc (Tot. Recov, µg/L)	60.55	82.20	53.8	72.6
Mercury (total, µg/L)	NL**	NL**	NL**	NL**
Silver (total recov., µg/L)	NL**	NL**	NL**	NL**
Main Plant Outfall 005A High Flow (Nov - June)				
Parameter	Monthly Ave.	Average Weekly	Monthly Ave.	Average Weekly
BOD ₅ (mg/L)	30 / 10,759	45 / 16,138	Same	
TSS (mg/L)	30 / 10,759	45 / 16,138	Same	
Fecal Coli. (cfu/100 mL)	200	400	Same	
pH (s.u.)	6.0 – 7.8		Same	
Phosphorus (total, mg/L) Beginning April 1	Monthly average 85% removal (seasonal)		0.63	1.11
Parameter	Monthly Ave.	Max. Daily	Monthly Ave.	Max. Daily
Ammonia (total, mg/L)	5.30 / 2,679	13.4 / 14,472	---	7.5
Chlorine (total resid, µg/L)	8.5 / 4.3	22.2 / 24.0	same	same
Cadmium (Tot. Rec, µg/L)	0.188	0.327	0.076	0.233
Lead (Tot. Recov, µg/L)	1.98	3.18	0.772	1.34

Zinc (Tot. Recov, µg/L)	60.55	82.20	53.8	72.6
Mercury (total, µg/L)	NL**	NL**	NL**	NL**
Silver (total recov., µg/L)	NL**	NL**	NL**	NL**
**NL = No Limit				

CSO Outfall 005B			
Fecal Coli. (cfu/100 mL)	200	400	None – outfall eliminated
Chlorine (total resid, µg/L)	8	19	

FINAL EFFLUENT LIMITATIONS FOR COMPLIANCE WITH THE SPOKANE RIVER DO TMDL

Beginning **March 1, 2018** the Permittee must have installed the full phosphorus removal process train including chemical addition and have operational the technology needed to comply with the following effluent limitations during the season March 1 to October 31.

Beginning **March 1, 2021** the Permittee is authorized to discharge municipal wastewater at the permitted location subject to complying with the following limitations:

EFFLUENT LIMITATIONS ^a : OUTFALL # 005A (March – Oct)		
Parameter	Seasonal Total	Maximum Daily
Carbonaceous Biochemical Oxygen Demand – 5 day (CBOD ₅) March 1 to Oct. 31 See notes e and f	1,778 lbs/day	
Total Phosphorus (as P) March 1 to Oct. 31 See notes e and f	17.8 lbs/day	
Total Ammonia (as NH ₃ -N)	See notes e and f	
For “season” of March 1 to May 31	351 lbs/day	
For “season” of June 1 to Sept. 30	89 lbs/day	7.5 mg/L
For “season” of Oct. 1 to Oct. 31	351 lbs/day	
EFFLUENT LIMITATIONS ^a : OUTFALL # 005A		
Parameter	Average Monthly	Average Weekly
Carbonaceous Biochemical Oxygen Demand – 5 day (CBOD ₅) Nov. 1 thru Feb. ^e	30 mg/L, 8,775 lbs/day	45 mg/L, 13,162 lbs/day
Total Suspended Solids ^e	30 mg/L, 8,775 lbs/day	45 mg/L, 13,162 lbs/day

Fecal Coliform Bacteria	200/100 mL	400/100 mL
pH	Daily minimum is equal to or greater than 6 and the daily maximum is less than or equal to 9.	
Parameter	Average Monthly	Maximum Daily ^b
Total Residual Chlorine ^c	8.5 µg/L, 4.3 lbs/day	22.2 µg/L, 24.0 lbs/day
Cadmium (tot. recoverable)	0.076 µg/L	0.233 µg/L
Lead (tot. recoverable)	0.772 µg/L	1.34 µg/L
Zinc (tot. recoverable)	53.8 µg/L	72.6 µg/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 maximum daily effluent limitation is defined as the highest allowable daily discharge. The daily discharge means the discharge of a pollutant measured during a calendar day. For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For other units of measurement, the daily discharge is the average measurement of the pollutant over the day.		
c. Indicates the range of permitted values. When pH is continuously monitored, excursions between 5.0 and 6.0, or 9.0 and 10.0 shall not be considered violations provided no single excursion exceeds 60 minutes in length and total excursions do not exceed 7 hours and 30 minutes per month. Any excursions below 5.0 and above 10.0 are violations. The instantaneous maximum and minimum pH shall be reported monthly.		
d. The given limits of 30 mg/L and 45 mg/L are default values. During data gathering for the "Ten Year" assessment performance based limits will be calculated.		
e. Compliance will be based on a combining of the effluent quality, pollutant equivalencies in term of oxygen depletion and the DO TMDL and pollutant credit earned from implementation of the Offset Plan.		
f. See compliance schedule item S15.A for reporting of Offset Plan mass earned and expended.		

J. IMPLEMENTATION OF THE MANAGED IMPLEMENTATION PLAN

The collaborative effort that led to the development of the current Managed Implementation Plan contains the following agreed actions which are pertinent to the proposed permit.

The agreed actions are:

- **Technology Selection Protocol:** The City of Spokane will prepare, and submit to Ecology for approval, a comprehensive technology selection protocol for choosing the most effective feasible technology for seasonally removing phosphorus from their effluent with an objective of achieving a discharge with seasonal average 50 µg/L phosphorus or lower.

Pilot testing is a significant part of the protocol and has appropriate provisions for oversight, quality assurance and control. The protocol includes a preliminary schedule for construction of the treatment technology.

• **Offset Plan:** Not a requirement in the proposed permit. In the next permit cycle it is anticipated that an Offset Plan will be required. The future offset plan is anticipated to address a schedule for offset creation and trading, other phosphorus removal actions such as conservation, effluent re-use, source control through support of regional phosphorus reduction efforts (such as limiting use of fertilizers and dishwasher detergents), and supporting regional non-point source control efforts to be established. The offset plan, in combination with the phosphorus reduction from technology, will provide reasonable assurance of meeting the City of Spokane's final effluent limitations given in S.I.B. Subsequent updates will include an annual assessment of the previous year's offset creation and management effort, an accounting of offset credits earned, expended and available for trading. Based on lessons learned from ongoing studies and evaluations of previously implemented best management practices, the report shall make recommendations for the upcoming year.

• **Engineering Report:** After the City of Spokane concludes the technology selection protocol, the Permittee will prepare, and submit to Ecology for approval, an Engineering Report concerning the chosen technology, including any updates to the construction schedule. The Engineering Report will (if necessary) be accompanied by amendments to the schedule and substance of the target pursuit actions so that in combination with the Engineering Report on expected technology performance, there is reasonable assurance of meeting the target in ten years.

As the DO TMDL was being finalized a question was raised regarding the equivalency of CBOD₅, Total Phosphorus and Ammonia to one another for purposes of offsets or pollutant credit trading within a permit or between permittees. The modeling done to date for the DO TMDL does not provide an answer. The engineering report will be the document where pollutant equivalencies are presented for the Department review and documented.

The Engineering Report is to address the following topics based on rule requirements, pollutant equivalency consideration, potential for offset creation and management including trading, etc:

- 1) Population projections by year for the next 20 years;
- 2) Loading projections, flow, TP, CBOD, Ammonia, and TN;
- 3) Wastewater treatment processes needed to reliably comply with the CBOD₅, NH₃ and TP WLAs of the Spokane River and Lake Spokane Dissolved Oxygen TMDL; including loadings potentially bypassed in a "blending event," and requiring an offset or pollutant equivalency consideration;
- 4) Projection of loading removed for TP, CBOD, Ammonia, and TN;

- 5) Projection of offset(s) and other actions needed for compliance with DO TMDL that reduce TP, CBOD and ammonia loadings to the final effluent and the river,
- 6) Options considered to generate offset(s),
- 7) Recommended offset option and/or other actions (such as water reclamation and offset generating options if projected to be needed)
- 8) Timeline of offsets and other DO compliance actions to be needed and implementation schedule to achieve DO TMDL compliance,
- 9) Site options and process options for future addition of process elements and offset generating activities to achieve the final equivalent effluent limitations and water reclamation requirements as described in Chapter 173-219 WAC "Reclaimed Water Use."
- 10) Establish a ratio of total phosphorus (TP) to total reactive phosphorus (TRP) and a ratio of total reactive phosphorus (TRP) to bio-available phosphorus.
- 11) Findings from the University of Washington / WERF bioavailability lab study.
- 12) Subsequent monitoring and modeling of bioavailable phosphorus impacts in Lake Spokane.
- 13) The pounds of phosphorus that are not bio-available, not reactive and not a nutrient source that contribute to the total phosphorus waste load allocation
- 14) Recommended adjustment potentially made to the effluent limitations needed for compliance with the DO TMDL because of non bio-available phosphorus in the effluent,
- 15) The plan update, in combination with the pollutant reduction from technology, shall provide reasonable assurance of meeting the Permittee's Waste Load Allocations in ten (10) years.
- 16) Update analysis of CSO control options and no feasible alternative option for expansion of the treatment facilities to avoid "blending" of fully treated effluent and partially treated effluent during CSO events.

• **Interim Limits:** This portion of the original Foundational Concepts has been superseded by the new DO TMDL.

• **Final Limits:** Final limits based on the DO TMDL WLA will be expressed as total mass (lbs.) for the applicable season until a satisfactory data base exist to calculate appropriate seasonal, monthly, or weekly averages.

The effectiveness of the TMDL and the permit limits will be evaluated at the 10 year assessment discussed in the managed implementation plan. If necessary and appropriate, new WQBELs may be established based on the result of the 10 year assessment.

The Clean Water Act generally prohibits relaxing effluent limits in reissued permits. However, exceptions are provided for in the anti-backsliding rule provisions.

For example, new information, which would have justified less stringent effluent limits had it been available, can be used to justify relaxing effluent limits in reissued permits (see section 402(o)(2) of the Act). If the revised WQBELs are less stringent based on such new information, this anti-backsliding exception would apply.

• **Investment Stability:** The investment in phosphorus removal technology is recognized by Ecology as having a 20-year life, and no significant modifications or replacements of phosphorus removal facilities will be required during the term of the MIP. Modifications to installed technology that best available data indicate would enhance phosphorus removal performance and are efficient and cost-effective may be required.

• **Conservation:**

The City of Spokane wastewater management division in cooperation with water purveyors, will as soon as possible develop individual and regional programs that reduce flows by funding "LOTT-style" indoor conservation efforts that target 20% water conservation per household in older urban areas and 10% water conservation per household in newer (post 1992) urban areas. These programs will have local ordinances, avoided cost investment principles and per connection expenditures similar to the LOTT program. To the extent these actions are demonstrated as reducing phosphorus loading to the river, they will be recognized as contributing toward achieving phosphorus waste load targets.

• **Class A Effluent:** The City of Spokane's RPWRF will, through their technology updates, produce effluent meeting the State of Washington Class A reclaimed water quality standards in place when the MIP takes effect.

Start Up: The compliance schedule anticipates a period of time for an operational shake down period to establish consistent reliable performance (possibly two years) and allows a couple years of data collection prior to the ten year assessment. The permit will have a compliance schedule to implement planning, design and construction of phosphorus removal process elements. The Department does acknowledge that the following schedule is aggressive and may need to be amendment in the future upon request based on new information including progress made and appropriate justification.

Similarly, the permit compliance schedule requires submission of updates to the Offset Plan including an annual assessment of progress and lessons learned.

COMPLIANCE SCHEDULE AND A REQUIREMENT FOR A ENGINEERING REPORT UPDATE

The proposed DO TMDL and the subsequent managed implementation plan are anticipated to require additional treatment facilities to remove phosphorus and oxygen consuming pollutants.

The City of Spokane will produce the following deliverables on or before the date given:

Item	Date
Annual Offset Plan Update	February (Initial submission in 2013)
Anticipated Pilot Testing Conclusion	Dec. 1, 2010
Engineering Report submitted	January 3, 2013
Submission of Contract Documents for construction of phosphorus removal process units to achieve Final TP effluent limitations	June 30, 2014
Certificate of Construction and Start up Completion for Compliance with Spokane River and Lake Spokane DO TMDL WLAs	March 1, 2018

The “Annual Offset Plan Update” is intended to 1) keep the Department and the public informed of the progress being made with “offset” management efforts and 2) to form the basis and framework for “offset” credit trading for CBOD₅, Total Phosphorus and Ammonia. The contents of the plan shall include an annual assessment of the previous year’s offset management effort, an accounting of “offset” credits earned, expended and available for trading. Based on lessons learned from ongoing studies and evaluations of previously implemented best management practices, the report shall make recommendations for the upcoming year.

IV. 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, the effluent limitations are being achieved and the receiving water standards are being met for selected parameters.

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 S2. Specified monitoring frequencies take into account the quantity and variability of discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

As a pretreatment Publicly Owned Treatment Works (POTW), the City of Spokane is required to have influent, primary clarifier effluent, final effluent, and sludge 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 Spokane and Spokane County to develop local limits which commercial and industrial users must meet.

The monitoring data will also be used by the City of Spokane and Spokane County to develop source controls programs for phosphorus, mercury, Total PCBs, Dioxins, Furans and PBDEs possibly including educational efforts.

K. EFFLUENT LIMITS BELOW QUANTITATION

The water quality-based effluent limits for chlorine and arsenic in the wastewater are below the capability of current analytical technology to quantify. The Quantitation Level is the level at which concentrations can be reliably reported with a specified level of error. For maximum daily effluent limits, if the measured effluent concentration is below the Quantitation Level, the Permittee reports NQ for non-quantifiable. For average monthly effluent limits, all effluent concentrations below the Quantitation Level but above the Method Detection Level are used as reported for calculating the average monthly value. The Method Detection Level (MDL) is the minimum concentration of an analyte that can be measured and reported with a 99 percent confidence that its concentration is greater than zero as determined by a specific laboratory method.

L. EFFLUENT LIMITS BELOW DETECTION

The water quality-based effluent limit for chlorine in the wastewater is below the capability of current analytical technology to detect. For maximum daily limits, if the concentrations are below the MDL the Permittee reports ND for non-detectable. For average monthly limits, all values above the MDL are used as reported and all values below the MDL are calculated as zero.

M. 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 this facility is accredited for:

General Chemistry			
Parameter Name	Method	Reference	Matrix *
Alkalinity, Total	2320 B(4c)	SM	N
Ammonia (NH ₃ -N)	4500	SM 18	N
Biochemical Oxygen Demand, BOD/CBOD	5210 B	SM	N
Chlorine Residual, Total	4500-Cl G	SM	N
Dissolved Oxygen	4500-O C	SM	N
Dissolved Oxygen	4500-O G	SM	N
Nitrate	353.2	EPA	N
Nitrate + Nitrite	353.2	EPA	N
Nitrite	353.2	EPA	N

pH	4500-H	SM	N
Phosphorus, Total	4500-PF	EPA	N
Phosphorus, Ortho	4500-PF	EPA	N
Solids, Total	2540 B	SM	N
Solids, Total Suspended	2540 D	SM	N
Solids, Total Volatile	2540 E	SM	N
Microbiology			
Parameter Name	Method	Reference	Matrix *
Fecal Coliforms (A-1)	9221 E(2)	SM 18	N
* Matrix key: D = drinking water; N = non-potable water; S = solids/chem materials; A = air			

The permit appendix A lists recommended analytical protocols, because of the significance of nutrient (phosphorus and ammonia) monitoring to the DO TMDL, either the permit appendix A recommended analytical protocol for total phosphorus is required or U.S. EPA method 365.3. For either a required reporting limit of 5 ug/L is required. The recommended analytical protocols for total ammonia (as N) is required with a required reporting limit of 50 ug/L.

The POTW laboratory is accredited by the Washington State Department of Ecology for analysis of PO₄-P by the EPA method 365.3, Phosphorus, all forms, Colorimetric, Ascorbic Acid, Two Reagent. The lab's accreditation number is M1455.

Process samples are collected as 24 composite, flow proportioned, refrigerated at 4 degrees Celsius. River and Lake samples are collected as grab samples and are stored on ice until either refrigerated or analyzed. All samples are analyzed within the required time period.

V. OTHER PERMIT CONDITIONS

N. 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).

O. 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 S4. 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 S4. restricts the amount of flow.

P. RECLAMATION AND REUSE

The Managed Implementation Plan envision reclamation and reuse as being integral to the long term success of the Spokane River DO TMDL. The proposed permit will have two reuse sections.

The first permit section for Reclamation and Reuse will be for small scale pilot and demonstration project(s) to test the feasibility of a reclamation and reuse proposal.

Typically small scale pilot projects have been received dual agency oversight through the engineering review and approval process with appropriate follow up and reporting of the project. That process will be kept in place for this permit.

The second permit section will be for long term implementation of successful demonstrations of reclamation and reuse pilot projects. The proposed section will include the general elements of current reclamation permit requirements developed by the Departments of Health and Ecology for other reclamation and reuse facilities. When the Permittee is ready to implement a proposal, a request will be submitted to the Departments of Health and Ecology for review and potential approval. Following approval, the permit will be reopened and modified to include appropriate monitoring schedule, water quality limitations, reliability requirements, operation and maintenance requirements and reporting.

Q. OPERATION AND MAINTENANCE (O&M MANUAL)

The proposed permit contains condition S5. 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 POTW has undergone significant upgrades in the last several years. The updated O&M manual is now in electronic format on the computer control system at the POTW. As additional process improvements are made, revisions to the O&M manual can also be inputted to the electronic system.

R. 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 Spokane County Health Department.

S. PRETREATMENT

To provide more direct and effective control of pollutants discharged, the City of Spokane and Spokane County have been delegated permitting, monitoring and enforcement authority for industrial users discharging to their treatment system. The Department oversees the delegated Industrial Pretreatment Program to assure compliance with federal pretreatment regulations (40 CFR Part 403) and categorical standards and state regulations (Chapter 90.48 RCW and Chapter 173-216 WAC).

