

FACT SHEET FOR NPDES PERMIT WA-0045217

**Avista Corporation
Kettle Falls Generating Station
P.O. Box 609
Kettle Falls, WA 99141**

DATE OF EXPIRING PERMIT - November 30, 2007

SUMMARY

This fact sheet is a companion document to the draft NPDES Permit No. WA-0045217. The Department of Ecology is proposing to renew this permit, which will allow the Avista Kettle Falls Generating Plant to continue to discharge their process water to Lake Roosevelt (Columbia River) through outfall #1. This fact sheet explains the nature of the proposed discharges, the Department's decisions on limiting the pollutants in the process water, and the regulatory and technical basis for those decisions.

Currently, Kettle Falls Generating Plant uses the city's ground water as the water source to cool the condenser and for general process water use. Most process water is generated from the make up water feeding to the condenser cooling tower. The cooling water is maintained at 7 or less cycles of concentration before discharge. Other process water sources are from incoming water pre-treatment discharge, boiler blow down, and plant miscellaneous use. All these process waters are combined at the settling basin, retention basin, and then the clarifier before discharge to Lake Roosevelt.

The facility's five year discharge monthly reports (DMRs) have showed outstanding performance for all monitored parameters. This renewal permit will modify the effluent limitations based on re-evaluation of technology based limitations, surface water quality based limitations, and the performance based limits. The re-evaluation will result in more stringent effluent limitations for some discharge parameters. Some monitoring frequencies will also be modified due to consistency of the tested data and for cost saving purposes.

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INTRODUCTION

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

The regulations adopted by the State include procedures for issuing permits (Chapter 173-220 WAC), 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 Departments response. The fact sheet will not be revised. Comments and the resultant changes to the permit will be summarized in Appendix D--Response to Comments.

GENERAL INFORMATION	
Applicant	Avista Utilities
Facility Name and Address	Avista Kettle Falls Generating Station 1151 Highway 395 North/P.O. Box 609, Kettle Falls, WA 99141
Type of Facility:	Steam Electric Power Generation (Wood fired)
SIC Code	4930
Discharge Location	Waterbody name: Columbia River (Lake Roosevelt) Latitude: 48° 37' 00" N Longitude: 118° 07' 10" W.
Water Body ID Number	WA-CR-1060

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

HISTORY

Avista Corporation (formally Washington Water Power Company) is a power generation company involved in the production, transmission and distribution of energy and natural gas. Kettle Falls Generating Station is one of thirteen of Avista's generating stations (Figure 1). The site is located 86 miles north of Spokane, approximately 3 miles northwest of Kettle Falls, Washington; adjacent to Franklin D. Roosevelt Lake in Stevens County. A vicinity map is attached as Figure 2.

The plant was designed and built in 1983 by the Morrison-Knudsen Company of Boise, Idaho. During the late 1970s, the Washington Water Power Company (WWP) was searching for affordable, alternate energy sources. The search uncovered an abundant, renewable fuel-wood waste. Numerous lumber mills were scattered throughout the Pacific Northwest. At that time, the timber industry simply burned the wood waste in open wigwam burners. WWP realized this wasted energy source could be used as a boiler fuel and at the same time help solve a growing environmental problem.

The wood-waste-fired steam-electric generating station was built on a 46-acre site at Kettle Falls. A facility layout map is attached as Figure 3. At the time, WWP became the first utility in the nation to operate a stand alone power plant of this size fired entirely by wood waste. The plant was designed for 42.5 Megawatts and burns about 500,000 tons of wood waste annually. Due to the 2002 addition of a heat recovery combined cycle combustion turbine, the plant is now rated at 57.9 Megawatts.

INDUSTRIAL PROCESS

The generation plant operation can be divided into four systems: fuel delivery, water treatment and wastewater discharge, combustion and generation and exhaust gas cleanup. A production process diagram is attached as Figure 4.

