

**APPENDIX B**

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**Ecological Risk Assessment Worksheet -  
Overdrive®**



## DERIVATION OF EECS

Section 3.0 of the Methods Document (ENSR 2005) presents the details of the exposure scenarios considered in the risk assessments. The following sub-sections describe the scenarios that were evaluated for bromacil. Note that in many cases, units were converted during the calculations (e.g., lb/acre converted to mg/cm<sup>2</sup>). These conversions were not included in the equations presented below.

### Direct Spray

Plant and wildlife species may be unintentionally impacted during normal application of a terrestrial herbicide as a result of a direct spray of the receptor or the waterbody inhabited by the receptor, indirect contact with dislodgeable foliar residue after herbicide application, or consumption of prey items sprayed during application. These exposures may occur within the application area (consumption of prey items) or outside of the application area (waterbodies accidentally sprayed during application of terrestrial herbicide). Generally, impacts outside of the intended application area are accidental exposures and are not typical of BLM application practices. The following direct spray scenarios were evaluated:

#### Direct Spray of Terrestrial Wildlife

Small mammal or Insect 100% Dermal Absorption

$$\text{Surface Areas (A): } \text{cm}^2 = 12.3 \times \text{BW}^{0.65}$$

Where: BW = body weight in grams

$$\text{Amount deposited on } \frac{1}{2} \text{ receptor (Amnt): } 0.5 \times A \times R$$

Where: A = Surface area in cm<sup>2</sup>

R = Application rate in lb a.i./acre

Small mammal 1<sup>st</sup> order

$$\text{Proportion absorbed over period T (Prop): } 1 - \exp(-k T)$$

Where: k = First order dermal absorption rate (hour<sup>-1</sup>)

T = Time (24 hours)

$$\text{Absorbed Dose: Amnt} \times \text{Prop} \div \text{BW}$$

#### Ingestion of Food Items Contaminated by Direct Spray

All herbivorous receptors ingestion acute

$$\text{Concentration on food (C): } R \times rr$$

Where: R = Application rate (lb a.i./acre)

rr = Residue rate as determined from Kenaga nomogram (mg/kg per lb/acre)

$$\text{Dose estimates (D): } C \times A \div \text{BW}$$

Where: C = Concentration on food (mg/kg food)

A = Wet weight food ingestion rate (kg/day)

BW = Body Weight

All herbivorous receptors ingestion chronic

$$\text{Initial concentration on food (C0): } R \times rr \times \text{Drift}$$

Where: R = Application rate (lb a.i./acre)

rr = Residue rate as determined from Kenaga nomogram (mg/kg per lb/acre)

Drift = 1

$$\text{Concentration on food at time T: } C0 \times \exp(-k \times T)$$

Where: C0 = Concentration on food at time zero (mg/kg food)

k = Decay Coefficient: ln(2) ÷ t50 (days<sup>-1</sup>)

T = Time (90 days)

$$\text{Time-weighted Average Concentration on vegetation (CTWA): } C0 \times (1 - \exp(-k \times T)) \div (k \times T)$$

$$\text{Dose estimates (D): } CTWA \times A \times \text{Prop} \div \text{BW}$$

Where: CTWA = Time Weighted Concentration on food (mg/kg food)

A = Wet weight food ingestion rate (kg/day)

Prop = Proportion of food impacted by direct spray (100%)

BW = Body Weight

Large carnivorous mammal ingestion acute

Amount deposited on small mammal prey (Amnt\_mouse):  $0.5 \times \text{SurfaceArea} \times R$

Where:  $R$  = Application rate (lb a.i./acre)

Dose estimates:  $\text{Drift} \times \text{Prop} \times \text{Amnt\_mouse} \div \text{BW\_mouse} \times A \div \text{BW}$

Where: Drift = 1

Prop = Proportion of food impacted by direct spray (100%)

A = Wet weight food ingestion rate (kg/day)

BW = Body Weight of carnivore

BW\_mouse = Body weight of food (small mammal; mouse)

Large carnivorous mammal ingestion chronic

Initial concentration on mammal ( $C_0$ ):  $0.5 \times \text{SurfaceArea} \times R \div \text{BW\_smallmammal}$

Where:  $R$  = Application rate (lb a.i./acre)

SurfaceArea = Surface area of food (small mammal; mouse)

BW\_smallmammal = Body weight of food (small mammal; mouse)

Concentration absorbed in small mammal at time T ( $C_90$ ):  $C_0 \times \exp(-k \times T)$

Where:  $C_0$  = Concentration on food at time zero (mg/kg food)

$k$  = Decay Coefficient:  $\ln(2)/t_{50}$  (days<sup>-1</sup>)

T = Time (90 days)

Dose estimates:  $C_90 \times \text{FIR\_coyote} \times \text{Prop} \div \text{BW}$

Where:  $C_90$  = Concentration of herbicide in food at 90 days

FIR = Wet weight food ingestion rate (mg/kg-day)

Prop = Proportion of food impacted by direct spray (100%)

BW = Body Weight

#### Accidental Direct Spray Over Pond

Mass in Pond ( $M_p$ ):  $A_p \times R$

Where:  $A_p$  = Area of pond

$R$  = Application rate (lb a.i./acre)

Concentration in Pond:  $M_p \div (V_p)$

Where:  $V_p$  = Volume of pond

#### Accidental Direct Spray Over Stream

Mass in Stream Reach ( $M_s$ ):  $A_s \times R$

Where:  $A_s$  = Area of stream affected by spray

$R$  = Application rate (lb a.i./acre)

Concentration in Pond:  $M_s \div (V_s)$

Where:  $V_s$  = Volume of stream reach affected by spray

#### **Off-Site Drift and Surface and Ground Water Runoff**

During normal application of herbicides, it is possible for a portion of the herbicide to drift outside of the treatment area and deposit onto non-target receptors. Precipitation may also result in the transport of herbicides bound to soils from the application area via surface runoff and root-zone groundwater flow. To simulate these off-site herbicide transport mechanisms, AgDRIFT® software was used to evaluate a number of possible drift scenarios and GLEAMS software was used to evaluate transport to off-site soils or waterbodies via surface runoff or root-zone ground water flow. These models provide concentrations in media. Details of the model and calculations used to obtain soil and water concentrations are presented in the Methods document (ENSR 2005). The surface water concentrations were used in the ERAs to estimate fish concentrations and consumption of these fish by an avian piscivore. The following presents those calculations:

#### Consumption of Fish From Contaminated Pond

Concentration in fish =  $C_w \times \text{BCF} \times \text{FCM TL2} \times \text{FCM TL3}$

Where:  $C_w$  = Concentration in water (obtained from model) mg/L

BCF = Bioconcentration factor (L/kg fish)

FCM TL2 = Trophic Level 2 food chain multiplier (unitless)

FCM TL3 = Trophic Level 3 food chain multiplier (unitless)

Dose estimates (D):  $C \times A \times \text{Prop} \div \text{BW}$

Where: C = Concentration in fish (mg/kg food)

A = Wet weight food ingestion rate (kg/day)

Prop = Proportion of food impacted (100%)

BW = Body Weight

### **Accidental Spill to Pond**

To represent worst-case potential impacts to ponds, a spill scenario was considered. A truck or helicopter spilling an entire load of herbicide mixed for the maximum application rate into a 1/4 acre, 1 meter deep pond.

#### Truck or Helicopter Spill into Pond

Concentrations in water (Cw):  $C_m \times V_{\text{spill}} \div V_p$

Where: C<sub>m</sub> = Herbicide concentration in the truck or helicopter mixture (mg a.i./L)

V<sub>spill</sub> = Volume of the spill (L)

V<sub>p</sub> = Volume of the pond (L)

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**General note:** Exposure parameters and equations in the following tables are described in more detail in the *Vegetation Treatments Programmatic EIS Ecological Risk Assessment Methodology* (ENSR 2005) and Section 4 of the ecological risk assessment for this herbicide.

## Dicamba Risk Assessment Worksheets

TABLE B-1

### Direct Spray of Terrestrial Receptors and Exposure from Indirect Contact with Foliage

Parameter	Pollinating Insect	Small Mammal	Units
<b>Duration of exposure (T)</b>	24	24	hours
<b>Body weight (BW)</b>	0.000093	0.02	kg
<b>Surface areas (A): <math>cm^2 = 12.3 \times BW(g)^{0.65}</math></b> <sup>1</sup>	2.63	86.21	cm <sup>2</sup>
<b>Application rates (R)<sup>2</sup></b>	Typical Maximum	0.1875 0.3125	lb/acre lb/acre
<b>Amount deposited on ½ receptor (Amnt): <math>0.5 \times A \times R \times cf</math></b>	Typical Maximum	0.002763594 0.00460599	mg mg
<b>Dose Estimate Assuming 100% Dermal Adsorption<sup>3</sup></b>			
<b>Absorbed Dose: Amnt × Prop / BW</b>	Typical Maximum	2.97E+01 4.95E+01	mg/kg bw mg/kg bw
<b>Dose Estimate Assuming First Order Dermal Adsorption<sup>4</sup></b>			
<b>First-order dermal absorption coefficient (k)</b>	Central estimate (ka)	0.049510513	hour <sup>-1</sup>
<b>Proportion absorbed over period T (Prop):</b>	Typical Maximum	0.132031626 0.132031626	unitless unitless
<b>1-exp(-k×T)<sup>5</sup></b>			
<b>Absorbed dose: Amnt × Prop / BW</b>	Typical Maximum	5.98E-01 9.97E-01	mg/kg bw mg/kg bw

RISK QUOTIENTS <sup>6</sup> - Direct Spray	Toxicity Reference Value (mg/kg bw) <sup>7</sup>	Typical Application	Maximum Application
Small mammal - 100% absorption	626	2.42E-04	4.03E-04
Pollinating insect - 100% absorption	975	3.05E-02	5.08E-02
Small mammal - 1st order dermal adsorption	626	3.19E-05	5.32E-05

RISK QUOTIENTS - Indirect Contact <sup>8</sup>	Toxicity Reference Value (mg/kg bw) <sup>7</sup>	Typical Application	Maximum Application
Small mammal - 100% absorption	626	2.42E-05	4.03E-05
Pollinating insect - 100% absorption	975	3.05E-03	5.08E-03
Small mammal - 1st order dermal adsorption	626	3.19E-06	5.32E-06

<sup>1</sup>Surface area calculation for mammals from Stahl (1967; presented in USEPA 1993). No surface area calculation identified for insects. Mammalian equation used as a surrogate.

<sup>2</sup>A conversion factor (cf) of 0.011208493 was used to convert the application rate (R) from lb/acre to mg/cm<sup>2</sup>.

<sup>3</sup>100% dermal absorption - all of the herbicide falling on the receptor was assumed to penetrate the skin within 24 hours.

<sup>4</sup>1st order dermal absorption - absorption occurs over 24 hours, taking into consideration the potential for some herbicide to not be absorbed.

<sup>5</sup> $\exp(-k \times T) = e^{-k \times T}$ , where e is a constant = 2.7828.

<sup>6</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>7</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

<sup>8</sup>Exposure from indirect contact assumed to be 1/10 of direct spray exposure (Harris and Solomon 1992).

**TABLE B-2**
**Potential Risks to Small Herbivorous/Omnivorous Mammal (Deer Mouse) from Consumption of Contaminated Fruit (Acute Exposure Scenario)**

Parameters/Assumptions		Value	Units
<b>Body weight (BW)</b>		0.02	kg
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>		0.0033641	kg dw/day
<b>Food ingestion rate (wet weight [ww]) (ir)<sup>2</sup></b>		0.014626644	kg ww/day
<b>Application rates (R)</b>	Typical	0.1875	lb/acre
	Maximum	0.3125	lb/acre
<b>Residue rate – berries (rr)<sup>3</sup></b>	Typical	5.4	mg/kg per lb/acre
	Maximum	40.7	mg/kg per lb/acre
<b>Concentration on berries (C): R × rr</b>	Typical	1.0125	mg/kg fruit
	Maximum	12.71875	mg/kg fruit
<b>Dose estimates (D): C × ir / BW</b>	Typical	7.40E-01	mg/kg bw
	Maximum	9.30E+00	mg/kg bw

RISK QUOTIENTS <sup>4</sup> - Ingestion	Toxicity Reference Value <sup>5</sup> (mg/kg bw)	Typical Application	Maximum Application
Small mammalian herbivore/omnivore (acute exposure)	626	1.18E-03	1.49E-02

<sup>1</sup>Calculated using algorithm developed by Nagy (1987) for rodents; where food ingestion rate (g dw/day) = 0.621×(BW g)<sup>0.564</sup>; converted into kg dw/day.

<sup>2</sup>Assumes fruit is 77% water (USEPA 1993; Table 4-2 - value for fruit pulp and skin).

<sup>3</sup>Residue rates were obtained from the Kenaga nomogram as updated (Fletcher et al. 1994) and are vegetation-specific.

<sup>4</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>5</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

**TABLE B-3**
**Potential Risks to Small Herbivorous/Omnivorous Mammal (Deer Mouse) from Consumption of Contaminated Fruit (Chronic Exposure Scenario)**

Parameters/Assumptions		Value	Units
<b>Duration of exposure (T)</b>		90	days
<b>Body weight (BW)</b>		0.02	kg
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>		0.0033641	kg dw/day
<b>Food ingestion rate (wet weight [ww]) (ir)<sup>2</sup></b>		0.014626644	kg ww/day
<b>Half life on vegetation (t<sub>50</sub>)</b>	Herbicide specific	14	days
<b>Application rates (R)</b>	Typical	0.1875	lb/acre
	Maximum	0.3125	lb/acre
<b>Residue rate – berries (rr)<sup>3</sup></b>	Typical	5.4	mg/kg per lb/acre
	Maximum	40.7	mg/kg per lb/acre
<b>Drift (Drift)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Decay coefficient (k): ln(2) / t<sub>50</sub><sup>4</sup></b>	Typical	0.0495	days <sup>-1</sup>
	Maximum	0.0495	days <sup>-1</sup>
<b>Initial concentration on berries (C<sub>0</sub>): R × rr × Drift</b>	Typical	1.0125	mg/kg fruit
	Maximum	12.719	mg/kg fruit
<b>Concentration on berries at time T (C<sub>90</sub>) : C<sub>0</sub> × exp(-k×T)<sup>5</sup></b>	Typical	0.0118	mg/kg fruit
<b>Time-weighted average concentration on vegetation (CTWA): C<sub>0</sub> × (1-exp(-k×T)) / (k×T)<sup>5</sup></b>	Maximum	0.1476	mg/kg fruit
<b>Proportion of diet contaminated (PC)</b>	Typical	0.2246	mg/kg fruit
	Maximum	2.8212	mg/kg fruit
<b>Dose estimates (D): (CTWA × ir × PC) / BW</b>	Typical	1	unitless
	Maximum	1	unitless
	Typical	0.1642	mg/kg bw/day
	Maximum	2.0632	mg/kg bw/day

RISK QUOTIENTS – Ingestion <sup>6</sup>	Toxicity Reference Value (mg/kg bw/day) <sup>7</sup>	Typical Application	Maximum Application
Small mammalian herbivore/omnivore (chronic exposure)	11	1.49E-02	1.88E-01

<sup>1</sup>Calculated using algorithm developed by Nagy (1987) for rodents; where food ingestion rate (g dw/day) = 0.621×(BW g)<sup>0.564</sup>; converted into kg dw/day.

<sup>2</sup> Assumes fruit is 77% water (USEPA 1993; Table 4-2 - value for fruit pulp and skin).

<sup>3</sup> Residue rates were obtained from the Kenaga nomogram as updated (Fletcher et al. 1994) and are vegetation-specific.

<sup>4</sup>In = Natural log function.

<sup>5</sup> $\exp(-k \times T) = e^{-k \times T}$ , where e is a constant = 2.7828.

<sup>6</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>7</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

**TABLE B-4**
**Potential Risks to Large Herbivorous Mammal (Mule Deer) from Consumption of Contaminated Vegetation  
(Acute Exposure Scenario)**

Parameters/Assumptions		Value	Units
<b>Body weight (BW)</b>		70	kg
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>		1.9211536	kg dw/day
<b>Food ingestion rate (wet weight [ww]) (ir)<sup>2</sup></b>		6.40384532	kg ww/day
<b>Duration of exposure (D)</b>		1	day
<b>Application rates (R)</b>	Typical	0.1875	lb/acre
	Maximum	0.3125	lb/acre
<b>Residue rate - grass (rr)<sup>3</sup></b>	Typical	36	mg/kg per lb/acre
	Maximum	197	mg/kg per lb/acre
<b>Concentration on grass (C): R × rr</b>	Typical	6.75	mg/kg grass
	Maximum	61.5625	mg/kg grass
<b>Drift (Drift)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Proportion of diet contaminated (PC)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Dose estimates: (Drift × PC × C × ir) / BW</b>	Typical	6.18E-01	mg/kg bw/day
	Maximum	5.63E+00	mg/kg bw/day

RISK QUOTIENTS <sup>4</sup> – Ingestion	Toxicity Reference Value (mg/kg bw/day) <sup>5</sup>	Typical Application	Maximum Application
Large mammalian herbivore/gramivore (acute exposure)	81	7.62E-03	6.95E-02

<sup>1</sup>Calculated using algorithm developed by Nagy (1987) for herbivores; where food ingestion rate (g dw/day) = 0.577×(BW g)<sup>0.727</sup>; converted into kg dw/day.

<sup>2</sup>Assumes grass is 70% water (USEPA 1993; Table 4-2 - lowest value for young grasses).

<sup>3</sup>Residue rates were obtained from the Kenaga nomogram as updated (Fletcher et al., 1994) and are vegetation-specific.

<sup>4</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>5</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

**TABLE B-5**
**Potential Risks to Large Herbivorous Mammal (Mule Deer) from Consumption of Contaminated Vegetation  
(Chronic Exposure Scenario)**

Parameters/Assumptions		Value	Units
<b>Duration of exposure (T)</b>		90	day
<b>Body weight (BW)</b>		70	kg
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>		1.921153597	kg dw/day
<b>Food ingestion rate (wet weight [ww]) (ir)<sup>2</sup></b>		6.403845323	kg ww/day
<b>Half life on vegetation (<math>t_{50}</math>)</b>	Herbicide specific	14	days
<b>Application rates (R)</b>	Typical	0.1875	lb/acre
	Maximum	0.3125	lb/acre
<b>Residue rate - grass (rr)<sup>3</sup></b>	Typical	36	mg/kg per lb/acre
	Maximum	197	mg/kg per lb/acre
<b>Drift (Drift)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Decay coefficient (k): <math>\ln(2) / t_{50}</math><sup>4</sup></b>	Typical	0.04951	days <sup>-1</sup>
	Maximum	0.04951	days <sup>-1</sup>
<b>Initial concentration on grass (<math>C_0</math>): R × rr × Drift</b>	Typical	6.75	mg/kg grass
	Maximum	61.5625	mg/kg grass
<b>Concentration on grass at time T: <math>C_0 \times \exp(-k \times T)</math><sup>5</sup></b>	Typical	0.0784	mg/kg grass
	Maximum	0.7147	mg/kg grass
<b>Time-weighted average concentration on vegetation (CTWA): <math>C_0 \times (1 - \exp(-k \times T)) / (k \times T)</math><sup>5</sup></b>	Typical	1.4972	mg/kg vegetation
	Maximum	13.6554	mg/kg vegetation
<b>Proportion of diet contaminated (PC)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Dose estimates: (CTWA × ir × PC) / BW</b>	Typical	1.37E-01	mg/kg bw/day
	Maximum	1.25E+00	mg/kg bw/day

RISK QUOTIENTS <sup>6</sup> – Ingestion	Toxicity Reference Value (mg/kg bw/day) <sup>7</sup>	Typical Application	Maximum Application
Large mammalian herbivore/gramivore (chronic exposure)	0.098	1.40E+00	1.27E+01

<sup>1</sup>Calculated using algorithm developed by Nagy (1987) for herbivores; where food ingestion rate (g dw/day) = 0.577 × (BW g)<sup>0.727</sup>; converted into kg dw/day.

<sup>2</sup>Assumes grass is 70% water (USEPA 1993; Table 4-2 - lowest value for young grasses).

<sup>3</sup>Residue rates were obtained from the Kenaga nomogram as updated (Fletcher et al. 1994) and are vegetation-specific.

<sup>4</sup>ln = Natural log function.

<sup>5</sup> $\exp(-k \times T) = e^{-(k \times T)}$ , where e is a constant = 2.7828.

<sup>6</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>7</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

**TABLE B-6**
**Potential Risks to Carnivorous Mammal (Coyote) from Consumption of Contaminated Small Mammals  
(Acute Exposure Scenario)**

Parameters/Assumptions		Value	Units
<b>Body weight (BW)</b>		12	kg
<b>Body weight small mammal (BW_mouse)</b>		0.02	kg
<b>Surface area small mammal (A)</b>		86.21	cm <sup>2</sup>
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>		0.52971677	kg dw/day
<b>Food ingestion rate (wet weight [ww]) (ir)<sup>2</sup></b>		1.6553649	kg ww/day
<b>Duration of exposure (D)</b>		1	day
<b>Application rates (R)</b>	Typical	0.1875	lb/acre
	Maximum	0.3125	lb/acre
<b>Amount deposited on small mammal prey (Amnt_mouse): <math>0.5 \times A \times R^3</math></b>	Typical	0.09058914	mg
	Maximum	0.1509819	mg
<b>Drift (Drift)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Proportion of diet contaminated (PC)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Dose estimates: <math>([(Drift \times PC \times Amnt\_mouse) / BW\_mouse] \times ir) / BW</math></b>	Typical	6.25E-01	mg/kg bw
	Maximum	1.04E+00	mg/kg bw

RISK QUOTIENTS <sup>4</sup> – Ingestion	Toxicity Reference Value (mg/kg bw) <sup>5</sup>	Typical Application	Maximum Application
Large carnivorous mammal (acute exposure)	127	4.92E-03	8.20E-03

<sup>1</sup>Calculated using algorithm developed by Nagy (1987); where food ingestion rate (g dw/day) = 0.0687×(BW g)<sup>0.822</sup>; converted into kg dw/day.

<sup>2</sup>Assumes mammals are 68% water (USEPA 1993).

<sup>3</sup>Surface area (A) and body weight of mouse receptor presented in Table B-1. Surface area calculation for mammals from Stahl (1967; presented in USEPA 1993).

<sup>4</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>5</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

**TABLE B-7**
**Potential Risks to Carnivorous Mammal (Coyote) from Consumption of Contaminated Small Mammals  
(Chronic Exposure Scenario)**

Parameters/Assumptions	Value	Units
<b>Duration of exposure (T)</b>	90	day
<b>Body weight (BW)</b>	12	kg
<b>Body weight small mammal (BW_mouse)</b>	0.02	kg
<b>Surface area small mammal (A)</b>	86.21	cm <sup>2</sup>
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>	0.529716769	kg dw/day
<b>Food ingestion rate (wet weight [ww]) (ir)<sup>2</sup></b>	1.655364903	kg ww/day
<b>Application rates (R)</b>		
Typical	0.1875	lb/acre
Maximum	0.3125	lb/acre
<b>Drift (Drift)</b>		
Typical	1	unitless
Maximum	1	unitless
<b>Decay coefficient (k): ln(2) / t<sub>50</sub><sup>3</sup></b>		
Typical	0.049510513	days <sup>-1</sup>
Maximum	0.049510513	days <sup>-1</sup>
<b>Initial concentration on small mammal (C<sub>0</sub>): (0.5 × A × R) / BW_mouse</b>		
Typical	4.529456903	mg/kg mammal
Maximum	7.549094838	mg/kg mammal
<b>Concentration absorbed in small mammal at time T (C<sub>90</sub>): C<sub>0</sub> × exp(-k×T)<sup>4</sup></b>		
Typical	0.598031558	mg/kg mammal
Maximum	0.996719263	mg/kg mammal
<b>Proportion of diet contaminated (PC)</b>		
Typical	1	unitless
Maximum	1	unitless
<b>Dose estimates: (C<sub>90</sub> × ir × PC) / BW</b>		
Typical	8.25E-02	mg/kg bw/day
Maximum	1.37E-01	mg/kg bw/day

RISK QUOTIENTS <sup>5</sup> – Ingestion	Toxicity Reference Value (mg/kg bw/day) <sup>6</sup>	Typical Application	Maximum Application
Large mammalian carnivore (chronic exposure)	0.152	5.43E-01	9.05E-01

<sup>1</sup>Calculated using algorithm developed by Nagy (1987); where food ingestion rate (g dw/day) = 0.0687×(BW g)<sup>0.822</sup>; converted into kg dw/day.

<sup>2</sup>Assumes mammals are 68% water (USEPA 1993).

<sup>3</sup>In = Natural log function.

<sup>4</sup>exp(-k×T) = e<sup>A(-k×T)</sup>, where e is a constant = 2.7828.

<sup>5</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>6</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

**TABLE B-8**
**Potential Risks to Insectivorous Bird (American Robin) from Consumption of Contaminated Insects (Acute Exposure Scenario)**

Parameters/Assumptions		Value	Units
<b>Body weight (BW)</b>		0.08	kg
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>		0.01124177	kg dw/day
<b>Food ingestion rate (wet weight [ww]) (ir)<sup>2</sup></b>		0.03626376	kg ww/day
<b>Duration of exposure (D)</b>		1	day
<b>Application rates (R)</b>	Typical	0.1875	lb/acre
	Maximum	0.3125	lb/acre
<b>Residue rate - insects (rr)<sup>3</sup></b>	Typical	45	mg/kg per lb/acre
	Maximum	350	mg/kg per lb/acre
<b>Concentration on insects (C): R × rr</b>	Typical	8.4375	mg/kg insect
	Maximum	109.375	mg/kg insect
<b>Drift (Drift)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Proportion of diet contaminated (PC)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Dose estimates: (Drift × PC × C × ir) / BW</b>	Typical	3.82E+00	mg/kg bw
	Maximum	4.96E+01	mg/kg bw

RISK QUOTIENTS <sup>4</sup> – Ingestion	Toxicity Reference Value(mg/kg bw) <sup>5</sup>	Typical Application	Maximum Application
Small insectivorous bird (acute exposure)	30,190	1.27E-04	1.64E-03

<sup>1</sup>Calculated using algorithm developed by Nagy (1987) for all birds; where food ingestion rate (kg dw/day) = 0.0582×(BW)<sup>0.651</sup>.

<sup>2</sup>Assumes insects are 69% water (USEPA 1993; Table 4-1 - value for grasshoppers and crickets).

<sup>3</sup>Residue rates were obtained from the Kenaga nomogram as updated (Fletcher et al. 1994).

<sup>4</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>5</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

**TABLE B-9**
**Potential Risks to Insectivorous Bird (American Robin) from Consumption of Contaminated Insects  
(Chronic Exposure Scenario)**

Parameters/Assumptions		Value	Units
<b>Duration of exposure (T)</b>		90	day
<b>Body weight (BW)</b>		0.08	kg
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>		0.011241767	kg dw/day
<b>Food ingestion rate (wet weight [ww]) (ir)<sup>2</sup></b>		0.036263763	kg ww/day
<b>Half life on insect (t<sub>50</sub>)</b>	Herbicide specific	14	days
<b>Application rates (R)</b>	Typical	0.1875	lb/acre
	Maximum	0.3125	lb/acre
<b>Residue rate - insects (rr)<sup>3</sup></b>	Typical	45	mg/kg per lb/acre
	Maximum	350	mg/kg per lb/acre
<b>Drift (Drift)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Decay coefficient (k): ln(2) / t<sub>50</sub><sup>4</sup></b>	Typical	0.04951	days <sup>-1</sup>
	Maximum	0.04951	days <sup>-1</sup>
<b>Initial concentration on insects (C<sub>0</sub>): R × rr × Drift</b>	Typical	8.4375	mg/kg insect
	Maximum	109.375	mg/kg insect
<b>Concentration on insects at time T</b>	Typical	0.09795	mg/kg insect
<b>(C<sub>90</sub>): C<sub>0</sub> × exp(-k×T)<sup>5</sup></b>	Maximum	1.2698	mg/kg insect
<b>Time-weighted average concentration on insects</b>	Typical	1.8716	mg/kg insect
<b>(CTWA): C<sub>0</sub> × (1-exp(-k×T)) / (k×T)<sup>5</sup></b>	Maximum	24.2609	mg/kg insect
<b>Proportion of diet contaminated (PC)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Dose estimates (D): (CTWA × ir × PC) / BW</b>	Typical	8.48E-01	mg/kg bw/day
	Maximum	1.10E+01	mg/kg bw/day

RISK QUOTIENTS <sup>6</sup> – Ingestion	Toxicity Reference Value(mg/kg bw/day) <sup>7</sup>	Typical Application	Maximum Application
Small insectivorous bird (chronic exposure)	170	4.99E-03	6.47E-02

<sup>1</sup>Calculated using algorithm developed by Nagy (1987) for all birds; where food ingestion rate (kg dw/day) = 0.0582×(BW)<sup>0.651</sup>.

<sup>2</sup> Assumes insects are 69% water (USEPA 1993; Table 4-1 - value for grasshoppers and crickets).

<sup>3</sup> Residue rates were obtained from the Kenaga nomogram as updated (Fletcher et al. 1994).

<sup>4</sup> ln = Natural log function.

<sup>5</sup>exp(-k×T) = e<sup>-k×T</sup>, where e is a constant = 2.7828.

<sup>6</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>7</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

**TABLE B-10**
**Potential Risks to Herbivorous Bird (Canada goose) from Consumption of Contaminated Vegetation (Acute Exposure Scenario)**

Parameters/Assumptions		Value	Units
<b>Body Weight (BW)</b>		3.72	kg
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>		0.13688203	kg dw/day
<b>Food ingestion rate (wet weight [ww]) (ir)<sup>2</sup></b>		0.91254687	kg ww/day
<b>Duration of exposure (D)</b>		1	day
<b>Application rates (R)</b>	Typical	0.1875	lb/acre
	Maximum	0.3125	lb/acre
<b>Residue rate - vegetation (rr)<sup>3</sup></b>	Typical	35	mg/kg per lb/acre
	Maximum	296	mg/kg per lb/acre
<b>Concentration on vegetation (C): R × rr</b>	Typical	6.5625	mg/kg veg
	Maximum	92.5	mg/kg veg
<b>Drift (Drift)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Proportion of diet contaminated (PC)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Dose estimates: (Drift × PC × C × ir) / BW</b>	Typical	1.61E+00	mg/kg bw
	Maximum	2.27E+01	mg/kg bw

RISK QUOTIENTS <sup>4</sup> – Ingestion	Toxicity Reference Value (mg/kg bw) <sup>5</sup>	Typical Application	Maximum Application
Large herbivorous bird (acute exposure)	5,000	3.22E-04	4.54E-03

<sup>1</sup>Calculated using algorithm developed by Nagy (1987) for all birds; where food ingestion rate (kg dw/day) = 0.0582×(BW)<sup>0.651</sup>.

<sup>2</sup>Assumes vegetation is 85% water (USEPA 1993; Table 4-2 - value for dicotyledons).

<sup>3</sup>Residue rates were obtained from the Kenaga nomogram as updated (Fletcher et al. 1994) and are vegetation-specific.

<sup>4</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>5</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

**TABLE B-11**
**Potential Risks to Herbivorous Bird (Canada goose) from Consumption of Contaminated Vegetation  
(Chronic Exposure Scenario)**

Parameters/Assumptions		Value	Units
<b>Duration of exposure (T)</b>		90	day
<b>Body weight (BW)</b>		3.72	kg
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>		0.13688203	kg dw/day
<b>Food ingestion rate (wet weight [ww]) (ir)<sup>2</sup></b>		0.912546869	kg ww/day
<b>Half life on vegetation (<math>t_{50}</math>)</b>	Herbicide specific	14	days
<b>Application rates (R)</b>	Typical	0.1875	lb/acre
	Maximum	0.3125	lb/acre
<b>Residue rate - vegetation (rr)<sup>3</sup></b>	Typical	35	mg/kg per lb/acre
	Maximum	296	mg/kg per lb/acre
<b>Drift (Drift)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Decay coefficient (k): <math>\ln(2) / t_{50}</math><sup>4</sup></b>	Typical	0.0495	days <sup>-1</sup>
	Maximum	0.0495	days <sup>-1</sup>
<b>Initial concentration on vegetation (<math>C_0</math>): R × rr × Drift</b>	Typical	6.5625	mg/kg veg
	Maximum	92.5	mg/kg veg
<b>Concentration on vegetation at time T (<math>C_{90}</math>): <math>C_0 \times \exp(-k \times T)</math><sup>5</sup></b>	Typical	0.0762	mg/kg veg
	Maximum	1.0739	mg/kg veg
<b>Time-weighted Average Concentration on vegetation (CTWA): <math>C_0 \times (1 - \exp(-k \times T)) / (k \times T)</math><sup>5</sup></b>	Typical	1.4557	mg/kg veg
	Maximum	20.5178	mg/kg veg
<b>Proportion of diet contaminated (PC)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Dose estimates (D): (CTWA × ir × PC) / BW</b>	Typical	3.57E-01	mg/kg bw/day
	Maximum	5.03E+00	mg/kg bw/day

RISK QUOTIENTS <sup>6</sup> – Ingestion	Toxicity Reference Value (mg/kg bw/day) <sup>7</sup>	Typical Application	Maximum Application
Large herbivorous bird (chronic exposure)	92	3.88E-03	5.47E-02

<sup>1</sup>Calculated using algorithm developed by Nagy (1987) for all birds; where food ingestion rate (kg dw/day) = 0.0582×(BW)<sup>0.651</sup>.

<sup>2</sup>Assumes vegetation is 85% water (USEPA 1993; Table 4-2 - value for dicotyledons).

<sup>3</sup>Residue rates were obtained from the Kenaga nomogram as updated (Fletcher et al. 1994) and are vegetation-specific.

<sup>4</sup>In = Natural log function.

<sup>5</sup> $\exp(-k \times T) = e^{-k \times T}$ , where e is a constant = 2.7828.

<sup>6</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>7</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

**TABLE B-12**  
**Potential Risks to Aquatic Species from Accidental Spray Drift to Pond**

<b>OFF-SITE DRIFT - modeled in AgDrift TYPICAL APPLICATION RATE</b>									
<b>Mode of Application</b>	<b>Application Height or Type</b>	<b>Distance from Receptor (ft)</b>	<b>Pond Concentration (mg/L)</b>	<b>Risk Quotients<sup>1</sup> - Acute</b>			<b>Risk Quotients<sup>1</sup> - Chronic</b>		
				<b>Fish</b>	<b>Aquatic Invertebrates</b>	<b>Non-Target Aquatic Plants</b>	<b>Fish</b>	<b>Aquatic Invertebrates</b>	<b>Non-Target Aquatic Plants</b>
Ground	Low Boom	25	1.28E-04	4.56E-06	3.36E-05	1.28E-03	1.37E-05	1.01E-04	3.87E-03
Ground	Low Boom	100	7.00E-05	2.50E-06	1.84E-05	7.00E-04	7.53E-06	5.51E-05	2.12E-03
Ground	Low Boom	900	1.35E-05	4.83E-07	3.56E-06	1.35E-04	1.45E-06	1.06E-05	4.10E-04
Ground	High Boom	25	2.05E-04	7.33E-06	5.40E-05	2.05E-03	2.21E-05	1.62E-04	6.22E-03
Ground	High Boom	100	1.08E-04	3.87E-06	2.85E-05	1.08E-03	1.16E-05	8.52E-05	3.28E-03
Ground	High Boom	900	1.72E-05	6.13E-07	4.52E-06	1.72E-04	1.85E-06	1.35E-05	5.20E-04

**OFF-SITE DRIFT - modeled in AgDrift  
MAXIMUM APPLICATION RATE**

<b>Mode of Application</b>	<b>Application Height or Type</b>	<b>Distance from Receptor (ft)</b>	<b>Pond Concentration (mg/L)</b>	<b>Risk Quotients<sup>1</sup> - Acute</b>			<b>Risk Quotients<sup>1</sup> - Chronic</b>		
				<b>Fish</b>	<b>Aquatic Invertebrates</b>	<b>Non-Target Aquatic Plants</b>	<b>Fish</b>	<b>Aquatic Invertebrates</b>	<b>Non-Target Aquatic Plants</b>
Ground	Low Boom	25	2.13E-04	7.61E-06	5.61E-05	2.13E-03	2.29E-05	1.68E-04	6.46E-03
Ground	Low Boom	100	1.17E-04	4.17E-06	3.08E-05	1.17E-03	1.26E-05	9.20E-05	3.54E-03
Ground	Low Boom	900	2.26E-05	8.06E-07	5.94E-06	2.26E-04	2.43E-06	1.78E-05	6.84E-04
Ground	High Boom	25	3.41E-04	1.22E-05	8.96E-05	3.41E-03	3.66E-05	2.68E-04	1.03E-02
Ground	High Boom	100	1.80E-04	6.44E-06	4.75E-05	1.80E-03	1.94E-05	1.42E-04	5.46E-03
Ground	High Boom	900	2.86E-05	1.02E-06	7.53E-06	2.86E-04	3.08E-06	2.25E-05	8.67E-04

<sup>1</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

**TABLE B-13**  
**Potential Risks to Aquatic Species from Accidental Spray Drift to Stream**

<b>OFF-SITE DRIFT - modeled in AgDrift</b> <b>TYPICAL APPLICATION RATE</b>									
<b>Mode of Application</b>	<b>Application Height or Type</b>	<b>Distance from Receptor (ft)</b>	<b>Stream Concentration (mg/L)</b>	<b>Risk Quotients<sup>1</sup> - Acute</b>			<b>Risk Quotients<sup>1</sup> - Chronic</b>		
				<b>Fish</b>	<b>Aquatic Invertebrates</b>	<b>Non-Target Aquatic Plants</b>	<b>Fish</b>	<b>Aquatic Invertebrates</b>	<b>Non-Target Aquatic Plants</b>
Ground	Low Boom	25	2.30E-04	8.21E-06	6.05E-05	2.30E-03	2.47E-05	1.81E-04	6.97E-03
Ground	Low Boom	100	6.74E-05	2.41E-06	1.77E-05	6.74E-04	7.24E-06	5.30E-05	2.04E-03
Ground	Low Boom	900	6.98E-06	2.49E-07	1.84E-06	6.98E-05	7.50E-07	5.49E-06	2.11E-04
Ground	High Boom	25	3.85E-04	1.38E-05	1.01E-04	3.85E-03	4.14E-05	3.03E-04	1.17E-02
Ground	High Boom	100	1.09E-04	3.90E-06	2.87E-05	1.09E-03	1.17E-05	8.59E-05	3.31E-03
Ground	High Boom	900	9.22E-06	3.29E-07	2.43E-06	9.22E-05	9.91E-07	7.26E-06	2.79E-04
<b>OFF-SITE DRIFT - modeled in AgDrift</b> <b>MAXIMUM APPLICATION RATE</b>									
<b>Mode of Application</b>	<b>Application Height or Type</b>	<b>Distance from Receptor (ft)</b>	<b>Stream Concentration (mg/L)</b>	<b>Risk Quotients<sup>1</sup> - Acute</b>			<b>Risk Quotients<sup>1</sup> - Chronic</b>		
				<b>Fish</b>	<b>Aquatic Invertebrates</b>	<b>Non-Target Aquatic Plants</b>	<b>Fish</b>	<b>Aquatic Invertebrates</b>	<b>Non-Target Aquatic Plants</b>
Ground	Low Boom	25	3.83E-04	1.37E-05	1.01E-04	3.83E-03	4.12E-05	3.02E-04	1.16E-02
Ground	Low Boom	100	1.12E-04	4.01E-06	2.96E-05	1.12E-03	1.21E-05	8.84E-05	3.40E-03
Ground	Low Boom	900	1.16E-05	4.15E-07	3.06E-06	1.16E-04	1.25E-06	9.15E-06	3.52E-04
Ground	High Boom	25	6.42E-04	2.29E-05	1.69E-04	6.42E-03	6.90E-05	5.05E-04	1.95E-02
Ground	High Boom	100	1.82E-04	6.49E-06	4.78E-05	1.82E-03	1.96E-05	1.43E-04	5.51E-03
Ground	High Boom	900	1.54E-05	5.49E-07	4.04E-06	1.54E-04	1.65E-06	1.21E-05	4.66E-04

<sup>1</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

**TABLE B-14**
**Potential Risks to Non-Target Terrestrial Plants from Direct Spray and Spray Drift**

<b>DIRECT SPRAY</b>	<b>Terrestrial Concentration (lb/acre)<sup>1</sup></b>	<b>Typical Species RQ<sup>2</sup></b>	<b>Rare, Threatened, and Endangered Species RQ<sup>2</sup></b>
Typical application rate	0.1875	6.94E+02	2.08E+03
Maximum application rate	0.3125	1.16E+03	3.47E+03

<b>OFF-SITE DRIFT - modeled in AgDrift</b>					
<b>TYPICAL APPLICATION RATE</b>					
<b>Mode of Application</b>	<b>Application Height or Type</b>	<b>Distance from Receptor (ft)</b>	<b>Soil Concentration (lb/acre)<sup>1</sup></b>	<b>Typical Species RQ<sup>2</sup></b>	<b>Rare, Threatened, and Endangered Species RQ<sup>2</sup></b>
Ground	Low Boom	25	2.25E-03	8.33E+00	2.50E+01
Ground	Low Boom	100	7.50E-04	2.78E+00	8.33E+00
Ground	Low Boom	900	1.28E-04	4.73E-01	1.42E+00
Ground	High Boom	25	4.00E-03	1.48E+01	4.44E+01
Ground	High Boom	100	1.25E-03	4.63E+00	1.39E+01
Ground	High Boom	900	1.64E-04	6.06E-01	1.82E+00
<b>OFF-SITE DRIFT - modeled in AgDrift</b>					
<b>MAXIMUM APPLICATION RATE</b>					
<b>Mode of Application</b>	<b>Application Height or Type</b>	<b>Distance from Receptor (ft)</b>	<b>Soil Concentration (lb/acre)<sup>1</sup></b>	<b>Typical Species RQ<sup>2</sup></b>	<b>Rare, Threatened, and Endangered Species RQ<sup>2</sup></b>
Ground	Low Boom	25	4.06E-03	1.50E+01	4.51E+01
Ground	Low Boom	100	1.25E-03	4.63E+00	1.39E+01
Ground	Low Boom	900	2.13E-04	7.89E-01	2.37E+00
Ground	High Boom	25	6.56E-03	2.43E+01	7.29E+01
Ground	High Boom	100	2.19E-03	8.10E+00	2.43E+01
Ground	High Boom	900	2.73E-04	1.01E+00	3.03E+00

<sup>1</sup>a.i. = active ingredient.