A meeting was held on October 20, 2004 at the Department of Ecology Eastern Regional Office on the subject of Spokane-area pretreatment. The following are items that staff of the Department of Ecology, City of Spokane, Spokane County, and the City of Spokane Valley agreed upon pertaining to Delegated Pretreatment Programs in the Spokane area:

- 1) Spokane County has the authority to administer its Delegated Pretreatment Program to their present and future sewer customers located within their designated sewer service areas in Spokane County and in the City of Spokane Valley. For the purpose of this meeting, this applies to customers who contribute wastewater into the Spokane County sewer collection system and are located outside of the corporate limits of the City of Spokane and within the City of Spokane Valley and Spokane County. Existing permitted facilities that this applies to are Ecolite Mfg Co., Galaxy Compound Semiconductors, Inc.; Honeywell Electronic Materials, Inc.; Lloyd Industries LLC, Kemira Water System, American On-Site Services and Novation, Inc. in the City of Spokane Valley, and the Mica Landfill in Spokane County. The County acknowledges that as owner and operator of a wastewater collection system it is their responsibility to protect their infrastructure, and by agreement the infrastructure of the downstream POTW, and accepts the obligations of a Delegated Pretreatment Program.
- 2) The City of Spokane has the authority to administer its delegated Pretreatment Program to their present and future sewer customers located within their designated sewer service areas in City of Spokane Valley, in Spokane County, and in the City of Spokane. For the purpose of this meeting, this applies to customers who contribute wastewater into the City of Spokane sewer collection system and are located either within or outside of the corporate limits of the City of Spokane. Existing permitted facilities that this applies to are Brenntag Pacific in the City of Spokane Valley, and Goodrich, Johnna Beverages, and Reliance Trailer in the West Plains Area of Spokane County. The City acknowledges that as owner and operator of a wastewater collection system and POTW it is their responsibility to protect their infrastructure, and accepts the obligations of a Delegated Pretreatment Program.

- 3) Both the City of Spokane and Spokane County, as the control authority for their Delegated Pretreatment Programs, will continue to enforce and update, if necessary and appropriate, their interlocal agreements and/or multijurisdictional pretreatment agreements with "contributing" jurisdictions such as Millwood, and Airway Heights. Some of these actions may include conducting Industrial User Surveys, monitoring, and permitting commercial and/or industrial users.
- 4) The agreements reached in the October 20th meeting are based upon individual and collective understanding of applicable laws, rules, regulations, and agreements pertaining to NPDES pretreatment requirements and programs in Washington State, and upon legal opinions provided by Spokane County and the City of Spokane Valley dated October 11, 2004 and October 12, 2004 respectively.

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.

As sufficient data becomes available, the Permittees shall, in consultation with the Department, reevaluate their local limits in order to prevent pass through or interference. Upon determination by the Department that any pollutant present causes pass through or interference, or exceeds established sludge standards, the Permittees 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. Although the maximum effluent concentration reported in the NPDES application does not exceed the reasonable potential criterion for mercury. Mercury in the effluent equaled or exceeded the chronic water quality criteria seven times from January 2002 through October 2004. It is the Department's determination that the Permittees need to develop and implement a mercury abatement and control program.

Additional Mercury Plan development guidance can be found at the following locations:

Ecology Mercury website	http://www.ecy.wa.gov/mercury/
For Dental Plan guidance	http://www.ecy.wa.gov/dentalbmps/index.html
Reduction Plan guidance	http://www.ecy.wa.gov/biblio/0303001.html

The Department may modify this permit to incorporate additional requirements relating to the establishment and enforcement of local limits for pollutants of concern.

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 SIUs and PSIUs, and of equal importance, to provide sufficient information about industries which discharge to the POTW, to determine which of them require issuance of State waste discharge permits 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 the exceedance 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 rigorous method for identifying existing, new, and proposed significant industrial users and potential significant industrial users. A complete listing of methodologies is available in the Department of Ecology guidance document entitled "Conducting an Industrial User Survey".

T. SPILL PLAN

The Permittee has developed a plan for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs. The proposed permit requires the Permittee to update this plan and submit it to the Department.

U. COMBINED SEWER OVERFLOWS

In accordance with RCW 90.48.480 and Chapter 173-245 WAC, proposed permit Condition S.13 requires the Permittee to monitor CSO discharges, update and maintain a public notification system, submit an updated CSO inspection and maintenance plan, submit a revised CSO monitoring plan and river monitoring plan, submit an annual Combined Sewer Overflow (CSO) report and to update its CSO reduction plan at the time of permit renewal and submit an annual progress report of planning, design and construction activities including identifying potential difficulties that could result in delays and how the difficulties will be addressed. No later than **December 31, 2017**, the CSO system shall meet all final State and Federal requirements applicable to discharges from a CSO.

V. 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.

VI. PERMIT ISSUANCE PROCEDURES

W. 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.

X. 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.

VII. 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>)

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

U.S. EPA Office of Water MEMORANDUM of March 3, 2004 Regarding: Annual Permit Limits for Nitrogen and Phosphorus for Permits Designed to Protect Chesapeake Bay and its tidal tributaries from Excess Nutrient Loading under the National Pollutant Discharge Elimination System.

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.

The Department published a Public Notice of Draft (PNOD) on September 5, 2007 in the Spokesman-Review to inform the public that a draft permit and fact sheet were available for review. Interested persons were invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents were 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 or found on Ecology's web site.

A second Public Notice of Draft Permit (PNOD) was published on April 4, 2008, in the Spokesman Review, to inform the public that a revised draft permit with revised discharge limitations was available for review. Interested persons are invited to submit written comments regarding the changes to 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 or found on Ecology's permit web site at http://www.ecy.wa.gov/programs/wq/permits/eastern_permits.html.

Additionally, a third Public Notice of Draft Permit was published on October 5, 2010 in the Spokesman Review, with another thirty day comment period following.

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) 329-3519 or by writing to the address listed above.

This permit and fact sheet were written by Richard A. Koch, 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 a 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

Water Quality Data for the Spokane River

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>

WQ Monitoring Station (54A120) at riverside state park

date	time	COND (umhos/cm)	FC (#/100ml)	FLOW (CFS)	HH3_IJ (mg/L)	HO2_HO3 (mg/L)	OP_DIS (mg/L)	OXYGEN (mg/L)	PH (pH)	PRESS (mmHg)	SUSSOL (mg/L)	TEMP (deg C)	TP_P (mg/L)	TPH (mg/L)	TURB (NTU)
10/5/2005	8:15	128	34	2130	0.01 U	0.602	0.0059	9.74	7.94	719.074	2	12	0.0119	0.692	0.8
11/9/2005	8:00	130	13	3100	0.01 U	0.531	0.015	10.7	8.06	717.55	1	7.8	0.0226	0.573	0.7
12/7/2005	7:50	126	4 J	3480	0.01 U	0.517	0.019	11.9	8.09	725.17	1	4.2	0.03	0.572	0.6
1/11/2006	7:55	103	600 J	10100	0.041	2.77	0.053	12.4	7.52	705.866	372	4.5	0.193	3.02	230
2/8/2006	7:55	93	3 U	9380	0.01 U	0.574	0.013	13.5	7.84	719.328	3	4.1	0.0186	0.595	2.4
3/8/2006	7:40	94	3	7900	0.01 U	0.596	0.015	12.97	7.74	711.962	6	3.7	0.0219	0.63	6.9
4/12/2006	7:55	68	2	16700	0.01 U	0.273	0.0087	13.9	7.39	711.962	6	5	0.0142	0.361	3.7
5/3/2006	7:45	67	5	18400	0.01 U	0.149	0.0048	13.3	7.93	720.344	6	7.8	0.006	0.24	2.3
6/7/2006	7:35	78	11	9710	0.01 U	0.227	0.0051	10.19	7.87	713.994	3	15.6	0.0086	0.285	1.3
7/12/2006	7:45	159	23	2490	0.01 U	0.691	0.0059	8.48	7.98	719.074	2 U		0.0109	0.757	0.8
8/9/2006	7:45	286	33 J	741	0.01	2.27	0.014	8.82	8.31	727.71	2	14.3	0.0293	2.57	0.8
9/13/2006	7:15	286	120	1630	0.01 U	1.32	0.0072	9.49	8.35 J	727.202	4	12.2	0.0234	1.41	1.1 J

date	time	ALK (mg/L)	COND (umhos/cm)	DOC (#/100ml)	FC	FLOW (CFS)	HARD (mg/L)	HH3_IJ (mg/L)	HO2_HO3 (mg/L)	OP_DIS (mg/L)	OXYGEN (mg/L)	PH (pH)	PRESS (mm/Hg)	SUSSOL (mg/L)	TEMP (deg C)	TOC (mg/L)	TP_P (mg/L)	TP_P_ICP (mg/L)	TPH (mg/L)	TURB (NTU)	
10/2/2007	12:50	62.1	209	1.3	33	1640	93.2	0.01 U	1.27	0.01	10	8.33	700.66	2	11.0	1.5	0.024	0.0227	1.38	1.6	
11/13/2007	12:15		172	1	U	7	2140	0.01 U	1.01	0.024	10.7	8.24	709.93	1	8.5	1.3	0.03		1.12	0.6	
12/11/2007	13:35	40	127	1.1	4	3710	53.9	0.01 U	0.717	0.023	11.91	8.01	711.700	2	5.3	1.4	0.029		0.757	1	
1/14/2008	12:30		150	1.7	3	3230		0.011	1.14	0.064	11.91	7.95	709.93	3	5.1	1.9	0.0700		1.24	3.6	
2/19/2008	12:55	51.3	150	1.9	9	3050	62.1	0.01 U	1.31	0.0703	12.32	7.91	705.104	2	4.3	2.1	0.0786		1.29	4.9	
3/10/2008	12:10		136	2.2	7	4540		0.01 U	2.64	0.0574	12.22	7.77	711.2	14	4.7	2.3	0.0813		3.00	11	
4/14/2008	13:15	30	100	1.8	260 J	6620	36.8 J	0.01 U	0.817	0.0479	11.77	7.70	705.350	6	7.2	2.2	0.0626		0.893	4.3	
5/12/2008	12:45		65	1.7	3 U	21000		0.01 U	0.191	0.0032	13.46	7.73	716.20	6	8	1.9	0.0089		0.27	3.1	
6/10/2008	15:20	22	59	1.4	7	20300	24.1	0.01 U	0.193	0.004	11.45	7.82	736.346	4	12.1	1.5	0.011		0.264	2.6	
7/15/2008	13:45		140	1.1	42	3890		0.01 U	0.793	0.0051	9.34	8.39	714.240	2	19.7 J	1.2	0.01		0.857	0.8	
8/12/2008	12:35	85.6	216	1	U	13	1570	95.4	0.01 U	1.30	0.0057	9.94	8.1	713.74	1	15.7 J	1.1	0.015		1.57	0.5 U
9/16/2008	12:30		202	1	U	12	1620		0.01 U	1.33	0.0002	9.3	8.17	713.74	2	14.8 J	1.1	0.019		1.46	0.5

*Fact Sheet for NPDES Permit WA-002447-3
City of Spokane's Riverside Park Water Reclamation Facility (the POTW) &
Spokane County Flows and Pretreatment Programs
for both the City of Spokane and Spokane County*

Effluent and Receiving Water Critical Conditions							
Facility:	RPWRF			Design Case:	Reasonable Potential - Spring		
Receiving Water:	Spokane River Spring						
CLICK HERE FOR INSTRUCTIONS	Effluent Data			Receiving Water Data			%flow for dilution
	Annual Average Flow	Monthly Average Flow	Daily Maximum Flow	7Q10 Critical Flow	30Q5 Critical Flow	Harmonic Mean Flow	
Flow (MGD)	41.76	41.76	82.50	1189.19	1664.87	3567.58	25
(cfs)	64.61	64.61	127.65	1840.00			
Critical Temp (°C)	16.80	Effluent Data		12.00	Receiving Water Data		
(°F)	62.2			53.6			
Critical Hardness (mg/L CaCO3)	50.00			34.00			
Critical pH (s.u.)	7.45			8.50			
Critical Alkalinity (mg/L as CaCO3)	74.00			38.00			
Enter own pH & Temp for Ammonia Criteria?	n			Enter own Dilution Factors (DFs)?	n		
	pH	Temp (°C)			Acute DF		
@ Acute Boundary					Chronic DF		
@ Chronic Boundary					Human Health (non C) DF		
					Human Health (Carcn) DF		
	@ Acute Boundary	@ Chronic Boundary	Whole River Dilution (@ 7Q10 Flow)	@ 30Q5 River Flow (non C)	@Harmonic Mean River Flow (Carcn)		
Dilution Factor	1.36	8.12	29.48	10.97	22.36		
(% effluent)	73.51	12.32	3.39	9.12	4.47		
Hardness	45.76	35.97	34.54	-	-		
Alkalinity	64.46	42.43	39.22	-	-		
Max pH (s.u.)	7.53	8.02	8.30	-	-		
Max Temp (°C)	15.53	12.59	12.16	-	-		
Max Temp (°F)	59.95	54.66	53.89	-	-		

Summary of Effluent Reasonable Potential Determination & Limits					Facility		RPWRF				
					Receiving Water		Spokane River Spring				
					Design Case		Reasonable Potential - Spring				
					Receiving Water	Acute Boundary		Chronic Boundary		Permit Limits	
					Upstream RW Conc, µg/L	RW Acute Criteria, µg/L	Conc @ Acute MZ Boundary, µg/L	RW Chronic (or Human Health) Criteria, µg/L	Conc @ Chronic (or Human Health) MZ Boundary, µg/L	Daily Maximum Limit, µg/L	Monthly Average Limit, µg/L
POLLUTANT	priority pollutant?	standard	Maximum Expected (or 50%) Effluent Concentration, µg/L	Does reasonable potential exist?							
AMMONIA, unionized	N	WQ Stnd	4875.6	NO	10.0	12693.4	3586.7	1258.4	609.3		

*Fact Sheet for NPDES Permit WA-002447-3
City of Spokane's Riverside Park Water Reclamation Facility (the POTW) &
Spokane County Flows and Pretreatment Programs
for both the City of Spokane and Spokane County*

Effluent and Receiving Water Critical Conditions							
Facility:	RPWRF			Design Case:	Reasonable Potential Summer		
Receiving Water:	Spokane River Summer						
CLICK HERE FOR INSTRUCTIONS	Effluent Data			Receiving Water Data			%flow for dilution
	Annual Average Flow	Monthly Average Flow	Daily Maximum Flow	7Q10 Critical Flow	30Q5 Critical Flow	Harmonic Mean Flow	
Flow (MGD)	40.00	41.76	82.50	373.56	522.99	1120.68	25
(cfs)	61.89	64.61	127.65	578.00			
Critical Temp (°C)	22.00	Effluent Data		19.70	Receiving Water Data		
(°F)	71.6			67.5			
Critical Hardness (mg/L CaCO3)	50.00			71.00			
Critical pH (s.u.)	7.26			8.50			
Critical Alkalinity (mg/L as CaCO3)	76.00			71.00			
Enter own pH & Temp for Ammonia Criteria?	n			Enter own Dilution Factors (DFs)?	n		
	pH	Temp (°C)			Acute DF		
@ Acute Boundary					Chronic DF		
@ Chronic Boundary					Human Health (non C) DF		
					Human Health (Carcn) DF		
	@ Acute Boundary	@ Chronic Boundary	Whole River Dilution (@ 7Q10 Flow)	@ 30Q5 River Flow (non C)	@Harmonic Mean River Flow (Carcn)		
Dilution Factor	1.11	3.24	9.95	4.13	8.00		
(% effluent)	89.83	30.90	10.05	24.21	12.49		
Hardness	52.14	64.51	68.89	-	-		
Alkalinity	75.49	72.54	71.50	-	-		
Max pH (s.u.)	7.30	7.71	8.07	-	-		
Max Temp (°C)	21.77	20.41	19.93	-	-		
Max Temp (°F)	71.18	68.74	67.88	-	-		

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City of Spokane's Riverside Park Water Reclamation Facility (the POTW) &
Spokane County Flows and Pretreatment Programs
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Effluent and Receiving Water Critical Conditions							
Facility:	RPWRF			Design Case:	Reasonable Potential		
Receiving Water:	Spokane River Fall						
CLICK HERE FOR INSTRUCTIONS	Effluent Data			Receiving Water Data			%flow for dilution
	Annual Average Flow	Monthly Average Flow	Daily Maximum Flow	7Q10 Critical Flow	30Q5 Critical Flow	Harmonic Mean Flow	
Flow (MGD)	41.76	41.76	82.50	1528.50	2139.90	4585.50	25
(cfs)	64.61	64.61	127.65	2365.00			
Critical Temp (°C)	18.70	Effluent Data		13.90	Receiving Water Data		
(°F)	65.7			57.0			
Critical Hardness (mg/L CaCO3)	50.00			100.00			
Critical pH (s.u.)	7.16			8.33			
Critical Alkalinity (mg/L as CaCO3)	79.00			82.00			
Enter own pH & Temp for Ammonia Criteria?	n			Enter own Dilution Factors (DFs)?	n		
	pH	Temp (°C)			Acute DF		
@ Acute Boundary					Chronic DF		
@ Chronic Boundary					Human Health (non C) DF		
					Human Health (Carcn) DF		
	@ Acute Boundary	@ Chronic Boundary	Whole River Dilution (@ 7Q10 Flow)	@ 30Q5 River Flow (non C)	@Harmonic Mean River Flow (Carcn)		
Dilution Factor	1.46	10.15	37.60	13.81	28.45		
(% effluent)	68.34	9.85	2.66	7.24	3.51		
Hardness	65.83	95.07	98.67	-	-		
Alkalinity	79.95	81.70	81.92	-	-		
Max pH (s.u.)	7.33	7.98	8.21	-	-		
Max Temp (°C)	17.18	14.37	14.03	-	-		
Max Temp (°F)	62.92	57.87	57.25	-	-		

