FACT SHEET

NPDES Permit Number: **ID0001163**
Public Notice Start Date: **June 19, 2003**
Public Notice Expiration Date: **July 21, 2003**
Technical Contact: Kristine Koch, (206) 553-6705
1-800-424-4372 ext. 6705 (within Region 10)
koch.kristine@epa.gov

The United States Environmental Protection Agency (EPA) proposes to re-issue a National Pollutant Discharge Elimination System (NPDES) permit to:

Potlatch Corporation
805 Mill Road
Lewiston, Idaho 83501

and requests the state of Idaho to certify this NPDES permit pursuant to 40 CFR Part 124.53.

NPDES Permit Re-Issuance

EPA proposes to re-issue an NPDES permit to the Potlatch Corporation. The draft permit places conditions on the discharge of pollutants from the Lewiston Mill waste water to the Snake and Cleawater Rivers pursuant to the provisions of the Clean Water Act (CWA).

The U.S. Environmental Protection Agency (EPA) is reopening the public comment period for the National Pollutant Discharge Elimination System (NPDES) permit for the Potlatch Corporation in Lewiston, Idaho. The NPDES program is the primary permitting system under the federal Clean Water Act, which governs all discharges to the nation's surface water. EPA released the original draft of this permit for public review in December 1999. EPA has revised the draft permit and fact sheet based upon new information and determined the changes were substantive enough to re-open the public comment period. EPA is only taking comments on the changes made since the previous public notice in 1999. A Fact Sheet is available that explains the bases for the changes made to the draft permit.

EPA is currently undergoing formal consulting with NOAA Fisheries and USFWS (the Services) in regard to EPA's action of issuing this permit. **EPA needs the public's comments on the proposed changes before taking the proposed changes to the Services to complete consultation.** EPA will incorporate into the final permit prior to issuance any reasonable and prudent alternative or measure that falls under the jurisdiction of the Clean Water Act requiring more stringent permit conditions by the final Biological Opinion of NOAA Fisheries and USFWS.

This Fact Sheet includes:

- information on public comment, public hearing and appeal procedures;
- a description of the discharge;
- a listing of changed effluent limitations, schedules of compliance and other conditions;
- a map and description of the wastewater discharge; and
- detailed technical material supporting the proposed changed conditions in the permit.

Idaho State Certification

EPA requests the Idaho Division of Environmental Quality to certify the NPDES permit for the Potlatch Corporation, under section 401 of the CWA.

Public Comment

Persons wishing to comment on or request a public hearing for the draft permit may do so in writing by the expiration date of the public notice. A request for a public hearing must state the nature of the issues to be raised, as they relate to the permit, as well as the requester's name, address, and telephone number. All comment and requests for public hearings must be in writing and submitted to EPA as described in the Public Comments section of the attached public notice. After the public notice expires, and all substantive comments have been considered, EPA's regional Director for the Office of Water will make a final decision regarding permit reissuance. EPA will address the comments received and provide responses upon issuance of the permit. The permit will become effective 30 days after the issuance date, unless a request for an evidentiary hearing is submitted within 30 days.

Availability of Documents

The draft NPDES permit and other related documents can be obtained or reviewed by visiting or contacting EPA's Regional Office in Seattle between 8:30 a.m. and 4:00 p.m., Monday through Friday (See address below). Draft permits, Fact Sheets, and other information can also be found by visiting the Region 10 website at www.epa.gov/r10earth.htm.

US Environmental Protection Agency (EPA), Region 10
Park Place Building, 13th Floor
1200 Sixth Avenue, OW-130
Seattle, Washington 98101
(206) 553-1214 or
1-800-424-4372

This material is also available from:

United States Environmental Protection Agency (EPA)
Idaho Operations Office
1435 North Orchard Street
Boise, Idaho 83706
(208)378-5746

Draft Idaho State certification is available from:

Idaho Department of Environmental Quality
1118 F Street
Lewiston, Idaho 83501
(208) 799-4370

For technical questions regarding the permit or fact sheet, contact Kristine Koch at the phone numbers or email address at the top of this fact sheet. Those with impaired hearing or speech may contact a TDD operator at 1-800-833-6384 (ask to be connected to Kristine Koch at the above phone numbers). Additional services can be made available to a person with disabilities.

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ACRONYMS

BMP	Best Management Practice
BOD	Biochemical Oxygen Demand
°C	Degrees Celsius
CFR	Code of Federal Regulations
cfs	Cubic feet per second
COD	Chemical Oxygen Demand
CV	Coefficient of variation
CWA	Clean Water Act
DMR	Discharge Monitoring Report
DO	Dissolved Oxygen
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
HUC	Hydrologic unit code
IDAPA	Idaho Administrative Procedures Act
IDEQ	Idaho Department of Environmental Quality
lbs/day	Pounds per day
m	meter
MDL	Method Detection Limit
mgd	million gallons per day
mg/L	Milligrams per liter
ML	Minimum Level
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
OW	Office of Water
QA	Quality assurance
QAPP	Quality Assurance Project Plan
RCRA	Resource Recovery Conservation Act
RWC	Receiving water concentration
TMDL	Total Maximum Daily Load
TRI	Toxics reduction inventory
TSS	Total Suspended Solids
TU_c	Chronic Toxic Units
µg/L	Micrograms per liter
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Service
WET	Whole Effluent Toxicity
WLA	Waste Load Allocation
WQBEL	Water quality based effluent limit

I. BACKGROUND

A. Applicant

Potlatch Corporation — NPDES Permit No: ID0001163

Mailing Address:
P.O. Box 1016
Lewiston, ID 83501

Facility Location:
805 Mill Road
Lewiston, ID 83501

Contact:
Susan Somers
Environmental Engineering Manager

B. Activity

Potlatch Corporation produces bleached grades of paperboard, tissue and market pulp by the kraft (sulfate) process. Potlatch also manufactures wood products at the Lewiston facility. See Appendix A for a map of the facility outfall location. See Appendix B for a discussion of the waste streams and treatment processes.

C. Discharge

Potlatch Corporation discharges through outfall 001 to the Snake River at the head of Lower Granite Pool, just below the confluence of the Clearwater River. The discharge is at latitude 46° 25' 31" N, and longitude 117° 02' 15" W (river mile 140). In addition to outfall 001, the facility discharges seeps from the surface impoundments on the property to the Clearwater Arm of Lower Granite Pool through groundwater that is hydrologically connected to the Clearwater.

The facility's discharges are just upstream from the Idaho/Washington border, and have the potential to impact the water quality in both states. Therefore, the water quality standards of both states were considered in developing the revised draft permit.

D. Permit History

EPA issued the current NPDES permit for Potlatch on March 6, 1992. Requests for an evidentiary hearing on this permit were submitted on April 8, 1992, by the Sierra Club Legal Defense Fund (representing the Idaho Conservation League and Dioxin/Organochlorine Center) and on April 13, 1992, by the Nez Perce Tribe. Therefore, under 40 CFR 124.15(b)(2), the permit did not become effective and Potlatch continued to operate under its 1985 permit.

On January 24, 1997, the Sierra Club Legal Defense Fund withdrew its challenge to the permit and on February 14, 1997, the Nez Perce Tribe withdrew its challenge. Therefore, the permit became effective on March 16, 1997. The expiration date of the permit was not changed, however, so the permit expired April 7, 1997.

Potlatch submitted a timely NPDES permit application for reissuance on October 3, 1996. Because the application was timely, Potlatch is authorized to continue discharging under the terms of the 1992 permit until a new permit is effective under the provisions of 40 CFR 122.6.

On August 5, 1998, the Lands Council, Idaho Rivers United, and Idaho Conservation League (the "plaintiffs") submitted a notice of intent to sue over EPA's violations of Section 7 of the Endangered Species Act regarding the Potlatch NPDES permit. Subsequently, EPA public noticed a draft permit on December 15, 1999. The plaintiffs and EPA signed a stipulation and joint motion to stay proceedings on July 24, 2000. The stipulation required EPA to submit a biological assessment to NMFS and USFWS (the "services") by November 1, 2000, and then issue a final permit within 30 days of the issuance of a final BO. Since the services have not issued a final BO and EPA has new information to require different effluent limitations that were previously public noticed, EPA has re-opened the public notice period to take comments on the changed permit requirements.

II. RECEIVING WATER

A. Water Quality Standards

For Idaho, the State water quality standards are found at IDAPA 58 Title 1, Chapter 2. The Clearwater and Snake Arms of Lower Granite Pool are protected by the State of Idaho for the following uses: domestic and agricultural water supply, cold water biota, and primary and secondary recreation.

Because Potlatch's discharge is immediately upstream from the State of Washington, their standards were also considered to ensure that Washington's waters quality standards were not violated by the discharge. Washington's water quality standards are found in the Washington Administrative Code at WAC 172-201A. The State of Washington has classified the Snake River from the mouth to the Washington/Idaho border as Class A (excellent), with special conditions for temperature. Class A waters are protected for domestic, industrial, and agricultural water supply, stock watering, fish and shellfish, wildlife habitat, recreation, commerce, and navigation.

The Snake River is included in Idaho's 303(d) list (a list of impaired waters compiled under section 303(d) of the Clean Water Act) for temperature. Historical USGS data show that it is likely that the temperature exceeded the criteria during short periods in the summer prior to any human-caused influences. However, the timing and extent of the exceedences have been influence by human activity in the watershed.

On February 25, 1991, EPA established a total maximum daily load (TMDL) for 2,3,7,8-TCDD (dioxin) for the Columbia River Basin, including the Snake River. The TMDL was developed because the state of Idaho had listed the Snake River, the state of Oregon had listed the Willamette and Columbia Rivers, and the state of Washington had listed the Columbia River under section 303(d) of the Clean Water Act as not meeting standards for dioxin. This TMDL established a wasteload allocation for Potlatch which was incorporated into the 1992 permit.