<sup>2</sup>RQ = Risk Quotient = Estimated Dose/Toxicity Reference Value.

**TABLE B-15**
**Potential Risk to Predatory Bird (Bald Eagle) from Consumption of Contaminated Fish from Pond (Pond Impacted by Spray Drift Modeled in AgDrift)**

Parameters/ Assumptions	Value	Units
<b>Body weight (BW)</b>	5.15	kg
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>	0.101786153	kg dw/day
<b>Food ingestion rate (wet weight [ww]) (ir)<sup>2</sup></b>	0.40714461	kg ww/day
<b>Bioconcentration factor (BCF)</b>	28.78	L/kg fish
<b>Proportion of diet contaminated (PC)</b>	1	unitless
<b>Toxicity reference value (TRV)<sup>3</sup></b>	92	mg/kg-bw/day

TYPICAL APPLICATION RATE						
Mode of Application	Application Height or Type	Distance from Receptor (ft)	Pond Concentration <sup>4</sup> (C <sub>pond</sub> mg/L)	Concentration in fish (C <sub>Fish</sub> ): C <sub>pond</sub> × BCF	Dose estimate (D): (C <sub>Fish</sub> × ir × PC) / BW	Risk Quotient <sup>5</sup>
Ground	Low Boom	25	1.28E-04	3.68E-03	2.91E-04	3.16E-06
Ground	Low Boom	100	7.00E-05	2.01E-03	1.59E-04	1.73E-06
Ground	Low Boom	900	1.35E-05	3.89E-04	3.08E-05	3.34E-07
Ground	High Boom	25	2.05E-04	5.91E-03	4.67E-04	5.08E-06
Ground	High Boom	100	1.08E-04	3.12E-03	2.46E-04	2.68E-06
Ground	High Boom	900	1.72E-05	4.94E-04	3.91E-05	4.25E-07
MAXIMUM APPLICATION RATE						
Mode of Application	Application Height or Type	Distance from Receptor (ft)	Pond Concentration <sup>4</sup> (C <sub>pond</sub> mg/L)	Concentration in fish (C <sub>Fish</sub> ): C <sub>pond</sub> × BCF	Dose estimate (D): (C <sub>Fish</sub> × ir × PC) / BW	Risk Quotient <sup>5</sup>
Ground	Low Boom	25	2.13E-04	6.13E-03	4.85E-04	5.27E-06
Ground	Low Boom	100	1.17E-04	3.36E-03	2.66E-04	2.89E-06
Ground	Low Boom	900	2.26E-05	6.49E-04	5.13E-05	5.58E-07
Ground	High Boom	25	3.41E-04	9.80E-03	7.75E-04	8.42E-06
Ground	High Boom	100	1.80E-04	5.19E-03	4.10E-04	4.46E-06
Ground	High Boom	900	2.86E-05	8.24E-04	6.51E-05	7.08E-07

<sup>1</sup>Calculated using algorithm developed by Nagy (1987) for all birds; where food ingestion rate (kg dw/day) = 0.0582×(BW)<sup>0.651</sup>.

<sup>2</sup>Assumes fish are 75% water (USEPA 1993; Table 4-1 - value for bony fishes).

<sup>3</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

<sup>4</sup>Pond concentrations in spray drift scenarios were calculated by the AgDRIFT. See associated report methodology document for further details.

<sup>5</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

**TABLE B-16**  
**Potential Risks to Aquatic Species from Surface Runoff to Pond**

SURFACE RUNOFF - Modeled in GLEAMS - TYPICAL APPLICATION RATE															
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>2</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentrations (mg/L)		Risk Quotients <sup>1</sup> - Acute			Risk Quotients <sup>1</sup> - Chronic		
								Acute Exposure Scenarios	Chronic Exposure Scenarios	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
G_BASE_SAND_0	5	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
05_POND_TYP															
G_BASE_CLAY_0	5	10	0.05	0.015	0.401	Weeds (78)	Clay	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
05_POND_TYP															
G_BASE_LOAM_0	5	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
05_POND_TYP															
G_BASE_SAND_0	10	10	0.05	0.015	0.401	Weeds (78)	Sand	6.80E-03	2.22E-03	2.43E-04	1.79E-03	6.80E-02	2.38E-04	1.75E-03	6.72E-02
10_POND_TYP															
G_BASE_CLAY_0	10	10	0.05	0.015	0.401	Weeds (78)	Clay	2.24E-05	1.58E-06	8.01E-07	5.90E-06	2.24E-04	1.70E-07	1.25E-06	4.80E-05
10_POND_TYP															
G_BASE_LOAM_0	10	10	0.05	0.015	0.401	Weeds (78)	Loam	1.47E-04	4.76E-05	5.27E-06	3.88E-05	1.47E-03	5.11E-06	3.75E-05	1.44E-03
10_POND_TYP															
G_BASE_SAND_0	25	10	0.05	0.015	0.401	Weeds (78)	Sand	2.74E-02	6.14E-03	9.78E-04	7.21E-03	2.74E-01	6.60E-04	4.83E-03	1.86E-01
25_POND_TYP															
G_BASE_CLAY_0	25	10	0.05	0.015	0.401	Weeds (78)	Clay	2.79E-03	1.26E-03	9.98E-05	7.35E-04	2.79E-02	1.35E-04	9.91E-04	3.81E-02
25_POND_TYP															
G_BASE_LOAM_0	25	10	0.05	0.015	0.401	Weeds (78)	Loam	1.23E-02	5.00E-03	4.39E-04	3.23E-03	1.23E-01	5.38E-04	3.94E-03	1.52E-01
25_POND_TYP															
G_BASE_SAND_0	50	10	0.05	0.015	0.401	Weeds (78)	Sand	3.23E-02	3.80E-03	1.15E-03	8.50E-03	3.23E-01	4.08E-04	2.99E-03	1.86E-01
50_POND_TYP															
G_BASE_CLAY_0	50	10	0.05	0.015	0.401	Weeds (78)	Clay	7.64E-03	3.17E-03	2.73E-04	2.01E-03	7.64E-02	3.41E-04	2.50E-03	9.61E-02
50_POND_TYP															
G_BASE_LOAM_0	50	10	0.05	0.015	0.401	Weeds (78)	Loam	1.33E-02	2.97E-03	4.76E-04	3.51E-03	1.33E-01	3.20E-04	2.34E-03	9.01E-02
50_POND_TYP															
G_BASE_SAND_1	100	10	0.05	0.015	0.401	Weeds (78)	Sand	3.30E-02	2.37E-03	1.18E-03	8.68E-03	3.30E-01	2.55E-04	1.87E-03	7.18E-02
00_POND_TYP															
G_BASE_CLAY_1	100	10	0.05	0.015	0.401	Weeds (78)	Clay	1.00E-02	2.74E-03	3.59E-04	2.64E-03	1.00E-01	2.95E-04	2.16E-03	8.30E-02
00_POND_TYP															
G_BASE_LOAM_1	100	10	0.05	0.015	0.401	Weeds (78)	Loam	1.69E-02	2.22E-03	6.02E-04	4.44E-03	1.69E-01	2.39E-04	1.75E-03	6.73E-02
00_POND_TYP															
G_BASE_SAND_1	150	10	0.05	0.015	0.401	Weeds (78)	Sand	3.01E-02	1.47E-03	1.07E-03	7.91E-03	3.01E-01	1.58E-04	1.16E-03	4.47E-02
50_POND_TYP															
G_BASE_CLAY_1	150	10	0.05	0.015	0.401	Weeds (78)	Clay	1.06E-02	2.45E-03	3.79E-04	2.79E-03	1.06E-01	2.63E-04	1.93E-03	7.42E-02
50_POND_TYP															

TABLE B-16 (Cont.)

## Potential Risks to Aquatic Species from Surface Runoff to Pond

SURFACE RUNOFF - Modeled in GLEAMS - TYPICAL APPLICATION RATE															
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>2</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentrations (mg/L)		Risk Quotients <sup>1</sup> - Acute			Risk Quotients <sup>1</sup> - Chronic		
								Acute Exposure Scenarios	Chronic Exposure Scenarios	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
G_BASE_LOAM_150_POND_TYP	150	10	0.05	0.015	0.401	Weeds (78)	Loam	1.82E-02	1.73E-03	6.51E-04	4.80E-03	1.82E-01	1.86E-04	1.36E-03	5.24E-02
G_BASE_SAND_200_POND_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Sand	2.54E-02	1.25E-03	9.08E-04	6.69E-03	2.54E-01	1.35E-04	9.88E-04	3.80E-02
G_BASE_CLAY_200_POND_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Clay	1.10E-02	2.24E-03	3.93E-04	2.90E-03	1.10E-01	2.41E-04	1.77E-03	6.80E-02
G_BASE_LOAM_200_POND_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Loam	1.63E-02	1.34E-03	5.82E-04	4.29E-03	1.63E-01	1.44E-04	1.05E-03	4.05E-02
G_BASE_SAND_250_POND_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Sand	2.43E-02	1.32E-03	8.69E-04	6.40E-03	2.43E-01	1.42E-04	1.04E-03	4.01E-02
G_BASE_CLAY_250_POND_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Clay	1.10E-02	2.09E-03	3.92E-04	2.89E-03	1.10E-01	2.25E-04	1.65E-03	6.35E-02
G_BASE_LOAM_250_POND_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Loam	1.39E-02	1.08E-03	4.96E-04	3.65E-03	1.39E-01	1.16E-04	8.53E-04	3.28E-02
G_ARV1_050_POND_TYP	50	1	0.05	0.015	0.401	Weeds (78)	Loam	6.09E-03	1.93E-03	2.18E-04	1.60E-03	6.09E-02	2.07E-04	1.52E-03	5.85E-02
G_ARV2_050_POND_TYP	50	100	0.05	0.015	0.401	Weeds (78)	Loam	1.58E-02	3.34E-03	5.63E-04	4.15E-03	1.58E-01	3.59E-04	2.63E-03	1.01E-01
G_ARV3_050_POND_TYP	50	1,000	0.05	0.015	0.401	Weeds (78)	Loam	1.58E-02	3.38E-03	5.64E-04	4.16E-03	1.58E-01	3.63E-04	2.66E-03	1.02E-01
G_ERV1_050_POND_TYP	50	10	0.05	0.015	0.05	Weeds (78)	Loam	1.33E-02	2.97E-03	4.76E-04	3.51E-03	1.33E-01	3.20E-04	2.34E-03	9.01E-02
G_ERV2_050_POND_TYP	50	10	0.05	0.015	0.2	Weeds (78)	Loam	1.33E-02	2.97E-03	4.76E-04	3.51E-03	1.33E-01	3.20E-04	2.34E-03	9.01E-02
G_ERV3_050_POND_TYP	50	10	0.05	0.015	0.5	Weeds (78)	Loam	1.33E-02	2.97E-03	4.76E-04	3.51E-03	1.33E-01	3.20E-04	2.34E-03	9.01E-02
G_RGV1_050_POND_TYP	50	10	0.05	0.023	0.401	Weeds (78)	Loam	1.33E-02	2.97E-03	4.76E-04	3.51E-03	1.33E-01	3.20E-04	2.34E-03	9.01E-02
G_RGV2_050_POND_TYP	50	10	0.05	0.046	0.401	Weeds (78)	Loam	1.33E-02	2.97E-03	4.76E-04	3.51E-03	1.33E-01	3.20E-04	2.34E-03	9.01E-02
G_RGV3_050_POND_TYP	50	10	0.05	0.15	0.401	Weeds (78)	Loam	1.33E-02	2.97E-03	4.76E-04	3.51E-03	1.33E-01	3.20E-04	2.34E-03	9.01E-02
G_SLV1_050_POND_TYP	50	10	0.005	0.015	0.401	Weeds (78)	Loam	1.33E-02	2.97E-03	4.76E-04	3.51E-03	1.33E-01	3.20E-04	2.34E-03	9.01E-02

**TABLE B-16 (Cont.)**
**Potential Risks to Aquatic Species from Surface Runoff to Pond**

SURFACE RUNOFF - Modeled in GLEAMS - TYPICAL APPLICATION RATE															
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>2</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentrations (mg/L)		Risk Quotients <sup>1</sup> - Acute			Risk Quotients <sup>1</sup> - Chronic		
								Acute Exposure Scenarios	Chronic Exposure Scenarios	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
G_SLV2_050_POND_TYP	50	10	0.01	0.015	0.401	Weeds (78)	Loam	1.33E-02	2.97E-03	4.76E-04	3.51E-03	1.33E-01	3.20E-04	2.34E-03	9.01E-02
G_SLV3_050_POND_TYP	50	10	0.1	0.015	0.401	Weeds (78)	Loam	1.33E-02	2.97E-03	4.76E-04	3.51E-03	1.33E-01	3.20E-04	2.34E-03	9.01E-02
G_STV1_050_POND_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Silt Loam	1.04E-02	3.10E-03	3.72E-04	2.74E-03	1.04E-01	3.34E-04	2.44E-03	9.40E-02
G_STV2_050_POND_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Silt	9.81E-03	2.77E-03	3.50E-04	2.58E-03	9.81E-02	2.98E-04	2.18E-03	8.40E-02
G_STV3_050_POND_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Clay Loam	8.27E-03	2.99E-03	2.95E-04	2.18E-03	8.27E-02	3.22E-04	2.35E-03	9.06E-02
G_VGV1_050_POND_TYP	50	10	0.05	0.015	0.401	Shrubs (79)	Loam	1.33E-02	2.97E-03	4.76E-04	3.51E-03	1.33E-01	3.20E-04	2.34E-03	9.01E-02
G_VGV2_050_POND_TYP	50	10	0.05	0.015	0.401	Rye Grass (54)	Loam	1.33E-02	2.97E-03	4.76E-04	3.51E-03	1.33E-01	3.20E-04	2.34E-03	9.01E-02
G_VGV3_050_POND_TYP	50	10	0.05	0.015	0.401	Conifer + Hardwood (71)	Loam	1.42E-02	2.88E-03	5.05E-04	3.72E-03	1.42E-01	3.10E-04	2.27E-03	8.74E-02
MAXIMUM APPLICATION RATE															
G_BASE_SAND_05_POND_MAX	5	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_05_POND_MAX	5	10	0.05	0.015	0.401	Weeds (78)	Clay	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_LOAM_05_POND_MAX	5	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_010_POND_MAX	10	10	0.05	0.015	0.401	Weeds (78)	Sand	1.13E-02	3.69E-03	4.05E-04	2.98E-03	1.13E-01	3.97E-04	2.91E-03	1.12E-01
G_BASE_CLAY_010_POND_MAX	10	10	0.05	0.015	0.401	Weeds (78)	Clay	3.74E-05	2.64E-06	1.33E-06	9.84E-06	3.74E-04	2.84E-07	2.08E-06	8.00E-05
G_BASE_LOAM_010_POND_MAX	10	10	0.05	0.015	0.401	Weeds (78)	Loam	2.46E-04	7.93E-05	8.78E-06	6.47E-05	2.46E-03	8.52E-06	6.24E-05	2.40E-03
G_BASE_SAND_025_POND_MAX	25	10	0.05	0.015	0.401	Weeds (78)	Sand	4.57E-02	1.02E-02	1.63E-03	1.20E-02	4.57E-01	1.10E-03	8.05E-03	3.10E-01
G_BASE_CLAY_025_POND_MAX	25	10	0.05	0.015	0.401	Weeds (78)	Clay	4.66E-03	2.10E-03	1.66E-04	1.23E-03	4.66E-02	2.26E-04	1.65E-03	6.36E-02

**TABLE B-16 (Cont.)**  
**Potential Risks to Aquatic Species from Surface Runoff to Pond**

SURFACE RUNOFF - Modeled in GLEAMS - MAXIMUM APPLICATION RATE															
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>2</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentrations (mg/L)		Risk Quotients <sup>1</sup> - Acute			Risk Quotients <sup>1</sup> - Chronic		
								Acute Exposure Scenarios	Chronic Exposure Scenarios	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
G_BASE_LOAM_0															
25_POND_MAX	25	10	0.05	0.015	0.401	Weeds (78)	Loam	2.05E-02	8.34E-03	7.31E-04	5.39E-03	2.05E-01	8.97E-04	6.56E-03	2.53E-01
G_BASE_SAND_0															
50_POND_MAX	50	10	0.05	0.015	0.401	Weeds (78)	Sand	5.38E-02	6.33E-03	1.92E-03	1.42E-02	5.38E-01	6.81E-04	4.99E-03	1.92E-01
G_BASE_CLAY_0															
50_POND_MAX	50	10	0.05	0.015	0.401	Weeds (78)	Clay	1.27E-02	5.28E-03	4.54E-04	3.35E-03	1.27E-01	5.68E-04	4.16E-03	1.60E-01
G_BASE_LOAM_0															
50_POND_MAX	50	10	0.05	0.015	0.401	Weeds (78)	Loam	2.22E-02	4.96E-03	7.94E-04	5.85E-03	2.22E-01	5.33E-04	3.90E-03	1.50E-01
G_BASE_SAND_1															
00_POND_MAX	100	10	0.05	0.015	0.401	Weeds (78)	Sand	5.50E-02	3.95E-03	1.96E-03	1.45E-02	5.50E-01	4.25E-04	3.11E-03	1.20E-01
G_BASE_CLAY_1															
00_POND_MAX	100	10	0.05	0.015	0.401	Weeds (78)	Clay	1.67E-02	4.57E-03	5.98E-04	4.41E-03	1.67E-01	4.91E-04	3.59E-03	1.38E-01
G_BASE_LOAM_1															
00_POND_MAX	100	10	0.05	0.015	0.401	Weeds (78)	Loam	2.81E-02	3.70E-03	1.00E-03	7.40E-03	2.81E-01	3.98E-04	2.92E-03	1.12E-01
G_BASE_SAND_1															
150_POND_MAX	150	10	0.05	0.015	0.401	Weeds (78)	Sand	5.01E-02	2.46E-03	1.79E-03	1.32E-02	5.01E-01	2.64E-04	1.93E-03	7.44E-02
G_BASE_CLAY_1															
150_POND_MAX	150	10	0.05	0.015	0.401	Weeds (78)	Clay	1.77E-02	4.08E-03	6.32E-04	4.66E-03	1.77E-01	4.39E-04	3.21E-03	1.24E-01
G_BASE_LOAM_1															
150_POND_MAX	150	10	0.05	0.015	0.401	Weeds (78)	Loam	3.04E-02	2.88E-03	1.08E-03	7.99E-03	3.04E-01	3.10E-04	2.27E-03	8.73E-02
G_BASE_SAND_2															
00_POND_MAX	200	10	0.05	0.015	0.401	Weeds (78)	Sand	4.24E-02	2.09E-03	1.51E-03	1.12E-02	4.24E-01	2.25E-04	1.65E-03	6.34E-02
G_BASE_CLAY_2															
00_POND_MAX	200	10	0.05	0.015	0.401	Weeds (78)	Clay	1.83E-02	3.74E-03	6.55E-04	4.83E-03	1.83E-01	4.02E-04	2.94E-03	1.13E-01
G_BASE_LOAM_2															
00_POND_MAX	200	10	0.05	0.015	0.401	Weeds (78)	Loam	2.72E-02	2.23E-03	9.70E-04	7.15E-03	2.72E-01	2.40E-04	1.75E-03	6.75E-02
G_BASE_SAND_2															
250_POND_MAX	250	10	0.05	0.015	0.401	Weeds (78)	Sand	4.06E-02	2.21E-03	1.45E-03	1.07E-02	4.06E-01	2.37E-04	1.74E-03	6.69E-02
G_BASE_CLAY_2															
250_POND_MAX	250	10	0.05	0.015	0.401	Weeds (78)	Clay	1.83E-02	3.49E-03	6.53E-04	4.81E-03	1.83E-01	3.75E-04	2.75E-03	1.06E-01
G_BASE_LOAM_2															
250_POND_MAX	250	10	0.05	0.015	0.401	Weeds (78)	Loam	2.31E-02	1.81E-03	8.26E-04	6.09E-03	2.31E-01	1.94E-04	1.42E-03	5.47E-02
G_ARV1_050_POND_MAX	50	1	0.05	0.015	0.401	Weeds (78)	Loam	1.02E-02	3.22E-03	3.63E-04	2.67E-03	1.02E-01	3.46E-04	2.53E-03	9.74E-02
G_ARV2_050_POND_MAX	50	100	0.05	0.015	0.401	Weeds (78)	Loam	2.63E-02	5.56E-03	9.38E-04	6.91E-03	2.63E-01	5.98E-04	4.38E-03	1.68E-01

**TABLE B-16 (Cont.)**
**Potential Risks to Aquatic Species from Surface Runoff to Pond**

SURFACE RUNOFF - Modeled in GLEAMS - MAXIMUM APPLICATION RATE															
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>2</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentrations (mg/L)		Risk Quotients <sup>1</sup> – Acute			Risk Quotients <sup>1</sup> - Chronic		
								Acute Exposure Scenarios	Chronic Exposure Scenarios	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
G_ARV3_050_POND_MAX	50	1,000	0.05	0.015	0.401	Weeds (78)	Loam	2.63E-02	5.63E-03	9.40E-04	6.93E-03	2.63E-01	6.06E-04	4.43E-03	1.71E-01
G_ERV1_050_POND_MAX	50	10	0.05	0.015	0.05	Weeds (78)	Loam	2.22E-02	4.96E-03	7.94E-04	5.85E-03	2.22E-01	5.33E-04	3.90E-03	1.50E-01
G_ERV2_050_POND_MAX	50	10	0.05	0.015	0.2	Weeds (78)	Loam	2.22E-02	4.96E-03	7.94E-04	5.85E-03	2.22E-01	5.33E-04	3.90E-03	1.50E-01
G_ERV3_050_POND_MAX	50	10	0.05	0.015	0.5	Weeds (78)	Loam	2.22E-02	4.96E-03	7.94E-04	5.85E-03	2.22E-01	5.33E-04	3.90E-03	1.50E-01
G_RGV1_050_POND_MAX	50	10	0.05	0.023	0.401	Weeds (78)	Loam	2.22E-02	4.96E-03	7.94E-04	5.85E-03	2.22E-01	5.33E-04	3.90E-03	1.50E-01
G_RGV2_050_POND_MAX	50	10	0.05	0.046	0.401	Weeds (78)	Loam	2.22E-02	4.96E-03	7.94E-04	5.85E-03	2.22E-01	5.33E-04	3.90E-03	1.50E-01
G_RGV3_050_POND_MAX	50	10	0.05	0.15	0.401	Weeds (78)	Loam	2.22E-02	4.96E-03	7.94E-04	5.85E-03	2.22E-01	5.33E-04	3.90E-03	1.50E-01
G_SLV1_050_POND_MAX	50	10	0.005	0.015	0.401	Weeds (78)	Loam	2.22E-02	4.96E-03	7.94E-04	5.85E-03	2.22E-01	5.33E-04	3.90E-03	1.50E-01
G_SLV2_050_POND_MAX	50	10	0.01	0.015	0.401	Weeds (78)	Loam	2.22E-02	4.96E-03	7.94E-04	5.85E-03	2.22E-01	5.33E-04	3.90E-03	1.50E-01
G_SLV3_050_POND_MAX	50	10	0.1	0.015	0.401	Weeds (78)	Loam	2.22E-02	4.96E-03	7.94E-04	5.85E-03	2.22E-01	5.33E-04	3.90E-03	1.50E-01
G_STV1_050_POND_MAX	50	10	0.05	0.015	0.401	Weeds (78)	Silt Loam	1.74E-02	5.17E-03	6.20E-04	4.57E-03	1.74E-01	5.56E-04	4.07E-03	1.57E-01
G_STV2_050_POND_MAX	50	10	0.05	0.015	0.401	Weeds (78)	Silt	1.64E-02	4.62E-03	5.84E-04	4.30E-03	1.64E-01	4.97E-04	3.64E-03	1.40E-01
G_STV3_050_POND_MAX	50	10	0.05	0.015	0.401	Weeds (78)	Clay Loam	1.38E-02	4.98E-03	4.92E-04	3.63E-03	1.38E-01	5.36E-04	3.92E-03	1.51E-01
G_VGV1_050_POND_MAX	50	10	0.05	0.015	0.401	Shrubs (79)	Loam	2.22E-02	4.96E-03	7.94E-04	5.85E-03	2.22E-01	5.33E-04	3.90E-03	1.50E-01
G_VGV2_050_POND_MAX	50	10	0.05	0.015	0.401	Rye Grass (54)	Loam	2.22E-02	4.96E-03	7.94E-04	5.85E-03	2.22E-01	5.33E-04	3.90E-03	1.50E-01
G_VGV3_050_POND_MAX	50	10	0.05	0.015	0.401	Conifer + Hardwood (71)	Loam	2.36E-02	4.81E-03	8.42E-04	6.21E-03	2.36E-01	5.17E-04	3.78E-03	1.46E-01

<sup>1</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>2</sup>USLE = Universal Soil Loss Equation, which predicts soil loss as a function of soil erodibility, topography, rainfall/runoff, cover, and support management factors.

TABLE B-17

## Potential Risks to Aquatic Species from Surface Runoff to Stream

SURFACE RUNOFF - modeled in GLEAMS TYPICAL APPLICATION RATE															
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>2</sup> Soil Erodibility Factor (ton/ac/EI)	Vegetation Type	Soil Type	Stream Concentrations (mg/L)		Risk Quotients - Acute			Risk Quotients - Chronic		
								Acute Exposure Scenarios	Chronic Exposure Scenarios	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
G_BASE_SAND_005_STREAM_TYP	5	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_005_STREAM_TYP	5	10	0.05	0.015	0.401	Weeds (78)	Clay	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_LOAM_005_STREAM_TYP	5	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_010_STREAM_TYP	10	10	0.05	0.015	0.401	Weeds (78)	Sand	2.74E-04	4.05E-06	9.80E-06	7.22E-05	2.74E-03	4.35E-07	3.19E-06	1.23E-04
G_BASE_CLAY_010_STREAM_TYP	10	10	0.05	0.015	0.401	Weeds (78)	Clay	7.32E-07	6.39E-09	2.61E-08	1.93E-07	7.32E-06	6.87E-10	5.03E-09	1.94E-07
G_BASE_LOAM_010_STREAM_TYP	10	10	0.05	0.015	0.401	Weeds (78)	Loam	2.66E-06	7.18E-08	9.52E-08	7.01E-07	2.66E-05	7.72E-09	5.65E-08	2.17E-06
G_BASE_SAND_025_STREAM_TYP	25	10	0.05	0.015	0.401	Weeds (78)	Sand	2.11E-03	4.83E-05	7.53E-05	5.55E-04	2.11E-02	5.19E-06	3.80E-05	1.46E-03
G_BASE_CLAY_025_STREAM_TYP	25	10	0.05	0.015	0.401	Weeds (78)	Clay	3.66E-05	5.29E-06	1.31E-06	9.63E-06	3.66E-04	5.69E-07	4.16E-06	1.60E-04
G_BASE_LOAM_025_STREAM_TYP	25	10	0.05	0.015	0.401	Weeds (78)	Loam	7.79E-04	2.38E-05	2.78E-05	2.05E-04	7.79E-03	2.56E-06	1.87E-05	7.20E-04
G_BASE_SAND_050_STREAM_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Sand	2.44E-03	6.08E-05	8.70E-05	6.41E-04	2.44E-02	6.54E-06	4.79E-05	1.84E-03
G_BASE_CLAY_050_STREAM_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Clay	1.69E-04	2.81E-05	6.02E-06	4.44E-05	1.69E-03	3.02E-06	2.21E-05	8.51E-04
G_BASE_LOAM_050_STREAM_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Loam	1.25E-03	4.81E-05	4.47E-05	3.29E-04	1.25E-02	5.18E-06	3.79E-05	1.46E-03
G_BASE_SAND_100_STREAM_TYP	100	10	0.05	0.015	0.401	Weeds (78)	Sand	2.95E-03	7.00E-05	1.05E-04	7.77E-04	2.95E-02	7.52E-06	5.51E-05	2.12E-03
G_BASE_CLAY_100_STREAM_TYP	100	10	0.05	0.015	0.401	Weeds (78)	Clay	2.88E-04	4.84E-05	1.03E-05	7.58E-05	2.88E-03	5.21E-06	3.81E-05	1.47E-03
G_BASE_LOAM_100_STREAM_TYP	100	10	0.05	0.015	0.401	Weeds (78)	Loam	1.74E-03	5.89E-05	6.20E-05	4.57E-04	1.74E-02	6.33E-06	4.64E-05	1.79E-03
G_BASE_SAND_150_STREAM_TYP	150	10	0.05	0.015	0.401	Weeds (78)	Sand	2.88E-03	6.95E-05	1.03E-04	7.59E-04	2.88E-02	7.48E-06	5.48E-05	2.11E-03
G_BASE_CLAY_150_STREAM_TYP	150	10	0.05	0.015	0.401	Weeds (78)	Clay	3.18E-04	5.59E-05	1.14E-05	8.37E-05	3.18E-03	6.01E-06	4.40E-05	1.69E-03

**TABLE B-17 (Cont.)**  
**Potential Risks to Aquatic Species from Surface Runoff to Stream**

SURFACE RUNOFF - modeled in GLEAMS TYPICAL APPLICATION RATE															
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>2</sup> Soil Erodibility Factor (ton/ac/EI)	Vegetation Type	Soil Type	Stream Concentrations (mg/L)		Risk Quotients - Acute			Risk Quotients - Chronic		
								Acute Exposure Scenarios	Chronic Exposure Scenarios	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
G_BASE_LOAM_150_STREAM_TYP	150	10	0.05	0.015	0.401	Weeds (78)	Loam	1.85E-03	6.12E-05	6.60E-05	4.86E-04	1.85E-02	6.58E-06	4.82E-05	1.86E-03
G_BASE_SAND_200_STREAM_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Sand	2.85E-03	6.62E-05	1.02E-04	7.50E-04	2.85E-02	7.12E-06	5.22E-05	2.01E-03
G_BASE_CLAY_200_STREAM_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Clay	3.08E-04	5.96E-05	1.10E-05	8.11E-05	3.08E-03	6.41E-06	4.70E-05	1.81E-03
G_BASE_LOAM_200_STREAM_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Loam	2.28E-03	6.10E-05	8.16E-05	6.01E-04	2.28E-02	6.56E-06	4.80E-05	1.85E-03
G_BASE_SAND_250_STREAM_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Sand	3.21E-03	6.31E-05	1.15E-04	8.46E-04	3.21E-02	6.78E-06	4.97E-05	1.91E-03
G_BASE_CLAY_250_STREAM_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Clay	3.19E-04	6.22E-05	1.14E-05	8.39E-05	3.19E-03	6.68E-06	4.89E-05	1.88E-03
G_BASE_LOAM_250_STREAM_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Loam	2.47E-03	5.96E-05	8.83E-05	6.51E-04	2.47E-02	6.40E-06	4.69E-05	1.80E-03
G_ARV1_050_STREAM_TYP	50	1	0.05	0.015	0.401	Weeds (78)	Loam	1.76E-04	5.64E-06	6.28E-06	4.62E-05	1.76E-03	6.06E-07	4.44E-06	1.71E-04
G_ARV2_050_STREAM_TYP	50	100	0.05	0.015	0.401	Weeds (78)	Loam	4.58E-03	2.61E-04	1.63E-04	1.20E-03	4.58E-02	2.81E-05	2.06E-04	7.91E-03
G_ARV3_050_STREAM_TYP	50	1,000	0.05	0.015	0.401	Weeds (78)	Loam	9.44E-03	7.18E-04	3.37E-04	2.48E-03	9.44E-02	7.72E-05	5.66E-04	2.18E-02
G_ERV1_050_STREAM_TYP	50	10	0.05	0.015	0.05	Weeds (78)	Loam	1.25E-03	4.81E-05	4.47E-05	3.29E-04	1.25E-02	5.18E-06	3.79E-05	1.46E-03
G_ERV2_050_STREAM_TYP	50	10	0.05	0.015	0.2	Weeds (78)	Loam	1.25E-03	4.81E-05	4.47E-05	3.29E-04	1.25E-02	5.18E-06	3.79E-05	1.46E-03
G_ERV3_050_STREAM_TYP	50	10	0.05	0.015	0.5	Weeds (78)	Loam	1.25E-03	4.81E-05	4.47E-05	3.29E-04	1.25E-02	5.18E-06	3.79E-05	1.46E-03
G_RGV1_050_STREAM_TYP	50	10	0.05	0.023	0.401	Weeds (78)	Loam	1.25E-03	4.81E-05	4.47E-05	3.29E-04	1.25E-02	5.18E-06	3.79E-05	1.46E-03
G_RGV2_050_STREAM_TYP	50	10	0.05	0.046	0.401	Weeds (78)	Loam	1.25E-03	4.81E-05	4.47E-05	3.29E-04	1.25E-02	5.18E-06	3.79E-05	1.46E-03
G_RGV3_050_STREAM_TYP	50	10	0.05	0.15	0.401	Weeds (78)	Loam	1.25E-03	4.81E-05	4.47E-05	3.29E-04	1.25E-02	5.18E-06	3.79E-05	1.46E-03
G_SLV1_050_STREAM_TYP	50	10	0.005	0.015	0.401	Weeds (78)	Loam	1.25E-03	4.81E-05	4.47E-05	3.29E-04	1.25E-02	5.18E-06	3.79E-05	1.46E-03

TABLE B-17 (Cont.)

## Potential Risks to Aquatic Species from Surface Runoff to Stream

SURFACE RUNOFF - modeled in GLEAMS TYPICAL APPLICATION RATE															
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>2</sup> Soil Erodibility Factor (ton/ac/EI)	Vegetation Type	Soil Type	Stream Concentrations (mg/L)		Risk Quotients - Acute			Risk Quotients - Chronic		
								Acute Exposure Scenarios	Chronic Exposure Scenarios	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
G_SLV2_050_STREA M_TYP	50	10	0.01	0.015	0.401	Weeds (78)	Loam	1.25E-03	4.81E-05	4.47E-05	3.29E-04	1.25E-02	5.18E-06	3.79E-05	1.46E-03
G_SLV3_050_STREA M_TYP	50	10	0.1	0.015	0.401	Weeds (78)	Loam	1.25E-03	4.81E-05	4.47E-05	3.29E-04	1.25E-02	5.18E-06	3.79E-05	1.46E-03
G_STV1_050_STREA M_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Silt Loam	7.32E-04	3.83E-05	2.61E-05	1.93E-04	7.32E-03	4.12E-06	3.02E-05	1.16E-03
G_STV2_050_STREA M_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Silt	8.92E-04	3.89E-05	3.18E-05	2.35E-04	8.92E-03	4.18E-06	3.06E-05	1.18E-03
G_STV3_050_STREA M_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Clay Loam	3.32E-04	2.92E-05	1.18E-05	8.72E-05	3.32E-03	3.14E-06	2.30E-05	8.85E-04
G_VGV1_050_STRE AM_TYP	50	10	0.05	0.015	0.401	Shrubs (79)	Loam	1.25E-03	4.81E-05	4.47E-05	3.29E-04	1.25E-02	5.18E-06	3.79E-05	1.46E-03
G_VGV2_050_STRE AM_TYP	50	10	0.05	0.015	0.401	Rye Grass (54)	Loam	1.25E-03	4.81E-05	4.47E-05	3.29E-04	1.25E-02	5.18E-06	3.79E-05	1.46E-03
G_VGV3_050_STRE AM_TYP	50	10	0.05	0.015	0.401	Conifer + Hardwood (71)	Loam	1.21E-03	5.08E-05	4.31E-05	3.17E-04	1.21E-02	5.46E-06	4.00E-05	1.54E-03
MAXIMUM APPLICATION RATE															
G_BASE_SAND_005 _STREAM_MAX	5	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_005 _STREAM_MAX	5	10	0.05	0.015	0.401	Weeds (78)	Clay	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_LOAM_005 _STREAM_MAX	5	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_010 _STREAM_MAX	10	10	0.05	0.015	0.401	Weeds (78)	Sand	4.57E-04	6.75E-06	1.63E-05	1.20E-04	4.57E-03	7.26E-07	5.31E-06	2.05E-04
G_BASE_CLAY_010 _STREAM_MAX	10	10	0.05	0.015	0.401	Weeds (78)	Clay	1.22E-06	1.06E-08	4.36E-08	3.21E-07	1.22E-05	1.14E-09	8.38E-09	3.23E-07
G_BASE_LOAM_010 _STREAM_MAX	10	10	0.05	0.015	0.401	Weeds (78)	Loam	4.44E-06	1.20E-07	1.59E-07	1.17E-06	4.44E-05	1.29E-08	9.42E-08	3.62E-06
G_BASE_SAND_025 _STREAM_MAX	25	10	0.05	0.015	0.401	Weeds (78)	Sand	3.51E-03	8.05E-05	1.25E-04	9.24E-04	3.51E-02	8.65E-06	6.34E-05	2.44E-03
G_BASE_CLAY_025 _STREAM_MAX	25	10	0.05	0.015	0.401	Weeds (78)	Clay	6.10E-05	8.82E-06	2.18E-06	1.60E-05	6.10E-04	9.48E-07	6.94E-06	2.67E-04

**TABLE B-17 (Cont.)**  
**Potential Risks to Aquatic Species from Surface Runoff to Stream**

SURFACE RUNOFF - modeled in GLEAMS MAXIMUM APPLICATION RATE															
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>2</sup> Soil Erodibility Factor (ton/ac/EI)	Vegetation Type	Soil Type	Stream Concentrations (mg/L)		Risk Quotients - Acute			Risk Quotients - Chronic		
								Acute Exposure Scenarios	Chronic Exposure Scenarios	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
G_BASE_LOAM_02	25	10	0.05	0.015	0.401	Weeds (78)	Loam	1.30E-03	3.96E-05	4.64E-05	3.42E-04	1.30E-02	4.26E-06	3.12E-05	1.20E-03
5_STREAM_MAX															
G_BASE_SAND_050	50	10	0.05	0.015	0.401	Weeds (78)	Sand	4.06E-03	1.01E-04	1.45E-04	1.07E-03	4.06E-02	1.09E-05	7.98E-05	3.07E-03
_STREAM_MAX															
G_BASE_CLAY_050	50	10	0.05	0.015	0.401	Weeds (78)	Clay	2.81E-04	4.68E-05	1.00E-05	7.39E-05	2.81E-03	5.03E-06	3.69E-05	1.42E-03
_STREAM_MAX															
G_BASE_LOAM_05	50	10	0.05	0.015	0.401	Weeds (78)	Loam	2.09E-03	8.02E-05	7.45E-05	5.49E-04	2.09E-02	8.63E-06	6.32E-05	2.43E-03
0_STREAM_MAX															
G_BASE_SAND_100	100	10	0.05	0.015	0.401	Weeds (78)	Sand	4.92E-03	1.17E-04	1.76E-04	1.29E-03	4.92E-02	1.25E-05	9.18E-05	3.53E-03
_STREAM_MAX															
G_BASE_CLAY_100	100	10	0.05	0.015	0.401	Weeds (78)	Clay	4.80E-04	8.07E-05	1.72E-05	1.26E-04	4.80E-03	8.68E-06	6.35E-05	2.45E-03
_STREAM_MAX															
G_BASE_LOAM_10	100	10	0.05	0.015	0.401	Weeds (78)	Loam	2.90E-03	9.82E-05	1.03E-04	7.62E-04	2.90E-02	1.06E-05	7.73E-05	2.98E-03
0_STREAM_MAX															
G_BASE_SAND_150	150	10	0.05	0.015	0.401	Weeds (78)	Sand	4.81E-03	1.16E-04	1.72E-04	1.26E-03	4.81E-02	1.25E-05	9.13E-05	3.51E-03
_STREAM_MAX															
G_BASE_CLAY_150	150	10	0.05	0.015	0.401	Weeds (78)	Clay	5.30E-04	9.31E-05	1.89E-05	1.40E-04	5.30E-03	1.00E-05	7.33E-05	2.82E-03
_STREAM_MAX															
G_BASE_LOAM_15	150	10	0.05	0.015	0.401	Weeds (78)	Loam	3.08E-03	1.02E-04	1.10E-04	8.10E-04	3.08E-02	1.10E-05	8.03E-05	3.09E-03
0_STREAM_MAX															
G_BASE_SAND_200	200	10	0.05	0.015	0.401	Weeds (78)	Sand	4.75E-03	1.10E-04	1.70E-04	1.25E-03	4.75E-02	1.19E-05	8.69E-05	3.35E-03
_STREAM_MAX															
G_BASE_CLAY_200	200	10	0.05	0.015	0.401	Weeds (78)	Clay	5.13E-04	9.94E-05	1.83E-05	1.35E-04	5.13E-03	1.07E-05	7.83E-05	3.01E-03
_STREAM_MAX															
G_BASE_LOAM_20	200	10	0.05	0.015	0.401	Weeds (78)	Loam	3.81E-03	1.02E-04	1.36E-04	1.00E-03	3.81E-02	1.09E-05	8.00E-05	3.08E-03
0_STREAM_MAX															
G_BASE_SAND_250	250	10	0.05	0.015	0.401	Weeds (78)	Sand	5.36E-03	1.05E-04	1.91E-04	1.41E-03	5.36E-02	1.13E-05	8.28E-05	3.18E-03
_STREAM_MAX															
G_BASE_CLAY_250	250	10	0.05	0.015	0.401	Weeds (78)	Clay	5.32E-04	1.04E-04	1.90E-05	1.40E-04	5.32E-03	1.11E-05	8.16E-05	3.14E-03
_STREAM_MAX															
G_BASE_LOAM_25	250	10	0.05	0.015	0.401	Weeds (78)	Loam	4.12E-03	9.93E-05	1.47E-04	1.08E-03	4.12E-02	1.07E-05	7.81E-05	3.01E-03
0_STREAM_MAX															
G_ARV1_050_STRE	50	1	0.05	0.015	0.401	Weeds (78)	Loam	2.93E-04	9.39E-06	1.05E-05	7.71E-05	2.93E-03	1.01E-06	7.40E-06	2.85E-04
AM_MAX															
G_ARV2_050_STRE	50	100	0.05	0.015	0.401	Weeds (78)	Loam	7.63E-03	4.35E-04	2.72E-04	2.01E-03	7.63E-02	4.68E-05	3.43E-04	1.32E-02
AM_MAX															

TABLE B-17 (Cont.)

