

DEPARTMENT OF ECOLOGY

IN THE MATTER OF THE COMPLIANCE BY)
Weyerhaeuser Paper Company)
with Chapter 90.48 RCW and the)
rules and regulations of the)
Department of Ecology)
_____)

ORDER
No. DE 91-1052

TO: Weyerhaeuser Paper Company
P.O. Box 188
Longview, WA 98632

Weyerhaeuser Paper Company (Permittee) holds an NPDES permit issued by the Department of Ecology which authorizes discharges of treated wastewater to waters of the State of Washington. Waters of the State, according to RCW 90.48.02, include surface waters.

This Order is issued as part of a settlement of a dispute concerning the Department of Ecology's program for monitoring the Permittee's discharge. In order to resolve that dispute, without resort to contested case proceedings or any finding of fact or conclusion of law, Ecology issues this Order and Permittee agrees to accept this Order and abide by its terms.

In view of the foregoing and in accordance with RCW 90.48.120(2):

IT IS ORDERED THAT Weyerhaeuser Paper Company shall, upon receipt of this Order, take appropriate action in accordance with the following instructions:

Samples and measurements taken to meet the requirements of this Order shall be representative of the volume and nature of the discharge. Samples and measurements taken to meet the acute and chronic biomonitoring requirements of this Order shall be composite samples unless Ecology, or the permittee with Ecology's approval, determines that grab samples will more accurately measure toxicity in the effluent. The records retention requirement in the Permit under Monitoring and Reporting shall apply to work done under this Order. This Order shall expire on the expiration date of NPDES Permit No. WA 000012-4, or on the date the tasks required by this Order are all completed, whichever is later.

A. Acute Biomonitoring Study (Effluent)

Acute toxicity testing of final effluent shall be conducted every two months for one year in accord with protocols, monitoring requirements and quality assurance/quality control (QA/QC) procedures specified in the attached section on protocols.

Testing shall be conducted using three (or two as provided below) organisms: A salmonid indigenous to the Northwest, the fathead minnow and Daphnia M. or Daphnia R. Ecology agrees to accept acute toxicity testing of only one of the two fish if Ecology reasonably determines that available effluent toxicity data, or published sources, indicate that either the

salmonid or the fathead minnow is more sensitive to the Permittee's effluents. If Ecology so determines, the Permittee may conduct acute toxicity testing using only the more sensitive of the two fish and Daphnia M. or Daphnia P.

The testing shall begin within 90 days after the effective date of NPDES Permit No. WA 00012-4. A written report of the toxicity test results shall be submitted to the Department within 60 days after each initial sampling interval.

The Department will review the results from the first year of acute biomonitoring to determine which one of the test species will be used in future testing. For the remainder of the term of NPDES Permit No. WA 00012-4, testing shall be conducted quarterly using the single species chosen by Ecology.

B. Chronic Biomonitoring Study (Effluent)

Chronic toxicity testing of effluent shall be conducted quarterly for one year in accordance with protocols, monitoring requirement and QA/QC procedures specified in the attached section on protocols. The testing shall be conducted as specified below.

Effluent sampling for the chronic biomonitoring study shall be timed to coincide with the acute biomonitoring study to ensure that samples are collected simultaneously.

Testing shall be conducted using two organisms: (1) Ceriodaphnia dubia, (2) the fathead minnow. The testing shall begin within nine months of the effective date of NPDES Permit No. WA 00012-4. A written report of the toxicity test results shall be submitted to the Department within 60 days after each sampling interval.

C. Sediment Monitoring

The Permittee shall prepare a sediment baseline study plan. The Permittee may present data in the plan to the effect that data collected within the preceding five years satisfies the purpose of the sediment monitoring requirements. The Permittee may present data to prove there is not likely to be any chemical accumulation in sediment near the Permittee's outfall or that its sediments are minor compared to other sources of sediment near the Permittee's outfall, and in that way the Permittee may justify a reduced sampling program. The plan shall describe proposed sampling locations, the potential for chemical accumulation in sediments associated with the discharge and other relevant site specific information. This study plan shall be submitted within nine months of the effective date of NPDES Permit No. WA 00012-4.

Following Department approval of the plan, sampling shall be completed, as provided in the plan, as soon thereafter as reasonably possible but no

later than 12 months after Ecology's approval of the plan. (This requirement may be waived if the Department approves a presentation that existing data satisfies the purposes of the sediment monitoring requirements, and that, therefore, no further sediment studies are required.) A written report of the results of any study undertaken shall be submitted to the Department within 120 days of the initial sampling. If the results of a reduced sampling program indicate the likelihood of chemical accumulation in sediment or significant accumulation of sediments near the outfall as a result of the Permittee's discharge, the Permittee shall comply fully with the requirements of this section within 12 months after completion of the reduced sampling program.