B. Mixing Zone

The CWA allows mixing zones at the discretion of the State, therefore, only IDEQ may authorize mixing zones of any size. If the State does not authorize a mixing zone in its 401 certification or authorizes a mixing zone other than the mixing zone used to calculate the draft permit limits, the reasonable potential determination and permit limits will be re-calculated for the final permit to ensure compliance with the standards at the point of discharge.

The mixing zone policy for Idaho (IDAPA 58.01.02.060) requires the discharge to be through a submerged pipe, conduit or diffuser, and requires the mixing zone to meet criteria at the boundary of the mixing zone and located so it does not cause unreasonable interference with or danger to existing beneficial uses. For rivers, the mixing zone policy requires the mixing zone to be limited so that the width of the mixing zone is the lesser of 25 percent of the river or 300 meters plus the length of the diffuser, the volume of the mixing zone does not exceed 25 percent volume of the receiving water, and the mixing zone is no closer to the 10 year 7-day low flow shoreline than 15 percent of the river width.

Temperature, chloroform and pentachlorophenol are the only parameters EPA is re-evaluating that required the use of a mixing zone in determining reasonable potential and effluent limitations. The mixing zone analysis for each parameter was provided in the state of Idaho's 401 certification.

III. EFFLUENT LIMITATIONS

A. Pollutants of Concern

EPA has re-evaluated the following pollutants of concern: temperature, five-day biochemical oxygen demand (BOD_5), total suspended solids (TSS), 2,3,7,8-TCDD (dioxin), 2,4,6-trichlorophenol, adsorbable organic halides (AOX), seepage from on-site ponds, pentachlorophenol, Ph and chloroform.

B. Basis for Permit Effluent Limits

In general, the Clean Water Act requires that the effluent limits for a particular pollutant be the more stringent of either technology-based limits or water quality-based limits. A technology-based effluent limit requires a minimum level of treatment for point sources based on currently available treatment technologies. A water quality-based effluent limit is designed to ensure that the water quality standards of a water body are being met. The discussion on the legal basis for the development of technology-based and water quality-based effluent limits for the pollutants of concern are provided in Appendix C and Appendix D, respectively.

C. Proposed Permit Conditions

1. Technology-based Effluent Limits. In evaluating a discharge, EPA first determines which technology-based limits apply to the discharge and then evaluates the effluent quality expected to result from these controls to see if it could result in any exceedences of the water quality standards in the receiving water. If exceedences could occur, EPA must include water quality-based limits in the permit. The proposed permit limits reflect whichever requirements (technology-based or water quality-based) are more stringent.

   In the 1999 draft permit, the technology effluent limits were based upon production rates provided during the application process. However, Potlatch has been submitting updated production information to EPA since the proposal of the 1999 draft permit that requires adjustment of the production-based technology limitations. EPA has re-evaluated the technology-based limits for BOD_5, TSS, chloroform and AOX in the discharge. The evaluation is provided in Appendix C.

   a. Biochemical Oxygen Demand, five-day (BOD_5). The proposed technology-based effluent limits for BOD_5 are provided in Table C-2. These limits are based upon production of bleached kraft market pulp, bleached kraft paperboard and tissue, and non-integrated tissue. EPA has conducted a water quality evaluation of BOD_5 that

resulted in water quality-based effluent limitations (See Section II.C.2.a). Since the technology-based effluent limitations for December through May are more stringent than the water quality-based effluent limits, the draft permit proposes the BOD_5 effluent limits in Table 1 for this time period. (Note: Table 9 provides the water quality-based effluent limits that apply from June through November.) As a comparison, Table 2 provides the 1992 permit effluent limits and the effluent limits proposed in the 1999 draft permit.

Table 1: Proposed BOD_5 Effluent Limitations

Parameter	Effluent Limitations	
	Maximum Daily	Monthly Average
BOD_5 (lb/day) December - May	55,100	28,800

Table 2: 1992 Permit and 1999 Draft BOD_5 Effluent Limitations

Parameter	Effluent Limitations			
	Maximum Daily		Monthly Average	
	1992 Permit	1999 Draft Permit	1992 Permit	1999 Draft Permit
Five Day Biochemical Oxygen Demand (BOD_5, lb/day)				
River Flow:				
$\geq$ 22,000 cfs	43,800	53,800[1]	22,800	28,100[1]
<22,000 $\geq$ 20,000 cfs	36,300	36,300	18,900	18,900
<20,000 $\geq$ 18,000 cfs	29,000	"	15,100	"
<18,000 $\geq$ 16,000 cfs	24,600	24,600	12,800	12,800
<16,000 $\geq$ 14,000 cfs	20,400	"	10,600	"
< 14,000 cfs	18,800	"	9,800	"

Footnote
1 The 1999 draft permit contained 3 tiers for BOD_5 - flow >22,000 cfs; $\leq$ 22,000 and >18,000 cfs; and $\leq$ 18,000 cfs.

b. Total Suspended Solids (TSS). The proposed technology-based effluent limits for TSS are provided in Table 3. These limits are based upon production of bleached kraft market pulp, bleached kraft paperboard and tissue, and non-integrated tissue. As a comparison, Table 4 provides the 1992 permit effluent limits and the effluent limits proposed in the 1999 draft permit.

Table 3: Proposed TSS Effluent Limitations

Parameter	Effluent Limitations	
	Maximum Daily	Monthly Average
Total Suspended Solids (TSS, lb/day)	94,400	50,600

Table 4: 1992 Permit and 1999 Draft TSS Effluent Limitations

Parameter	Effluent Limitations			
	Maximum Daily		Monthly Average	
	1992 Permit	1999 Draft Permit	1992 Permit	1999 Draft Permit
Total Suspended Solids (TSS, lb/day)	80,700	92,800	43,400	49,800

c. Adsorbable Organic Halides (AOX). The proposed technology-based effluent limits for AOX are provided in Table 5. These limits are based upon production of unbleached kraft market pulp. As a comparison, Table 6 provides the 1992 permit effluent limits and the effluent limits proposed in the 1999 draft permit.

Table 5: Proposed AOX Effluent Limitations

Parameter	Effluent Limitations	
	Maximum Daily	Monthly Average
Adsorbable Organic Halides (AOX, lb/day)	3,950	2,590

Table 6: 1992 Permit and 1999 Draft AOX Effluent Limitations						
Parameter	**Effluent Limitations**					
	Maximum Daily		**Monthly Average**		**Annual Average**	
	1992 Permit	1999 Draft Permit	1992 Permit	1999 Draft Permit	1992 Permit	1999 Draft Permit
Adsorbable Organic Halides (AOX, lb/day)	---	3,700	6,590	2,400	5,200	---

d. Chloroform. The proposed technology-based effluent limits for chloroform are provided in Table 7. These limits are based upon production of unbleached kraft market pulp. As a comparison, Table 8 provides the 1992 permit effluent limits and the effluent limits proposed in the 1999 draft permit.

Table 7: Proposed Chloroform Fiber Line Limitations		
Parameter	**Effluent Limitations**	
	Maximum Daily	**Monthly Average**
Chloroform (lb/day)	28.8	17.2

Table 8: 1992 Permit and 1999 Draft Chloroform Fiber Line Limitations				
Parameter	**Effluent Limitations**			
	Maximum Daily		**Monthly Average**	
	1992 Permit	1999 Draft Permit	1992 Permit	1999 Draft Permit
Chloroform (lb/day)	---	27	---	16

2. Water Quality-based Effluent Limits. EPA has re-evaluated the need for water quality-based effluent limits for BOD_5, pH, temperature, dioxin (2,3,7,9-TCDD), pentachlorophenol, chloroform, and 2,4,6-trichlorophenol. The draft permit includes water quality-based limits for BOD_5, temperature, dioxin (2,3,7,8-TCDD). The following provides a brief discussion of the changes in effluent limitations for these parameters and Appendix D provides a more in-depth evaluation.

a. Biochemical Oxygen Demand. In evaluating BOD_5, EPA first determines which technology-based limits apply to the discharge and then evaluates the effluent quality expected to result from these controls to see if it could result in any exceedences of the water

quality standards in the receiving water. If exceedences could occur, EPA must include water quality-based limits in the permit. The proposed permit limits reflect whichever requirements (technology-based or water quality-based) are more stringent.

In the 1999 draft permit, the technology effluent limits were based upon production rates. A water quality analysis was conducted to ensure water quality standards for dissolved oxygen were protected since BOD is a measure of the amount of oxygen required to stabilize organic matter in wastewater. As such, BOD is an equivalent indicator rather than a true physical or chemical substance. It measures the total concentration of dissolved oxygen that would eventually be demanded as wastewater degrades within the stream. The analysis showed that water quality-based effluent limits were necessary to protect water quality.

Since March 2001, Potlatch submitted updated production information to EPA. Since the technology effluent limits are based upon production, EPA recalculated the maximum BOD loadings based on the technology-based effluent limits for Best Conventional Pollutant Control Technology (BCT) and the maximum production rates (See Appendix C, Table C-2). Additionally, the Potlatch Corporation provided additional data in February 2000 pertaining to the original analysis. Consequently, EPA has re-examined the impact of dissolved oxygen (DO) in the Snake River due to BOD loadings from the Potlatch facility. The evaluation is provided in Appendix D.

The previous water quality-based permit limits for Potlatch were variable based on the flow of the river. The draft permit proposes season limits that apply from December through May and from June through November. The proposed water quality-based effluent limits for BOD_5 are provided in Table 9. (Note: Table 1 contains the technology-based effluent limits that apply from December through May). As a comparison, Table 2 provides the 1992 permit effluent limits and the effluent limits proposed in the 1999 draft permit.

Table 9: Proposed BOD_5 Effluent Limitations		
Parameter	**Effluent Limitations**	
	Maximum Daily	**Monthly Average**
	1992 Permit	1992 Permit
BOD_5 (lb/day) (June - November)	9,200	4,800
Footnote 1 The 1999 draft permit contained 3 tiers for BOD_5 - flow >22,000 cfs; ≤ 22,000 and >18,000 cfs; and ≤ 18,000 cfs.		

