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

PC Code: 074801
DP Barcode: D268764

MEMORANDUM September 6, 2000

SUBJECT: Updated drinking water EECs for **Tribufos** for use in the human health risk assessment

TO: Anne Overstreet, Chemical Review Manager
Betty Shackleford, Chief
Reregistration Branch III
Special Review and Reregistration Division (7508)

FROM: Dana S. Spatz, Chemist
Dirk F. Young, Ph.D., Environmental Engineer
Environmental Risk Branch IV
Environmental Fate and Effects Division (7507)

THRU: Betsy Behl, Chief
Environmental Risk Branch IV/EFED

This memo summarizes Tier I ground water estimated environmental concentrations (EECs) and revised Tier II EECs in surface water for tribufos. This revision includes the incorporation of the current EFED practice of using an index reservoir and a percent crop area factor when calculating surface water source drinking water EECs. The revised EECs are summarized in Table 1.

Ground water EECs were determined using Sci-Grow and surface drinking waters were evaluated with PRZM coupled to EXAMS, using EFED's standard index reservoir and a percent crop area factor (PCA). The scenario chosen for modeling was a fall application of 1.125 lbs ai/A to Mississippi cotton. The established PCA for cotton is 0.2. A summary of Sci-Grow and PRZM/EXAMS input parameters is given in Table 2.

Table 1. Ground Water and Surface Water Source Drinking Water EECs for tribufos

crop	Acute Concentration (upper 1-in-10 year peak concentration)	Chronic Concentration (upper 1-in-10 year annual mean concentration)	Overall Mean (mean of means for all years simulated)	Ground Water Screening Concentration
Mississippi cotton	5.8 ppb	1.78 ppb	1.12 ppb	0.007 ppb

Table 2. Model input parameters for tribufos.

Chemical name	tribufos
Molecular Weight	314
Solubility	2.3 mg L^{-1}
Vapor Pressure	1.7 x 10^{-6} torr
pH 5 Hydrolysis half life	stable
pH 7 Hydrolysis half life	stable
pH 9 Hydrolysis half life	stable
Soil Photolysis half life	stable
Aquatic photolysis half life	stable
Aerobic soil metabolism half life	745 days
Aerobic aquatic metabolism half life	1490 days (2x aerobic soil metabolism)
Anaerobic aquatic metabolism half life	5 months
K_{oc}	9300 L kg^{-1} (mean)
Application Rates	1.125 lb a.i. $acre^{-1}$
Application Efficiency	95%
Spray drift mass input to pond	16% of 1 application
Number of Applications	1
Application Method	aerial
percent crop area	0.20

```
RUN No.   1 FOR tribufos            INPUT VALUES
-----------------------------------------------------------------
 APPL (#/AC)  APPL.  URATE    SOIL    SOIL  AEROBIC
 RATE          NO. (#/AC/YR)  KOC   METABOLISM (DAYS)
-----------------------------------------------------------------
   1.125      1       1.125     9300.0      745.0
```

