

sources of information used in the assessment.

Acute and chronic concentrations of parent metolachlor/S-metolachlor are not expected to exceed 5.5 ppb in ground water (based on SCI-GROW modeling). SCI-GROW estimates the upper bound ground water concentrations of pesticides likely to occur when the pesticide is used at the maximum allowable rate in areas with ground water vulnerable to contamination. Estimates were based on two applications to corn/turf for a total of 4 lbs. active ingredient/acre (the maximum application rate).

Acute and chronic estimates of metolachlor ESA in surface water (based on FIRST modeling) are 31.9 ppb and 22.8 ppb, respectively. Acute and chronic estimates of metolachlor OA in surface water are 91.4 ppb and 65.1 ppb, respectively. The application rate used for metolachlor ESA and OA in the model was estimated by converting maximum label rates for each use by the maximum percentage of degradate found in fate studies. In addition, each application rate was corrected for molecular weight differences of each degradate. Acute and chronic estimates of metolachlor ESA in ground water (based on SCI-GROW modeling, turf/corn scenario) are not expected to exceed 65.8 ppb. This value is considered representative of both peak and long-term average concentrations because of the inherent transport nature of ground water (generally slow movement from the source of contamination both laterally and horizontally). Acute and chronic estimates of metolachlor OA in ground water (also based on the turf/corn scenario) are not expected to exceed 31.7 ppb. Monitoring data suggest that the SCI-GROW estimates for metolachlor ESA and OA are slightly over estimating the potential impact of metolachlor/S-metolachlor use on ground water.

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 coarse screen for sorting out pesticides for which it is highly unlikely that drinking water concentrations would ever 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 percent reference dose (%RfD) or percent population adjusted dose (%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 metolachlor/S-metolachlor they are further discussed in the aggregate risk sections in Unit III.E.

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). There is the potential for post-application exposure to adults and children resulting from the use of S-metolachlor on residential lawns. Post-application exposures from various activities following lawn treatment are considered to be the most common and significant in residential settings. Post-application exposure is considered to be short-term (1– days of exposure), based on label directions limiting application to one time per season.

A short-term dermal risk assessment was not conducted since no systemic toxicity was observed at the limit dose of 1,000 milligrams/kilogram/day (mg/kg/day) following dermal application and there is no concern for developmental toxicity in rats and rabbits. Post-application inhalation exposure is also expected to be minimal since S-metolachlor is only applied outdoors, the vapor pressure is low and the label specifies that residents should not reenter treated areas until after the spray has dried.

The following post-application incidental oral scenarios following application to lawns and turf have been identified: (1) Short-term oral exposure to toddlers and children following hand-to-mouth exposure; (2) short-term oral exposure to toddlers and children following object-to-mouth exposure; (3) short-term oral exposure to toddlers and children following soil ingestion. The Health Effect Division Standard Operating Procedures for Residential Exposure Assessments (Draft, December 18, 1997) were used as a guideline for the residential post-application assessment. Also, standard values for turf transferable residues, turf transfer coefficients, and hand-to-mouth activities were used as amended by

Exposure Policy 12 (Science Advisory Panel on Exposure, February 22, 2001). The exposure and risk estimates for the three residential exposure scenarios are assessed for the day of application (day "0") since children will likely contact the lawn immediately following application. The following estimates/assumptions were used in the risk assessment: (1) A single application at the maximum label rate of 2.47 lb active ingredient/acre for S-metolachlor, (2) exposure duration for children is assumed to be 2 hours per day, (3) the exposed child's weight is 15 kg (33 pounds), and (4) turf transferable residue (TTR) value of 5%, and object-to-mouth residue value of 20% of the application rate assumed.

4. *Cumulative effects from substances with a common mechanism of toxicity.* Section 408(b)(2)(D)(v) of the FFDCA requires that, when considering whether to establish, modify, or revoke a tolerance, the Agency consider "available information" concerning the cumulative effects of a particular pesticide's residues and "other substances that have a common mechanism of toxicity." EPA has examined the common mechanism potential for S-metolachlor and has concluded that S-metolachlor should not be included with the chloroacetanilide pesticides designated as a "Common Mechanism Group." The Agency's position is that only some chloroacetanilides, namely acetochlor, alachlor and butachlor should be considered as a "Common Mechanism Group" due to their ability to cause nasal turbinate tumors. Although metolachlor does distribute to the nasal turbinates, and might produce a quinonimine, it is not apparent from the available data that metolachlor shares the same target site in the nasal tissue as acetochlor, alachlor, and butachlor.

For information regarding EPA's efforts to determine which chemicals have a common mechanism of toxicity and to evaluate the cumulative effects of such chemicals, see the policy statements released by EPA's Office of Pesticide Programs concerning common mechanism determinations and procedures for cumulating effects from substances found to have a common mechanism on EPA's website at <http://www.epa.gov/pesticides/cumulative/>.

D. Safety Factor for Infants and Children

1. *In general.* Section 408 of the FFDCA provides that EPA shall apply an additional tenfold margin of safety for infants and children in the case of threshold effects to account for prenatal and postnatal toxicity and the