Historical DMR data shows that the facility will be able to meet the proposed effluent limits from December through May since the maximum observed loading was 27,582 lb/day and the maximum average monthly loading was 17,097 lb/day. However, the facility may have some difficulty meeting the proposed effluent limits from June through November. The average monthly loadings from June through November have ranged from 4,463 to 16,700 and the maximum monthly loadings have ranged from 5,923 to 39,000. The draft permit proposes a five year compliance schedule for the limits in June through November to allow the company time to determine and implement adequate controls to meet these effluent limitations. During the period of compliance, the draft permit imposes interim limits as stringent as those in the 1992 permit.

b. Temperature. The effluent limits in the 1999 draft permit were water quality-based effluent limits. Since the upstream water exceeded the temperature criteria only during the summer (June 15 through September 30), the 1999 draft permit contained seasonal temperature limits. During the non-impaired time period, the limit was 33°C, which is equivalent to the 1992 permit limit of 92°F. However, during the impaired time period, Washington criteria was used to develop the summer permit limit because Washington's instantaneous maximum criterion of 20°C is more stringent than Idaho's instantaneous maximum criterion of 22°C and to ensure that the Washington standards were met at the border.

The revised draft permit proposes a maximum daily limit of 33°C from October through June, 32°C for July, 31°C for August, and 30°C for September. The draft permit proposes a two year compliance schedule for July through September with interim limits equivalent to the 1992 permit. As a comparison, Table 10 provides the 1992 permit effluent limits and the effluent limits proposed in the

1999 draft permit. Appendix D provides more specific information regarding the model and analysis of Temperature.

Table 10: 1992 Permit and 1999 Draft Temperature Effluent Limitations

Parameter	Effluent Limitations			
	Maximum Daily		Monthly Average	
	1992 Permit	1999 Draft Permit	1992 Permit	Original Draft Permit
Temperature				
October 1 - June 14	92°F[1, 2]	33°C	---	---
June 15 - Sept. 30	92°F	20°C[3]	---	---

Footnotes:
1 $92^{O}F = 33^{O}C$.
2 The 1992 permit also contains a heat limit equal to the flow of the Snake River multiplied by 593,000 BTU/cfs day when the Snake River temperature is greater than or equal to $67.5^{O}F$.
3 This is an instantaneous maximum temperature limit.

Historical DMR data shows that the facility will be able to meet the proposed effluent limits from October through July, however, the facility may have some difficulty meeting the proposed effluent limits for August and September. The draft permit proposes a two year compliance schedule for the limits in August and September to allow the company time to determine and implement adequate controls to meet these effluent limitations. During the period of compliance, the draft permit imposes interim limits as stringent as those in the 1992 permit and requires the permittee to conduct an engineering analysis of in-plant processes to further reduce temperature in their effluent.

c. 2,3,7,8-TCDD. The effluent limits for 2,3,7,8-TCDD (dioxin) in the 1999 draft permit was based upon the wasteload allocation (WLA) from the 1991 Columbia River TMDL. Federal regulations at 40 CFR 122.45(d) requires all permit effluent limits, standards, and prohibitions to be stated as maximum daily and average monthly limits. The 1999 draft permit proposed maximum daily and annual average limits. Further, the computation of the maximum daily limit was inaccurate for a bioaccumulative parameter because the procedures for a toxic pollutant in Table 5-2 of the TSD (*Technical Support Document for Water Quality-based Toxics Control*, EPA/505/2-90-001) were used to determine this limit. Therefore,

EPA has recalculated the effluent limits based on the procedures in Table 5-3 of the TSD.

The draft permit proposes a maximum daily limit of 0.57 mg/day and an average monthly limit of 0.39 mg/day. As a comparison, Table 11 provides the 1992 permit effluent limits and the effluent limits proposed in the 1999 draft permit.

Table 11: 1992 Permit and 1999 Draft Dioxin Effluent Limitations

Parameter	Effluent Limitations			
	Maximum Daily		Annual Average	
	1992 Permit	1999 Draft Permit	1992 Permit	1999 Draft Permit
2,3,7,8-TCDD (mg/day)	0.83	1.1	0.39	0.39

d. Seepage from Secondary Treatment Pond and Power Boiler Ash Settling Ponds #1 through #4.

The 1999 draft permit required the permittee to monitor the seepage from the secondary treatment pond and the power boiler ash settling ponds #1 through #4 and add the concentrations to the concentrations for outfall 001.

Since the facility no longer uses the power boiler ash settling ponds and through closure of the ponds IDEQ has determined that there are not pollutants that are released through the groundwater to the Clearwater River, the requirements for monitoring and limiting the seepage from these ponds has been removed from the draft permit.

For seepage from the secondary treatment pond, EPA had determined that the discharge is to the Clearwater River, not the Snake River. Since the discharge of outfall 001 is to the Snake River, it is inappropriate to sum the seepage from the secondary treatment pond with the outfall 001 monitoring. The permittee is still required to monitor and report annually the estimated seepage from this pond. EPA will use this information to further evaluate the need for effluent limitations for the seepage from the secondary treatment pond.

e. pH. In the 1999 draft permit, the lower level for pH was set at 5.5. This draft permit specifies 6.5 based on the State's WQS.

3. Monitoring Requirements.

a. The draft permit proposes a new requirement for the permittee to monitor the effluent with methods that can quantify the effluent limits. For parameters that are monitored, but not limited, the draft permit proposes additional analytical testing requirements.

b. The draft permit proposed reduced monitoring of BOD_5 from December through May and during the compliance schedule for the period of June through November since the permittee has already established that they can meet the effluent limitations. However, the permittee will be required to increase the monitoring frequency from June through November once the final effluent limits are enforced to ensure that the facility is meeting the new limits. The permittee may be eligible for future monitoring reductions once the facility has shown compliance with the new limits through one permit cycle.

c. The draft permit proposes that compliance with the effluent limits for 2,3,7,8-TCDD (dioxin) are calculated from the internal monitoring data. The basis for this requirement is that the internal monitoring points are the only sources of this pollutant and the concentrations of dioxin in the effluent are diluted with other wastestreams from the facility such that current analytical techniques cannot measure the effluent concentrations. The internal monitoring will provide a more accurate account for the amount of dioxin discharged to the Snake River. Additionally, the requirement under I.A.6 has been removed from the 1999 draft permit because the permittee is required to monitor 2,3,7,8-TCDD internally, rather than in the effluent. Footnote 5 to Table 1 has been added to direct the permittee how to accurately calculate the effluent concentration from the internal monitoring.

d. pH. The NPDES regulations (40 CFR 401.17) concerning pH limits allow for a period of excursion when the effluent is being continuously monitored. These requirements have been incorporated into the draft permit.

E. Effluent Reporting Requirements

Section I.A.7 of the 1999 draft permit has been moved to Footnote 1 of Table 1 and Section III.B.1 in the revised draft permit.

F. Antidegradation

Idaho's antidegradation policy was considered in proposing to reissue this permit. This provision states that "the existing instream water uses and the level of water quality necessary to protect the existing uses will be maintained and protected." This policy is designed to protect existing water quality when the existing quality is better than that required to meet the standard and to prevent water quality from being degraded below the standard when existing quality just meets the standard. The State of Idaho must determine that draft permit conditions will not result in degradation of water quality and is consistent with Idaho's antidegradation policy. If the State determines that the draft permit condition will result in degradation of water quality in their 401 certification, more stringent permit conditions required by the State to protect water quality will be implemented in the final permit.

G. Compliance Schedules

The State of Idaho allows compliance schedules for point source discharges which allow a discharger to phase-in, over time, compliance with water quality-based effluent limitations when new limitations are in the permit for the first time. Compliance schedules are limited to five years or the life of the permit. If the State does not authorize a compliance schedule for BOD_5 and temperature in their 401 certification, none will be given in the final permit and compliance with effluent limits will commence on the effective date of the permit. Should the State authorize a compliance schedule, then the interim limits will be imposed on the facility for the duration of the compliance schedule. Interim effluent limits must be as stringent as the limits in the previous permit. The draft permit proposes interim limits that are equal to the previous permit limits.

H. Influent Monitoring

This is not a new requirement, it was required in the 1999 draft permit under the Best Management Practices Requirements for Action Levels. EPA has moved this requirement to the limits and monitoring requirements as a means of better identifying the requirement.

I. Analytical Methods

Some of the water quality-based effluent limits in the draft permit are close to the capability of current analytical technology to detect and/or quantify the concentration of that parameter. To address this concern, the revised draft permit contains a provision requiring the facility to use analytical methods that can quantify the effluent limitation. For parameters with effluent limits that cannot be quantified, the revised draft permit proposes that the compliance level with that limit is the quantification level of the best analytical technology approved by EPA in 40 CFR 136 or Table 6 of the permit.

V. RECEIVING WATER MONITORING

A. Water Monitoring

The 1999 draft permit required grab samples of ambient water. The sample type has been changed to depth/spacially integrated in the revised draft permit because EPA believes that this sample type will better characterize the quality of the river.

B. Sediment Monitoring for Bioaccumulative Pollutants

The 1999 draft permit required sediment monitoring for the following parameters: all congeners of TCDD; all congeners of TCDF; extractable organic halogens (EOX); total organic carbon (TOC); metals - including mercury, aluminum, arsenic, selenium, lead, chromium, copper, zinc, cadmium, and nickel; and acid volatile sulfides (AVS). The revised draft permit only requires sediment monitoring for all congeners of TCDD and TCDF listed in EPA Method 1613, Table 1. The purpose of sediment monitoring is to determine bioaccumulative affects of pollutants. The only bioaccumulative pollutants of concern in the permittees effluent are TCDD and TCDF, therefore, the revised draft permit only requires sediment monitoring for these parameters.

C. Bioaccumulation Study

1. Fish Species. The 1999 draft permit included specific species under each trophic level that the permittee was to conduct the fish tissue analysis. EPA has removed the specific species from the permit to allow the permittee flexibility in collecting fish present within the trophic level of concern. Additionally, EPA has added clarification regarding the methods for fish tissue analysis and reporting for dioxins and furans.

