

**FACT SHEET FOR NPDES PERMIT WA 000307-7
FACILITY NAME: GRAYS HARBOR PAPER COMPANY, L. P.
(January 29, 2008)**

Purpose of this Fact Sheet

This fact sheet explains and documents the decisions Ecology made in drafting the proposed National Pollutant Discharge Elimination System (NPDES) permit for Grays Harbor Paper Company, L. P.

The Environmental Protection Agency (EPA) developed the NPDES permitting program as a tool to “restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” EPA delegated to Ecology the power and duty to write, issue, and enforce NPDES permits within Washington State. Both state and federal laws require any industrial facility to obtain a permit before discharging waste or chemicals to a water body.

An NPDES permit limits the types and amounts of pollution the Permittee may discharge. Those limits are based either on (1) the pollution control or wastewater treatment technology available to the industry, or on (2) the receiving water’s customary beneficial uses. This fact sheet complies with Section 173-220-060 of the Washington Administrative Code (WAC), which requires Ecology to prepare a draft permit and accompanying fact sheet for public evaluation before issuing an NPDES permit.

PUBLIC ROLE in the Permit

Ecology makes the draft permit and fact sheet available for public review and comment at least thirty (30) days before we issue the final permit to the facility operator (WAC 173-220-050). Copies of the fact sheet and draft permit for Grays Harbor Paper Company, L. P., NPDES permit WA-000307-7, are available for public review and comment from February 6, 2008 until the close of business March 7, 2008. For more details on preparing and filing comments about these documents, please see **Appendix A - Public Involvement**.

Before publishing the draft NPDES permit, Grays Harbor Paper Company, L. P., reviewed it for factual accuracy. Ecology corrected any errors or omissions about the facility’s location, product type or production rate, discharges or receiving water, or its history.

After the public comment period closes, Ecology will summarize substantive comments and our responses to them. Ecology will include our summary and responses to comments to this Fact Sheet as **Appendix D - Response to Comments**, and publish it when we issue the final NPDES permit. The rest of the fact sheet will not be revised, but the full document will become part of the legal history contained in the facility’s permit file.

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I. INTRODUCTION

Table 1 - General Facility Information

Applicant:	Grays Harbor Paper Company, L. P.									
Facility Name and Address:	Grays Harbor Paper, L. P. 801 23rd Street, Hoquiam, WA 98550									
Type of Treatment:	Secondary extended air activated sludge									
SIC Code	2621									
Discharge Location:	Grays Harbor and Hoquiam River <table style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td style="text-align: center;">Outfall 001</td> <td style="text-align: center;">Outfall 002</td> </tr> <tr> <td>Latitude:</td> <td style="text-align: center;">46° 58' 03" N</td> <td style="text-align: center;">46° 58' 15" N</td> </tr> <tr> <td>Longitude:</td> <td style="text-align: center;">123° 51' 45" W</td> <td style="text-align: center;">123° 52' 30" W</td> </tr> </table>		Outfall 001	Outfall 002	Latitude:	46° 58' 03" N	46° 58' 15" N	Longitude:	123° 51' 45" W	123° 52' 30" W
	Outfall 001	Outfall 002								
Latitude:	46° 58' 03" N	46° 58' 15" N								
Longitude:	123° 51' 45" W	123° 52' 30" W								
Water Body ID Number:	WA-22-0030 and WA-22-2010									

The Federal Clean Water Act (FCWA, 1972, and later amendments in 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One mechanism for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), administered by the federal Environmental Protection Agency (EPA). The EPA authorized the State of Washington to manage the NPDES permit program in our state. Our state legislature accepted the delegation and assigned the power and duty for conducting NPDES permitting and enforcement to Ecology. The legislature defined Ecology's authority and obligations for the wastewater discharge permit program in 90.48 RCW (Revised Code of Washington).

Ecology adopted rules describing how we exercise our authority:

- Procedures Ecology follows for issuing NPDES permits (chapter 173-220 WAC),
- Water quality criteria for surface waters (chapter 173-201A WAC) and for ground waters (chapter 173-200 WAC)
- Sediment management standards (chapter 173-204 WAC).

These rules require any industrial facility operator to obtain an NPDES permit before discharging wastewater to state waters. They also define the basis for limits on each discharge and for other performance requirements imposed by the permit.

Under the NPDES permit program Ecology must prepare a draft permit and accompanying fact sheet, and make it available for public review. Ecology must also publish an announcement (public notice) telling people where they can read the draft permit, and where to send their comments on the draft permit, during a period of thirty days (WAC 173-220-050). (See

Appendix A--Public Involvement for more detail about the Public Notice and Comment procedures). After the Public Comment Period ends, Ecology may make changes to the draft NPDES permit in response to comment. Ecology will summarize the responses to comments and any changes to the permit in **Appendix D**.

II. BACKGROUND INFORMATION

A. Facility Description

History

Grays Harbor Pulp and Paper Company constructed and started operating the mill in 1929. In 1937, three Olympic peninsula mills (Port Angeles, Shelton, and Grays Harbor) joined to form Rayonier, Inc following the development of a process to make rayon from wood fiber. In 1962, Rayonier entered into a joint partnership with Hammermill Paper to create Grays Harbor Paper which operated the paper machines, while Rayonier continued to operate the pulp mill portion of the facility. International Telephone and Telegraph (ITT) acquired Rayonier in 1968 and International Paper (IP) purchased Hammermill in 1986. ITT closed in November 1992, and completed demolition of the pulp mill, chemical product lines, and vanillin extraction facilities. In December of 1993, a group of local investors restarted the paper mill portion of the plant as Grays Harbor Paper, L.P.

When the paper mill portion of the plant restarted in 1993, the new company, Grays Harbor Paper, L.P., leased the land from ITT Rayonier, Inc., and assumed full responsibility for operating the wastewater treatment system and the National Pollutant Elimination System (NPDES) permit requirements. Grays Harbor Paper, L.P. also acquired responsibility for Order DE92-WQI067 with the exception of the sediment study. ITT Rayonier remained responsible for the sediment study required by order DE92-WQI067 and the remediation of the site through a voluntary cleanup.

The facility is considered a major discharger by Ecology and EPA.

Industrial Process

In 2006, the company produced 456 tons of paper/day of fine paper (on a monthly average basis) from nonintegrated purchased bleach Kraft pulp produced from softwood, hardwood, and process chlorine free post-consumer recycled pulp. The mill operates 24 hours per day with 220 employees producing fine papers from purchased bleached Kraft wood pulp and post consumer process chlorine free types fine paper. The paper mill operated 333 days during 2006. Grays Harbor Paper, L. P. does not bleach the pulp. The company did not maximize production in 2006.