Fuel Delivery: Wood-waste handling equipment at the Kettle Falls facility receives and unloads the fuel, it is then weighed, sorted by size, reduces large pieces of fuel, and delivers it to the boiler. The station receives its fuel from 25 sawmills located within a 200-mile radius of the plant. Fuel is conveyed at the rate of 300 tons per hour from the receiving hopper to a disc screen after passing a self-cleaning magnet and metal detector to remove any tramp iron. Wood scraps up to a maximum of four inches in size are moved via conveyor belt to the stackout system. Kettle Falls uses two stackout systems. A traveling "tripper" conveyor system distributes wood waste to the fuel-storage pile where a dozer pushes the fuel into the storage area. The other system uses a swinging boom that distributes fuel onto the live-storage pile. From there, an over-the-pile reclaimer moves the fuel onto a conveyor and into the plant.

Combustion and Turbine Generation: In the boiler, smaller particles of fuel are burned in suspension and larger particles fall to the grate where they are burned. With a volume of 42,649 cubic feet, the wood-waste-fired boiler is rated at 415,000 pounds of steam per hour. It produces steam at 1,500 psi at a temperature of 950 degrees Fahrenheit. The boiler can also be fired with natural gas. Steam from the boiler is supplied to a 18-stage single-flow condensing turbine to produce mechanical energy for driving a direct-coupled AC generator. Both turn at 3,600 RPM (revolutions per minute). Power transmission voltage will be 115,000 volts.

Exhaust Gas Cleanup: Unlike coal, wood waste when burned does not emit sulfur, although it does release small particles of ash. Removal of these particles is accomplished through a two stage control system. Cyclone separators remove large particulates and char. An electrostatic precipitator removes smaller particulates. After these ash particles are removed, the clean flue gas is dispersed through a 180-foot-high stack. Ash that collects on the boiler grate, siftings hopper, air heater, mechanical collector and electrostatic precipitator is removed by screw conveyors. The ash is deposited at a solid-waste landfill.

WATER AND WASTEWATER TREATMENT SYSTEM

Water/Wastewater Treatment System: Water treatment is another major system for the Kettle Falls Generating Plant. The water source is supplied by the Kettle Falls Municipal water system. The majority of water usage is for non-contact cooling and process water to feed the boiler. The water flow schematic is attached as Figure 5.

The Kettle Falls Generating Plant uses the City water as the cooling tower make up water. The water is piped to the cooling tower at a rate of approximately 653,900 gpd (gallons per day). The condenser cooling water discharges back to the cooling tower. The circulating water is cooled in the cooling tower largely by evaporation, the dissolved solids in the water become concentrated with an average of 7 cycles in the cooling tower. Cooling tower blowdown is used to maintain acceptable circulating water quality. The criteria for blowdown are to limit calcium hardness to 900-1000 mg/l as CaCO₃ or silica concentration to 150 mg/l as SiO₂, whichever limit is reached first. The circulating water is conditioned with a scale inhibitor to limit the formation of mineral scale, sulfuric acid to control alkalinity, and chlorine to minimize biofouling. Average evaporation from the cooling tower is estimated at 547,600 gpd, and average cooling tower blowdown is about 71,200 gpd.

The process water is supplied to various plant systems including the demineralizers, ash handling system, and miscellaneous equipment washdown. The demineralized water is used for the boiler makeup water in the steam cycle. The demineralization system contains two activated carbon filters and two cation exchangers, two anion exchangers and two cation/anion mixed-bed exchangers. The system uses about 14,000 gpd of water for continuous feed. The wastewater resulting from demineralizer regeneration includes concentrated chemical wastes and rinse water. The chemical wastes are regenerations from the cation resins and the anion resins. These concentrated chemical wastes are routed to a neutralization sump (See Figure 5). The rinse waters are from backwash water of the activated carbon filters and backwash water from regeneration of the exchangers. These waters are drained to the building sump (See Figure 5).

The ash handling system uses process water during normal operation. Approximately 110 tons of total ash is collected daily. Fly ash produces an average of 75 tons per day while bottom ash averages 35 tons per day. The fly ash uses 4,300 gpd of water for dust suppression and cooling. The fly ash is transported to landfill for disposal. The bottom ash handling system requires an average of 5,700 gpd of water and the wastes are transported to a landfill site.

The boiler blow down water is discharged to a building sump which drains to the settling basin, and averages about 2,000 gpd. Other miscellaneous water use including cleaning, flushing and equipment rinse is collected in the floor drains. The estimated water usage is about 8,600 gallons per day. The sanitary facilities at the plant uses about 1,200 gpd and is discharged to an on site drain field system.