2. Monitoring Sites. The 1999 draft permit required that fish be collected from eight sites representative of two sites in the Clearwater River and two sites in the Snake River upstream of the point of discharge, and four sites

downstream of the point of discharge within the mixing zone. EPA has revised the monitoring sites to correlate with the sediment and water column monitoring.

3. Collection permits. The draft permit requires the permittee to obtain collection permits from the Idaho Department of Fish and Game (IDFG) and Washington Department of Fish and Wildlife (WDFW) for collection of fish.

4. Trend analysis. A trend analysis that compares the previous annual average effluent concentrations, sediment concentrations and fish tissue concentrations at each sampling site, an impact analysis that compares fish tissue levels with the concentration of 50 ppt 2,3,7,8-TCDD, and an indication whether the downstream fish tissue concentrations indicate a statistically significant increase in dioxins, furans, or lipids.

VI. SPECIAL CONDITIONS

A. Best Management Practices (BMPs)

The BMP requirements have been revised to clarify the requirements of the BMP Plan. The revised draft permit requires that the permittee develop a plan and implement BMPs within 180 days after receiving authorization to discharge under this permit. Additionally, the BMP operating plan must be amended whenever there is a change in the facility or in the operation of the facility which materially increases the potential for an increased discharge of pollutants.

B. Toxicity Reduction Evaluation (TRE) Requirements

The revised draft permit has taken the TRE requirements from the WET section and updated the requirements for a TRE Work Plan.

C. Whole Effluent Toxicity Requirements

The WET requirements have been revised to clarify the WET testing requirements. The requirement for *Selenastrum capricornutum* (green alga) has been removed as a species to be tested to determine the presence of chronic toxicity. EPA's manual *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* provides no references with respect to interlaboratory variability for chronic testing with green alga. National Council of the Paper Industry for Air and Stream Improvement (NCASI) currently has a green alga test evaluation program because it is concerned about apparent sources of high variability based on the method allowing three distinctly different methods of enumerating test results. In addition, there is a potential influence effluent color

may have on cell development that is unrelated to chemical responses that are implied in the "toxicity" test methods described by EPA. The green alga test has been applied only infrequently by regulatory agencies to pulp and paper mill effluents.

VII . OTHER LEGAL REQUIREMENTS

A. Endangered Species Act (ESA)

EPA is currently undergoing formal ESA consultion with NOAA Fisheries and USFWS in regard to EPA's action of issuing this permit. There are several issues regarding the permit that EPA, NOAA Fisheries and USFWS are currently working to resolve, which include dioxin, AOX, WET, fiberline limitations, temperature, dissolved oxygen/BOD_5, TSS, pH, and nutrients. Therefore, the limits and conditions in the permit associated with these issues is subject to change based on the final biological opinion. Prior to issuance, EPA will incorporate into the final permit any reasonable and prudent alternative or measure that falls under the jurisdiction of the Clean Water Act requiring more stringent permit conditions by the final Biological Opinion NOAA Fisheries and USFWS.

B. State Certification

Section 401 of the Clean Water Act requires EPA to seek certification from the State that the permit is adequate to meet State water quality standards before issuing a final permit. The regulations allow for the state to stipulate more stringent conditions in the permit, if the certification cites the Clean Water Act or State law references upon which that condition is based. In addition, the regulations require a certification to include statements of the extent to which each condition of the permit can be made less stringent without violating the requirements of State law.

After the public comment period, a proposed final permit will be sent to IDEQ for final certification. If IDEQ authorizes different requirements in its final certification, EPA will incorporate those requirements into the permit. For example, if the State authorizes different mixing zones in its final certification, EPA will recalculate the effluent limitations in the final permit based on the dilution available in the final mixing zones.

Because Potlatch's discharge could affect Washington's waters, EPA must ensure that the discharge will not cause violations of Washington's water quality standards. EPA has been working with the Washington Department of Ecology to ensure that this permit is consistent with Washington's standards. In addition, EPA has sent a copy of the revised draft permit to the Washington Department of Ecology and will address their comments prior to issuing the final permit. However, under the Clean Water Act, the authority to provide certification of the

permit belongs to the State in which the discharge occurs. Therefore, the state of Washington will not provide EPA with a 401 certification.

C. Permit Expiration

This permit will expire five years from the effective date of the permit.

D. Facility Changes or Alterations

The facility is required to notify EPA and IDEQ of any planned physical alteration or operational change to the facility in accordance with 40 CFR 122.41(1). This requirement has been incorporated into the proposed permit to insure that EPA and IDEQ are notified of any potential increases or changes in the amount of pollutants being discharged. This will allow evaluation of the impact of the pollutant loading on the receiving water.

E. Standard Permit Provisions

In addition to facility-specific requirements, most of sections III, IV, and V of the draft permit contain "boilerplate" requirements. Boilerplate is standard regulatory language that applies to all permittees and must be included in NPDES permits. Because the boilerplate requirements are based on regulations, they cannot be challenged in the context of an NPDES permit action. The boilerplate covers requirements such as monitoring, recording, reporting requirements, compliance responsibilities, and general requirements. The revised draft permit has updated the boilerplate requirements to reflect the most current NPDES regulations.

VIII. DEFINITIONS

EPA has updated the definition in the revised draft permit. The following definitions have been removed: annual average, best management practices (BMP) plan, EOX, final effluent, and monthly average discharge limitation. The following definitions have been added: Act, average monthly limit, best management practices, BOD_5, chemical agent, chemical oxygen demand, continuous monitoring, depth/spacially integrated, dioxin, excursion, furan, lb/day, mgd, µg/L, mg/L, mg/day, pollutant, production, senior technical manager, soap, spent pulping liquor, statistically significant increase, s.u., trend analysis, and turpentine. The following definitions have been changed: adsorbable organic halides, chronic toxic unit, IDEQ, method detection limit, NOEC, and 24-hour composite.

IX. REFERENCES

EPA. 1984. *Calculation of Production-Based Effluent Limits*. Memorandum from J. William Jordan, Chief NPDES Technical Support Branch to Regional Permits Branch Chiefs. December 18, 1984.

EPA. 1986. *Quality Criteria for Water 1986.* U.S. Environmental Protection Agency, Office of Water, EPA 440/5-86-001, May 1, 1987.

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EPA. 1993. *Guidance Manual for Developing Best Management Practices (BMP).* U.S. Environmental Protection Agency, Office of Water, EPA/833/B-93-004, October 1993.

EPA. 1993. *Status of Detection Level Strategies*, U.S. Environmental Protection Agency, memo September 9, 1993.

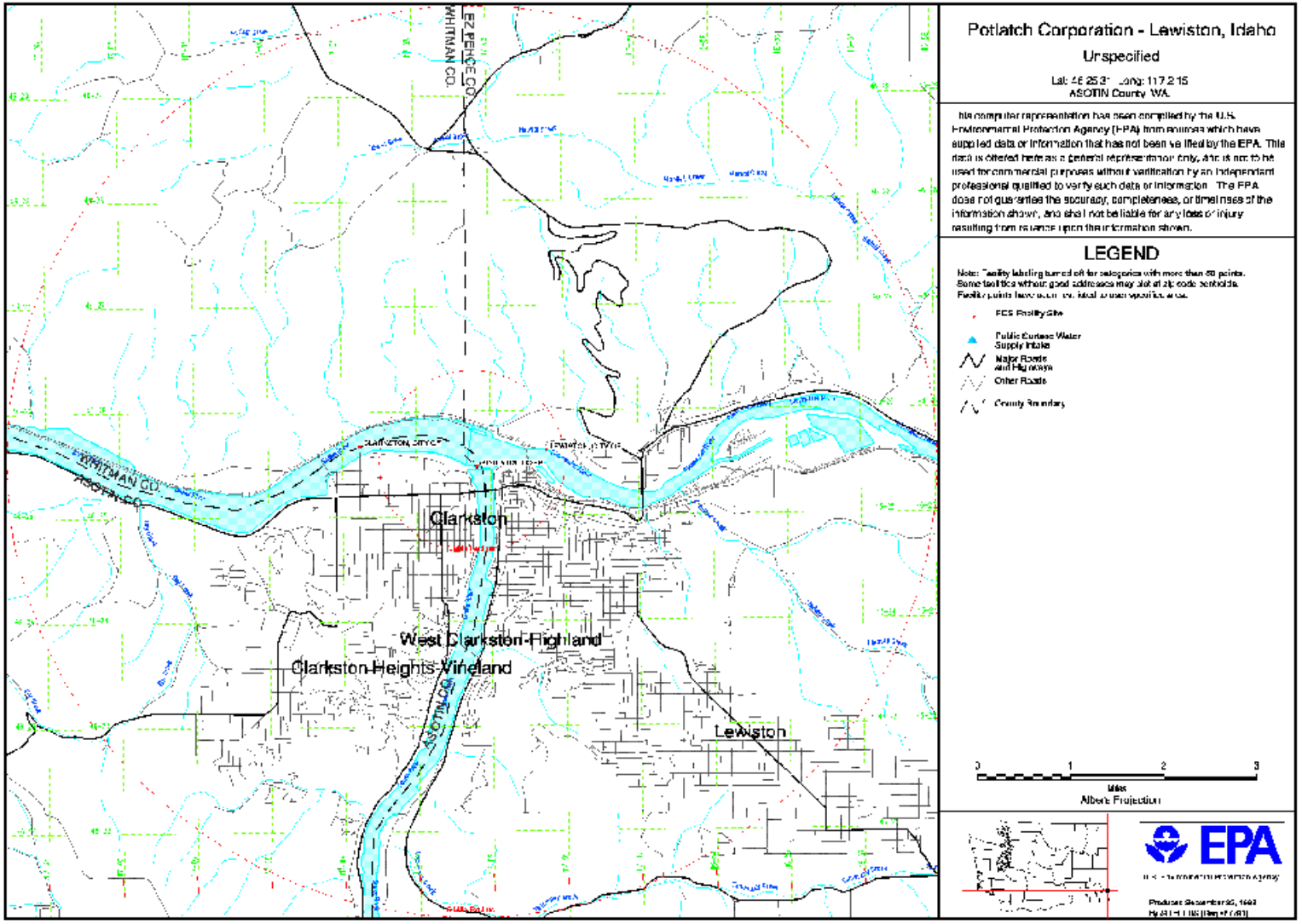
EPA. 1996. *U.S. EPA NPDES Permit Writer's Manual*. U.S. Environmental Protection Agency, Office of Water, EPA/833/B-96-003, December 1996.