The current permit is based on 463 tons/day off-the-machine including culls and trim based on the production in 2001 plus an allowance for treating Ocean Protein wastewater. The effluent guidelines defined production as off-the-machine. The average daily production for 2006 was

456 tons/day. The 2006 production is essentially the same as the production used for the current permit to set limits for BOD and TSS. Ecology decided to keep the same limits in the proposed permit that is in the current permit for the technology limits since they are essentially the same number. Therefore, the limit for BOD and TSS for outfall 001 in the proposed permit will be the same as those in the permit issued in 2003.

Wastewater Treatment

The wastewater treatment consists of primary treatment followed by secondary activated sludge treatment. The primary wastewater treatment system started operating in 1972 and secondary treatment in 1977. The mill constructed the wastewater treatment systems to treat wastewater from the chemical pulping, vanillin extraction facility, and the paper mill. The secondary wastewater treatment plant is an activated sludge system with secondary clarification. Rayonier designed the wastewater treatment system to treat 170,000 pounds of biochemical oxygen demand (BOD) per day with a flow of 30 million gallon per day (MGD). At present the GHP wastewater treatment system flow of 5 to 15 million gallons per day (MGD) shows very little nitrogenous compounds content. The current biochemical oxygen demand (BOD) loading is 4000 to 6,000 lbs/day BOD. As a result, the wastewater treatment system is tremendously under loaded. Recently, the facility accepted 0.2 MGD flow from Ocean Protein's fish meal processing plant that has a high nitrogenous strength and a small organic load.

Residual Solids

The mill uses solids from the wastewater treatment system and the boiler ash that is clenched from the hogged fuel boiler as fertilizer on the facility's farm. All water generated in the process streams for these solids are collected and treated in the wastewater treatment system.

Discharge Outfall

Outfall 001

Grays Harbor Paper, LP discharges process wastewater through outfall 001 after primary and secondary treatment. The treated wastewater includes 4.3 MGD from paper making, 2.2 MGD from the boilers, and 0 - 3 MGD collected stormwater via outfall 001. The discharge line was constructed with wood staves and runs to the northern edge of the dredged north shipping channel of Grays Harbor. The line extends 100 feet from shore in a SSW direction. The outfall line discharged into Grays Harbor through a single 26 inch diameter horizontal discharge port at a water depth of 25 feet below MLLW.

Outfall 002

Outfall 002 discharges to the mouth of the Hoquiam River through a 26" single port diffuser. The Hoquiam River is tidally influenced up to RM 9.3 (WAC 173-201A) and is highly influenced by salt water from Grays Harbor at the point of discharge. The mill discharge water through outfall 002 consists of filter back wash (about 0.33 MGD) and overflow from the fresh water treatment system. The only pollutants of concern are TSS and pH. The outfall line extends 75 feet from shore at a depth of 20 feet below the water surface.

Stormwater

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All stormwaters except the water from the employees and administrative parking lot located at the 23rd Street Main gate is collected by the mill and is discharged under their NPDES permit. The stormwater from the parking lot is discharged to the City of Hoquiam stormwater collection system and is discharged through the city's permitted stormwater outfall. Special Condition S1.B.4 of the General Industrial Stormwater Permit exempt these parking lots from coverage under the permit through 40 CFR 122.26(b)(14). Therefore, no monitoring is required. The Permittee will be required to submit a best management plan (BMP) to Ecology within 210 calendar days of the effective date of the proposed permit.

Filter Plant Backwash

In the mid 1980, Ecology issued permits that required treatment of filter plant backwash to remove solids. Several companies appealed the condition. In 1986, the Pollution Control Hearing Board (PCHB) ruled against Ecology and the condition was taken out of the permits. Since it has been twenty years since the PCHB ruling, Ecology is requiring the Permittee to perform an All, Known, Available, and Reasonable Treatment (AKART) analysis on the filter backwash. The study shall determine if there are reasonable treatment technologies for this source of pollution presently available. The Permittee will be required to submit the study to Ecology within two years of the effective date of the permit.

Permit Status

Grays Harbor Paper, LP submitted an application for permit renewal on October 30, 2007 and was accepted by Ecology.

Ecology issued the previous permit for this facility on April 16, 2003 and modified it on May 3, 2006 to allow the Permittee to accept, treat, and discharge wastewater from the Ocean Protein fish meal processing facility. The previous permit placed effluent limits on BOD, TSS, fecal coliform, and pH. These limits are summarized in the table below:

Parameter	Average Monthly ^{a,b}
Biochemical Oxygen Demand	4,000 Lbs./day
Total Suspended Solids	5,500 Lbs./day
Fecal Coliform ^c	9,600 #/100 mL
Total Suspended Solids	1,500 Lbs./day
pH ^d 6 – 9 SU	
<p>^a The average monthly effluent limitation is defined as the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.</p> <p>^b The maximum daily effluent limitation is defined as the highest allowable daily discharge. The daily discharge means the discharge of a pollutant measured during a calendar day. For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For other units of measurement, the daily discharge is the average measurement of the pollutant over the day.</p> <p>^c With no more than 10 percent exceeding 19,200 #/100 mL</p> <p>^d Indicates the range of permitted values. When pH is continuously monitored, excursions between 4.0</p>	

and 5.0, or 9.0 and 10.0 shall not be considered violations provided no single excursion exceeds 60 minutes in length and total excursions do not exceed 7 hours and 26 minutes per month. Any excursions below 4.0 and above 10.0 are violations. The instantaneous maximum and minimum pH shall be reported monthly.

C. Summary of Compliance with Previous Permit Issued

Ecology staff conducted a Class I inspection on December 20, 2007. Ecology staff last conducted a Class II sampling compliance inspection on April 3, 2007.

Grays Harbor Paper Company, L. P.'s wastewater treatment discharge has been in compliance during the history of the permit issued on April 16, 2003. Ecology assessed facility compliance based on our review of the facility's Discharge Monitoring Reports (DMRs) and on inspections conducted by Ecology.

D. Wastewater Characterization

The concentration of pollutants in the discharge was reported in the NPDES application and in discharge monitoring reports. Ecology's monitoring results are included in the data that follows. The effluent is characterized as follows:

Table 2: Wastewater Characterization

Outfall 001

Parameter	Average Concentration	Maximum Concentration
BOD	24 mg/L	36 mg/L
COD	-	366 mg/L
TOC	-	86 mg/L
TSS	34 mg/L	84 mg/L
Bromide	-	1.5 mg/L
Color	-	60 ACU
Fecal Coliform	-	> 500 #/100 ml
TKN	-	4.5 mg/L
Phosphorus (as P)	-	1.04 mg/L
Sulfate	-	24 mg/L
Aluminum	-	2.32 mg/L
Barium	-	0.0875 mg/L
Boron	-	0.093 mg/L
Cobalt	-	0.00152 mg/L
Iron	-	2.47 mg/L
Magnesium	-	6.79 mg/L

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Parameter	Average Concentration	Maximum Concentration
Molybdenum	-	0.00536 mg/L
Manganese	-	0.925 mg/L
Titanium	-	0.0659 mg/L
Antimony	-	0.000064 mg/L
Arsenic	-	0.0212 mg/L
Beryllium	-	0.0002 mg/L
Cadmium	-	0.00025 mg/L
Chromium	-	0.0109 mg/L
Copper	-	0.0141 mg/L
Lead	-	0.0101 mg/L
Nickel	-	0.0041 mg/L
Zinc	-	0.0657 mg/L
Thallium	-	0.00003 mg/L
Phenols	-	0.26 mg/L

Outfall 002

Parameter	Average Concentration	Maximum Concentration
TSS	67	235 mg/L
Aluminum	-	0.249 mg/L
Barium	-	0.0058 mg/L
Cobalt	-	0.00025 mg/L
Iron	-	0.895 mg/L
Magnesium	-	1.41 mg/L
Molybdenum	-	0.00031 mg/L
Titanium	-	0.0216 mg/L
Chromium	-	0.0013 mg/L
Copper	-	0.0018 mg/L
Lead	-	0.00121 mg/L
Nickel	-	0.0007 mg/L
Zinc	-	0.0029 mg/L

E. SEPA

There are no SEPA requirements for this action.