Summary of Effluent Reasonable Potential Determination & Limits										Facility	RPWRF
										Receiving Water	Spokane River Fall
										Design Case	Reasonable Potential
POLLUTANT	priority pollutant?	standard	Maximum Expected (or 50%) Effluent Concentration, µg/L	Does reasonable potential exist?	Receiving Water	Acute Boundary		Chronic Boundary		Permit Limits	
					Upstream RW Conc, µg/L	RW Acute Criteria, µg/L	Conc @ Acute MZ Boundary, µg/L	RW Chronic (or Human Health) Criteria, µg/L	Conc @ Chronic (or Human Health) MZ Boundary, µg/L	Daily Maximum Limit, µg/L	Monthly Average Limit, µg/L
AMMONIA unionized	N	WQ Std	4875.6	NO	10.0	16848.3	3335.3	1349.0	489.3		

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City of Spokane's Riverside Park Water Reclamation Facility (the POTW) &
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Effluent and Receiving Water Critical Conditions							
Facility: RPWRF				Design Case: Reasonable Potential Winter			
Receiving Water: Spokane River Winter							
	Effluent Data			Receiving Water Data			
CLICK HERE FOR INSTRUCTIONS	Annual Average Flow	Monthly Average Flow	Daily Maximum Flow	7Q10 Critical Flow	30Q5 Critical Flow	Harmonic Mean Flow	%flow for dilution
Flow (MGD)	41.76	52.40	82.50	891.89	1248.65	2675.68	25
(cfs)	64.61	81.08	127.65	1380.00			
Critical Temp (°C)	16.60			10.60			
(°F)	61.9			51.1			
Critical Hardness (mg/L CaCO3)	50.00	← Effluent Data		55.00	← Receiving Water Data		
Critical pH (s.u.)	6.96			8.24			
Critical Alkalinity (mg/L as CaCO3)	70.00			50.00			
Enter own pH & Temp for Ammonia Criteria?	n			Enter own Dilution Factors (DFs)?		n	
	pH	Temp (°C)			Acute DF		
@ Acute Boundary					Chronic DF		
@ Chronic Boundary					Human Health (non C) DF		
					Human Health (Carcn) DF		
	@ Acute Boundary	@ Chronic Boundary	Whole River Dilution (@ 7Q10 Flow)	@ 30Q5 River Flow (non C)	@Harmonic Mean River Flow (Carcn)		
Dilution Factor	1.27	5.26	18.02	6.96	17.02		
(% effluent)	78.72	19.03	5.55	14.37	5.88		
Hardness	51.06	54.05	54.72	-	-		
Alkalinity	65.74	53.81	51.11	-	-		
Max pH (s.u.)	7.04	7.54	7.89	-	-		
Max Temp (°C)	15.32	11.74	10.93	-	-		
Max Temp (°F)	59.58	53.14	51.68	-	-		

Summary of Effluent Reasonable Potential Determination & Limits					Facility		RPWRF				
							Receiving Water	Spokane River Winter			
							Design Case	Reasonable Potential Winter			
POLLUTANT	priority pollutant?	standard	Maximum Expected (or 50%) Effluent Concentration, µg/L	Does reasonable potential exist?	Receiving Water	Acute Boundary		Chronic Boundary	Permit Limits		
					Upstream RW Conc, µg/L	RW Acute Criteria, µg/L	Conc @ Acute MZ Boundary, µg/L	RW Chronic (or Human Health) Criteria, µg/L	Conc @ Chronic (or Human Health) MZ Boundary, µg/L	Daily Maximum Limit, µg/L	Monthly Average Limit, µg/L
AMMONIA, unionized	N	WQ Stnd	4875.6	NO	10.0	23250.5	3840.3	2170.8	935.9		

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Effluent and Receiving Water Critical Conditions							
Facility: RPWRF			Design Case: Reasonable Potential - Spring				
Receiving Water: Spokane River Spring							
CLICK HERE FOR INSTRUCTIONS	Effluent Data			Receiving Water Data			%flow for dilution
	Annual Average Flow	Monthly Average Flow	Daily Maximum Flow	7Q10 Critical Flow	30Q5 Critical Flow	Harmonic Mean Flow	
Flow (MGD)	41.76	41.76	82.50	1189.19	1664.87	3567.58	25
(cfs)	64.61	64.61	127.65	1840.00			
Critical Temp (°C)	16.80	Effluent Data		12.00	Receiving Water Data		
(°F)	62.2			53.6			
Critical Hardness (mg/L CaCO ₃)	50.00			34.00			
Critical pH (s.u.)	7.45			8.50			
Critical Alkalinity (mg/L as CaCO ₃)	74.00			38.00			
Enter own pH & Temp for Ammonia Criteria?	n			Enter own Dilution Factors (DFs)?	n		
pH		Temp (°C)		Acute DF			
@ Acute Boundary				Chronic DF			
@ Chronic Boundary				Human Health (non C) DF			
				Human Health (Carcn) DF			
	@ Acute Boundary	@ Chronic Boundary	Whole River Dilution (@ 7Q10 Flow)	@ 30Q5 River Flow (non C)	@Harmonic Mean River Flow (Carcn)		
Dilution Factor	1.36	8.12	29.48	10.97	22.36		
(% effluent)	73.51	12.32	3.39	9.12	4.47		
Hardness	45.76	35.97	34.54	-	-		
Alkalinity	64.46	42.43	39.22	-	-		
Max pH (s.u.)	7.53	8.02	8.30	-	-		
Max Temp (°C)	15.53	12.59	12.16	-	-		
Max Temp (°F)	59.95	54.66	53.89	-	-		

Summary of Effluent Reasonable Potential Determination & Limits									
							Facility	RPWRF	
							Receiving Water	Spokane River Spring	
							Design Case	Reasonable Potential	
					Receiving Water	Acute Boundary		Chronic Boundary	Permit Limits
					Upstream RW Conc, µg/L	RW Acute Criteria, µg/L	Conc @ Acute MZ Boundary, µg/L	RW Chronic (or Human Health) Criteria, µg/L	Conc @ Chronic (or Human Health) MZ Boundary, µg/L
POLLUTANT	priority pollutant?	standard	Maximum Expected (or 50%) Effluent Concentration, µg/L	Does reasonable potential exist?					
AMMONIA unionized	N	WQ Std	4875.6	NO	10.0	12693.4	3586.7	1258.4	609.3
								Daily Maximum Limit, µg/L	Monthly Average Limit, µg/L

*Fact Sheet for NPDES Permit WA-002447-3
City of Spokane's Riverside Park Water Reclamation Facility (the POTW) &
Spokane County Flows and Pretreatment Programs
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Effluent and Receiving Water Critical Conditions							
Facility: RPWRF			Design Case: Reasonable Potential Summer				
Receiving Water: Spokane River Summer							
CLICK HERE FOR INSTRUCTIONS	Effluent Data			Receiving Water Data			%flow for dilution
	Annual Average Flow	Monthly Average Flow	Daily Maximum Flow	7Q10 Critical Flow	30Q5 Critical Flow	Harmonic Mean Flow	
Flow (MGD)	40.00	41.76	82.50	373.56	522.99	1120.68	25
(cfs)	61.89	64.61	127.65	578.00			
Critical Temp (°C)	22.00	Effluent Data		19.70	Receiving Water Data		
(°F)	71.6			67.5			
Critical Hardness (mg/L CaCO3)	50.00			71.00			
Critical pH (s.u.)	7.26			8.50			
Critical Alkalinity (mg/L as CaCO3)	76.00			71.00			
Enter own pH & Temp for Ammonia Criteria?	n			Enter own Dilution Factors (DFs)?	n		
	pH	Temp (°C)			Acute DF		
@ Acute Boundary					Chronic DF		
@ Chronic Boundary					Human Health (non C) DF		
					Human Health (Carcn) DF		
	@ Acute Boundary	@ Chronic Boundary	Whole River Dilution (@ 7Q10 Flow)	@ 30Q5 River Flow (non C)	@Harmonic Mean River Flow (Carcn)		
Dilution Factor	1.11	3.24	9.95	4.13	8.00		
(% effluent)	89.83	30.90	10.05	24.21	12.49		
Hardness	52.14	64.51	68.89	-	-		
Alkalinity	75.49	72.54	71.50	-	-		
Max pH (s.u.)	7.30	7.71	8.07	-	-		
Max Temp (°C)	21.77	20.41	19.93	-	-		
Max Temp (°F)	71.18	68.74	67.88	-	-		

Summary of Effluent Reasonable Potential Determination & Limits										Facility	RPWRF
										Receiving Water	Spokane River Summ
										Design Case	Reasonable Potential
POLLUTANT	priority pollutant?	standard	Maximum Expected (or 50%) Effluent Concentration, µg/L	Does reasonable potential exist?	Receiving Water	Acute Boundary		Chronic Boundary		Permit Limits	
					Upstream RW Conc, µg/L	RW Acute Criteria, µg/L	Conc @ Acute MZ Boundary, µg/L	RW Chronic (or Human Health) Criteria, µg/L	Conc @ Chronic (or Human Health) MZ Boundary, µg/L	Daily Maximum Limit, µg/L	Monthly Average Limit, µg/L
AMMONIA unionized	N	WQ Stnd	4875.6	YES	10.0	17506.1	4380.8	1425.7	1513.4	7542.7	3166.3
CADMIUM** - 7440439 4M	Y	WQ Stnd	0.256	NO	0.0	1.827	0.217	0.746	0.075		
LEAD** - 7439921 7M	Y	WQ Stnd	1.555	NO	0.132	31.6	0.664	1.557	0.315		
ZINC** - 7440666 13M	Y	WQ Stnd	84.0	YES	8.92	65.9	76.1	72.1	32.0	72.6	53.8

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Effluent and Receiving Water Critical Conditions							
Facility: RPWRF			Design Case: Reasonable Potential Fall				
Receiving Water: Spokane River Fall							
CLICK HERE FOR INSTRUCTIONS	Effluent Data			Receiving Water Data			%flow for dilution
	Annual Average Flow	Monthly Average Flow	Daily Maximum Flow	7Q10 Critical Flow	30Q5 Critical Flow	Harmonic Mean Flow	
Flow (MGD)	41.76	41.76	82.50	1528.50	2139.90	4585.50	25
(cfs)	64.61	64.61	127.65	2365.00			
Critical Temp (°C)	18.70	Effluent Data		13.90	Receiving Water Data		
(°F)	65.7			57.0			
Critical Hardness (mg/L CaCO ₃)	50.00			100.00			
Critical pH (s.u.)	7.16			8.33			
Critical Alkalinity (mg/L as CaCO ₃)	79.00			82.00			
Enter own pH & Temp for Ammonia Criteria?	n			Enter own Dilution Factors (DFs)?	n		
	pH	Temp (°C)			Acute DF		
@ Acute Boundary					Chronic DF		
@ Chronic Boundary					Human Health (non C) DF		
					Human Health (Carcn) DF		
	@ Acute Boundary	@ Chronic Boundary	Whole River Dilution (@ 7Q10 Flow)	@ 30Q5 River Flow (non C)	@Harmonic Mean River Flow (Carcn)		
Dilution Factor	1.46	10.15	37.60	13.81	28.45		
(% effluent)	68.34	9.85	2.66	7.24	3.51		
Hardness	65.83	95.07	98.67	-	-		
Alkalinity	79.95	81.70	81.92	-	-		
Max pH (s.u.)	7.33	7.98	8.21	-	-		
Max Temp (°C)	17.18	14.37	14.03	-	-		
Max Temp (°F)	62.92	57.87	57.25	-	-		

Summary of Effluent Reasonable Potential Determination & Limits																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																</
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APPENDIX D - RESPONSE TO COMMENTS

Comments on the draft permit and Fact Sheet were received during the public comment period and responses are in preparation.

The Commenter's were:

USEPA Region X
Spokane County
University Legal Assistance
Group
Lake Spokane Association
Angie Dierdorff
Frank Backus

The City of Spokane
The Spokane Tribes
Sierra Club Upper Columbia River
Avista
Ken Carmichael

USEPA Region X Comment:

City of Spokane Riverside Park Water Reclamation Facility and Spokane County (Pretreatment Program) #WA-002447-3

Permit:

S 1.A Interim Effluent Limitations and S 1.B Effluent Limitations for Compliance: It appears that the 85 percent removal requirement for TSS was inadvertently left out of the permit. TSS limits in the permit are technology based and must include the secondary treatment requirement for 85 percent removal.

Response: While the table in condition S1. A. does not specifically say to achieve an 85% reduction, the mass limit is slightly more restrictive than the 85% requirement and the calculations in the appropriate section of the fact sheet.

Comments from the City of Spokane:

Daily Maximum Limits - The permit includes a maximum daily final effluent limit of 7.5mg/L for ammonia for summer; it also includes a maximum daily interim effluent limit of 1.10 mg/L for phosphorous. It is difficult for a POTW to reliably attain compliance with maximum daily limits. Average weekly and average monthly limitations are more appropriate, particularly for measuring the impact of phosphorous on dissolved oxygen levels.

Response Regarding Daily Maximum Limit: The Ammonia limit of 7.5 mg/L is a toxicity limit and is based on a 1-hour and a 24-hour exposure. A daily maximum limit is required. The interim Phosphorus limit is a performance based effluent limit and the procedure calculates a daily maximum limit. A daily maximum limit is required except for conventional pollutants such as BOD.

In this case, Phosphorus is being regulated for its oxygen depletion potential the same as CBOD. A monthly average limit and a weekly average limit for Total Phosphorus is appropriate and consistent with how another oxygen depleting pollutant, CBOD, is regulated.

Inconsistent Reference to Measurement for Phosphorous – The Permit limit is 17.8 lbs/day, per the Spokane River Dissolved Oxygen TMDL, but the Permit does not make clear how this is measured. *See* S1 Table. If it is a “seasonal total” this should be made clear in S1. The Fact Sheet refers to a “seasonal total” without defining how this is measured (*see* comment below). The Fact Sheet narrative also refers to meeting concentration-based limits (*See* Page 22 - both 50µg/l seasonal average and 42 µg/l monthly average are referenced). The requirements should be consistently expressed in pounds per day – not concentrations as well. Benchmarks should be clearly described in the Fact Sheet, consistent with the permit limits.

“Seasonal Total” Measurement - Fact Sheet, Page 31 Table – The term “seasonal total” is unclear, particularly with respect to the total phosphorous limit. Is this a seasonal average requirement or is there a violation for any day this number is exceeded? If the facility discharges more than 17.8 lbs in any one day, will this be a violation? The Permit limit appears to be expressed as a monthly average (*see* S1.B Table), but it is unclear given the inconsistent reference in the Fact Sheet. The Permit and Fact Sheet should use consistent, clearly terms with respect to the measurement.

Response Regarding Measurement of Total Phosphorus: Total Phosphorus will be measured daily. The effluent limitation is 17.8 lbs/day. Compliance will be determined on a long term average basis. The TMDL’s WLA is for the season. However, judging the success at the end of the season is not practical and is risky. Tracking compliance on a monthly basis is practical, manages the risk of non-compliance by providing an opportunity for trend analysis and identification of problems or non-compliance early enough to be spotted and corrected.

Metals limits – The Fact Sheet, Page 24, suggests that the proposed limits for metals are based on the 1999 Spokane River Dissolved Metals TMDL, but Ecology has not articulated a reason why they are more stringent than the limits in the City’s current permit. Page 24 of the Fact Sheet indicates that the performance-based limits for cadmium and lead were developed from “low-level analytical data for dissolved metals obtained in the effluent sampling conducted by the City from January 2008 through July 2009.” However, while the City has an established pretreatment program, it has no ability to reduce industrial metals discharges below current levels. It also should not be assumed that that metals finishers in the City are meeting pretreatment standards. The City also suspects that errors may have been made in calculating the new limits (*see* CH2M Hill Memo). The limits for metals in the City’s current permit are also based on the 1999 TMDL, and on the City’s current treatment technology. The City cannot feasibly meet the proposed limits with its current technology.

The next level of treatment will be implemented to meet the requirements of the 2010 Dissolved Oxygen TMDL, and then the City will be able to determine what limits are appropriate for metals under the 1999 Dissolved Metals TMDL. The proposed limits would subject the City to unwarranted third-party claims.

Response Regarding Metals Limits: Ecology rechecked the calculation of performance based limits for metals. An error was found in the input for number of samples collected per month for compliance. The correct input should have been 2.

Authorization to discharge pollutants without effluent limits – In the Fact Sheet (Page 10, ¶ 1), Ecology notes: “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.” However, the permit requires that the City monitor for PCBs, PBDE, TCDDs, arsenic, copper, mercury, silver, aluminum – in addition to monitoring for parameters for which effluent limits are prescribed such as metals, phosphorous, and ammonia. By requiring this monitoring and including an effluent limit for these parameters, the City believes that permit does authorize their discharge. As the Fact Sheet also acknowledges, Page 25, ¶ 2, development of a PCB TMDL has been delayed and monitoring and source identification are appropriate to address any PCB discharges from the WWTP at this time. Ecology’s statement in the Fact Sheet leaves the City vulnerable to third-party claims, notwithstanding its compliance with permit requirements.

Response: The Clean Water Act does provide for third party lawsuits. The permit is not a shield.