EPA. 1996. *EPA Region 10 Guidance for WQBELs Below Analytical Detection/Quantification Level*.

IDAPA. 1996. Idaho Administrative Procedures Act 16, Title 01, Chapter 02: *Water Quality Standards and Wastewater Treatment Requirements*.

APPENDIX A - FACILITY OUTFALL LOCATION

Figure A-1: Potlatch Corporation Discharge Location



APPENDIX B - WASTE STREAMS AND TREATMENT PROCESS

Table B-1 shows the waste streams discharged from Potlatch Corporation's pulp mill. The first group of waste streams is treated by primary clarification to remove suspended solids. The effluent from the primary clarifier passes through a mix basin, where it is combined with bleach plant effluent. From the mix basin, the wastewater flows to the secondary treatment aeration pond (STAP), where it receives biological treatment prior to discharge through outfall 001. The secondary treatment pond also receives landfill leachate, digester condensate, and effluent from the power boiler settling ponds.

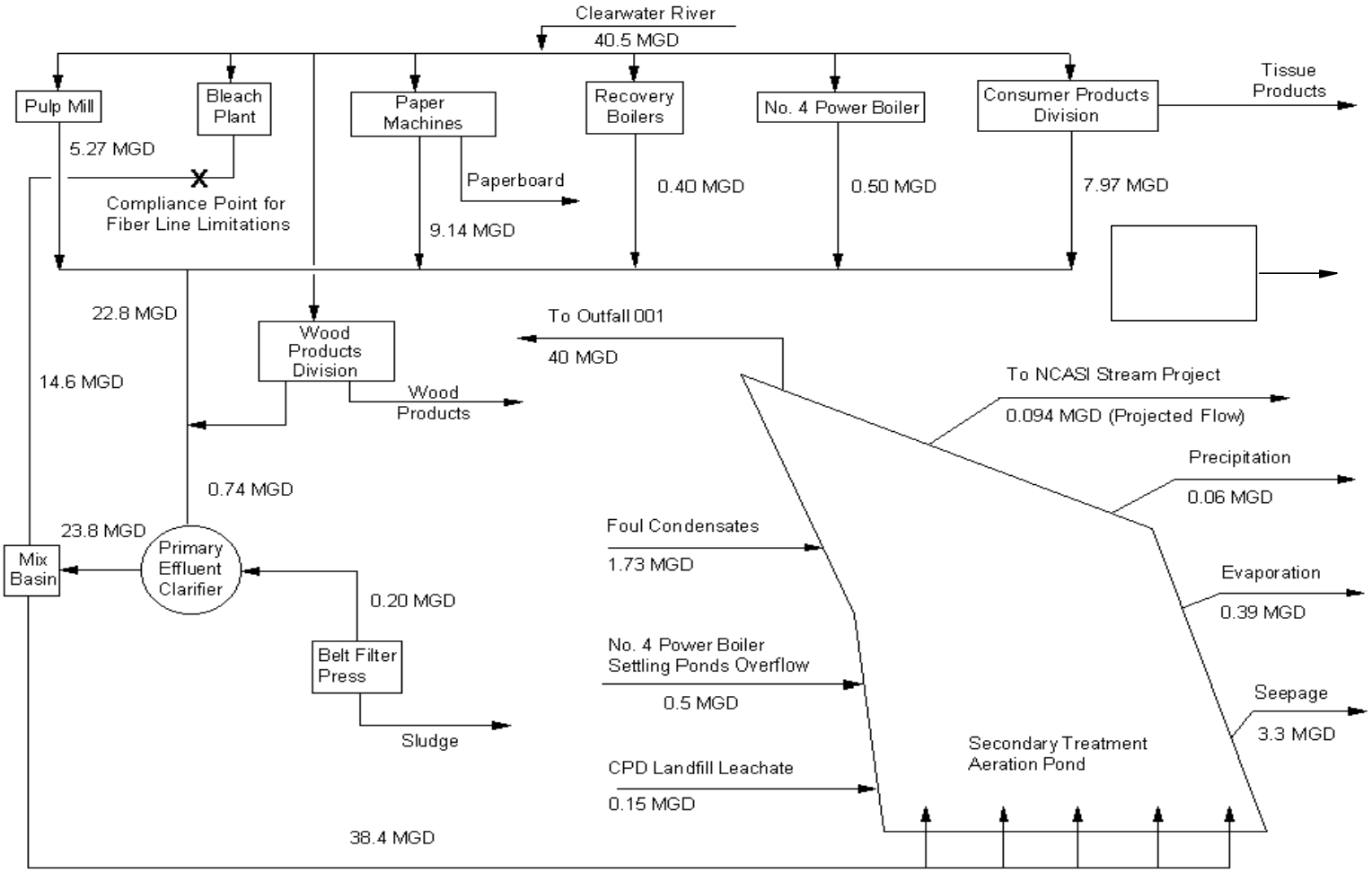
In addition to the discharge through outfall 001, approximately 0.4 million gallons per day (mgd) of effluent is discharged from the bottom of the secondary treatment pond as seepage to the Clearwater River. See Figure B-1 for a flow diagram of Potlatch's waste streams and treatment processes.

Table B-1: Potlatch Corporation Waste Streams

Outfall	Waste stream	Flow[1] (MGD)	Treatment
001	Pulp Mill	5.27	Primary Clarifier/ Mix Basin/ STAP
	Paper Machines	9.14	
	Recovery Boilers	0.40	
	No. 4 Power Boiler	0.05	
	Consumer Products Division	7.97	
	Belt Filtration Presses	0.2	
	Wood Products Division	0.74	
001	Bleach Plant	14.6	Mix Basin/ STAP
	Digester Condensate System	1.73	STAP
	No. 4 Power Boiler Settling Ponds	0.5	
	Landfill Leachate	0.15	
Seepage	Treated effluent	3.7	N/A
Total		41.2	

Footnotes
1 Flow estimates are based on actual data collected during July and August 1996.

Figure B-1: Potlatch Waste Streams and Processes



APPENDIX C - TECHNOLOGY-BASED EFFLUENT LIMITS EVALUATION

Section 301(b)(2) of the Clean Water Act requires technology-based controls on effluents. This section of the Clean Water Act requires that, by March 31, 1989, all permits contain effluent limitations which: (1) control toxic pollutants and nonconventional pollutants through the use of "best available technology economically achievable" (BAT), and (2) represent "best conventional pollutant control technology" (BCT) for conventional pollutants (i.e., BOD_5, TSS, and pH). In no case may BCT or BAT be less stringent than "best practicable control technology currently available" (BPT), which is a minimum level of control required by section 301(b)(1)(A) the Clean Water Act.

On April 15, 1998, EPA published revised effluent guidelines for the pulp and paper industry in the Federal Register (98 FR 18503). These guidelines, known as the "Cluster Rule," replace the guidelines that were used to calculate the technology-based limitations in Potlatch's 1992 permit. They can be found in the Code of Federal Regulations (CFR) at 40 CFR Part 430. The Cluster Rule established revised subcategories for the pulp and paper industry. As a result of the Cluster Rule, Potlatch is regulated under Subpart B (Bleached Papergrade Kraft and Soda) and Subpart L (Tissue, Filter, Non-Woven, and Paperboard from Purchased Pulp).

On January 26, 1981, EPA published final effluent guidelines for the Timber Products Processing Point Source Category (46 FR 8285). These guidelines provide technology-based effluent limitations that apply to the wood products operations at the mill. The guidelines can be found at 40 CFR 129. Within these guidelines, Subpart A (Barking), Subpart K (Sawmills and Planing Mills), and Subpart L (Finishing) apply to the discharge.

For the effluent limitations are production-based, the Federal Regulations at 40 CFR 122.45(b)(2) requires the calculation of any permit limitations, standards, or prohibitions to be based not upon the designed production capacity but rather upon a reasonable measure of actual production of the facility. The time period of the measure of production shall correspond to the time period of the calculated permit limitations; for example, monthly production shall be used to calculate average monthly discharge limitations. The permit may include a condition establishing alternate permit limitations, standards, or prohibitions based upon anticipated increased (not to exceed maximum production capability) or decreased production levels.

It is EPA's policy (EPA, 1984) to use a single estimate of the expected production over the life of the permit using the long-term average production from the plant's historical records. Usually, five years of production history are used to derive this value. The effluent guidelines for the pulp and paper industry provide in the time period of the measure of production in the definition of "production," which corresponds to an annual average. The single production value is then multiplied by both the daily maximum and monthly average guidelines limitations to obtain permit limits. The 1999 permit used production data from 1992 through 1997. Since the permittee is require to submit production data annually to EPA, the production for the life of this permit is no longer reflective of the 1992-1997 data. Therefore, EPA has updated the production-based limits to reflect the last five years production data (i.e., 1997 through 2002).

A. Best Conventional Pollutant Control Technology (BCT)

The Cluster Rule requires BCT to achieve effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BPT). The BCT/BPT effluent limitations for 5-day biochemical oxygen demand (BOD_5) and total suspended solids (TSS) are based on production. The Cluster Rule also allows for the addition of limitations from wet barking and log and chip washing operations under Subpart B. The Timber Products does not allow the discharge of process wastewater from mechanical barking, sawmills, planing mills, and finishing operations, but does provide effluent limitations for hydraulic barking.

Table C-1 provides the BCT/BPT effluent limitations that apply to this discharge and Table C-2 provides the BCT/BPT permit limits. The permittee will be required to measure the concentration of BOD_5 and TSS as mg/L in the effluent. However, it will be required to report compliance with the effluent limit as a calculation multiplying the effluent concentration by the effluent flow in mgd, a conversion of 8.34.