## Potential Risks to Aquatic Species from Surface Runoff to Stream

SURFACE RUNOFF - modeled in GLEAMS MAXIMUM APPLICATION RATE															
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>2</sup> Soil Erodibility Factor (ton/ac/EI)	Vegetation Type	Soil Type	Stream Concentrations (mg/L)		Risk Quotients - Acute			Risk Quotients - Chronic		
								Acute Exposure Scenarios	Chronic Exposure Scenarios	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
G_ARV3_050_STRE_AM_MAX	50	1,000	0.05	0.015	0.401	Weeds (78)	Loam	1.57E-02	1.20E-03	5.62E-04	4.14E-03	1.57E-01	1.29E-04	9.43E-04	3.63E-02
G_ERV1_050_STRE_AM_MAX	50	10	0.05	0.015	0.05	Weeds (78)	Loam	2.09E-03	8.02E-05	7.45E-05	5.49E-04	2.09E-02	8.63E-06	6.32E-05	2.43E-03
G_ERV2_050_STRE_AM_MAX	50	10	0.05	0.015	0.2	Weeds (78)	Loam	2.09E-03	8.02E-05	7.45E-05	5.49E-04	2.09E-02	8.63E-06	6.32E-05	2.43E-03
G_ERV3_050_STRE_AM_MAX	50	10	0.05	0.015	0.5	Weeds (78)	Loam	2.09E-03	8.02E-05	7.45E-05	5.49E-04	2.09E-02	8.63E-06	6.32E-05	2.43E-03
G_RGV1_050_STRE_AM_MAX	50	10	0.05	0.023	0.401	Weeds (78)	Loam	2.09E-03	8.02E-05	7.45E-05	5.49E-04	2.09E-02	8.63E-06	6.32E-05	2.43E-03
G_RGV2_050_STRE_AM_MAX	50	10	0.05	0.046	0.401	Weeds (78)	Loam	2.09E-03	8.02E-05	7.45E-05	5.49E-04	2.09E-02	8.63E-06	6.32E-05	2.43E-03
G_RGV3_050_STRE_AM_MAX	50	10	0.05	0.15	0.401	Weeds (78)	Loam	2.09E-03	8.02E-05	7.45E-05	5.49E-04	2.09E-02	8.63E-06	6.32E-05	2.43E-03
G_SLV1_050_STRE_AM_MAX	50	10	0.005	0.015	0.401	Weeds (78)	Loam	2.09E-03	8.02E-05	7.45E-05	5.49E-04	2.09E-02	8.63E-06	6.32E-05	2.43E-03
G_SLV2_050_STRE_AM_MAX	50	10	0.01	0.015	0.401	Weeds (78)	Loam	2.09E-03	8.02E-05	7.45E-05	5.49E-04	2.09E-02	8.63E-06	6.32E-05	2.43E-03
G_SLV3_050_STRE_AM_MAX	50	10	0.1	0.015	0.401	Weeds (78)	Loam	2.09E-03	8.02E-05	7.45E-05	5.49E-04	2.09E-02	8.63E-06	6.32E-05	2.43E-03
G_STV1_050_STRE_AM_MAX	50	10	0.05	0.015	0.401	Weeds (78)	Silt Loam	1.22E-03	6.38E-05	4.35E-05	3.21E-04	1.22E-02	6.86E-06	5.03E-05	1.93E-03
G_STV2_050_STRE_AM_MAX	50	10	0.05	0.015	0.401	Weeds (78)	Silt	1.49E-03	6.48E-05	5.31E-05	3.91E-04	1.49E-02	6.97E-06	5.10E-05	1.96E-03
G_STV3_050_STRE_AM_MAX	50	10	0.05	0.015	0.401	Weeds (78)	Clay Loam	5.53E-04	4.87E-05	1.97E-05	1.45E-04	5.53E-03	5.24E-06	3.83E-05	1.48E-03
G_VGV1_050_STRE_AM_MAX	50	10	0.05	0.015	0.401	Shrubs (79)	Loam	2.09E-03	8.02E-05	7.45E-05	5.49E-04	2.09E-02	8.63E-06	6.32E-05	2.43E-03
G_VGV2_050_STRE_AM_MAX	50	10	0.05	0.015	0.401	Rye Grass (54)	Loam	2.09E-03	8.02E-05	7.45E-05	5.49E-04	2.09E-02	8.63E-06	6.32E-05	2.43E-03
G_VGV3_050_STRE_AM_MAX	50	10	0.05	0.015	0.401	Conifer + Hardwood (71)	Loam	2.01E-03	8.47E-05	7.18E-05	5.29E-04	2.01E-02	9.11E-06	6.67E-05	2.57E-03

<sup>1</sup>RQ = Risk Quotient = Estimated Dose/Toxicity Reference Value.<sup>2</sup>USLE = Universal Soil Loss Equation, which predicts soil loss as a function of soil erodibility, topography, rainfall/runoff, cover, and support management factors.

**TABLE B-18**  
**Potential Risks to Non-Target Terrestrial Plants from Surface Runoff**

GLEAMS ID	SURFACE RUNOFF - modeled in GLEAMS TYPICAL APPLICATION RATE									
	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>1</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Terrestrial Concentration (lb/acre)	Typical Species RQ <sup>2</sup>	Rare, Threatened, and Endangered Species RQ <sup>2</sup>
G_BASE_SAND_005_TERR_TYP	5	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_005_TERR_TYP	5	10	0.05	0.015	0.401	Weeds (78)	Clay	0.00E+00	0.00E+00	0.00E+00
G_BASE_LOAM_005_TERR_TYP	5	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_010_TERR_TYP	10	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_010_TERR_TYP	10	10	0.05	0.015	0.401	Weeds (78)	Clay	7.39E-07	1.39E-06	3.36E-04
G_BASE_LOAM_010_TERR_TYP	10	10	0.05	0.015	0.401	Weeds (78)	Loam	5.50E-10	1.04E-09	2.50E-07
G_BASE_SAND_025_TERR_TYP	25	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_025_TERR_TYP	25	10	0.05	0.015	0.401	Weeds (78)	Clay	9.65E-07	1.82E-06	4.39E-04
G_BASE_LOAM_025_TERR_TYP	25	10	0.05	0.015	0.401	Weeds (78)	Loam	1.05E-09	1.98E-09	4.78E-07
G_BASE_SAND_050_TERR_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_050_TERR_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Clay	5.20E-06	9.81E-06	2.36E-03
G_BASE_LOAM_050_TERR_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Loam	2.15E-10	4.06E-10	9.78E-08
G_BASE_SAND_100_TERR_TYP	100	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_100_TERR_TYP	100	10	0.05	0.015	0.401	Weeds (78)	Clay	6.15E-06	1.16E-05	2.79E-03
G_BASE_LOAM_100_TERR_TYP	100	10	0.05	0.015	0.401	Weeds (78)	Loam	3.46E-09	6.54E-09	1.57E-06
G_BASE_SAND_150_TERR_TYP	150	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_150_TERR_TYP	150	10	0.05	0.015	0.401	Weeds (78)	Clay	8.17E-06	1.54E-05	3.71E-03
G_BASE_LOAM_150_TERR_TYP	150	10	0.05	0.015	0.401	Weeds (78)	Loam	3.82E-10	7.22E-10	1.74E-07
G_BASE_SAND_200_TERR_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_200_TERR_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Clay	1.01E-05	1.91E-05	4.61E-03
G_BASE_LOAM_200_TERR_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Loam	2.75E-09	5.19E-09	1.25E-06
G_BASE_SAND_250_TERR_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_250_TERR_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Clay	1.30E-05	2.45E-05	5.90E-03

TABLE B-18 (Cont.)

## Potential Risks to Non-Target Terrestrial Plants from Surface Runoff

SURFACE RUNOFF - modeled in GLEAMS TYPICAL APPLICATION RATE											
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>1</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Terrestrial Concentration (lb/acre)	Typical Species RQ <sup>2</sup>	Rare, Threatened, and Endangered Species RQ <sup>2</sup>	
G_BASE_LOAM_250_TERR_TY	250	10	0.05	0.015	0.401	Weeds (78)	Loam	5.28E-09	9.96E-09	2.40E-06	
G_ARV1_050_TERR_TYP	50	1	0.05	0.015	0.401	Weeds (78)	Loam	2.15E-10	4.06E-10	9.78E-08	
G_ARV2_050_TERR_TYP	50	100	0.05	0.015	0.401	Weeds (78)	Loam	2.15E-10	4.06E-10	9.78E-08	
G_ARV3_050_TERR_TYP	50	1,000	0.05	0.015	0.401	Weeds (78)	Loam	2.15E-10	4.06E-10	9.78E-08	
G_ERV1_050_TERR_TYP	50	10	0.05	0.015	0.05	Weeds (78)	Loam	2.15E-10	4.06E-10	9.78E-08	
G_ERV2_050_TERR_TYP	50	10	0.05	0.015	0.2	Weeds (78)	Loam	5.28E-09	9.96E-09	2.40E-06	
G_ERV3_050_TERR_TYP	50	10	0.05	0.015	0.5	Weeds (78)	Loam	2.15E-10	4.06E-10	9.78E-08	
G_RGV1_050_TERR_TYP	50	10	0.05	0.023	0.401	Weeds (78)	Loam	2.15E-10	4.06E-10	9.78E-08	
G_RGV2_050_TERR_TYP	50	10	0.05	0.046	0.401	Weeds (78)	Loam	2.15E-10	4.06E-10	9.78E-08	
G_RGV3_050_TERR_TYP	50	10	0.05	0.15	0.401	Weeds (78)	Loam	2.15E-10	4.06E-10	9.78E-08	
G_SLV1_050_TERR_TYP	50	10	0.005	0.015	0.401	Weeds (78)	Loam	2.15E-10	4.06E-10	9.78E-08	
G_SLV1_050_TERR_TYP	50	10	0.005	0.015	0.401	Weeds (78)	Loam	2.15E-10	4.06E-10	9.78E-08	
G_SLV2_050_TERR_TYP	50	10	0.01	0.015	0.401	Weeds (78)	Loam	2.15E-10	4.06E-10	9.78E-08	
G_SLV3_050_TERR_TYP	50	10	0.1	0.015	0.401	Weeds (78)	Loam	2.15E-10	4.06E-10	9.78E-08	
G_STV1_050_TERR_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Silt Loam	1.01E-06	1.90E-06	4.58E-04	
G_STV2_050_TERR_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Silt	1.13E-06	2.13E-06	5.12E-04	
G_STV3_050_TERR_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Clay Loam	4.36E-06	8.23E-06	1.98E-03	
G_VGV1_050_TERR_TYP	50	10	0.05	0.015	0.401	Shrubs(79)	Loam	2.15E-10	4.06E-10	9.78E-08	
MAXIMUM APPLICATION RATE											
G_BASE_SAND_005_TERR_max	5	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00	
G_BASE_CLAY_005_TERR_max	5	10	0.05	0.015	0.401	Weeds (78)	Clay	0.00E+00	0.00E+00	0.00E+00	

**TABLE B-18 (Cont.)**

**Potential Risks to Non-Target Terrestrial Plants from Surface Runoff**

GLEAMS ID	SURFACE RUNOFF - modeled in GLEAMS MAXIMUM APPLICATION RATE									
	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>1</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Terrestrial Concentration (lb/acre)	Typical Species RQ <sup>2</sup>	Rare, Threatened, and Endangered Species RQ <sup>2</sup>
G_BASE_LOAM_005_TERR_max	5	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_010_TERR_max	10	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_010_TERR_max	10	10	0.05	0.015	0.401	Weeds (78)	Clay	1.23E-06	2.32E-06	5.60E-04
G_BASE_LOAM_010_TERR_max	10	10	0.05	0.015	0.401	Weeds (78)	Loam	9.16E-10	1.73E-09	4.16E-07
G_BASE_SAND_025_TERR_max	25	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_025_TERR_max	25	10	0.05	0.015	0.401	Weeds (78)	Clay	1.61E-06	3.03E-06	7.31E-04
G_BASE_LOAM_025_TERR_max	25	10	0.05	0.015	0.401	Weeds (78)	Loam	1.75E-09	3.31E-09	7.97E-07
G_BASE_SAND_050_TERR_max	50	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_050_TERR_max	50	10	0.05	0.015	0.401	Weeds (78)	Clay	8.67E-06	1.63E-05	3.94E-03
G_BASE_LOAM_050_TERR_max	50	10	0.05	0.015	0.401	Weeds (78)	Loam	3.59E-10	6.76E-10	1.63E-07
G_BASE_SAND_100_TERR_max	100	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_100_TERR_max	100	10	0.05	0.015	0.401	Weeds (78)	Clay	1.02E-05	1.93E-05	4.66E-03
G_BASE_LOAM_100_TERR_max	100	10	0.05	0.015	0.401	Weeds (78)	Loam	5.77E-09	1.09E-08	2.62E-06
G_BASE_SAND_150_TERR_max	150	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_150_TERR_max	150	10	0.05	0.015	0.401	Weeds (78)	Clay	1.36E-05	2.57E-05	6.19E-03
G_BASE_LOAM_150_TERR_max	150	10	0.05	0.015	0.401	Weeds (78)	Loam	6.37E-10	1.20E-09	2.90E-07
G_BASE_SAND_200_TERR_max	200	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_200_TERR_max	200	10	0.05	0.015	0.401	Weeds (78)	Clay	1.69E-05	3.19E-05	7.68E-03
G_BASE_LOAM_200_TERR_max	200	10	0.05	0.015	0.401	Weeds (78)	Loam	4.58E-09	8.64E-09	2.08E-06
G_BASE_SAND_250_TERR_max	250	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_250_TERR_max	250	10	0.05	0.015	0.401	Weeds (78)	Clay	2.16E-05	4.08E-05	9.84E-03
G_BASE_LOAM_250_TERR_max	250	10	0.05	0.015	0.401	Weeds (78)	Loam	8.80E-09	1.66E-08	4.00E-06
G_ARV1_050_TERR_max	50	1	0.05	0.015	0.401	Weeds (78)	Loam	3.59E-10	6.76E-10	1.63E-07

TABLE B-18 (Cont.)

## Potential Risks to Non-Target Terrestrial Plants from Surface Runoff

SURFACE RUNOFF - modeled in GLEAMS MAXIMUM APPLICATION RATE										
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>1</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Terrestrial Concentration (lb/acre)	Typical Species RQ <sup>2</sup>	Rare, Threatened, and Endangered Species RQ <sup>2</sup>
G_ARV2_050_TERR_max	50	100	0.05	0.015	0.401	Weeds (78)	Loam	3.59E-10	6.76E-10	1.63E-07
G_ARV3_050_TERR_max	50	1,000	0.05	0.015	0.401	Weeds (78)	Loam	3.59E-10	6.76E-10	1.63E-07
G_ERV1_050_TERR_max	50	10	0.05	0.015	0.05	Weeds (78)	Loam	3.59E-10	6.76E-10	1.63E-07
G_ERV2_050_TERR_max	50	10	0.05	0.015	0.2	Weeds (78)	Loam	3.59E-10	6.76E-10	1.63E-07
G_ERV3_050_TERR_max	50	10	0.05	0.015	0.5	Weeds (78)	Loam	3.59E-10	6.76E-10	1.63E-07
G_RGV1_050_TERR_max	50	10	0.05	0.023	0.401	Weeds (78)	Loam	3.59E-10	6.76E-10	1.63E-07
G_RGV2_050_TERR_max	50	10	0.05	0.046	0.401	Weeds (78)	Loam	3.59E-10	6.76E-10	1.63E-07
G_RGV3_050_TERR_max	50	10	0.05	0.15	0.401	Weeds (78)	Loam	3.59E-10	6.76E-10	1.63E-07
G_SLV1_050_TERR_max	50	10	0.005	0.015	0.401	Weeds (78)	Loam	3.59E-10	6.76E-10	1.63E-07
G_SLV2_050_TERR_max	50	10	0.01	0.015	0.401	Weeds (78)	Loam	3.59E-10	6.76E-10	1.63E-07
G_SLV3_050_TERR_max	50	10	0.1	0.015	0.401	Weeds (78)	Loam	3.59E-10	6.76E-10	1.63E-07
G_STV1_050_TERR_max	50	10	0.05	0.015	0.401	Weeds (78)	Silt Loam	1.68E-06	3.17E-06	7.63E-04
G_STV2_050_TERR_max	50	10	0.05	0.015	0.401	Weeds (78)	Silt	1.88E-06	3.54E-06	8.54E-04
G_STV3_050_TERR_max	50	10	0.05	0.015	0.401	Weeds (78)	Clay Loam	7.27E-06	1.37E-05	3.30E-03
G_VGV1_050_TERR_max	50	10	0.05	0.015	0.401	Shrubs (79)	Loam	3.59E-10	6.76E-10	1.63E-07
G_VGV2_050_TERR_max	50	10	0.05	0.015	0.401	Rye Grass (54) Conifer + Hardwood (71)	Loam	3.59E-10	6.76E-10	1.63E-07
G_VGV3_050_TERR_max	50	10	0.05	0.015	0.401	Hardwood (71)	Loam	1.19E-10	2.25E-10	5.43E-08

<sup>1</sup>USLE = Universal Soil Loss Equation, which predicts soil loss as a function of soil erodibility, topography, rainfall/runoff, cover, and support management factors.<sup>2</sup>RQ = Risk Quotient = Estimated Dose/Toxicity Reference Value.

**TABLE B-19**

**Potential Risk to Predatory Bird (Bald Eagle) from Long-term Consumption of Contaminated Fish from Pond  
(Pond Impacted by Surface Runoff Modeled in GLEAMS)**

Parameters/ Assumptions	Value	Units
<b>Body weight (BW)</b>	5.15	kg
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>	0.101786153	kg dw/day
<b>Food ingestion rate (wet weight [ww]) (ir)<sup>2</sup></b>	0.40714461	kg ww/day
<b>Bioconcentration factor (BCF)</b>	28.78	L/kg fish
<b>Proportion of diet contaminated (PC)</b>	1	unitless
<b>Toxicity reference value (TRV)<sup>3</sup></b>	92	mg/kg-bw/day

TYPICAL APPLICATION RATE											
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>4</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentration (C <sub>pond</sub> mg/L)	Concentrations in fish (C <sub>Fish</sub> ): C <sub>pond</sub> × BCF	Dose estimates (D): (C <sub>Fish</sub> × ir × PC) / BW	Risk Quotient <sup>5</sup>
G_BASE_SAND_005_POND_TYP	5	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_005_POND_TYP	5	10	0.05	0.015	0.401	Weeds (78)	Clay	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_LOAM_005_POND_TYP	5	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_010_POND_TYP	10	10	0.05	0.015	0.401	Weeds (78)	Sand	2.22E-03	6.38E-02	5.04E-03	5.48E-05
G_BASE_CLAY_010_POND_TYP	10	10	0.05	0.015	0.401	Weeds (78)	Clay	1.58E-06	4.56E-05	3.60E-06	3.92E-08
G_BASE_LOAM_010_POND_TYP	10	10	0.05	0.015	0.401	Weeds (78)	Loam	4.76E-05	1.37E-03	1.08E-04	1.18E-06
G_BASE_SAND_025_POND_TYP	25	10	0.05	0.015	0.401	Weeds (78)	Sand	6.14E-03	1.77E-01	1.40E-02	1.52E-04
G_BASE_CLAY_025_POND_TYP	25	10	0.05	0.015	0.401	Weeds (78)	Clay	1.26E-03	3.62E-02	2.86E-03	3.11E-05

TABLE B-19 (Cont.)

**Potential Risk to Predatory Bird (Bald Eagle) from Long-term Consumption of Contaminated Fish from Pond  
(Pond Impacted by Surface Runoff Modeled in GLEAMS)**

GLEAMS ID	TYPICAL APPLICATION RATE										Dose estimates (D): ( $C_{\text{fish}} \times ir \times PC$ ) / BW	Risk Quotient <sup>5</sup>
	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>4</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentration ( $C_{\text{pond}}$ mg/L)	Concentrations in fish ( $C_{\text{fish}}$ ): $C_{\text{pond}} \times BCF$			
G_BASE_LOAM_025_PO ND_TYP	25	10	0.05	0.015	0.401	Weeds (78)	Loam	5.00E-03	1.44E-01	1.14E-02	1.24E-04	
G_BASE_SAND_050_PO ND_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Sand	3.80E-03	1.09E-01	8.64E-03	9.39E-05	
G_BASE_CLAY_050_PO ND_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Clay	3.17E-03	9.13E-02	7.21E-03	7.84E-05	
G_BASE_LOAM_050_PO ND_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Loam	2.97E-03	8.56E-02	6.77E-03	7.35E-05	
G_BASE_SAND_100_PO ND_TYP	100	10	0.05	0.015	0.401	Weeds (78)	Sand	2.37E-03	6.82E-02	5.39E-03	5.86E-05	
G_BASE_CLAY_100_PO ND_TYP	100	10	0.05	0.015	0.401	Weeds (78)	Clay	2.74E-03	7.88E-02	6.23E-03	6.77E-05	
G_BASE_LOAM_100_PO ND_TYP	100	10	0.05	0.015	0.401	Weeds (78)	Loam	2.22E-03	6.39E-02	5.06E-03	5.49E-05	
G_BASE_SAND_150_PO ND_TYP	150	10	0.05	0.015	0.401	Weeds (78)	Sand	1.47E-03	4.24E-02	3.35E-03	3.64E-05	
G_BASE_CLAY_150_PO ND_TYP	150	10	0.05	0.015	0.401	Weeds (78)	Clay	2.45E-03	7.05E-02	5.57E-03	6.06E-05	
G_BASE_LOAM_150_PO ND_TYP	150	10	0.05	0.015	0.401	Weeds (78)	Loam	1.73E-03	4.98E-02	3.93E-03	4.28E-05	
G_BASE_SAND_200_PO ND_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Sand	1.25E-03	3.61E-02	2.85E-03	3.10E-05	
G_BASE_CLAY_200_PO ND_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Clay	2.24E-03	6.45E-02	5.10E-03	5.55E-05	
G_BASE_LOAM_200_PO ND_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Loam	1.34E-03	3.85E-02	3.04E-03	3.31E-05	
G_BASE_SAND_250_PO ND_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Sand	1.32E-03	3.81E-02	3.01E-03	3.28E-05	
G_BASE_CLAY_250_PO ND_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Clay	2.09E-03	6.03E-02	4.77E-03	5.18E-05	
G_BASE_LOAM_250_PO ND_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Loam	1.08E-03	3.12E-02	2.46E-03	2.68E-05	

**TABLE B-19 (Cont.)**

**Potential Risk to Predatory Bird (Bald Eagle) from Long-term Consumption of Contaminated Fish from Pond  
(Pond Impacted by Surface Runoff Modeled in GLEAMS)**

TYPICAL APPLICATION RATE											
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>4</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentration (C <sub>pond</sub> mg/L)	Concentrations in fish (C <sub>Fish</sub> ): C <sub>pond</sub> × BCF	Dose estimates (D): (C <sub>Fish</sub> × ir × PC) / BW	Risk Quotient <sup>5</sup>
G_ARV1_050_POND_TYP	50	1	0.05	0.015	0.401	Weeds (78)	Loam	1.93E-03	5.55E-02	4.39E-03	4.77E-05
G_ARV2_050_POND_TYP	50	100	0.05	0.015	0.401	Weeds (78)	Loam	3.34E-03	9.60E-02	7.59E-03	8.25E-05
G_ARV3_050_POND_TYP	50	1,000	0.05	0.015	0.401	Weeds (78)	Loam	3.38E-03	9.72E-02	7.69E-03	8.36E-05
G_ERV1_050_POND_TYP	50	10	0.05	0.015	0.05	Weeds (78)	Loam	2.97E-03	8.56E-02	6.77E-03	7.35E-05
G_ERV2_050_POND_TYP	50	10	0.05	0.015	0.2	Weeds (78)	Loam	2.97E-03	8.56E-02	6.77E-03	7.35E-05
G_ERV3_050_POND_TYP	50	10	0.05	0.015	0.5	Weeds (78)	Loam	2.97E-03	8.56E-02	6.77E-03	7.35E-05
G_RGV1_050_POND_TYP	50	10	0.05	0.023	0.401	Weeds (78)	Loam	2.97E-03	8.56E-02	6.77E-03	7.35E-05
G_RGV2_050_POND_TYP	50	10	0.05	0.046	0.401	Weeds (78)	Loam	2.97E-03	8.56E-02	6.77E-03	7.35E-05
G_RGV3_050_POND_TYP	50	10	0.05	0.15	0.401	Weeds (78)	Loam	2.97E-03	8.56E-02	6.77E-03	7.35E-05
G_SLV1_050_POND_TYP	50	10	0.005	0.015	0.401	Weeds (78)	Loam	2.97E-03	8.56E-02	6.77E-03	7.35E-05
G_SLV2_050_POND_TYP	50	10	0.01	0.015	0.401	Weeds (78)	Loam	2.97E-03	8.56E-02	6.77E-03	7.35E-05
G_SLV3_050_POND_TYP	50	10	0.1	0.015	0.401	Weeds (78)	Loam	2.97E-03	8.56E-02	6.77E-03	7.35E-05
G_STV1_050_POND_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Silt Loam	3.10E-03	8.93E-02	7.06E-03	7.67E-05
G_STV2_050_POND_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Silt	2.77E-03	7.98E-02	6.31E-03	6.85E-05
G_STV3_050_POND_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Clay Loam	2.99E-03	8.61E-02	6.80E-03	7.40E-05
G_VGV1_050_POND_TYP	50	10	0.05	0.015	0.401	Shrubs (79)	Loam	2.97E-03	8.56E-02	6.77E-03	7.35E-05

TABLE B-19 (Cont.)

**Potential Risk to Predatory Bird (Bald Eagle) from Long-term Consumption of Contaminated Fish from Pond  
(Pond Impacted by Surface Runoff Modeled in GLEAMS)**

TYPICAL APPLICATION RATE											
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>4</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentration (C <sub>pond</sub> mg/L)	Concentrations in fish (C <sub>Fish</sub> ): C <sub>pond</sub> × BCF	Dose estimates (D): (C <sub>Fish</sub> × ir × PC) / BW	Risk Quotient <sup>5</sup>
G_VGV2_050_POND_TYP	50	10	0.05	0.015	0.401	Rye Grass (54)	Loam	2.97E-03	8.56E-02	6.77E-03	7.35E-05
G_VGV3_050_POND_TYP	50	10	0.05	0.015	0.401	Conifer + Hardwood (71)	Loam	2.88E-03	8.30E-02	6.56E-03	7.13E-05
MAXIMUM APPLICATION RATE											
G_BASE_SAND_005_POND_max	5	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_005_POND_max	5	10	0.05	0.015	0.401	Weeds (78)	Clay	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_LOAM_005_POND_max	5	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_010_POND_max	10	10	0.05	0.015	0.401	Weeds (78)	Sand	3.69E-03	1.06E-01	8.40E-03	9.14E-05
G_BASE_CLAY_010_POND_max	10	10	0.05	0.015	0.401	Weeds (78)	Clay	2.64E-06	7.59E-05	6.00E-06	6.53E-08
G_BASE_LOAM_010_POND_max	10	10	0.05	0.015	0.401	Weeds (78)	Loam	7.93E-05	2.28E-03	1.80E-04	1.96E-06
G_BASE_SAND_025_POND_max	25	10	0.05	0.015	0.401	Weeds (78)	Sand	1.02E-02	2.94E-01	2.33E-02	2.53E-04
G_BASE_CLAY_025_POND_max	25	10	0.05	0.015	0.401	Weeds (78)	Clay	2.10E-03	6.04E-02	4.77E-03	5.19E-05
G_BASE_LOAM_025_POND_max	25	10	0.05	0.015	0.401	Weeds (78)	Loam	8.34E-03	2.40E-01	1.90E-02	2.06E-04
G_BASE_SAND_050_POND_max	50	10	0.05	0.015	0.401	Weeds (78)	Sand	6.33E-03	1.82E-01	1.44E-02	1.57E-04
G_BASE_CLAY_050_POND_max	50	10	0.05	0.015	0.401	Weeds (78)	Clay	5.28E-03	1.52E-01	1.20E-02	1.31E-04
G_BASE_LOAM_050_POND_max	50	10	0.05	0.015	0.401	Weeds (78)	Loam	4.96E-03	1.43E-01	1.13E-02	1.23E-04
G_BASE_SAND_100_POND_max	100	10	0.05	0.015	0.401	Weeds (78)	Sand	3.95E-03	1.14E-01	8.99E-03	9.77E-05

**TABLE B-19 (Cont.)**
**Potential Risk to Predatory Bird (Bald Eagle) from Long-Term Consumption of Contaminated Fish from Pond  
(Pond Impacted by Surface Runoff Modeled in GLEAMS)**

MAXIMUM APPLICATION RATE											
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>4</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentration (C <sub>pond</sub> mg/L)	Concentrations in fish (C <sub>Fish</sub> ): C <sub>pond</sub> × BCF	Dose estimates (D): (C <sub>Fish</sub> × ir × PC) / BW	Risk Quotient <sup>5</sup>
G_BASE_CLAY_100_POND_max	100	10	0.05	0.015	0.401	Weeds (78)	Clay	4.57E-03	1.31E-01	1.04E-02	1.13E-04
G_BASE_LOAM_100_POND_max	100	10	0.05	0.015	0.401	Weeds (78)	Loam	3.70E-03	1.07E-01	8.43E-03	9.16E-05
G_BASE_SAND_150_POND_max	150	10	0.05	0.015	0.401	Weeds (78)	Sand	2.46E-03	7.07E-02	5.59E-03	6.07E-05
G_BASE_CLAY_150_POND_max	150	10	0.05	0.015	0.401	Weeds (78)	Clay	4.08E-03	1.17E-01	9.29E-03	1.01E-04
G_BASE_LOAM_150_POND_max	150	10	0.05	0.015	0.401	Weeds (78)	Loam	2.88E-03	8.29E-02	6.56E-03	7.13E-05
G_BASE_SAND_200_POND_max	200	10	0.05	0.015	0.401	Weeds (78)	Sand	2.09E-03	6.02E-02	4.76E-03	5.17E-05
G_BASE_CLAY_200_POND_max	200	10	0.05	0.015	0.401	Weeds (78)	Clay	3.74E-03	1.08E-01	8.50E-03	9.24E-05
G_BASE_LOAM_200_POND_max	200	10	0.05	0.015	0.401	Weeds (78)	Loam	2.23E-03	6.41E-02	5.07E-03	5.51E-05
G_BASE_SAND_250_POND_max	250	10	0.05	0.015	0.401	Weeds (78)	Sand	2.21E-03	6.35E-02	5.02E-03	5.46E-05
G_BASE_CLAY_250_POND_max	250	10	0.05	0.015	0.401	Weeds (78)	Clay	3.49E-03	1.00E-01	7.94E-03	8.63E-05
G_BASE_LOAM_250_POND_max	250	10	0.05	0.015	0.401	Weeds (78)	Loam	1.81E-03	5.20E-02	4.11E-03	4.46E-05
G_ARV1_050_POND_max	50	1	0.05	0.015	0.401	Weeds (78)	Loam	3.22E-03	9.25E-02	7.32E-03	7.95E-05
G_ARV2_050_POND_max	50	100	0.05	0.015	0.401	Weeds (78)	Loam	5.56E-03	1.60E-01	1.26E-02	1.37E-04
G_ARV3_050_POND_max	50	1,000	0.05	0.015	0.401	Weeds (78)	Loam	5.63E-03	1.62E-01	1.28E-02	1.39E-04
G_ERV1_050_POND_max	50	10	0.05	0.015	0.05	Weeds (78)	Loam	4.96E-03	1.43E-01	1.13E-02	1.23E-04
G_ERV2_050_POND_max	50	10	0.05	0.015	0.2	Weeds (78)	Loam	4.96E-03	1.43E-01	1.13E-02	1.23E-04

TABLE B-19 (Cont.)

**Potential Risk to Predatory Bird (Bald Eagle) from Long-term Consumption of Contaminated Fish from Pond  
(Pond Impacted by Surface Runoff Modeled in GLEAMS)**

MAXIMUM APPLICATION RATE											
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>4</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentration (C <sub>pond</sub> mg/L)	Concentrations in fish (C <sub>Fish</sub> ): C <sub>pond</sub> × BCF	Dose estimates (D): (C <sub>Fish</sub> × ir × PC) / BW	Risk Quotient <sup>5</sup>
G_ERV3_050_POND_max	50	10	0.05	0.015	0.5	Weeds (78)	Loam	4.96E-03	1.43E-01	1.13E-02	1.23E-04
G_RGV1_050_POND_max	50	10	0.05	0.023	0.401	Weeds (78)	Loam	4.96E-03	1.43E-01	1.13E-02	1.23E-04
G_RGV2_050_POND_max	50	10	0.05	0.046	0.401	Weeds (78)	Loam	4.96E-03	1.43E-01	1.13E-02	1.23E-04
G_RGV3_050_POND_max	50	10	0.05	0.15	0.401	Weeds (78)	Loam	4.96E-03	1.43E-01	1.13E-02	1.23E-04
G_SLV1_050_POND_max	50	10	0.005	0.015	0.401	Weeds (78)	Loam	4.96E-03	1.43E-01	1.13E-02	1.23E-04
G_SLV2_050_POND_max	50	10	0.01	0.015	0.401	Weeds (78)	Loam	4.96E-03	1.43E-01	1.13E-02	1.23E-04
G_SLV3_050_POND_max	50	10	0.1	0.015	0.401	Weeds (78)	Loam	4.96E-03	1.43E-01	1.13E-02	1.23E-04
G_STV1_050_POND_max	50	10	0.05	0.015	0.401	Weeds (78)	Silt Loam	5.17E-03	1.49E-01	1.18E-02	1.28E-04
G_STV2_050_POND_max	50	10	0.05	0.015	0.401	Weeds (78)	Silt	4.62E-03	1.33E-01	1.05E-02	1.14E-04
G_STV3_050_POND_max	50	10	0.05	0.015	0.401	Weeds (78)	Clay Loam	4.98E-03	1.43E-01	1.13E-02	1.23E-04
G_VGV1_050_POND_max	50	10	0.05	0.015	0.401	Shrubs (79)	Loam	4.96E-03	1.43E-01	1.13E-02	1.23E-04
G_VGV2_050_POND_max	50	10	0.05	0.015	0.401	Rye Grass (54)	Loam	4.96E-03	1.43E-01	1.13E-02	1.23E-04
G_VGV3_050_POND_max	50	10	0.05	0.015	0.401	Conifer + Hardwood (71)	Loam	4.81E-03	1.38E-01	1.09E-02	1.19E-04

<sup>1</sup>Calculated using algorithm developed by Nagy (1987) for all birds; where food ingestion rate (kg dw/day) = 0.0582×(BW)<sup>0.651</sup>.

<sup>2</sup>Assumes fish are 75% water (USEPA 1993; Table 4-1 - value for bony fishes).

<sup>3</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

<sup>4</sup>USLE = Universal Soil Loss Equation, which predicts soil loss as a function of soil erodibility, topography, rainfall/runoff, cover, and support management factors.

<sup>5</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

**TABLE B-20**
**Potential Risks to Non-Target Terrestrial Plants from Herbicide in Dust Deposited from Wind Erosion**

Cal Puff Scenario ID	Watershed Location	Distance from Receptor (km)	Terrestrial Concentration (lb/acre)	WIND EROSION - modeled in CALPUFF		TYPICAL APPLICATION RATE	
				Typical Species	Rare, Threatened, and Endangered Species	TRV <sup>1</sup>	RQ <sup>2</sup>
dust_MT_0.5_typ	MT	0.5	1.01E-06	0.00027	3.73E-03	0.00	1.12E-04
dust_MT_5_typ	MT	5	5.71E-07	0.00027	2.11E-03	0.00009	6.34E-04
dust_MT_50_typ	MT	50	6.84E-11	0.00027	2.53E-07	0.00009	7.60E-08
dust_OR_0.5_typ	OR	0.5	5.77E-07	0.00027	2.14E-03	0.00009	6.41E-04
dust_OR_5_typ	OR	5	2.20E-07	0.00027	8.15E-04	0.00009	2.44E-04
dust_OR_50_typ	OR	50	7.75E-11	0.00027	2.87E-07	0.00009	8.61E-08
dust_WY_0.5_typ	WY	0.5	1.14E-07	0.00027	4.22E-04	0.00009	1.27E-05
dust_WY_5_typ	WY	5	7.86E-08	0.00027	2.91E-04	0.00009	8.73E-05
dust_WY_50_typ	WY	50	1.93E-11	0.00027	7.17E-08	0.00009	2.14E-09
MAXIMUM APPLICATION RATE							
dust_MT_0.5_max	MT	0.5	1.68E-06	0.00027	6.22E-03	0.00009	1.87E-04
dust_MT_5_max	MT	5	9.51E-07	0.00027	3.52E-03	0.00009	1.06E-04
dust_MT_50_max	MT	50	1.28E-10	0.00027	4.75E-07	0.00009	1.42E-08
dust_OR_0.5_max	OR	0.5	9.62E-07	0.00027	3.56E-03	0.00009	1.07E-04
dust_OR_5_max	OR	5	3.67E-07	0.00027	1.36E-03	0.00009	4.08E-04
dust_OR_50_max	OR	50	1.29E-10	0.00027	4.78E-07	0.00009	1.43E-08
dust_WY_0.5_max	WY	0.5	1.90E-07	0.00027	7.04E-04	0.00009	2.11E-05
dust_WY_5_max	WY	5	1.31E-07	0.00027	4.85E-04	0.00009	1.46E-05
dust_WY_50_max	WY	50	3.22E-11	0.00027	1.19E-07	0.00009	3.58E-08

<sup>1</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

<sup>2</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

**TABLE B-21**  
**Potential Risks to Aquatic Species from Accidental Spill to Pond (Acute Exposure)**

Parameters/Assumptions	Value	Units
Volume of pond (V <sub>p</sub> )	1,011,715	L
Volume of spill (V <sub>spill</sub> ) - Truck (V <sub>spill,t</sub> )	757	L
Herbicide concentration in mixture (C <sub>m</sub> ) <sup>1</sup> - Truck mixture (C <sub>m,t</sub> )	1,497.99	mg/L

Scenario	Concentrations in water (C <sub>w</sub> ): C <sub>m</sub> × V <sub>spill</sub> / V <sub>p</sub>	Units	Risk Quotients <sup>2</sup>		
			Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
Truck spill into pond	1.12	mg/L	4.00E-02	2.95E-01	1.12E+01

<sup>1</sup>Based on herbicide mixed for the maximum application rate, where truck spray rate is 25 gallons per acre.  
C<sub>m</sub> = [application rate x (1/spray rate)] converted from lb/gallon to mg/L.  
<sup>2</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

**TABLE B-22**  
**Potential Risks to Aquatic Species from Accidental Direct Spray of Pond  
and Stream (Acute Exposure)**

Parameters/Assumptions	Rate	Value	Units
<b>Pond</b>			
<b>Application rates (R)</b>	Typical	0.1875	lb/acre
	Maximum	0.3125	lb/acre
<b>Area of pond (Area)</b>		0.25	acre
<b>Volume of pond (Vol)</b>		1,011,715	L
<b>Mass sprayed on pond (R x Area)</b>	Typical	21,262.125	mg
	Maximum	35,436.875	mg
<b>Concentration in pond water (Mass/Volume)</b>	Typical	0.021015923	mg/L
	Maximum	0.035026539	mg/L
<b>Stream</b>			
<b>Width of stream</b>		2	m
<b>Length of stream impacted by direct spray</b>		636.15	m
<b>Area of stream impacted by spray (Area)</b>		1,272.3	m <sup>2</sup>
<b>Depth of stream</b>		0.2	m
<b>Instantaneous volume of stream impacted by direct spray (Vol)</b>		254,460	L
<b>Mass sprayed on stream (R x Area)</b>	Typical	0.0589	lb
	Maximum	0.0982	lb
<b>Mass sprayed on stream - converted to mg</b>	Typical	26,738.824	mg
	Maximum	44,564.706	mg
<b>Concentration in stream water (Mass/Vol)</b>	Typical	0.105080656	mg/L
	Maximum	0.175134427	mg/L

Scenario	Application Rate	Concentration in water (mg/L)	Risk Quotients <sup>1</sup>		
			Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
<b>Acute</b>					
Direct spray to pond	Typical application	2.10E-02	7.51E-04	5.53E-03	2.10E-01
	Maximum application	3.50E-02	1.25E-03	9.22E-03	3.50E-01
Direct spray to stream	Typical application	1.05E-01	3.75E-03	2.77E-02	1.05E+00
	Maximum application	1.75E-01	6.25E-03	4.61E-02	1.75E+00
<b>Chronic</b>					
Direct spray to pond	Typical application	2.10E-02	2.26E-03	1.65E-02	6.37E-01
	Maximum application	3.50E-02	3.77E-03	2.76E-02	1.06E+00
Direct spray to stream	Typical application	1.05E-01	1.13E-02	8.27E-02	3.18E+00
	Maximum application	1.75E-01	1.88E-02	1.38E-01	5.31E+00

<sup>1</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

## Diflufenzoxyr Risk Assessment Worksheets

TABLE B-1

### Direct Spray of Terrestrial Receptors and Exposure from Indirect Contact With Foliage

Parameter	Pollinating Insect	Small Mammal	Units
<b>Duration of exposure (T)</b>	24	24	hours
<b>Body weight (BW)</b>	0.000093	0.02	kg
<sup>1</sup> Surface areas (A): $cm^2 = 12.3 \times BW(g)^{0.65}$	2.63	86.21	cm <sup>2</sup>
<sup>2</sup> Application rates (R)	Typical Maximum	0.075 0.01	lb/acre lb/acre
<b>Amount deposited on ½ receptor (Amnt): <math>0.5 \times A \times R \times cf</math></b>	Typical Maximum	0.001105438 0.001473917	0.036235655 0.048314207
<b>Dose Estimate Assuming 100% Dermal Adsorption<sup>3</sup></b>			
<b>Absorbed Dose: Amnt × Prop / BW</b>	Typical Maximum	1.19E+01 1.58E+01	mg/kg bw mg/kg bw
<b>Dose Estimate Assuming First Order Dermal Adsorption<sup>4</sup></b>			
<b>First-order dermal absorption coefficient (k)</b>	Central estimate (ka)	0.0495	hour <sup>-1</sup>
<b>Proportion absorbed over period T (Prop):<sup>5</sup></b>	Typical Maximum	0.016659667 0.016659667	unitless unitless
<b>Absorbed dose: Amnt × Prop / BW</b>	Typical Maximum	3.02E-02 4.02E-02	mg/kg bw mg/kg bw

RISK QUOTIENTS <sup>6</sup> - Direct Spray	Toxicity Reference (mg/kg bw) <sup>7</sup>	Typical Application	Maximum Application
Small mammal - 100% absorption	6,750	9.76E-05	1.30E-04
Pollinating insect - 100% absorption	806	1.47E-02	1.97E-02
Small mammal - 1st order dermal adsorption	6,750	1.63E-06	2.17E-06

RISK QUOTIENTS - Indirect Contact <sup>8</sup>	Toxicity Reference (mg/kg bw) <sup>7</sup>	Typical Application	Maximum Application
Small mammal - 100% absorption	6,750	9.76E-06	1.30E-05
Pollinating insect - 100% absorption	806	1.47E-03	1.97E-03
Small mammal - 1st order dermal adsorption	6,750	1.63E-07	2.17E-07

<sup>1</sup>Surface area calculation for mammals from Stahl (1967; presented in USEPA 1993). No surface area calculation identified for insects. Mammalian equation used as a surrogate.