Discussion of Offset Plan – The Fact Sheet should more clearly explain the purpose of the Offset Plan and include a statement that the combination of technology improvements and the Offset Plan measures can be used to meet the WLA/final permit limit for total phosphorous. The Fact Sheet inconsistently describes the requirements for the Offset Plan. On page 32, the Fact Sheet states that the Offset Plan is “[n]ot a requirement in the proposed permit” and is anticipated to be required in the next permit cycle. Yet page 33 indicates that offsets must be addressed in the Engineering Report. Page 35 also indicates that the Annual Offset Plan Update should be initially submitted in February 2013. The permit, at S.1.A, includes offsets in the description of requirements for the Engineering Report. The City requests that these references be revised to eliminate internal inconsistency and clarify that the Offset Plan is not a requirement of the permit, but an outline of potential options is required as part of the Engineering Report Update. Page 32, Section J, first sentence should be revised to “Not a requirement in the proposed permit, although an outline of the Offset Plan is required as part of the Engineering Report Update.” Correspondingly, in the table of deliverables on Page 35, “Annual Offset Plan Update” should be changed to “Outline of Offset Plan” with a due date of “February, 2013” (delete the reference to an initial submission).

In S15.A.6 of the permit, A.6 thru A.9 should then be consolidated into A.6: "potential options outlined for consideration to generate offset(s), including preliminary timelines, site options, process options, and other potential actions, such as water reclamation, if projected to be needed."

Response: The inconsistency is inherent in the lack of detail in the rule. An implementing guidance is in development and is due out soon.

Definition of Bypass – Bypass is defined in S5.F as “the *intentional* diversion of waste streams from any portion of a treatment facility.” Yet S5.F (2) address “Bypass which is unavoidable, unanticipated and results in noncompliance...” It is not clear how a bypass can be both “intentional” and “unavoidable and unanticipated.” The definition in S5.F. makes more sense: an intentional diversion of wastewater from treatment.

Response: While the language may not be clear, the language has been vetted by the USEPA and is not within the purview of an individual permit manager to change.

Noncompliance Notification – S3.E.3.a requires the City to notify Ecology within 24 hours of any “noncompliance that *may endanger health or the environment*, unless previously reported[.]” The City requests that this subjective provision be removed in favor of the more objective standards for notice in the remaining portions of S3.E. If S3.E.3.a. is left in the permit, then Ecology should provide more objective examples of what type of events would meet this standard.

S3.E.e also requires the City to notify Ecology within 24 hours of “Any *unpermitted overflow* prior to the treatment works, whether or not such unpermitted overflow endangers public health or the environment or exceeds any effluent limit in the permit.” The City requests that subsection “e” be removed entirely. Alternatively, a third sentence should be added: "Regarding building backups, when Permittee becomes aware upon completion of a timely initial investigation of a reported building backup that indicates the backup resulted from circumstances within the City's system." If Ecology believes the City should notify Ecology of any backup, including building backups not caused by the City's system, this requirement should be clearly provided elsewhere in the permit rather than in the noncompliance section.

Response: This is standard permit language not subject to revision by an individual.

PCB Narrative Limit - As Ecology acknowledges on Page 18 of the Fact Sheet, the Clean Water Act authorizes both numeric and non-numeric effluent limitations in NPDES permits. The draft permit includes monitoring requirements for PCBs and also requires the City to analyze PCBs as part of its Receiving Water and Effluent Study. Pursuant to S12.A.1, the City and Ecology “will review the data, detection limits, QA/QC procedures and a *draft action plan of identified sources or potential sources*” after each year of sampling. The City has recently developed an adaptive management plan to control PCBs and identify PCB sources throughout the City.

The plan was initially developed to address concerns expressed by the Spokane Riverkeeper and Ecology has had opportunity to review this plan. The City will keep Ecology and Riverkeeper informed of the City's progress in implementing the adaptive management plan. The City considers these actions to be an effective, non-numeric effluent limit for PCBs.

The City accordingly requests that PCBs be included as a parameter at the bottom of Tables S1.A and S1.B with the following footnote "f" as the narrative limit:

The Permittee shall monitor PCBs as provided in S2.A and after each year of sampling shall review the data, detection limits and QA/QC procedures. The Permittee has developed an "adaptive management plan" for identifying PCB sources and reducing PCBs and shall submit a report on the results of implementing that plan after each year of sampling.

Response: Ecology has expanded the scope of the activities to be considered for minimizing PCBs in the effluent limits in S12.A. PCBs are listed as regulated pollutants in S1.A and S1.B with reference to section S12.A. Additionally, Ecology will review effluent data from the first 4 years of this permit cycle and develop performance based effluent limits for PCBs for the next permit cycle.

CSO Compliance Period - The permit provides for a 20-year moving average for measuring compliance with the CSO performance standard, which the City supports. See S13.B, ¶ 2. The City is in the process of eliminating and consolidating CSO outfalls under the Compliance Schedule, by December 31, 2017, per Condition S13.G. The City understands that the averaging period begins when an outfall is a "controlled outfall." For example, CSO-002 outfall was a "controlled" in 2003 and as such compliance for CSO-002, beginning in 2018 per the compliance schedule, will be based on data from 2003 – 2017, inclusive, and compliance for CSO-002 in 2019 will be based on 2003 – 2018. In 2023 there will be 20 years of data from CSO-002 after it has been "controlled" (2003 – 2022 inclusive) and then compliance will be based on the 20-year moving average. To avoid confusion, the following language should be added to the end of S13.B, ¶ 2: "Compliance with the performance standard is determined annually beginning January 1, 2018, in accordance with the Compliance Schedule in Condition S13.G. When the period of data collection for a controlled outfall is less than 20 years, the averaging period will include data beginning with the year an outfall was controlled."

Response: The comment is appreciated and a revision has been made.

On the Cover Sheet, boxed information – "CSO Outfalls: 22 23 Outfalls"

Response: Correction made.

S1 Footnotes - –¶ 2 & ¶ 4 should say "method detection level limits"

Response: The method detection limit needs to be low enough to generate a reliable reporting limit as required in the footnotes in S1.

- S1.A. Footnotes – (2) the descriptions are not clear. Ecology should consider the following changes to the text:

Response: No following text was offered.

- S1.B Table – Phosphorous limit of 17.8 lbs/day should indicate that this is a seasonal average, consistent with the TMDL and fact sheet – and a footnote should be added to explain how this is measured.

Response: See comment above.

- S1.B Table – Ammonia limit – a maximum daily limit for summer is inappropriate for a publicly owned treatment works.

Response: The Ammonia limit of 7.5 mg/L is a toxicity limit and is based on a 1-hour and a 24-hour exposure. A daily maximum limit is required.

- S2 – Monitoring Schedule – chlorine gas is to be reported in lbs/day, but should clarify whether this number should represent the weight of the chlorine added only, or the total weight of the chemical additive.

Response: The lbs reported will express the weight of chlorine added to the effluent.

- S3.E – Numbering error following S3.E.3.e: what should be S3.E.4 is labeled S3.E.3.

Response: Indeed there were two S3.E.3's. A correction has been made.

- S3.E.3 - "...due to the following circumstances by telephone to Ecology's 24-hour number (509-329-3400) and by email to the Permit Writer ~~within 24 hours.~~"

Response: The language was redundant and a correction has been made.

- S4.A – “Nov-April” should be added to wet season for consistency.

Response: The clarification has been made.

- S4.A footnote (1): This information is more appropriate for the Fact Sheet. Additionally, the 120 MGD value should be 100 MGD.

Response: Thank you. A change has been made.

- S4.B.2 - items under S4.B.2 should be labeled "a" through "e" rather than "1" through "5."

Response: A format change has been made.

- S4.B.2.5 (should be S4.B.2.e) – language should be changed to: "Manage residential and non-residential flows and waste loads to allow for increasing sanitary flow or waste load."

Response: The emphasis is on the more controllable sources such as industry and commerce through the pretreatment program. The language is not a barrier to water conservation efforts and making better use of solid waste reduction or reuse.

- S5.G, ¶ 2 – due date for O&M manual update needs to be revised for this permit cycle (now listed as December 1, 2007).

Response: Thank you for catching the oversight. A correction has been made.

- S5.E – the term “diligently” should be substituted for “strictly” to avoid inadvertent legal implications.

Response: The current language is not inadvertent and is required.

- S5.E – heading should be changed to "Manage Inflow." Text should also be changed to "The Permittee shall strictly enforce its sewer ordinances to manage the connection of inflow (roof drains, foundation drains, etc.) to the sanitary sewer system."

Response: The language remains and is required by law (WAC173-216 for instance)

- S6, Heading – the closing “)” is missing.

Response: The correction has been made.

- S6.A.1.a – The reference to “Ordinance 13.03 of the Spokane Municipal Code” should be changed to “Chapter 13.03 of the Spokane Municipal Code.”

Response: The correction has been made.

- S12 – Receiving Water and Effluent Study – requires effluent to be analyzed for PCBs. It is unclear what this requires over and above what S2 requires.

Response: Thank you for the comment. S12. is to ensure that data is valid, useable and defensible.

- S12.B, ¶ 3 - shows incorrect year (2010) for QAPP. If March 15, 2011 is intended, this may not allow enough time to develop the study, such that the QAPP can be created.

Response: The QAPP for temperature was submitted in May of 2010 in anticipation of the permit requirement. The temperature QAPP is satisfactory and has been approved.

- S13.A Table -- S13.A table – There have been updates and corrections, now that some facilities are built and because the regulator and overflow functions are separated in a control facility, whereas they are coincident for a leaping weir, side dam, etc. Consequently, the second column heading should be changed to “Overflow Regulator Structure.” Regulator locations: 002 should be “A.L. White @ Hartley (extended)”; 007 should be “Columbia Circle @ Downriver Drive”; 019 should be “Seventh @ Inland Empire Way”; 020 should be “High Drive betw 33rd & 37th”; 024 should be “Cedar @ Riverside (2)” [to reflect multiple regulators]. Change Outfall Description in 3rd column for CSO 026 from “At Monroe Street Dam” to “At Monroe Street Bridge.”

Response: The Table has been amended to reflect the updated information and location descriptions.

- S13.B, ¶ 2 – Add the following for clarity after the sentence regarding 20-year moving average: "When the period of data collection is less than 20 years, the averaging period will include all past years for which flow monitoring data was collected."

Response: The requested clarification is reasonable.

- S13.B, ¶ 2 – WAC 173-245-0220(22).

Response: The correction was made.

- S13.G.5 – “The City must to the maximum extent possible use native plants in restoration of riparian zones for at CSO to the river project sites located within the shoreline jurisdiction, as applicable.”

Response: Thank you for the suggested edit, some clarification is desirable and a correction has been made.

- S13.G.6 – “The City must to the maximum extent possible use native plants when in ~~creation of~~ “Storm Gardens” and similar means of reducing flows to CSOs are used.”

Response: Thank you for the suggested edit.

- S13.H – should be changed to read “Wet weather related bypass...” because CSO discharges are independent of the flows in the interceptor system and bypass of secondary treatment may not correlate with discharges from CSOs. Conversely, active CSO discharges may not result in bypass of the secondary treatment process.

Response: Section S13.H is strictly for wet weather operations at the treatment plant.

- S14.B thru S14.J - propose replacing all with S14.B: "As recognized in S15A.6 [see new language below], Reclamation and Reuse are potential options for offset and trading. Implementation of such projects other than as provided in S14.A requires a project-specific Reclaimed Water Permit issued by the Dept of Ecology or Health in accordance with the State of Washington's Water Reclamation and Reuse Standards (1997), as amended." All references to the 1997 version of Water Reclamation and Reuse Standards should be followed by “as amended.”

Response: Regulatory oversight and protection of the environment and public health by the Departments of Ecology and Health will not be comprised by the proposed simplification. The language will remain as is.

- S14.H.3 – It should be clarified whether “prior to implementation” means prior to construction or operation.

Response: In general, the answer is prior to operation. In specific cases the agreement may be needed to acquire the resources for construction.

- Throughout Permit – Example: S5.G.2 – permit sometimes uses the term “Wastewater System,” sometimes “Sewer System,” other times “Collection System,” etc. This could lead to confusion if terms are not fully interchangeable. Consistent use of terms and/or definitions to enhance permit interpretation would be helpful in the long term.

Response: While the comment is appropriate, correction of the permit shell for municipal wastewater treatment plants is beyond the scope of an individual permit writer.

Comments from Spokane County as a Co-Permittee Regarding the Pretreatment Section of the Permit are:

Spokane County's comments related to the pretreatment requirements are listed below, and are also submitted in the form of requested edits to applicable pages (with mark-ups) from the referenced documents. These are included as an attachment to this letter titled: *“Comments: Spokane County Industrial Pretreatment – D.Moss / S.Matei-Rowley – October 29, 2010.”*

1. Several dates have been edited as per actual occurrences and/or to provide consistency within the document.
2. On page 5 of 63 we note that Permit Section S7.A.1.k (Sewer Use Ordinance Update) is listed, but is not contained within the Permit. Presumably it should be deleted.
3. One of the County's Significant Industrial User (SIU) permittees has been updated in the Permit and the Fact Sheet and is properly named "Kemira Water Solutions."
4. Numerical references to the County's new pretreatment ordinance have been updated.
5. In the Permit, a sewer use ordinance update is required by December 15, 2011, however Spokane County completed this update effective October 1, 2009.
6. It is listed for the County to resubmit our pretreatment program by June 15, 2011, however we submitted our program documents to Ecology on September 15, 2010.
7. Local Limit Update: The City and County have been analyzing this for the past year+ and each of us will submit the pertinent documents to Ecology. We request our submittal dates be the same, namely October 15, 2012.
8. In the Fact Sheet we have updated the current length of sanitary sewers and pump stations for Spokane County's service area.
9. An industrial user survey effort for the County's customers was performed in 2009. We submitted those results in our annual pretreatment report to Ecology in 2010.

Other Comments from the County are:

Comments on Section S1. DISCHARGE LIMITATIONS, B. Effluent Limitations for Compliance with the Spokane River DO TMDL:

- The Effluent Limits table should be revised such that the column heading which currently reads "Average Monthly" in the section under "Low Flow Season (July-Oct) EFFLUENT LIMITATIONS: OUTFALL # 005A" is modified to read "Average Monthly or Seasonal Average." A footnote should be provided to explain that Seasonal Average mass limits apply to the TMDL parameters CBOD, ammonia nitrogen, and total phosphorus to be consistent with Footnote 6 to the table in Section S2. MONITORING REQUIREMENTS, A. Monitoring Schedule. Suggested wording for the footnote is as follows:

^aCompliance with effluent limits for Spokane River and Lake Spokane DO TMDL parameters CBOD5, NH3 and TP shall be based on a seasonal average with the running seasonal average for the season reported monthly for tracking compliance with the allowable mass limitations.

Response: The suggested addition to the footnotes is acceptable and has been made.

*Fact Sheet for NPDES Permit WA-002447-3
City of Spokane's Riverside Park Water Reclamation Facility (the POTW) &
Spokane County Flows and Pretreatment Programs
for both the City of Spokane and Spokane County*

Exhibit 1

Email sent by David Moore on 2/26/2009 (emphasis added)

Ben and interagency work group,
After discussing the hybrid scenario, year round P limits and the swirl of other less recent policy issues, I need to modify my response below (and other Ecology responses on this issue) by stating Ecology feels EPA should refrain from introducing new scenarios this late in the game. We are concerned this complicates our communications with stakeholders and can take us off of our aggressive schedule. In short, we want to lock in to the core scenario and TMDL scenarios we have already discussed and considered as soon as possible and not get sidetracked. We will provide Ecology's position on the numerous policy issues prior to March 25 in order to inform the modeling scenarios but we do not want new scenarios thrown into the mix at this time. Ecology's position on year round P limits is provided below. We feel the former list of modeling scenarios are adequate enough to develop the TMDL and permits. The hybrid and other scenarios may be warranted during TMDL implementation but we need to stay focused on what we have already come up with as a group.

Ecology wants to run the model such that the dual-assessment point sets WLA's at the flat 50 rate (background for County) and see if we meet the target at the upstream assessment point. If we do, we can lower the WLA's post modeling to an achievable limit (in WA) in order to provide a MOS and reasonable assurance in the TMDL. This provides more time to answer the question on what is technically achievable. This also allows the Foundational Concepts document and it's suite of delta elimination actions to stay in place but for more feasible nonpoint source reductions.

Ecology does not support modeling year round P limits at this time in the absence of quantifiable data but we reserve the right to pursue this if it's found to be necessary upon implementation of the TMDL (i.e., we're not meeting the TP target over the first or second permit cycle). We can do this for other unknown impacts, such as stormwater discharges which are not currently modeled.

Thank you for your consideration of these concerns.

Dave

Ecology's Response to the Spokane Tribes Comments Regarding Dissolved Oxygen.

The Permit is crafted to implement the Spokane River and Lake Spokane DO TMDL. The EPA approved the DO TMDL as the instrument to achieve compliance with the CWA.

The compliance schedules are requiring the dischargers to implement change as soon as reasonable and prudent decisions are made, financing can be arranged, design completed, construction completed and treatment operations revised and verified.

Ecology's Response to the Spokane Tribes Comments Regarding PCBs.

Ecology has expanded the scope of the activities to be considered for minimizing PCBs in the effluent limits in S12.A. PCBs are listed as regulated pollutants in S1.A and S1.B with reference to section S12.A. Additionally, Ecology will review effluent data from the first 4 years of this permit cycle and develop performance based effluent limits for PCBs for the next permit cycle.

*Fact Sheet for NPDES Permit WA-002447-3
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SENT VIA EMAIL

November 17, 2010

Permit Coordinator
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**RE: Comments on Liberty Lake, Inland Empire Paper, the City of Spokane, and
Kaiser Aluminum Draft NPDES Permits**

Dear Permit Coordinator:

These comments are submitted on behalf of the Spokane Riverkeeper, The Lands Council, the Kootenai Environmental Alliance, and the Gonzaga University Legal Assistance Environmental Law Clinic, regarding the Department of Ecology's draft National Pollutant Discharge Elimination System ("NPDES") permits for Liberty Lake Sewer and Water District ("Liberty Lake"), the City of Spokane ("City"), Inland Empire Paper ("IEP"), and Kaiser Aluminum (collectively referred to as the "Dischargers"). We thank you for this opportunity to provide comments on the four draft permits (collectively referred to as the "Draft Permits"). Please include these comments as part of the administrative record for each of the Draft Permits.