Table C-1: BCT/BPT Effluent Limitations (40 CFR Part 430)

Production Type	BOD_5		TSS	
	Maximum Daily (lb/1,000 lb)	Monthly Average (lb/1,000 lb)	Maximum Daily (lb/1,000 lb)	Monthly Average (lb/1,000 lb)
Bleached Kraft Market Pulp (Subpart B)	15.45	8.05	30.4	16.4
Bleached Kraft Paperboard and Tissue (Subpart B)	13.65	7.1	24.0	12.9
Non-Integrated Tissue (Subpart L)	11.4	6.25	10.25	5

Table C-2: BCT/BPT Permit Limits for Potlatch Discharge					
Production Type	**Average Annual Production (1,000 lb)**	**BOD_5**		**TSS**	
		Maximum Daily (lb/day)	**Monthly Average (lb/day)**	**Maximum Daily (lb/day)**	**Monthly Average (lb/day)**
Bleached Kraft Market Pulp	480	7,400	3,900	14,600	7,900
Bleached Kraft Paperboard and Tissue	3,151	43,000	22,400	75,600	40,600
Non-Integrated Tissue	413	4,700	2,600	4,200	2,100
Total	4,043	**55,100**	**28,800**	**94,400**	**50,600**

B. Best Available Technology Economically Achievable

The BAT effluent limitations require chloroform to be limited at the fiber line and adsorbable organic halides (AOX) to be limited in the final effluent. The Cluster Rule defines the fiber line as pulping, de-knotting, brownstock washing, pulp screening, centrifugal cleaning, bleaching, and washing. Chloroform and AOX limits are based on annual average "unbleached" production rather than the types of products made. Unbleached production is a measure of the pulp weight before it enters the bleach plant. Since the facility uses pulp to product paperboard and tissue, as well as market pulp, the measure of production must be considered from all three production types. The unbleached production is calculated as bleached production (from paperboard, tissue and market pulp) multiplied by a factor of 1.0667. The bleached production is determined as the maximum twelve-month rolling average production.

Tables C-3 shows BAT effluent guidelines for the discharge and Table C-4 provides the BAT permit limits. Monitoring for compliance with these limitations (except AOX) is conducted at the effluent from the bleach plant (see Figure B-1).

Table C-3: BAT Effluent Guidelines (40 CFR Part 430)			
Parameter	**Units**	**Limitations**	
		Maximum Daily	Monthly Average
Chloroform	lb/1,000 lb	0.00692	0.00414
Adsorbable Organic Halides (AOX)	lb/1,000 lb	0.951	0.623

Table C-4: BAT Permit Limits for Potlatch Discharge			
Parameter	**Units**	**Limitations**	
		Maximum Daily	Monthly Average
Chloroform[note 1]	lb/day	28.8	17.2
Adsorbable Organic Halides (AOX)[note 1]	lb/day	3,950	2,590
Footnote: 1 This limit is based on the unbleached production rate of 4,156,000 lbs.			

APPENDIX D - WATER QUALITY-BASED EFFLUENT LIMITS EVALUATION

EPA evaluated the discharge to determine compliance with Section 301(b)(1)(C) of the Clean Water Act. This section requires the establishment of limitations in permits necessary to meet water quality standards by July 1, 1977. The regulations at 40 CFR 122.44(d) implement section 301(b)(1)(C) of the Clean Water Act. These regulations require that NPDES permits include limits for all pollutants or parameters which "are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." The limits must be stringent enough to ensure that water quality standards are met and must be consistent with any available wasteload allocation (WLA). EPA has re-evaluated the need for water quality-based effluent limits for BOD_5, temperature, dioxin (2,3,7,9-TCDD), pentachlorophenol, chloroform, and 2,4,6-trichlorophenol. The draft permit includes water quality-based limits for BOD_5, temperature, dioxin (2,3,7,8-TCDD). This Appendix provides a discussion of the reasonable potential analysis and the development of the effluent limitations.

In determining whether water quality-based limits are needed and developing those limits when necessary, EPA uses the approach outlined below:

- Determine the appropriate water quality criteria,
- Determine whether there is "reasonable potential" to exceed the criterion,
- If there is "reasonable potential," develop a WLA,
- Develop effluent limitation based on the WLA.

A. Biochemical Oxygen Demand, Five-day (BOD_5)

The Idaho water quality standards do not specifically state a maximum receiving water concentration for BOD, however, the State standard does require that surface waters of the United States within Idaho shall be free from oxygen-demanding materials in concentrations that would result in an anaerobic water condition. In Idaho, the most restrictive water quality standard for dissolved oxygen that applies to this segment of the Snake River is for the protection of cold water biota. This standard establishes a minimum dissolved oxygen concentration of 6 mg/l.

In Washington, the applicable standard for Class A waters is a minimum of 8.0 mg/l. Washington interprets its water quality standard to allow a cumulative dissolved oxygen decrease of 0.2 mg/l due to human activity, based on the assumption that 0.2 mg/l is an insignificant decrease.

EPA has analyzed the impact of dissolved oxygen (DO) in the Snake River due to BOD loadings from the Potlatch facility. This examination has been refined recently based on additional data submitted by Potlatch Corporation in February 2000. EPA applied the RBM10 mathematical model described in Yearsley (1999) to the analysis by adding the Streeter-Phelps relationship for BOD and DO to the model framework. This allowed for the dynamic simulation of both temperature and DO on a daily basis for 21 years (1975 - 1995). This analysis

also includes a heat budget calculation from daily meteorological data and incorporates daily river flows and tributary flows/temperatures.

An important parameter for analysis of BOD is the rate at which the demand is exerted on the waterbody. Deoxygenation rates can vary considerably in different waters. In 2001, Polatch conducted sampling of the effluent and river for long-term BOD to provided a deoxygenation rate for the Snake River. Given that the river information is adequate (e.g., detectable BODs), EPA believes this river sampling information should be used to determine the model inputs for the ambient deoxygenation rate. Based on the least squares calculations, Potlatch consultants calculated an average deoxygenation rate of 0.08 day^{-1} for the river. The average effluent decay rate for the effluent was calculated at 0.043 day^{-1}. Based on this rate, the ratio of BOD_{ult} to BOD_5 is approximately 5.5, which is used as a multiplier to compute the ultimate BOD associated with 5-day BOD limits.

The model EPA used for the analysis of DO impacts used total BOD. Carbonaceous (CBOD) and nitrogenous (NBOD) components of the total BOD were not used in the model. Based on the new data, it did not appear to be necessary to include a more complicated algorithm in the model to account for these two BOD components. The NBOD is a small fraction of the total BOD (approximately 15%). Consistent with low NBOD levels, the discontinuities in the time series of total BOD in the effluent due to NBOD effects are minimal. Therefore, it is reasonable to use total BOD for this analysis, rather than attempt to capture these minor discontinuities with additional model kinetics.

Initial ultimate BOD concentrations for all streams and tributaries were assumed to be 2.0 mg/L, and DO for these waters was assumed to be at the saturation concentration based on the elevation and simulated daily temperature. The O'Connor-Dobbins formulation Bowie et al, 1985) was used for the reaeration rate. It was adjusted daily based on water depth and velocity.

The model showed that there is a relationship between DO impact and river flow over the entire range of flows, however, the relationship is weak at the lower flows. The model results indicated that discharges at the technology-based limits would result in a mean DO impact of 0.5 mg/L and a 95th percentile impact of 1.2 mg/L. Further, the discharge results in the highest impacts to downstream dissolved oxygen in the summer months.

The water quality-based effluent limits, therefore, are season limits that apply from December through May and from June through November. The proposed water quality-based effluent limits for BOD_5 are provided in Table D-1. Since the technology-based effluent limits for BOD_5 (see Table C-2) are more stringent from December through May, the draft permit is proposing the technology-based limits from December through May and the water quality-based limits from June through November.

Table D-1: Water Quality-based BOD_5 Effluent Limitations		
Parameter	**Effluent Limitations**	
	Maximum Daily	**Monthly Average**
	1992 Permit	1992 Permit
BOD_5 (lb/day) (December - May)	58,200	30,400
BOD_5 (lb/day) (June - November)	9,200	4,800
Footnote 1 The 1999 draft permit contained 3 tiers for BOD_5 - flow >22,000 cfs; ≤ 22,000 and >18,000 cfs; and ≤ 18,000 cfs.		

B. Temperature

Temperature is being re-evaluated because after the proposal of the 1999 draft permit the Snake River has been listed as impaired under Section 303(d) of the Clean Water Act for temperature and the state of Idaho has revised their water quality standard for temperature to include natural background provisions. The listing of the Snake River does not specify an exact time period for impairment, however, USGS data from 1958 through 2003 indicate that the Snake River does not meet water quality standards from June through September. Therefore, this analysis is based on the data of record and only considers the Snake River as impaired from June through September.

Even though Idaho has adopted the new natural background provision for temperature, EPA has not approved this standard. Therefore, until the standard is approved by EPA, it cannot be implemented through this permit for the purposes of compliance with the Clean Water Act. However, EPA anticipates approving this standard prior to issuance of the permit, this temperature analysis is based on the new standard. If EPA does not approve this standard prior to issuance of the permit, then the final effluent limitation will be the criterion (i.e., 19°C) with an allowance for a deminimus increase (0.3°C) because the Temperature Assessment (EPA, 2003) has shown that this river has the capacity to assimilate the temperature of this discharge within the near-field mixing (i.e., the zone of initial dilution or ZID). This would affect the July and August temperature limits, which would result in a maximum daily limit in July of 31°C and 30°C in August.

In this evaluation, EPA considered the temperature criteria of both Idaho and Washington, natural background modeling conducted for temperature in the draft Lower Snake and Columbia River TMDL, the state of Idaho's draft 401 certification of this permit, the results of the Department of Energy (DOE) Pacific Northwest National Laboratory (PNNL) first year's study of the lower Snake River regarding the confluence interactions of the Snake and Clearwater Rivers, and EPA

Region 10's water temperature guidance for protection of Pacific Northwest salmon and trout.

