

over a lifetime, and is unlikely to underestimate exposure to an individual because of the fact that pesticide use patterns (both regionally and nationally) tend to change continuously over time, such that an individual is unlikely to be exposed to more than the average percent CT over a lifetime. The Agency is reasonably certain that the percentage of the food treated is not likely to be an underestimation. As to Conditions 2 and 3, regional consumption information and consumption information for significant subpopulations is taken into account through EPA's computer-based model for evaluating the exposure of significant subpopulations including several regional groups. Use of this consumption information in EPA's risk assessment process ensures that EPA's exposure estimate does not understate exposure for any significant subpopulation group and allows the Agency to be reasonably certain that no regional population is exposed to residue levels higher than those estimated by the Agency. Other than the data available through national food consumption surveys, EPA does not have available information on the regional consumption of food to which imidacloprid may be applied in a particular area.

2. *Dietary exposure from drinking water.* The Agency lacks sufficient monitoring exposure data to complete a comprehensive dietary exposure analysis and risk assessment for imidacloprid in drinking water. Because the Agency does not have comprehensive monitoring data, drinking water concentration estimates are made by reliance on simulation or modeling taking into account data on the physical characteristics of imidacloprid.

The Agency uses the FQPA Index Reservoir Screening Tool (FIRST) or the Pesticide Root Zone Model/Exposure Analysis Modeling System (PRZM/EXAMS), to produce estimates of pesticide concentrations in an index reservoir. The SCI-GROW model is used to predict pesticide concentrations in shallow groundwater. For a screening-level assessment for surface water EPA will use FIRST (a tier 1 model) before using PRZM/EXAMS (a tier 2 model). The FIRST model is a subset of the PRZM/EXAMS model that uses a specific high-end runoff scenario for pesticides. FIRST and PRZM/EXAMS incorporate an index reservoir environment, and include a percent crop area factor as an adjustment to account for the maximum percent crop coverage within a watershed or drainage basin.

None of these models include consideration of the impact processing (mixing, dilution, or treatment) of raw water for distribution as drinking water would likely have on the removal of pesticides from the source water. The primary use of these models by the Agency at this stage is to provide a screen for sorting out pesticides for which it is unlikely that drinking water concentrations would exceed human health levels of concern.

Since the models used are considered to be screening tools in the risk assessment process, the Agency does not use estimated environmental concentrations (EECs) from these models to quantify drinking water exposure and risk as a %RfD or %PAD. Instead drinking water levels of comparison (DWLOCs) are calculated and used as a point of comparison against the model estimates of a pesticide's concentration in water. DWLOCs are theoretical upper limits on a pesticide's concentration in drinking water in light of total aggregate exposure to a pesticide in food, and from residential uses. Since DWLOCs address total aggregate exposure to imidacloprid they are further discussed in the aggregate risk sections in Unit.III.E.

Analysis of monitoring data for degradates (ground water only) shows that imidacloprid parent is the dominant residue with imidacloprid urea the most likely degradate. Based on the available information, modeling of total residue results in only modest increases over the exposure estimates with parent alone. Based on the FIRST and SCI-GROW models the estimated environmental concentrations (EECs) of imidacloprid (total residue) for acute exposures are estimated to be 36.04 parts per billion (ppb) for surface water and 2.09 ppb for ground water. The EECs for imidacloprid (parent only) for acute exposures are estimated to be 35.89 parts per billion (ppb) for surface water and 1.43 ppb for ground water. The EECs for imidacloprid (total residue) for chronic exposures are estimated to be 17.24 ppb for surface water and 2.09 ppb for ground water. The EECs for imidacloprid (parent only) for chronic exposures are estimated to be 16.52 ppb for surface water and 1.43 ppb for ground water.

The New York State Department of Environmental Conservation, Division of Solid and Hazardous Materials has submitted extensive water monitoring information from Nassau and Suffolk Counties of New York. Nassau and Suffolk counties have ground water that is exceptionally vulnerable to pesticide contamination and have a long history of a number of pesticides being banned

from use in these counties over the years. In general, the kinds of concentrations of imidacloprid (parent only) found in the monitoring/observation and private drinking water wells are in the range expected in highly vulnerable ground water. Imidacloprid has been detected in approximately 20 (including some clusters of wells in the same immediate area) out of about 2,000 public and private water supply and monitoring wells. Imidacloprid was detected in 24 of the approximately 3,500 well samples analyzed for imidacloprid in Nassau and Suffolk Counties. Although detection of imidacloprid in about 20 of 2,000 wells in an area with highly vulnerable ground water does not demonstrate particularly widespread ground water contamination, 3 of 2000 wells in this highly vulnerable ground water have at least one detection greater than the SCI-GROW groundwater screening concentration for imidacloprid (parent only) at 1.43 ppb. The three samples that exceed the SCI-GROW groundwater ECs are reported at 2.06 ppb, 5.98, ppb and 6.69 ppb. Since the surface water model screening levels are greater than the ground water model screening levels and the detection levels reported from the water monitoring from Nassau and Suffolk Counties, New York, the Agency will use the surface water ECs for imidacloprid total residue as a worse case estimate for drinking water in the aggregate risk assessment.

3. *From non-dietary exposure.* The term "residential exposure" is used in this document to refer to non-occupational, non-dietary exposure (e.g., for lawn and garden pest control, indoor pest control, termiticides, and flea and tick control on pets).

Imidacloprid is currently registered for use on the following residential non-dietary sites: Granular products for application to lawns and ornamental plants; ready-to-use spray for application to flowers, shrubs and house plants; plant spikes for application to indoor and outdoor residential potted plants; ready-to-use potting medium for indoor and outdoor plant containers; liquid concentrate for application to lawns, trees, shrubs and flowers; ready-to-use liquid for directed spot application to cats and dogs. In addition, there are numerous registered products intended for use by commercial applicators to residential sites. These include gel baits for cockroach control; products intended for commercial ornamental, lawn and turf pest control; products for ant control; and products used as preservatives for wood products, building materials, textiles and plastics.