As you know, these groups have dedicated significant time and resources to protect and restore the Spokane River, including participation in all aspects of the development and/or implementation of the DO TMDL. The development of appropriate effluent limits in the Draft Permits is a vital component of both implementing the DO TMDL and increasing the amount of dissolved oxygen in the Spokane River and Lake Spokane. Phosphorus, the nutrient with the greatest effects on dissolved oxygen levels along the Spokane River, accelerates the growth of algae and other aquatic plants. This results in reduced oxygen levels which can be harmful to fish and other aquatic species, outbreaks of toxic blue-green algae blooms which can be harmful to human health, and an increased potential for violations of water quality standards. Accordingly, we would like to continue to work closely with Ecology toward the finalization of these permits.

The Spokane River is listed on Washington's § 303(d) list for a number of parameters, including dissolved oxygen, total dissolved gas, PCBs, temperature, and dioxin. Designation of a waterbody pursuant to § 303(d) of the Federal Water Pollution Control Act ("Clean Water Act" or "CWA" or "the Act") means that current wastewater technologies and other pollution control activities, such as Best Management Practices ("BMPs") for stormwater and/or non-point sources, are insufficient to protect the health of the Spokane River, and that more stringent measures must be applied to meet Washington State water quality standards. 33 U.S.C. §§

*Fact Sheet for NPDES Permit WA-002447-3
City of Spokane's Riverside Park Water Reclamation Facility (the POTW) &
Spokane County Flows and Pretreatment Programs
for both the City of Spokane and Spokane County*

November 17, 2010
Draft NPDES Permit Comments
Page 2

1313(d), 1329; 40 C.F.R. § 130.7. As a result, Ecology must ensure that the Draft Permits include effluent limits for PCBs, ammonia, phosphorus, temperature, dioxin, CBOD, and other parameters that will be sufficiently protective of Washington State's, and the Spokane Tribe's, water quality standards.

General Comments Applicable to Each of the Draft Permits

1. Permit Limits for PCBs must be Water Quality-Based not Technology or Performance Based.

Section 303(d) of the Clean Water Act, 33 U.S.C. § 1313(d), requires the imposition of a TMDL where technology-based effluent limitations are not stringent enough to implement any applicable water quality standard. 33 U.S.C. § 1313(d)(1)(A). Moreover, the Act prohibits permits for discharges that cause or contribute to an exceedance of water quality standards. 33 U.S.C. § 1311(b)(1)(c); 40 C.F.R. § 122.44(d); 40 C.F.R. § 122.4; *see also*, RCW 90.48.520; WAC 173-226-070.

In addition to the conditions established under 40 C.F.R. § 122.43(a), each NPDES permit shall include conditions meeting the following requirements when applicable:

Water quality standards and State requirements: any requirements in addition to or more stringent than promulgated effluent limitations guidelines or standards under sections 301, 304, 306, 307, 318, and 405 of CWA necessary to:

- (1) Achieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality.

40 C.F.R. § 122.44(d)

Ecology's draft PCB TMDL¹ indicates that standards are not being met, that each of the Dischargers contributes to the problem, and that drastic reductions in PCBs are required to meet these standards. The draft PCB TMDL states:

A PCB loading scenario was proposed based on meeting the Spokane Tribe water criterion for PCBs (3.37 pg/l). The scenario requires a 95% PCB load reduction at the Idaho border, a 97% load reduction in the Little Spokane River, and ≥99% reductions in municipal, industrial, and stormwater discharges.

Draft PCB TMDL at 9.

The Draft Permits ignore the 21 separate studies that made up the draft PCB TMDL, and continue to pretend that PCBs can be addressed via BMPs and further monitoring and reporting.²

¹ Available at <http://www.ecy.wa.gov/pubs/0603024.pdf>.

² The exception is the Draft Permit for Kaiser, which contains a performance based limit. The Kaiser draft permit will be discussed in more detail below.

*Fact Sheet for NPDES Permit WA-002447-3
City of Spokane's Riverside Park Water Reclamation Facility (the POTW) &
Spokane County Flows and Pretreatment Programs
for both the City of Spokane and Spokane County*

November 17, 2010
Draft NPDES Permit Comments
Page 3

Instead of effluent limits, the Draft Permits indicate that, "EPA rules (40 C.F.R. Subpart K (44 FR 32954-5)) do provide for the use of narrative limitations (BMPs) rather than numeric effluent limitations." Ecology's assertion is incorrect. The Fact Sheets appear to be referring to 40 C.F.R. § 122.4(k), which lists circumstances where BMPs may be used to control or abate the discharge of pollutants:

- (1) Authorized under section 304(e) of the CWA for the control of toxic pollutants and hazardous substances from ancillary industrial activities;
- (2) Authorized under section 402(p) of the CWA for the control of storm water discharges;
- (3) Numeric effluent limitations are infeasible; or
- (4) The practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA.

Id.

Ecology seems to misunderstand this provision. This provision is intended as a means to implement effluent limitations, which do not currently exist. Alternatively, Ecology must demonstrate that numeric limitations are infeasible. Ecology has not shown that numeric limits are infeasible, and stated at the public hearing that the narrative limits were meant to "buy time" for the Dischargers. Moreover, the Draft Permits do not explain what BMPs exist for PCBs other than monitoring. No BMPs are listed in the Draft Permits. Monitoring alone is insufficient to create a reduction in PCBs.

Recommendation: To be lawful, the Draft Permits must contain a date certain for achievement of the appropriate WQBELs for PCBs and those WQBELs must be included in all the Draft Permits. As the Environmental Groups explained at the public hearing, this would benefit each of the Dischargers because Ecology could then provide them with a compliance schedule. Without a compliance schedule, each of the Dischargers are open to Clean Water Act citizen enforcement actions, for discharging PCBs in violation of water quality standards.

2. The Draft Permit Does Not Contain Clear Conditions Requiring Compliance with State Water Quality Standards.

Pursuant to the Federal regulations implementing the NPDES program, permit issuers must determine whether a given point source discharge "causes, has the reasonable potential to cause, or contributes to" an exceedance of water quality standards. 40 C.F.R. § 122.44(d)(l)(ii). If a discharge is found to cause, have the reasonable potential to cause, or contribute to such an exceedance, the permit writer must calculate WQBELs for the certain criteria pollutants. 40 C.F.R. § 122.44(d)(l)(i), (iii)-(vi).

*Fact Sheet for NPDES Permit WA-002447-3
City of Spokane's Riverside Park Water Reclamation Facility (the POTW) &
Spokane County Flows and Pretreatment Programs
for both the City of Spokane and Spokane County*

November 17, 2010
Draft NPDES Permit Comments
Page 4

Similarly, in Washington, RCW 90.48.520 requires that: "In no event shall the discharge of toxicants be allowed that would violate any water quality standard, including toxicant standards, sediment criteria, and dilution zone criteria." State NPDES and general permit regulations require permits, "whenever applicable," to include "limitations or requirements" necessary to "meet water quality standards." WAC 173-226-070(3) (a); WAC 173-220-130(1) (b) (i).

The Washington Supreme Court, in *Port of Seattle v. Pollution Control Hearings Bd.*, 151 Wash.2d 568, 603 (Wa. 2004), explained this requirement as follows:

NPDES permits may be issued only where the discharge in question will comply with State water quality standards. 33 U.S.C. § 1342(b)(1)(A) requires State-issued NPDES permits to comply with 33 U.S.C. § 1311. In turn, 33 U.S.C. § 1311(b)(1)(C) requires effluent limitations to comply with State water quality standards. In addition, 40 C.F.R. § 122.44 requires State-issued NPDES permits to contain conditions requiring compliance with State water quality standards. 40 C.F.R. § 122.44(d)(1).

The Draft Permits fail to clearly establish conditions designed to ensure that discharges do not cause or contribute to violations of water quality standards. Not only is this problematic because it seriously calls into question the legal sufficiency of the Draft Permits, but it leaves the public uncertain as to whether the Draft Permits will adequately protect the chemical and biological integrity of the Spokane River. This deficiency is not cured by the Draft Fact Sheets' acknowledgement that permit conditions must ensure that discharges will meet established water quality standards because the information contained in the Fact Sheets are not enforceable terms of the Draft Permits.

Recommendation: The Draft Permits must be revised to include language that explicitly indicates the Discharger's obligations to ensure that discharges do not cause or contribute to violations of water quality standards, including an explicit reference to the duty to comply with 40 C.F.R. § 122.44(d)(1). This provision should be located near the beginning of special condition "S1. Discharge Limitations" in the Draft Permits, and/or wherever appropriate throughout the remainder of the Draft Permits.

3. The Permits Lack Lawful Compliance Schedules.

The compliance schedule in the Draft Permits indicate that Dischargers will have to meet final QBELs for total phosphorus, CBOD, and ammonia ten (10) years after the permits effective date. The compliance schedule does not comply with Federal requirements for compliance schedules. Federal regulations require that any appropriate schedules of compliance "shall require compliance as soon as possible." 40 C.F.R. § 122.47(a)(1).

The Clean Water Act defines compliance schedules as "a schedule of remedial measures including an enforceable sequence of actions or operations leading to compliance with an effluent limitation, other limitation, prohibition or standard." 33 U.S.C. § 1362(17); 40 C.F.R. §

*Fact Sheet for NPDES Permit WA-002447-3
City of Spokane's Riverside Park Water Reclamation Facility (the POTW) &
Spokane County Flows and Pretreatment Programs
for both the City of Spokane and Spokane County*

November 17, 2010
Draft NPDES Permit Comments
Page 5

122.2. Federal regulations require that any appropriate schedules of compliance “shall require compliance as soon as possible, but not later than the applicable statutory deadline under the CWA.” 40 C.F.R. § 122.47(a)(1). Under CWA, NPDES permits must be fixed for terms not exceeding five (5) years. 33 U.S.C. § 1342(b)(1)(B); 40 C.F.R. § 122.46(a).

A compliance schedule longer than a five-year permit term is inconsistent with the compliance schedules defined by the Clean Water Act. *See Citizens for a Better Environment v. Union Oil Co. of Cal.*, 83 F.3d 1111, 1120 (9th Cir. 1996); *NRDC v. EPA*, 915 F.2d 1314, 1319 (9th Cir. 1990). In *CBE v. Unocal*, the Ninth Circuit warned against extending the terms of permit's beyond their five-year life span. The Court upheld a district court decision finding that a cease and desist order that provided for a compliance schedule longer than the five-year life of the applicable NPDES permit could not be included in the permit because it purported to extend a compliance schedule beyond the term of the permit. 83 F.3d at 1120. The Court held that, “there is a five-year duration on the life of an NPDES permit that the ‘effective modification’ asserted here would violate.” *Id.* Similar to the compliance schedule at issue in *CBE v Unocal*, the ten year compliance schedule set forth in the Draft Permits attempt to extend the Draft Permits’ substantive requirements beyond the five-year limit established by the Clean Water Act. *Id.*

Moreover, because Federal requirements for the content of State water regulations provide the statutory minimum, while State standards can only be more stringent, not less stringent, than Federal requirements, the Clean Water Act’s more restrictive five-year compliance schedule applies to the Draft Permits rather than Washington’s less restrictive ten-year compliance schedule. *See* 33 U.S.C. § 1370.

Finally, a review of the Draft Permits’ compliance schedules illustrates a significant amount of wiggle room in that they include delta elimination plans that are poorly defined and implicitly recognize that a trading program will be implemented, without specifying how permittees are to engage in such a program and how trades might or might not impact compliance with numeric permit limits.

Recommendation: Ecology’s duty here is to condition the Draft Permits so as to achieve compliance with the appropriate WQBELs for phosphorus and other parameters (PCBs, ammonia, CBOD) as soon as possible and in a manner consistent with both Federal and Ecology regulations. Ecology’s attempt to issue a schedule that extends compliance beyond the Draft Permits’ five-year fixed-term finds no support in the Clean Water Act, and provides a discharger with too much leeway. In order to ensure that the Draft Permits are consistent with the Clean Water Act and furthers the Act’s technology-forcing objectives, Ecology must require compliance with final WQBELs within five years of the Draft Permits effective dates.

4. Antidegradation.

Federal regulations require that Ecology’s “antidegradation policy and implementation methods shall, at a minimum, be consistent with the following: (1) Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and

*Fact Sheet for NPDES Permit WA-002447-3
City of Spokane's Riverside Park Water Reclamation Facility (the POTW) &
Spokane County Flows and Pretreatment Programs
for both the City of Spokane and Spokane County*

November 17, 2010
Draft NPDES Permit Comments
Page 6

protected.” 40 C.F.R. § 131.12(a)(1). Only where the quality of waters exceed levels necessary to support the most sensitive biological beneficial uses is the State allowed to degrade water quality in order to accommodate important socioeconomic development. 40 C.F.R. § 131.12(a)(2). Even where these high quality waters exist, a situation present in this case for some pollutants and parameters, the regulations require that Ecology assures water quality adequate to protect existing uses fully. 40 C.F.R. § 131.12(a)(2).

Although providing a very limited exception allowing some degradation in waters “[w]here the quality of waters exceed levels necessary to support” its beneficial uses, those exceptions do not apply to already degraded waters, such as the waters of the Spokane River because of excessive discharges of phosphorus, CBOD, and ammonia. 40 C.F.R. § 131.12(a)(2). In degraded waters, only the first mandate applies – to maintain and protect all existing uses, especially, for example, trout habitat. Accordingly, the regulations prohibit additional pollutant loads of phosphorus, ammonia, CBOD, and PCBs into the Spokane River.

Recommendation: Ecology must explain how it has addressed antidegradation in the Draft Permits.

6. Permits must meet Spokane Tribe's Water Quality Standards

The Clean Water Act prohibits Ecology's issuance of NPDES permits “when the imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected States.”³ The Draft Permits must therefore require compliance with both Washington and the Spokane Reservation's downstream water quality standards because both are considered affected States. Thus, Ecology must consider the water quality standards of both jurisdictions in making permit decisions.⁴

In addition, Federal regulations clearly and unambiguously require Ecology to include in these permits any conditions necessary to achieve the Spokane Tribe's water quality standards, including limitations on all pollutants which Ecology determines will cause or have the reasonable potential to cause or contribute to an excursion above the Tribe's water quality standards.⁵

Any NPDES permit issued to a discharger in an upstream jurisdiction must include limitations necessary to comply with the water quality standards of a downstream jurisdiction. *Arkansas v. Oklahoma*, 503 U.S. 91, 107 (1992); *see also Montana v. United States E.P.A.*, 941 F. Supp. 945 (D. Mont. 1996); *City of Albuquerque v. Browner*, 97 F.3d 415 (10th Cir. 1996). Unfortunately, the Draft Permits provide no discussion or analysis of compliance with the Spokane Tribe's water quality standards. It is clear from historical data for PCBs and phosphorous at a minimum that the Tribe's water quality standards are not being met. As illustrated below, data from the Tribe indicates alarming low levels of dissolved oxygen at

³ 40 C.F.R. § 122.4 (d).

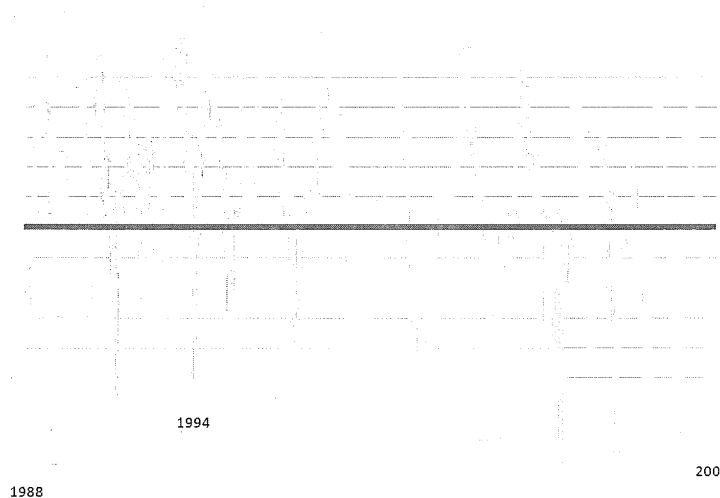
⁴ It is the height of hypocrisy for Ecology to require the Idaho dischargers to meet Washington's downstream water quality standards, but not also require Washington dischargers to meet downstream Tribal water quality standards.

⁵ 40 C.F.R. § 122.44(d).

November 17, 2010
Draft NPDES Permit Comments
Page 7

Porcupine Bay on the lower Spokane River. These levels have dipped as low as 0.2 mg/L, significantly below the tribal standard of 8.0 mg/L.⁶

Ranges of DO concentrations at Porcupine Bay



Source: Spokane Tribe

Moreover, as indicated by the draft PCB TMDL⁷, the Tribe's PCB standards are not being met. Drastic reductions in PCBs are required to meet these standards. Again, the draft PCB TMDL anticipated compliance with Tribal water quality standards:

A PCB loading scenario was proposed based on meeting the Spokane Tribe water criterion for PCBs (3.37 pg/l). The scenario requires a 95% PCB load reduction at the Idaho border, a 97% load reduction in the Little Spokane River, and ≥99% reductions in municipal, industrial, and stormwater discharges.

Draft PCB TMDL at 9.

Recommendation: The Draft Permits lack any analysis of how the permitted discharge may cause or contribute to the DO and PCB problems on the Spokane Reservation. In fact, despite explicit analysis by Ecology indicating a need for significant reduction to meet the Tribe's PCB limits, the permits lack any PCB effluent limits. Legally, Ecology must analyze whether the

⁶ Tribal standards are available at <http://www.epa.gov/waterscience/standards/wqslibrary/tribes/spokane.pdf>.