<sup>2</sup>A conversion factor (cf) of 0.011208493 was used to convert the application rate (R) from lb/acre to mg/cm<sup>2</sup>.

<sup>3</sup>100% dermal absorption - all of the herbicide falling on the receptor was assumed to penetrate the skin within 24 hours.

<sup>4</sup>1st order dermal absorption - absorption occurs over 24 hours, taking into consideration the potential for some herbicide to not be absorbed.

<sup>5</sup> $\exp(-k \times T) = e^{-k \times T}$ , where e is a constant = 2.7828.

<sup>6</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>7</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

<sup>8</sup>Exposure from indirect contact assumed to be 1/10 of direct spray exposure (Harris and Solomon 1992).

**TABLE B-2**
**Potential Risks to Small Herbivorous/Omnivorous Mammal (Deer Mouse) from Consumption of Contaminated Fruit (Acute Exposure Scenario)**

Parameters/Assumptions		Value	Units
<b>Body weight (BW)</b>		0.02	kg
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>		0.003364	kg dw/day
<b>Food ingestion rate (wet weight [ww]) (ir)<sup>2</sup></b>		0.01463	kg ww/day
<b>Application rates (R)</b>	Typical	0.075	lb/acre
	Maximum	0.1	lb/acre
<b>Residue rate – berries (rr)<sup>3</sup></b>	Typical	5.4	mg/kg per lb/acre
	Maximum	40.7	mg/kg per lb/acre
<b>Concentration on berries (C): R × rr</b>	Typical	0.405	mg/kg fruit
	Maximum	4.07	mg/kg fruit
<b>Dose estimates (D): C × ir / BW</b>	Typical	2.96E-01	mg/kg bw
	Maximum	2.98E+00	mg/kg bw

RISK QUOTIENTS <sup>4</sup> – Ingestion	Toxicity Reference Value <sup>5</sup> (mg/kg bw)	Typical Application	Maximum Application
Small mammalian herbivore/omnivore (acute exposure)	6,750	4.39E-05	4.41E-04

<sup>1</sup>Calculated using algorithm developed by Nagy (1987) for rodents; where food ingestion rate (g dw/day) = 0.621× (BW g)<sup>0.564</sup>; converted into kg dw/day.

<sup>2</sup>Assumes fruit is 77% water (USEPA 1993; Table 4-2 - value for fruit pulp and skin).

<sup>3</sup>Residue rates were obtained from the Kenaga nomogram as updated (Fletcher et al. 1994) and are vegetation-specific.

<sup>4</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>5</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

**TABLE B-3**
**Potential Risks to Small Herbivorous/Omnivorous Mammal (Deer Mouse) From Consumption of Contaminated Fruit (Chronic Exposure Scenario)**

Parameters/Assumptions		Value	Units
<b>Duration of exposure (T)</b>		90	days
<b>Body weight (BW)</b>		0.02	kg
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>		0.003364	kg dw/day
<b>Food ingestion rate (wet weight [ww]) (ir)<sup>2</sup></b>		0.014627	kg ww/day
<b>Half life on vegetation (<math>t_{50}</math>)</b>	Herbicide specific	14	days
<b>Application rates (R)</b>	Typical	0.075	lb/acre
	Maximum	0.1	lb/acre
<b>Residue rate - berries (rr)<sup>3</sup></b>	Typical	5.4	mg/kg per lb/acre
	Maximum	40.7	mg/kg per lb/acre
<b>Drift (Drift)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Decay coefficient (k): <math>\ln(2) / t_{50}</math><sup>4</sup></b>	Typical	0.0495	days <sup>-1</sup>
	Maximum	0.0495	days <sup>-1</sup>
<b>Initial concentration on berries (<math>C_0</math>): <math>R \times rr \times Drift</math></b>	Typical	0.405	mg/kg fruit
	Maximum	4.07	mg/kg fruit
<b>Concentration on berries at time T: <math>C_0 \times \exp(-k \times T)</math><sup>5</sup></b>	Typical	0.0047	mg/kg fruit
	Maximum	0.04725	mg/kg fruit
<b>Time-weighted average concentration on vegetation (CTWA): <math>C_0 \times (1 - \exp(-k \times T)) / (k \times T)</math><sup>5</sup></b>	Typical	0.0898	mg/kg fruit
	Maximum	0.9028	mg/kg fruit
<b>Proportion of diet contaminated (PC)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Dose estimates (D): <math>(CTWA \times ir \times PC) / BW</math></b>	Typical	0.0657	mg/kg bw/day
	Maximum	0.6602	mg/kg bw/day

RISK QUOTIENTS – Ingestion <sup>6</sup>	Toxicity Reference Value (mg/kg bw/day) <sup>7</sup>	Typical Application	Maximum Application
Small mammalian herbivore/omnivore (chronic exposure)	86	7.64E-04	7.68E-03

<sup>1</sup>Calculated using algorithm developed by Nagy (1987) for rodents; where food ingestion rate (g dw/day) = 0.621×(BW g)<sup>0.564</sup>; converted into kg dw/day.

<sup>2</sup>Assumes fruit is 77% water (USEPA 1993; Table 4-2 - value for fruit pulp and skin).

<sup>3</sup>Residue rates were obtained from the Kenaga nomogram as updated (Fletcher et al. 1994) and are vegetation-specific.

<sup>4</sup>In = Natural log function.

<sup>5</sup> $\exp(-k \times T) = e^{(-k \times T)}$ , where e is a constant = 2.7828.

<sup>6</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>7</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

**TABLE B-4**
**Potential Risks to Large Herbivorous Mammal (Mule Deer) from Consumption of Contaminated Vegetation  
(Acute Exposure Scenario)**

Parameters/Assumptions		Value	Units
<b>Body weight (BW)</b>		70	kg
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>		1.9212	kg dw/day
<b>Food ingestion rate ( wet weight [ww])(ir)<sup>2</sup></b>		6.4038	kg ww/day
<b>Duration of exposure (D)</b>		1	day
<b>Application rates (R)</b>	Typical	0.075	lb/acre
	Maximum	0.1	lb/acre
<b>Residue rate - grass (rr)<sup>3</sup></b>	Typical	36	mg/kg per lb/acre
	Maximum	197	mg/kg per lb/acre
<b>Concentration on grass (C): R × rr</b>	Typical	2.7	mg/kg grass
	Maximum	19.7	mg/kg grass
<b>Drift (Drift)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Proportion of diet contaminated (PC)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Dose estimates: (Drift × PC × C × ir) / BW</b>	Typical	2.47E-01	mg/kg bw/day
	Maximum	1.80E+00	mg/kg bw/day

RISK QUOTIENTS <sup>4</sup> – Ingestion	Toxicity Reference Value (mg/kg bw/day) <sup>5</sup>	Typical Application	Maximum Application
Large mammalian herbivore/gramivore (acute exposure)	878	2.81E-04	2.05E-03

<sup>1</sup>Calculated using algorithm developed by Nagy (1987) for herbivores; where food ingestion rate (g dw/day) = 0.577×(BW g)<sup>0.727</sup>; converted into kg dw/day.

<sup>2</sup>Assumes grass is 70% water (USEPA 1993; Table 4-2 - lowest value for young grasses).

<sup>3</sup>Residue rates were obtained from the Kenaga nomogram as updated (Fletcher et al. 1994) and are vegetation-specific.

<sup>4</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>5</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

**TABLE B-5**
**Potential Risks to Large Herbivorous Mammal (Mule Deer) from Consumption of Contaminated Vegetation  
(Chronic Exposure Scenario)**

Parameters/Assumptions		Value	Units
<b>Duration of exposure (T)</b>		90	day
<b>Body weight (BW)</b>		70	kg
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>		1.9212	kg dw/day
<b>Food ingestion rate ( wet weight [ww]) (ir)<sup>2</sup></b>		6.4038	kg ww/day
<b>Half life on vegetation (t<sub>50</sub>)</b>	Herbicide specific	14	days
<b>Application rates (R)</b>	Typical	0.075	lb/acre
	Maximum	0.1	lb/acre
<b>Residue rate - grass (rr)<sup>3</sup></b>	Typical	36	mg/kg per lb/acre
	Maximum	197	mg/kg per lb/acre
<b>Drift (Drift)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Decay coefficient (k): ln(2) / t<sub>50</sub><sup>4</sup></b>	Typical	0.0495	days <sup>-1</sup>
	Maximum	0.0495	days <sup>-1</sup>
<b>Initial concentration on grass (C<sub>0</sub>): R × rr × Drift</b>	Typical	2.7	mg/kg grass
	Maximum	19.7	mg/kg grass
<b>Concentration on grass at time T: C<sub>0</sub> × exp(-k×T)<sup>5</sup></b>	Typical	0.0313	mg/kg grass
	Maximum	0.2287	mg/kg grass
<b>Time-weighted average concentration on vegetation</b>	Typical	0.5989	mg/kg vegetation
<b>(CTWA): C<sub>0</sub> × (1-exp(-k×T)) / (k×T)<sup>5</sup></b>	Maximum	4.3697	mg/kg vegetation
<b>Proportion of diet contaminated (PC)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Dose estimates: (CTWA × ir × PC) / BW</b>	Typical	5.48E-02	mg/kg bw/day
	Maximum	4.00E-01	mg/kg bw/day

RISK QUOTIENTS <sup>6</sup> – Ingestion	Toxicity Reference Value (mg/kg bw/day) <sup>7</sup>	Typical Application	Maximum Application
Large mammalian herbivore/gramivore (chronic exposure)	39	1.40E-03	1.03E-02

<sup>1</sup>Calculated using algorithm developed by Nagy (1987) for herbivores; where food ingestion rate (g dw/day) = 0.577×(BW g)<sup>0.727</sup>; converted into kg dw/day.

<sup>2</sup>Assumes grass is 70% water (USEPA 1993; Table 4-2 - lowest value for young grasses).

<sup>3</sup>Residue rates were obtained from the Kenaga nomogram as updated (Fletcher et al. 1994) and are vegetation-specific.

<sup>4</sup>In = Natural log function.

<sup>5</sup>exp(-k×T) = e<sup>-(k×T)</sup>, where e is a constant = 2.7828.

<sup>6</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>7</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

**TABLE B-6**
**Potential Risks to Carnivorous Mammal (Coyote) from Consumption of Contaminated Small Mammals  
(Acute Exposure Scenario)**

Parameters/Assumptions		Value	Units
<b>Body weight (BW)</b>		12	kg
<b>Body weight small mammal (BW_mouse)</b>		0.02	kg
<b>Surface area small mammal (A)</b>		86.21	cm <sup>2</sup>
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>		0.5297	kg dw/day
<b>Food ingestion rate (wet weight [ww]) (ir)<sup>2</sup></b>		1.6554	kg ww/day
<b>Duration of exposure (D)</b>		1	day
<b>Application rates (R)</b>	Typical	0.075	lb/acre
	Maximum	0.1	lb/acre
<b>Amount deposited on small mammal prey (Amnt_mouse): <math>0.5 \times A \times R^3</math></b>	Typical	0.0362	mg
	Maximum	0.0483	mg
<b>Drift (Drift)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Proportion of diet contaminated (PC)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Dose estimates: <math>((Drift \times PC \times Amnt\_mouse) / BW\_mouse) \times ir / BW</math></b>	Typical	2.50E-01	mg/kg bw
	Maximum	3.33E-01	mg/kg bw

RISK QUOTIENTS <sup>4</sup> – Ingestion	Toxicity Reference Value (mg/kg bw) <sup>5</sup>	Typical Application	Maximum Application
Large carnivorous mammal (acute exposure)	1,364	1.83E-04	2.44E-04

<sup>1</sup>Calculated using algorithm developed by Nagy (1987); where food ingestion rate (g dw/day) = 0.0687×(BW g)<sup>0.822</sup>; converted into kg dw/day.

<sup>2</sup>Assumes mammals are 68% water (USEPA 1993).

<sup>3</sup>Surface area (A) and body weight of mouse receptor presented in Table B-1. Surface area calculation for mammals from Stahl (1967; presented in USEPA 1993).

<sup>4</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>5</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

**TABLE B-7**
**Potential Risks to Carnivorous Mammal (Coyote) From Consumption of Contaminated Small Mammals  
(Chronic Exposure Scenario)**

Parameters/Assumptions		Value	Units
<b>Duration of exposure (T)</b>		90	day
<b>Body weight (BW)</b>		12	kg
<b>Body weight small mammal (BW_mouse)</b>		0.02	kg
<b>Surface area small mammal (A)</b>		86.21	cm <sup>2</sup>
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>		0.5297	kg dw/day
<b>Food ingestion rate (wet weight [ww]) (ir)<sup>2</sup></b>		1.6554	kg ww/day
<b>Application rates (R)</b>	Typical	0.075	lb/acre
	Maximum	0.1	lb/acre
<b>Drift (Drift)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Decay coefficient (k): ln(2) / t<sub>50</sub><sup>3</sup></b>	Typical	0.0495	days <sup>-1</sup>
	Maximum	0.0495	days <sup>-1</sup>
<b>Initial concentration on small mammal (C<sub>0</sub>): (0.5 × A × R) / BW_mouse</b>	Typical	1.8118	mg/kg mammal
	Maximum	2.4157	mg/kg mammal
<b>Concentration absorbed in small mammal at time T (C<sub>90</sub>): C<sub>0</sub> × exp(-k×T)<sup>4</sup></b>	Typical	0.030183697	mg/kg mammal
	Maximum	0.04024493	mg/kg mammal
<b>Proportion of diet contaminated (PC)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Dose estimates: (C<sub>90</sub> × ir × PC) / BW</b>	Typical	4.16E-03	mg/kg bw/day
	Maximum	5.55E-03	mg/kg bw/day

RISK QUOTIENTS <sup>5</sup> – Ingestion	Toxicity Reference Value (mg/kg bw/day) <sup>6</sup>	Typical Application	Maximum Application
Large mammalian carnivore (chronic exposure)	60	6.94E-05	9.25E-05

<sup>1</sup>Calculated using algorithm developed by Nagy (1987); where food ingestion rate (g dw/day) = 0.0687×(BW g)<sup>0.822</sup>; converted into kg dw/day.

<sup>2</sup>Assumes mammals are 68% water (USEPA 1993).

<sup>3</sup>ln = Natural log function.

<sup>4</sup>exp(-k×T) = e<sup>-(k×T)</sup>, where e is a constant = 2.7828.

<sup>5</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>6</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

**TABLE B-8**
**Potential Risks to Insectivorous Bird (American Robin) From Consumption of Contaminated Insects (Acute Exposure Scenario)**

Parameters/Assumptions		Value	Units
<b>Body weight (BW)</b>		0.08	kg
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>		0.0112	kg dw/day
<b>Food ingestion rate ( wet weight [ww]) (ir)<sup>2</sup></b>		0.0363	kg ww/day
<b>Duration of exposure (D)</b>		1	day
<b>Application rates (R)</b>	Typical	0.075	lb/acre
	Maximum	0.1	lb/acre
<b>Residue rate - insects (rr)<sup>3</sup></b>	Typical	45	mg/kg per lb/acre
	Maximum	350	mg/kg per lb/acre
<b>Concentration on insects (C): R × rr</b>	Typical	3.375	mg/kg insect
	Maximum	35	mg/kg insect
<b>Drift (Drift)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Proportion of diet contaminated (PC)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Dose estimates: (Drift × PC × C × ir) / BW</b>	Typical	1.53E+00	mg/kg bw
	Maximum	1.59E+01	mg/kg bw

RISK QUOTIENTS <sup>4</sup> – Ingestion	Toxicity Reference Value(mg/kg bw) <sup>5</sup>	Typical Application	Maximum Application
Small insectivorous bird (acute exposure)	16,970	9.02E-05	9.35E-04

<sup>1</sup>Calculated using algorithm developed by Nagy (1987) for all birds; where food ingestion rate (kg dw/day) = 0.0582×(BW)<sup>0.651</sup>.

<sup>2</sup>Assumes insects are 69% water (USEPA 1993; Table 4-1 - value for grasshoppers and crickets).

<sup>3</sup>Residue rates were obtained from the Kenaga nomogram as updated (Fletcher et al. 1994).

<sup>4</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>5</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

**TABLE B-9**
**Potential Risks to Insectivorous Bird (American Robin) From Consumption of Contaminated Insects  
(Chronic Exposure Scenario)**

Parameters/Assumptions		Value	Units
<b>Duration of exposure (T)</b>		90	day
<b>Body weight (BW)</b>		0.08	kg
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>		0.0112	kg dw/day
<b>Food ingestion rate (wet weight [ww]) (ir)<sup>2</sup></b>		0.0363	kg ww/day
<b>Half life on insect (t<sub>50</sub>)</b>	Herbicide specific	14	days
<b>Application rates (R)</b>	Typical	0.075	lb/acre
	Maximum	0.1	lb/acre
<b>Residue rate - insects (rr)<sup>3</sup></b>	Typical	45	mg/kg per lb/acre
	Maximum	350	mg/kg per lb/acre
<b>Drift (Drift)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Decay coefficient (k): ln(2) / t<sub>50</sub><sup>4</sup></b>	Typical	0.0495	days <sup>-1</sup>
	Maximum	0.0495	days <sup>-1</sup>
<b>Initial concentration on insects (C<sub>0</sub>): R × rr × Drift</b>	Typical	3.375	mg/kg insect
	Maximum	35	mg/kg insect
<b>Concentration on insects at time T</b>	Typical	0.0392	mg/kg insect
<b>(C<sub>90</sub>): C<sub>0</sub> × exp(-k×T)<sup>5</sup></b>	Maximum	0.4063	mg/kg insect
<b>Time-weighted average concentration on insects</b>	Typical	0.7486	mg/kg insect
<b>CTWA): C<sub>0</sub> × (1-exp(-k×T)) / (k×T)<sup>5</sup></b>	Maximum	7.7635	mg/kg insect
<b>Proportion of diet contaminated (PC)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Dose estimates (D): (CTWA × ir × PC) / BW</b>	Typical	3.39E-01	mg/kg bw/day
	Maximum	3.52E+00	mg/kg bw/day

RISK QUOTIENTS <sup>6</sup> – Ingestion	Toxicity Reference Value(mg/kg bw/day) <sup>7</sup>	Typical Application	Maximum Application
Small insectivorous bird (chronic exposure)	634	5.35E-04	5.55E-03

<sup>1</sup>Calculated using algorithm developed by Nagy (1987) for all birds; where food ingestion rate (kg dw/day) = 0.0582×(BW)<sup>0.651</sup>.

<sup>2</sup> Assumes insects are 69% water (USEPA 1993; Table 4-1 - value for grasshoppers and crickets).

<sup>3</sup> Residue rates were obtained from the Kenaga nomogram as updated (Fletcher et al. 1994).

<sup>4</sup> ln = Natural log function.

<sup>5</sup>exp(-k×T) = e<sup>-k×T</sup>, where e is a constant = 2.7828.

<sup>6</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>7</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

**TABLE B-10**
**Potential Risks to Herbivorous Bird (Canada goose) From Consumption of Contaminated Vegetation (Acute Exposure Scenario)**

Parameters/Assumptions		Value	Units
<b>Body Weight (BW)</b>		3.72	kg
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>		0.1368	kg dw/day
<b>Food ingestion rate (wet weight [ww]) (ir)<sup>2</sup></b>		0.9125	kg ww/day
<b>Duration of exposure (D)</b>		1	day
<b>Application rates (R)</b>	Typical	0.075	lb/acre
	Maximum	0.1	lb/acre
<b>Residue rate - vegetation (rr)<sup>3</sup></b>	Typical	35	mg/kg per lb/acre
	Maximum	296	mg/kg per lb/acre
<b>Concentration on vegetation (C): R × rr</b>	Typical	2.625	mg/kg veg
	Maximum	29.6	mg/kg veg
<b>Drift (Drift)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Proportion of diet contaminated (PC)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Dose estimates: (Drift × PC × C × ir) / BW</b>	Typical	6.44E-01	mg/kg bw
	Maximum	7.26E+00	mg/kg bw

RISK QUOTIENTS <sup>4</sup> – Ingestion	Toxicity Reference Value (mg/kg bw) <sup>5</sup>	Typical Application	Maximum Application
Large herbivorous bird – acute exposure	2,810	2.29E-04	2.58E-03

<sup>1</sup>Calculated using algorithm developed by Nagy (1987) for all birds; where food ingestion rate (kg dw/day) = 0.0582×(BW)<sup>0.651</sup>.

<sup>2</sup>Assumes vegetation is 85% water (USEPA 1993; Table 4-2 - value for dicotyledons).

<sup>3</sup>Residue rates were obtained from the Kenaga nomogram as updated (Fletcher et al. 1994) and are vegetation-specific.

<sup>4</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>5</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

**TABLE B-11**
**Potential Risks to Herbivorous Bird (Canada goose) from Consumption of Contaminated Vegetation  
(Chronic Exposure Scenario)**

Parameters/Assumptions		Value	Units
<b>Duration of exposure (T)</b>		90	day
<b>Body weight (BW)</b>		3.72	kg
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>		0.1369	kg dw/day
<b>Food ingestion rate ( wet weight [ww]) (ir)<sup>2</sup></b>		0.9126	kg ww/day
<b>Half life on vegetation (t<sub>50</sub>)</b>	Herbicide specific	14	days
<b>Application rates (R)</b>	Typical	0.075	lb/acre
	Maximum	0.1	lb/acre
<b>Residue rate - vegetation (rr)<sup>3</sup></b>	Typical	35	mg/kg per lb/acre
	Maximum	296	mg/kg per lb/acre
<b>Drift (Drift)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Decay coefficient (k): ln(2) / t<sub>50</sub><sup>4</sup></b>	Typical	0.0495	days <sup>-1</sup>
	Maximum	0.0495	days <sup>-1</sup>
<b>Initial concentration on vegetation (C<sub>0</sub>): R × rr × Drift</b>	Typical	2.625	mg/kg veg
	Maximum	29.6	mg/kg veg
<b>Concentration on vegetation at time T (C<sub>90</sub>): C<sub>0</sub> × exp(-k×T)<sup>5</sup></b>	Typical	0.0305	mg/kg veg
	Maximum	0.3436	mg/kg veg
<b>Time-weighted Average Concentration on vegetation (CTWA): C<sub>0</sub> × (1-exp(-k×T))/(k×T)<sup>5</sup></b>	Typical	0.5823	mg/kg veg
	Maximum	6.5657	mg/kg veg
<b>Proportion of diet contaminated (PC)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Dose estimates (D): (CTWA × ir × PC) / BW</b>	Typical	1.43E-01	mg/kg bw/day
	Maximum	1.61E+00	mg/kg bw/day

RISK QUOTIENTS <sup>6</sup> – Ingestion	Toxicity Reference Value (mg/kg bw/day) <sup>7</sup>	Typical Application	Maximum Application
Large herbivorous bird (chronic exposure)	105	1.36E-03	1.53E-02

<sup>1</sup>Calculated using algorithm developed by Nagy (1987) for all birds; where food ingestion rate (kg dw/day) = 0.0582×(BW)<sup>0.651</sup>.

<sup>2</sup>Assumes vegetation is 85% water (USEPA 1993; Table 4-2 - value for dicotyledons).

<sup>3</sup>Residue rates were obtained from the Kenaga nomogram as updated (Fletcher et al. 1994) and are vegetation-specific.

<sup>4</sup>In = Natural log function.

<sup>5</sup>exp(-k×T) = e<sup>A</sup>(-k×T), where e is a constant = 2.7828.

<sup>6</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>7</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

**TABLE B-12**  
**Potential Risks to Aquatic Species from Accidental Spray Drift to Pond**

<b>OFF-SITE DRIFT - modeled in AgDrift</b> <b>TYPICAL APPLICATION RATE</b>									
<b>Mode of Application</b>	<b>Application Height or Type</b>	<b>Distance From Receptor (ft)</b>	<b>Pond Concentration (mg/L)</b>	<b>Risk Quotients<sup>1</sup> - Acute</b>			<b>Risk Quotients<sup>1</sup> - Chronic</b>		
				<b>Fish</b>	<b>Aquatic Invertebrates</b>	<b>Non-Target Aquatic Plants</b>	<b>Fish</b>	<b>Aquatic Invertebrates</b>	<b>Non-Target Aquatic Plants</b>
Ground	Low Boom	25	5.11E-05	4.82E-07	3.41E-06	5.11E-04	3.19E-06	5.27E-06	6.55E-03
Ground	Low Boom	100	2.80E-05	2.64E-07	1.87E-06	2.80E-04	1.75E-06	2.89E-06	3.59E-03
Ground	Low Boom	900	5.41E-06	5.10E-08	3.61E-07	5.41E-05	3.38E-07	5.58E-07	6.94E-04
Ground	High Boom	25	8.21E-05	7.75E-07	5.47E-06	8.21E-04	5.13E-06	8.46E-06	1.05E-02
Ground	High Boom	100	4.33E-05	4.08E-07	2.89E-06	4.33E-04	2.71E-06	4.46E-06	5.55E-03
Ground	High Boom	900	6.87E-06	6.48E-08	4.58E-07	6.87E-05	4.29E-07	7.08E-07	8.81E-04
<b>OFF-SITE DRIFT - modeled in AgDrift</b> <b>MAXIMUM APPLICATION RATE</b>									
<b>Mode of Application</b>	<b>Application Height or Type</b>	<b>Distance From Receptor (ft)</b>	<b>Pond Concentration (mg/L)</b>	<b>Risk Quotients<sup>1</sup> - Acute</b>			<b>Risk Quotients<sup>1</sup> - Chronic</b>		
				<b>Fish</b>	<b>Aquatic Invertebrates</b>	<b>Non-Target Aquatic Plants</b>	<b>Fish</b>	<b>Aquatic Invertebrates</b>	<b>Non-Target Aquatic Plants</b>
Ground	Low Boom	25	6.82E-05	6.43E-07	4.55E-06	6.82E-04	4.26E-06	7.03E-06	8.74E-03
Ground	Low Boom	100	3.74E-05	3.53E-07	2.49E-06	3.74E-04	2.34E-06	3.86E-06	4.79E-03
Ground	Low Boom	900	7.22E-06	6.81E-08	4.81E-07	7.22E-05	4.51E-07	7.44E-07	9.26E-04
Ground	High Boom	25	1.09E-04	1.03E-06	7.27E-06	1.09E-03	6.81E-06	1.12E-05	1.40E-02
Ground	High Boom	100	5.77E-05	5.44E-07	3.85E-06	5.77E-04	3.61E-06	5.95E-06	7.40E-03
Ground	High Boom	900	9.16E-06	8.64E-08	6.11E-07	9.16E-05	5.73E-07	9.44E-07	1.17E-03

<sup>1</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value

TABLE B-13

## Potential Risks to Aquatic Species from Accidental Spray Drift to Stream

OFF-SITE DRIFT - modeled in AgDrift TYPICAL APPLICATION RATE									
Mode of Application	Application Height or Type	Distance From Receptor (ft)	Stream Concentration (mg/L)	Risk Quotients <sup>1</sup> - Acute			Risk Quotients <sup>1</sup> - Chronic		
				Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
Ground	Low Boom	25	9.20E-05	8.68E-07	6.13E-06	9.20E-04	5.75E-06	9.48E-06	1.18E-02
Ground	Low Boom	100	2.69E-05	2.54E-07	1.80E-06	2.69E-04	1.68E-06	2.78E-06	3.46E-03
Ground	Low Boom	900	2.79E-06	2.63E-08	1.86E-07	2.79E-05	1.74E-07	2.88E-07	3.58E-04
Ground	High Boom	25	1.54E-04	1.45E-06	1.03E-05	1.54E-03	9.63E-06	1.59E-05	1.98E-02
Ground	High Boom	100	4.36E-05	4.12E-07	2.91E-06	4.36E-04	2.73E-06	4.50E-06	5.59E-03
Ground	High Boom	900	3.69E-06	3.48E-08	2.46E-07	3.69E-05	2.31E-07	3.80E-07	4.73E-04
OFF-SITE DRIFT - modeled in AgDrift MAXIMUM APPLICATION RATE									
Mode of Application	Application Height or Type	Distance From Receptor (ft)	Stream Concentration (mg/L)	Risk Quotients <sup>1</sup> - Acute			Risk Quotients <sup>1</sup> - Chronic		
				Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
Ground	Low Boom	25	1.23E-04	1.16E-06	8.18E-06	1.23E-03	7.67E-06	1.26E-05	1.57E-02
Ground	Low Boom	100	3.59E-05	3.39E-07	2.40E-06	3.59E-04	2.25E-06	3.70E-06	4.61E-03
Ground	Low Boom	900	3.72E-06	3.51E-08	2.48E-07	3.72E-05	2.32E-07	3.83E-07	4.77E-04
Ground	High Boom	25	2.05E-04	1.94E-06	1.37E-05	2.05E-03	1.28E-05	2.12E-05	2.63E-02
Ground	High Boom	100	5.82E-05	5.49E-07	3.88E-06	5.82E-04	3.64E-06	6.00E-06	7.46E-03
Ground	High Boom	900	4.92E-06	4.64E-08	3.28E-07	4.92E-05	3.07E-07	5.07E-07	6.30E-04

<sup>1</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

**TABLE B-14**
**Potential Risks to Non-target Terrestrial Plants from Direct Spray and Spray Drift**

<b>DIRECT SPRAY</b>	<b>Terrestrial Concentration (lb/acre)<sup>1</sup></b>	<b>Typical Species RQ<sup>2</sup></b>	<b>Rare, Threatened, and Endangered Species RQ<sup>2</sup></b>
Typical application rate	0.075	9.38E+01	2.50E+02
Maximum application rate	0.1	1.25E+02	3.33E+02

<b>OFF-SITE DRIFT - modeled in AgDrift</b>					
<b>TYPICAL APPLICATION RATE</b>					
<b>Mode of Application</b>	<b>Application Height or Type</b>	<b>Distance From Receptor (ft)</b>	<b>Soil Concentration (lb/acre)<sup>1</sup></b>	<b>Typical Species RQ<sup>2</sup></b>	<b>Rare, Threatened, and Endangered Species RQ<sup>2</sup></b>
Ground	Low Boom	25	9.00E-04	1.13E+00	3.00E+00
Ground	Low Boom	100	3.00E-04	3.75E-01	1.00E+00
Ground	Low Boom	900	5.11E-05	6.39E-02	1.70E-01
Ground	High Boom	25	1.60E-03	2.00E+00	5.33E+00
Ground	High Boom	100	5.00E-04	6.25E-01	1.67E+00
Ground	High Boom	900	6.55E-05	8.19E-02	2.18E-01
<b>OFF-SITE DRIFT - modeled in AgDrift</b>					
<b>MAXIMUM APPLICATION RATE</b>					
<b>Mode of Application</b>	<b>Application Height or Type</b>	<b>Distance From Receptor (ft)</b>	<b>Soil Concentration (lb/acre)<sup>1</sup></b>	<b>Typical Species RQ<sup>2</sup></b>	<b>Rare, Threatened, and Endangered Species RQ<sup>2</sup></b>
Ground	Low Boom	25	1.30E-03	1.63E+00	4.33E+00
Ground	Low Boom	100	4.00E-04	5.00E-01	1.33E+00
Ground	Low Boom	900	6.82E-05	8.53E-02	2.27E-01
Ground	High Boom	25	2.10E-03	2.63E+00	7.00E+00
Ground	High Boom	100	7.00E-04	8.75E-01	2.33E+00
Ground	High Boom	900	8.73E-05	1.09E-01	2.91E-01

<sup>1</sup>a.i. = active ingredient.

<sup>2</sup>RQ = Risk Quotient = Estimated Dose/Toxicity Reference Value.

**TABLE B-15**
**Potential Risk to Predatory Bird from Consumption of Contaminated Fish From Pond (Pond Impacted by Spray Drift Modeled in AgDrift)**

Parameters/ Assumptions	Value	Units
<b>Body weight (BW)</b>	5.15	kg
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>	0.1018	kg dw/day
<b>Food ingestion rate (wet weight [ww]) (ir)<sup>2</sup></b>	0.4072	kg ww/day
<b>Bioconcentration factor (BCF)</b>	3.16	L/kg fish
<b>Proportion of diet contaminated (PC)</b>	1	unitless
<b>Toxicity reference value (TRV)<sup>3</sup></b>	105	mg/kg-bw/day

TYPICAL APPLICATION RATE						
Mode of Application	Application Height or Type	Distance From Receptor (ft)	Pond Concentration <sup>4</sup> (C <sub>pond</sub> mg/L)	Concentration in fish (C <sub>Fish</sub> ): C <sub>pond</sub> × BCF	Dose estimate (D): (C <sub>Fish</sub> × ir × PC) / BW	Risk Quotient <sup>5</sup>
Ground	Low Boom	25	5.11E-05	1.61E-04	1.28E-05	1.22E-07
Ground	Low Boom	100	2.80E-05	8.85E-05	6.99E-06	6.66E-08
Ground	Low Boom	900	5.41E-06	1.71E-05	1.35E-06	1.29E-08
Ground	High Boom	25	8.21E-05	2.59E-04	2.05E-05	1.95E-07
Ground	High Boom	100	4.33E-05	1.37E-04	1.08E-05	1.03E-07
Ground	High Boom	900	6.87E-06	2.17E-05	1.72E-06	1.63E-08
MAXIMUM APPLICATION RATE						
Mode of Application	Application Height or Type	Distance From Receptor (ft)	Pond Concentration <sup>4</sup> (C <sub>pond</sub> mg/L)	Concentration in fish (C <sub>Fish</sub> ): C <sub>pond</sub> × BCF	Dose estimate (D): (C <sub>Fish</sub> × ir × PC) / BW	Risk Quotient <sup>5</sup>
Ground	Low Boom	25	6.82E-05	2.16E-04	1.70E-05	1.62E-07
Ground	Low Boom	100	3.74E-05	1.18E-04	9.34E-06	8.90E-08
Ground	Low Boom	900	7.22E-06	2.28E-05	1.80E-06	1.72E-08
Ground	High Boom	25	1.09E-04	3.44E-04	2.72E-05	2.59E-07
Ground	High Boom	100	5.77E-05	1.82E-04	1.44E-05	1.37E-07
Ground	High Boom	900	9.16E-06	2.89E-05	2.29E-06	2.18E-08

<sup>1</sup>Calculated using algorithm developed by Nagy (1987) for all birds; where food ingestion rate (kg dw/day) = 0.0582×(BW)<sup>0.651</sup>.

<sup>2</sup>Assumes fish are 75% water (USEPA 1993; Table 4-1 - value for bony fishes).

<sup>3</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

<sup>4</sup>Pond concentrations in spray drift scenarios were calculated by the AgDRIFT. See associated report methodology document for further details.

<sup>5</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

**TABLE B-16**  
**Potential Risks to Aquatic Species from Surface Runoff to Pond**

SURFACE RUNOFF - Modeled in GLEAMS - TYPICAL APPLICATION RATE															
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>2</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentrations (mg/L)		Risk Quotients <sup>1</sup> - Acute			Risk Quotients <sup>1</sup> - Chronic		
								Acute Exposure Scenarios	Chronic Exposure Scenarios	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
G_BASE_SAND_0	5	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
05_POND_TYP															
G_BASE_CLAY_0	5	10	0.05	0.015	0.401	Weeds (78)	Clay	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
05_POND_TYP															
G_BASE_LOAM_0	5	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
05_POND_TYP															
G_BASE_SAND_0	10	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
10_POND_TYP															
G_BASE_CLAY_0	10	10	0.05	0.015	0.401	Weeds (78)	Clay	1.17E-09	5.59E-11	1.10E-11	7.77E-11	1.17E-08	3.49E-12	5.76E-12	7.16E-09
10_POND_TYP															
G_BASE_LOAM_0	10	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
10_POND_TYP															
G_BASE_SAND_0	25	10	0.05	0.015	0.401	Weeds (78)	Sand	1.99E-07	2.33E-08	1.87E-09	1.32E-08	1.99E-06	1.46E-09	2.40E-09	2.99E-06
25_POND_TYP															
G_BASE_CLAY_0	25	10	0.05	0.015	0.401	Weeds (78)	Clay	2.87E-03	1.67E-04	2.70E-05	1.91E-04	2.87E-02	1.04E-05	1.72E-05	2.13E-02
25_POND_TYP															
G_BASE_LOAM_0	25	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
25_POND_TYP															
G_BASE_SAND_0	50	10	0.05	0.015	0.401	Weeds (78)	Sand	5.64E-04	6.28E-05	5.32E-06	3.76E-05	5.64E-03	3.93E-06	6.48E-06	2.99E-06
50_POND_TYP															
G_BASE_CLAY_0	50	10	0.05	0.015	0.401	Weeds (78)	Clay	1.52E-02	3.31E-04	1.43E-04	1.01E-03	1.52E-01	2.07E-05	3.42E-05	4.25E-02
50_POND_TYP															
G_BASE_LOAM_0	50	10	0.05	0.015	0.401	Weeds (78)	Loam	4.75E-04	7.54E-06	4.48E-06	3.17E-05	4.75E-03	4.71E-07	7.77E-07	9.66E-04
50_POND_TYP															
G_BASE_SAND_1	100	10	0.05	0.015	0.401	Weeds (78)	Sand	5.38E-03	6.07E-04	5.08E-05	3.59E-04	5.38E-02	3.79E-05	6.25E-05	7.78E-02
00_POND_TYP															
G_BASE_CLAY_1	100	10	0.05	0.015	0.401	Weeds (78)	Clay	9.24E-03	1.18E-04	8.72E-05	6.16E-04	9.24E-02	7.39E-06	1.22E-05	1.52E-02
00_POND_TYP															
G_BASE_LOAM_1	100	10	0.05	0.015	0.401	Weeds (78)	Loam	1.91E-04	2.08E-06	1.80E-06	1.27E-05	1.91E-03	1.30E-07	2.15E-07	2.67E-04
00_POND_TYP															
G_BASE_SAND_1	150	10	0.05	0.015	0.401	Weeds (78)	Sand	7.51E-03	8.42E-04	7.08E-05	5.01E-04	7.51E-02	5.26E-05	8.68E-05	1.08E-01
50_POND_TYP															
G_BASE_CLAY_1	150	10	0.05	0.015	0.401	Weeds (78)	Clay	3.86E-03	4.87E-05	3.65E-05	2.58E-04	3.86E-02	3.04E-06	5.02E-06	6.25E-03
50_POND_TYP															

TABLE B-16 (Cont.)

## Potential Risks to Aquatic Species From Surface Runoff to Pond

SURFACE RUNOFF - Modeled in GLEAMS - TYPICAL APPLICATION RATE															
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>2</sup> Soil Erodibility Factor (ton/ ac per EI)	Vegetation Type	Soil Type	Pond Concentrations (mg/L)		Risk Quotients <sup>1</sup> - Acute		Risk Quotients <sup>1</sup> - Chronic			
								Acute Exposure Scenarios	Chronic Exposure Scenarios	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
G_BASE_LOAM_150_POND_TYP	150	10	0.05	0.015	0.401	Weeds (78)	Loam	8.16E-05	4.08E-06	7.70E-07	5.44E-06	8.16E-04	2.55E-07	4.21E-04	5.23E-04
G_BASE_SAND_200_POND_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Sand	7.42E-03	7.77E-04	7.00E-05	4.94E-04	7.42E-02	4.86E-05	8.01E-05	9.96E-02
G_BASE_CLAY_200_POND_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Clay	3.60E-03	4.85E-05	3.40E-05	2.40E-04	3.60E-02	3.03E-06	5.00E-06	6.22E-03
G_BASE_LOAM_200_POND_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Loam	8.84E-05	1.17E-05	8.33E-07	5.89E-06	8.84E-04	7.29E-07	1.20E-06	1.50E-03
G_BASE_SAND_250_POND_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Sand	7.76E-03	6.20E-04	7.32E-05	5.17E-04	7.76E-02	3.87E-05	6.39E-05	7.95E-02
G_BASE_CLAY_250_POND_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Clay	4.69E-03	6.40E-05	4.43E-05	3.13E-04	4.69E-02	4.00E-06	6.60E-06	8.21E-03
G_BASE_LOAM_250_POND_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Loam	1.60E-04	2.12E-05	1.51E-06	1.06E-05	1.60E-03	1.32E-06	2.18E-06	2.71E-03
G_ARV1_050_POND_TYP	50	1	0.05	0.015	0.401	Weeds (78)	Loam	8.63E-05	6.96E-06	8.14E-07	5.75E-06	8.63E-04	4.35E-07	7.17E-07	8.92E-04
G_ARV2_050_POND_TYP	50	100	0.05	0.015	0.401	Weeds (78)	Loam	1.94E-04	1.59E-06	1.83E-06	1.29E-05	1.94E-03	9.95E-08	1.64E-07	2.04E-04
G_ARV3_050_POND_TYP	50	1,000	0.05	0.015	0.401	Weeds (78)	Loam	1.94E-04	1.59E-06	1.83E-06	1.29E-05	1.94E-03	9.94E-08	1.64E-07	2.04E-04
G_ERV1_050_POND_TYP	50	10	0.05	0.015	0.05	Weeds (78)	Loam	4.63E-04	7.35E-06	4.37E-06	3.09E-05	4.63E-03	4.59E-07	7.58E-07	9.42E-04
G_ERV2_050_POND_TYP	50	10	0.05	0.015	0.2	Weeds (78)	Loam	4.67E-04	7.40E-06	4.40E-06	3.11E-05	4.67E-03	4.63E-07	7.63E-07	9.49E-04
G_ERV3_050_POND_TYP	50	10	0.05	0.015	0.5	Weeds (78)	Loam	4.73E-04	7.50E-06	4.46E-06	3.15E-05	4.73E-03	4.69E-07	7.73E-07	9.62E-04
G_RGV1_050_POND_TYP	50	10	0.05	0.023	0.401	Weeds (78)	Loam	4.66E-04	7.38E-06	4.39E-06	3.10E-05	4.66E-03	4.61E-07	7.61E-07	9.47E-04
G_RGV2_050_POND_TYP	50	10	0.05	0.046	0.401	Weeds (78)	Loam	4.65E-04	7.37E-06	4.39E-06	3.10E-05	4.65E-03	4.61E-07	7.60E-07	9.45E-04
G_RGV3_050_POND_TYP	50	10	0.05	0.15	0.401	Weeds (78)	Loam	4.63E-04	7.34E-06	4.37E-06	3.09E-05	4.63E-03	4.59E-07	7.57E-07	9.41E-04
G_SLV1_050_POND_TYP	50	10	0.005	0.015	0.401	Weeds (78)	Loam	4.63E-04	7.34E-06	4.37E-06	3.09E-05	4.63E-03	4.59E-07	7.57E-07	9.41E-04

**TABLE B-16 (Cont.)**
**Potential Risks to Aquatic Species From Surface Runoff to Pond**

SURFACE RUNOFF - Modeled in GLEAMS - TYPICAL APPLICATION RATE															
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>2</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentrations (mg/L)		Risk Quotients <sup>1</sup> - Acute		Risk Quotients <sup>1</sup> - Chronic			
								Acute Exposure Scenarios	Chronic Exposure Scenarios	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
G_SLV2_050_POND_TYP	50	10	0.01	0.015	0.401	Weeds (78)	Loam	4.63E-04	7.35E-06	4.37E-06	3.09E-05	4.63E-03	4.59E-07	7.57E-07	9.42E-04
G_SLV3_050_POND_TYP	50	10	0.1	0.015	0.401	Weeds (78)	Loam	4.70E-04	7.46E-06	4.44E-06	3.14E-05	4.70E-03	4.66E-07	7.69E-07	9.56E-04
G_STV1_050_POND_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Silt Loam	4.19E-03	7.80E-05	3.95E-05	2.79E-04	4.19E-02	4.88E-06	8.04E-06	1.00E-02
G_STV2_050_POND_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Silt	3.47E-03	6.00E-05	3.27E-05	2.31E-04	3.47E-02	3.75E-06	6.19E-06	7.69E-03
G_STV3_050_POND_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Clay Loam	7.73E-03	1.78E-04	7.29E-05	5.15E-04	7.73E-02	1.11E-05	1.83E-05	2.28E-02
G_VGV1_050_POND_TYP	50	10	0.05	0.015	0.401	Shrubs (79)	Loam	4.66E-04	7.38E-06	4.39E-06	3.10E-05	4.66E-03	4.61E-07	7.61E-07	9.47E-04
G_VGV2_050_POND_TYP	50	10	0.05	0.015	0.401	Rye Grass (54)	Loam	4.66E-04	7.38E-06	4.39E-06	3.10E-05	4.66E-03	4.61E-07	7.61E-07	9.47E-04
G_VGV3_050_POND_TYP	50	10	0.05	0.015	0.401	Conifer + Hardwood (71)	Loam	4.84E-04	6.13E-06	4.56E-06	3.23E-05	4.84E-03	3.83E-07	6.32E-07	7.86E-04
MAXIMUM APPLICATION RATE															
G_BASE_SAND_005_POND_MAX	5	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_005_POND_MAX	5	10	0.05	0.015	0.401	Weeds (78)	Clay	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_LOAM_005_POND_MAX	5	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_010_POND_MAX	10	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_010_POND_MAX	10	10	0.05	0.015	0.401	Weeds (78)	Clay	1.55E-09	7.45E-11	1.47E-11	1.04E-10	1.55E-08	4.66E-12	7.68E-12	9.55E-09
G_BASE_LOAM_010_POND_MAX	10	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_025_POND_MAX	25	10	0.05	0.015	0.401	Weeds (78)	Sand	2.65E-07	3.11E-08	2.50E-09	1.77E-08	2.65E-06	1.94E-09	3.21E-09	3.99E-06
G_BASE_CLAY_025_POND_MAX	25	10	0.05	0.015	0.401	Weeds (78)	Clay	3.82E-03	2.22E-04	3.61E-05	2.55E-04	3.82E-02	1.39E-05	2.29E-05	2.85E-02

TABLE B-16 (Cont.)

