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FEB 25 1991

Reply to
Attn of: WD-139

Re: Dioxin Controls for the Columbia River Basin

To All Interested Parties:

The Environmental Protection Agency, Region 10, has developed a final total maximum daily loading (TMDL) for 2,3,7,8-TCDD (dioxin) in the Columbia River basin. A summary of the TMDL is enclosed for your information, along with copies of the TMDL document and EPA's responses to public comments.

Thank you for your interest in this matter.

Sincerely,

A handwritten signature in cursive script, appearing to read "Dana A. Rasmussen".

Dana A. Rasmussen
Regional Administrator

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WATER QUALITY DIVISION
DEPT. OF ENVIRONMENTAL QUALITY

United States
Environmental Protection Agency
Region 10
1200 Sixth Avenue
Seattle, Washington 98101

**TOTAL MAXIMUM DAILY LOADING (TMDL)
TO LIMIT DISCHARGES OF 2,3,7,8-TCDD (DIOXIN)
TO THE COLUMBIA RIVER BASIN**

In compliance with the provisions of the Clean Water Act, 33 U.S.C. § 1251 et seq., as amended by the Water Quality Act of 1987, P.L. 100-4, the Environmental Protection Agency is hereby establishing a TMDL to limit discharges of dioxin to the Columbia River basin.

This TMDL shall become effective immediately, and is incorporated into the water quality management plans for the states of Washington, Oregon, and Idaho under Clean Water Act § 303(e). Subsequent state actions must be consistent with this TMDL.

Signed this 25th day of February, 1991.


Dana A. Rasmussen
Regional Administrator, Region 10
U.S. Environmental Protection Agency

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DIOXIN LOADING TO WATERS IN THE COLUMBIA RIVER BASIN

BACKGROUND

The water quality of the Columbia River and segments of the Snake and Willamette Rivers is currently considered impaired due to concentrations of a form of dioxin. The pollutant, 2,3,7,8-TCDD, is the most toxic of a group of compounds known as polychlorinated dibenzo-para-dioxins. These compounds, although occurring naturally at very low concentrations, can be found at elevated levels as a result of human activities such as the manufacture of chlorinated herbicides, the combustion of domestic and industrial wastes, and the production of chlorine-bleached pulp. Concentrations of TCDD measured in fish tissue in several areas of the Columbia River basin exceed levels protective of human health. Pulp mills which use chlorine to bleach paper products have been associated with some of the highest concentrations of TCDD in surface waters. Information also exists quantifying levels of TCDD in effluents from chlorine-bleaching pulp mills in the Columbia River basin. In order to reduce discharges of TCDD to acceptable levels in the Columbia River basin, additional controls are needed on known sources.

WHAT IS A TMDL?

Section 303(d) of the Clean Water Act requires each state (1) to identify waters for which effluent limitations normally required are not stringent enough to attain water quality standards and (2) to establish total maximum daily loadings (TMDLs) on such waters for the pollutant(s) of concern.

The process of developing a TMDL involves the calculation of the loading capacity (the amount of loading that the river can receive without violating water quality standards) and the allocation of allowable loads to point sources, nonpoint sources, and background. A TMDL, by definition, is the sum of the individual allocations to point sources, nonpoint sources and background. It is effectively an implementation plan for achieving water quality standards which includes an appropriate margin of safety which takes into account any lack of knowledge concerning the relationship between source concentrations and water quality.

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Concern about issues of equity in the multi-state basin led the states of Oregon, Washington, and Idaho to request that EPA establish the TMDL for dioxin in the Columbia River basin as a federal action. EPA issued a public notice of the proposed TMDL and solicited comments on June 14, 1990, pursuant to the requirements of §303(d).

THE FINAL TMDL

EPA has considered oral and written testimony received during the public comment period, and is now establishing a final TMDL, effective February 25, 1991, which provides a framework to control dioxin discharges to the Columbia River basin. The TMDL defines the loading capacity of the entire basin to be about 6 milligrams of 2,3,7,8-TCDD per day. This value was derived based on an allowable concentration of .013 parts per quadrillion for 2,3,7,8-TCDD and the volume of water in the Columbia River.