Sediment monitoring shall be performed in accord with "Sediment Quality Standards Designation Procedures", "Confirmatory Marine Sediment Biological Tests" and "Marine Sediment Quality Standards" in WSR 90-19-084 (draft WAC 173-204-310, -315 and -320). If the Department adopts final sediment quality standards which contain sections covering sediment quality standards designation procedures, confirmatory marine biological tests and marine sediment quality standards, and if those sections when adopted as final regulations include material changes from the draft Sediment Quality Standards at WSR 90-19-084, the Permittee, at its option, may perform sediment monitoring in accord with the final sediment quality standard provisions. The Permittee shall be required to perform sediment monitoring only as provided in the baseline study plan as approved by the Department.

An acute toxicity study of sediment in the vicinity of the Permittee's outfall shall be conducted. (This requirement may be waived if the Department approves a more limited baseline study plan due to the existence of data or in the event that sediment deposition is not likely to be found near the Permittee's outfall.) The acute biomonitoring study shall be conducted in accord with the protocols, study requirements, and QA/QC procedures as specified in the attached section on protocols.

The organism used in this study shall be Hyalella azteca (only upon provision of detailed protocols from Ecology).

If the acute toxicity study of sediment indicates that ambient sediments exhibit a significant increase in toxicity as compared to control sediments, then the Permittee shall perform chemical analyses of sediment. ("Significant increase" for purposes of this Order shall be no less than twenty-five percent (25%)) Chemical analyses shall be for compounds specified in the baseline study plan.]

D. Dilution Ratio Study/Dilution Zone Definition

The Permittee shall determine the dilution ratio of effluent to receiving water at the edge of the dilution zone provided for Outfall 001. The dilution ratio shall be determined during normal production levels at the facility and during critical receiving water conditions approved by the Department.

A dilution ratio study plan consistent with this Order and addressed to site-specific elements shall be submitted to the Department within four months of the effective date of permit No. WA 00012-4. The study shall be conducted within 12 months of the date the Department approves the study plan and during critical receiving water conditions approved by the Department [critical receiving water conditions for freshwater dischargers shall be 7Q10 flow].

The Permittee shall apply the dilution ratio determined through the study to effluent water quality data to estimate pollutant concentrations in the receiving water at the edge of the dilution zone. A written report containing this information shall be submitted to the Department within 90 days after the completion of the dilution ratio study.

The dilution ratio study plan shall be prepared as follows:

A review can be made of existing effluent data, existing information on currents, river flows, outfall or diffuser designs, water quality standards, existing modeling, and existing tracer studies. The review shall include both materials available to submit an initial dilution ratio calculation performed using the formula found at p. 142, EPA draft "Technical Support Document for Water Quality-Based Toxics Control" (1990). If information, including calculation, is available to determine that there is sufficient mixing within the mixing zone to achieve compliance with applicable water quality standards, then no further studies to determine dilution ratios will be required.

If dilution ratio studies are necessary to determine compliance with applicable water quality criteria, then the use of models is an acceptable alternative to tracer or dye studies if 1) sufficient supporting information to run the model is available, 2) the Permittee has recently verified the integrity of the outfall line and diffuser (if any) and 3) the Permittee uses a model such as UMERGE, UDKHDEN or CORMIX, or other model subject to Department approval.

A dye or tracer study of dilution (if necessary due to the lack of a model input for example) shall be performed within 12 months of Ecology's approval of the study plan. The Permittee shall use some method of fixing and reporting the location of the outfall and dilution zone boundaries (i.e., triangulation off the shore, microwave navigation system, or using Loran and Satnav coordinates). The method of fixing station location and the actual locations shall be identified in the report.

If the Permittee has information that natural background concentrations of a pollutant exceed the numeric criteria in WAC 173-201-047 and/or if the Permittee can demonstrate with sampling data that numeric criteria are not exceeded in receiving water, this information shall be submitted to the Department as part of the dilution ratio study report.

The dilution ratio study shall be conducted in accord with the protocol identified in the attached section of protocols.

The definition of the Permittee's mixing zone and the zone of acute criteria exceedence have been revised to reflect the regulations contained in the triennial review issues paper. These revised definitions are included in Permit No. WA 000012-4.

E. Protocols.

(1) Acute Biomonitoring Study (Effluent)

Protocols.

The acute biomonitoring bioassays shall be conducted in accord with the following protocols or approved modifications thereof.

- Salmonid: "Biological Testing Methods; Part A, Static Acute "Fish Toxicity Test" (DOE 80-12), 1981 or latest revision thereof.

- Pimephales Promelas (Fathead Minnow):
EPA/6004-85/013, March 1985.

- Daphnia Magna: Peltier, W. and C.I. Weber,
Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms, (48-hour definitive test),
EPA/600/4-85/013, March 1985.

- Daphnia Pulex: Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms, (48-hour definitive test), EPA/600/4-85/013, March 1985.

Monitoring Requirements

Each sampling/testing interval shall measure the response of the test organisms in 0 percent (control) and 100 percent effluent concentrations as a screening step. (The screening step may be eliminated if the Permittee initially conducts an entire series of dilutions (definitive test; 0, 6.25, 12.5, 25, 50 and 100 percent effluent concentrations, or another approved dilution series).) If mortality in the screening step exceeds 20 percent in the 100 percent effluent concentration, the Permittee shall immediately resample the effluent and retest the effluent in a series of dilutions (definitive test, as described above).