DISCHARGE OUTFALL

The Avista Kettle Falls Generating Plant outfall is located in upper Lake Roosevelt at an elevation of approximately 1,170 feet (mean sea level), which is 38 feet below the normal low water surface elevation of 1,208 feet. The discharge point is approximately 125 feet from the shoreline at the normal low water level (Figure 3). The outfall pipe consists of an 8-inch pipe with a 0.375-inch slotted diffuser tee at the discharge point.

PERMIT STATUS

A permit for this facility was issued on November 18, 2002. The permit placed effluent limitations on flow, temperature, TSS, pH, Oil & grease and free chlorine. The current permit is to expire on November 30, 2007.

An application for permit renewal was submitted to the Department on July 31, 2007 and accepted by the Department on August 22, 2007.

SUMMARY OF COMPLIANCE WITH THE PERMIT ISSUED – NOVEMBER 18, 2002

The facility last received an inspection on June 21, 2006.

During the history of the November 18, 2002 permit, the Permittee has submitted DMR reports and all the other required submittals on time throughout the 5 year period. All effluent monitoring data has been in compliance with permit limits except for one occasion (pH data, see Table 1), which was caused by operator error. Chart 1 through Chart 7 attached with the fact sheet show the outstanding performance of the effluent data.

WASTEWATER CHARACTERIZATION

Wastewater monitoring results are given in Table 1 and are attached with this fact sheet. The data listed in the Table are daily maximum of the monitored parameters and one data per month which is the worse case scenarios in a month. This data is plotted in Chart 1 through Chart 7 demonstrating long term trend and outstanding compliance performance of the monitoring data.

The detailed analysis of the 5 year effluent monitoring data is listed below:

Effluent flow: The effluent discharge rate is set with a flow control valve. When the plant is running the discharge continues, and when the plant is shut down the discharge stops. Discharge is determined by retention pond levels. This pattern of daily discharge volume is shown in Chart 1 and Chart 2 for daily discharge flow. The daily discharge rate is set up to be below the permitted daily maximum flow, therefore compliance is guaranteed. The daily maximum flow is consistent around or below 152,000 gpd (see Table 1, Chart 1 and Chart 2), well below the permit limit of 233,000 gpd for daily maximum.

Temperature: Effluent temperature data is listed in Table 1 and illustrated in Chart 3. The daily maximum discharge temperatures fluctuate between 52 F⁰ and 78 F⁰ showing a pattern of seasonal change, but all well below the effluent limit of 90 F⁰. The performance based permit limit would suggest a reduction in the effluent temperature limit, however with the proposed use of the river water which will reduce the recycle time of the cooling tower water, the temporary increase is expected in the effluent, therefore the effluent temporary limit will remain the same at this time.

Residual Chlorine: Residual Chlorine shown in Chart 4 is also well below the effluent limit with 100% compliance. The effluent limitation is expected to be modified based on the performance based limit during renewal of this permit.

Oil & Grease: Chart 5 shows the oil & grease effluent data, again with absolute compliance and well below the permit limit.

TSS (total suspended solid): Chart 6 gives the effluent TSS profile. It appears to be a mistake to set the effluent limit for 100 mg/l which is usually a domestic wastewater influent concentration for TSS. The effluent TSS in this case is all below 20 mg/l. The 1983 engineering report for the Kettle Falls Plant indicated the wastewater treatment system could achieve 30mg/l for TSS.

pH: Chart 7 illustrates the effluent pH. pH has achieved 99.9% compliance; there was only one exceedence throughout the 5 year permit cycle. It was caused by manual error during the neutralization process.

Table 2

Other parameters that were tested for the permit application are listed as follows:

<u>Parameter</u>	<u>Daily Maximum</u>	<u>Unit</u>
Alkalinity	165	mg/l
CO ₃ ²⁻ , CaCO ₃	<1.0	mg/l
HCO ₃ , CaCO ₃	165	mg/l
Calcium	181	mg/l
Silica	112	mg/l
Hardness	985	mg/l

Phosphorus	1.24	mg/l
Fecal Coliform	<3	colony/100ml
Magnesium	76.9	mg/l
Arsenic	<0.025	mg/l
Cadmium	<0.002	mg/l
Chromium	<0.006	mg/l
Copper	<0.010	mg/l
Total Lead	<0.0075	mg/l
Nickel	<0.010	mg/l
Zinc	0.027	mg/l
Cyanide	<0.01	mg/l
Mercury	0.0089 & 0.0087	µg/l

These are the test results from one or two grab samples which were prepared for the permit application. The metals concentrations (except Arsenic) were all below surface water criteria calculated from EPA model.