III. PROPOSED PERMIT CONDITIONS

Federal and State regulations require that effluent limits in an NPDES permit must be either technology- or water quality-based .

- Technology-based limits are based upon the treatment methods available to treat specific pollutants. Technology-based limits are set by the EPA and published as a regulation, or Ecology develops the limit on a case-by-case basis (40 CFR 125.3, and chapter 173-220 WAC).
- Water quality-based limits are calculated so that the effluent will comply 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).
- Ecology must apply the most stringent of these limits to each parameter of concern. These limits are described below.

The limits in this permit reflect information received in the application. Ecology evaluated the permit application and determined the limits needed to comply with the rules adopted by the State of Washington. Ecology does not develop effluent limits for all reported pollutants. 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. Nor does Ecology usually develop permit limits for pollutants that were not reported in the permit application but that may be present in the discharge. The permit does not authorize discharge of the non-reported pollutants. During the five-year permit term, the facility's effluent discharge conditions may change from those conditions reported in the permit application. The facility must notify Ecology, as described in 40 CFR 122.42(a), if significant changes occur in any constituent. Industries may be in violation of their permit until the permit is modified to reflect additional discharge of pollutants.

Design Criteria

Table 3: Design Criteria for Grays Harbor Paper, LP.

Parameter	Design Quantity
Monthly average flow (max. month)	30 MGD
BOD ₅ influent loading	170,000 lb./day
Production	500 tons/day pulp*

*The sulfite portion was closed in 1992 and the facility only makes fine paper from non-integrated purchased pulp.

According to WAC 173-220-150 (1)(g), neither flows nor waste loadings may exceed approved design criteria, however, Ecology does not have an engineering report that specifies the design

criteria for the wastewater treatment plant at this facility but obtained the design information from historical sources. Presently, the facility is extremely under loaded; and therefore, there is no need for an efficiency study.

Technology-Based Effluent Limits

Technology-based limitations are set by regulations or developed on a case by case basis. Ecology calculated the proposed permit's BOD and TSS limits for paper production made with non-integrated bleached Kraft pulp.

The Environmental Protection Agency (EPA) published the most current guidelines for the categories of pulp made at the mill site in the federal register on April 15, 1998. In 1998 EPA promulgated effluent guidelines for the bleached Kraft Papergrade and Soda subcategories and Papergrade Sulfite subcategory only. EPA promulgated the effluent guidelines for the type of pulp made at the mill on November 18, 1982 and then revised them on March 30, 1983. The federal effluent guidelines for best conventional pollutants control technology (BCT) for the categories of pulp made at the site were defined on December 17, 1986 to be the same as BPT previously defined in March 1983. BCT and BPT were defined more than ten years ago. With BCT and BPT being defined longer than ten years, it is Ecology policy to determine if they are still valid and if they can still be considered equivalent to all known and reasonable treatment (AKART) for these categories of paper making.

The 1998 allowances for BOD and TSS in pound per 1000 pound of pulp produced for the bleached Kraft Papergrade and Soda subcategories and Papergrade Sulfite subcategory were reprinted as the same value as the allowances in the effluent guidelines published in 1982. When promulgating the 1998 effluent guidelines, they took both emissions to air and water into consideration and chlorinated organic compounds. Secondary treatment was the required type of treatment. Other than the aforementioned promulgated subcategories above, all other subcategories were reprinted as they appeared in the 1982 guidelines. Therefore, the basis for all other subcategories are the ones promulgated in the 1982 effluent guidelines.

The 1982 effluent guidelines reprinted in 1998 by EPA are determined to be AKART for the following reasons.

- EPA made no changes in the new guidelines for the type of paper making promulgated on April 15, 1998
- Ecology expects that secondary treatment will remain the level of treatment that EPA will use to promulgate future effluent guidelines.
- All other permits issued by Ecology used the 1982/1998 effluent guidelines to determine AKART for conventional pollutants.

Ecology used the nonintegrated paper production and the 1982/1998 effluent guidelines to calculate the BOD and TSS limit in the proposed permit.

40 CFR Part 430.112 Subpart K
(Wood fiber furnish subdivision)

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Pollutant or pollutant property	BPT effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Pounds per 1,000 pound of product	
BOD ₅	8.2	4.25
TSS	11.0	5.9
pH	5.0 to 9.0	

Ecology calculated the BOD and TSS limits in the proposed permit with a production of 463 tons/day (926,000 lbs/day) and the above allowances. The limits are:

	Daily Maximum	Monthly Average
BOD(Lbs./day)	7600	3900
TSS(Lbs./day)	10200	5500

The permit was modified on May 3, 2006 to allow Grays Harbor Paper to accept, treat, and discharge Ocean Protein, LLC wastewater from its fish meal processing plant. The monthly average limit for BOD was increased by a total of 100 lbs/day and the daily maximum limit for BOD was increased by a total of 200 lbs/day to allow for Ocean Protein added discharge. The numbers will be included in the proposed permit limits for BOD. The proposed permit limits will be:

	Daily Maximum	Monthly Average
BOD(Lbs./day)	7800	4000
TSS(Lbs./day)	10200	5500

Surface Water Quality-Based Effluent Limits

The Washington State Surface Water Quality Standards (chapter 173-201A WAC) were designed to protect existing water quality and preserve the beneficial uses of Washington's surface waters. Waste discharge permits must include conditions that ensure the discharge will meet established surface water quality standards (WAC 173-201A-510). Water quality-based effluent limits may be based on an individual waste load allocation or on a waste load allocation developed during a basin wide total maximum daily loading study (TMDL).

Numerical Criteria for the Protection of Aquatic Life and Recreation

Numerical water quality criteria are published in the Water Quality Standards for Surface Waters (chapter 173-201A WAC). They specify the levels of pollutants allowed in receiving water to protect aquatic life and recreation in and on the water. Ecology uses numerical criteria 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 limits, the discharge must meet the water quality-based limits.

