FACTS ABOUT DIOXIN AND OREGON'S PULP MILLS

A PLAN TO REDUCE TOXIC CHEMICALS IN OREGON'S RIVERS

Dioxin and other toxic chlorinated organic chemicals have been found in fish in the Columbia and Willamette Rivers. While the debate of how much dioxin is harmful to humans continues, we do know that one compound, 2,3,7,8-TCDD (TCDD), which was discovered in fish tissue from these rivers, is considered the most dangerous form of dioxin. Pulp mills that use the chlorine bleaching process are one known source of TCDD.

Because the Oregon Department of Environmental Quality (DEQ) is concerned about dioxin and other chlorinated organics, DEQ adopted a stringent standard and required pulp mills to reduce the amount of chlorine used in the pulp-making process. DEQ has amended existing permits for the mills requiring them to meet DEQ's instream standard for dioxin, which is .013 parts per quadrillion.

WHAT IS DIOXIN?

Dioxins are a family of chemical compounds that even in trace amounts cause cancer in laboratory animals. They do not break down easily and may remain in the environment for a long time. The compound TCDD is a by-product of the pulp mill bleaching process. The dioxin forms when the bleaching agent, chlorine, bonds to specific organic chemicals during the pulping process.

Dioxin is believed to attack the body's immune system, making it more susceptible to cancer and other diseases. Scientists agree that it can cause a persistent skin rash called chloracne. Tests on laboratory animals indicate that dioxin may also lead to other diseases.

WHAT DO WE KNOW ABOUT DIOXIN IN OREGON'S RIVERS?

Oregon has three bleached kraft pulp mills, Pope and Talbot at Halsey, James River II at Wauna, and Boise Cascade at St. Helens. Studies identified detectable dioxin levels in treated wastewater from these bleached kraft mills. Because these levels were high enough to violate DEQ's water quality standards, the mills were required to adopt individual control strategies for correcting these excessive discharges. This was done by placing limitations in the individual waste discharge permits for the mills.

WHAT DO WE KNOW ABOUT DIOXIN IN FISH?

No health based studies have been done, but DEQ is very concerned about levels of dioxin discovered by the U.S. Environmental Protection Agency (EPA) and other researchers in whitefish, squawfish and bottomfish, particularly carp, crayfish and sturgeon. Most of the research in the Northwest has been on resident fish populations with few studies involving salmon or steelhead.
IT'S MORE THAN JUST DIOXIN

Dioxin is not the only chemical of concern to DEQ which is produced in the chlorine bleaching process. Over 3,000 adsorbable organic halides (AOX) have been traced to bleach kraft pulp mill discharges. Of these chemical compounds, approximately 10 per cent are known to be toxic. The AOX compounds include dioxins, furans, and other chlorinated compounds.

Looking at the AOX compounds is not required by EPA, but DEQ is concerned about all chemicals discharged into Oregon's waterways. DEQ has limited the pulp mills to 1.5 kilograms of AOX per air dried ton of bleached pulp. This limit may require further modifications to bleaching processes beyond what is required to meet the dioxin limit.

Once mill wastewater mixes with water in the river, the dioxin levels are too small to be detected. Current technology can only detect levels in the range of 5 parts per quadrillion, approximately 500 times higher than the standard. The AOX can be measured more easily and may eventually be a replacement for dioxin detection. If a correlation can be made between levels of dioxin and other AOX, estimates of dioxin levels can be made based on AOX numbers alone.

WHAT IS DEQ DOING?

DEQ has modified the wastewater discharge permits for all three mills by adding strict limitations for dioxin and AOX discharges. Also, DEQ continues to evaluate the risks associated with dioxins and other toxics, and regularly monitors the progress of the three mills.

WHAT ARE THE MILLS DOING?

Oregon's three pulp mills have all made changes in their pulp-making process to reduce dioxin. Pope and Talbot quit bleaching their effluent in 1987, and by the fall of 1993 they will have an Oxygen Delignification system in place to reduce chlorine use even further. James River is reducing dioxin through the use of chlorine dioxide and Boise Cascade is installing equipment to also use this chemical.

ACCESSIBILITY INFORMATION:

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QUESTIONS?

For more information contact DEQ, (503) 229-5766 or toll free in Oregon 1-800-452-4011. Persons with a hearing impairment may call DEQ's TDD number, (503) 229-6993.

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