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 are based upon the treatment methods available to treat specific pollutants. Technology-based limitations are set by regulation or developed on a case-by-case basis (40 CFR 125.3, and Chapter 173-220 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 (40 CFR 131.36). The more stringent of these two 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-base, and the past monitoring data performance. 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.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

All waste discharge permits issued by the Department must specify conditions requiring available and reasonable methods of preventing, control, and treatment of discharges to waters of the state (WAC 173-216-110). There are federal categorical limitations for this facility listed under 40 CFR Part 423, – Steam Electric Power Generating Point Source Category. The provision of this part is applicable to establishments primarily engaged in the generation of electricity for distribution and sale which results primarily from a process utilizing fossil-type fuel (coal, oil, or gas) or nuclear fuel in conjunction with a thermal cycle employing the steam water system as the thermodynamic medium.

Effluent limitations (40CFR, 423.15) for new point source performance state (attachment #1): Any new source subject to this subpart must achieve the following new source performance standards: (a) the pH of all discharges, except once through cooling water, shall be within the range of 6.0-9.0. (h) For any plant with a total rated electric generating capacity of 25 or more megawatts, the quantity of pollutants discharged in once through cooling water from each discharge point shall not exceed 0.2 mg/l for total residual chlorine. (j) The quantity of pollutants discharged in cooling tower blowdown shall not exceed the quantity determined by multiplying the flow of cooling tower blowdown times the concentration listed below: total Chromium: 0.2 maximum daily; total Zinc: 1.0 maximum daily. Therefore the technology based effluent limits are summarized as following:

Parameter	Daily maximum
pH	6.0-9.0 s.u.
Residue Chlorine	0.2 mg/l
Total Chromium	0.2 mg/l
Total Zinc	1.0 mg/l

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. Surface water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin wide total maximum daily loading study (TMDL).

NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

"Numerical" water quality criteria are numerical values set forth in the State of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in 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.

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 receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when the natural conditions of receiving water are of higher quality than the criteria assigned, the natural conditions shall be protected. More information on the State Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

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. The critical condition for the pollutants in this discharge is temperature and Chlorine.

DESCRIPTION OF THE RECEIVING WATER

The facility discharges to the upper Columbia River (Lake Roosevelt) which is designated as a Class AA receiving water in the vicinity of the outfall. Other nearby point source outfalls include; the Boise Plywood mill process water pond seepage. Significant nearby non-point source of pollutants include; stormwater run off from other industrial sites. Characteristic uses include the following:

Water supply (domestic, industrial, and agricultural); stock watering; fish migration; fish and shellfish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; and commerce and navigation. Water quality of this class shall markedly and uniformly exceed the requirements for all or substantially all uses.

MIXING ZONES

This permit authorizes an acute and a chronic mixing zone around the point of discharge as allowed by Chapter 173-201A WAC, *Water Quality Standards for Surface Waters of the State of Washington*. The Water Quality Standards stipulate some criteria be met before a mixing zone is allowed. The requirements and Ecology's actions are summarized as follows:

Because the technology-based effluent limit does not meet the end of pipe surface water quality criteria, mixing zones may be authorized to establish surface water quality-based effluent limits. "Chronic" mixing zones may be authorized for temperature that can be a chronic effect on the aquatic environment near the point of discharge.

Mixing zones can only be authorized for discharges that are receiving all known, available, and reasonable methods of prevention and control (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100.

In rivers and streams the maximum mixing zone boundary is 300 feet downstream plus water depth at critical condition. The dilution factor to use in calculating effluent limits for protection of the chronic criteria is the most restrictive of 25% of the flow at critical condition or the center line dilution factor occurring at the downstream boundary of the authorized mixing zone.

