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Publication # 92-10-201

TOTAL MAXIMUM DAILY LOAD

Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

Developed pursuant to 40 CFR 130.7 and the Federal Clean Water Act

WATERBODY SEGMENT: WA-10-0020

RECEIVING SYSTEM INFORMATION:

Commencement Bay (Inner)

Basin: Puyallup-White
County: Pierce

(S. and E. of line bearing 225 true through Hylebos Waterway Light to the mouth of Puyallup River, excludes City Waterway)

TMDL PARAMETER:

APPLICABLE RULES:

2,3,7,8 TCDD (Dioxin)

WAC 173-201-047(3)
WAC 173-201-047(4)

SOURCES COVERED BY THIS TMDL:

Allocation

<u>Type</u>	<u>Source Description</u>
WLA	Simpson at Tacoma

TMDL:

A TMDL for 2,3,7,8 TCDD of 0.07 mg per day to the Strait of Juan de Fuca. This loading rate has been shown to be consistent with the narrative state water quality criterion of 0.014 ppq at the edge of the mixing zone.

Technical Documents:

Industrial Section, Washington Department of Ecology. 1990 (version 2.0).
Proposed Effluent Limitations for Dioxin and AOX. Olympia, WA.

Implementation:

The WLA has been incorporated into the NPDES permit issued June 25, 1991 through an interim control program.

Monitoring:

Ambient monitoring to assess TMDL implementation will be conducted by the permittee before January 28, 1996 for bioaccumulation of TCDD in 4 species; Starry Flounder, Sandab, Mussels, and Crab.



APR 30 1992

Reply to
Attn of: WD-139

MEMORANDUM

SUBJECT: Recommendation for TMDL Approval
Commencement Bay (Inner) - dioxin

FROM: Amber Wong, Standards to Permits Coordinator
Water Quality Section

A handwritten signature in cursive script that reads "Amber Wong".

TO: File

- TMDL submitted March 9, 1992
- TMDL package completed April 30, 1992
 - EPA Approval Checklist
 - Document 1: Transmittal letter
 - Document 2: TMDL document
 - Document 3: Industrial Section, Washington Department of Ecology. 1990 (version 2.0), Proposed Effluent Limitations for Dioxin and AOX, Olympia, WA
 - Document 4: Letter from Richard Burkhalter, Ecology to Dave Ragsdale, EPA-WOO, transmitting new TCDD and AOX effluent limits, dated January 29, 1991
 - Document 5: Public participation, public notice and public hearing documentation
 - Document 6: NPDES Permit No. WA-000085-0 (Simpson-Tacoma Kraft Company), issued June 25, 1991, expiration date June 25, 1996
 - Document 7: Department of Ecology Order No. 91-I059, to Simpson-Tacoma Kraft Company

- Document 8: Fact Sheet for Simpson-Tacoma NPDES permit, revised June 25, 1991
- Document 9: Response to Comments received during public notice of Simpson-Tacoma NPDES permit, dated August 21, 1991

Transmittal letter - Complete (see Document 1)

- states that TMDL has been established in accordance with Section 303(d)(1) of the Clean Water Act.
- **Review note: meets requirements**

Problem Assessment - Complete (see Document 3)

Background

- Framework for TMDL came from EPA Dioxin Strategy (1983), National Dioxin Study, five-mill study (1987), U.S. EPA-Paper Industry Cooperative Dioxin Study (104 mill study, 1988).
- On October 20, 1988, EPA issued an interim strategy for regulating dioxin discharges from existing mills. The strategy set out proposed interim control measures for chlorine minimization and suspended solids controls, but stopped short of designating effluent limits.
- On June 9, 1989, Ecology listed 8 pulp mills as violating water quality standards for the priority pollutant TCDD pursuant to Section 304(1) of the Clean Water Act. Simpson-Tacoma, discharging to Inner Commencement Bay, was one of these. An Individual Control Strategy (ICS), defined as a water quality-based permit, was required for Simpson-Tacoma. Derivation of the TMDL for Commencement Bay for TCDD was part of developing the permit.

Assessment

- The applicable water quality criterion for TCDD is 0.014 ppq, based on a 10⁻⁶ risk level and ingestion of aquatic organisms only (no drinking water component).
- Data from Simpson-Tacoma showed measurable quantities of dioxin in effluent and sludge. These values showed that existing effluent would cause violations of the dioxin water quality standard.
- Only one point source (Simpson) was identified, which had no existing controls for TCDD.

- Review notes: Problem assessment accurately gives background information, identifies exceedence of water quality standard for dioxin due to one point source in the waterbody. Supporting information - effluent, sludge, fish data - quantify Simpson's contribution.

TMDL document - Complete (see Document 2)

- States that a load of 0.07 mg/day has been established for the point source.
- Review note: Clearly identifies the load capacity for the TMDL. Clearly links this to the water quality criterion. Concisely summarizes the implementation and monitoring followup (through the NPDES permit). Clearly references the supporting technical documents.

Supporting Studies - Complete (see Documents 3 and 4)

- TCDD limit (WLA) was calculated based on compliance with the water quality criteria at the edge of the dilution zone. Three factors in calculating the WLA were: 1) applicable water quality criterion of 0.014 ppq, 2) dilution of 90:1, and 3) background concentration in Commencement Bay of 0.007 ppq (50% of the water quality criterion for TCDD). TCDD limit = 0.63 ppq.
- Mill final effluent flow averages 28.8 mgd. Combined bleach plant effluent flow is estimated at 2.5 mgd. Combined bleach plant effluent TCDD concentration is 7.3 ppq.
- For compliance purposes, annual average load for this mill = 0.07 mg/day. Daily maximum limit is 0.13 mg/day. For compliance with the daily maximum limit, the final effluent concentration is 1.2 ppq.
- Simpson must meet this level by March 8, 1994.
- Permit issued June 25, 1991.
- Review notes: Documentation clearly gives basis for calculating the TMDL. Although dilution calculation is relatively simple, it is valid in the absence of more sophisticated analysis. Consideration of a margin of safety (50%) is good. Calculation of the WLA - fine. Clarification of the number to be used for compliance purposes is good. The date for meeting the effluent limits falls within guidelines.

Public participation - Complete (see Document 5)

- Public notice of the permit and load allocation from September 7, 1990 to October 23, 1990. Public hearing on the permit on October 16, 1990.
- Review notes: Adequate public participation.

Enforceability - Complete (see Documents 6,7,8 and 9)

- NPDES Permit No. WA-000085-0, Simpson-Tacoma
- Review notes: Valid permit with applicable conditions

TMDL effectiveness plan - Complete (see Document 6,7, and 8)

- In permit: ambient monitoring - sediment (in vicinity of outfall), bioaccumulation.
- related monitoring - Superfund action on the St. Paul Waterway, monitoring of the cap placed on contaminated sediments. Monitoring plan spelled out in separate document.
- Review notes: Adequate monitoring to assess compliance with the TMDL.

Recommendation, approve TMDL.

ALW, 4/30/92