Numerical Criteria for the Protection of Human Health

The U.S. EPA has published 91 numeric water quality criteria for the protection of human health that are applicable to dischargers in Washington State (40 CFR 131.36). These criteria are designed to protect humans from exposure to pollutants linked to cancer and other diseases, based on consuming fish and shellfish and drinking contaminated surface waters. The Water Quality Standards also include radionuclide criteria to protect humans from the effects of radioactive substances.

Narrative Criteria

Narrative water quality criteria (e.g., WAC 173-201A-240(1); 2006) limit the toxic, radioactive, or other deleterious material concentrations that the facility may discharge to levels below those which have the potential to:

- Adversely affect designated water uses.
- Cause acute or chronic toxicity to biota.
- Impair aesthetic values.
- Adversely affect human health.

Narrative criteria protect the specific designated uses of all fresh waters (WAC 173-201A-200; 2006) and of all marine waters (WAC 173-201A-210; 2006) in the State of Washington.

Antidegradation

The purpose of Washington's Antidegradation Policy (WAC 173-201A-300-330; 2006) is to:

- Restore and maintain the highest possible quality of the surface waters of Washington.
- Describe situations under which water quality may be lowered from its current condition.
- Apply to human activities that are likely to have an impact on the water quality of surface water.
- Ensure that all human activities likely to contribute to a lowering of water quality, at a minimum, apply all known, available, and reasonable methods of prevention, control, and treatment (AKART).
- Apply three Tiers of protection (described below) for surface waters of the state.

Tier I ensures existing and designated uses are maintained and protected and applies to all waters and all sources of pollutions. Tier II ensures that waters of a higher quality than the criteria assigned are not degraded unless such lowering of water quality is necessary and in the overriding public interest. Tier II applies only to a specific list of polluting activities. Tier III prevents the degradation of waters formally listed as "outstanding resource waters," and applies to all sources of pollution.

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

- The facility is planning a new or expanded action.
- Ecology regulates or authorizes the action.
- The action has the potential to cause measurable degradation to existing water quality at the edge of a chronic mixing zone.

This facility must meet Tier I requirements. Tiers II and III do not apply to this facility

Existing and designated uses must be maintained and protected. No degradation may be allowed that would interfere with, or become injurious to, existing or designated uses, except as provided for in this chapter.

Mixing Zones

A mixing zone is defined for an area in the receiving water surrounding the discharge port(s), where wastewater mixes with receiving water. Within these mixing zones the pollutant concentrations may exceed water quality numeric criteria, so long as the diluting wastewater doesn't interfere with designated uses of the receiving water body (e.g., recreation, water supply, and aquatic life and wildlife habitat, etc.) The pollutant concentrations outside of the mixing zones must meet water quality numeric criteria.

State and federal rules allow mixing zones because the concentrations and effects of most pollutants diminish rapidly after discharge, due to dilution. Ecology defines mixing zone sizes to limit the amount of time any exposure to the end-of-pipe discharge could harm water quality, plants, or fish.

The state's water quality standards allow Ecology to authorize mixing zones for the facility's permitted wastewater discharges only if those discharges already receive all known, available, and reasonable methods of prevention, control and treatment (AKART). Mixing zones typically require compliance with water quality criteria within 200 to 300 feet from the point of discharge; and use no more than 25% of the available width of the water body for dilution. We use modeling to estimate the amount of mixing within the mixing zone. Through modeling we determine the potential for violating the water quality standards at the edge of the mixing zone and derive any necessary effluent limits. Steady-state models are the most frequently used tools for conducting mixing zone analyses. Ecology chooses values for each effluent and for receiving water variables that correspond to the time period when the most critical condition is likely to occur (see Ecology's Permit Writer's Manual). Each critical condition parameter (by itself) has a low probability of occurrence and the resulting dilution factor is conservative. The term "reasonable worst-case" applies to these values.

The mixing zone analysis produces a numerical value called a dilution factor (DF). A dilution factor represents the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. For example, a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water comprises 90% of the total volume at the boundary of the mixing zone. We use dilution factors with the water quality criteria to calculate reasonable potentials and effluent limits. Water quality standards include both aquatic life-based criteria

and human health-based criteria. The former are applied at both the acute and chronic mixing zone boundaries; the latter are applied only at the chronic boundary. The concentration of pollutants at the boundaries of any of these mixing zones may not exceed the numerical criteria for that zone.

Each aquatic life **acute** criterion is based on the assumption that organisms are not exposed to that concentration for more than one-hour and more often than one exposure in three years. Each aquatic life **chronic** criterion is based on the assumption that organisms are not exposed to that concentration for more than four consecutive days and more often than once in three years.

The two types of human health-based water quality criteria distinguish between those pollutants linked to non-cancer effects (non-carcinogenic) and those linked to cancer effects (carcinogenic). The human health-based water quality criteria incorporate several exposure and risk assumptions. These assumptions include:

- A 70-year lifetime of daily exposures.
- An ingestion rate for fish or shellfish measured in kg/day.
- An ingestion rate of two liters/day for drinking water
- A one-in-one-million cancer risk for carcinogenic chemicals.

This permit authorizes a small acute mixing zone, surrounded by a chronic mixing zone around the point of discharge (WAC 173-201A-400; 2006). The water quality standards impose certain conditions before allowing the discharger a mixing zone:

1. Ecology must specify both the allowed size and location in a permit.

The proposed permit specifies the size and location of the allowed mixing zone.

2. The facility must fully apply “all known available and reasonable methods of prevention, control and treatment” (AKART) to its discharge.

Ecology has determined that the treatment provided and the pollution prevention activities practiced at Grays Harbor Paper, LP meets the requirements of AKART (see “Technology based Limits”).

3. Ecology must consider critical discharge conditions.

Surface water quality-based limits are derived for the water body’s critical condition, (the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or designated water body uses). The critical discharge condition is often pollutant-specific or water body-specific.

Critical discharge conditions are those conditions that result in reduced dilution or increased effect of the pollutant. Factors affecting dilution include the depth of water, the density stratification in the water column, the currents and the rate of discharge. Density stratification is determined by the salinity and temperature of the receiving water. Temperatures are warmer in the surface waters in summer. Therefore, density stratification is generally greatest during the summer months. Density stratification affects how far up in the water column a freshwater

plume may rise. The rate of mixing is greatest when an effluent is rising. The effluent stops rising when the mixed effluent is the same density as the surrounding water. After the effluent stops rising, the rate of mixing is much more gradual. Water depth can affect dilution when a plume might rise to the surface when there is little or no stratification. Ecology uses the water depth at mean lower low water (MLLW) for marine waters. Ecology's Permit Writer's Manual describes additional guidance on criteria/design conditions for determining dilution factors. The Manual can be obtained from Ecology's website at: <http://www.ecy.wa.gov/biblio/92109.html>.