In any case where the Permittee can identify a chemical, compound or other substance (e.g., chlorine) causing mortality in excess of 20%, the Permittee may remove such chemical, compound or other

substance and re-run the screening test. If the screening test confirms that such excess mortality has been eliminated, the Permittee may resume the normal testing sequence (screening test bimonthly or quarterly) with samples from which the identified chemicals have been eliminated.

Quality Assurance/Quality Control Procedures

All quality assurance criteria used shall be in accordance with Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms, EPA/600/4-85/013, and Quality Assurance Guidelines for Biological Testing, EPA/600/4-278/043, or approved modifications thereof. Test results which are not valid (e.g., control mortality exceeds acceptable level) will not be accepted and testing must be repeated.

(2) Chronic Biomonitoring Study (Effluent)

Protocols

The chronic biomonitoring bioassay shall be conducted in accord with the following protocols or approved modifications thereof:

- Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, EPA/600/4-89/001.
- Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, EPA/600/4-87/208.
- Annual Book of ASTM Standards, Section 11, Water and Environmental Technology, Volume 11.04 Biological Effects and Environmental Fate.

Monitoring Requirements

All tests shall measure the response of the organisms in a series of dilutions (0, 6.25, 12.5, 25, 50 and 100 percent effluent concentrations, or another approved dilution series) to determine the IC25 (inhibition concentration - 25%).

Each written report submitted to the Department shall include all relevant information outlined in Section 10, Report Preparation, of Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, EPA/600/4-87/028, May 1988. The report shall also identify the most sensitive species and specify the IC25.

Amborse, R.B., Martin, J.L., and Jirka, G.H. 1989. Technical Guidance Manual for Performing Waste Load Allocations. Book III: Estuaries. Part IV: Use of Mixing Zone Models in Estuarine Waste Load Allocations. USEPA Office of Water Regulations and Standards. Draft: September 1989.

(4) Sediment Monitoring Study

Protocols

The sediment monitoring study shall be conducted in accord with the Puget Sound protocols referenced at draft WAC 173-204-600 (WSR 90-29-084).

The acute biomonitoring study (sediment) shall be conducted in accord with the following protocols or approved modifications thereof:

Hyalella: The Department will submit a detailed protocol for hyalella.

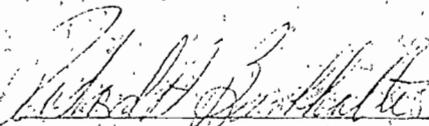
Study Requirements

Study requirements will be developed on a site specific basis.

Quality Assurance/Quality Control Procedures

The permittee shall follow the quality assurance procedures discussed in the protocols cited above. Reference samples, if available, shall be defined on a site specific basis.

DATED at Olympia, Washington



Richard A. Burkhalter, P.E.
Supervisor, Industrial Section
Department of Ecology
State of Washington

Quality Assurance/Quality Control Procedures

The Permittee shall follow the quality assurance procedures discussed in the protocols cited in this section or approved modifications of those protocols. Test results which are not considered valid (e.g., excessive control mortality or inadequate control response) will not be accepted by the Department and the test(s) shall be repeated.

(3) Dilution Ratio Studies

Protocols

The Permittee shall determine the dilution ratio using protocols outlined in the following references, approved modifications thereof, or by another method approved by the Department:

- USEPA. 1989. Draft Technical Guidance Manual for Performing Wasteload Allocations. Book III Estuaries. U.S. Environmental Protection Agency. Office of Water Regulations and Standards. Washington, D.C.
- Fischer, H.B. 1981. "Transport Models for Inland and Coastal Waters". Symposium Proceedings. Academic Press.
- Fischer, H.B., et al. 1979. "Mixing in Inland Coastal Waters". Academic Press.
- USGS. 1985. Kilpatrick, F.A., and Cobb, E.D., Measurement of Discharge Using Tracers. Chapter A16. Techniques of Water-Resources Investigations of the USGS. Book 3 Application of Hydraulics. U.S. Department of the Interior. Reston, VA.
- USGS. 1986. Wilson, J.F., Cobb, E.D., Kilpatrick, F.A. Fluorometric Procedures for Dye Tracing. Chapter A12. Techniques of Water-Resources Investigations of the USGS. Book 3 Application of Hydraulics. U.S. Department of the Interior. Reston, VA.
- Rawn, A.M., Bowerman, F.R., and Brooks, N.H. 1961. Diffusers for Disposal of Sewage in Sea Water. Trans. Am. Soc. Civ. Eng. 126, Part III, 344-388.
- Muellenhoff, W.P., et al. 1985. Initial Mixing Characteristics of Municipal Ocean Discharges (Vol. 1 and 2). USEPA, Environmental Research Laboratory, Narragansett, R.I. EPA-600/3-85-073a.
- Holley, E.R., and Nirka, G.H. 1986. Technical Report E-86-11. U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS.