

Potential Sources of 1,2,8,9-Tetrachlorodibenzo-*p*-Dioxin in the Aquatic Environment

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A recent study reported elevated levels of 1,2,8,9-tetrachlorodibenzo-*p*-dioxin (1,2,8,9-TCDD) in crustaceans and finfish collected from Newark Bay, New Jersey (Rappe *et al.*, 1989). The authors suggested that the presence of this compound in biota was due to operations at a former 2,4,5-trichlorophenoxy acetic acid (2,4,5-T) manufacturing facility located on the lower Passaic River. Since 1,2,8,9-TCDD had been identified in two soil samples claimed to be associated with the site, it was concluded that the former manufacturing plant was the source of this compound. A review of the scientific literature was conducted to evaluate whether this isomer is associated with the formulation of 2,4,5-T and to determine whether 1,2,8,9-TCDD is commonly found in the aquatic environment. Measurements and chromatographic data from known sources of polychlorinated dibenzo-*p*-dioxins indicate that incinerator fly ash, soot from wood-burning chimneys, and the combustion of polychlorinated biphenyls and some chlorophenoxy herbicides are sources of 1,2,8,9-TCDD. This isomer has never been found in samples of 2,4,5-T. We conclude, therefore, that the presence of 1,2,8,9-TCDD in Newark Bay biota is not associated with 2,4,5-T manufacturers but, rather, the result of various commercial, residential, municipal, and industrial combustion processes.