Ecology used the following critical conditions to model the discharge:

- Water depth at MLLW of 25 feet.
- The salinity of the receiving water was 20.3 ppt.
- 50th percentile current speeds of 0.77 ft/sec for chronic and human health mixing zones.
- 10th or 90th percentile current speeds of 0.21 ft/sec for acute mixing zone.
- Maximum average monthly effluent flow of 7.86 MGD for chronic and human health non-carcinogen.
- Maximum daily flow of 8.97 million gallons per day (MGD) for acute mixing zone.
- 1 DAD MAX Effluent temperature of 29.4 degrees C.

Ambient data at critical conditions in the vicinity of the outfall was taken from Grays Harbor, L.P., Dilution Ratio Study Work Plan, November 1995.

4. Supporting information must clearly indicate the mixing zone would not:

- **Have a reasonable potential to cause the loss of sensitive or important habitat,**
- **Substantially interfere with the existing or characteristic uses,**
- **Result in damage to the ecosystem, or**
- **Adversely affect public health.**

Ecology established Washington State water quality criteria for toxic chemicals using EPA criteria. EPA developed the criteria using toxicity tests with numerous organisms, and set the criteria to protect all aquatic species.

EPA sets acute criteria for toxic chemicals assuming organisms are exposed to the pollutant at the criteria concentration for 1-hour. They set chronic criteria assuming organisms are exposed to the pollutant at the criteria concentration for 4 days. Dilution modeling under critical conditions generally shows that both acute and chronic criteria concentrations are reached within minutes of being discharged.

The discharge plume does not impact drifting and non-strong swimming organisms because they cannot stay in the plume close to the outfall long enough to be affected. Strong swimming fish could maintain a position within the plume, but they can also avoid the discharge by swimming away. Mixing zones generally do not affect benthic organisms (bottom dwellers) because the buoyant plume rises in the water column. Ecology has additionally determined that this effluent will not exceed 33 degrees C for more than 2 seconds after discharge; and that the temperature of the water will not create lethal conditions or blockages to fish migration.

Ecology evaluates the cumulative toxicity of an effluent by testing the discharge with whole effluent toxicity (WET) testing.

Ecology reviewed the above information, the specific information on the characteristics of the discharge, the receiving water characteristics and the discharge location. Based on this review we conclude that the discharge does not have a reasonable potential to cause the loss of sensitive or important habitat, substantially interfere with existing or characteristics uses, result in damage to the ecosystem or adversely affect public health

5. The discharge/receiving water mixture must not exceed water quality criteria outside the boundary of a mixing zone.

Ecology conducted a reasonable potential analysis, using procedures established by the EPA and by Ecology, for each pollutant. We concluded the discharge/receiving water mixture will not violate water quality criteria outside the boundary of the mixing zone.

6. The size of the mixing zone and the concentrations of the pollutants must be minimized.

At any given time, the effluent plume uses only a portion of the acute and chronic mixing zone, which minimizes the volume of water involved in mixing. Because tidal currents change direction, the plume orientation within the mixing zone changes. The plume rises through the water column as it mixes therefore much of the receiving water volume at lower depths in the mixing zone is not mixed with discharge. Similarly, because the discharge may stop rising at some depth due to density stratification, waters above that depth will not mix with the discharge. Ecology determined it is impractical to specify in the permit the actual, much more limited volume in which the dilution occurs as the plume rises and moves with the current.

Ecology minimizes the size of mixing zones by requiring dischargers to install diffusers when they are appropriate to the discharge and the specific receiving waterbody. When a diffuser is installed the discharge and the receiving water is more completely mixed in a shorter time period. Ecology also minimizes the size of the mixing zone (in the form of the dilution factor) using design criteria with a low probability of occurrence. For example, Ecology uses the expected 95th percentile pollutant concentration, the 90th percentile background concentration, the centerline dilution factor and the lowest flow occurring once in every 10 years to perform the reasonable potential analysis.

The facility continues to conduct pollution prevention activities and has completed pollution prevention projects. These activities also minimize the concentrations of pollutants in the discharge.

Because of the above reasons, Ecology has effectively minimized the size of the mixing zone authorized in the proposed permit.

7. Maximum size of mixing zone.

The authorized mixing zone does not exceed the maximum size restriction.

8. Acute Mixing Zone -

- **The discharge/receiving water mixture must comply with acute criteria as near to the point of discharge as practicably attainable.** Ecology determined the acute criteria will be met at 10% of the distance of the chronic mixing zone at the ten year low flow.
- **The pollutant concentration, duration and frequency of exposure to the discharge, will not create a barrier to migration or translocation of indigenous organisms to a degree that has the potential to cause damage to the ecosystem.**
As described above the toxicity of any pollutant depends upon the exposure, the pollutant concentration and the time the organism is exposed to that concentration. Authorizing a limited acute mixing zone for this discharge assures that it will not create a barrier to migration. The effluent from this discharge will rise as it enters the receiving water, assuring that the rising effluent will not cause translocation of indigenous organism near the point of discharge (below the rising effluent).
- **Comply with size restrictions.**
The mixing zone authorized for this discharge complies with the size restrictions published in chapter 173-201A WAC.

9. Overlap of Mixing Zones.

This mixing zone does not overlap another mixing zone

Description of the Receiving Water

The facility discharges via outfall 001 to Grays Harbor and via outfall 002 to the Hoquiam River. Other nearby point sources includes the cities of Hoquiam and Aberdeen and the Weyerhaeuser’s pulp mill.

Table 4 **Ambient Background Data - Marine water parameters**

Parameter	Value used
Temperature (highest annual 1-DADMax)	19.4 °C
Temperature (highest annual 7-DADMax)	17.92 °C
pH Maximum / Minimum	8.27/6.96 (SU)
Dissolved Oxygen (Minimum 8/2000)	6.2 mg/L
Salinity (2000)	7.62 – 30.29 psu
Turbidity	28.8 NTU

Designated Uses and Surface Water Quality Criteria

Aquatic life uses are designated using the following general categories for the Inner Grays Harbor receiving waters. All indigenous fish and nonfish aquatic species must be protected in waters of the state. The receiving water is classified as **Good quality** with salmonid migration

and rearing; other fish migration, rearing, and spawning; clam, oyster, and mussel rearing and spawning; crustaceans and other shellfish (crabs, shrimp, crayfish, scallops, etc.) rearing and spawning.

The Aquatic Life Uses for this receiving water are identified below.

Table 5 Aquatic Life Uses & Associated Criteria

Good quality	
Temperature Criteria – Highest 1D MAX	19°C (66.2°F)
Dissolved Oxygen Criteria – Lowest 1 Day Minimum	5.0 mg/L
Turbidity Criteria	<ul style="list-style-type: none"> • 10 NTU over background when the background is 50 NTU or less; or • A 20 percent increase in turbidity when the background turbidity is more than 50 NTU.
pH Criteria	pH must be within the range of 7.0 to 8.5 with a human-caused variation within the above range of less than 0.5 units.

- To protect **shellfish harvesting**, fecal coliform organism levels must not exceed a geometric mean value of 14 colonies/100 mL, and not have more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 43 colonies/100 mL.
- The **recreational uses** are primary contact recreation and secondary contact recreation.

The recreational uses for this receiving water are identified below.

Table 6 Recreational Uses

Recreational use	Criteria
Primary Contact Recreation	Fecal coliform organism levels must not exceed a geometric mean value of 14 colonies/100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 43 colonies /100 mL.
Secondary Contact Recreation	Enterococci organism levels must not exceed a geometric mean value of 70 colonies/100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 208 colonies/100 mL.

- The **miscellaneous marine water uses** are wildlife habitat, harvesting, commerce and navigation, boating, and aesthetics.

Outfall 002

The proposed permit provides limit for TSS that are the same as the current limits.

Outfall 001

Total Maximum Daily Load

Ecology listed Grays Harbor for fecal coliform in the 1998 303(d) listing of impaired water bodies. Ecology completed a TMDL with waste load allocations (WLA) in June 2000 (Publication No. 00-03-020). Grays Harbor Paper's WLA for fecal coliform was set at their current permit limit of a monthly geometric mean equal to 9,600 count/100 ml with no more than 10 percent being greater than 19,200 count/100 ml. The 2002-2004 303(d) list did not list Grays Harbor as being impaired for any other pollutant.

Grays Harbor Paper and Weyerhaeuser performed river surveys for temperature, pH, dissolved oxygen, and other parameters from the early 1980's to the mid 1990's. Each of the two companies sampled every other week for these parameters. As part of Grays Harbor Paper NPDES permit renewal application, the company provided this data to Ecology for the years from 1993 to 1997. Weyerhaeuser provided data for these parameters from 1989 to 2000. The minimum dissolved oxygen the pulp mills measured at the Port Dock from 1993 to 1997 was 6.2 mg/L which is above the standard of 5.0 mg/L for good quality marine water.

The data submitted by the two companies indicate no apparent water quality standards exceedances within the receiving water. Please see individual analyses of the parameters performed later in this fact sheet, i.e., temperature, pH, BOD, turbidity, and toxics pollutants.

Evaluation of Surface Water Quality -Based Effluent Limits for Numeric Criteria

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

Some pollutant concentrations in the proposed discharge exceed water quality criteria despite using technology-based controls which Ecology determined fulfills AKART. Ecology therefore authorizes a mixing zone in accordance with the geometric configuration, flow restriction, and other restrictions imposed on mixing zones described in chapter 173-201A WAC.

Outfall 001

The Permittee's treated process wastewater discharges through outfall 001 to Grays Harbor through a single 26 inch diameter horizontal discharge port at a water depth of 25 feet below MLLW.

Outfall 002

Outfall 002 discharges to the mouth of the Hoquiam River through a 26" single port diffuser. The only pollutants of concern include TSS and pH.

Chronic Mixing Zone - Outfall 001

WAC 173-201A-400(7)(b) specifies that mixing zones must not extend in any horizontal direction from the discharge ports for a distance greater than 200 feet plus the depth of water over the discharge ports as measured during MLLW.

The horizontal distance of the chronic mixing zone is 225 feet. The mixing zone extends from the seabed to the top of the water surface.

The diameters of the acute and chronic mixing zones are 22.5 feet and 225 feet, respectively. The dilution factors of effluent to receiving water that occur within these zones have been determined at the critical condition by the use of Plumes program with Cormix1. The acute and chronic dilution ratios have been determined to be 10:1 and 96:1, respectively.

Acute Mixing Zone - Outfall 001

WAC 173-201A-400(8)(b) specifies that in estuarine waters a zone where acute criteria may be exceeded must not extend beyond 10% of the distance established for the chronic zone. The acute mixing zone for Outfall 001 extends 22.5 feet in any spatial direction from any discharge port.

Table 7 Dilution Factors (DF)

ACUTE AND CHRONIC DILUTION FACTORS FOR OUTFALL 001

Criteria	Acute	Chronic
Aquatic Life	10	96
Human Health, Carcinogen		96
Human Health, Non-carcinogen		96

Ecology determined the impacts of immediate oxygen deficiency, temperature, pH, fecal coliform, chlorine, ammonia, metals, nutrients and other toxics as described below, using the dilution factors in the above table. The derivation of surface water quality-based limits also takes into account the variability of pollutant concentrations in both the effluent and the receiving water.

pH—Compliance with the technology-based limits of 6.0 to 9.0 will assure compliance with the water quality standards of surface waters because of the high buffering capacity of marine water.

BOD₅--We predicted no violation of the surface water quality standards for biochemical oxygen demand (BOD) under critical conditions. The dissolved oxygen data collected by the pulp mills demonstrate that the area in the vicinity of the discharge meets the water quality criteria. This indicates that the pulp mill BOD loading has not depressed dissolved oxygen values near the outfall. Therefore, Ecology placed the technology-based effluent limitation for BOD₅ in the permit.

Temperature--The state temperature standards include multiple criteria, each with different durations of exposure and points of application. Ecology evaluates each criterion independently to determine reasonable potential and permit limits.

- Temperature Chronic Effects

a) Annual summer maximum

The annual maximum temperature criteria (19°C) protect specific categories of aquatic life by controlling the effect of human actions on summer temperatures.

Since Grays Harbor is salt water, there is no spawning or incubation of salmonid in the vicinity of the discharge of Grays Harbor Paper Outfalls. However, salmon smolt uses Grays Harbor to go to the ocean.

Marine water criteria are expressed as the highest one-day annual maximum temperature (1-DMax).

Ecology calculated the reasonable potential for the discharge to exceed the annual summer maximum (and the supplementary spawning criteria) at the edge of the chronic mixing zone (T_{chronic}) during critical condition(s):

$$T_{\text{chronic}} = T_{\text{ambient90}} + (T_{\text{effluent95}} - T_{\text{ambient90}})/DF.$$

$$T_{\text{chronic}} = 17.03 \text{ }^{\circ}\text{C}$$

Since T_{chronic} is less than 19 °C, the discharge meets water quality standards and an effluent limit is not needed.

b) Incremental warming criteria

The water quality standards limit the amount of warming human sources can cause at any time water temperatures are cooler than the assigned threshold criteria. This criterion is designed to provide protection for the overall temperature regime.

The discharge is only allowed to warm the water by a defined increment (t) when the background (ambient) temperature is cooler than the assigned threshold criterion. The calculated incremental temperature allowance is added to the ambient temperature and the sum is compared to the temperature at the edge of the chronic mixing zone boundary (T_{chronic}). Ecology only allows warming increments as long as they do not cause temperatures to exceed either the annual maximum or supplemental spawning criteria. Criteria may be applied as a change in the receiving water's 7-DADMax temperature.

Ecology calculated the incremental temperature allowance below.

$$t = 12 / (T_{\text{ambient}} - 2)$$
$$T_{\text{ambient}90} + t = 17.73$$

$$T_{\text{chronic}} = T_{\text{ambient}} + (T_{\text{effluent}95} - T_{\text{ambient}}) / DF$$

$$T_{\text{chronic}} = 17.04 \text{ } ^\circ\text{C}$$

Where:

T_{ambient} = the background water temperature colder than the threshold criterion.

$T_{\text{effluent}95}$ = 95th percentile 7DADMax (or 1-Dmax) effluent temperature.

t = the allowable increment of warming to ambient waters.

DF = the chronic dilution factor at the critical condition.

Since T_{chronic} (17.04 °C) is less than $(T_{\text{ambient}} + t) = 17.73^\circ\text{C}$, the discharge meets water quality standards and effluent limits are not needed.

- Temperature Acute Effects

a) Instantaneous lethality to passing fish.

The upper 99th percentile daily maximum effluent temperature must not exceed 33°C; unless a dilution analysis indicates ambient temperatures will not exceed 33°C 2-seconds after discharge. The upper 99th percentile daily maximum effluent temperature prior to discharge is less than 33°C. Therefore there is no instantaneous lethality for passing fish.

b) General lethality and migration blockage.

Measurable (0.3°C) increases in temperature at the edge of a chronic mixing zone are not allowed when the receiving water temperature exceeds either a 1DMax of 23°C or a 7DADMax of 22°C. The receiving water conditions are listed in Table 4 of the fact sheet. The listed temperature values meet these criteria.

Turbidity—The turbidity of the secondary effluent was measured to be 17.4 NTU which was less than the turbidity of the receiving water. Ecology evaluated the impact of turbidity based on the range of turbidity in the effluent and turbidity of the receiving water. Due to the large degree of dilution, Ecology expects no violations of the turbidity criteria outside the designated mixing zone.

Toxic Pollutants--Federal regulations (40 CFR 122.44) require Ecology to place limits in NPDES permits on toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. Ecology does not exempt facilities with technology-based effluent limits from meeting the surface water quality standards.

The following toxic pollutants are present in the discharge: manganese, antimony, nickel, thallium, arsenic, cadmium, chromium, copper, lead, iron, and aluminum. All of these detected chemical are below the criteria in the final effluent in Outfalls 001 and 002 except copper for outfall 001. Ecology performed a reasonable potential analysis for the amount of copper in the Outfall 001 effluent using data obtained from previous permits including the concentration of

copper in the receiving waters. Calculations using all applicable copper data show no reasonable potential for this discharge to cause a violation of water quality standards.

Whole Effluent Toxicity

The water quality standards for surface waters forbid discharge of effluent that causes toxic effects in the receiving waters. Many toxic pollutants cannot be measured by commonly available detection methods. However, laboratory tests can measure toxicity directly by exposing living organisms to the wastewater and measuring their responses. These tests measure the aggregate toxicity of the whole effluent, so this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

WET testing conducted during effluent characterization showed no reasonable potential for effluent discharges to cause receiving water chronic toxicity. The proposed permit will not impose acute or chronic WET limit. Grays Harbor Paper, LP must retest the effluent before submitting an application for permit renewal. In addition,

- If this facility makes process or material changes which, in Ecology's opinion, increase the potential for effluent toxicity, then Ecology may (in a regulatory order, by permit modification, or in the permit renewal) require the facility to conduct additional effluent characterization

If WET testing conducted for submittal with a permit application fails to meet the performance standards in WAC 173-205-020, Ecology will assume that effluent toxicity has increased. Grays Harbor Paper, LP may demonstrate to Ecology that effluent toxicity has not increased by performing additional WET testing after the process or material changes have been made.

H. Human Health

Washington's water quality standards include 91 numeric human health-based criteria that Ecology must consider when writing NPDES permits. These criteria were established in 1992 by the U.S. EPA in its National Toxics Rule (40 CFR 131.36). The National Toxics Rule allows states to use mixing zones to evaluate whether discharges comply with human health criteria.

Ecology determined the applicant's effluent does not contain chemicals of concern based on existing data or knowledge. The discharge will be re-evaluated for impacts to human health at the next permit reissuance.

Ecology conducted a determination of the discharge's potential (Outfall 002) to violate the water quality standards as required by 40 CFR 122.44(d). We followed the procedures published in the Technical Support Document for Water Quality-Based Toxics Control (EPA/505/2-90-001) and Ecology's Permit Writer's Manual (Ecology Publication 92-109, July, 2006) to make this reasonable potential determination. Outfall 002 discharges within 300 feet of the Grays Harbor shoreline; and Ecology considers the Hoquiam River to be brackish water at the point of discharge the majority of the time due to the tidal influence. The only pollutant of concern in this discharge is iron which has a Human Health based criteria for fresh water. Since the

brackish Hoquiam River water at the point of discharge will not be used as a drinking water source the health criteria for iron does not apply, thus an effluent limit is not warranted.

I. Sediment Quality

The aquatic sediment standards (chapter 173-204 WAC) protect aquatic biota and human health. Under these standards Ecology may require a facility to evaluate the potential for its discharge to cause a violation of sediment standards (WAC 173-204-400).

When the permit was transferred from Rayonier, Inc. to Grays Harbor Paper, L.P, a condition of the transfer required Rayonier, Inc. to perform a sediment study. Rayonier, Inc. performed the sediment study in 1994 in the vicinity of Grays Harbor Paper outfall 001. Ecology performed a sediment study in 1999 and U S Army Corps of Engineers – Seattle District performed sediment monitoring of the receiving water in the vicinity of the Grays Harbor Outfall in 2007. A based on these sediment study near the outfall, the propose permit will not require the Permittee to perform a sediment study in the proposed permit.

J. Ground Water Quality Limits

The Ground Water Quality Standards, (chapter 173-200 WAC), protect beneficial uses of ground water. Permits issued by Ecology must not allow violations of those standards (WAC 173-200-100).

Grays Harbor Paper, LP does not discharge wastewater to ground and therefore we imposed no permit limits to protect ground water.

K. Comparison of effluent limits with the limits in the previous permit issued on April 16, 2003 and modified on April 16, 2006.

Table 8 Comparison of Effluent Limits

Parameter	Basis of Limit	Previous Effluent Limits: Outfall # 001		Proposed Effluent Limits: Outfall # 001	
		Average Monthly	Maximum Daily	Average Monthly	Maximum Daily
EFFLUENT LIMITATIONS: OUTFALL # 001					
Biochemical Oxygen Demand (5-day)	Technology	4,000 lbs/day	7,800 lbs/day	4,000 lbs/day	7,800 lbs/day
Total Suspended Solids	Technology	5,500 lbs/day	10,200 lbs/day	5,500 lbs/day	10,200 lbs/day
Fecal Coliform Bacteria ^a	Water Quality	9,000 #/100 ml	19,200 #/100 ml	9,000 #/100 ml	19,200 #/100 ml
pH ^b	Technology	Daily minimum is equal to or greater than 5 and the daily maximum is less than or equal to 9.		Daily minimum is equal to or greater than 5 and the daily maximum is less than or equal to 9.	
Parameter	Basis of Limit	Previous Effluent Limits: Outfall # 001		Proposed Effluent Limits: Outfall # 001	
		Average Monthly	Maximum Daily	Average Monthly	Maximum Daily
EFFLUENT LIMITATIONS: OUTFALL # 002					

Parameter	Basis of Limit	Previous Effluent Limits: Outfall # 001		Proposed Effluent Limits: Outfall # 001	
		Average Monthly	Maximum Daily	Average Monthly	Maximum Daily
Total Suspended Solids	-	1,500 lbs/day	3,000 lbs/day	1,500 lbs/day	3,000 lbs/day
pH ^b	Technology	Daily minimum is equal to or greater than 5 and the daily maximum is less than or equal to 9.		Daily minimum is equal to or greater than 5 and the daily maximum is less than or equal to 9.	