Critical conditions of stream flow are referenced from USGS flow data for the Columbia River at the international border, gaging station #12399500. This site is located 30 miles north upstream of Lake Roosevelt and the Kettle Falls Generating Plant discharge outfall.

Dilution boundaries are based on a 10 year, 7 day River low flow at the discharge site. 7Q10 refers to the low 7-day-average flow with a recurrence interval of 10 years. The 7Q10 flow was calculated using the Log-Pearson Type III frequency factor method by Ecology's EILS program (USGS method), and the result of 7Q10 was 43,051.87cfs (from station 12399500 data base).

SURFACE WATER QUALITY CRITERIA

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for this discharge are summarized below:

Temperature--The impact of the discharge on the temperature of the receiving water was modeled by simple mixing analysis at the critical condition. The background Columbia River temperature is based on WAC 173-201A-602, the use designations for fresh waters by water resource inventory area (WRIA), for the Columbia River from Grand Coulee Dam (river mile 596.6) to the Canadian border (river mile 745.0). The aquatic life uses are Core Summer Habitat which specifies the aquatic life temperature criteria in fresh water as 16.0 °C (60.8°F) under WAC 173-201-200(1)(c).

By using the effluent temperature of 32.2 °C (90°F), the modeling result for predicted temperature at the boundary of the chronic mixing zone is 16.00°C and the acute mixing boundary is 16.01°C. The incremental rise is 0.0°C at the chronic mixing zone boundary and 0.01°C at the acute mixing zone boundary (Attachment # 2). Surface Water Quality Standards WAC 173-201A and the Antidegradation Policy allow a 0.3°C temperature increase at the boundary of the chronic mixing zone. Therefore, the existing effluent temperature for the daily maximum limit of 32.2 °C (or 90°F) is acceptable.

With the nearest gaging station of the Columbia River 7Q10 (7 day, 10-year low flow) of 43051.87 cfs, and the daily maximum effluent flow limit of 0.36 cfs, the resulting effluent dilution is approximately 120,000:1, thus to conclude that the effluent impact to the receiving water is very limited.

Toxic biomonitoring for this facility is not required, as outlined in EPA's publication, Technical Support Document for Water Quality Based Toxics Control. When the dilution of the effluent exceeds 10,000:1, no toxics screening tests are required (based on the 1983 Engineering Report).

PERFORMANCE BASED EFFLUENT LIMITS

Table 1 and Chart 1 through Chart 7 have illustrated the monitoring results for the effluent flow, temperature, residue chlorine, Oil & grease, TSS and pH. Chlorine and pH effluent limits are determined by the Technology based limit; effluent temperature is determined by the water quality based limit. The remaining parameters of daily flow, Oil & grease and TSS will be evaluated based on the performance based limitations. All of these parameters have achieved 100% compliance with the existing permit limits. The conclusions are listed as following:

Daily maximum flow: It is reasonable to propose reducing the daily maximum flow limit during renewal of this permit according to the performance based permit limit. With the current limit of 233,000 gpd and the actual daily flow below 152,000 gpd throughout the 5 year period, it has been proposed to the facility to reduce the daily maximum flow to 200,000 gpd.

However, during a recent meeting with the company, it was revealed that Avista Kettle Falls was proposing to pump the Columbia River water for the plant cooling tower (See attachment # 3). The river water is less pure than the current city ground water source, therefore the cooling tower cycle times will be reduced, and discharge volume increased. Given this new developing condition, the current flow limit will remain the same.

TSS (Total Suspended Solids): Chart 6 gives the 5 year performance of TSS data which showed 99.99% of data was below 20mg/l, and only one data was at 20mg/l. The ash handling system stopped discharging to the wastewater treatment unit, so the effluent TSS should have no problem meeting 30mg/l according the 1983 Engineering report. It is proposed to reduce the TSS daily maximum effluent limit to 30 mg/l during renewal of this permit.

Oil & Grease: Table 1 and Chart 5 show that the highest oil & grease data in 5 years was one value of 10.7mg/l which is 28.7% below the permit limit of 15mg/l. It is reasonable to reduce the permit limit to 12mg/l based on the probability of 100% data performance.