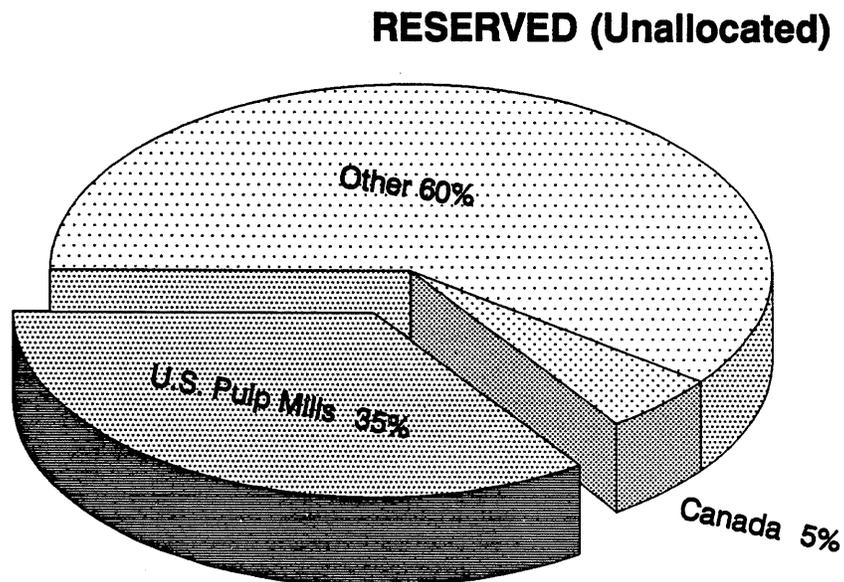
Because of the vastness of the Columbia River basin and the need to ensure attainment of water quality standards for TCDD at all points, the TMDL establishes key checkpoints within the system. Loading capacities, or "watershed targets," have been established for the Willamette River basin (0.54 mg TCDD/day) and the Snake River basin (1.18 mg TCDD/day). Allocations to sources within each of those watersheds must fit within these watershed targets.

EPA has also established specific wasteload allocations for the eight chlorine-bleaching pulp mills located in the Columbia River basin in Oregon, Idaho, and Washington. These allocations lead to an estimated 95% reduction in dioxin discharges from these facilities relative to the levels discharged in 1988. Wastewater discharge permits issued by EPA and the states of Washington and Oregon must be consistent with this TMDL. EPA also estimated future dioxin discharges for the Celgar pulp mill in Castlegar, Canada (expected to be less than 5% of the loading capacity).

EPA believes that other sources of dioxin exist in the Columbia River basin. In the final TMDL, EPA has identified other major sources and estimated their loadings of TCDD. Accordingly, the remainder of the loading capacity (3.59 mg/day or 60 percent) is reserved to account for

these other sources, for future growth, and as a margin of safety until adequate data has been collected and evaluated which either confirms the adequacy of the margin of safety or supports the establishment of additional or modified allocations. In order to obtain this additional data, EPA expects that the states will work in cooperation with EPA to develop strategies to collect the needed information. If future data identifies the need to make additional allocations, or to reduce any existing allocations, a modified TMDL will be established.

The following figure summarizes the overall structure of the TMDL:



WASTE LOAD ALLOCATIONS

PUBLIC COMMENTS

The public comment period for the proposed TMDL closed on July 20, 1990. In addition, a public hearing to discuss the TMDL was held July 17, 1990, in Vancouver, Washington.

A number of substantive comments were received concerning the proposed TMDL. Major revisions to the proposed TMDL, which were based upon comments received, were:

- estimates of the loadings from major sources other than chlorine bleaching pulp mills were made to be reasonably sure that the final TMDL will result in the achievement of water quality standards.
- an estimate of the projected loadings from the Celgar pulp mill in Castlegar, Canada, was incorporated into the TMDL (this replaced the assumption that the entire TCDD loading available for the Columbia River at the U.S.-Canada border be reserved for Canadian sources)

Other issues which were raised during public comment but which did not result in changes to the TMDL were:

- expanding the TMDL to include dioxins and furans other than 2,3,7,8-TCDD
- estimating the attenuation or availability of TCDD in the sediments
- alternative allocation approaches for the pulp mills (including allocations of zero for the mills, as well as allocation of the entire load for the mills)

EPA has developed responses to all significant comments received on the proposed TMDL. Copies of the final TMDL or the responses to comments can be obtained by writing EPA Region 10, WD-139, 1200 Sixth Avenue, Seattle, WA, 98101, or calling (206) 553-1086.