GROUND-WATER SCREENING CONCENTRATIONS IN PPB

```
-------------------------------------------------------
                  .007327
-------------------------------------------------------
A=   740.000  B=  9305.000  C=     2.869  D=     3.969  RILP=      .090
```

```
  F=    -2.186  G=      .007  URATE=     1.125  GWSC=         .007327


*** PRZM 3.1 Input data File, MSCOTTN1.inp***
*** Modified 7/9/99 ***
*** Location: Yazoo County, Mississippi; MLRA: O-134 ***
*** Weather: MET131.MET Jackson, MS ***
*** Manning's N: Assume fallow surface with residues not more than 1 ton/acre
***
*** See MSCOTTN1.wpd for scenario description and metadata ***
Chemical:
Location: Mississippi; Crop: cotton;  MLRA: O-134
*** record 3
    0.76    0.15       0   17.00       1       1
***record 6
       4
***USLEK   USLELS  USLEP   AFIELD             IREG    SLP   HL
    0.49    0.40    0.75   172.8               4    6.00   600.0
***record 8
       3
***record 9
       1    0.20  125.00   98.00       3  99  93  92    0.00  120.00
       2    0.20  125.00   98.00       3  94  84  83    0.00  120.00
       3    0.20  125.00   98.00       3  99  83  83    0.00  120.00
       1       3
0101 2109 2209
0.63 0.16 0.18
0.02 0.02 0.02
       2       3
0105 0709 2209
0.16 0.13 0.13
0.02 0.02 0.02
       3       3
0105 0709 2209
0.16 0.13 0.09
0.02 0.02 0.02
***record 10
      20
***record 11
  01 564  07 964  220964       1
  01 565  07 965  220965       2
  01 566  07 966  220966       3
  01 567  07 967  220967       1
  01 568  07 968  220968       2
  01 569  07 969  220969       3
  01 570  07 970  220970       1
  01 571  07 971  220971       2
  01 572  07 972  220972       3
  01 573  07 973  220973       1
  01 574  07 974  220974       2
  01 575  07 975  220975       3
```

```
  01 576  07 976  220976       1
  01 577  07 977  220977       2
  01 578  07 978  220978       3
  01 579  07 979  220979       1
  01 580  07 980  220980       2
  01 581  07 981  220981       3
  01 582  07 982  220982       1
  01 583  07 983  220983       2

Application schedule:
      20       1       0       0
Chemical:tribufos
  300964  0 2 0.00  1.26 0.95 0.16
  300965  0 2 0.00  1.26 0.95 0.16
  300966  0 2 0.00  1.26 0.95 0.16
  300967  0 2 0.00  1.26 0.95 0.16
  300968  0 2 0.00  1.26 0.95 0.16
  300969  0 2 0.00  1.26 0.95 0.16
  300970  0 2 0.00  1.26 0.95 0.16
  300971  0 2 0.00  1.26 0.95 0.16
  300972  0 2 0.00  1.26 0.95 0.16
  300973  0 2 0.00  1.26 0.95 0.16
  300974  0 2 0.00  1.26 0.95 0.16
  300975  0 2 0.00  1.26 0.95 0.16
  300976  0 2 0.00  1.26 0.95 0.16
  300977  0 2 0.00  1.26 0.95 0.16
  300978  0 2 0.00  1.26 0.95 0.16
  300979  0 2 0.00  1.26 0.95 0.16
  300980  0 2 0.00  1.26 0.95 0.16
  300981  0 2 0.00  1.26 0.95 0.16
  300982  0 2 0.00  1.26 0.95 0.16
  300983  0 2 0.00  1.26 0.95 0.16

***record 17
    0.00       3    0.00
***record 18
    0.00    0.00    0.50
Soil Series: Loring silt loam; Hydrogic Group C
***record 20: SET KDFLAG TO CALCULATE KD FROM KOC
  155.00    0.00   0   0   1   0   0   0   0   0   0
***record 26
    0.00    0.00   00.00
***RECORD 30: SET KOC
       4   9300.
***record 33
       6
*** record 34
       1   13.00   1.400   0.385   0.000   0.000   0.000
*** record 36
           .0009   .0009    0.00
           0.100   0.385   0.151   2.180   0.000
```

```
   2   23.00   1.400   0.370   0.000   0.000   0.000
       .0009   .0009    0.00
       1.000   0.370   0.146   0.490   0.000
   3   33.00   1.400   0.370   0.000   0.000   0.000
       .0009   .0009    0.00
       1.000   0.370   0.146   0.160   0.000
   4   30.00   1.450   0.340   0.000   0.000   0.000
       .0009   .0009    0.00
       1.000   0.340   0.125   0.124   0.000
   5   23.00   1.490   0.335   0.000   0.000   0.000
       .0009   .0009    0.00
       1.000   0.335   0.137   0.070   0.000
   6   33.00   1.510   0.343   0.000   0.000   0.000
     .000097 .000097    0.00
       1.000   0.343   0.147   0.060   0.000
   0
WATR    YEAR      10    PEST    YEAR      10    CONC    YEAR      10   1
   1
   1  -----
   7    DAY
PRCP    TSER   0   0
RUNF    TSER   0   0
INFL    TSER   1   1
ESLS    TSER   0   0   1.E3
RFLX    TSER   0   0   1.E5
EFLX    TSER   0   0   1.E5
RZFX    TSER   0   0   1.E5
```

