APPENDIX I

Derivation of Criterion for Dioxin

A study of Sprague-Dawley rats in which dioxin was added to the diet at a concentration of 0.1 μg/kg/day for 2 years resulted in hepatocellular carcinoma in 11 of 49 treated females whereas only 1 of 86 controls had hepatocellular carcioma (Kociba, et al. In press). Using a bioaccumulation factor 5,800 the parameters of the extrapolation model are:

$n_t = 11$	le = 24 months
$N_t = 49$	$d = 10^{-4}$ mg/kg/day
$n_c = 1$	w = 0.37 kg
$N_c = 86$	L = 24 months
Le = 24 months	R = 5,800

The result is that the water concentration should be less than 4.55×10^{-7} micrograms per liter in order to keep the individual lifetime risk below 10^{-5}.