1. Temperature Criteria.

The most stringent of Idaho's temperature criteria applicable to the Snake River is for protection of cold water biota. This criterion specifies a maximum temperature of 22°C (71.6°F) at any time, with a maximum temperature of 19°C (66.2°F) as a daily average. EPA has determined the most protective level was 19°C daily average because the facility is discharging from a treatment pond that has a retention time of 8 days. The retention time makes it such that the facility could not instantaneously increase the temperature of the effluent, thus they could not instantaneously increase the river temperature. Further, the affects of the effluent were considered in the Temperature Assessment (EPA, 2003) where the analysis ensures the protection of the Idaho water quality standards at extreme conditions (e.g., lowest flows, highest temperatures, maximum effluent flow, maximum effluent temperature, etc).

The Temperature Assessment (EPA, 2003) provides a complete technical analysis of the thermal effects of this discharge to the Snake River. In conducting the analysis, EPA used the TSD (EPA, 1991), the Idaho water quality standards for temperature and mixing zones, the Region 10 temperature guidance (EPA, 2003), modeling for the lower Snake River and Columbia River TMDL (Yearsly, 2001), data and information from the DOE-PNNL 2002 study of the Snake River and Clearwater River confluence (DOE-PNNL, 2002), and CORMIX model version 4.2.

In 2002, the Idaho Department of Environmental Quality (IDEQ) revised their water quality standards. As part of the standards revisions, the temperature criteria were changed in regard to natural conditions. The standards at IDAPA 58.01.02.200.09 state that when natural background conditions exceed any applicable water quality criteria set forth in the standards, the applicable water quality criteria shall not apply; instead, pollutant levels shall not exceed the natural background conditions, except that the temperature levels may be increased above natural background conditions when allowed under Section 401. The allowance under Section 401 is under 03.a.v. which states that if the temperature criteria for the designated aquatic life use are exceeded in the receiving waters upstream of the discharge due to natural background conditions, then wastewater must not raise the receiving water temperatures by more than three tenths (0.3) degrees Celsius.

EPA and the state of Idaho have estimates of natural background conditions in this reach of the Snake River from the modeling for the Lower Snake and

Columbia River Temperature TMDL[1]. The natural background of the river systems were determined at river miles (RMs) 138 (at the confluence of the Snake and Clearwater Rivers), 142 (upstream of the discharge in the Snake River), and 168 (at Anatone) on the Snake River to exceed criteria (i.e., 19°C) in the summer months (i.e, June through September).

Since it is likely that EPA will approve the Idaho water quality standard for natural background and the model conducted for the TMDL shows that natural background conditions apply in the summer months of July and August, the modeling of the Potlatch discharge allowed a 0.3°C increase within the near-field or zone of initial dilution (ZID) boundary. The basis for allowing this within the ZID is provided in the discussion of mixing zones from the EPA's Technical Support Document (TSD) in Section 5 and the state of Idaho's draft 401 certification under the Clean Water Act for this permit. The ZID for this discharge is 45 meters (~140 feet) downstream of the outfall and 122 meters wide. If EPA approves this criteria prior to the issuance of this permit, then EPA proposes to issue the permit with the temperature limits of 32°C maximum daily in July and 31°C in August. Otherwise, the maximum daily limit in July will be 31°C and 30°C in August.

The Supreme Court's decision in Arkansas v. Oklahoma (503 U.S. 91, 1992) requires that downstream state standards be met at the border. Therefore, the permit limits must ensure that the discharge does not cause exceedences of downstream State water quality standards. It is important to note that developing a permit limit to ensure that the discharge does not cause or contribute to an exceedence of downstream state standards is not the same as applying the downstream state standard to the discharge. In evaluating the effect of a discharge on downstream waters, EPA evaluates the fate of the pollutant, including decay, dilution, and other factors. Washington's standards include the following special conditions for the Snake River:

> Below Clearwater River (river mile 139.3). Temperature shall not exceed 20°C due to human activities. When natural conditions exceed 20°C, no temperature increase will be allowed which will raise the receiving water temperature by greater than 0.3°C, nor shall such temperature increases, at any time, exceed t=34/(T+9)
>
> where "t" represents the maximum permissible temperature increase measured at the mixing zone boundary; and "T" represents the

[1]Yearsley, J. R., Karna, D., Peene, S., Watson, B. 2001. *Application of a 1-D Heat Budget Model to the Columbia River System.* U.S. Environmental Protection Agency, Seattle, WA.

background temperature as measured at a point or points unaffected by the discharge and representative of the highest ambient water temperature in the vicinity of the discharge.

Since the temperature analysis performed by EPA ensured that the effluent temperature did not effect the river temperature beyond the ZID, the discharge will not impact Washington's waters for temperature.

2. Non-impaired River Conditions.

When a waterbody exceeds the State water quality standards for a parameter (e.g., temperature), it is considered impaired for that parameter and placed on a list required under Section 303(d) of the Clean Water Act. The State is then required to complete a TMDL for that waterbody which provides wasteload allocations (WLA) for point source discharges (e.g., Potlatch). Since the proposal of the 1999 draft permit, the section of the Snake River in the vicinity of the discharge has been listed under Section 303(d) as impaired for temperature. The state of Idaho, in conjunction with EPA and the states of Oregon and Washington, are jointly working on a TMDL for the Lower Snake and Columbia River, however, the TMDL has not been finalized and approved. The TMDL is only looking at far-field affects and is not considering effects of the discharge in the near-field. Therefore, the permitting authority must determine an appropriate effluent limit to protect the designated uses of this waterbody in the near-field and in the absence of a TMDL.

The 303(d) listing does not specify an exact time period for impairment, however, USGS data from 1958 through 2003 indicate that the Snake River does not meet water quality standards from June through September thus, the Snake River is not impaired (i.e., meets water quality standards) from October through May.

The Clearwater River is not listed under Section 303(d) for non-attainment of temperature. Additionally, the USGS data indicates that the Clearwater River may only exceed Idaho's water quality criteria for temperature in June, August, and September under the most adverse conditions (i.e., less than one percent of the time). During July, the Clearwater River is below the water quality criteria for temperature due to Dworshak Dam releases. Generally, the Clearwater is in attainment with the Idaho water quality standards.

The modeling for the Lower Snake and Columbia River Temperature TMDL[1] is based on a far-field analysis and shows that point source discharges are not causing or contributing to the impairment of the waterbody. This is consistent with the first year's findings of a river study being conducted by the Department of Energy (DOE) Pacific Northwest

National Laboratory (PNNL)[2]. However, when determining the need for effluent limitations, the permitting authority must also look at the near-field (e.g., within the ZID) to ensure that the impact zone is as small as practicable. Therefore, EPA conducted a Temperature Assessment (EPA, 2003) of the effects of heat from this discharge to the Snake River for October through May within the ZID.

Additionally, EPA considered the Region 10 temperature guidance for protection of Pacific Northwest salmon and trout. The Region 10 Temperature Guidance (EPA, 2003) has provisions to protect salmonids from thermal plume impacts such as instantaneous lethal temperatures; thermal shock; migration blockage; adverse impact on spawning, egg incubation, and fry emergence areas; or the loss of localized cold water refugia. Therefore, EPA has re-evaluated the effects of temperature in the discharge with respect to the biological characteristics of the discharge and receiving system; the life history and behavior of organisms in the receiving system, and the designated uses of the receiving waters (i.e., cold water biota).

The assessment concluded that the discharge at 33°C would meet water quality standards for the state of Idaho at the ZID boundary because the discharge at this temperature will not affect the Snake River temperature beyond 35 meters, which would require a maximum dilution of 45:1 (i.e., 45 cfs river volume per 1 cfs discharge volume). This meets the state of Idaho's draft 401 certification because the plume is less than 45 meters downstream (ZID boundary), and the percent river volume is less than 25% (i.e., the maximum effluent flow is 62 cfs, multiplied by the dilution of 45 results in 2,790 cfs river flow, divided by the corresponding flow of 24,520 cfs, resulted in 11 percent of the river volume for the mixing zone). Therefore, this analysis indicates that there is not reasonable potential for the discharge to cause or contribute to an exceedance of the water quality standard, effluent limits are not necessary (refer to 40 CFR 122.44(d)(1)(i)).

Because the reasonable potential analysis for October through May indicated that less stringent limits could be applied to the discharge, EPA considered the "anti-backsliding" requirements in section 402(o) of the Clean Water Act. The Snake River is listed under Section 303(d) for non-attainment of temperature. Since the listing does not indicate a particular

[2]Cook, C.B., Rakowski, C.L., Richmond, M.C., Titzler, S.P., Coleman, A.M., and Bleich, M.D. 2003. *Numerically Simulating the Hydrodynamic and Water Quality Environment for Migrating Salmon in the Lower Snake River*. Prepared for the Bonneville Power Administration, U.S. Department of Energy, Under Contract DE-AC06-76RLO1830, Pacific Northwest National Laboratory, Richland, WA.

time frame for impairment, the anti-backsliding of the effluent limit was determined for non-attainment waters as a conservative measure. For water quality-based limits in non-attainment waters, section 402(o) of the Clean Water Act does not allow backsliding unless there is a total maximum daily load (TMDL) or other WLA established under Section 303 and attainment of water quality standards has been assured. Since a temperature TMDL has not been finalized for this waterbody, the permit cannot allow less stringent limits. Therefore, the 1992 permit limit for a maximum daily effluent discharge of 33°C is retained for this time period (October through May) in the permit.

3. Impaired River Conditions.

As stated above, the Snake River is impaired for temperature from June through September. The 1999 draft permit further assumed that when the water temperature exceeds the criteria, there is no "cool" water to dilute temperature of the discharge. This means that, regardless of the dilution, the water at the edge of the mixing zone will never meet the criteria. However, since this draft permit was public noticed in 1999, the state of Idaho has adopted a new water quality standard for temperature, EPA has release temperature guidance and has conducted an assessment of temperature from this discharge to the Snake River that indicates that these assumptions are no longer correct for this discharge.