^a With no more than 10 percent exceeding 19,200 #/100 mL

^b Indicates the range of permitted values. When pH is continuously monitored, excursions between 4.0 and 5.0, or 9.0 and 10.0 shall not be considered violations provided no single excursion exceeds 60 minutes in length and total excursions do not exceed 7 hours and 26 minutes per month. Any excursions below 4.0 and above 10.0 are violations. The instantaneous maximum and minimum pH shall be reported monthly.

IV. MONITORING REQUIREMENTS

Ecology requires monitoring, recording, and reporting (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and that the discharge complies with the permit's effluent limits.

A. Lab Accreditation

Ecology requires that all monitoring data (with the exception of certain parameters) must be prepared by a laboratory registered or accredited under the provisions of chapter 173-50 WAC, *Accreditation of Environmental Laboratories*. Ecology accredited the laboratory at this facility for TSS, BOD, fecal coliform, and pH

V. OTHER PERMIT CONDITIONS

A. Reporting and Recordkeeping

Ecology based permit condition S3 on our authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-220-210).

B. Non Routine and Unanticipated Discharges

Occasionally, this facility may generate wastewater which was not characterized in the permit application because it is not a routine discharge and was not anticipated at the time of application. These wastes typically consist of waters used to pressure-test storage tanks or fire water systems or of leaks from drinking water systems. These generally clean waste waters may be contaminated with pollutants.

The permit authorizes non-routine and unanticipated discharges under certain conditions. The facility must characterize these waste waters for pollutants and examine the opportunities for reuse. Depending on the nature and extent of pollutants in this wastewater and on any opportunities for reuse, Ecology may:

- authorize the facility to discharge the water directly via the process wastewater outfall or through a stormwater outfall for clean water.
- require the facility to treat the wastewater.
- require the facility to reuse the wastewater.

C. Spill Plan

This facility stores a quantity of chemicals on-site that have the potential to cause water pollution if accidentally released. Ecology can require a facility to develop best management plans to prevent this accidental release [section 402(a)(1) of the Federal Water Pollution Control Act (FWPCA) and RCW 90.48.080].

Grays Harbor Paper, LP 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 facility to update this plan and submit it to Ecology.

D. Solid Waste Plan

Grays Harbor Paper, LP could cause pollution of the waters of the state through inappropriate disposal of solid waste or through the release of leachate from solid waste.

This proposed permit requires this facility to update the approved solid waste plan designed to prevent solid waste from causing pollution of waters of the state. The updated plan must be submitted to Ecology for approval (RCW 90.48.080).

G. Treatment System Operating Plan

Ecology requires industries to take all reasonable steps to properly operate and maintain their wastewater treatment system in accordance with state and federal regulations (40 CFR 122.41(e) and WAC 173-220-150 (1)(g)). The facility is required to submit an undated Treatment System Operating Plan as required by state regulation for the construction of wastewater treatment facilities (WAC 173-240-150). Implementation of the procedures in the Treatment System Operating Plan ensures the facility's compliance with the terms and limits in the permit.

H. General Conditions

Ecology bases the standardized General Conditions on state and federal law and regulations. They are included in all individual industrial NPDES permits issued by Ecology.

VI. PERMIT ISSUANCE PROCEDURES

A. Permit Modifications

Ecology may modify this permit to impose numerical limits, if necessary to comply with water quality standards for surface waters, with sediment quality standards, or with water quality standards for ground waters, after obtaining new information from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

Ecology may also modify this permit to comply with new or amended state or federal regulations.

B. Proposed Permit Issuance

This proposed permit includes all statutory requirements for Ecology to authorize a wastewater discharge. The permit includes limits and conditions to protect human health and aquatic life, and the beneficial uses of waters of the State of Washington. Ecology proposes to issue this permit for a term of 5 years.

VII. REFERENCES FOR TEXT AND APPENDICES

Environmental Protection Agency (EPA)

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

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

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

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

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

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

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

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

Ecology proposes to reissue a permit to Grays Harbor Paper, LP. The permit prescribes operating conditions and wastewater discharge limits. This fact sheet describes the facility and Ecology's reasons for requiring permit conditions.

Ecology will place a Public Notice on February 6, 2008 in The Daily World to inform the public and to invite comment on the proposed reissuance of this National Pollutant Discharge Elimination System permit as drafted.

The Notice –

- tells where copies of the draft Permit and Fact Sheet are available for public evaluation (a local public library, the closest Regional or Field Office, posted on our website.).
- offers to provide the documents in an alternate format to accommodate special needs.
- asks people to tell us how well the proposed permit would protect the receiving water.
- invites people to suggest fairer conditions, limits, and requirements for the permit.
- invites comments on Ecology's determination of compliance with antidegradation rules.
- urges people to submit their comments, in writing, before the end of the Comment Period
- tells how to request a public hearing of comments about the proposed NPDES Permit.
- explains the next step(s) in the permitting process.

Ecology has published a document entitled **Frequently Asked Questions about Effective Public Commenting** which is available on our website at <http://www.ecy.wa.gov/biblio/0307023.html>.

You may obtain further information from Ecology by telephone, 360-407-6940, or by writing to the permit writer at the address listed below.

Don Nelson
Department of Ecology
Solid Waste and Financial Assistance
PO Box 47600
Olympia, WA 98504-7600.

The primary author of this permit and fact sheet is Don Nelson.

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 prevention, control and treatment”.

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

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

Average Monthly Discharge Limitation --The 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 receiving waters 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 (DF)--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 must contain the appropriate information required in WAC 173-240-060 or 173-240-130.

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

Grab Sample--A single sample or measurement taken at a specific time or over as short a 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 pollutant concentration is above zero and is determined from analysis of a sample in a given matrix containing the pollutant.

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 receiving waters 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 limits 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 waters.

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 Ecology's homepage at <http://www.ecy.wa.gov>.

APPENDIX D--RESPONSE TO COMMENTS

We received one comment that the Department of Health's Shellfish number was (360) 236-3330 weekdays and (360) 786-4183 after hours. We changed the permit to reflect this information.