☒ ☐ ☐ ☐

HED DOC. NO. 013706

KEF C
10PP#00664

MEMORANDUM September 1, 1999

SUBJECT: Atrazine ED10's and LED10's Based On Sprague-Dawley Female Rat Dietary Studies

P.C. Code 080803

TO: Roger Hawks, Toxicologist
Reregistration Branch 3
Health Effects Division (7509C)

FROM: Lori L. Brunsman, Statistician
Science Analysis Branch
Health Effects Division (7509C)

THROUGH: William L. Burnam, Branch Chief
Science Analysis Branch
Health Effects Division (7509C)

The ED10's and LED10's for Atrazine have been calculated as follows:

Study	Mammary Gland Tumor Basis	ED10	LED10
1998	Adenomas and/or Carcinomas	3.272	1.835
1998	Fibroadenomas	31.019	3.446
1986	Adenocarcinomas and/or Adenomas and/or Carcinosarcomas	2.943	2.086
1986	Fibroadenomas	5.828	3.030

The units on these ED10's and LED10's are mg/kg/day in human equivalents.

The dose levels used from the 1998 105-week study were 0, 25, 50, 70, or 400 ppm. The corresponding adenoma and/or carcinoma rates were 12/80, 18/80, 21/80, 14/80, and 27/80, respectively. The corresponding fibroadenoma rates were 16/80, 25/80, 34/80, 29/80, and 25/80, respectively.

1/2

The dose levels used from the 1986 105-week study were 0, 10, 70, 500 or 1000 ppm. The corresponding adenocarcinoma and/or adenoma and/or carcinosarcoma rates were 16/88, 16/69, 27/69, 27/70, and 47/89, respectively. The corresponding fibroadenoma rates were 29/88, 29/69, 36/69, 39/70, and 45/89, respectively.

Background

The ED10 is the MLE dose at a risk of 0.10. The LED10 is the 95% lower bound on dose at a risk of 0.10.

All ED10's and LED10's have been converted from animals to humans by use of the $^3/_4$'s scaling factor. For the conversion to human equivalents, weights of 0.35 kg for the rat and 70 kg for humans were used.

The ED10's and LED10's were calculated using the GLOBAL86 computer program (by Richard B. Howe and Cynthia Van Landingham, Copyright Clement International, Inc., 1990-1992).

Dose-Response Analyses

The statistical evaluation of mortality indicated a significant increasing trend with increasing doses of Atrazine in female rats of both studies.

In the 1998 study, female rats had significant increasing trends, and significant differences in the pair-wise comparisons of the 400 ppm dose group with the controls, for mammary gland carcinomas and fibroadenomas and/or adenomas and/or carcinomas combined, all at $p < 0.01$. There were significant differences in the pair-wise comparisons of the 25 and 70 ppm dose groups with the controls for mammary gland fibroadenomas and fibroadenomas and/or adenomas and/or carcinomas combined, all at $p < 0.05$. There were significant differences in the pair-wise comparison of the 50 ppm dose group with the controls for mammary gland fibroadenomas and fibroadenomas and/or adenomas and/or carcinomas combined, both at $p < 0.01$. There was also a significant difference in the pair-wise comparison of the 400 ppm dose group with the controls for mammary gland fibroadenomas at $p < 0.05$.

In the 1986 study, the incidence of malignant mammary tumors in the 70 ppm, 500 ppm, and 1000 ppm dose groups had significantly higher pair-wise differences when compared to the controls, and there was a signficant trend with increasing dose. The incidence of combined malignant and benign mammary tumors had significantly higher pair-wise differences when compared to the controls, and there was a significant trend with increasing dose.