In evaluation of the technology based, surface water quality based and performance based effluent limitations, the more stringent of these limits are applied to each of the parameters of concern and are listed below:

Table 3 Final Proposed Effluent Limitations

Parameter	Average Monthly	Maximum Daily^a
Daily Flow	--	233,000 gpd
pH	6.0 – 9.0	
Temperature	--	90° F (32.2° C)
Free Chlorine	--	0.2 mg/l
TSS	--	30 mg/l

Oil & Grease	--	12 mg/l
Total Chromium	--	0.2 mg/l
Total Zinc	--	1.0 mg/l

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved. The monitoring schedule is detailed in the proposed permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

Due to outstanding performance of the past 5 year monitoring data results, wastewater monitoring schedules are modified to meet the minimum requirement. The past historical monitoring data should provide reliable and consistent operating data for the effluent.

Table 4. Waste Water Monitoring

Parameter	Sample Point	Sample frequency	Sample Type
Flow (gpd)	Clarifier inlet	daily	continuous
pH (s.u.)	At the end of the wastewater treatment system before discharge	daily	continuous
Temperature (F)		daily	continuous
Free Chlorine (mg/L)		daily	continuous
TSS (mg/L)		monthly	24-hour composite
Oil & grease (mg/l)		December /once per year	
Total Chromium (mg/l)			
Total Zinc (mg/l)			

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

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

SPILL PLAN

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

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

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.

SOLID WASTE PLAN

The department has determined that the Permittee has a potential to cause pollution of the waters of the state from leachate of solid waste.

This proposed permit requires, under authority of RCW 90.48.080, that the Permittee develop a solid waste plan to prevent sludge or solid waste from causing pollution of waters of the state. The plan can be organized as chapters or sections in the Operation and Maintenance Manual.

OPERATIONS AND MAINTENANCE MANUAL

In accordance with state and federal regulations, the Permittee is required to take all reasonable steps to properly operate and maintain the treatment system (40 CFR 122.41(e)) and WAC 173-220-150 (1)(g). An operation and maintenance manual will be submitted as required by state regulation for the construction of wastewater treatment facilities (WAC 173-240-150). It has been determined that the implementation of the procedures in the Treatment System Operating Plan is a reasonable measure to ensure compliance with the terms and limitations in the permit.

STORMWATER POLLUTION PREVENTION PLAN

The status of the stormwater permit will be consistent with the previous permit which is combined with the current NPDES permit. The stormwater drainage plan should be consistent with the recent submittal of the facility stormwater system layout plan (Figure 7). The Permittee should update the Stormwater Management Plan as needed, and submit to the Department for review and approval. The monitoring and reporting of the stormwater discharge should follow the current practice.

GENERAL CONDITIONS

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

PERMIT ISSUANCE PROCEDURES

PERMIT MODIFICATIONS

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

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

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics, protect human health, aquatic life, and the beneficial uses of waters of the State of Washington. The Department proposes that this proposed permit be issued for 5 years.

REFERENCES FOR TEXT AND APPENDICES

Environmental Protection Agency (EPA)

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

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

1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.

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

1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

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.

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

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>)

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

1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(EE2). (Cited in EPA 1985 op.cit.)

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to 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 will publish a Public Notice of Draft (PNOD) on December 12, 2007 in The Colville Statesman Examiner to inform the public that a draft permit and fact sheet is available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Water Quality Permit Coordinator
Department of Ecology
Eastern Regional Office
N. 4601 Monroe, WA 99205

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 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 at (509) 329-3451 or by writing to the address listed above.

This permit and fact sheet was written by Ying Fu.

APPENDIX B--GLOSSARY

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

AKART--An acronym for “all known, available, and reasonable methods of 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 average of the measured values obtained over a calendar month's time.

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.

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 compound 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.

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 85 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 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 percent 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 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.

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--An area 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.

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.

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

Responsible Corporate Officer--A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or have gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

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 is the particulate material 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.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, 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.

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 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 receiving water.

APPENDIX C--TECHNICAL CALCULATIONS

Several of the Excel® spreadsheet tools used to evaluate a discharger's ability to meet Washington State water quality standards can be found on the Department's homepage at <http://www.ecy.wa.gov>.

APPENDIX D--RESPONSE TO COMMENTS

No comments received.