UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

NOV 30 2002

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

Memorandum

From: Larry Turner, Ph. D.
Environmental Field Branch
Field and External Affairs Division

To: Arthur-Jean Williams, Chief
Environmental Field Branch
Field and External Affairs Division

Subject: Effects Determination for triallate for Pacific Anadromous Salmonids

I reviewed data and other information for triallate and its potential effects on Pacific anadromous salmonids and their critical habitat. This pesticide was cited by the Washington Toxics Coalition (WTC) as one that they believe warranted review. The basis of their concern appears to be in the Reregistration Eligibility Document (RED) for triallate, possibly because levels of concern were slightly exceeded for acute risk to aquatic invertebrate species. However, the exceedances were based on aquatic invertebrates as if the invertebrate species were endangered or threatened, rather than as a food source for the various Evolutionarily Significant Units of Pacific salmon and steelhead. It is not necessary to protect individual invertebrates to protect the food supply for the salmon and steelhead. Therefore, I conclude that the registrations and continued use, as labeled, of triallate will cause 'no effect' on the listed Pacific salmon and steelhead and their critical habitat.

Under section 7 of the Endangered Species Act, the Office of Pesticide Programs (OPP) is required to consult on actions that 'may affect' listed species or that may adversely modify designated critical habitat. The procedures that we use to look at direct acute and chronic toxicity, designed to incorporate sublethal effects as well as lethal effects, and the potential indirect effects on food and cover, as well as critical habitat, are presented in other "effects determinations" previously done. They are not reiterated here except as relevant to the RED and WTC's apparent concerns.

I used the data in the RED as the primary information for my determination. However, I also

looked at additional toxicity data, as well as the interim Canadian guideline for triallate.

Triallate is used largely on barley and wheat. It has also been registered for use on peas and lentils, and very recently on sugar beets. It appears to have higher use in Canada than in the U. S. It has not been registered by California's Department of Pesticide Regulation since 1991, and therefore cannot be used in California.

The acute toxicity data indicate a lowest fish acute LC50 of 580 ppb and a lowest aquatic invertebrate EC50 of 91 ppb. Chronic no-observed-effect-levels were 13 ppb for *Daphnia* and 38 ppb for rainbow trout. Tests with formulated products show that these have approximately the same toxicity to rainbow trout and midges, when adjusted for the percentage of active ingredient, as the technical material. This would normally indicate that there is nothing in these products that adds to the toxicity of the technical material. However, the formulated products were more toxic to channel catfish and *Daphnia magna* than was the technical material. These difference are not enough to change my conclusions. Literature data in the AQUIRE data base are limited to midges, harlequin fish, algae, and aquatic plants. The animal data are consistent with those reported in th RED. In addition, the Canadian guidelines (Kent et al., 1992) report a chronic *Ceriodaphnia dubia* NOEC of 1.2 ppb, and a 7-day LC50 of 12 ppb.

The revised Ecological Effects Chapter of the RED noted the presence of a degradate of triallate that could be considered of toxicological importance for health effects. This degradate, 2,3,3-trichloroprop-2-ene sulfonic acid (TCPSA), is mobile and moderately persistent. However, data provided by the registrant indicate that the rainbow trout LC50 exceeds 122 ppm and is practically non-toxic to fish. Therefore, TCPSA is not of concern for listed salmon and steelhead.

In the revised Ecological Effects Chapter of the RED, table 26 (page 44) presents the acute and chronic risk quotients for triallate. These all show that there is no concern for threatened or endangered fish. Three of the scenarios on this table indicate acute effects that would be of concern for T&E aquatic invertebrates; for direct effects, we want to protect individuals of a T&E species. However, our criteria are designed to protect populations of invertebrates that could serve as food for T&E fish, but there is no need to protect individuals as food supply. We consider that there is a population concern when the EEC exceeds ½ the LC50, rather than the 1/20th the LC50 we use for individuals.

It could be argued that the *Ceriodaphnia* chronic test cited in the Canadian guidelines (Kent et al., 1992) is a basis for concerns for food supply for T&E salmon and steelhead. However, there are several reasons that, in my best professional judgement, this does not apply. First, OPP has no information on the details of this test, which is with a species more commonly used for effluent testing than for pesticide registration; therefore, we cannot validate the data. Second, it is a chronic test while salmon and steelhead live in lotic waters where chronic exposure is very unlikely to occur. Third, the modeled EEC is based upon a farm pond scenario in North Dakota. While the farm pond scenario may resemble first order streams, the soil and climate parameters of the model do not adequately represent the arid areas of the Pacific Northwest where triallate may be used. Fourth, maximum residues found anywhere in the NAWQA program never

exceeded 0.65 ppb, and this value was found in an agricultural drain. And finally, *Daphnia magna*, *Chironomus plumosus*, and *Chironomus thummi* are all less sensitive and not of concern for population effects; thus even if the *Ceriodaphnia* test was applicable, there would be other species that could serve as food supply.

The revised Ecological Effects Chapter for the RED does not consider aquatic cover for T&E fish. However, Johnson (1986) did a moderate amount of testing of aquatic vascular plants in his 30-day microcosm study. He found no effect on aquatic macrophytes at concentrations up to

1000 ppb. These data indicate that there would be no effect on aquatic cover at concentrations of triallate in the water.

References:

Johnson BT. 1986. Potential Impact of Selected Agricultural Chemical Contaminants on a Northern Prairie Wetland: A Microcosm Evaluation. Environ. Toxicol. Chem. 5(5):473-485.

Kent RA, Tache M, Caux, P-Y, De Silva S, Lemky K. 1992. Canadian Water Quality Guidelines for Triallate. Scientific Series No. 195. Environment Canada, Ottawa, Ontario.