⁷ Available at <http://www.ecy.wa.gov/pubs/0603024.pdf>.

November 17, 2010
Draft NPDES Permit Comments
Page 8

Dischargers cause or contribute to a violation on the Spokane Reservation and include water quality-based effluent limits to ensure compliance with those standards.

7. The Delta Elimination Plan is Poorly Defined and may not be Scientifically or Legally Defensible.

The Draft Permits include delta elimination plans which are not well defined. The plans are intended to allow the Dischargers to get credit for non-point source pollution reductions. In effect, the delta elimination plans establish a trading program, but they lack the requisite details necessary to allow the public to understand and provide input into trades.⁸

The Draft Permits do not specify how Dischargers will engage in such a program and how trades might or might not impact compliance with numeric permit limits. The Draft Permits appear to envision that delta elimination will be allowed to help Dischargers meet wasteload allocations, although no specifics are provided regarding exactly how this accounting will be done, and how permit compliance will be monitored. This poorly defined delta elimination plan provides no reasonable assurance that significant reductions of pollutant loading from non-point sources could ever be accomplished or whether the future effluent limitations will ultimately be met.

Beyond being poorly defined, it is questionable whether relying on delta elimination plans is scientifically or legally defensible. The Clean Water Act is silent on trading or delta eliminations. Washington law limits credits or offsets to the proportion of the non-point source reductions which occur beyond existing requirements. *See* WAC 173-201A-450. WAC 173-201A-450(1) provides, "A water quality offset occurs where a project proponent implements or finances the implementation of controls for point or non-point sources to reduce the levels of pollution for the purpose of creating sufficient assimilative capacity to allow *new or expanded discharges*." The regulation does not address offset for existing levels of discharge. Regardless, the regulation is clear that "[t]he improvements in water quality associated with creating water quality offsets for any proposed new or expanded actions *must be demonstrated to have occurred in advance* of the proposed action." *Id.* at 450(2)(b) (emphasis added). Accordingly, water quality offsets may be used for new and expanded discharges only *after* it is demonstrated that the improvements by the offset actions have occurred and are having the desired water quality benefits.

Unlike point sources, non-point source pollution is notoriously difficult to control. Its sources are myriad - such as urban runoff, forestry practices, agricultural practices including crop and animal feeding operations, and recreation, including boats and marinas - and enforcement is difficult. As a result, Ecology must focus first on addressing the largest controllable sources first (point sources) while working on preventive and curative non-point source actions.

⁸ The Environmental Groups acknowledge participation in the Nutrient Trading Advisory Committee, but that process is in its infancy and should not be relied upon by Ecology or the Dischargers in lieu of meeting effluent limits.

November 17, 2010
Draft NPDES Permit Comments
Page 9

Recommendation: Over-reliance on non-point source reduction as a potential offset or trade in a delta elimination plan could frustrate efforts to meet water quality standards. Ecology must make it clear that the Dischargers *must* achieve their permit limits in order to meet water quality standards, and should not rely on the uncertainty surrounding the proposed delta elimination program. The Draft Permits must reflect this reality.

9. Additional Documents must be Available for Citizen Review.

The Draft Permits call for the creation of additional documents, such as a technology selection protocol, engineering report, and offset plans. Ecology rules related to the administration of the NPDES program address public access to information, stating "the department shall make records relating to NPDES permits available to the public for inspection and copying." WAC 173-220-080(1). Accordingly, it should be made clear that these documents will be available for public review.

10. Record Retention

The Draft Permits require record retention for a minimum of three (3) years. In order to facilitate self-monitoring and agency/citizen review, records should be retained for five (5) years to correspond with Clean Water Act's statute of limitations. 28 U.S.C. § 2462.

Specific Comments on Individual Permits

Liberty Lake Draft Permit

1. Initial Interim Limits should be Established Based on Existing Performance.

Liberty Lake's draft permit should only allow increases in pollution discharges up to existing flow limits until pollution reduction measures are implemented. To avoid making water quality problems worse, Ecology must cap flows and pollutant discharge from the facility at existing performance until interim and final effluent limits can be met. These caps should be based upon actual performance and design flows.

Recommendation: The Liberty Lake draft permit should include a cap on flow based upon existing levels, as well as PCBs and all dissolved oxygen impacting pollutants. If the levels are allowed to increase, Ecology must explain how the increase is in keeping with its anti-degradation policy and anti-backsliding requirements.

Kaiser

1. The Kaiser Draft Permit's Effluent Limitations Do Not Fulfill the Clean Water Act's Technology Forcing Objectives.

The ultimate goal of the Clean Water Act is the elimination of pollutant discharges. *See* 33 U.S.C. § 1251(a)(1). In light of this goal, "compliance with an effluent standard cannot fairly

*Fact Sheet for NPDES Permit WA-002447-3
City of Spokane's Riverside Park Water Reclamation Facility (the POTW) &
Spokane County Flows and Pretreatment Programs
for both the City of Spokane and Spokane County*

November 17, 2010
Draft NPDES Permit Comments
Page 10

be viewed as the ultimate object of the statute.” *Natural Resources Defense Council, Inc. v. U.S. E.P.A.*, 822 F.2d 104, 123 (D.C. Cir. 1987). The Clean Water Act is therefore a technology forcing statute which continually requires dischargers to improve their water quality control. See *Entergy Corp. v. Riverkeeper, Inc.*, 129 S.Ct. 1498, 1515 (2009).

The Act's technology-forcing objectives are only fulfilled if each iteration of an NPDES permit contains Technology Based Effluent Limitations (“TBELs”) that are sufficiently more stringent than the last, so as to force dischargers to implement technologies and practices that result in a net reduction in the discharge of pollutants. Not only does Kaiser's Draft Permit contain effluent limits for certain pollutants that are no more stringent than those contained in Kaiser's 1997 NPDES permit, but some of the effluent limits it establishes provide Kaiser with too much leeway and little incentive to continually upgrade and improve their pollution control technologies. Specifically, Kaiser's Draft Permit's TBELs for aluminum and chromium are identical to those contained in Kaiser's 1997 permit. The Draft Fact Sheet's suggestion, at pg. 10, that permit levels for chromium and aluminum should remain the same because Kaiser is able to meet this limit, is inconsistent with the Clean Water Act's technology-forcing objectives.

Moreover, a review of the discharge monitoring reports (“DMRs”) submitted by Kaiser over the last five (5) years (during the critical period of March 1 to October 31) indicates that the TBELs for total suspended solids (“TSS”) and oil and grease are so high as to provide the facility with little to no incentive to improve its pollution reduction efforts. For example, while the Kaiser Draft Permit sets the limit for TSS at 709.4 lbs/day (average monthly) and 1,142.10 lbs/day (maximum daily), the DMRs suggest that Kaiser's average monthly discharges rarely exceed 150 lbs/day and their maximum daily discharges rarely exceed 500 lbs/day. Similarly, while the Kaiser's Draft Permit sets the limit for oil and grease at 655.1 lbs/day (average monthly) and 710.5 lbs/day (maximum daily), the DMRs suggest that Kaiser's average monthly limits rarely approached 500 lbs/day. Because Kaiser's actual discharges seldom approach the TBELs established in their draft permit, these limitations cannot possibly represent the best pollution control technologies or pollution practices. See EPA NPDES Permit Writer's Manual 5.2.1.⁹

Recommendation: In order to fulfill the Clean Water Act's technology forcing objectives, not only should *all* of the TBEL in Kaiser's Draft Permit be more stringent than those contained in Kaiser's 1997 permit (including aluminum and chromium), but those limits should be sufficiently stringent so as to incentivize improved pollution prevention measures. Ecology should explain how it calculated TBELs, and why it did not lower limits that Kaiser is easily meeting with existing technology.

2. Specific Draft Permit Comments

Kaiser's Draft Permit lacks a discussion of contaminated groundwater and possible discharge through direct hydraulic connection to the river. Moreover, to the extent Kaiser is

⁹ Available at: http://www.epa.gov/npdes/pubs/pwm_2010.pdf

*Fact Sheet for NPDES Permit WA-002447-3
City of Spokane's Riverside Park Water Reclamation Facility (the POTW) &
Spokane County Flows and Pretreatment Programs
for both the City of Spokane and Spokane County*

November 17, 2010
Draft NPDES Permit Comments
Page 11

diluting its wastewater stream with cooling water, effluent limits must be applied to the wastewater before contact with the cooling water.

Section S2, Page 9-12: This section should make clear that monitoring of Total PCBs needs to occur before dilution with non-contact water.

3. Draft Fact Sheet Comments

Page 4-5, Industrial Process: It is unclear why groundwater is being considered as wastewater. Please explain the basis for this. Dilution of effluent loads prior to discharge is implicitly prohibited by the requirement that permits contain mass load limitations for all pollutants except pollutants, which cannot appropriately be expressed by mass. 40 C.F.R. § 122.45(f)(1). Kaiser cannot use excess groundwater pumping to dilute its wastewater.

Page 5, Historic Releases/Clean-Up Activities: As stated above, excess groundwater cannot be used to dilute Kaiser's effluent. The use of cold groundwater appears to allow effluent to meet temperature criteria.

Page 8-11, Technology-Based Effluent Limitation: Kaiser's Draft Permit and Fact Sheet should quantify and characterize the "non-scope wastewater" described in this section to determine if AKART is being applied to the sources.

Did Ecology consider current performance, as opposed to just current permit limits, in setting the limits for chromium and aluminum?

Why was design flow, as opposed to actual flow, used for the BOD₅ and TSS loading described on page 11?

Page 16, Chart on Bottom of Page: There are two (2) "footnote a". In the second footnote a, the river at the Kaiser outfall is very different from conditions at the Stateline. Why was data from Stateline utilized?

Page 21, Total PCBs: Given the potential to cause or contribute to a water quality standard violation, Ecology cannot legally wait for a final PCB TMDL to give a PCB limit. Ecology must explain how this position is legal.

Page 21, Metals: End-of-the-pipe criteria is not sufficient for metals. If the river does not have the capacity to assimilate, Ecology cannot legally allow the discharge of metals, and Ecology must explain its rationale for including metals discharges.

Page 22, Toxic Pollutants: PCBs are not included in the toxic pollutants present in Kaiser's discharge; their draft permit only identifies aluminum and chromium as toxic pollutants present in Kaiser's discharge. This section needs to include PCBs.

November 17, 2010
Draft NPDES Permit Comments
Page 12

City of Spokane

1. Specific City Draft Permit Comments

Page 7-9: The Draft Permit does not include final water quality-based effluent limitations (WQBELs) for phosphorus, CBOD, and ammonia as required by 40 C.F.R. § 122.44(d). The appropriate WQBELs for the pollutants which affect dissolved oxygen in receiving waters are identified in the DO TMDL.

It is unclear whether these are the final or interim effluent limits for this facility. If this is the interim limit, the permit should clarify as such and provide the final effluent limitation.

Page 7-9: The pH limit of 6-9 is inconsistent with the limit described in the Fact Sheet of 6.0-7.8. Fact Sheet at 27. This inconsistency should be remedied and explained.

2. City Fact Sheet Comments

Page 19, Consideration of Surface Water Quality-Based Limits for Numeric Criteria: It is unclear why the 7Q10 flow of 757 cfs referred to on this page does not match the 7Q10 flow used in the chart on the bottom of the page. What is the basis for this discrepancy?

Page 19-20, Chart: There is a reference in the bottom cell on page 19 to "yr. 2004 Spokane." This reference is confusing. The model was calibrated with 2001 data, not 2004.

Inland Empire Paper

1. The Draft Permit's Effluent Limitations Do Not Fulfill the Clean Water Act's Technology Forcing Objectives.

As explained above, the Clean Water Act is a technology forcing statute. *See Entergy Corp. v. Riverkeeper, Inc.*, 129 S.Ct. 1498, 1515 (2009). NPDES permits play an important role in forcing dischargers to improve their water quality control. During the renewal process, the permit should look to areas where progress has and should be made. Thus, the fact that IEP has complied with its current effluent limits does not mean that its effluent limits should remain stagnant.

The IEP draft permit is deficient with regard to BOD and TSS for two reasons. First, the limits for BOD and TSS fail to create more stringent limits. For example, during the new proposed low flow season (March-October), the permit lists an average monthly limit for TSS of 4525 lbs/day, and a maximum daily limit for TSS of 8450 lbs/day. These limits are the same as the current permit's low flow season; a choice made "[b]ecause of the water quality concerns during the low flow season." IEP Factsheet at 21. This reasoning is counter-intuitive. If the concern is water quality, then more stringent limits must be set in order to force IEP to discharge less. Allowing the limits to remain stagnant does not force new technology controls to be implemented and does not improve water quality.

*Fact Sheet for NPDES Permit WA-002447-3
City of Spokane's Riverside Park Water Reclamation Facility (the POTW) &
Spokane County Flows and Pretreatment Programs
for both the City of Spokane and Spokane County*

November 17, 2010
Draft NPDES Permit Comments
Page 13

Second, IEP's Discharge Monitoring Reports from March 2010 to January 2008 show that the mean Maximum Daily and Average Monthly discharges for BOD and TSS are far below their actual limits. There is no reason why the draft permit limits should be the same or *higher* than the current permit limits when IEP is not even discharging near its limits. If the goal is zero discharges, leaving so much leeway when not even necessary does not promote that goal. Further, the technology-forcing element of the CWA is ignored when IEP has no incentive to implement stricter controls. IEP's effluent limits should be based on the best available technology, not its actual discharges, but if a performance standard is utilized, Ecology should at a minimum recognize that IEP consistently discharges significantly less than its allowable limit, and reduce the limits accordingly.

Discharge Monitoring Reports for March 2010-January 2008 during *high* flow season months.¹⁰

Amount Discharged over Actual Limit	BOD (lbs/day)	TSS (lbs/day)
Average Monthly Mean	886	446
Average Monthly Limit	2820	4791
Maximum Daily Mean	1638	849
Maximum Daily Limit	5638	8938

Discharge Monitoring Reports for March 2010-January 2008 during *low* flow season months.

Amount Discharged over Actual Limit	BOD (lbs/day)	TSS (lbs/day)
Average Monthly Mean	679	537
Average Monthly Limit	2374	4525
Maximum Daily Mean	1460	1311
Maximum Daily Limit	4536	8450

Recommendation: As evident in the tables above, IEP is discharging far below its effluent limits for several parameters. In their draft permit, during the high flow season (November-February), IEP is given an average daily TSS limit of 13,185 lbs/day. This is simply unnecessary when on average IEP only discharges 849 lbs/day. Even taking into a margin of safety, a limit of 13,185 lbs/day is far more than necessary and a new limit should be established reflecting IEP's technology capabilities and taking into consideration that Clean Water Act's technology-forcing requirements.

¹⁰ Discharge Monitoring Reports up to March 2010, are available online at <https://fortress.wa.gov/ecy/wplicsreports/>.

November 17, 2010
Draft NPDES Permit Comments
Page 14

2. Specific Inland Empire Paper Permit Comments:

Section S1, Page 7-9: The permit lacks a pathogen effluent limit. Pulp and paper facilities are significant sources of pathogens.¹¹ The permit appears to lack any analysis of the potential for pathogen impacts to the river.

The pH limit of 5 appears to be too low. The Kaiser permit calls for 6. What is the basis for the difference?

Section S2, Page 10-11: The monitoring section should specify the methodology to be utilized for monitoring total phosphorus. Moreover, the permit should require monitoring of dioxins, pathogens, and endocrine disruptors associated with pulp and paper processes.

Section S5, Page 16, Schedule of Compliance:

Footnote f, the permit lists the final WQBELs based on the DO TMDL. However, these limits mistakenly appear to be the limits for Kaiser. The correct limits should be ammonia: 24.29; total phosphorus: 1.23; CBOD: 123.2. See DO TMDL at 34.

3. Inland Empire Fact Sheet Comments

Page 8: The narrative criteria paragraph refers the reader to several provisions of the WAC which no longer exists.

The antidegradation paragraph refers the reader to WAC 173-201A-070 which no longer exists.

Page 12, BOD5, Ammonia, and Total Phosphorous: The Fact Sheet states that interim limits for these three parameters are contained in the draft permit but only an interim limit for phosphorous is included. This omission needs to be remedied.

Page 18, Toxic Pollutants: The permit does not address endocrine disrupters associated with this facility. Pulp and paper effluents has been linked with altered reproductive function in freshwater fish.¹² The stretch of river impacted by this facility is known wild trout habitat. Ecology should explain this omission.

¹¹ See EPA, Protocol for Developing Pathogen TMDLs (2001) at 2-6, available at http://www.epa.gov/owow/tmdl/pathogen_all.pdf.

¹² See Jobling, *et al.*, Endocrine Disruption in Wild Freshwater Fish, *Pure Appl. Chem.*, Vol. 75, Nos. 11-12, pp. 2219-2234 (2003), available at <http://www.iupac.org/publications/pac/2003/pdf/7511x2219.pdf>.

*Fact Sheet for NPDES Permit WA-002447-3
City of Spokane's Riverside Park Water Reclamation Facility (the POTW) &
Spokane County Flows and Pretreatment Programs
for both the City of Spokane and Spokane County*

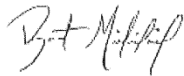
November 17, 2010
Draft NPDES Permit Comments
Page 15

Conclusion

As illustrated above, the Draft Permits have significant deficiencies that need to be addressed prior to issuance of the final permits. Moreover, in the event that significant changes are made to address these comments, comments of other parties, or as the result of changes to the TMDL that materially alter the permits, Spokane Riverkeeper, the Lands Council, the Kootenai Environmental Alliance, and the Gonzaga University Legal Assistance Environmental Law Clinic requests an opportunity to comment on those changes.