## Potential Risks to Aquatic Species From Surface Runoff to Pond

SURFACE RUNOFF - Modeled in GLEAMS - MAXIMUM APPLICATION RATE															
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>2</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentrations (mg/L)		Risk Quotients <sup>1</sup> - Acute			Risk Quotients <sup>1</sup> - Chronic		
								Acute Exposure Scenarios	Chronic Exposure Scenarios	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
G_BASE_LOAM_0	25	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
25_POND_MAX															
G_BASE_SAND_0	50	10	0.05	0.015	0.401	Weeds (78)	Sand	7.52E-04	8.38E-05	7.09E-06	5.01E-05	7.52E-03	5.23E-06	8.63E-06	1.07E-02
50_POND_MAX															
G_BASE_CLAY_0	50	10	0.05	0.015	0.401	Weeds (78)	Clay	2.02E-02	4.42E-04	1.91E-04	1.35E-03	2.02E-01	2.76E-05	4.56E-05	5.67E-02
50_POND_MAX															
G_BASE_LOAM_0	50	10	0.05	0.015	0.401	Weeds (78)	Loam	6.34E-04	1.01E-05	5.98E-06	4.23E-05	6.34E-03	6.28E-07	1.04E-06	1.29E-03
50_POND_MAX															
G_BASE_SAND_1	100	10	0.05	0.015	0.401	Weeds (78)	Sand	7.18E-03	8.09E-04	6.77E-05	4.78E-04	7.18E-02	5.05E-05	8.34E-05	1.04E-01
00_POND_MAX															
G_BASE_CLAY_1	100	10	0.05	0.015	0.401	Weeds (78)	Clay	1.23E-02	1.58E-04	1.16E-04	8.21E-04	1.23E-01	9.85E-06	1.62E-05	2.02E-02
00_POND_MAX															
G_BASE_LOAM_1	100	10	0.05	0.015	0.401	Weeds (78)	Loam	2.54E-04	2.78E-06	2.40E-06	1.69E-05	2.54E-03	1.74E-07	2.86E-07	3.56E-04
00_POND_MAX															
G_BASE_SAND_1	150	10	0.05	0.015	0.401	Weeds (78)	Sand	1.00E-02	1.12E-03	9.44E-05	6.67E-04	1.00E-01	7.02E-05	1.16E-04	1.44E-01
50_POND_MAX															
G_BASE_CLAY_1	150	10	0.05	0.015	0.401	Weeds (78)	Clay	5.15E-03	6.50E-05	4.86E-05	3.44E-04	5.15E-02	4.06E-06	6.70E-06	8.33E-03
50_POND_MAX															
G_BASE_LOAM_1	150	10	0.05	0.015	0.401	Weeds (78)	Loam	1.09E-04	5.44E-06	1.03E-06	7.25E-06	1.09E-03	3.40E-07	5.61E-07	6.98E-04
50_POND_MAX															
G_BASE_SAND_2	200	10	0.05	0.015	0.401	Weeds (78)	Sand	9.89E-03	1.04E-03	9.33E-05	6.59E-04	9.89E-02	6.48E-05	1.07E-04	1.33E-01
00_POND_MAX															
G_BASE_CLAY_2	200	10	0.05	0.015	0.401	Weeds (78)	Clay	4.80E-03	6.47E-05	4.53E-05	3.20E-04	4.80E-02	4.05E-06	6.67E-06	8.30E-03
00_POND_MAX															
G_BASE_LOAM_2	200	10	0.05	0.015	0.401	Weeds (78)	Loam	1.18E-04	1.56E-05	1.11E-06	7.85E-06	1.18E-03	9.72E-07	1.60E-06	1.99E-03
00_POND_MAX															
G_BASE_SAND_2	250	10	0.05	0.015	0.401	Weeds (78)	Sand	1.03E-02	8.27E-04	9.75E-05	6.89E-04	1.03E-01	5.17E-05	8.52E-05	1.06E-01
50_POND_MAX															
G_BASE_CLAY_2	250	10	0.05	0.015	0.401	Weeds (78)	Clay	6.26E-03	8.54E-05	5.90E-05	4.17E-04	6.26E-02	5.34E-06	8.80E-06	1.09E-02
50_POND_MAX															
G_BASE_LOAM_2	250	10	0.05	0.015	0.401	Weeds (78)	Loam	2.13E-04	2.82E-05	2.01E-06	1.42E-05	2.13E-03	1.76E-06	2.91E-06	3.62E-03
50_POND_MAX															
G_ARV1_050_POND_MAX	50	1	0.05	0.015	0.401	Weeds (78)	Loam	1.15E-04	9.28E-06	1.08E-06	7.67E-06	1.15E-03	5.80E-07	9.56E-07	1.19E-03
G_ARV2_050_POND_MAX	50	100	0.05	0.015	0.401	Weeds (78)	Loam	2.59E-04	2.12E-06	2.44E-06	1.72E-05	2.59E-03	1.33E-07	2.19E-07	2.72E-04

TABLE B-16 (Cont.)

## Potential Risks to Aquatic Species From Surface Runoff to Pond



SURFACE RUNOFF - Modeled in GLEAMS - MAXIMUM APPLICATION RATE															
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>2</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentrations (mg/L)		Risk Quotients <sup>1</sup> – Acute		Risk Quotients <sup>1</sup> – Chronic			
								Acute Exposure Scenarios	Chronic Exposure Scenarios	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
G_ARV3_050_POND_MAX	50	1,000	0.05	0.015	0.401	Weeds (78)	Loam	2.58E-04	2.12E-06	2.44E-06	1.72E-05	2.58E-03	1.33E-07	2.19E-07	2.72E-04
G_ERV1_050_POND_MAX	50	10	0.05	0.015	0.05	Weeds (78)	Loam	6.18E-04	9.80E-06	5.83E-06	4.12E-05	6.18E-03	6.12E-07	1.01E-06	1.26E-03
G_ERV2_050_POND_MAX	50	10	0.05	0.015	0.2	Weeds (78)	Loam	6.22E-04	9.87E-06	5.87E-06	4.15E-05	6.22E-03	6.17E-07	1.02E-06	1.27E-03
G_ERV3_050_POND_MAX	50	10	0.05	0.015	0.5	Weeds (78)	Loam	6.31E-04	1.00E-05	5.95E-06	4.21E-05	6.31E-03	6.25E-07	1.03E-06	1.28E-03
G_RGV1_050_POND_MAX	50	10	0.05	0.023	0.401	Weeds (78)	Loam	6.21E-04	9.84E-06	5.86E-06	4.14E-05	6.21E-03	6.15E-07	1.01E-06	1.26E-03
G_RGV2_050_POND_MAX	50	10	0.05	0.046	0.401	Weeds (78)	Loam	6.20E-04	9.83E-06	5.85E-06	4.13E-05	6.20E-03	6.15E-07	1.01E-06	1.26E-03
G_RGV3_050_POND_MAX	50	10	0.05	0.15	0.401	Weeds (78)	Loam	6.17E-04	9.79E-06	5.82E-06	4.12E-05	6.17E-03	6.12E-07	1.01E-06	1.25E-03
G_SLV1_050_POND_MAX	50	10	0.005	0.015	0.401	Weeds (78)	Loam	6.17E-04	9.79E-06	5.82E-06	4.12E-05	6.17E-03	6.12E-07	1.01E-06	1.26E-03
G_SLV2_050_POND_MAX	50	10	0.01	0.015	0.401	Weeds (78)	Loam	6.18E-04	9.79E-06	5.83E-06	4.12E-05	6.18E-03	6.12E-07	1.01E-06	1.26E-03
G_SLV3_050_POND_MAX	50	10	0.1	0.015	0.401	Weeds (78)	Loam	6.27E-04	9.95E-06	5.92E-06	4.18E-05	6.27E-03	6.22E-07	1.03E-06	1.28E-03
G_STV1_050_POND_MAX	50	10	0.05	0.015	0.401	Weeds (78)	Silt Loam	5.58E-03	1.04E-04	5.27E-05	3.72E-04	5.58E-02	6.50E-06	1.07E-05	1.33E-02
G_STV2_050_POND_MAX	50	10	0.05	0.015	0.401	Weeds (78)	Silt	4.63E-03	8.00E-05	4.37E-05	3.09E-04	4.63E-02	5.00E-06	8.25E-06	1.03E-02
G_STV3_050_POND_MAX	50	10	0.05	0.015	0.401	Weeds (78)	Clay Loam	1.03E-02	2.37E-04	9.72E-05	6.87E-04	1.03E-01	1.48E-05	2.44E-05	3.04E-02
G_VGV1_050_POND_MAX	50	10	0.05	0.015	0.401	Shrubs (79)	Loam	6.21E-04	9.85E-06	5.86E-06	4.14E-05	6.21E-03	6.15E-07	1.01E-06	1.26E-03
G_VGV2_050_POND_MAX	50	10	0.05	0.015	0.401	Rye Grass (54) Conifer + Hardwood (71)	Loam	6.21E-04	9.85E-06	5.86E-06	4.14E-05	6.21E-03	6.15E-07	1.01E-06	1.26E-03
G_VGV3_050_POND_MAX	50	10	0.05	0.015	0.401	Conifer + Hardwood (71)	Loam	6.45E-04	8.18E-06	6.09E-06	4.30E-05	6.45E-03	5.11E-07	8.43E-07	1.05E-03

<sup>1</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.<sup>2</sup>USLE = Universal Soil Loss Equation, which predicts soil loss as a function of soil erodibility, topography, rainfall/runoff, cover, and support management factors.

TABLE B-17

## Potential Risks to Aquatic Species from Surface Runoff to Stream

SURFACE RUNOFF - modeled in GLEAMS TYPICAL APPLICATION RATE															
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>2</sup> Soil Erodibility Factor (ton/ac/EI)	Vegetation Type	Soil Type	Stream Concentrations (mg/L)		Risk Quotients - Acute			Risk Quotients - Chronic		
								Acute Exposure Scenarios	Chronic Exposure Scenarios	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
G_BASE_SAND_00	5	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_00	5	10	0.05	0.015	0.401	Weeds (78)	Clay	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_LOAM_00	5	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_01	10	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_01	10	10	0.05	0.015	0.401	Weeds (78)	Clay	3.90E-11	3.20E-13	3.68E-13	2.60E-12	3.90E-10	2.00E-14	3.30E-14	4.10E-11
G_BASE_LOAM_01	10	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_02	25	10	0.05	0.015	0.401	Weeds (78)	Sand	6.40E-09	9.10E-11	6.04E-11	4.27E-10	6.40E-08	5.69E-12	9.38E-12	1.17E-08
G_BASE_CLAY_02	25	10	0.05	0.015	0.401	Weeds (78)	Clay	9.53E-05	8.10E-07	8.99E-07	6.36E-06	9.53E-04	5.06E-08	8.35E-08	1.04E-04
G_BASE_LOAM_02	25	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_05	50	10	0.05	0.015	0.401	Weeds (78)	Sand	2.50E-05	4.04E-07	2.36E-07	1.67E-06	2.50E-04	2.53E-08	4.17E-08	5.19E-05
G_BASE_CLAY_05	50	10	0.05	0.015	0.401	Weeds (78)	Clay	5.50E-04	5.01E-06	5.19E-06	3.67E-05	5.50E-03	3.13E-07	5.17E-07	6.42E-04
G_BASE_LOAM_05	50	10	0.05	0.015	0.401	Weeds (78)	Loam	2.61E-05	2.14E-07	2.46E-07	1.74E-06	2.61E-04	1.34E-08	2.21E-08	2.74E-05
G_BASE_SAND_10	100	10	0.05	0.015	0.401	Weeds (78)	Sand	4.64E-04	9.02E-06	4.38E-06	3.09E-05	4.64E-03	5.64E-07	9.30E-07	1.16E-03
G_BASE_CLAY_10	100	10	0.05	0.015	0.401	Weeds (78)	Clay	1.31E-03	1.14E-05	1.24E-05	8.77E-05	1.31E-02	7.14E-07	1.18E-06	1.47E-03
G_BASE_LOAM_10	100	10	0.05	0.015	0.401	Weeds (78)	Loam	3.73E-05	3.17E-07	3.52E-07	2.48E-06	3.73E-04	1.98E-08	3.27E-08	4.06E-05
G_BASE_SAND_15	150	10	0.05	0.015	0.401	Weeds (78)	Sand	9.95E-04	2.03E-05	9.38E-06	6.63E-05	9.95E-03	1.27E-06	2.09E-06	2.60E-03
G_BASE_CLAY_15	150	10	0.05	0.015	0.401	Weeds (78)	Clay	1.31E-03	1.17E-05	1.24E-05	8.74E-05	1.31E-02	7.28E-07	1.20E-06	1.49E-03

**TABLE B-17 (Cont.)**  
**Potential Risks to Aquatic Species from Surface Runoff to Stream**

GLEAMS ID	SURFACE RUNOFF - modeled in GLEAMS											TYPICAL APPLICATION RATE					
	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>2</sup> Soil Erodibility Factor (ton/ac/EI)	Vegetation Type	Soil Type	Stream Concentrations (mg/L)		Risk Quotients - Acute			Risk Quotients - Chronic				
								Acute Exposure Scenarios	Chronic Exposure Scenarios	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants		
G_BASE_LOAM_150_STREAM_TYP	150	10	0.05	0.015	0.401	Weeds (78)	Loam	3.44E-05	3.31E-07	3.24E-07	2.29E-06	3.44E-04	2.07E-08	3.41E-08	4.24E-05		
G_BASE_SAND_200_STREAM_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Sand	1.27E-03	2.87E-05	1.20E-05	8.47E-05	1.27E-02	1.80E-06	2.96E-06	3.68E-03		
G_BASE_CLAY_200_STREAM_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Clay	1.13E-03	1.07E-05	1.06E-05	7.52E-05	1.13E-02	6.66E-07	1.10E-06	1.37E-03		
G_BASE_LOAM_200_STREAM_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Loam	2.34E-05	3.89E-07	2.21E-07	1.56E-06	2.34E-04	2.43E-08	4.01E-08	4.98E-05		
G_BASE_SAND_250_STREAM_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Sand	1.30E-03	3.34E-05	1.23E-05	8.67E-05	1.30E-02	2.08E-06	3.44E-06	4.28E-03		
G_BASE_CLAY_250_STREAM_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Clay	9.83E-04	1.02E-05	9.27E-06	6.55E-05	9.83E-03	6.38E-07	1.05E-06	1.31E-03		
G_BASE_LOAM_250_STREAM_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Loam	1.59E-05	5.50E-07	1.50E-07	1.06E-06	1.59E-04	3.44E-08	5.67E-08	7.06E-05		
G_ARV1_050_STRE_AM_TYP	50	1	0.05	0.015	0.401	Weeds (78)	Loam	2.90E-06	2.38E-08	2.73E-08	1.93E-07	2.90E-05	1.48E-09	2.45E-09	3.05E-06		
G_ARV2_050_STRE_AM_TYP	50	100	0.05	0.015	0.401	Weeds (78)	Loam	1.17E-04	9.59E-07	1.10E-06	7.79E-06	1.17E-03	6.00E-08	9.89E-08	1.23E-04		
G_ARV3_050_STRE_AM_TYP	50	1,000	0.05	0.015	0.401	Weeds (78)	Loam	1.82E-04	1.49E-06	1.71E-06	1.21E-05	1.82E-03	9.32E-08	1.54E-07	1.91E-04		
G_ERV1_050_STRE_AM_TYP	50	10	0.05	0.015	0.05	Weeds (78)	Loam	2.54E-05	2.09E-07	2.40E-07	1.70E-06	2.54E-04	1.30E-08	2.15E-08	2.67E-05		
G_ERV2_050_STRE_AM_TYP	50	10	0.05	0.015	0.2	Weeds (78)	Loam	2.56E-05	2.10E-07	2.42E-07	1.71E-06	2.56E-04	1.31E-08	2.17E-08	2.69E-05		
G_ERV3_050_STRE_AM_TYP	50	10	0.05	0.015	0.5	Weeds (78)	Loam	2.60E-05	2.13E-07	2.45E-07	1.73E-06	2.60E-04	1.33E-08	2.20E-08	2.73E-05		
G_RGV1_050_STRE_AM_TYP	50	10	0.05	0.023	0.401	Weeds (78)	Loam	2.55E-05	2.10E-07	2.41E-07	1.70E-06	2.55E-04	1.31E-08	2.16E-08	2.69E-05		
G_RGV2_050_STRE_AM_TYP	50	10	0.05	0.046	0.401	Weeds (78)	Loam	2.55E-05	2.09E-07	2.41E-07	1.70E-06	2.55E-04	1.31E-08	2.16E-08	2.68E-05		
G_RGV3_050_STRE_AM_TYP	50	10	0.05	0.15	0.401	Weeds (78)	Loam	2.54E-05	2.08E-07	2.40E-07	1.69E-06	2.54E-04	1.30E-08	2.15E-08	2.67E-05		
G_SLV1_050_STREA_M_TYP	50	10	0.005	0.015	0.401	Weeds (78)	Loam	2.54E-05	2.08E-07	2.40E-07	1.69E-06	2.54E-04	1.30E-08	2.15E-08	2.67E-05		

**TABLE B-17 (Cont.)**  
**Potential Risks to Aquatic Species from Surface Runoff to Stream**

<b>SURFACE RUNOFF - modeled in GLEAMS</b>																
<b>TYPICAL APPLICATION RATE</b>																
<b>GLEAMS ID</b>	<b>Annual Precipitation (inches)</b>	<b>Application Area (acres)</b>	<b>Hydraulic Slope (ft/ft)</b>	<b>Surface Roughness</b>	<b>USLE<sup>2</sup> Soil Erodibility Factor (ton/ac/EI)</b>	<b>Vegetation Type</b>	<b>Soil Type</b>	<b>Stream Concentrations (mg/L)</b>		<b>Risk Quotients - Acute</b>			<b>Risk Quotients - Chronic</b>			
								<b>Acute Exposure Scenarios</b>	<b>Chronic Exposure Scenarios</b>	<b>Fish</b>	<b>Aquatic Invertebrates</b>	<b>Non-Target Aquatic Plants</b>	<b>Fish</b>	<b>Aquatic Invertebrates</b>	<b>Non-Target Aquatic Plants</b>	
G_SLV2_050_STREAM_TYP	50	10	0.01	0.015	0.401	Weeds (78)	Loam	2.54E-05	2.09E-07	2.40E-07	1.69E-06	2.54E-04	1.30E-08	2.15E-08	2.67E-05	
G_SLV3_050_STREAM_TYP	50	10	0.1	0.015	0.401	Weeds (78)	Loam	2.58E-05	2.12E-07	2.43E-07	1.72E-06	2.58E-04	1.32E-08	2.18E-08	2.71E-05	
G_STV1_050_STREAM_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Silt Loam	2.30E-04	1.95E-06	2.17E-06	1.53E-05	2.30E-03	1.22E-07	2.01E-07	2.50E-04	
G_STV2_050_STREAM_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Silt	2.06E-04	1.72E-06	1.95E-06	1.37E-05	2.06E-03	1.07E-07	1.77E-07	2.20E-04	
G_STV3_050_STREAM_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Clay Loam	4.58E-04	4.10E-06	4.32E-06	3.05E-05	4.58E-03	2.56E-07	4.23E-07	5.26E-04	
G_VGV1_050_STREAM_TYP	50	10	0.05	0.015	0.401	Shrubs (79)	Loam	2.55E-05	2.10E-07	2.41E-07	1.70E-06	2.55E-04	1.31E-08	2.16E-08	2.69E-05	
G_VGV2_050_STREAM_TYP	50	10	0.05	0.015	0.401	Rye Grass (54)	Loam	2.55E-05	2.10E-07	2.41E-07	1.70E-06	2.55E-04	1.31E-08	2.16E-08	2.69E-05	
G_VGV3_050_STREAM_TYP	50	10	0.05	0.015	0.401	Conifer + Hardwood (71)	Loam	3.28E-05	2.69E-07	3.09E-07	2.19E-06	3.28E-04	1.68E-08	2.77E-08	3.45E-05	
<b>MAXIMUM APPLICATION RATE</b>																
G_BASE_SAND_005_STREAM_MAX	5	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
G_BASE_CLAY_005_STREAM_MAX	5	10	0.05	0.015	0.401	Weeds (78)	Clay	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
G_BASE_LOAM_005_STREAM_MAX	5	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
G_BASE_SAND_010_STREAM_MAX	10	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
G_BASE_CLAY_010_STREAM_MAX	10	10	0.05	0.015	0.401	Weeds (78)	Clay	5.20E-11	4.27E-13	4.91E-13	3.47E-12	5.20E-10	2.67E-14	4.40E-14	5.47E-11	
G_BASE_LOAM_010_STREAM_MAX	10	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
G_BASE_SAND_025_STREAM_MAX	25	10	0.05	0.015	0.401	Weeds (78)	Sand	8.53E-09	1.21E-10	8.05E-11	5.69E-10	8.53E-08	7.58E-12	1.25E-11	1.56E-08	
G_BASE_CLAY_025_STREAM_MAX	25	10	0.05	0.015	0.401	Weeds (78)	Clay	1.27E-04	1.08E-06	1.20E-06	8.47E-06	1.27E-03	6.75E-08	1.11E-07	1.38E-04	

**TABLE B-17 (Cont.)**  
**Potential Risks to Aquatic Species from Surface Runoff to Stream**

SURFACE RUNOFF - modeled in GLEAMS MAXIMUM APPLICATION RATE																
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>2</sup> Soil Erodibility Factor (ton/ac/EI)	Vegetation Type	Soil Type	Stream Concentrations (mg/L)		Risk Quotients - Acute			Risk Quotients - Chronic			
								Acute Exposure Scenarios	Chronic Exposure Scenarios	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	
G_BASE_LOAM_02	25	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
G_BASE_SAND_050	50	10	0.05	0.015	0.401	Weeds (78)	Sand	3.33E-05	5.39E-07	3.14E-07	2.22E-06	3.33E-04	3.37E-08	5.56E-08	6.91E-05	
G_BASE_CLAY_050	50	10	0.05	0.015	0.401	Weeds (78)	Clay	7.34E-04	6.68E-06	6.92E-06	4.89E-05	7.34E-03	4.18E-07	6.89E-07	8.57E-04	
G_BASE_LOAM_050	50	10	0.05	0.015	0.401	Weeds (78)	Loam	3.48E-05	2.85E-07	3.28E-07	2.32E-06	3.48E-04	1.78E-08	2.94E-08	3.66E-05	
G_BASE_SAND_100	100	10	0.05	0.015	0.401	Weeds (78)	Sand	6.19E-04	1.20E-05	5.84E-06	4.12E-05	6.19E-03	7.52E-07	1.24E-06	1.54E-03	
G_BASE_CLAY_100	100	10	0.05	0.015	0.401	Weeds (78)	Clay	1.75E-03	1.52E-05	1.65E-05	1.17E-04	1.75E-02	9.53E-07	1.57E-06	1.95E-03	
G_BASE_LOAM_100	100	10	0.05	0.015	0.401	Weeds (78)	Loam	4.97E-05	4.23E-07	4.69E-07	3.31E-06	4.97E-04	2.64E-08	4.36E-08	5.42E-05	
G_BASE_SAND_150	150	10	0.05	0.015	0.401	Weeds (78)	Sand	1.33E-03	2.71E-05	1.25E-05	8.84E-05	1.33E-02	1.69E-06	2.79E-06	3.47E-03	
G_BASE_CLAY_150	150	10	0.05	0.015	0.401	Weeds (78)	Clay	1.75E-03	1.55E-05	1.65E-05	1.17E-04	1.75E-02	9.71E-07	1.60E-06	1.99E-03	
G_BASE_LOAM_150	150	10	0.05	0.015	0.401	Weeds (78)	Loam	4.59E-05	4.41E-07	4.33E-07	3.06E-06	4.59E-04	2.76E-08	4.55E-08	5.65E-05	
G_BASE_SAND_200	200	10	0.05	0.015	0.401	Weeds (78)	Sand	1.69E-03	3.83E-05	1.60E-05	1.13E-04	1.69E-02	2.39E-06	3.95E-06	4.91E-03	
G_BASE_CLAY_200	200	10	0.05	0.015	0.401	Weeds (78)	Clay	1.50E-03	1.42E-05	1.42E-05	1.00E-04	1.50E-02	8.88E-07	1.46E-06	1.82E-03	
G_BASE_LOAM_200	200	10	0.05	0.015	0.401	Weeds (78)	Loam	3.12E-05	5.18E-07	2.94E-07	2.08E-06	3.12E-04	3.24E-08	5.34E-08	6.64E-05	
G_BASE_SAND_250	250	10	0.05	0.015	0.401	Weeds (78)	Sand	1.73E-03	4.45E-05	1.63E-05	1.16E-04	1.73E-02	2.78E-06	4.58E-06	5.70E-03	
G_BASE_CLAY_250	250	10	0.05	0.015	0.401	Weeds (78)	Clay	1.31E-03	1.36E-05	1.24E-05	8.73E-05	1.31E-02	8.50E-07	1.40E-06	1.74E-03	
G_BASE_LOAM_250	250	10	0.05	0.015	0.401	Weeds (78)	Loam	2.12E-05	7.34E-07	2.00E-07	1.41E-06	2.12E-04	4.59E-08	7.56E-08	9.41E-05	
G_ARV1_050_STREAM_MAX	50	1	0.05	0.015	0.401	Weeds (78)	Loam	3.86E-06	3.17E-08	3.64E-08	2.57E-07	3.86E-05	1.98E-09	3.26E-09	4.06E-06	
G_ARV2_050_STREAM_MAX	50	100	0.05	0.015	0.401	Weeds (78)	Loam	1.56E-04	1.28E-06	1.47E-06	1.04E-05	1.56E-03	7.99E-08	1.32E-07	1.64E-04	

**TABLE B-17 (Cont.)**  
**Potential Risks to Aquatic Species from Surface Runoff to Stream**

<b>SURFACE RUNOFF - modeled in GLEAMS</b> <b>MAXIMUM APPLICATION RATE</b>															
<b>GLEAMS ID</b>	<b>Annual Precipitation (inches)</b>	<b>Application Area (acres)</b>	<b>Hydraulic Slope (ft/ft)</b>	<b>Surface Roughness</b>	<b>USLE<sup>2</sup> Soil Erodibility Factor (ton/ac/EI)</b>	<b>Vegetation Type</b>	<b>Soil Type</b>	<b>Stream Concentrations (mg/L)</b>		<b>Risk Quotients - Acute</b>			<b>Risk Quotients - Chronic</b>		
								<b>Acute Exposure Scenarios</b>	<b>Chronic Exposure Scenarios</b>	<b>Fish</b>	<b>Aquatic Invertebrates</b>	<b>Non-Target Aquatic Plants</b>	<b>Fish</b>	<b>Aquatic Invertebrates</b>	<b>Non-Target Aquatic Plants</b>
G_ARV3_050_STRE_AM_MAX	50	1,000	0.05	0.015	0.401	Weeds (78)	Loam	2.42E-04	1.99E-06	2.29E-06	1.62E-05	2.42E-03	1.24E-07	2.05E-07	2.55E-04
G_ERV1_050_STRE_AM_MAX	50	10	0.05	0.015	0.05	Weeds (78)	Loam	3.39E-05	2.78E-07	3.20E-07	2.26E-06	3.39E-04	1.74E-08	2.87E-08	3.57E-05
G_ERV2_050_STRE_AM_MAX	50	10	0.05	0.015	0.2	Weeds (78)	Loam	3.41E-05	2.80E-07	3.22E-07	2.28E-06	3.41E-04	1.75E-08	2.89E-08	3.59E-05
G_ERV3_050_STRE_AM_MAX	50	10	0.05	0.015	0.5	Weeds (78)	Loam	3.46E-05	2.84E-07	3.27E-07	2.31E-06	3.46E-04	1.78E-08	2.93E-08	3.64E-05
G_RGV1_050_STRE_AM_MAX	50	10	0.05	0.023	0.401	Weeds (78)	Loam	3.41E-05	2.79E-07	3.21E-07	2.27E-06	3.41E-04	1.75E-08	2.88E-08	3.58E-05
G_RGV2_050_STRE_AM_MAX	50	10	0.05	0.046	0.401	Weeds (78)	Loam	3.40E-05	2.79E-07	3.21E-07	2.27E-06	3.40E-04	1.74E-08	2.88E-08	3.58E-05
G_RGV3_050_STRE_AM_MAX	50	10	0.05	0.15	0.401	Weeds (78)	Loam	3.39E-05	2.78E-07	3.20E-07	2.26E-06	3.39E-04	1.74E-08	2.86E-08	3.56E-05
G_SLV1_050_STRE_AM_MAX	50	10	0.005	0.015	0.401	Weeds (78)	Loam	3.39E-05	2.78E-07	3.20E-07	2.26E-06	3.39E-04	1.74E-08	2.86E-08	3.56E-05
G_SLV2_050_STRE_AM_MAX	50	10	0.01	0.015	0.401	Weeds (78)	Loam	3.39E-05	2.78E-07	3.20E-07	2.26E-06	3.39E-04	1.74E-08	2.87E-08	3.56E-05
G_SLV3_050_STRE_AM_MAX	50	10	0.1	0.015	0.401	Weeds (78)	Loam	3.44E-05	2.82E-07	3.25E-07	2.29E-06	3.44E-04	1.76E-08	2.91E-08	3.62E-05
G_STV1_050_STRE_AM_MAX	50	10	0.05	0.015	0.401	Weeds (78)	Silt Loam	3.06E-04	2.60E-06	2.89E-06	2.04E-05	3.06E-03	1.62E-07	2.68E-07	3.33E-04
G_STV2_050_STRE_AM_MAX	50	10	0.05	0.015	0.401	Weeds (78)	Silt	2.75E-04	2.29E-06	2.59E-06	1.83E-05	2.75E-03	1.43E-07	2.36E-07	2.94E-04
G_STV3_050_STRE_AM_MAX	50	10	0.05	0.015	0.401	Weeds (78)	Clay Loam	6.10E-04	5.47E-06	5.76E-06	4.07E-05	6.10E-03	3.42E-07	5.64E-07	7.01E-04
G_VGV1_050_STRE_AM_MAX	50	10	0.05	0.015	0.401	Shrubs (79)	Loam	3.41E-05	2.80E-07	3.21E-07	2.27E-06	3.41E-04	1.75E-08	2.88E-08	3.58E-05
G_VGV2_050_STRE_AM_MAX	50	10	0.05	0.015	0.401	Rye Grass (54)	Loam	3.41E-05	2.80E-07	3.21E-07	2.27E-06	3.41E-04	1.75E-08	2.88E-08	3.58E-05
G_VGV3_050_STRE_AM_MAX	50	10	0.05	0.015	0.401	Conifer + Hardwood (71)	Loam	4.37E-05	3.59E-07	4.13E-07	2.92E-06	4.37E-04	2.24E-08	3.70E-08	4.60E-05

<sup>1</sup>RQ = Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>2</sup>USLE = Universal Soil Loss Equation, which predicts soil loss as a function of soil erodibility, topography, rainfall/runoff, cover, and support management factors.

**TABLE B-18**  
**Potential Risks to Non-Target Terrestrial Plants From Surface Runoff**

GLEAMS ID	SURFACE RUNOFF - modeled in GLEAMS TYPICAL APPLICATION RATE									
	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>1</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Terrestrial Concentration (lb/acre)	Typical Species RQ <sup>2</sup>	Rare, Threatened, and Endangered Species RQ <sup>2</sup>
G_BASE_SAND_005_TERR_TYP	5	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_005_TERR_TYP	5	10	0.05	0.015	0.401	Weeds (78)	Clay	0.00E+00	0.00E+00	0.00E+00
G_BASE_LOAM_005_TERR_TYP	5	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_010_TERR_TYP	10	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_010_TERR_TYP	10	10	0.05	0.015	0.401	Weeds (78)	Clay	3.82E-11	1.37E-09	3.82E-07
G_BASE_LOAM_010_TERR_TYP	10	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_025_TERR_TYP	25	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_025_TERR_TYP	25	10	0.05	0.015	0.401	Weeds (78)	Clay	9.45E-05	3.38E-03	9.45E-01
G_BASE_LOAM_025_TERR_TYP	25	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_050_TERR_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_050_TERR_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Clay	6.05E-04	2.16E-02	6.05E+00
G_BASE_LOAM_050_TERR_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Loam	2.94E-05	1.05E-03	2.94E-01
G_BASE_SAND_100_TERR_TYP	100	10	0.05	0.015	0.401	Weeds (78)	Sand	1.91E-11	6.83E-10	1.91E-07
G_BASE_CLAY_100_TERR_TYP	100	10	0.05	0.015	0.401	Weeds (78)	Clay	1.80E-03	6.42E-02	1.80E+01
G_BASE_LOAM_100_TERR_TYP	100	10	0.05	0.015	0.401	Weeds (78)	Loam	5.31E-05	1.90E-03	5.31E-01
G_BASE_SAND_150_TERR_TYP	150	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_150_TERR_TYP	150	10	0.05	0.015	0.401	Weeds (78)	Clay	2.16E-03	7.72E-02	2.16E+01
G_BASE_LOAM_150_TERR_TYP	150	10	0.05	0.015	0.401	Weeds (78)	Loam	5.98E-05	2.13E-03	5.98E-01
G_BASE_SAND_200_TERR_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_200_TERR_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Clay	2.16E-03	7.70E-02	2.16E+01
G_BASE_LOAM_200_TERR_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Loam	4.72E-05	1.68E-03	4.72E-01
G_BASE_SAND_250_TERR_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_250_TERR_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Clay	2.09E-03	7.46E-02	2.09E+01

**TABLE B-18 (Cont.)**

**Potential Risks to Non-Target Terrestrial Plants From Surface Runoff**

<b>SURFACE RUNOFF - modeled in GLEAMS TYPICAL APPLICATION RATE</b>										
<b>GLEAMS ID</b>	<b>Annual Precipitation (inches)</b>	<b>Application Area (acres)</b>	<b>Hydraulic Slope (ft/ft)</b>	<b>Surface Roughness</b>	<b>USLE<sup>1</sup> Soil Erodibility Factor (ton/ac per EI)</b>	<b>Vegetation Type</b>	<b>Soil Type</b>	<b>Terrestrial Concentration (lb/acre)</b>	<b>Typical Species RQ<sup>2</sup></b>	<b>Rare, Threatened, and Endangered Species RQ<sup>2</sup></b>
G_BASE_LOAM_250_TERR_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Loam	3.37E-05	1.20E-03	3.37E-01
G_ARV1_050_TERR_TYP	50	1	0.05	0.015	0.401	Weeds (78)	Loam	2.88E-05	1.03E-03	2.88E-01
G_ARV2_050_TERR_TYP	50	100	0.05	0.015	0.401	Weeds (78)	Loam	2.88E-05	1.03E-03	2.88E-01
G_ARV3_050_TERR_TYP	50	1,000	0.05	0.015	0.401	Weeds (78)	Loam	2.88E-05	1.03E-03	2.88E-01
G_ERV1_050_TERR_TYP	50	10	0.05	0.015	0.05	Weeds (78)	Loam	2.87E-05	1.02E-03	2.87E-01
G_ERV2_050_TERR_TYP	50	10	0.05	0.015	0.2	Weeds (78)	Loam	2.89E-05	1.03E-03	2.89E-01
G_ERV3_050_TERR_TYP	50	10	0.05	0.015	0.5	Weeds (78)	Loam	2.93E-05	1.05E-03	2.93E-01
G_RGV1_050_TERR_TYP	50	10	0.05	0.023	0.401	Weeds (78)	Loam	2.88E-05	1.03E-03	2.88E-01
G_RGV2_050_TERR_TYP	50	10	0.05	0.046	0.401	Weeds (78)	Loam	2.88E-05	1.03E-03	2.88E-01
G_RGV3_050_TERR_TYP	50	10	0.05	0.15	0.401	Weeds (78)	Loam	2.87E-05	1.02E-03	2.87E-01
G_SLV1_050_TERR_TYP	50	10	0.005	0.015	0.401	Weeds (78)	Loam	2.87E-05	1.02E-03	2.87E-01
G_SLV2_050_TERR_TYP	50	10	0.01	0.015	0.401	Weeds (78)	Loam	2.87E-05	1.02E-03	2.87E-01
G_SLV3_050_TERR_TYP	50	10	0.1	0.015	0.401	Weeds (78)	Loam	2.91E-05	1.04E-03	2.91E-01
G_STV1_050_TERR_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Silt Loam	2.60E-04	9.27E-03	2.60E+00
G_STV2_050_TERR_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Silt	2.35E-04	8.41E-03	2.35E+00
G_STV3_050_TERR_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Clay Loam	5.31E-04	1.90E-02	5.31E+00
G_VGV1_050_TERR_TYP	50	10	0.05	0.015	0.401	Shrubs (79)	Loam	2.88E-05	1.03E-03	2.88E-01
G_VGV2_050_TERR_TYP	50	10	0.05	0.015	0.401	Rye Grass (54)	Loam	2.88E-05	1.03E-03	2.88E-01
G_VGV3_050_TERR_TYP	50	10	0.05	0.015	0.401	Conifer + Hardwood (71)	Loam	3.79E-05	1.35E-03	3.79E-01
<b>MAXIMUM APPLICATION RATE</b>										
G_BASE_SAND_005_TERR_max	5	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_005_TERR_max	5	10	0.05	0.015	0.401	Weeds (78)	Clay	0.00E+00	0.00E+00	0.00E+00

TABLE B-18 (Cont.)