WATER COLUMN DISSOLVED CONCENTRATION (PPB)

YEAR	PEAK	96 HOUR	21 DAY	60 DAY	90 DAY	YEARLY
1964	32.090	30.350	24.310	16.980	15.400	4.114
1965	11.160	10.700	9.212	8.145	7.565	4.700
1966	8.689	8.272	6.738	4.790	4.154	3.362
1967	11.290	10.730	9.001	6.254	6.487	4.165
1968	13.020	12.390	10.640	8.412	7.305	4.908
1969	8.191	7.765	6.293	4.409	4.005	2.693
1970	23.520	22.270	19.340	14.860	12.530	5.192
1971	13.080	12.450	10.590	9.584	9.660	6.983
1972	8.745	8.305	7.193	5.875	5.346	3.729
1973	13.160	12.690	8.717	7.637	7.202	4.694
1974	17.610	17.040	15.880	14.500	12.820	7.194
1975	21.320	20.190	16.350	11.660	9.773	5.452
1976	12.850	12.200	10.300	7.714	6.977	5.192
1977	13.000	12.390	11.060	8.896	8.707	6.427
1978	8.868	8.510	7.108	4.995	5.222	3.790
1979	19.360	18.390	15.510	11.870	10.960	8.916
1980	21.410	20.540	18.120	15.160	13.620	8.714
1981	9.565	9.094	7.459	6.530	5.541	3.816
1982	29.400	27.880	24.470	17.230	16.660	7.747
1983	25.620	24.360	20.700	18.120	16.160	10.300

SORTED FOR PLOTTING

PROB	PEAK	96 HOUR	21 DAY	60 DAY	90 DAY	YEARLY
0.048	32.090	30.350	24.470	18.120	16.660	10.300
0.095	29.400	27.880	24.310	17.230	16.160	8.916
0.143	25.620	24.360	20.700	16.980	15.400	8.714
0.190	23.520	22.270	19.340	15.160	13.620	7.747
0.238	21.410	20.540	18.120	14.860	12.820	7.194
0.286	21.320	20.190	16.350	14.500	12.530	6.983
0.333	19.360	18.390	15.880	11.870	10.960	6.427
0.381	17.610	17.040	15.510	11.660	9.773	5.452
0.429	13.160	12.690	11.060	9.584	9.660	5.192
0.476	13.080	12.450	10.640	8.896	8.707	5.192
0.524	13.020	12.390	10.590	8.412	7.565	4.908
0.571	13.000	12.390	10.300	8.145	7.305	4.700
0.619	12.850	12.200	9.212	7.714	7.202	4.694
0.667	11.290	10.730	9.001	7.637	6.977	4.165
0.714	11.160	10.700	8.717	6.530	6.487	4.114
0.762	9.565	9.094	7.459	6.254	5.541	3.816
0.810	8.868	8.510	7.193	5.875	5.346	3.790
0.857	8.745	8.305	7.108	4.995	5.222	3.729
0.905	8.689	8.272	6.738	4.790	4.154	3.362
0.952	8.191	7.765	6.293	4.409	4.005	2.693
1/10	29.022	27.528	23.949	17.205	16.084	8.896

```
MEAN OF ANNUAL VALUES =    5.604
STANDARD DEVIATION OF ANNUAL VALUES =    2.086
UPPER 90% CONFIDENCE LIMIT ON MEAN =    6.303
```