Please do not hesitate to contact the undersigned if you have questions about these comments.

Sincerely,



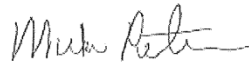
Bart Mihailovich
Spokane Riverkeeper
Clinic



Michael J. Chappell, Director
Gonzaga Environmental Law



Terry Harris
Kootenai Environmental Alliance



Mike Petersen
The Lands Council

Response to Page 7-9: The Fact sheet discussion of pH analyses for reasonable potential to pollute was not intended to describe a regulatory limit but the range of operational data used for computational purposes.

Response to General Comments Regarding PCBs: Ecology has expanded the scope of the activities to be considered for minimizing PCBs in the effluent limits in S12.A. PCBs are listed as regulated pollutants in S1.A and S1.B with reference to section S12.A. Additionally, Ecology will review effluent data from the first 4 years of this permit cycle and develop performance based effluent limits for PCBs for the next permit cycle.

Upper Columbia River Group

Box 413

Spokane, Washington 99210

November 17, 2010
Permit Coordinator
Washington State Department of Ecology
Eastern Regional Office
4601 N. Monroe St.
Spokane, WA 99205

**Re: Comments on Draft NPDES Permits for
Kaiser Aluminum Fabricated Products, LLC (Permit No. WA-0000892)
City of Spokane Riverside Park Water Reclamation Facility and CSOs,
and Spokane County (Pretreatment Program) (Permit No. WA-002447-3)
Inland Empire Paper Co. (Permit No. WA-0000892-5)
Liberty Lake Sewer and Water District (Permit No. WA-0045144)**

SENT VIA EMAIL (stra461@ecy.wa.gov)

Dear Permit Coordinator,

These comments are submitted on behalf of the Upper Columbia River Group of the Sierra Club (Sierra Club), on the Department of Ecology's four draft Spokane River NPDES permits, in particular the draft NPDES permits for Liberty Lake Sewer and Water District, the City of Spokane, Kaiser Aluminum, and Inland Empire Paper (IEP). Please include these comments as part of the administrative record for all four draft NPDES permits. Please also include, by reference, our comment letter dated November 13, 2007, including attachments, on prior drafts of these four permits.

Sierra Club has dedicated significant time and resources to protect and restore the Spokane River, including participation in all aspects of the development of the TMDLs for the Spokane River. Sierra Club interests include protection of public health, restoration of wild redband trout populations, protection and enhancement of public use of Riverside State Park (including elimination of noxious odors in the Park and downstream of City of Spokane's sewage treatment plant), and achievement of a healthy river that benefits Spokane's economy and quality of life.

These permits are important steps toward implementing these TMDLs. Accordingly, we would like to continue to work closely with Ecology toward the finalization of these permits. There is no question that sewage and industrial discharges are among the greatest threats to these goals. Therefore, it is imperative that the Washington Department of Ecology and the U.S. Environmental Protection Agency issue NPDES permits that are fully protective of the public interest and designed to achieve water quality standards in the near term. The lengthy delays in adoption of appropriate TMDLs and administrative extensions of these permits make it all the more important that the responsible agencies "get it right".

The Spokane River is listed on Washington's §303(d) list for a number of parameters, including dissolved oxygen, total dissolved gas, PCBs, temperature, and dioxin. Designation of a waterbody pursuant to § 303(d) means that current wastewater technologies and other pollution control activities, such as Best Management Practices (BMPs) for non-point sources, are insufficient to protect the health of the River and that more stringent measures must be applied to meet water quality standards. 33 U.S.C. §§ 1313(d), 1329; 40 C.F.R. § 130.7. As a result, Ecology must ensure that these permits include effluent limits for PCBs, ammonia, phosphorus, temperature, dioxin, CBOD, and other parameters that will be protective of Washington's and the Spokane Tribe's water quality standards.

Before proceeding with the comments, it must be noted that Sierra Club has substantial concern with the draft dissolved oxygen TMDL, which these permits reference. Sierra Club has submitted substantial comments on the draft TMDLs. The Idaho dischargers have challenged the final dissolved oxygen TMDL. If significant alterations are made to the DO TMDL, Sierra Club specifically requests that Ecology resubmit the NPDES permits for public review and comment. This would allow the public to review the permits in light of the most up-to-date information and any revisions to the TMDL.

(1) Comments on All Four Permits

(1.1) All permits need to be based on the CeQual model for establishing critical river conditions for permit limit calculations in the river during the 1-in-10 year flow year of 2001.

(1.2) All permits must use end-of-pipe water quality-based limits for PCB until a TMDL assigns a WLA in an approved TMDL. NPDES permits should not use technology-based limits or BMPs.

(1.3) Critical river conditions for all permittees must be based on the 2001 parameters estimated from the 2001 calibrated CeQual model for the segment at the discharge point. Those WQ conditions are the best estimate of critical parameters present during a 1 in 10 year flow condition at that location.

(2) Kaiser Aluminum Fabricated Products, LLC (Permit No. WA-0000892)

(2.1) Kaiser needs separately monitor PCBs in the process stream and groundwater to prevent dilution and to provide more reliable results.

(2.2) The use of WQ data from the Spokane River at Riverside State Park is erroneously used to characterize the Spokane River during critical conditions at the Kaiser discharge. This is not appropriate and is misleading.

(3) Liberty Lake Sewer and Water District (Permit No. WA-0045144)

(3.1) The Liberty Lake design criteria (as with Spokane's) have not been confirmed to be able to achieve WQ criteria at design flow or to comply with Tier 2 Antidegradation requirements. Although there were known WQ problems with discharge expansion several years ago, the expansion was approved anyway.

(3.2) Liberty Lake should receive interim performance-based limits to prevent further degradation of the Spokane River and Lake Spokane until such time as DO TMDL implementation demonstrates improvements in water quality.

(4) Inland Empire Paper Co. (Permit No. WA-0000892-5)

(4.1) Pollutants in the waste stream and listed in the 303(d) list such as PCBs must have limits in the permit. If there is no WLA for the discharge in an approved TMDL, then there is no allowable mixing zone - and end-of-pipe WQ-based limits must be applied.

(4.2) Critical conditions used for Temperature and pH limit evaluation are not well explained in the draft permit. Calculations need to show how the allowable maximum incremental changes were addressed for both parameters.

(4.3) Monitoring frequencies used to calculate permit limits are not the same as required in the permit. They must conform. No justification of the effluent data set transformation or autocorrelation values is given.

(4.4) WQ-based arsenic limits now need to be implemented after more than 10 years of delay.

(4.5) Final limits for oxygen demanding pollutants must be placed in the permit and the compliance schedule cannot exceed 5 years in the permit. Any interim limits and compliance schedule exceeding the 5-year maximum permit life must be contained in an administrative order.

(4.6) Performance-based limits for interim effluent loading are appropriate for oxygen demanding pollutants, but so long these limits are developed using the correct data evaluation.

(4.7) Because implementation of the metals TMDL has been delayed excessively, the metals limits should use end-of-pipe limits as interim until a year of monitoring establishes performance. At that point, most stringent of either performance-based or end-of-pipe limits should become automatically effective per the procedure outlined in the metals TMDL.

(4.8) Fecal coliforms are common in undisinfected pulp mill effluent along with opportunistic pathogens. Permit limits consistent with meeting water quality criteria for bacteria must be placed in the permit until quantification of pathogens in IEP effluent is performed by an independent health organization.

(4.9) Pulp mill effluent has been well-documented to cause endocrine disruption in fish including rainbow trout, impairing reproductive and other physiological processes. Because a unique native Red-Band Trout population naturally reproduces in the river near the IEP discharge, it is imperative that the effluent not limit this population's recovery which is also being limited by other water pollution and habitat problems.

Exposure to pulp mill phytosterols and other chemicals potentially responsible for endocrine disruption may occur for extended periods since it is likely that the warm IEP discharge creates an attractant to fish when the river is coldest in the winter. This pollution impact from IEP discharges must be shown not to cause any toxic effects in the Red-Band Trout population.

(5) City of Spokane Riverside Park Water Reclamation Facility and CSOs, and Spokane County (Pretreatment Program) (Permit No. WA-002447-3)

(5.1) Permit Application

The permit application submitted in 2004 is not legally valid or applicable to a 2010 permit. A new permit and evaluation must be submitted on a valid application with up to date effluent characterization.

(5.2) Permit Compliance

There has been documented dry weather raw sewage overflows, citizen lawsuits and settlements pertaining to permit violations. Statements such as contained in the fact sheet section C. on permit compliance is grossly misleading. The compliance schedule of any court order should also be reflected in the permit conditions

(5.3) Design Criteria – Facility Loading

(5.3.1) Expansion of the discharge is being permitted as design criteria without an adequate water quality (WQ)-based evaluation at those discharge volumes using the best available river and effluent data representative of critical conditions at design flows. The permit cannot be issued for expanding flows under design criteria without calculating critical conditions, determining reasonable potential, and setting limits under those design criteria flows. If lower flows are being permitted, they must be explicit in the permit. The use of these design flows without the above evaluations for establishing adequate capacity for the City's wastewater treatment in the River is incorrect.

(5.3.2) Tier 2 Antidegradation rules must be complied with for new or *expanded* discharges.

There is neither an adequate nor up-to-date evaluation accompanying the newly expanded design flow being permitted.

(5.3.3) No dilution zone is allowable for pollutants which already exceed WQ criteria or have a WLA established by a TMDL. End-of-pipe limits must be established for those pollutants such as PCB. It seems impossible to expand discharges to the stated design criteria while at the same time meeting the strict PCB loading limits that will be required under State and Spokane Tribe's water quality standards. The proposed permit, therefore, is not consistent with State and Federal Laws

(5.4) Effluent Limits

(5.4.1) Ecology has a state of art model with extensive instream monitoring calibration data for the critical river condition year of 2001. There is no need to delay permit analyses since all receiving stream parameters used for calculating effluent limits within mixing zones for all Spokane River permits should use the model WQ output data for the river segment at each outfall. It is arbitrary to use data from one sampling effort in 1998 or the non-critical flow year of 2005 to characterize the river for 2010 permits.

(5.4.2) There is a discussion of new mixing studies showing better dilution, but no definition of the actual dimension of the mixing zones or justification of new dilution ratios.

(5.4.3) Probability dictates that 7Q10 flows are higher than 7Q20 flows. Explanation is need to show how critical conditions flow were calculated.

(5.4.4) The dilution factors presented in the text and explained as based on Appendix D does not correspond to those in Appendix C.

(5.4.5) Interim limits applied during a compliance schedule must prevent further worsening of WQ criteria violations in the river and lake while final limits are implemented. Therefore, the interim limits must be based on performance for the current discharge, not on technology-based treatment standards which would allow much larger loading than is currently being discharged.

(5.4.6) Final Limits that will meet state water quality standards must be incorporated into the permit.

(5.4.7) The chlorine limits have no justification presented for inclusion in the permit. There must be a WQ-based evaluation with critical flows. The smell of chlorinated effluent is present in the river past the Bowl and Pitcher within Riverside State Park downstream of the discharge in the summer. These odors violate the aesthetics portion of the WQ narrative criteria and indicate that there are probable toxic concentrations of chlorinated compounds well downstream of the mixing zone. This needs to be controlled by more stringent permit limits for chlorine, including odor. Any expansion of this discharge under these conditions cannot be permitted.

(5.4.8) Effluent Limits in the permit are different than those justified in the Fact Sheet.

(5.4.9) The critical conditions cited for deriving ammonia limits and citing EPA procedures in Appendix D - *Response to Comments* have no justification and are not consistent with critical conditions used to justify pH limits. It appears that the monthly limit for ammonia was defined without justification.

(5.4.10) The permitted upper pH permit limit sets the critical pH used in the ammonia calculation to protect the river from toxic conditions. It appears that data has been arbitrarily selected to apply at different calculations to develop less stringent limits.

(5.4.11) It has been over 15 years since the arsenic issue for limits has been put on delay. Further delay is not warranted or acceptable under the CWA.

(5.4.12) It is not clear why comparison of effluent limits is done under Section I of the Fact Sheet. Are these related to groundwater?

(5.4.13) Effluent permit limits for CBOD of 30 and 45 don't comply with federal technology-based limits and there is no time period label.

(5.4.14) If CBOD technology limits are established, ammonia limits also must be included to prevent the combination of CBOD and NBOD from exceeding the BOD tech-based limits.

(5.4.15) It is inexplicable how WQ criteria for Fecal coliform can be met below the treatment plant if both A&B outfalls discharge together with technology-base limits for bacteria while the river is listed for fecal bacteria violations.

(5.4.16) Pretreatment program implementation facts for the City and County must be documented as justification that the program will be protective during the term of this permit.

Conclusion

As described above, these four permits have significant deficiencies that must be addressed prior to issuance of final permits. Moreover, in the event that significant changes are made to address these comments, comments of other parties, or as the result of changes to the TMDL that materially alter the permits, Sierra Club requests an opportunity to comment on those changes. Please do not hesitate to contact me if you have further questions regarding these comments.

Sincerely,
John Osborn, MD

Ecology's Response to the Sierra Club Comments on All 4 Permits.

Ecology did use CE-QUAL-W2 model to determine the in-stream concentrations necessary to meet dissolved oxygen water quality standards in Lake Spokane and the 7Q10 flows for 2001 were used.

Regarding PCBs, Ecology does not currently have adequate monitoring data to establish WQBELs. Further WQBELs would most likely be below current method detection limits for PCBs and effective compliance monitoring would be severely compromised. The final permit specifies PCB influent and effluent monitoring and requires development of best management practices for toxicant reduction including goal setting. The monitoring will track the effectiveness of the BMPs, if the toxic reduction goal has been met and provide data to establish performance based PCB effluent limits.

Regarding critical water conditions for each segment; ideally that is preferred, but data is not necessarily available to achieve that goal.

Ecology's Response to Comments Specific to the City of Spokane NPDES Permit and Spokane County.

Comment 5.1: The fact sheet entry is no longer complete. Amendments to the application were submitted in 2005 and 2010. The 2010 update revised the list of CSO outfalls.

Comment 5.2: The fact sheet remains as is.

Comment 5.3: The TMDL evaluation was made at design conditions. When flows eventually exceed the design condition the treatment will need to be more efficient. The effluent mass allowed will not increase.

Comment 5.3.2: A facility must prepare a Tier II analysis when all three of the following conditions are met:

- The facility is planning a new or expanded action. This condition applies.
- Ecology regulates or authorizes the action. This condition applies.
- The action has the potential to cause measurable degradation to existing water quality at the edge of a chronic mixing zone. Water quality at the edge of a chronic mixing zone will not be measurably degraded but will improve with implementation of the permit conditions.

Comment 5.3.3: While this is generally true, EPA rules do specify an exception for carcinogens. For carcinogens the allowable dilution is defined by the harmonic mean flow.

Comment 5.4.1: No parameter is named as a concern. The TMDL modeling did not consider all parameters. Not all parameters are monitored in reasonable proximity to the Water Reclamation Facility.

Comment 5.4.2: No new mixing zone has been authorized.

Comment 5.4.3: The comment did direct me to double check the equations in section 13-4 and 13-5 of the textbook *'Hydrology for Engineers'* by Linsley, Kohler, and Paulhus, published by McGraw Hill. The commenter and the text book are in disagreement. The fact sheet will rely on the textbook.

Comment 5.4.4: It is not clear which Appendix D the commenter is referring to. But the fact sheet is not clear either. The fact sheet does reference the USEPA *"Technical Support Document for Water Quality-based Toxics Control."* This is the reference document for the reasonable potential calculations used. The dilutions factors in the various tables in Appendix C considered more scenarios than the single situation given in the table presented under "Considerations of Surface Water Quality-Based Limits for Numeric Criteria."

Comment 5.4.5: With the exception of BOD and TSS, interim limits are either WQ based or performance based. The ammonia limit controls performance of the secondary treatment process.

Comments 5.4.6: The final limits do protect the applicable water quality standards for the Spokane River.

Comment 5.4.7: The chlorine limits are water quality based. The effluent is dechlorinated. The Department has received no complaints of chlorine odors. Chlorine odors have not been perceived during routine inspections of the facility.

Comment 5.4.8: The final limits in the permits (section S1.B) are what is shown in the fact sheet.

Comment 5.4.9: The USEPA citation is given above. The ammonia is dependent on several factors including dilution. The pH also varies seasonally.

Comment 5.4.10: See response to 5.4.9.

Comment 5.4.11: The Department would likely agree with you and probably the USEPA but the issues resolution isn't in the control of Ecology.

Comment 5.4.12: Thank you for pointing out what should have been an obvious formatting error.

Comment 5.4.13: The CBOD limit is wrong. WAC 173-221-050 addresses technology limits when CBOD is appropriate. The limit for the 30 day average is 25 mg/L and 40 mg/L for the 7 day average. The mass limit was also different than the fact sheet and has been corrected. Thank you.

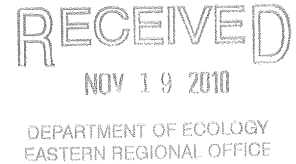
Comment 5.4.14: The CBOD limit is lower than the BOD for exactly that reason. Thank you.

Comment 5.4.15: The river is not listed for fecal coliforms because of the treatment plant. The treatment plant effluent quality is much better than either the technology based limit or the water quality standard for fecal coliforms.

Comment 5.4.16: The pretreatment program intent is:

- 1) to protect the operation and treatment process integrity,
- 2) to implement source control activities for toxicant that are not effectively removed by wastewater treatment processes such as heavy metals and PCBs.

*Fact Sheet for NPDES Permit WA-002447-3
City of Spokane's Riverside Park Water Reclamation Facility (the POTW) &
Spokane County Flows and Pretreatment Programs
for both the City of Spokane and Spokane County*



November 17, 2010

Permit Coordinator
Department of Ecology
4601 N. Monroe
Spokane, WA 99205

Dear Sir:

The Lake Spokane Association (LSA) is a non-profit corporation of citizens concerned about the health of Lake Spokane. We appreciate the opportunity to comment on the draft NPDES permits covering the discharge of phosphorus into the Spokane River.