## Potential Risks to Non-Target Terrestrial Plants From Surface Runoff

SURFACE RUNOFF - modeled in GLEAMS MAXIMUM APPLICATION RATE										
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>1</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Terrestrial Concentration (lb/acre)	Typical Species RQ <sup>2</sup>	Rare, Threatened, and Endangered Species RQ <sup>2</sup>
G_BASE_LOAM_005_TERR_max	5	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_010_TERR_max	10	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_010_TERR_max	10	10	0.05	0.015	0.401	Weeds (78)	Clay	5.10E-11	1.82E-09	5.10E-07
G_BASE_LOAM_010_TERR_max	10	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_025_TERR_max	25	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_025_TERR_max	25	10	0.05	0.015	0.401	Weeds (78)	Clay	1.26E-04	4.50E-03	1.26E+00
G_BASE_LOAM_025_TERR_max	25	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_050_TERR_max	50	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_050_TERR_max	50	10	0.05	0.015	0.401	Weeds (78)	Clay	8.07E-04	2.88E-02	8.07E+00
G_BASE_LOAM_050_TERR_max	50	10	0.05	0.015	0.401	Weeds (78)	Loam	3.92E-05	1.40E-03	3.92E-01
G_BASE_SAND_100_TERR_max	100	10	0.05	0.015	0.401	Weeds (78)	Sand	2.55E-11	9.10E-10	2.55E-07
G_BASE_CLAY_100_TERR_max	100	10	0.05	0.015	0.401	Weeds (78)	Clay	2.40E-03	8.56E-02	2.40E+01
G_BASE_LOAM_100_TERR_max	100	10	0.05	0.015	0.401	Weeds (78)	Loam	7.08E-05	2.53E-03	7.08E-01
G_BASE_SAND_150_TERR_max	150	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_150_TERR_max	150	10	0.05	0.015	0.401	Weeds (78)	Clay	2.88E-03	1.03E-01	2.88E+01
G_BASE_LOAM_150_TERR_max	150	10	0.05	0.015	0.401	Weeds (78)	Loam	7.97E-05	2.85E-03	7.97E-01
G_BASE_SAND_200_TERR_max	200	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_200_TERR_max	200	10	0.05	0.015	0.401	Weeds (78)	Clay	2.87E-03	1.03E-01	2.87E+01
G_BASE_LOAM_200_TERR_max	200	10	0.05	0.015	0.401	Weeds (78)	Loam	6.29E-05	2.25E-03	6.29E-01
G_BASE_SAND_250_TERR_max	250	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_250_TERR_max	250	10	0.05	0.015	0.401	Weeds (78)	Clay	2.79E-03	9.95E-02	2.79E+01
G_BASE_LOAM_250_TERR_max	250	10	0.05	0.015	0.401	Weeds (78)	Loam	4.49E-05	1.60E-03	4.49E-01
G_ARV1_050_TERR_max	50	1	0.05	0.015	0.401	Weeds (78)	Loam	3.84E-05	1.37E-03	3.84E-01

**TABLE B-18 (Cont.)**  
**Potential Risks to Non-Target Terrestrial Plants From Surface Runoff**

SURFACE RUNOFF - modeled in GLEAMS MAXIMUM APPLICATION RATE										
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>1</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Terrestrial Concentration (lb/acre)	Typical Species RQ <sup>2</sup>	Rare, Threatened, and Endangered Species RQ <sup>2</sup>
G_ARV2_050_TERR_max	50	100	0.05	0.015	0.401	Weeds (78)	Loam	3.84E-05	1.37E-03	3.84E-01
	50	1,000	0.05	0.015	0.401	Weeds (78)	Loam	3.84E-05	1.37E-03	3.84E-01
	50	10	0.05	0.015	0.05	Weeds (78)	Loam	3.82E-05	1.37E-03	3.82E-01
	50	10	0.05	0.015	0.2	Weeds (78)	Loam	3.85E-05	1.38E-03	3.85E-01
	50	10	0.05	0.015	0.5	Weeds (78)	Loam	3.91E-05	1.39E-03	3.91E-01
	50	10	0.05	0.023	0.401	Weeds (78)	Loam	3.84E-05	1.37E-03	3.84E-01
	50	10	0.05	0.046	0.401	Weeds (78)	Loam	3.84E-05	1.37E-03	3.84E-01
	50	10	0.05	0.15	0.401	Weeds (78)	Loam	3.82E-05	1.36E-03	3.82E-01
	50	10	0.005	0.015	0.401	Weeds (78)	Loam	3.82E-05	1.36E-03	3.82E-01
	50	10	0.01	0.015	0.401	Weeds (78)	Loam	3.82E-05	1.37E-03	3.82E-01
	50	10	0.1	0.015	0.401	Weeds (78)	Loam	3.88E-05	1.39E-03	3.88E-01
	50	10	0.05	0.015	0.401	Weeds (78)	Silt Loam	3.46E-04	1.24E-02	3.46E+00
	50	10	0.05	0.015	0.401	Weeds (78)	Silt	3.14E-04	1.12E-02	3.14E+00
	50	10	0.05	0.015	0.401	Weeds (78)	Clay Loam	7.08E-04	2.53E-02	7.08E+00
	50	10	0.05	0.015	0.401	Shrubs (79)	Loam	3.84E-05	1.37E-03	3.84E-01
	50	10	0.05	0.015	0.401	Rye Grass (54) Conifer + Hardwood (71)	Loam	3.84E-05	1.37E-03	3.84E-01
	50	10	0.05	0.015	0.401	Conifer + Hardwood (71)	Loam	5.06E-05	1.81E-03	5.06E-01

<sup>1</sup>USLE = Universal Soil Loss Equation, which predicts soil loss as a function of soil erodibility, topography, rainfall/runoff, cover, and support management factors.

<sup>2</sup>RQ = Risk Quotient = Estimated Dose/Toxicity Reference Value.

**TABLE B-19**

**Potential Risk to Predatory Bird From Long-term Consumption of Contaminated Fish From Pond  
(Pond Impacted by Surface Runoff Modeled in GLEAMS)**

Parameters/ Assumptions	Value	Units
<b>Body weight (BW)</b>	5.15	kg
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>	0.1018	kg dw/day
<b>Food ingestion rate (wet weight [ww]) (ir)<sup>2</sup></b>	0.4071	kg ww/day
<b>Bioconcentration factor (BCF)</b>	3.16	L/kg fish
<b>Proportion of diet contaminated (PC)</b>	1	unitless
<b>Toxicity reference value (TRV)<sup>3</sup></b>	105	mg/kg-bw/day

TYPICAL APPLICATION RATE											
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>4</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentration (C <sub>pond</sub> mg/L)	Concentrations in fish (C <sub>Fish</sub> ): C <sub>pond</sub> × BCF	Dose estimates (D): (C <sub>Fish</sub> × ir × PC) / BW	Risk Quotient <sup>5</sup>
G_BASE_SAND_005_PO ND_TYP	5	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_005_PO ND_TYP	5	10	0.05	0.015	0.401	Weeds (78)	Clay	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_LOAM_005_P OND_TYP	5	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_010_PO ND_TYP	10	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_010_PO ND_TYP	10	10	0.05	0.015	0.401	Weeds (78)	Clay	5.59E-11	1.77E-10	1.40E-11	1.33E-13
G_BASE_LOAM_010_P OND_TYP	10	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_025_PO ND_TYP	25	10	0.05	0.015	0.401	Weeds (78)	Sand	2.33E-08	7.37E-08	5.83E-09	5.55E-11
G_BASE_CLAY_025_PO ND_TYP	25	10	0.05	0.015	0.401	Weeds (78)	Clay	1.67E-04	5.26E-04	4.16E-05	3.96E-07

**TABLE B-19 (Cont.)****Potential Risk to Predatory Bird from Long-term Consumption of Contaminated Fish From Pond  
(Pond Impacted by Surface Runoff Modeled in GLEAMS)**

TYPICAL APPLICATION RATE											
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>4</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentration (C <sub>pond</sub> mg/L)	Concentrations in fish (C <sub>Fish</sub> ): C <sub>pond</sub> × BCF	Dose estimates (D): (C <sub>Fish</sub> × ir × PC) / BW	Risk Quotient <sup>5</sup>
G_BASE_LOAM_025_POND_TYP	25	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_050_POND_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Sand	6.28E-05	1.98E-04	1.57E-05	1.49E-07
G_BASE_CLAY_050_POND_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Clay	3.31E-04	1.05E-03	8.28E-05	7.89E-07
G_BASE_LOAM_050_POND_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Loam	7.54E-06	2.38E-05	1.88E-06	1.79E-08
G_BASE_SAND_100_POND_TYP	100	10	0.05	0.015	0.401	Weeds (78)	Sand	6.07E-04	1.92E-03	1.52E-04	1.44E-06
G_BASE_CLAY_100_POND_TYP	100	10	0.05	0.015	0.401	Weeds (78)	Clay	1.18E-04	3.74E-04	2.95E-05	2.81E-07
G_BASE_LOAM_100_POND_TYP	100	10	0.05	0.015	0.401	Weeds (78)	Loam	2.08E-06	6.58E-06	5.20E-07	4.96E-09
G_BASE_SAND_150_POND_TYP	150	10	0.05	0.015	0.401	Weeds (78)	Sand	8.42E-04	2.66E-03	2.10E-04	2.00E-06
G_BASE_CLAY_150_POND_TYP	150	10	0.05	0.015	0.401	Weeds (78)	Clay	4.87E-05	1.54E-04	1.22E-05	1.16E-07
G_BASE_LOAM_150_POND_TYP	150	10	0.05	0.015	0.401	Weeds (78)	Loam	4.08E-06	1.29E-05	1.02E-06	9.71E-09
G_BASE_SAND_200_POND_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Sand	7.77E-04	2.46E-03	1.94E-04	1.85E-06
G_BASE_CLAY_200_POND_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Clay	4.85E-05	1.53E-04	1.21E-05	1.15E-07
G_BASE_LOAM_200_POND_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Loam	1.17E-05	3.69E-05	2.91E-06	2.77E-08
G_BASE_SAND_250_POND_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Sand	6.20E-04	1.96E-03	1.55E-04	1.47E-06
G_BASE_CLAY_250_POND_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Clay	6.40E-05	2.02E-04	1.60E-05	1.52E-07
G_BASE_LOAM_250_POND_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Loam	2.12E-05	6.69E-05	5.29E-06	5.04E-08

**TABLE B-19 (Cont.)**

**Potential Risk to Predatory Bird from Long-term Consumption of Contaminated Fish From Pond  
(Pond Impacted by Surface Runoff Modeled in GLEAMS)**

TYPICAL APPLICATION RATE											
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>4</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentration (C <sub>pond</sub> mg/L)	Concentrations in fish (C <sub>Fish</sub> ): C <sub>pond</sub> × BCF	Dose estimates (D): (C <sub>Fish</sub> × ir × PC) / BW	Risk Quotient <sup>5</sup>
G_ARV1_050_POND_TYP	50	1	0.05	0.015	0.401	Weeds (78)	Loam	6.96E-06	2.20E-05	1.74E-06	1.66E-08
G_ARV2_050_POND_TYP	50	100	0.05	0.015	0.401	Weeds (78)	Loam	1.59E-06	5.03E-06	3.98E-07	3.79E-09
G_ARV3_050_POND_TYP	50	1,000	0.05	0.015	0.401	Weeds (78)	Loam	1.59E-06	5.02E-06	3.97E-07	3.78E-09
G_ERV1_050_POND_TY_P	50	10	0.05	0.015	0.05	Weeds (78)	Loam	7.35E-06	2.32E-05	1.84E-06	1.75E-08
G_ERV2_050_POND_TY_P	50	10	0.05	0.015	0.2	Weeds (78)	Loam	7.40E-06	2.34E-05	1.85E-06	1.76E-08
G_ERV3_050_POND_TY_P	50	10	0.05	0.015	0.5	Weeds (78)	Loam	7.50E-06	2.37E-05	1.87E-06	1.78E-08
G_RGV1_050_POND_TYP	50	10	0.05	0.023	0.401	Weeds (78)	Loam	7.38E-06	2.33E-05	1.84E-06	1.76E-08
G_RGV2_050_POND_TYP	50	10	0.05	0.046	0.401	Weeds (78)	Loam	7.37E-06	2.33E-05	1.84E-06	1.75E-08
G_RGV3_050_POND_TYP	50	10	0.05	0.15	0.401	Weeds (78)	Loam	7.34E-06	2.32E-05	1.83E-06	1.75E-08
G_SLV1_050_POND_TY_P	50	10	0.005	0.015	0.401	Weeds (78)	Loam	7.34E-06	2.32E-05	1.83E-06	1.75E-08
G_SLV2_050_POND_TY_P	50	10	0.01	0.015	0.401	Weeds (78)	Loam	7.35E-06	2.32E-05	1.84E-06	1.75E-08
G_SLV3_050_POND_TY_P	50	10	0.1	0.015	0.401	Weeds (78)	Loam	7.46E-06	2.36E-05	1.86E-06	1.77E-08
G_STV1_050_POND_TY_P	50	10	0.05	0.015	0.401	Weeds (78)	Silt Loam	7.80E-05	2.46E-04	1.95E-05	1.86E-07
G_STV2_050_POND_TY_P	50	10	0.05	0.015	0.401	Weeds (78)	Silt	6.00E-05	1.90E-04	1.50E-05	1.43E-07
G_STV3_050_POND_TY_P	50	10	0.05	0.015	0.401	Weeds (78)	Clay Loam	1.78E-04	5.61E-04	4.44E-05	4.23E-07
G_VGV1_050_POND_TYP	50	10	0.05	0.015	0.401	Shrubs (79)	Loam	7.38E-06	2.33E-05	1.84E-06	1.76E-08

**TABLE B-19 (Cont.)**

**Potential Risk to Predatory Bird from Long-term Consumption of Contaminated Fish From Pond  
(Pond Impacted by Surface Runoff Modeled in GLEAMS)**

TYPICAL APPLICATION RATE											
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>4</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentration ( $C_{pond}$ mg/L)	Concentrations in fish ( $C_{fish}$ ): $C_{pond} \times BCF$	Dose estimates (D): $(C_{fish} \times ir \times PC) / BW$	Risk Quotient <sup>5</sup>
G_VGV2_050_POND_T_YP	50	10	0.05	0.015	0.401	Rye Grass (54)	Loam	7.38E-06	2.33E-05	1.84E-06	1.76E-08
G_VGV3_050_POND_T_YP	50	10	0.05	0.015	0.401	Conifer + Hardwood (71)	Loam	6.13E-06	1.94E-05	1.53E-06	1.46E-08
MAXIMUM APPLICATION RATE											
G_BASE_SAND_005_PO_ND_max	5	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_005_PO_ND_max	5	10	0.05	0.015	0.401	Weeds (78)	Clay	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_LOAM_005_POND_max	5	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_010_PO_ND_max	10	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_010_PO_ND_max	10	10	0.05	0.015	0.401	Weeds (78)	Clay	7.45E-11	2.35E-10	1.86E-11	1.77E-13
G_BASE_LOAM_010_POND_max	10	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_025_PO_ND_max	25	10	0.05	0.015	0.401	Weeds (78)	Sand	3.11E-08	9.82E-08	7.77E-09	7.40E-11
G_BASE_CLAY_025_PO_ND_max	25	10	0.05	0.015	0.401	Weeds (78)	Clay	2.22E-04	7.02E-04	5.55E-05	5.28E-07
G_BASE_LOAM_025_POND_max	25	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_050_PO_ND_max	50	10	0.05	0.015	0.401	Weeds (78)	Sand	8.38E-05	2.65E-04	2.09E-05	1.99E-07
G_BASE_CLAY_050_PO_ND_max	50	10	0.05	0.015	0.401	Weeds (78)	Clay	4.42E-04	1.40E-03	1.10E-04	1.05E-06
G_BASE_LOAM_050_POND_max	50	10	0.05	0.015	0.401	Weeds (78)	Loam	1.01E-05	3.18E-05	2.51E-06	2.39E-08
G_BASE_SAND_100_PO_ND_max	100	10	0.05	0.015	0.401	Weeds (78)	Sand	8.09E-04	2.56E-03	2.02E-04	1.92E-06

**TABLE B-19 (Cont.)**

**Potential Risk to Predatory Bird From Long-Term Consumption of Contaminated Fish From Pond  
(Pond Impacted by Surface Runoff Modeled in GLEAMS)**

MAXIMUM APPLICATION RATE											
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>4</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentration (C <sub>pond</sub> mg/L)	Concentrations in fish (C <sub>Fish</sub> ): C <sub>pond</sub> × BCF	Dose estimates (D): (C <sub>Fish</sub> × ir × PC) / BW	Risk Quotient <sup>5</sup>
G_BASE_CLAY_100_PO_ND_max	100	10	0.05	0.015	0.401	Weeds (78)	Clay	1.58E-04	4.98E-04	3.94E-05	3.75E-07
G_BASE_LOAM_100_POND_max	100	10	0.05	0.015	0.401	Weeds (78)	Loam	2.78E-06	8.78E-06	6.94E-07	6.61E-09
G_BASE_SAND_150_PO_ND_max	150	10	0.05	0.015	0.401	Weeds (78)	Sand	1.12E-03	3.55E-03	2.81E-04	2.67E-06
G_BASE_CLAY_150_PO_ND_max	150	10	0.05	0.015	0.401	Weeds (78)	Clay	6.50E-05	2.05E-04	1.62E-05	1.55E-07
G_BASE_LOAM_150_POND_max	150	10	0.05	0.015	0.401	Weeds (78)	Loam	5.44E-06	1.72E-05	1.36E-06	1.30E-08
G_BASE_SAND_200_PO_ND_max	200	10	0.05	0.015	0.401	Weeds (78)	Sand	1.04E-03	3.27E-03	2.59E-04	2.46E-06
G_BASE_CLAY_200_PO_ND_max	200	10	0.05	0.015	0.401	Weeds (78)	Clay	6.47E-05	2.05E-04	1.62E-05	1.54E-07
G_BASE_LOAM_200_POND_max	200	10	0.05	0.015	0.401	Weeds (78)	Loam	1.56E-05	4.91E-05	3.88E-06	3.70E-08
G_BASE_SAND_250_PO_ND_max	250	10	0.05	0.015	0.401	Weeds (78)	Sand	8.27E-04	2.61E-03	2.06E-04	1.97E-06
G_BASE_CLAY_250_PO_ND_max	250	10	0.05	0.015	0.401	Weeds (78)	Clay	8.54E-05	2.70E-04	2.13E-05	2.03E-07
G_BASE_LOAM_250_POND_max	250	10	0.05	0.015	0.401	Weeds (78)	Loam	2.82E-05	8.92E-05	7.05E-06	6.71E-08
G_ARV1_050_POND_max	50	1	0.05	0.015	0.401	Weeds (78)	Loam	9.28E-06	2.93E-05	2.32E-06	2.21E-08
G_ARV2_050_POND_max	50	100	0.05	0.015	0.401	Weeds (78)	Loam	2.12E-06	6.71E-06	5.30E-07	5.05E-09
G_ARV3_050_POND_max	50	1,000	0.05	0.015	0.401	Weeds (78)	Loam	2.12E-06	6.70E-06	5.30E-07	5.04E-09
G_ERV1_050_POND_max	50	10	0.05	0.015	0.05	Weeds (78)	Loam	9.80E-06	3.10E-05	2.45E-06	2.33E-08
G_ERV2_050_POND_max	50	10	0.05	0.015	0.2	Weeds (78)	Loam	9.87E-06	3.12E-05	2.46E-06	2.35E-08

**TABLE B-19 (Cont.)**  
**Potential Risk to Predatory Bird from Long-term Consumption of Contaminated Fish From Pond**  
**(Pond Impacted by Surface Runoff Modeled in GLEAMS)**

GLEAMS ID	MAXIMUM APPLICATION RATE										
	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>4</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentration (C <sub>pond</sub> mg/L)	Concentrations in fish (C <sub>Fish</sub> ): C <sub>pond</sub> × BCF	Dose estimates (D): (C <sub>Fish</sub> × ir × PC) / BW	Risk Quotient <sup>5</sup>
G_ERV3_050_POND_max	50	10	0.05	0.015	0.5	Weeds (78)	Loam	1.00E-05	3.16E-05	2.50E-06	2.38E-08
G_RGV1_050_POND_max	50	10	0.05	0.023	0.401	Weeds (78)	Loam	9.84E-06	3.11E-05	2.46E-06	2.34E-08
G_RGV2_050_POND_max	50	10	0.05	0.046	0.401	Weeds (78)	Loam	9.83E-06	3.11E-05	2.46E-06	2.34E-08
G_RGV3_050_POND_max	50	10	0.05	0.15	0.401	Weeds (78)	Loam	9.79E-06	3.09E-05	2.45E-06	2.33E-08
G_SLV1_050_POND_max	50	10	0.005	0.015	0.401	Weeds (78)	Loam	9.79E-06	3.09E-05	2.45E-06	2.33E-08
G_SLV2_050_POND_max	50	10	0.01	0.015	0.401	Weeds (78)	Loam	9.79E-06	3.09E-05	2.45E-06	2.33E-08
G_SLV3_050_POND_max	50	10	0.1	0.015	0.401	Weeds (78)	Loam	9.95E-06	3.14E-05	2.48E-06	2.37E-08
G_STV1_050_POND_max	50	10	0.05	0.015	0.401	Weeds (78)	Silt Loam	1.04E-04	3.29E-04	2.60E-05	2.47E-07
G_STV2_050_POND_max	50	10	0.05	0.015	0.401	Weeds (78)	Silt	8.00E-05	2.53E-04	2.00E-05	1.90E-07
G_STV3_050_POND_max	50	10	0.05	0.015	0.401	Weeds (78)	Clay Loam	2.37E-04	7.49E-04	5.92E-05	5.64E-07
G_VGV1_050_POND_max	50	10	0.05	0.015	0.401	Shrubs (79)	Loam	9.85E-06	3.11E-05	2.46E-06	2.34E-08
G_VGV2_050_POND_max	50	10	0.05	0.015	0.401	Rye Grass (54)	Loam	9.85E-06	3.11E-05	2.46E-06	2.34E-08
G_VGV3_050_POND_max	50	10	0.05	0.015	0.401	Conifer + Hardwood (71)	Loam	8.18E-06	2.58E-05	2.04E-06	1.95E-08

<sup>1</sup>Calculated using algorithm developed by Nagy (1987) for all birds; where food ingestion rate (kg dw/day) = 0.0582×(BW)<sup>0.651</sup>.

<sup>2</sup>Assumes fish are 75% water (USEPA 1993; Table 4-1 - value for bony fishes).

<sup>3</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

<sup>4</sup>USLE = Universal Soil Loss Equation, which predicts soil loss as a function of soil erodibility, topography, rainfall/runoff, cover, and support management factors.

<sup>5</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

**TABLE B-20**
**Potential Risks to Non-Target Terrestrial Plants from Herbicide in Dust Deposited From Wind Erosion**

<b>WIND EROSION - modeled in CALPUFF TYPICAL APPLICATION RATE</b>							
Cal Puff Scenario ID	Watershed Location	Distance from Receptor (km)	Terrestrial Concentration (lb/acre)	Typical Species		Rare, Threatened, and Endangered Species	
				TRV <sup>1</sup>	RQ <sup>2</sup>	TRV <sup>1</sup>	RQ <sup>2</sup>
dust_MT_0.5_typ	MT	0.5	4.03E-07	0.0008	5.04E-04	3.00E-04	1.34E-03
dust_MT_5_typ	MT	5	2.28E-07	0.0008	2.85E-04	3.00E-04	7.61E-04
dust_MT_50_typ	MT	50	2.73E-11	0.0008	3.42E-08	3.00E-04	9.11E-08
dust_OR_0.5_typ	OR	0.5	2.31E-07	0.0008	2.89E-04	3.00E-04	7.69E-04
dust_OR_5_typ	OR	5	8.80E-08	0.0008	1.10E-04	3.00E-04	2.93E-04
dust_OR_50_typ	OR	50	3.10E-11	0.0008	3.87E-08	3.00E-04	1.03E-07
dust_WY_0.5_typ	WY	0.5	4.56E-08	0.0008	5.70E-05	3.00E-04	1.52E-04
dust_WY_5_typ	WY	5	3.15E-08	0.0008	3.93E-05	3.00E-04	1.05E-04
dust_WY_50_typ	WY	50	7.74E-12	0.0008	9.67E-09	3.00E-04	2.58E-08
<b>MAXIMUM APPLICATION RATE</b>							
dust_MT_0.5_max	MT	0.5	5.37E-07	0.0008	6.72E-04	3.00E-04	1.79E-03
dust_MT_5_max	MT	5	3.04E-07	0.0008	3.81E-04	3.00E-04	1.01E-03
dust_MT_50_max	MT	50	4.11E-11	0.0008	5.13E-08	3.00E-04	1.37E-07
dust_OR_0.5_max	OR	0.5	3.08E-07	0.0008	3.85E-04	3.00E-04	1.03E-03
dust_OR_5_max	OR	5	1.17E-07	0.0008	1.47E-04	3.00E-04	3.91E-04
dust_OR_50_max	OR	50	4.13E-11	0.0008	5.16E-08	3.00E-04	1.38E-07
dust_WY_0.5_max	WY	0.5	6.08E-08	0.0008	7.60E-05	3.00E-04	2.03E-04
dust_WY_5_max	WY	5	4.19E-08	0.0008	5.24E-05	3.00E-04	1.40E-04
dust_WY_50_max	WY	50	1.03E-11	0.0008	1.29E-08	3.00E-04	3.44E-08

<sup>1</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

<sup>2</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

**TABLE B-21**  
**Potential Risks to Aquatic Species from Accidental Spill to Pond (Acute Exposure)**

Parameters/Assumptions	Value	Units			
<b>Volume of pond (Vp)</b>	1,011,715	L			
<b>Volume of spill (Vspill) - Truck (Vspill<sub>t</sub>)</b>					
<b>Herbicide concentration in mixture (Cm)<sup>1</sup> - Truck mixture (Cm<sub>t</sub>)</b>	479.36	mg/L			
<b>Risk Quotients<sup>2</sup></b>					
Scenario	Concentrations in water (Cw): Cm × Vspill / Vp	Units	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
Truck spill into pond	0.36	mg/L	0.0034	2.39E-02	3.59E+00

<sup>1</sup>Based on herbicide mixed for the maximum application rate, where truck spray rate is 25 gallons per acre.  
Cm = [application rate x (1/spray rate)] converted from lb/gallon to mg/L.  
<sup>2</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

**TABLE B-22**  
**Potential Risks to Aquatic Species from Accidental Direct Spray of Pond  
and Stream (Acute Exposure)**

Parameters/Assumptions	Rate	Value	Units
<b>Pond</b>			
<b>Application rates (R)</b>	Typical	0.075	lb/acre
	Maximum	0.1	lb/acre
<b>Area of pond (Area)</b>		0.25	acre
<b>Volume of pond (Vol)</b>		1,011,715	L
<b>Mass sprayed on pond (R x Area)</b>	Typical	8504.85	mg
	Maximum	11339.8	mg
<b>Concentration in pond water (Mass/Volume)</b>	Typical	0.0084	mg/L
	Maximum	0.0112	mg/L
<b>Stream</b>			
<b>Width of stream</b>		2	m
<b>Length of stream impacted by direct spray</b>		636.15	m
<b>Area of stream impacted by spray (Area)</b>		1,272.3	m <sup>2</sup>
<b>Depth of stream</b>		0.2	m
<b>Instantaneous volume of stream impacted by direct spray (Vol)</b>		254,460	L
<b>Mass sprayed on stream (R x Area)</b>	Typical	0.02358	lb
	Maximum	0.03144	lb
<b>Mass sprayed on stream - converted to mg</b>	Typical	10,695.529	mg
	Maximum	14,260.706	mg
<b>Concentration in stream water (Mass/Vol)</b>	Typical	0.0420	mg/L
	Maximum	0.0560	mg/L

Scenario	Application Rate	Concentration in water (mg/L)	Risk Quotients <sup>1</sup>		
			Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
<b>Acute</b>					
Direct spray to pond	Typical application	8.41E-03	7.93E-05	5.60E-04	8.41E-02
	Maximum application	1.12E-02	1.06E-04	7.47E-04	1.12E-01
Direct spray to stream	Typical application	4.20E-02	3.97E-04	2.80E-03	4.20E-01
	Maximum application	5.60E-02	5.29E-04	3.74E-03	5.60E-01
<b>Chronic</b>					
Direct spray to pond	Typical application	8.41E-03	5.25E-04	8.67E-04	1.08E+00
	Maximum application	1.12E-02	7.01E-04	1.16E-03	1.44E+00
Direct spray to stream	Typical application	4.20E-02	2.63E-03	4.33E-03	5.39E+00
	Maximum application	5.60E-02	3.50E-03	5.78E-03	7.19E+00

<sup>1</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

## Overdrive® Risk Assessment Worksheets

**TABLE B-1**

### Direct Spray of Terrestrial Receptors and Exposure From Indirect Contact With Foliage

Parameter	Pollinating Insect	Small Mammal	Units
<b>Duration of exposure (T)</b>	24	24	hours
<b>Body weight (BW)</b>	0.000093	0.02	kg
<b>Surface areas (A): <math>12.3 \times BW(g)^{0.65}</math><sup>1</sup></b>	2.63	86.21	cm <sup>2</sup>
<b>Application rates (R)<sup>2</sup></b>	Typical Maximum	0.2625 0.4375	lb/acre lb/acre
<b>Amount deposited on ½ receptor (Amnt): <math>0.5 \times A \times R \times cf</math></b>	Typical Maximum	0.003869032 0.006448386	0.126824793 0.211374655
<b>Dose Estimate Assuming 100% Dermal Adsorption<sup>3</sup></b>			
<b>Absorbed Dose: Amnt × Prop / BW</b>	Typical Maximum	4.16E+01 6.93E+01	mg/kg bw mg/kg bw
<b>Dose Estimate Assuming First Order Dermal Adsorption<sup>4</sup></b>			
<b>First-order dermal absorption coefficient (k)</b>	Central estimate (ka)	0.0495	hour <sup>-1</sup>
<b>Proportion absorbed over period T (Prop): <math>1 - exp(-k \times T)</math><sup>5</sup></b>	Typical Maximum	NA NA	unitless unitless
<b>Absorbed dose: Amnt × Prop / BW</b>	Typical Maximum	6.28E-01 1.04E+00	mg/kg bw mg/kg bw

RISK QUOTIENTS <sup>6</sup> - Direct Spray	Toxicity Reference (mg/kg bw) <sup>7</sup>	Typical Application	Maximum Application
Small mammal - 100% absorption	3,272	3.42E-04	5.69E-04
Pollinating insect - 100% absorption	NC <sup>9</sup>	NC <sup>9</sup>	NC <sup>9</sup>
Small mammal - 1st order dermal adsorption	3,272	3.38E-05	5.59E-05

RISK QUOTIENTS - Indirect Contact <sup>8</sup>	Toxicity Reference (mg/kg bw) <sup>7</sup>	Typical Application	Maximum Application
Small mammal - 100% absorption	3,272	3.42E-05	5.69E-05
Pollinating insect - 100% absorption	No value available	NC <sup>9</sup>	NC <sup>9</sup>
Small mammal - 1st order dermal adsorption	3,272	3.38E-06	5.59E-06

<sup>1</sup>Surface area calculation for mammals from Stahl (1967; presented in USEPA 1993). No surface area calculation identified for insects. Mammalian equation used as a surrogate.

<sup>2</sup>A conversion factor (cf) of 0.011208493 was used to convert the application rate (R) from lb/acre to mg/cm<sup>2</sup>.

<sup>3</sup>100% dermal absorption - all of the herbicide falling on the receptor was assumed to penetrate the skin within 24 hours.

<sup>4</sup>1st order dermal absorption - absorption occurs over 24 hours, taking into consideration the potential for some herbicide to not be absorbed.

<sup>5</sup> $exp(-k \times T) = e^{-k \times T}$ , where e is a constant = 2.7828.

<sup>6</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>7</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

<sup>8</sup>Exposure from indirect contact assumed to be 1/10 of direct spray exposure (Harris and Solomon 1992).

<sup>9</sup>NC = Not calculated. No Overdrive TRV available. See dicamba and diflufenzoxyr worksheets. RQ derived using sum of RQs derived using dicamba and diflufenzoxyr EECs and TRVs.

**TABLE B-2**
**Potential Risks to Small Herbivorous/Omnivorous Mammal (Deer Mouse) from Consumption of Contaminated Fruit (Acute Exposure Scenario)**

Parameters/Assumptions		Value	Units
<b>Body weight (BW)</b>		0.02	kg
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>		0.003364	kg dw/day
<b>Food ingestion rate (wet weight [ww]) (ir)<sup>2</sup></b>		0.01463	kg ww/day
<b>Application rates (R)</b>	Typical	0.2625	lb/acre
	Maximum	0.4375	lb/acre
<b>Residue rate – berries (rr)<sup>3</sup></b>	Typical	5.4	mg/kg per lb/acre
	Maximum	40.7	mg/kg per lb/acre
<b>Concentration on berries (C): R × rr</b>	Typical	1.4175	mg/kg fruit
	Maximum	17.80625	mg/kg fruit
<b>Dose estimates (D): C × ir / BW</b>	Typical	1.04E+00	mg/kg bw
	Maximum	1.30E+01	mg/kg bw

RISK QUOTIENTS <sup>4</sup> - Ingestion	Toxicity Reference Value <sup>5</sup> (mg/kg bw)	Typical Application	Maximum Application
Small mammalian herbivore/omnivore (acute exposure)	No value available	NC <sup>6</sup>	NC <sup>6</sup>

<sup>1</sup>Calculated using algorithm developed by Nagy (1987) for rodents; where food ingestion rate (g dw/day) = 0.621×(BW g)<sup>0.564</sup>; converted into kg dw/day.

<sup>2</sup>Assumes fruit is 77% water (USEPA 1993; Table 4-2 - value for fruit pulp and skin).

<sup>3</sup>Residue rates were obtained from the Kenaga nomogram as updated (Fletcher et al. 1994) and are vegetation-specific.

<sup>4</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>5</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

<sup>6</sup>NC = Not calculated. No Overdrive TRV available. See dicamba and diflufenzoxyr worksheets. RQ derived using sum of RQs derived using dicamba and diflufenzoxyr EECs and TRVs.

**TABLE B-3**  
**Potential Risks to Small Herbivorous/Omnivorous Mammal (Deer Mouse) from Consumption of Contaminated Fruit (Chronic Exposure Scenario)**

Parameters/Assumptions		Value	Units
<b>Duration of exposure (T)</b>		90	days
<b>Body weight (BW)</b>		0.02	kg
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>		0.003364	kg dw/day
<b>Food ingestion rate (wet weight [ww]) (ir)<sup>2</sup></b>		0.014627	kg ww/day
<b>Half life on vegetation (<math>t_{50}</math>)</b>	Herbicide specific	14	days
<b>Application rates (R)</b>	Typical	0.2625	lb/acre
	Maximum	0.4375	lb/acre
<b>Residue rate - berries (rr)<sup>3</sup></b>	Typical	5.4	mg/kg per lb/acre
	Maximum	40.7	mg/kg per lb/acre
<b>Drift (Drift)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Decay coefficient (k): <math>\ln(2) / t_{50}</math><sup>4</sup></b>	Typical	0.0495	days <sup>-1</sup>
	Maximum	0.0495	days <sup>-1</sup>
<b>Initial concentration on berries (<math>C_0</math>): <math>R \times rr \times Drift</math></b>	Typical	1.4175	mg/kg fruit
	Maximum	17.8063	mg/kg fruit
<b>Concentration on berries at time T: <math>C_0 \times \exp(-k \times T)</math><sup>5</sup></b>	Typical	0.0165	mg/kg fruit
	Maximum	0.2067	mg/kg fruit
<b>Time-weighted average concentration on vegetation (CTWA): <math>C_0 \times (1 - \exp(-k \times T)) / (k \times T)</math><sup>5</sup></b>	Typical	0.3144	mg/kg fruit
	Maximum	3.9497	mg/kg fruit
<b>Proportion of diet contaminated (PC)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Dose estimates (D): <math>(CTWA \times ir \times PC) / BW</math></b>	Typical	2.30E-01	mg/kg bw/day
	Maximum	2.89E+00	mg/kg bw/day

RISK QUOTIENTS – Ingestion <sup>6</sup>	Toxicity Reference Value (mg/kg bw/day) <sup>7</sup>	Typical Application	Maximum Application
Small mammalian herbivore/omnivore (chronic exposure)	No value available	NC <sup>8</sup>	NC <sup>8</sup>

<sup>1</sup>Calculated using algorithm developed by Nagy (1987) for rodents; where food ingestion rate (g dw/day) = 0.621×(BW g)<sup>0.564</sup>; converted into kg dw/day.

<sup>2</sup>Assumes fruit is 77% water (USEPA 1993; Table 4-2 - value for fruit pulp and skin).

<sup>3</sup>Residue rates were obtained from the Kenaga nomogram as updated (Fletcher et al. 1994) and are vegetation-specific.

<sup>4</sup>ln = Natural log function.

<sup>5</sup> $\exp(-k \times T) = e^{-k \times T}$ , where e is a constant = 2.7828.

<sup>6</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>7</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

<sup>8</sup>NC = Not calculated. No Overdrive TRV available. See dicamba and diflufenzoxyr worksheets. RQ derived using sum of RQs derived using dicamba and diflufenzoxyr EECs and TRVs.

**TABLE B-4**
**Potential Risks to Large Herbivorous Mammal (Mule Deer) from Consumption of Contaminated Vegetation  
(Acute Exposure Scenario)**

Parameters/Assumptions		Value	Units
<b>Body weight (BW)</b>		70	kg
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>		1.9212	kg dw/day
<b>Food ingestion rate (wet weight [ww]) (ir)<sup>2</sup></b>		6.4038	kg ww/day
<b>Duration of exposure (D)</b>		1	day
<b>Application rates (R)</b>	Typical	0.2625	lb/acre
	Maximum	0.4375	lb/acre
<b>Residue rate - grass (rr)<sup>3</sup></b>	Typical	36	mg/kg per lb/acre
	Maximum	197	mg/kg per lb/acre
<b>Concentration on grass (C): R × rr</b>	Typical	9.45	mg/kg grass
	Maximum	86.1875	mg/kg grass
<b>Drift (Drift)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Proportion of diet contaminated (PC)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Dose estimates: (Drift × PC × C × ir) / BW</b>	Typical	8.65E-01	mg/kg bw/day
	Maximum	7.88E+00	mg/kg bw/day

RISK QUOTIENTS <sup>4</sup> – Ingestion	Toxicity Reference Value (mg/kg bw/day) <sup>5</sup>	Typical Application	Maximum Application
Large mammalian herbivore/gramivore (acute exposure)	425	2.03E-03	1.86E-02

<sup>1</sup>Calculated using algorithm developed by Nagy (1987) for herbivores; where food ingestion rate (g dw/day) = 0.577×(BW g)<sup>0.727</sup>; converted into kg dw/day.

<sup>2</sup>Assumes grass is 70% water (USEPA 1993; Table 4-2 - lowest value for young grasses).

<sup>3</sup>Residue rates were obtained from the Kenaga nomogram as updated (Fletcher et al. 1994) and are vegetation-specific.

<sup>4</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>5</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

**TABLE B-5**
**Potential Risks to Large Herbivorous Mammal (Mule Deer) from Consumption of Contaminated Vegetation  
(Chronic Exposure Scenario)**

Parameters/Assumptions		Value	Units
<b>Duration of exposure (T)</b>		90	day
<b>Body weight (BW)</b>		70	kg
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>		1.9212	kg dw/day
<b>Food ingestion rate (wet weight [ww]) (ir)<sup>2</sup></b>		6.4038	kg ww/day
<b>Half life on vegetation (<math>t_{50}</math>)</b>	Herbicide specific	14	days
<b>Application rates (R)</b>	Typical	0.2625	lb/acre
	Maximum	0.4375	lb/acre
<b>Residue rate - grass (rr)<sup>3</sup></b>	Typical	36	mg/kg per lb/acre
	Maximum	197	mg/kg per lb/acre
<b>Drift (Drift)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Decay coefficient (k): <math>\ln(2) / t_{50}</math><sup>4</sup></b>	Typical	0.0495	days <sup>-1</sup>
	Maximum	0.0495	days <sup>-1</sup>
<b>Initial concentration on grass (<math>C_0</math>): <math>R \times rr \times Drift</math></b>	Typical	9.45	mg/kg grass
	Maximum	86.1875	mg/kg grass
<b>Concentration on grass at time T: <math>C_0 \times \exp(-k \times T)</math><sup>5</sup></b>	Typical	0.1097	mg/kg grass
	Maximum	1.0006	mg/kg grass
<b>Time-weighted average concentration on vegetation (CTWA): <math>C_0 \times (1 - \exp(-k \times T)) / (k \times T)</math><sup>5</sup></b>	Typical	2.0961	mg/kg vegetation
	Maximum	19.1176	mg/kg vegetation
<b>Proportion of diet contaminated (PC)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Dose estimates: (CTWA <math>\times</math> ir <math>\times</math> PC) / BW</b>	Typical	1.92E-01	mg/kg bw/day
	Maximum	1.75E+00	mg/kg bw/day

RISK QUOTIENTS <sup>6</sup> – Ingestion	Toxicity Reference Value (mg/kg bw/day) <sup>7</sup>	Typical Application	Maximum Application
Large mammalian herbivore/gramivore (chronic exposure)	No value available	NC <sup>8</sup>	NC <sup>8</sup>

<sup>1</sup>Calculated using algorithm developed by Nagy (1987) for herbivores; where food ingestion rate (g dw/day) = 0.577 × (BW g)<sup>0.727</sup>; converted into kg dw/day.

<sup>2</sup>Assumes grass is 70% water (USEPA 1993; Table 4-2 - lowest value for young grasses).

<sup>3</sup>Residue rates were obtained from the Kenaga nomogram as updated (Fletcher et al. 1994) and are vegetation-specific.

<sup>4</sup>In = Natural log function.

<sup>5</sup> $\exp(-k \times T) = e^{-k \times T}$ , where e is a constant = 2.7828.

<sup>6</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>7</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

<sup>8</sup>NC = Not calculated. No Overdrive TRV available. See dicamba and diflufenzoxyr worksheets. RQ derived using sum of RQs derived using dicamba and diflufenzoxyr EECs and TRVs.

**TABLE B-6**
**Potential Risks to Carnivorous Mammal (Coyote) from Consumption of Contaminated Small Mammals  
(Acute Exposure Scenario)**

Parameters/Assumptions		Value	Units
<b>Body weight (BW)</b>		12	kg
<b>Body weight small mammal (BW_mouse)</b>		0.02	kg
<b>Surface area small mammal (A)</b>		86.21	cm <sup>2</sup>
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>		0.5297	kg dw/day
<b>Food ingestion rate (wet weight [ww]) (ir)<sup>2</sup></b>		1.6554	kg ww/day
<b>Duration of exposure (D)</b>		1	day
<b>Application rates (R)</b>	Typical	0.2625	lb/acre
	Maximum	0.4375	lb/acre
<b>Amount deposited on small mammal prey (Amnt_mouse): <math>0.5 \times A \times R^3</math></b>	Typical	0.1268	mg
	Maximum	0.2114	mg
<b>Drift (Drift)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Proportion of diet contaminated (PC)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Dose estimates: <math>((Drift \times PC \times Amnt\_mouse) / BW\_mouse) \times ir / BW</math></b>	Typical	8.75E-01	mg/kg bw
	Maximum	1.49E+00	mg/kg bw

RISK QUOTIENTS <sup>4</sup> – Ingestion	Toxicity Reference Value (mg/kg bw) <sup>5</sup>	Typical Application	Maximum Application
Large carnivorous mammal (acute exposure)	661	1.32E-03	2.21E-03

<sup>1</sup>Calculated using algorithm developed by Nagy (1987); where food ingestion rate (g dw/day) = 0.0687×(BW g)<sup>0.822</sup>; converted into kg dw/day.

<sup>2</sup>Assumes mammals are 68% water (USEPA 1993).

<sup>3</sup>Surface area (A) and body weight of mouse receptor presented in Table B-1. Surface area calculation for mammals from Stahl (1967; presented in USEPA 1993).

