APPENDIX E: RICE MODEL EEC CALCULATIONS

The Tier I Rice model v.1.0 (May 8, 2007) estimates surface water exposure from the use of pesticides in rice paddies. The formula of the Tier I Rice Model v1.0 is as follows:

$$C_w = \frac{m_{ai}'}{0.00105 + 0.00013K_d}$$

and, if appropriate:

$$K_d = 0.01K_{oc}$$

where:

C_w = water concentration [µg/L]
m_{ai}' = mass applied per unit area [kg/ha]
K_d = water-sediment partitioning coefficient [L/kg]
K_{oc} = organic carbon partitioning coefficient [L/kg]

day	ln tier 1 rice model conc. (ppb) with 21-day half-life	ppb (propanil + 3,4-DCA)	ppb (propanil) with 2-day half-life
0	8.57979	**5322.98**7581	
1	8.54679	5150.195736	
2	8.51379	4983.012964	
3	8.48079	4821.257186	
4	8.44779	4664.752233	
5	8.41479	4513.327656	
6	8.38179	4366.81854	
7	8.34879	4225.06532	
7-day average OR propanil on day 7	8.46429	**4742**.359141	**459**.3407609
Half-life used is 21 days (k = 0.033/day) for total system (water + sediment, propanil + 3,4-DCA), starting with Tier 1 rice model result (5323 ppb)			
For propanil on day 7, a half-life of 2 days (k=0.35/day) was used, starting with 5323 ppb (tier 1 rice model result)			
Calculations are based on data from MRID 41848701, aerobic aquatic metabolism of propanil			