We applaud the efforts made, to date, in removing phosphorus from the Spokane River and Lake Spokane through the development of the Dissolved Oxygen TMDL. We understand the need for a 20 year time line to develop phosphorus removal technologies, allowing the dischargers time to implement these technologies. Unfortunately the permits do not adequately address the issue of reducing the impact of high phosphorus levels in Lake Spokane during the 20 year period.

During the fall of 2010, a very active blue-green algae bloom, causing unsightly and foul smelling mats, developed in Lake Spokane, lasting two months. When samples of this algae were submitted to a laboratory, paid for by your agency, they found high levels of toxins harmful to human health. The Washington Department of Health then posted signs at key access sites, on the lake, advising citizens to be aware of the blooms and not to use the lake where the blooms were occurring.

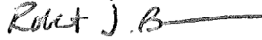
We ask that the permits require the dischargers to fund or implement procedures that will reduce the presence and impact of the blue-green algae during the life of the permits. Techniques that could be used include treating blue-green algae blooms with chemicals, such as sodium carbonate proxyhydrate or aluminum sulfate at inshore areas. Volunteer funded monitoring programs, such as the LSA, to identify blue-green algae blooms and record turbidity readings, could help this effort.

We are aware that local non-point sources around the lake and in the watershed are also adding to the problem. These sources could include lawn fertilizer, yard waste, septic tanks and drain fields, and livestock operations. We see value in dischargers helping fund educational efforts aimed at shoreline homeowners and local citizens regarding the impacts that they have on the health of the lake. We understand that Avista is proposing similar efforts and believe this would be consistent with them. Such efforts could also include funds to dispose of the yard and livestock waste and to inspect septic tanks and drain fields.

18520 N West Shore Rd | Nine Mile Falls WA 99026 | www.lakespokaneassociation.org

The draft permits are silent about discharging PCB's and other pollutants into the river. A December 2007 report by the U.S. Environmental Protection Agency identified the City of Spokane "as the largest continuing source of PCBs to the river." This is of great concern to the citizens using the Spokane River and Lake Spokane. It is critical that PCB limits be included now when major upgrades to wastewater plants are being installed to address phosphorus.

Sincerely,



Robert J. Bankard, President
Lake Spokane Association

Ecology's Response to Request for Reducing Phosphorus Loading:

The permit limits do require compliance with the waste load allocations. Further action was discussed during the collaboration meetings but not recommended for further action until it was known how the water bodies responded. The 10 year assessment will tell us how the water bodies have responded and if further action is needed. During the collaboration meetings chemical treatment as requested in the letter was not offered as an option. Oxygenation was discussed but was tabled for after the 10 year assessment.

Ecology's Response to Concern About Toxicants Such as PCBs:

While the permits did address PCBs, it is clear that a more detailed response is desired. The final permit specifies PCB influent and effluent monitoring and requires development of best management practices for toxicant reduction including goal setting. The monitoring will track the effectiveness of the BMPs, if the toxic reduction goal has been met and provide data to establish performance based PCB effluent limits to be implemented in the following permit cycle.

*Fact Sheet for NPDES Permit WA-002447-3
City of Spokane's Riverside Park Water Reclamation Facility (the POTW) &
Spokane County Flows and Pretreatment Programs
for both the City of Spokane and Spokane County*

Joy, Shara-Li (ECY)

From: Angie Dierdorff [angie@sunpeopledrygoods.com]
Sent: Monday, November 08, 2010 5:19 PM
To: Joy, Shara-Li (ECY)
Subject: draft permit updates

I am writing to implore The Washington State DOE to limit PCB levels in the Spokane River in the draft permit updates!

I have been concerned about PCB levels in the Spokane River since 2000, when the levels came to my attention and that of People for Environmental Action and Community Health, of which I was a founder.

The City of Spokane's Riverside Park Water Reclamation Facility, Inland Empire Paper, Kaiser Aluminum, and the Liberty Lake Sewer and Water District are all significant sources of PCBs. Ecology has a draft PCB cleanup plan that indicates that standards for PCBs in the Spokane River are not being met. The four aforementioned pollution sources contribute to the problem. Drastic reductions in PCBs are required to meet these standards (more than 90% reduction). PCBs are contaminating our fish and beaches throughout the river.

Please do not miss this opportunity to include PCB limits in the draft permits.

Thank you,

Angie Dierdorff

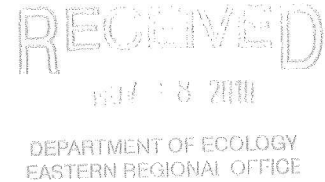
Sun People Dry Goods Co.
24 W. 2nd Ave, Suite 200
Spokane, WA 99201
509-869-9438 (mobile)
angie@sunpeopledrygoods.com
www.sunpeopledrygoods.com

Response: Ecology has expanded the scope of the activities to be considered for minimizing PCBs in the effluent limits. PCBs are listed as regulated pollutants in both the interim and final effluent tables. Additionally, Ecology will review effluent data from the first 4 years of this permit cycle and develop performance based effluent limits for PCBs for the next permit cycle.



November 17, 2010

Permit Coordinator
Washington Department of Ecology
4601 N. Monroe Street
Spokane, WA 99205



Re: Comments on Draft NPDES Permits Regarding the Spokane River for Inland Empire Paper Company, Kaiser Aluminum, Liberty Lake Sewer and Water District, and the City of Spokane Riverside Park Facility

Dear Sir/Madam:

I am writing to provide comments on the draft NPDES permits for the following facilities discharging to the Spokane River: Inland Empire Paper Company (Permit No. WA-000082-5); Kaiser Aluminum (Permit No. WA-000089-2); Liberty Lake Sewer and Water District (Permit No. WA-0045144); and the City of Spokane Riverside Park Water Reclamation Facility and Combined Sewer Overflows (Permit No. WA-002447-3).

1. In the Inland Empire and Kaiser permits, please revise the first sentence in Condition S4 to read as follows: "The goal of this BMP plan is to reduce effluent concentrations of total phosphorus, CBOD, and ammonia below current discharge levels." The current language indicates that maintaining effluent concentrations at current discharge levels would satisfy the goal of the BMP plan. For the same reason, on page 17 of the Inland Empire Factsheet draft permit, the second full sentence should be revised to state that "The goal of the BMP plan is to lower these pollutants in the effluent"

2. Condition S5 in the Inland Empire and Kaiser permits includes a table of target pursuit actions and compliance dates. The final target pursuit action, "Meet Final Water Quality Based Effluent Limits," has a footnote stating that Ecology "may adjust the final water quality based effluent limitations on the basis of new information," including "the results of the Avista Dissolved Oxygen Water Quality Attainment Plan." Avista assumes that any adjustment made to the final effluent limits would be to make the limits more stringent, because adjusting the limits to make them less stringent would be prohibited by the anti-backsliding provision of the Clean Water Act. Is our assumption correct? Otherwise, we are concerned that any adjustment could place an additional burden on Avista.

3. The permits for Kaiser and Inland Empire set effluent limits based on "seasonal averages," but do not explain how a seasonal average is to be calculated. Please explain.

4. None of the permits refer to the Water Quality Trading Framework that Ecology is preparing (although the Liberty Lake and City of Spokane permits at least mention the concept of trading -- see Condition S11.A in the Liberty Lake permit and S15.A in the City of Spokane permit, which state that: "The Engineering Report is to address the following topics based on rule requirements, pollutant equivalency consideration, potential for offset creation and

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*Permit Coordinator
Department of Ecology
November 17, 2010
Page 2*

management including trading, etc."). Each of the draft permits should be revised to explicitly allow dischargers to use credits created under the Trading Framework to help meet water quality based effluent limits.

5. We have several questions regarding offsets and offset plans:

(a) Why do the draft NPDES permits and factsheets for the City of Spokane and Liberty Lake contain provisions regarding offsets and offset plans, but the draft NPDES permits and factsheets for IEP and Kaiser do not?

(b) Please explain how an offset plan (as that term is used in the draft permits and factsheets for City of Spokane and Liberty Lake) relates to the Trading Framework.

(c) Please explain how an offset plan (as that term is used in the draft permits and factsheets for City of Spokane and Liberty Lake) relates to the Delta Elimination Plan.

(d) The draft permits and factsheets for both the City of Spokane and Liberty Lake state that "Offset Plan: Not a requirement in the proposed permit. In the next permit cycle it is anticipated that an Offset Plan will be required." See p. 32 of the City of Spokane factsheet and p. 26 of the Liberty Lake factsheet. However, p. 35 of the City of Spokane factsheet indicates that the permittee is required to submit its initial Annual Offset Plan Update in February, 2013. Because the draft permit will not expire until 2015, does that not make the submission of the initial Annual Offset Plan Update a requirement of this permit? Also, why is Liberty Lake not required to submit its initial Annual Offset Plan Update by the same date?

6. In the City of Spokane permit, footnote 6 to the S2 Monitoring Requirements states as follows:

Beginning March 1, 2018; for the 3 parameters (CBOD₅, NH₃ and TP) with WLAs established by the Spokane River and Lake Spokane DO TMDL, the monthly discharge monitoring report must provide the following information for the "ten year assessment" monitoring and future compliance projections: monthly average, daily maximum, running total for the "season," running average for the "season," projected trend of total lbs. and average concentration and average daily lbs. for remainder of the "season" with future compliance target indicated. If the trend projection indicates a probability of noncompliance with the allowable mass limitations to be in effect once the period of formal compliance begins in 2021, the permittee is to communicate the anticipated result of the projection to the Department with appropriate recommendations.

Regarding this language, please change "probability of noncompliance" to "significant potential for noncompliance," and at the end of the last sentence add "to avoid a trend that would result in noncompliance." "Probability of noncompliance" at least suggests that the City of Spokane need not report unless the likelihood of noncompliance exceeds 50 percent, a standard inconsistent with the Clean Water Act. Please also define "season" for purposes of this footnote, since that term refers to at least three different time spans elsewhere in the City of Spokane draft permit.

*Permit Coordinator
Department of Ecology
November 17, 2010
Page 3*

See, e.g., page 8 of draft permit, where there is reference to the "season" of March 1 to May 31, the "season" of June 1 to September 30, and the "season" of October 1 to October 31.

7. The factsheets for Kaiser Aluminum (page 18) and Inland Empire Paper Company (page 13) contain a table labeled "NPDES Permit Cycle." The table includes Avista, despite the fact that it is not subject to an NPDES permit. Furthermore, the table incorrectly characterizes Avista's implementation schedule under its Section 401 Certification.

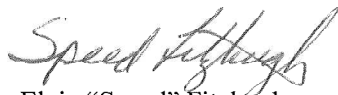
To avoid confusion and to make Avista's implementation schedule consistent with its Section 401 Certification, please remove Avista from the table and include immediately below the table the following narrative summary of Avista's schedule:

Avista's Lake Spokane Dissolved Oxygen Water Quality Attainment Plan (DO WQAP) will be submitted to Ecology for review and approval by May 27, 2012. Avista must also submit the DO WQAP to the Federal Energy Regulatory Commission (FERC) for approval, and cannot proceed with any mitigation/implementation activities identified in the DO WQAP until it receives FERC approval. The DO WQAP will contain a compliance schedule for implementation that to the degree reasonable and feasible is synchronized with the milestones and assessments of the DO TMDL for the Spokane River, but does not exceed ten years (WAC 173-201A-510(5)). If at the end of the ten year compliance period, Avista is unable to address its proportional level of responsibility as determined in the DO TMDL, after evaluating and implementing all reasonable and feasible alternatives under WAC 173-201A-510(5)(g), then Avista will propose an alternative action to achieve compliance with the DO TMDL, such as new reasonable and feasible technologies or other options to achieve compliance with the DO TMDL, a new compliance schedule, or other alternatives as allowed by WAC 173-201A-510(5)(g).

Please also explain why Avista's DO WQAP is referenced in the Kaiser and IEP factsheets, but not in the factsheets for Liberty Lake Sewer and Water District or for the City of Spokane.

We appreciate your consideration of our comments. Please feel free to call me at (509) 495-4998 if you have any questions.

Very truly yours,



Elvin "Speed" Fitzhugh
Spokane River License Manager

Response to AVISTA Comments No. 4 and 5:

The water quality trading framework is still in development. Until the “framework” is complete the permits can do no more than provide a future opportunity to make use of the result. The proposed engineering reports are an appropriate tool for presenting details of how a discharger proposes to use the trading framework individually or collectively.

Response to AVISTA Comment No. 6:

Significant non-compliance is better as is the comment on trends predicting non-compliance.

*Fact Sheet for NPDES Permit WA-002447-3
City of Spokane's Riverside Park Water Reclamation Facility (the POTW) &
Spokane County Flows and Pretreatment Programs
for both the City of Spokane and Spokane County*

-----Original Message-----

From: FRANK I BACKUS [mailto:frankbackus@comcast.net]
Sent: Wednesday, November 17, 2010 8:40 AM
To: Darrell, Ginny (ECY)
Cc: Puddicombe seablues
Subject: NPDES for Spokane River

The Department of Ecology must ensure that NPDES permits include effluent limits for PCBs, ammonia, phosphorus, temperature, dioxin, CBOD, and other parameters that will be protective of Washington's and the Spokane Tribe's water quality standards. The proposal as it is does not protect enough.

As a physician, I want to emphasize the importance to the people of Spokane and all of the Pacific NW to have safe waters. And remember that the Spokane River does drain into Puget Sound, which is in need of much lower and safer levels of toxins and effluents. Do the right thing!

I support the limits suggested by the Sierra Club. All permits need to be based on the CeQual model for establishing critical river conditions for permit limit calculations in the river during the 1-in-10 year flow year of 2001. All permits must use end-of-pipe water quality-based limits for PCB until a TMDL assigns a WLA in an approved TMDL. NPDES permits should not use technology-based limits or BMPs. Critical river conditions for all permittees must be based on the 2001 parameters estimated from the 2001 calibrated CeQual model for the segment at the discharge point. Those WQ conditions are the best estimate of critical parameters present during a 1 in 10 year flow condition at that location. Kaiser needs separately monitor PCBs in the process stream and groundwater to prevent dilution and to provide more reliable results. The Liberty Lake design criteria (as with Spokane's) have not been confirmed to be able to achieve WQ criteria at design flow or to comply with Tier 2 Antidegradation requirements. Although there were known WQ problems with discharge expansion several years ago, the expansion was approved anyway. Liberty Lake should receive interim performance-based limits to prevent further degradation of the Spokane River and Lake Spokane until such time as DO TMDL implementation demonstrates improvements in water quality. Pollutants in the waste stream and listed in the 303(d) list such as PCBs must have limits in the permit. If there is no WLA for the discharge in an approved TMDL, then there is no allowable mixing zone - and end-of-pipe WQ-based limits must be applied. WQ-based arsenic limits now need to be implemented after more than 10 years of delay. Final limits for oxygen demanding pollutants must be placed in the permit and the compliance schedule cannot exceed 5 years in the permit. Any interim limits and compliance schedule exceeding the 5-year maximum permit life must be contained in an administrative order. Because implementation of the metals TMDL has been delayed excessively, the metals limits should use end-of-pipe limits as interim until a year of monitoring establishes performance. At that point, most stringent of either performance-based or end-of-pipe limits should become automatically effective per the procedure outlined in the metals TMDL. Fecal coliforms are common in undisinfected pulp mill effluent along with opportunistic pathogens. Permit limits consistent with meeting water

Please see the comments to the Sierra Club.

Joy, Shara-Li (ECY)

From: Ken Carmichael [kcarmichael2225@gmail.com]
Sent: Monday, November 15, 2010 9:13 AM
To: Joy, Shara-Li (ECY)
Subject: Water discharge permits on Spokane River

I am not a water quality expert nor do I fully understand all of the technical aspects surrounding cleaning up the Spokane River and Lake Spokane. I am a resident that uses the lake frequently and am very familiar with the quality of the water during the summer. I have attended several public meetings on the issue.

I recognize that there is a high cost and several technical hurdles to go over in order for us to make significant improvement to the quality of the water. However, with all this said I believe that it is essential for the good of the river and the community as a whole that every conceivable effort be made to maximize our efforts to clean up these waters.

The reason this has become so expensive is that we have already let it go too long. In the past using the water way as a means of disposal was less expensive and convenient. Now we must pay the price for our past. I believe that we have no choice for our own economic, social and environmental well being but to expect the absolute best efforts to clean up the water.

This effort should not be allowed to be delayed, regardless of the cost. Those who have benefited must now step forward and pay the price.

Ken Carmichael
466-2225

Response:

First, thank you for your comment. Second, the Department wants to implement change as soon as practical. Third, the City of Spokane has begun implementing a number of small changes before the permit is final and effective. The City has already invested \$8 million in testing advanced levels of treatment to keep proposed improvements moving forward towards the scheduled compliance date and water quality improvement.

After the close of the public comment period, Ecology had further conversations with the US EPA Region X and the Spokane Tribe of Indians regarding PCBs discharged to the Spokane River. The concept of a Regional PCB Task Force was initially put forth by Spokane County and the Spokane Riverkeeper. Ecology, the US EPA Region X and the Spokane Tribal representative reviewed the proposal and agreed on an additional condition in the final permits for each Spokane River Permittee in Washington which requires the Permittee to participate in the creation of a Regional Toxics Task Force for the Spokane River. The Task Force will develop a comprehensive plan with the goal of bringing the Spokane River into compliance with applicable water quality standards for PCBs. Ecology will also include this condition in other NPDES permits issued on the Spokane River (Liberty Lake Sewer and Water District, Inland Empire Paper Company, Kaiser and the proposed permit for Spokane County).