<sup>4</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>5</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

**TABLE B-7**
**Potential Risks to Carnivorous Mammal (Coyote) From Consumption of Contaminated Small Mammals  
(Chronic Exposure Scenario)**

Parameters/Assumptions	Value	Units
<b>Duration of exposure (T)</b>	90	day
<b>Body weight (BW)</b>	12	kg
<b>Body weight small mammal (BW_mouse)</b>	0.02	kg
<b>Surface area small mammal (A)</b>	86.21	cm <sup>2</sup>
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>	0.5297	kg dw/day
<b>Food ingestion rate (wet weight [ww]) (ir)<sup>2</sup></b>	1.6554	kg ww/day
<b>Application rates (R)</b>	Typical Maximum	lb/acre lb/acre
<b>Drift (Drift)</b>	Typical Maximum	unitless unitless
<b>Decay coefficient (k): ln(2) / t<sub>50</sub><sup>3</sup></b>	Typical Maximum	days <sup>-1</sup> days <sup>-1</sup>
<b>Initial concentration on small mammal (C<sub>0</sub>): (0.5 × A × R) / BW_mouse</b>	Typical Maximum	mg/kg mammal mg/kg mammal
<b>Concentration absorbed in small mammal at time T (C<sub>90</sub>): C<sub>0</sub> × exp(-k×T)<sup>4</sup></b>	Typical Maximum	mg/kg mammal mg/kg mammal
<b>Proportion of diet contaminated (PC)</b>	Typical Maximum	unitless unitless
<b>Dose estimates: (C<sub>90</sub> × ir × PC) / BW</b>	Typical Maximum	mg/kg bw/day mg/kg bw/day

RISK QUOTIENTS <sup>5</sup> – Ingestion	Toxicity Reference Value (mg/kg bw/day) <sup>6</sup>	Typical Application	Maximum Application
Large mammalian carnivore (chronic exposure)	No value available	NC <sup>7</sup>	NC <sup>7</sup>

<sup>1</sup>Calculated using algorithm developed by Nagy (1987); where food ingestion rate (g dw/day) = 0.0687×(BW g)<sup>0.822</sup>; converted into kg dw/day.

<sup>2</sup>Assumes mammals are 68% water (USEPA 1993).

<sup>3</sup>ln = Natural log function.

<sup>4</sup>exp(-k×T) = e<sup>(-k×T)</sup>, where e is a constant = 2.7828.

<sup>5</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>6</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

<sup>7</sup>NC = Not calculated. No Overdrive TRV available. See dicamba and diflufenzoxyr worksheets. RQ derived using sum of RQs derived using dicamba and diflufenzoxyr EECs and TRVs.

**TABLE B-8**
**Potential Risks to Insectivorous Bird (American Robin) from Consumption of Contaminated Insects (Acute Exposure Scenario)**

Parameters/Assumptions		Value	Units
<b>Body weight (BW)</b>		0.08	kg
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>		0.0112	kg dw/day
<b>Food ingestion rate (wet weight [ww]) (ir)<sup>2</sup></b>		0.0363	kg ww/day
<b>Duration of exposure (D)</b>		1	day
<b>Application rates (R)</b>	Typical	0.2625	lb/acre
	Maximum	0.4375	lb/acre
<b>Residue rate - insects (rr)<sup>3</sup></b>	Typical	45	mg/kg per lb/acre
	Maximum	350	mg/kg per lb/acre
<b>Concentration on insects (C): R × rr</b>	Typical	11.8125	mg/kg insect
	Maximum	153.125	mg/kg insect
<b>Drift (Drift)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Proportion of diet contaminated (PC)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Dose estimates: (Drift × PC × C × ir) / BW</b>	Typical	5.35E+00	mg/kg bw
	Maximum	6.94E+01	mg/kg bw

RISK QUOTIENTS <sup>4</sup> – Ingestion	Toxicity Reference Value(mg/kg bw) <sup>5</sup>	Typical Application	Maximum Application
Small insectivorous bird (acute exposure)	18,360	2.92E-04	3.78E-03

<sup>1</sup>Calculated using algorithm developed by Nagy (1987) for all birds; where food ingestion rate (kg dw/day) = 0.0582×(BW)<sup>0.651</sup>.

<sup>2</sup>Assumes insects are 69% water (USEPA 1993; Table 4-1 - value for grasshoppers and crickets).

<sup>3</sup>Residue rates were obtained from the Kenaga nomogram as updated (Fletcher et al. 1994).

<sup>4</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>5</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

**TABLE B-9**
**Potential Risks to Insectivorous Bird (American Robin) from Consumption of Contaminated Insects  
(Chronic Exposure Scenario)**

Parameters/Assumptions		Value	Units
<b>Duration of exposure (T)</b>		90	day
<b>Body weight (BW)</b>		0.08	kg
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>		0.0112	kg dw/day
<b>Food ingestion rate (wet weight [ww]) (ir)<sup>2</sup></b>		0.0363	kg ww/day
<b>Half life on insect (t<sub>50</sub>)</b>	Herbicide specific	14	days
<b>Application rates (R)</b>	Typical	0.2625	lb/acre
	Maximum	0.4375	lb/acre
<b>Residue rate - insects (rr)<sup>3</sup></b>	Typical	45	mg/kg per lb/acre
	Maximum	350	mg/kg per lb/acre
<b>Drift (Drift)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Decay coefficient (k): ln(2) / t<sub>50</sub><sup>4</sup></b>	Typical	0.0495	days <sup>-1</sup>
	Maximum	0.0495	days <sup>-1</sup>
<b>Initial concentration on insects (C<sub>0</sub>): R × rr × Drift</b>	Typical	11.8125	mg/kg insect
	Maximum	153.125	mg/kg insect
<b>Concentration on insects at time T</b>	Typical	0.1371	mg/kg insect
<b>(C<sub>90</sub>): C<sub>0</sub> × exp(-k×T)<sup>5</sup></b>	Maximum	1.7777	mg/kg insect
<b>Time-weighted average concentration on insects</b>	Typical	2.6202	mg/kg insect
<b>CTWA): C<sub>0</sub> × (1-exp(-k×T)) / (k×T)<sup>5</sup></b>	Maximum	33.9652	mg/kg insect
<b>Proportion of diet contaminated (PC)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Dose estimates (D): (CTWA × ir × PC) / BW</b>	Typical	1.19E+00	mg/kg bw/day
	Maximum	1.54E+01	mg/kg bw/day

RISK QUOTIENTS <sup>6</sup> – Ingestion	Toxicity Reference Value(mg/kg bw/day) <sup>7</sup>	Typical Application	Maximum Application
Small insectivorous bird (chronic exposure)	11,015	1.08E-04	1.40E-03

<sup>1</sup>Calculated using algorithm developed by Nagy (1987) for all birds; where food ingestion rate (kg dw/day) = 0.0582×(BW)<sup>0.651</sup>.

<sup>2</sup> Assumes insects are 69% water (USEPA 1993; Table 4-1 - value for grasshoppers and crickets).

<sup>3</sup> Residue rates were obtained from the Kenaga nomogram as updated (Fletcher et al. 1994).

<sup>4</sup> ln = Natural log function.

<sup>5</sup>exp(-k×T) = e<sup>-k×T</sup>, where e is a constant = 2.7828.

<sup>6</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>7</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

**TABLE B-10**
**Potential Risks to Herbivorous Bird (Canada goose) from Consumption of Contaminated Vegetation (Acute Exposure Scenario)**

Parameters/Assumptions		Value	Units
<b>Body Weight (BW)</b>		3.72	kg
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>		0.1368	kg dw/day
<b>Food ingestion rate (wet weight [ww]) (ir)<sup>2</sup></b>		0.9125	kg ww/day
<b>Duration of exposure (D)</b>		1	day
<b>Application rates (R)</b>	Typical	0.2625	lb/acre
	Maximum	0.4375	lb/acre
<b>Residue rate - vegetation (rr)<sup>3</sup></b>	Typical	35	mg/kg per lb/acre
	Maximum	296	mg/kg per lb/acre
<b>Concentration on vegetation (C): R × rr</b>	Typical	9.1875	mg/kg veg
	Maximum	129.5	mg/kg veg
<b>Drift (Drift)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Proportion of diet contaminated (PC)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Dose estimates: (Drift × PC × C × ir) / BW</b>	Typical	2.25E+00	mg/kg bw
	Maximum	3.18E+01	mg/kg bw

RISK QUOTIENTS <sup>4</sup> – Ingestion	Toxicity Reference Value (mg/kg bw) <sup>5</sup>	Typical Application	Maximum Application
Large herbivorous bird - acute exposure	No value available	NC <sup>6</sup>	NC <sup>6</sup>

<sup>1</sup>Calculated using algorithm developed by Nagy (1987) for all birds; where food ingestion rate (kg dw/day) = 0.0582×(BW)<sup>0.651</sup>.

<sup>2</sup>Assumes vegetation is 85% water (USEPA 1993; Table 4-2 - value for dicotyledons).

<sup>3</sup>Residue rates were obtained from the Kenaga nomogram as updated (Fletcher et al. 1994) and are vegetation-specific.

<sup>4</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>5</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

<sup>6</sup>NC = Not calculated. No Overdrive TRV available. See dicamba and diflufenzoxy worksheets. RQ derived using sum of RQs derived using dicamba and diflufenzoxy EECs and TRVs.

**TABLE B-11**
**Potential Risks to Herbivorous Bird (Canada goose) from Consumption of Contaminated Vegetation  
(Chronic Exposure Scenario)**

Parameters/Assumptions		Value	Units
<b>Duration of exposure (T)</b>		90	day
<b>Body weight (BW)</b>		3.72	kg
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>		0.1369	kg dw/day
<b>Food ingestion rate (wet weight [ww]) (ir)<sup>2</sup></b>		0.9126	kg ww/day
<b>Half life on vegetation (<math>t_{50}</math>)</b>	Herbicide specific	14	days
<b>Application rates (R)</b>	Typical	0.2624	lb/acre
	Maximum	0.4375	lb/acre
<b>Residue rate - vegetation (rr)<sup>3</sup></b>	Typical	35	mg/kg per lb/acre
	Maximum	296	mg/kg per lb/acre
<b>Drift (Drift)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Decay coefficient (k): <math>\ln(2) / t_{50}</math><sup>4</sup></b>	Typical	0.0495	days <sup>-1</sup>
	Maximum	0.0495	days <sup>-1</sup>
<b>Initial concentration on vegetation (<math>C_0</math>): R × rr × Drift</b>	Typical	9.1875	mg/kg veg
	Maximum	129.5	mg/kg veg
<b>Concentration on vegetation at time T (<math>C_{90}</math>): <math>C_0 \times \exp(-k \times T)</math><sup>5</sup></b>	Typical	0.1067	mg/kg veg
	Maximum	1.5034	mg/kg veg
<b>Time-weighted Average Concentration on vegetation (CTWA): <math>C_0 \times (1 - \exp(-k \times T)) / (k \times T)</math><sup>5</sup></b>	Typical	2.0379	mg/kg veg
	Maximum	28.7249	mg/kg veg
<b>Proportion of diet contaminated (PC)</b>	Typical	1	unitless
	Maximum	1	unitless
<b>Dose estimates (D): (CTWA × ir × PC) / BW</b>	Typical	5.00E-01	mg/kg bw/day
	Maximum	7.05E+00	mg/kg bw/day

RISK QUOTIENTS <sup>6</sup> – Ingestion	Toxicity Reference Value (mg/kg bw/day) <sup>7</sup>	Typical Application	Maximum Application
Large herbivorous bird (chronic exposure)	No value available	NC <sup>8</sup>	NC <sup>8</sup>

<sup>1</sup>Calculated using algorithm developed by Nagy (1987) for all birds; where food ingestion rate (kg dw/day) = 0.0582×(BW)<sup>0.651</sup>.

<sup>2</sup>Assumes vegetation is 85% water (USEPA 1993; Table 4-2 - value for dicotyledons).

<sup>3</sup>Residue rates were obtained from the Kenaga nomogram as updated (Fletcher et al. 1994) and are vegetation-specific.

<sup>4</sup>In = Natural log function.

<sup>5</sup> $\exp(-k \times T) = e^{(-k \times T)}$ , where e is a constant = 2.7828.

<sup>6</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>7</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

<sup>8</sup>NC = Not calculated. No Overdrive TRV available. See dicamba and diflufenzoxy worksheets. RQ derived using sum of RQs derived using dicamba and diflufenzoxy EECs and TRVs.

**TABLE B-12**  
**Potential Risks to Aquatic Species from Accidental Spray Drift to Pond**

OFF-SITE DRIFT - MODELED IN AGDRIFT TYPICAL APPLICATION RATE									
Mode of Application	Application Height or Type	Distance From Receptor (ft)	Pond Concentration (mg/L)	Risk Quotients <sup>1</sup> - Acute			Risk Quotients <sup>1</sup> - Chronic		
				Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
Ground	Low Boom	25	1.79E-04	NC <sup>2</sup>	4.59E-07	1.63E-03	NC <sup>2</sup>	1.38E-06	7.78E-02
Ground	Low Boom	100	9.80E-05	NC <sup>2</sup>	2.51E-07	8.91E-04	NC <sup>2</sup>	7.54E-07	4.26E-02
Ground	Low Boom	900	1.89E-05	NC <sup>2</sup>	4.86E-08	1.72E-04	NC <sup>2</sup>	1.46E-07	8.23E-03
Ground	High Boom	25	2.87E-04	NC <sup>2</sup>	7.37E-07	2.61E-03	NC <sup>2</sup>	2.21E-06	1.25E-01
Ground	High Boom	100	1.52E-04	NC <sup>2</sup>	3.89E-07	1.38E-03	NC <sup>2</sup>	1.17E-06	6.59E-02
Ground	High Boom	900	2.40E-05	NC <sup>2</sup>	6.17E-08	2.19E-04	NC <sup>2</sup>	1.85E-07	1.05E-02
OFF-SITE DRIFT - MODELED IN AGDRIFT MAXIMUM APPLICATION RATE									
Mode of Application	Application Height or Type	Distance From Receptor (ft)	Pond Concentration (mg/L)	Risk Quotients <sup>1</sup> - Acute			Risk Quotients <sup>1</sup> - Chronic		
				Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
Ground	Low Boom	25	2.98E-04	NC <sup>2</sup>	7.65E-07	2.71E-03	NC <sup>2</sup>	2.30E-06	1.30E-01
Ground	Low Boom	100	1.64E-04	NC <sup>2</sup>	4.20E-07	1.49E-03	NC <sup>2</sup>	1.26E-06	7.11E-02
Ground	Low Boom	900	3.16E-05	NC <sup>2</sup>	8.10E-08	2.87E-04	NC <sup>2</sup>	2.43E-07	1.37E-02
Ground	High Boom	25	4.77E-04	NC <sup>2</sup>	1.22E-06	4.34E-03	NC <sup>2</sup>	3.67E-06	2.07E-01
Ground	High Boom	100	2.52E-04	NC <sup>2</sup>	6.47E-07	2.29E-03	NC <sup>2</sup>	1.94E-06	1.10E-01
Ground	High Boom	900	4.01E-05	NC <sup>2</sup>	1.03E-07	3.64E-04	NC <sup>2</sup>	3.08E-07	1.74E-02

<sup>1</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>2</sup> NC = Not calculated. No Overdrive TRV available. See dicamba and diflufenzoxy worksheets. RQ derived using sum of RQs derived using dicamba and diflufenzoxy EECs and TRVs.

**TABLE B-13**  
**Potential Risks to Aquatic Species from Accidental Spray Drift to Stream**

<b>OFF-SITE DRIFT - modeled in AgDrift</b> <b>TYPICAL APPLICATION RATE</b>									
<b>Mode of Application</b>	<b>Application Height or Type</b>	<b>Distance From Receptor (ft)</b>	<b>Stream Concentration (mg/L)</b>	<b>Risk Quotients<sup>1</sup> - Acute</b>			<b>Risk Quotients<sup>1</sup> - Chronic</b>		
				<b>Fish</b>	<b>Aquatic Invertebrates</b>	<b>Non-Target Aquatic Plants</b>	<b>Fish</b>	<b>Aquatic Invertebrates</b>	<b>Non-Target Aquatic Plants</b>
Ground	Low Boom	25	3.22E-04	NC <sup>2</sup>	8.26E-07	2.93E-03	NC <sup>2</sup>	2.48E-06	1.40E-01
Ground	Low Boom	100	9.43E-05	NC <sup>2</sup>	2.42E-07	8.57E-04	NC <sup>2</sup>	7.26E-07	4.10E-02
Ground	Low Boom	900	9.77E-06	NC <sup>2</sup>	2.50E-08	8.88E-05	NC <sup>2</sup>	7.51E-08	4.25E-03
Ground	High Boom	25	5.39E-04	NC <sup>2</sup>	1.38E-06	4.90E-03	NC <sup>2</sup>	4.15E-06	2.34E-01
Ground	High Boom	100	1.53E-04	NC <sup>2</sup>	3.92E-07	1.39E-03	NC <sup>2</sup>	1.17E-06	6.64E-02
Ground	High Boom	900	1.29E-05	NC <sup>2</sup>	3.31E-08	1.17E-04	NC <sup>2</sup>	9.93E-08	5.61E-03
<b>OFF-SITE DRIFT - modeled in AgDrift</b> <b>MAXIMUM APPLICATION RATE</b>									
<b>Mode of Application</b>	<b>Application Height or Type</b>	<b>Distance From Receptor (ft)</b>	<b>Stream Concentration (mg/L)</b>	<b>Risk Quotients<sup>1</sup> - Acute</b>			<b>Risk Quotients<sup>1</sup> - Chronic</b>		
				<b>Fish</b>	<b>Aquatic Invertebrates</b>	<b>Non-Target Aquatic Plants</b>	<b>Fish</b>	<b>Aquatic Invertebrates</b>	<b>Non-Target Aquatic Plants</b>
Ground	Low Boom	25	5.37E-04	NC <sup>2</sup>	1.38E-06	4.88E-03	NC <sup>2</sup>	4.13E-06	2.33E-01
Ground	Low Boom	100	1.57E-04	NC <sup>2</sup>	4.03E-07	1.43E-03	NC <sup>2</sup>	1.21E-06	6.84E-02
Ground	Low Boom	900	1.63E-05	NC <sup>2</sup>	4.17E-08	1.48E-04	NC <sup>2</sup>	1.25E-07	7.08E-03
Ground	High Boom	25	8.99E-04	NC <sup>2</sup>	2.30E-06	8.17E-03	NC <sup>2</sup>	6.91E-06	3.91E-01
Ground	High Boom	100	2.55E-04	NC <sup>2</sup>	6.53E-07	2.31E-03	NC <sup>2</sup>	1.96E-06	1.11E-01
Ground	High Boom	900	2.15E-05	NC <sup>2</sup>	5.52E-08	1.96E-04	NC <sup>2</sup>	1.65E-07	9.35E-03

<sup>1</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>2</sup> NC = Not calculated. No Overdrive TRV available. See dicamba and diflufenzoxyr worksheets. RQ derived using sum of RQs derived using dicamba and diflufenzoxyr EECs and TRVs.

**TABLE B-14**
**Potential Risks to Non-target Terrestrial Plants from Direct Spray and Spray Drift**

<b>DIRECT SPRAY</b>	<b>Terrestrial Concentration (lb/acre)<sup>1</sup></b>	<b>Typical Species RQ<sup>2</sup></b>	<b>Rare, Threatened, and Endangered Species RQ<sup>2</sup></b>
Typical application rate	0.2625	6.10E+01	6.56E+01
Maximum application rate	0.4375	1.02E+02	1.09E+02

<b>OFF-SITE DRIFT - MODELED IN AGDRIFT</b>					
<b>TYPICAL APPLICATION RATE</b>					
<b>Mode of Application</b>	<b>Application Height or Type</b>	<b>Distance From Receptor (ft)</b>	<b>Soil Concentration (lb/acre)<sup>1</sup></b>	<b>Typical Species RQ<sup>2</sup></b>	<b>Rare, Threatened, and Endangered Species RQ<sup>2</sup></b>
Ground	Low Boom	25	3.15E-03	7.33E-01	1.97E+00
Ground	Low Boom	100	1.05E-03	2.44E-01	6.56E-01
Ground	Low Boom	900	1.79E-04	4.16E-02	1.12E-01
Ground	High Boom	25	5.60E-03	1.30E+00	3.50E+00
Ground	High Boom	100	1.75E-03	4.07E-01	1.09E+00
Ground	High Boom	900	2.29E-04	5.33E-02	1.43E-01
<b>OFF-SITE DRIFT - MODELED IN AGDRIFT</b>					
<b>MAXIMUM APPLICATION RATE</b>					
<b>Mode of Application</b>	<b>Application Height or Type</b>	<b>Distance From Receptor (ft)</b>	<b>Soil Concentration (lb/acre)<sup>1</sup></b>	<b>Typical Species RQ<sup>2</sup></b>	<b>Rare, Threatened, and Endangered Species RQ<sup>2</sup></b>
Ground	Low Boom	25	9.19E-03	2.14E+00	5.74E+00
Ground	Low Boom	100	5.69E-03	1.32E+00	3.55E+00
Ground	Low Boom	900	3.06E-03	7.12E-01	1.91E+00
Ground	High Boom	25	1.75E-03	4.07E-01	1.09E+00
Ground	High Boom	100	3.82E-04	8.88E-02	2.39E-01
Ground	High Boom	900	2.98E-04	6.94E-02	1.86E-01

<sup>1</sup>a.i. = active ingredient.

<sup>2</sup>RQ = Risk Quotient = Estimated Dose/Toxicity Reference Value.

**TABLE B-15**
**Potential Risk to Predatory Bird (Bald Eagle) from Consumption of Contaminated Fish from Pond (Pond Impacted by Spray Drift Modeled in AgDrift)**

Parameters/ Assumptions	Value	Units
<b>Body weight (BW)</b>	5.15	kg
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>	0.1018	kg dw/day
<b>Food ingestion rate (wet weight [ww]) (ir)<sup>2</sup></b>	0.4072	kg ww/day
<b>Bioconcentration factor (BCF)</b>	No value available	L/kg fish
<b>Proportion of diet contaminated (PC)</b>	1	unitless
<b>Toxicity reference value (TRV)<sup>3</sup></b>	No value available	mg/kg-bw/day

TYPICAL APPLICATION RATE						
Mode of Application	Application Height or Type	Distance From Receptor (ft)	Pond Concentration <sup>4</sup> (C <sub>pond</sub> mg/L)	Concentration in fish (C <sub>Fish</sub> ): C <sub>pond</sub> × BCF	Dose estimate (D): (C <sub>Fish</sub> × ir × PC) / BW	Risk Quotient <sup>5</sup>
Ground	Low Boom	25	1.79E-04	3.84E-03	3.03E-04	NC <sup>6</sup>
Ground	Low Boom	100	9.80E-05	2.10E-03	1.66E-04	NC <sup>6</sup>
Ground	Low Boom	900	1.89E-05	4.06E-04	3.21E-05	NC <sup>6</sup>
Ground	High Boom	25	2.87E-04	6.17E-03	4.88E-04	NC <sup>6</sup>
Ground	High Boom	100	1.52E-04	3.25E-03	2.57E-04	NC <sup>6</sup>
Ground	High Boom	900	2.40E-05	5.16E-04	4.08E-05	NC <sup>6</sup>
MAXIMUM APPLICATION RATE						
Mode of Application	Application Height or Type	Distance From Receptor (ft)	Pond Concentration <sup>4</sup> (C <sub>pond</sub> mg/L)	Concentration in fish (C <sub>Fish</sub> ): C <sub>pond</sub> × BCF	Dose estimate (D): (C <sub>Fish</sub> × ir × PC) / BW	Risk Quotient <sup>5</sup>
Ground	Low Boom	25	2.98E-04	6.35E-03	5.02E-04	NC <sup>6</sup>
Ground	Low Boom	100	1.64E-04	3.48E-03	2.75E-04	NC <sup>6</sup>
Ground	Low Boom	900	3.16E-05	6.72E-04	5.31E-05	NC <sup>6</sup>
Ground	High Boom	25	4.77E-04	1.01E-02	8.02E-04	NC <sup>6</sup>
Ground	High Boom	100	2.52E-04	5.37E-03	4.25E-04	NC <sup>6</sup>
Ground	High Boom	900	4.01E-05	8.53E-04	6.74E-05	NC <sup>6</sup>

<sup>1</sup>Calculated using algorithm developed by Nagy (1987) for all birds; where food ingestion rate (kg dw/day) = 0.0582×(BW)<sup>0.651</sup>.

<sup>2</sup>Assumes fish are 75% water (USEPA 1993; Table 4-1 - value for bony fishes).

<sup>3</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

<sup>4</sup>Pond concentrations in spray drift scenarios were calculated by the AgDRIFT. See associated report methodology document for further details.

<sup>5</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>6</sup>NC = Not calculated. No Overdrive TRV available. See dicamba and diflufenzoxy worksheets. RQ derived using sum of RQs derived using dicamba and diflufenzoxy EECs and TRVs.

**TABLE B-16**  
**Potential Risks to Aquatic Species from Surface Runoff to Pond**

SURFACE RUNOFF - Modeled in GLEAMS - TYPICAL APPLICATION RATE															
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>2</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentrations (mg/L)		Risk Quotients <sup>1</sup> - Acute			Risk Quotients <sup>1</sup> - Chronic		
								Acute Exposure Scenarios	Chronic Exposure Scenarios	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
G_BASE_SAND_0	5	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	NC <sup>3</sup>	0.00E+00	0.00E+00	NC <sup>3</sup>	0.00E+00	0.00E+00
05_POND_TYP															
G_BASE_CLAY_0	5	10	0.05	0.015	0.401	Weeds (78)	Clay	0.00E+00	0.00E+00	NC <sup>3</sup>	0.00E+00	0.00E+00	NC <sup>3</sup>	0.00E+00	0.00E+00
05_POND_TYP															
G_BASE_LOAM_0	5	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	NC <sup>3</sup>	0.00E+00	0.00E+00	NC <sup>3</sup>	0.00E+00	0.00E+00
05_POND_TYP															
G_BASE_SAND_0	10	10	0.05	0.015	0.401	Weeds (78)	Sand	9.52E-03	3.10E-03	NC <sup>3</sup>	2.44E-05	8.65E-02	NC <sup>3</sup>	2.39E-05	1.35E+00
10_POND_TYP															
G_BASE_CLAY_0	10	10	0.05	0.015	0.401	Weeds (78)	Clay	3.14E-05	2.22E-06	NC <sup>3</sup>	8.05E-08	2.85E-04	NC <sup>3</sup>	1.71E-08	9.64E-04
10_POND_TYP															
G_BASE_LOAM_0	10	10	0.05	0.015	0.401	Weeds (78)	Loam	2.06E-04	6.66E-05	NC <sup>3</sup>	5.29E-07	1.88E-03	NC <sup>3</sup>	5.12E-07	2.90E-02
10_POND_TYP															
G_BASE_SAND_0	25	10	0.05	0.015	0.401	Weeds (78)	Sand	3.84E-02	8.59E-03	NC <sup>3</sup>	9.83E-05	3.49E-01	NC <sup>3</sup>	6.61E-05	3.74E+00
25_POND_TYP															
G_BASE_CLAY_0	25	10	0.05	0.015	0.401	Weeds (78)	Clay	1.39E-02	2.34E-03	NC <sup>3</sup>	3.58E-05	1.27E-01	NC <sup>3</sup>	1.80E-05	1.02E+00
25_POND_TYP															
G_BASE_LOAM_0	25	10	0.05	0.015	0.401	Weeds (78)	Loam	1.72E-02	7.00E-03	NC <sup>3</sup>	4.41E-05	1.56E-01	NC <sup>3</sup>	5.39E-05	3.05E+00
25_POND_TYP															
G_BASE_SAND_0	50	10	0.05	0.015	0.401	Weeds (78)	Sand	4.72E-02	5.54E-03	NC <sup>3</sup>	1.21E-04	4.29E-01	NC <sup>3</sup>	4.26E-05	3.74E+00
50_POND_TYP															
G_BASE_CLAY_0	50	10	0.05	0.015	0.401	Weeds (78)	Clay	6.37E-02	5.60E-03	NC <sup>3</sup>	1.63E-04	5.79E-01	NC <sup>3</sup>	4.31E-05	2.43E+00
50_POND_TYP															
G_BASE_LOAM_0	50	10	0.05	0.015	0.401	Weeds (78)	Loam	2.03E-02	4.19E-03	NC <sup>3</sup>	5.21E-05	1.85E-01	NC <sup>3</sup>	3.22E-05	1.82E+00
50_POND_TYP															
G_BASE_SAND_1	100	10	0.05	0.015	0.401	Weeds (78)	Sand	6.50E-02	5.44E-03	NC <sup>3</sup>	1.67E-04	5.91E-01	NC <sup>3</sup>	4.19E-05	2.37E+00
00_POND_TYP															
G_BASE_CLAY_1	100	10	0.05	0.015	0.401	Weeds (78)	Clay	4.64E-02	4.25E-03	NC <sup>3</sup>	1.19E-04	4.22E-01	NC <sup>3</sup>	3.27E-05	1.85E+00
00_POND_TYP															
G_BASE_LOAM_1	100	10	0.05	0.015	0.401	Weeds (78)	Loam	2.43E-02	3.12E-03	NC <sup>3</sup>	6.23E-05	2.21E-01	NC <sup>3</sup>	2.40E-05	1.36E+00
00_POND_TYP															
G_BASE_SAND_1	150	10	0.05	0.015	0.401	Weeds (78)	Sand	6.84E-02	5.01E-03	NC <sup>3</sup>	1.75E-04	6.22E-01	NC <sup>3</sup>	3.85E-05	2.18E+00
50_POND_TYP															
G_BASE_CLAY_1	150	10	0.05	0.015	0.401	Weeds (78)	Clay	2.84E-02	3.60E-03	NC <sup>3</sup>	7.28E-05	2.58E-01	NC <sup>3</sup>	2.77E-05	1.56E+00
50_POND_TYP															

TABLE B-16 (Cont.)

## Potential Risks to Aquatic Species from Surface Runoff to Pond

SURFACE RUNOFF - Modeled in GLEAMS - TYPICAL APPLICATION RATE															
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>2</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentrations (mg/L)		Risk Quotients <sup>1</sup> - Acute			Risk Quotients <sup>1</sup> - Chronic		
								Acute Exposure Scenarios	Chronic Exposure Scenarios	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
G_BASE_LOAM_150_POND_TYP	150	10	0.05	0.015	0.401	Weeds (78)	Loam	2.58E-02	2.43E-03	NC <sup>3</sup>	6.62E-05	2.35E-01	NC <sup>3</sup>	1.87E-05	1.06E+00
G_BASE_SAND_200_POND_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Sand	6.15E-02	4.48E-03	NC <sup>3</sup>	1.58E-04	5.60E-01	NC <sup>3</sup>	3.44E-05	1.95E+00
G_BASE_CLAY_200_POND_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Clay	2.80E-02	3.31E-03	NC <sup>3</sup>	7.18E-05	2.55E-01	NC <sup>3</sup>	2.55E-05	1.44E+00
G_BASE_LOAM_200_POND_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Loam	2.31E-02	1.91E-03	NC <sup>3</sup>	5.93E-05	2.10E-01	NC <sup>3</sup>	1.47E-05	8.31E-01
G_BASE_SAND_250_POND_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Sand	6.12E-02	4.02E-03	NC <sup>3</sup>	1.57E-04	5.57E-01	NC <sup>3</sup>	3.10E-05	1.75E+00
G_BASE_CLAY_250_POND_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Clay	3.18E-02	3.16E-03	NC <sup>3</sup>	8.15E-05	2.89E-01	NC <sup>3</sup>	2.43E-05	1.37E+00
G_BASE_LOAM_250_POND_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Loam	2.00E-02	1.59E-03	NC <sup>3</sup>	5.13E-05	1.82E-01	NC <sup>3</sup>	1.22E-05	6.92E-01
G_ARV1_050_POND_TYP	50	1	0.05	0.015	0.401	Weeds (78)	Loam	8.83E-03	2.73E-03	NC <sup>3</sup>	2.26E-05	8.03E-02	NC <sup>3</sup>	2.10E-05	1.18E+00
G_ARV2_050_POND_TYP	50	100	0.05	0.015	0.401	Weeds (78)	Loam	2.27E-02	4.68E-03	NC <sup>3</sup>	5.83E-05	2.07E-01	NC <sup>3</sup>	3.60E-05	2.03E+00
G_ARV3_050_POND_TYP	50	1,000	0.05	0.015	0.401	Weeds (78)	Loam	2.28E-02	4.74E-03	NC <sup>3</sup>	5.84E-05	2.07E-01	NC <sup>3</sup>	3.64E-05	2.06E+00
G_ERV1_050_POND_TYP	50	10	0.05	0.015	0.05	Weeds (78)	Loam	2.03E-02	4.19E-03	NC <sup>3</sup>	5.20E-05	1.84E-01	NC <sup>3</sup>	3.22E-05	1.82E+00
G_ERV2_050_POND_TYP	50	10	0.05	0.015	0.2	Weeds (78)	Loam	2.03E-02	4.19E-03	NC <sup>3</sup>	5.21E-05	1.85E-01	NC <sup>3</sup>	3.22E-05	1.82E+00
G_ERV3_050_POND_TYP	50	10	0.05	0.015	0.5	Weeds (78)	Loam	2.03E-02	4.19E-03	NC <sup>3</sup>	5.21E-05	1.85E-01	NC <sup>3</sup>	3.22E-05	1.82E+00
G_RGV1_050_POND_TYP	50	10	0.05	0.023	0.401	Weeds (78)	Loam	2.03E-02	4.19E-03	NC <sup>3</sup>	5.20E-05	1.85E-01	NC <sup>3</sup>	3.22E-05	1.82E+00
G_RGV2_050_POND_TYP	50	10	0.05	0.046	0.401	Weeds (78)	Loam	2.03E-02	4.19E-03	NC <sup>3</sup>	5.20E-05	1.85E-01	NC <sup>3</sup>	3.22E-05	1.82E+00
G_RGV3_050_POND_TYP	50	10	0.05	0.15	0.401	Weeds (78)	Loam	2.03E-02	4.19E-03	NC <sup>3</sup>	5.20E-05	1.84E-01	NC <sup>3</sup>	3.22E-05	1.82E+00
G_SLV1_050_POND_TYP	50	10	0.005	0.015	0.401	Weeds (78)	Loam	2.03E-02	4.19E-03	NC <sup>3</sup>	5.20E-05	1.84E-01	NC <sup>3</sup>	3.22E-05	1.82E+00

**TABLE B-16 (Cont.)**

**Potential Risks to Aquatic Species from Surface Runoff to Pond**

SURFACE RUNOFF - Modeled in GLEAMS - TYPICAL APPLICATION RATE															
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>2</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentrations (mg/L)		Risk Quotients <sup>1</sup> - Acute			Risk Quotients <sup>1</sup> - Chronic		
								Acute Exposure Scenarios	Chronic Exposure Scenarios	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
G_SLV2_050_POND_TYP	50	10	0.01	0.015	0.401	Weeds (78)	Loam	2.03E-02	4.19E-03	NC <sup>3</sup>	5.20E-05	1.84E-01	NC <sup>3</sup>	3.22E-05	1.82E+00
G_SLV3_050_POND_TYP		10	0.1	0.015	0.401	Weeds (78)	Loam	2.03E-02	4.19E-03	NC <sup>3</sup>	5.21E-05	1.85E-01	NC <sup>3</sup>	3.22E-05	1.82E+00
G_STV1_050_POND_TYP		10	0.05	0.015	0.401	Weeds (78)	Silt Loam	2.92E-02	4.62E-03	NC <sup>3</sup>	7.50E-05	2.66E-01	NC <sup>3</sup>	3.55E-05	2.01E+00
G_STV2_050_POND_TYP		10	0.05	0.015	0.401	Weeds (78)	Silt	2.59E-02	4.09E-03	NC <sup>3</sup>	6.64E-05	2.35E-01	NC <sup>3</sup>	3.15E-05	1.78E+00
G_STV3_050_POND_TYP		10	0.05	0.015	0.401	Weeds (78)	Clay Loam	3.86E-02	4.81E-03	NC <sup>3</sup>	9.90E-05	3.51E-01	NC <sup>3</sup>	3.70E-05	2.09E+00
G_VGV1_050_POND_TYP		10	0.05	0.015	0.401	Shrubs (79)	Loam	2.03E-02	4.19E-03	NC <sup>3</sup>	5.20E-05	1.85E-01	NC <sup>3</sup>	3.22E-05	1.82E+00
G_VGV2_050_POND_TYP		10	0.05	0.015	0.401	Rye Grass (54)	Loam	2.03E-02	4.19E-03	NC <sup>3</sup>	5.20E-05	1.85E-01	NC <sup>3</sup>	3.22E-05	1.82E+00
G_VGV3_050_POND_TYP		10	0.05	0.015	0.401	Conifer + Hardwood (71)	Loam	2.15E-02	4.06E-03	NC <sup>3</sup>	5.51E-05	1.95E-01	NC <sup>3</sup>	3.12E-05	1.76E+00
MAXIMUM APPLICATION RATE															
G_BASE_SAND_05_POND_MAX	5	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	NC <sup>3</sup>	0.00E+00	0.00E+00	NC <sup>3</sup>	0.00E+00	0.00E+00
G_BASE_CLAY_05_POND_MAX	5	10	0.05	0.015	0.401	Weeds (78)	Clay	0.00E+00	0.00E+00	NC <sup>3</sup>	0.00E+00	0.00E+00	NC <sup>3</sup>	0.00E+00	0.00E+00
G_BASE_LOAM_05_POND_MAX	5	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	NC <sup>3</sup>	0.00E+00	0.00E+00	NC <sup>3</sup>	0.00E+00	0.00E+00
G_BASE_SAND_010_POND_MAX	10	10	0.05	0.015	0.401	Weeds (78)	Sand	1.59E-02	5.17E-03	NC <sup>3</sup>	4.07E-05	1.44E-01	NC <sup>3</sup>	3.98E-05	2.25E+00
G_BASE_CLAY_010_POND_MAX	10	10	0.05	0.015	0.401	Weeds (78)	Clay	5.23E-05	3.69E-06	NC <sup>3</sup>	1.34E-07	4.76E-04	NC <sup>3</sup>	2.84E-08	1.61E-03
G_BASE_LOAM_010_POND_MAX	10	10	0.05	0.015	0.401	Weeds (78)	Loam	3.44E-04	1.11E-04	NC <sup>3</sup>	8.82E-07	3.13E-03	NC <sup>3</sup>	8.54E-07	4.83E-02
G_BASE_SAND_025_POND_MAX	25	10	0.05	0.015	0.401	Weeds (78)	Sand	6.39E-02	1.43E-02	NC <sup>3</sup>	1.64E-04	5.81E-01	NC <sup>3</sup>	1.10E-04	6.23E+00
G_BASE_CLAY_025_POND_MAX	25	10	0.05	0.015	0.401	Weeds (78)	Clay	2.32E-02	3.91E-03	NC <sup>3</sup>	5.96E-05	2.11E-01	NC <sup>3</sup>	3.01E-05	1.70E+00

TABLE B-16 (Cont.)