Most parameters in a discharge are conservative, meaning that when you add it to the river system, it is retained within the system (i.e., conservation of mass). For example, if you added one gram of lead to the river, it would either stay in the water column or settle on the river bed but it would remain within the system as mass. Temperature is a non-conservative parameter, meaning that it can increase or diminish within the system. This is because temperature is a measure of heat, which is energy. Unlike mass, energy can be transformed from one form to another in some systems.

When a heated discharge enters a cooler environment, the heat in the discharge will dissipate in the form of thermal energy until the system reaches equilibrium. Therefore, it is important to look at how the discharge heat is dissipating within the river system and the final equilibrium temperature to ensure that it does not affect the uses of the waterbody. In this case, the most critical use being protected is aquatic life (i.e., cold water biota).

EPA has carefully considered the affects of the heated discharge to aquatic life during June, July, August, and September when the waterbody exceeds criteria most or all of the time. The analysis shows that the discharge affects less than one percent of the waterbody and that the river has the assimilative capacity to absorb the heat from the discharge within the ZID

without affecting the temperature of the river. Therefore, EPA has concluded that with some reduction of the effluent temperature, the discharge will comply with the applicable water quality standards at the edge of the ZID. The draft permit proposes a maximum daily effluent limit for June of 33°C, for July of 32°C, for August of 31°C, and for September 30°C. At these temperatures, the temperature assessment (EPA, 2003) shows that effluent does not affect the river temperature beyond the ZID and meets the mixing zone requirements for the state of Idaho. These limits are as stringent or more stringent than those in the 1992 permit, therefore, anti-backsliding does not apply.

C. Pentachlorophenol

The most stringent of Idaho's pentachlorophenol criteria applicable to the Snake River is for the protection of domestic water. The criterion for pentachlorophenol requires a maximum concentration in the receiving water of 0.28 μg/L. Since there is a technology-based effluent limit for pentachlorophenol, EPA has re-evaluated the need for a water quality-based effluent limit for this parameter.

The technology-based effluent limit for pentachlorophenol applies to the fiber line, which is an internal control. The proposed fiber line limit is less than 5.0 μg/L. Therefore, the effluent concentration must be determined prior to conducting this analysis. EPA used the flows in Figure B-1, which were submitted by the applicant, to determine the flow ratio of the fiber line to the effluent. This resulted in a ratio of 0.365. EPA then multiplied the technology-based limit by the ratio to obtain the maximum effluent concentration of 1.8 μg/L. Since the maximum effluent concentration exceeds the criterion, EPA conducted a further analysis of reasonable potential.

To determine if there is "reasonable potential" to cause or contribute to an exceedence of water quality criteria for a given pollutant, EPA compares the maximum projected receiving water concentration to the criteria for that pollutant. If the projected receiving water concentration exceeds the criteria, there is "reasonable potential," and a limit must be included in the permit. EPA uses the recommendations in Chapter 3 of the *Technical Support Document for Water Quality-based Toxics Control* (TSD, EPA 1991) to conduct this "reasonable potential" analysis.

Additionally, the Federal Regulations at 40 CFR 122.44(d)(1)(ii) requires that the dilution of the effluent in the receiving water be used to determine reasonable potential where appropriate. The state of Idaho has authorized a mixing zone that provides a dilution of 6.4 for pentachlorophenol, therefore, this dilution was used in the reasonable potential analysis.

The maximum projected receiving water concentration is determined using the following mass balance equation.

$$C_d * Q_d = C_u * Q_u + C_e * Q_e$$

where,

C_d = downstream concentration (at the edge of the mixing zone)
Q_d = downstream flow (the sum of the upstream and effluent flows)
C_u = upstream (ambient concentration)
Q_u = upstream flow (7Q10 = 14,270 cfs)
C_e = maximum projected effluent concentration (1.8 µg/L)
Q_e = effluent flow (42.5 mgd = 65.9 cfs)

The equation for dilution is:

$$D = \frac{Q_u + Q_e}{Q_e} = 6.4 \text{ .}$$

Combining the mass balance equation with the equation for dilution, D, and solving for C_d:

$$C_d = C_u + \frac{C_e - C_u}{D} = 0 + \frac{1.8 - 0}{6.4} = 0.28 ug/L \quad .$$

As the equation shows, the maximum projected receiving water concentration is based on the maximum projected effluent concentration, available dilution, and the background pollutant concentration. The background pollutant concentration was assumed to be zero because there was no data to support a concentration in the receiving water. Since the maximum projected downstream concentration is below the criterion, a water quality-based effluent limit is not required for this discharge.

D. Chloroform

The most stringent of Idaho's chloroform criteria applicable to the Snake River is for the protection of domestic water. The criterion for chloroform requires a maximum concentration in the receiving water of 5.7 μg/L. Since there is a technology-based effluent limit for chloroform, EPA has re-evaluated the need for a water quality-based effluent limit for this parameter.

The technology-based effluent limit for chloroform applies to the fiber line, which is an internal control. The proposed maximum daily fiber line limit is 28.2 lb/day, which equates to 80 μg/L (based on an effluent flow rate of 42.5 mgd). Since the maximum effluent concentration exceeds the criterion, EPA conducted a further analysis of reasonable potential.

To determine if there is "reasonable potential" to cause or contribute to an exceedence of water quality criteria for a given pollutant, EPA compares the maximum projected receiving water concentration to the criteria for that pollutant. If the projected receiving water concentration exceeds the criteria, there is "reasonable potential," and a limit must be included in the permit. EPA uses the recommendations in Chapter 3 of the *Technical Support Document for Water Quality-based Toxics Control* (TSD, EPA 1991) to conduct this "reasonable potential" analysis.

Additionally, the Federal Regulations at 40 CFR 122.44(d)(1)(ii) requires that the dilution of the effluent in the receiving water be used to determine reasonable potential where appropriate. The state of Idaho has authorized a mixing zone that provides a dilution of 14 for chloroform, therefore, this dilution was used in the reasonable potential analysis.

The maximum projected receiving water concentration is determined using the following mass balance equation.

$$C_d * Q_d = C_u * Q_u + C_e * Q_e$$

where,

C_d = downstream concentration (at the edge of the mixing zone)
Q_d = downstream flow (the sum of the upstream and effluent flows)
C_u = upstream (ambient concentration)
Q_u = upstream flow (7Q10 = 14,270 cfs)
C_e = maximum projected effluent concentration (80 μg/L)
Q_e = effluent flow (42.5 mgd = 65.9 cfs)

The equation for dilution is:

$$D = \frac{Q_u + Q_e}{Q_e} = 14.$$

Combining the mass balance equation with the equation for dilution, D, and solving for C_d:

$$C_d = C_u + \frac{C_e - C_u}{D} = 0 + \frac{80-0}{14} = 5.7 ug / L.$$

As the equation shows, the maximum projected receiving water concentration is based on the maximum projected effluent concentration, available dilution, and the background pollutant concentration. The background pollutant concentration was assumed to be zero because there was no data to support a concentration in the receiving water. Since the maximum projected downstream concentration is below the criterion, a water quality-based effluent limit is not required for this discharge.

E. 2,4,6-trichlorophenol

The most stringent of Idaho's 2,4,6-trichlorophenol criteria applicable to the Snake River is for the protection of domestic water. The criterion for 2,4,6-trichlorophenol requires a maximum concentration in the receiving water of 2.1 µg/L. Since there is a technology-based effluent limit for chloroform, EPA has re-evaluated the need for a water quality-based effluent limit for this parameter.

The technology-based effluent limit for 2,4,6-trichlorophenol applies to the fiber line, which is an internal control. The proposed fiber line limit is less than 2.5 µg/L. Therefore, the effluent concentration must be determined prior to conducting this analysis. EPA used the flows in Figure B-1, which were submitted by the applicant, to determine the flow ratio of the fiber line to the effluent. This resulted in a ratio of 0.365. EPA then multiplied the technology-based limit by the ratio to obtain the maximum effluent concentration of 0.91 µg/L. Since the maximum effluent concentration is below the criterion, EPA concluded that there was not reasonable potential to exceed the acute criterion without conducting further analysis.

F. 2,3,7,8-TCDD (Dioxin)

On February 25, 1991, EPA issued a final TMDL for 2,3,7,8-TCDD (dioxin) for the Columbia River. The TMDL established WLAs for pulp and paper mills on the Columbia, Snake, and Willamette Rivers, including the Potlatch facility. Since dioxin is a bioaccumulative parameter, EPA has recalculated the effluent limits based on the procedures in Table 5-3 of the *Technical Support Document for Water Quality-based Toxics Control* (TSD), EPA/505/2-90-001.

The TSD procedures apply the WLA as the average monthly permit limit because the intent is to provide long-term controls to the treatment process of the facility. The maximum daily limit is then based upon the variability of the effluent discharge, the number of samples required per month, and the probability of exceedance.

Therefore, the average monthly limit is calculated as:

AML = WLA = 0.39 mg/day

The maximum daily limit is then calculated using the following equation from Table 5-3 of the TSD:

$$MDL = AML \times \frac{\exp\left[z_m s - 0.5 s^2\right]}{\exp\left[z_a s_n - 0.5 s_n^2\right]}$$

where:

z_m= the percentile exceedance probability for the MDL (2.326 for 99th percentile)

z_a = the percentile exceedance probability for the AML (1.645 for 95th percentile)

σ^2 = the popular variance ($\ln[CV^2 + 1]$)

σ = the standard deviation

$\sigma_n^2 = \ln(CV^2/n + 1)$

CV = coefficient of variation - standard deviation divided by mean (This was assumed to be 0.6. When there are not enough data to reliably determine a CV (less than 10 data points), the TSD recommends using 0.6 as a default value.)

n = number of samples per month.

Table 5-3 provides a multiplier that represents the latter part of the equation based on a CV and the number of samples required per month. Using a CV of 0.6 and n of 1, the multiplier is 1.46. Therefore, the maximum daily effluent limit is the AML multiplied by 1.46 which is 0.57 mg/day.