## Potential Risks to Aquatic Species from Surface Runoff to Pond

SURFACE RUNOFF - Modeled in GLEAMS - MAXIMUM APPLICATION RATE															
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>2</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentrations (mg/L)		Risk Quotients <sup>1</sup> - Acute			Risk Quotients <sup>1</sup> - Chronic		
								Acute Exposure Scenarios	Chronic Exposure Scenarios	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
G_BASE_LOAM_0	25	10	0.05	0.015	0.401	Weeds (78)	Loam	2.87E-02	1.17E-02	NC <sup>3</sup>	7.35E-05	2.61E-01	NC <sup>3</sup>	8.98E-05	5.08E+00
G_BASE_SAND_0	50	10	0.05	0.015	0.401	Weeds (78)	Sand	7.86E-02	9.23E-03	NC <sup>3</sup>	2.02E-04	7.15E-01	NC <sup>3</sup>	7.10E-05	4.01E+00
G_BASE_CLAY_0	50	10	0.05	0.015	0.401	Weeds (78)	Clay	1.06E-01	9.33E-03	NC <sup>3</sup>	2.72E-04	9.65E-01	NC <sup>3</sup>	7.18E-05	4.06E+00
G_BASE_LOAM_0	50	10	0.05	0.015	0.401	Weeds (78)	Loam	3.39E-02	6.98E-03	NC <sup>3</sup>	8.69E-05	3.08E-01	NC <sup>3</sup>	5.37E-05	3.04E+00
G_BASE_SAND_1	100	10	0.05	0.015	0.401	Weeds (78)	Sand	1.08E-01	9.07E-03	NC <sup>3</sup>	2.78E-04	9.85E-01	NC <sup>3</sup>	6.98E-05	3.94E+00
G_BASE_CLAY_1	100	10	0.05	0.015	0.401	Weeds (78)	Clay	7.73E-02	7.08E-03	NC <sup>3</sup>	1.98E-04	7.03E-01	NC <sup>3</sup>	5.45E-05	3.08E+00
G_BASE_LOAM_1	100	10	0.05	0.015	0.401	Weeds (78)	Loam	4.05E-02	5.20E-03	NC <sup>3</sup>	1.04E-04	3.68E-01	NC <sup>3</sup>	4.00E-05	2.26E+00
G_BASE_SAND_1	150	10	0.05	0.015	0.401	Weeds (78)	Sand	1.14E-01	8.35E-03	NC <sup>3</sup>	2.92E-04	1.04E+00	NC <sup>3</sup>	6.42E-05	3.63E+00
G_BASE_CLAY_1	150	10	0.05	0.015	0.401	Weeds (78)	Clay	4.73E-02	6.00E-03	NC <sup>3</sup>	1.21E-04	4.30E-01	NC <sup>3</sup>	4.61E-05	2.61E+00
G_BASE_LOAM_1	150	10	0.05	0.015	0.401	Weeds (78)	Loam	4.30E-02	4.06E-03	NC <sup>3</sup>	1.10E-04	3.91E-01	NC <sup>3</sup>	3.12E-05	1.76E+00
G_BASE_SAND_2	200	10	0.05	0.015	0.401	Weeds (78)	Sand	1.03E-01	7.46E-03	NC <sup>3</sup>	2.63E-04	9.33E-01	NC <sup>3</sup>	5.74E-05	3.24E+00
G_BASE_CLAY_2	200	10	0.05	0.015	0.401	Weeds (78)	Clay	4.67E-02	5.52E-03	NC <sup>3</sup>	1.20E-04	4.24E-01	NC <sup>3</sup>	4.24E-05	2.40E+00
G_BASE_LOAM_2	200	10	0.05	0.015	0.401	Weeds (78)	Loam	3.86E-02	3.19E-03	NC <sup>3</sup>	9.89E-05	3.51E-01	NC <sup>3</sup>	2.45E-05	1.39E+00
G_BASE_SAND_2	250	10	0.05	0.015	0.401	Weeds (78)	Sand	1.02E-01	6.71E-03	NC <sup>3</sup>	2.62E-04	9.28E-01	NC <sup>3</sup>	5.16E-05	2.92E+00
G_BASE_CLAY_2	250	10	0.05	0.015	0.401	Weeds (78)	Clay	5.30E-02	5.26E-03	NC <sup>3</sup>	1.36E-04	4.82E-01	NC <sup>3</sup>	4.05E-05	2.29E+00
G_BASE_LOAM_2	250	10	0.05	0.015	0.401	Weeds (78)	Loam	3.33E-02	2.65E-03	NC <sup>3</sup>	8.54E-05	3.03E-01	NC <sup>3</sup>	2.04E-05	1.15E+00
G_ARV1_050_POND_MAX	50	1	0.05	0.015	0.401	Weeds (78)	Loam	1.47E-02	4.54E-03	NC <sup>3</sup>	3.77E-05	1.34E-01	NC <sup>3</sup>	3.49E-05	1.97E+00
G_ARV2_050_POND_MAX	50	100	0.05	0.015	0.401	Weeds (78)	Loam	3.79E-02	7.79E-03	NC <sup>3</sup>	9.72E-05	3.44E-01	NC <sup>3</sup>	5.99E-05	3.39E+00

**TABLE B-16 (Cont.)**  
**Potential Risks to Aquatic Species from Surface Runoff to Pond**

SURFACE RUNOFF - Modeled in GLEAMS - MAXIMUM APPLICATION RATE															
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>2</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentrations (mg/L)		Risk Quotients <sup>1</sup> - Acute			Risk Quotients <sup>1</sup> - Chronic		
								Acute Exposure Scenarios	Chronic Exposure Scenarios	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
G_ARV3_050_POND_MAX	50	1,000	0.05	0.015	0.401	Weeds (78)	Loam	3.80E-02	7.89E-03	NC <sup>3</sup>	9.74E-05	3.45E-01	NC <sup>3</sup>	6.07E-05	3.43E+00
G_ERV1_050_POND_MAX		10	0.05	0.015	0.05	Weeds (78)	Loam	3.38E-02	6.98E-03	NC <sup>3</sup>	8.67E-05	3.07E-01	NC <sup>3</sup>	5.37E-05	3.04E+00
G_ERV2_050_POND_MAX		10	0.05	0.015	0.2	Weeds (78)	Loam	3.38E-02	6.98E-03	NC <sup>3</sup>	8.68E-05	3.08E-01	NC <sup>3</sup>	5.37E-05	3.04E+00
G_ERV3_050_POND_MAX		10	0.05	0.015	0.5	Weeds (78)	Loam	3.39E-02	6.98E-03	NC <sup>3</sup>	8.69E-05	3.08E-01	NC <sup>3</sup>	5.37E-05	3.04E+00
G_RGV1_050_POND_MAX		10	0.05	0.023	0.401	Weeds (78)	Loam	3.38E-02	6.98E-03	NC <sup>3</sup>	8.67E-05	3.08E-01	NC <sup>3</sup>	5.37E-05	3.04E+00
G_RGV2_050_POND_MAX		10	0.05	0.046	0.401	Weeds (78)	Loam	3.38E-02	6.98E-03	NC <sup>3</sup>	8.67E-05	3.08E-01	NC <sup>3</sup>	5.37E-05	3.04E+00
G_RGV3_050_POND_MAX		10	0.05	0.15	0.401	Weeds (78)	Loam	3.38E-02	6.98E-03	NC <sup>3</sup>	8.67E-05	3.07E-01	NC <sup>3</sup>	5.37E-05	3.04E+00
G_SLV1_050_POND_MAX		10	0.005	0.015	0.401	Weeds (78)	Loam	3.38E-02	6.98E-03	NC <sup>3</sup>	8.67E-05	3.07E-01	NC <sup>3</sup>	5.37E-05	3.04E+00
G_SLV2_050_POND_MAX		10	0.01	0.015	0.401	Weeds (78)	Loam	3.38E-02	6.98E-03	NC <sup>3</sup>	8.67E-05	3.07E-01	NC <sup>3</sup>	5.37E-05	3.04E+00
G_SLV3_050_POND_MAX		10	0.1	0.015	0.401	Weeds (78)	Loam	3.39E-02	6.98E-03	NC <sup>3</sup>	8.68E-05	3.08E-01	NC <sup>3</sup>	5.37E-05	3.04E+00
G_STV1_050_POND_MAX		10	0.05	0.015	0.401	Weeds (78)	Silt Loam	4.87E-02	7.70E-03	NC <sup>3</sup>	1.25E-04	4.43E-01	NC <sup>3</sup>	5.92E-05	3.35E+00
G_STV2_050_POND_MAX		10	0.05	0.015	0.401	Weeds (78)	Silt	4.31E-02	6.82E-03	NC <sup>3</sup>	1.11E-04	3.92E-01	NC <sup>3</sup>	5.24E-05	2.96E+00
G_STV3_050_POND_MAX		10	0.05	0.015	0.401	Weeds (78)	Clay Loam	6.44E-02	8.01E-03	NC <sup>3</sup>	1.65E-04	5.85E-01	NC <sup>3</sup>	6.17E-05	3.48E+00
G_VGV1_050_POND_MAX		10	0.05	0.015	0.401	Shrubs (79)	Loam	3.38E-02	6.98E-03	NC <sup>3</sup>	8.67E-05	3.08E-01	NC <sup>3</sup>	5.37E-05	3.04E+00
G_VGV2_050_POND_MAX		10	0.05	0.015	0.401	Rye Grass (54)	Loam	3.38E-02	6.98E-03	NC <sup>3</sup>	8.67E-05	3.08E-01	NC <sup>3</sup>	5.37E-05	3.04E+00
G_VGV3_050_POND_MAX		10	0.05	0.015	0.401	Conifer + Hardwood (71)	Loam	3.58E-02	6.76E-03	NC <sup>3</sup>	9.19E-05	3.26E-01	NC <sup>3</sup>	5.20E-05	2.94E+00

<sup>1</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>2</sup>USLE = Universal Soil Loss Equation, which predicts soil loss as a function of soil erodibility, topography, rainfall/runoff, cover, and support management factors.

<sup>3</sup> NC = Not calculated. No Overdrive TRV available. See dicamba and diflufenzoxy worksheets. RQ derived using sum of RQs derived using dicamba and diflufenzoxy EECs and TRVs.

**TABLE B-17**  
**Potential Risks to Aquatic Species from Surface Runoff to Stream**

SURFACE RUNOFF - modeled in GLEAMS TYPICAL APPLICATION RATE															
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>2</sup> Soil Erodibility Factor (ton/ac/EI)	Vegetation Type	Soil Type	Stream Concentrations (mg/L)		Risk Quotients - Acute			Risk Quotients - Chronic		
								Acute Exposure Scenarios	Chronic Exposure Scenarios	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
G_BASE_SAND_005_STREAM_TYP	5	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	NC <sup>3</sup>	0.00E+00	0.00E+00	NC <sup>3</sup>	0.00E+00	0.00E+00
G_BASE_CLAY_005_STREAM_TYP	5	10	0.05	0.015	0.401	Weeds (78)	Clay	0.00E+00	0.00E+00	NC <sup>3</sup>	0.00E+00	0.00E+00	NC <sup>3</sup>	0.00E+00	0.00E+00
G_BASE_LOAM_005_STREAM_TYP	5	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	NC <sup>3</sup>	0.00E+00	0.00E+00	NC <sup>3</sup>	0.00E+00	0.00E+00
G_BASE_SAND_010_STREAM_TYP	10	10	0.05	0.015	0.401	Weeds (78)	Sand	3.84E-04	5.67E-06	NC <sup>3</sup>	9.85E-07	3.49E-03	NC <sup>3</sup>	4.36E-08	2.47E-03
G_BASE_CLAY_010_STREAM_TYP	10	10	0.05	0.015	0.401	Weeds (78)	Clay	1.02E-06	8.94E-09	NC <sup>3</sup>	2.63E-09	9.32E-06	NC <sup>3</sup>	6.88E-11	3.89E-06
G_BASE_LOAM_010_STREAM_TYP	10	10	0.05	0.015	0.401	Weeds (78)	Loam	3.73E-06	1.00E-07	NC <sup>3</sup>	9.56E-09	3.39E-05	NC <sup>3</sup>	7.73E-10	4.37E-05
G_BASE_SAND_025_STREAM_TYP	25	10	0.05	0.015	0.401	Weeds (78)	Sand	2.95E-03	6.76E-05	NC <sup>3</sup>	7.57E-06	2.68E-02	NC <sup>3</sup>	5.20E-07	2.94E-02
G_BASE_CLAY_025_STREAM_TYP	25	10	0.05	0.015	0.401	Weeds (78)	Clay	3.85E-04	1.02E-05	NC <sup>3</sup>	9.87E-07	3.50E-03	NC <sup>3</sup>	7.88E-08	4.45E-03
G_BASE_LOAM_025_STREAM_TYP	25	10	0.05	0.015	0.401	Weeds (78)	Loam	1.09E-03	3.33E-05	NC <sup>3</sup>	2.80E-06	9.92E-03	NC <sup>3</sup>	2.56E-07	1.45E-02
G_BASE_SAND_050_STREAM_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Sand	3.50E-03	8.66E-05	NC <sup>3</sup>	8.97E-06	3.18E-02	NC <sup>3</sup>	6.66E-07	3.77E-02
G_BASE_CLAY_050_STREAM_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Clay	2.16E-03	5.69E-05	NC <sup>3</sup>	5.54E-06	1.97E-02	NC <sup>3</sup>	4.37E-07	2.47E-02
G_BASE_LOAM_050_STREAM_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Loam	1.84E-03	6.81E-05	NC <sup>3</sup>	4.73E-06	1.68E-02	NC <sup>3</sup>	5.24E-07	2.96E-02
G_BASE_SAND_100_STREAM_TYP	100	10	0.05	0.015	0.401	Weeds (78)	Sand	5.76E-03	1.30E-04	NC <sup>3</sup>	1.48E-05	5.23E-02	NC <sup>3</sup>	9.96E-07	5.63E-02
G_BASE_CLAY_100_STREAM_TYP	100	10	0.05	0.015	0.401	Weeds (78)	Clay	5.01E-03	1.08E-04	NC <sup>3</sup>	1.28E-05	4.55E-02	NC <sup>3</sup>	8.29E-07	4.69E-02
G_BASE_LOAM_100_STREAM_TYP	100	10	0.05	0.015	0.401	Weeds (78)	Loam	2.56E-03	8.36E-05	NC <sup>3</sup>	6.57E-06	2.33E-02	NC <sup>3</sup>	6.43E-07	3.63E-02
G_BASE_SAND_150_STREAM_TYP	150	10	0.05	0.015	0.401	Weeds (78)	Sand	7.52E-03	1.68E-04	NC <sup>3</sup>	1.93E-05	6.83E-02	NC <sup>3</sup>	1.30E-06	7.32E-02
G_BASE_CLAY_150_STREAM_TYP	150	10	0.05	0.015	0.401	Weeds (78)	Clay	5.03E-03	1.19E-04	NC <sup>3</sup>	1.29E-05	4.58E-02	NC <sup>3</sup>	9.15E-07	5.17E-02

**TABLE B-17 (Cont.)**  
**Potential Risks to Aquatic Species from Surface Runoff to Stream**

SURFACE RUNOFF - modeled in GLEAMS TYPICAL APPLICATION RATE															
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>2</sup> Soil Erodibility Factor (ton/ac/EI)	Vegetation Type	Soil Type	Stream Concentrations (mg/L)		Risk Quotients - Acute			Risk Quotients - Chronic		
								Acute Exposure Scenarios	Chronic Exposure Scenarios	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
G_BASE_LOAM_150_STREAM_TYP	150	10	0.05	0.015	0.401	Weeds (78)	Loam	2.71E-03	8.69E-05	NC <sup>3</sup>	6.94E-06	2.46E-02	NC <sup>3</sup>	6.68E-07	3.78E-02
G_BASE_SAND_200_STREAM_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Sand	8.43E-03	1.93E-04	NC <sup>3</sup>	2.16E-05	7.67E-02	NC <sup>3</sup>	1.49E-06	8.40E-02
G_BASE_CLAY_200_STREAM_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Clay	4.38E-03	1.21E-04	NC <sup>3</sup>	1.12E-05	3.98E-02	NC <sup>3</sup>	9.29E-07	5.25E-02
G_BASE_LOAM_200_STREAM_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Loam	3.28E-03	8.68E-05	NC <sup>3</sup>	8.41E-06	2.98E-02	NC <sup>3</sup>	6.67E-07	3.77E-02
G_BASE_SAND_250_STREAM_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Sand	9.05E-03	2.05E-04	NC <sup>3</sup>	2.32E-05	8.23E-02	NC <sup>3</sup>	1.58E-06	8.91E-02
G_BASE_CLAY_250_STREAM_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Clay	3.89E-03	1.23E-04	NC <sup>3</sup>	9.96E-06	3.53E-02	NC <sup>3</sup>	9.44E-07	5.34E-02
G_BASE_LOAM_250_STREAM_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Loam	3.52E-03	8.53E-05	NC <sup>3</sup>	9.02E-06	3.20E-02	NC <sup>3</sup>	6.56E-07	3.71E-02
G_ARV1_050_STREAM_TYP	50	1	0.05	0.015	0.401	Weeds (78)	Loam	2.56E-04	7.97E-06	NC <sup>3</sup>	6.57E-07	2.33E-03	NC <sup>3</sup>	6.13E-08	3.47E-03
G_ARV2_050_STREAM_TYP	50	100	0.05	0.015	0.401	Weeds (78)	Loam	6.81E-03	3.69E-04	NC <sup>3</sup>	1.75E-05	6.19E-02	NC <sup>3</sup>	2.84E-06	1.60E-01
G_ARV3_050_STREAM_TYP	50	1,000	0.05	0.015	0.401	Weeds (78)	Loam	1.39E-02	1.01E-03	NC <sup>3</sup>	3.55E-05	1.26E-01	NC <sup>3</sup>	7.78E-06	4.40E-01
G_ERV1_050_STREAM_TYP	50	10	0.05	0.015	0.05	Weeds (78)	Loam	1.84E-03	6.81E-05	NC <sup>3</sup>	4.72E-06	1.67E-02	NC <sup>3</sup>	5.24E-07	2.96E-02
G_ERV2_050_STREAM_TYP	50	10	0.05	0.015	0.2	Weeds (78)	Loam	1.84E-03	6.81E-05	NC <sup>3</sup>	4.72E-06	1.67E-02	NC <sup>3</sup>	5.24E-07	2.96E-02
G_ERV3_050_STREAM_TYP	50	10	0.05	0.015	0.5	Weeds (78)	Loam	1.84E-03	6.81E-05	NC <sup>3</sup>	4.73E-06	1.68E-02	NC <sup>3</sup>	5.24E-07	2.96E-02
G_RGV1_050_STREAM_TYP	50	10	0.05	0.023	0.401	Weeds (78)	Loam	1.84E-03	6.81E-05	NC <sup>3</sup>	4.72E-06	1.67E-02	NC <sup>3</sup>	5.24E-07	2.96E-02
G_RGV2_050_STREAM_TYP	50	10	0.05	0.046	0.401	Weeds (78)	Loam	1.84E-03	6.81E-05	NC <sup>3</sup>	4.72E-06	1.67E-02	NC <sup>3</sup>	5.24E-07	2.96E-02
G_RGV3_050_STREAM_TYP	50	10	0.05	0.15	0.401	Weeds (78)	Loam	1.84E-03	6.81E-05	NC <sup>3</sup>	4.72E-06	1.67E-02	NC <sup>3</sup>	5.24E-07	2.96E-02
G_SLV1_050_STREAM_TYP	50	10	0.005	0.015	0.401	Weeds (78)	Loam	1.84E-03	6.81E-05	NC <sup>3</sup>	4.72E-06	1.67E-02	NC <sup>3</sup>	5.24E-07	2.96E-02

TABLE B-17 (Cont.)

## Potential Risks to Aquatic Species from Surface Runoff to Stream

SURFACE RUNOFF - modeled in GLEAMS TYPICAL APPLICATION RATE															
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>2</sup> Soil Erodibility Factor (ton/ac/EI)	Vegetation Type	Soil Type	Stream Concentrations (mg/L)		Risk Quotients - Acute			Risk Quotients - Chronic		
								Acute Exposure Scenarios	Chronic Exposure Scenarios	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
G_SLV2_050_STREA M_TYP	50	10	0.01	0.015	0.401	Weeds (78)	Loam	1.84E-03	6.81E-05	NC <sup>3</sup>	4.72E-06	1.67E-02	NC <sup>3</sup>	5.24E-07	2.96E-02
G_SLV3_050_STREA M_TYP	50	10	0.1	0.015	0.401	Weeds (78)	Loam	1.84E-03	6.81E-05	NC <sup>3</sup>	4.72E-06	1.68E-02	NC <sup>3</sup>	5.24E-07	2.96E-02
G_STV1_050_STREA M_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Silt Loam	1.83E-03	6.04E-05	NC <sup>3</sup>	4.69E-06	1.66E-02	NC <sup>3</sup>	4.65E-07	2.63E-02
G_STV2_050_STREA M_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Silt	1.97E-03	6.04E-05	NC <sup>3</sup>	5.05E-06	1.79E-02	NC <sup>3</sup>	4.65E-07	2.63E-02
G_STV3_050_STREA M_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Clay Loam	2.07E-03	5.52E-05	NC <sup>3</sup>	5.30E-06	1.88E-02	NC <sup>3</sup>	4.25E-07	2.40E-02
G_VGV1_050_STRE AM_TYP	50	10	0.05	0.015	0.401	Shrubs (79)	Loam	1.84E-03	6.81E-05	NC <sup>3</sup>	4.72E-06	1.67E-02	NC <sup>3</sup>	5.24E-07	2.96E-02
G_VGV2_050_STRE AM_TYP	50	10	0.05	0.015	0.401	Rye Grass (54)	Loam	1.84E-03	6.81E-05	NC <sup>3</sup>	4.72E-06	1.67E-02	NC <sup>3</sup>	5.24E-07	2.96E-02
G_VGV3_050_STRE AM_TYP	50	10	0.05	0.015	0.401	Conifer + Hardwood (71)	Loam	1.80E-03	7.21E-05	NC <sup>3</sup>	4.62E-06	1.64E-02	NC <sup>3</sup>	5.54E-07	3.13E-02
MAXIMUM APPLICATION RATE															
G_BASE_SAND_005 _STREAM_MAX	5	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	NC <sup>3</sup>	0.00E+00	0.00E+00	NC <sup>3</sup>	0.00E+00	0.00E+00
G_BASE_CLAY_005 _STREAM_MAX	5	10	0.05	0.015	0.401	Weeds (78)	Clay	0.00E+00	0.00E+00	NC <sup>3</sup>	0.00E+00	0.00E+00	NC <sup>3</sup>	0.00E+00	0.00E+00
G_BASE_LOAM_005 _STREAM_MAX	5	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	NC <sup>3</sup>	0.00E+00	0.00E+00	NC <sup>3</sup>	0.00E+00	0.00E+00
G_BASE_SAND_010 _STREAM_MAX	10	10	0.05	0.015	0.401	Weeds (78)	Sand	6.40E-04	9.45E-06	NC <sup>3</sup>	1.64E-06	5.82E-03	NC <sup>3</sup>	7.27E-08	4.11E-03
G_BASE_CLAY_010 _STREAM_MAX	10	10	0.05	0.015	0.401	Weeds (78)	Clay	1.71E-06	1.49E-08	NC <sup>3</sup>	4.38E-09	1.55E-05	NC <sup>3</sup>	1.15E-10	6.48E-06
G_BASE_LOAM_010 _STREAM_MAX	10	10	0.05	0.015	0.401	Weeds (78)	Loam	6.22E-06	1.67E-07	NC <sup>3</sup>	1.59E-08	5.65E-05	NC <sup>3</sup>	1.29E-09	7.28E-05
G_BASE_SAND_025 _STREAM_MAX	25	10	0.05	0.015	0.401	Weeds (78)	Sand	4.92E-03	1.13E-04	NC <sup>3</sup>	1.26E-05	4.47E-02	NC <sup>3</sup>	8.67E-07	4.90E-02
G_BASE_CLAY_025 _STREAM_MAX	25	10	0.05	0.015	0.401	Weeds (78)	Clay	6.41E-04	1.71E-05	NC <sup>3</sup>	1.64E-06	5.83E-03	NC <sup>3</sup>	1.31E-07	7.42E-03

**TABLE B-17 (Cont.)**  
**Potential Risks to Aquatic Species from Surface Runoff to Stream**

SURFACE RUNOFF - modeled in GLEAMS MAXIMUM APPLICATION RATE															
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>2</sup> Soil Erodibility Factor (ton/ac/EI)	Vegetation Type	Soil Type	Stream Concentrations (mg/L)		Risk Quotients - Acute			Risk Quotients - Chronic		
								Acute Exposure Scenarios	Chronic Exposure Scenarios	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
G_BASE_LOAM_02	25	10	0.05	0.015	0.401	Weeds (78)	Loam	1.82E-03	5.55E-05	NC <sup>3</sup>	4.66E-06	1.65E-02	NC <sup>3</sup>	4.27E-07	2.41E-02
5_STREAM_MAX															
G_BASE_SAND_050	50	10	0.05	0.015	0.401	Weeds (78)	Sand	5.83E-03	1.44E-04	NC <sup>3</sup>	1.49E-05	5.30E-02	NC <sup>3</sup>	1.11E-06	6.28E-02
_STREAM_MAX															
G_BASE_CLAY_050	50	10	0.05	0.015	0.401	Weeds (78)	Clay	3.60E-03	9.48E-05	NC <sup>3</sup>	9.24E-06	3.28E-02	NC <sup>3</sup>	7.29E-07	4.12E-02
_STREAM_MAX															
G_BASE_LOAM_05	50	10	0.05	0.015	0.401	Weeds (78)	Loam	3.07E-03	1.14E-04	NC <sup>3</sup>	7.88E-06	2.79E-02	NC <sup>3</sup>	8.73E-07	4.94E-02
0_STREAM_MAX															
G_BASE_SAND_100	100	10	0.05	0.015	0.401	Weeds (78)	Sand	9.59E-03	2.16E-04	NC <sup>3</sup>	2.46E-05	8.72E-02	NC <sup>3</sup>	1.66E-06	9.39E-02
_STREAM_MAX															
G_BASE_CLAY_100	100	10	0.05	0.015	0.401	Weeds (78)	Clay	8.34E-03	1.80E-04	NC <sup>3</sup>	2.14E-05	7.58E-02	NC <sup>3</sup>	1.38E-06	7.81E-02
_STREAM_MAX															
G_BASE_LOAM_10	100	10	0.05	0.015	0.401	Weeds (78)	Loam	4.27E-03	1.39E-04	NC <sup>3</sup>	1.10E-05	3.88E-02	NC <sup>3</sup>	1.07E-06	6.06E-02
0_STREAM_MAX															
G_BASE_SAND_150	150	10	0.05	0.015	0.401	Weeds (78)	Sand	1.25E-02	2.81E-04	NC <sup>3</sup>	3.21E-05	1.14E-01	NC <sup>3</sup>	2.16E-06	1.22E-01
_STREAM_MAX															
G_BASE_CLAY_150	150	10	0.05	0.015	0.401	Weeds (78)	Clay	8.39E-03	1.98E-04	NC <sup>3</sup>	2.15E-05	7.63E-02	NC <sup>3</sup>	1.53E-06	8.62E-02
_STREAM_MAX															
G_BASE_LOAM_15	150	10	0.05	0.015	0.401	Weeds (78)	Loam	4.51E-03	1.45E-04	NC <sup>3</sup>	1.16E-05	4.10E-02	NC <sup>3</sup>	1.11E-06	6.29E-02
0_STREAM_MAX															
G_BASE_SAND_200	200	10	0.05	0.015	0.401	Weeds (78)	Sand	1.41E-02	3.22E-04	NC <sup>3</sup>	3.60E-05	1.28E-01	NC <sup>3</sup>	2.48E-06	1.40E-01
_STREAM_MAX															
G_BASE_CLAY_200	200	10	0.05	0.015	0.401	Weeds (78)	Clay	7.29E-03	2.01E-04	NC <sup>3</sup>	1.87E-05	6.63E-02	NC <sup>3</sup>	1.55E-06	8.75E-02
_STREAM_MAX															
G_BASE_LOAM_20	200	10	0.05	0.015	0.401	Weeds (78)	Loam	5.47E-03	1.45E-04	NC <sup>3</sup>	1.40E-05	4.97E-02	NC <sup>3</sup>	1.11E-06	6.29E-02
0_STREAM_MAX															
G_BASE_SAND_250	250	10	0.05	0.015	0.401	Weeds (78)	Sand	1.51E-02	3.42E-04	NC <sup>3</sup>	3.87E-05	1.37E-01	NC <sup>3</sup>	2.63E-06	1.49E-01
_STREAM_MAX															
G_BASE_CLAY_250	250	10	0.05	0.015	0.401	Weeds (78)	Clay	6.48E-03	2.05E-04	NC <sup>3</sup>	1.66E-05	5.89E-02	NC <sup>3</sup>	1.57E-06	8.89E-02
_STREAM_MAX															
G_BASE_LOAM_25	250	10	0.05	0.015	0.401	Weeds (78)	Loam	5.86E-03	1.42E-04	NC <sup>3</sup>	1.50E-05	5.33E-02	NC <sup>3</sup>	1.09E-06	6.18E-02
0_STREAM_MAX															
G_ARV1_050_STRE	50	1	0.05	0.015	0.401	Weeds (78)	Loam	4.27E-04	1.33E-05	NC <sup>3</sup>	1.09E-06	3.88E-03	NC <sup>3</sup>	1.02E-07	5.78E-03
AM_MAX															
G_ARV2_050_STRE	50	100	0.05	0.015	0.401	Weeds (78)	Loam	1.14E-02	6.15E-04	NC <sup>3</sup>	2.91E-05	1.03E-01	NC <sup>3</sup>	4.73E-06	2.67E-01
AM_MAX															

TABLE B-17 (Cont.)

## Potential Risks to Aquatic Species from Surface Runoff to Stream

SURFACE RUNOFF - modeled in GLEAMS MAXIMUM APPLICATION RATE															
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>2</sup> Soil Erodibility Factor (ton/ac/EI)	Vegetation Type	Soil Type	Stream Concentrations (mg/L)		Risk Quotients - Acute			Risk Quotients - Chronic		
								Acute Exposure Scenarios	Chronic Exposure Scenarios	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
G_ARV3_050_STRE_AM_MAX	50	1,000	0.05	0.015	0.401	Weeds (78)	Loam	2.31E-02	1.68E-03	NC <sup>3</sup>	5.92E-05	2.10E-01	NC <sup>3</sup>	1.30E-05	7.33E-01
G_ERV1_050_STRE_AM_MAX	50	10	0.05	0.015	0.05	Weeds (78)	Loam	3.07E-03	1.14E-04	NC <sup>3</sup>	7.87E-06	2.79E-02	NC <sup>3</sup>	8.73E-07	4.94E-02
G_ERV2_050_STRE_AM_MAX	50	10	0.05	0.015	0.2	Weeds (78)	Loam	3.07E-03	1.14E-04	NC <sup>3</sup>	7.87E-06	2.79E-02	NC <sup>3</sup>	8.73E-07	4.94E-02
G_ERV3_050_STRE_AM_MAX	50	10	0.05	0.015	0.5	Weeds (78)	Loam	3.07E-03	1.14E-04	NC <sup>3</sup>	7.88E-06	2.79E-02	NC <sup>3</sup>	8.73E-07	4.94E-02
G_RGV1_050_STRE_AM_MAX	50	10	0.05	0.023	0.401	Weeds (78)	Loam	3.07E-03	1.14E-04	NC <sup>3</sup>	7.87E-06	2.79E-02	NC <sup>3</sup>	8.73E-07	4.94E-02
G_RGV2_050_STRE_AM_MAX	50	10	0.05	0.046	0.401	Weeds (78)	Loam	3.07E-03	1.14E-04	NC <sup>3</sup>	7.87E-06	2.79E-02	NC <sup>3</sup>	8.73E-07	4.94E-02
G_RGV3_050_STRE_AM_MAX	50	10	0.05	0.15	0.401	Weeds (78)	Loam	3.07E-03	1.14E-04	NC <sup>3</sup>	7.87E-06	2.79E-02	NC <sup>3</sup>	8.73E-07	4.94E-02
G_SLV1_050_STRE_AM_MAX	50	10	0.005	0.015	0.401	Weeds (78)	Loam	3.07E-03	1.14E-04	NC <sup>3</sup>	7.87E-06	2.79E-02	NC <sup>3</sup>	8.73E-07	4.94E-02
G_SLV2_050_STRE_AM_MAX	50	10	0.01	0.015	0.401	Weeds (78)	Loam	3.07E-03	1.14E-04	NC <sup>3</sup>	7.87E-06	2.79E-02	NC <sup>3</sup>	8.73E-07	4.94E-02
G_SLV3_050_STRE_AM_MAX	50	10	0.1	0.015	0.401	Weeds (78)	Loam	3.07E-03	1.14E-04	NC <sup>3</sup>	7.87E-06	2.79E-02	NC <sup>3</sup>	8.73E-07	4.94E-02
G_STV1_050_STRE_AM_MAX	50	10	0.05	0.015	0.401	Weeds (78)	Silt Loam	3.05E-03	1.01E-04	NC <sup>3</sup>	7.81E-06	2.77E-02	NC <sup>3</sup>	7.75E-07	4.38E-02
G_STV2_050_STRE_AM_MAX	50	10	0.05	0.015	0.401	Weeds (78)	Silt	3.28E-03	1.01E-04	NC <sup>3</sup>	8.42E-06	2.98E-02	NC <sup>3</sup>	7.75E-07	4.38E-02
G_STV3_050_STRE_AM_MAX	50	10	0.05	0.015	0.401	Weeds (78)	Clay Loam	3.44E-03	9.21E-05	NC <sup>3</sup>	8.83E-06	3.13E-02	NC <sup>3</sup>	7.08E-07	4.00E-02
G_VGV1_050_STRE_AM_MAX	50	10	0.05	0.015	0.401	Shrubs(79)	Loam	3.07E-03	1.14E-04	NC <sup>3</sup>	7.87E-06	2.79E-02	NC <sup>3</sup>	8.73E-07	4.94E-02
G_VGV2_050_STRE_AM_MAX	50	10	0.05	0.015	0.401	Rye Grass(54)	Loam	3.07E-03	1.14E-04	NC <sup>3</sup>	7.87E-06	2.79E-02	NC <sup>3</sup>	8.73E-07	4.94E-02
G_VGV3_050_STRE_AM_MAX	50	10	0.05	0.015	0.401	Conifer + Hardwood (71)	Loam	3.00E-03	1.20E-04	NC <sup>3</sup>	7.70E-06	2.73E-02	NC <sup>3</sup>	9.24E-07	5.22E-02

<sup>1</sup>RQ = Risk Quotient = Estimated Dose/Toxicity Reference Value.<sup>2</sup>USLE = Universal Soil Loss Equation, which predicts soil loss as a function of soil erodibility, topography, rainfall/runoff, cover, and support management factors.<sup>3</sup>NC = Not calculated. No Overdrive TRV available. See dicamba and diflufenzoxyr worksheets. RQ derived using sum of RQs derived using dicamba and diflufenzoxyr EECs and TRVs.

**TABLE B-18**  
**Potential Risks to Non-Target Terrestrial Plants from Surface Runoff**

GLEAMS ID	SURFACE RUNOFF - modeled in GLEAMS TYPICAL APPLICATION RATE										Rare, Threatened, and Endangered Species RQ <sup>2</sup>
	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>1</sup> Soil Erodibility Factor (ton/ ac per EI)	Vegetation Type	Soil Type	Terrestrial Concentration (lb/acre)	Typical Species RQ <sup>2</sup>		
G_BASE_SAND_005_TERR_TYP	5	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00	
G_BASE_CLAY_005_TERR_TYP	5	10	0.05	0.015	0.401	Weeds (78)	Clay	0.00E+00	0.00E+00	0.00E+00	
G_BASE_LOAM_005_TERR_TYP	5	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00	
G_BASE_SAND_010_TERR_TYP	10	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00	
G_BASE_CLAY_010_TERR_TYP	10	10	0.05	0.015	0.401	Weeds (78)	Clay	1.03E-06	2.25E-05	6.47E-04	
G_BASE_LOAM_010_TERR_TYP	10	10	0.05	0.015	0.401	Weeds (78)	Loam	7.70E-10	1.67E-08	4.81E-07	
G_BASE_SAND_025_TERR_TYP	25	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00	
G_BASE_CLAY_025_TERR_TYP	25	10	0.05	0.015	0.401	Weeds (78)	Clay	3.32E-04	7.22E-03	2.08E-01	
G_BASE_LOAM_025_TERR_TYP	25	10	0.05	0.015	0.401	Weeds (78)	Loam	1.47E-09	3.20E-08	9.20E-07	
G_BASE_SAND_050_TERR_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00	
G_BASE_CLAY_050_TERR_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Clay	2.13E-03	4.62E-02	1.33E+00	
G_BASE_LOAM_050_TERR_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Loam	1.03E-04	2.24E-03	6.44E-02	
G_BASE_SAND_100_TERR_TYP	100	10	0.05	0.015	0.401	Weeds (78)	Sand	6.69E-11	1.45E-09	4.18E-08	
G_BASE_CLAY_100_TERR_TYP	100	10	0.05	0.015	0.401	Weeds (78)	Clay	6.30E-03	1.37E-01	3.94E+00	
G_BASE_LOAM_100_TERR_TYP	100	10	0.05	0.015	0.401	Weeds (78)	Loam	1.86E-04	4.04E-03	1.16E-01	
G_BASE_SAND_150_TERR_TYP	150	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00	
G_BASE_CLAY_150_TERR_TYP	150	10	0.05	0.015	0.401	Weeds (78)	Clay	7.58E-03	1.65E-01	4.74E+00	
G_BASE_LOAM_150_TERR_TYP	150	10	0.05	0.015	0.401	Weeds (78)	Loam	2.09E-04	4.55E-03	1.31E-01	
G_BASE_SAND_200_TERR_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00	
G_BASE_CLAY_200_TERR_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Clay	7.56E-03	1.64E-01	4.72E+00	
G_BASE_LOAM_200_TERR_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Loam	1.65E-04	3.59E-03	1.03E-01	
G_BASE_SAND_250_TERR_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00	
G_BASE_CLAY_250_TERR_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Clay	7.33E-03	1.59E-01	4.58E+00	

TABLE B-18 (Cont.)

## Potential Risks to Non-Target Terrestrial Plants from Surface Runoff

GLEAMS ID	SURFACE RUNOFF - modeled in GLEAMS TYPICAL APPLICATION RATE										Rare, Threatened, and Endangered Species RQ <sup>2</sup>
	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>1</sup> Soil Erodibility Factor (ton/ ac per EI)	Vegetation Type	Soil Type	Terrestrial Concentration (lb/acre)	Typical Species RQ <sup>2</sup>		
G_BASE_LOAM_250_TERR_TY	250	10	0.05	0.015	0.401	Weeds (78)	Loam	1.18E-04	2.56E-03	7.37E-02	
G_ARV1_050_TERR_TYP	50	1	0.05	0.015	0.401	Weeds (78)	Loam	1.01E-04	2.19E-03	6.30E-02	
G_ARV2_050_TERR_TYP	50	100	0.05	0.015	0.401	Weeds (78)	Loam	1.01E-04	2.19E-03	6.30E-02	
G_ARV3_050_TERR_TYP	50	1,000	0.05	0.015	0.401	Weeds (78)	Loam	1.01E-04	2.19E-03	6.29E-02	
G_ERV1_050_TERR_TYP	50	10	0.05	0.015	0.05	Weeds (78)	Loam	1.00E-04	2.18E-03	6.27E-02	
G_ERV2_050_TERR_TYP	50	10	0.05	0.015	0.2	Weeds (78)	Loam	1.01E-04	2.20E-03	6.32E-02	
G_ERV3_050_TERR_TYP	50	10	0.05	0.015	0.5	Weeds (78)	Loam	1.03E-04	2.23E-03	6.41E-02	
G_RGV1_050_TERR_TYP	50	10	0.05	0.023	0.401	Weeds (78)	Loam	1.01E-04	2.19E-03	6.30E-02	
G_RGV2_050_TERR_TYP	50	10	0.05	0.046	0.401	Weeds (78)	Loam	1.01E-04	2.19E-03	6.30E-02	
G_RGV3_050_TERR_TYP	50	10	0.05	0.15	0.401	Weeds (78)	Loam	1.00E-04	2.18E-03	6.27E-02	
G_SLV1_050_TERR_TYP	50	10	0.005	0.015	0.401	Weeds (78)	Loam	1.00E-04	2.18E-03	6.27E-02	
G_SLV2_050_TERR_TYP	50	10	0.01	0.015	0.401	Weeds (78)	Loam	1.00E-04	2.18E-03	6.27E-02	
G_SLV3_050_TERR_TYP	50	10	0.1	0.015	0.401	Weeds (78)	Loam	1.02E-04	2.22E-03	6.37E-02	
G_STV1_050_TERR_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Silt Loam	9.10E-04	1.98E-02	5.69E-01	
G_STV2_050_TERR_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Silt Clay	8.26E-04	1.80E-02	5.16E-01	
G_STV3_050_TERR_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Loam	1.86E-03	4.05E-02	1.16E+00	
G_VGV1_050_TERR_TYP	50	10	0.05	0.015	0.401	Shrubs (79)	Loam	1.01E-04	2.19E-03	6.30E-02	
G_VGV2_050_TERR_TYP	50	10	0.05	0.015	0.401	Rye Grass (54) Conifer + Hardwood (71)	Loam	1.01E-04	2.19E-03	6.30E-02	
G_VGV3_050_TERR_TYP	50	10	0.05	0.015	0.401			1.33E-04	2.89E-03	8.30E-02	
MAXIMUM APPLICATION RATE											
G_BASE_SAND_005_TERR_max	5	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00	
G_BASE_CLAY_005_TERR_max	5	10	0.05	0.015	0.401	Weeds (78)	Clay	0.00E+00	0.00E+00	0.00E+00	

**TABLE B-18 (Cont.)**

**Potential Risks to Non-Target Terrestrial Plants from Surface Runoff**

GLEAMS ID	SURFACE RUNOFF - modeled in GLEAMS MAXIMUM APPLICATION RATE									
	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>1</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Terrestrial Concentration (lb/acre)	Typical Species RQ <sup>2</sup>	Rare, Threatened, and Endangered Species RQ <sup>2</sup>
G_BASE_LOAM_005_TERR_max	5	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_010_TERR_max	10	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_010_TERR_max	10	10	0.05	0.015	0.401	Weeds (78)	Clay	1.72E-06	3.75E-05	1.08E-03
G_BASE_LOAM_010_TERR_max	10	10	0.05	0.015	0.401	Weeds (78)	Loam	1.28E-09	2.79E-08	8.02E-07
G_BASE_SAND_025_TERR_max	25	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_025_TERR_max	25	10	0.05	0.015	0.401	Weeds (78)	Clay	5.54E-04	1.20E-02	3.46E-01
G_BASE_LOAM_025_TERR_max	25	10	0.05	0.015	0.401	Weeds (78)	Loam	2.45E-09	5.33E-08	1.53E-06
G_BASE_SAND_050_TERR_max	50	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_050_TERR_max	50	10	0.05	0.015	0.401	Weeds (78)	Clay	3.54E-03	7.70E-02	2.21E+00
G_BASE_LOAM_050_TERR_max	50	10	0.05	0.015	0.401	Weeds (78)	Loam	1.72E-04	3.73E-03	1.07E-01
G_BASE_SAND_100_TERR_max	100	10	0.05	0.015	0.401	Weeds (78)	Sand	1.12E-10	2.42E-09	6.97E-08
G_BASE_CLAY_100_TERR_max	100	10	0.05	0.015	0.401	Weeds (78)	Clay	1.05E-02	2.28E-01	6.56E+00
G_BASE_LOAM_100_TERR_max	100	10	0.05	0.015	0.401	Weeds (78)	Loam	3.10E-04	6.74E-03	1.94E-01
G_BASE_SAND_150_TERR_max	150	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_150_TERR_max	150	10	0.05	0.015	0.401	Weeds (78)	Clay	1.26E-02	2.75E-01	7.90E+00
G_BASE_LOAM_150_TERR_max	150	10	0.05	0.015	0.401	Weeds (78)	Loam	3.49E-04	7.58E-03	2.18E-01
G_BASE_SAND_200_TERR_max	200	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_200_TERR_max	200	10	0.05	0.015	0.401	Weeds (78)	Clay	1.26E-02	2.74E-01	7.87E+00
G_BASE_LOAM_200_TERR_max	200	10	0.05	0.015	0.401	Weeds (78)	Loam	2.75E-04	5.98E-03	1.72E-01
G_BASE_SAND_250_TERR_max	250	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_250_TERR_max	250	10	0.05	0.015	0.401	Weeds (78)	Clay	1.22E-02	2.66E-01	7.64E+00
G_BASE_LOAM_250_TERR_max	250	10	0.05	0.015	0.401	Weeds (78)	Loam	1.97E-04	4.27E-03	1.23E-01
G_ARV1_050_TERR_max	50	1	0.05	0.015	0.401	Weeds (78)	Loam	1.68E-04	3.65E-03	1.05E-01

TABLE B-18 (Cont.)

## Potential Risks to Non-Target Terrestrial Plants from Surface Runoff

SURFACE RUNOFF - modeled in GLEAMS MAXIMUM APPLICATION RATE										
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>1</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Terrestrial Concentration (lb/acre)	Typical Species RQ <sup>2</sup>	Rare, Threatened, and Endangered Species RQ <sup>2</sup>
G_ARV2_050_TERR_max	50	100	0.05	0.015	0.401	Weeds (78)	Loam	1.68E-04	3.65E-03	1.05E-01
G_ARV3_050_TERR_max	50	1,000	0.05	0.015	0.401	Weeds (78)	Loam	1.68E-04	3.65E-03	1.05E-01
G_ERV1_050_TERR_max	50	10	0.05	0.015	0.05	Weeds (78)	Loam	1.67E-04	3.64E-03	1.05E-01
G_ERV2_050_TERR_max	50	10	0.05	0.015	0.2	Weeds (78)	Loam	1.69E-04	3.66E-03	1.05E-01
G_ERV3_050_TERR_max	50	10	0.05	0.015	0.5	Weeds (78)	Loam	1.71E-04	3.71E-03	1.07E-01
G_RGV1_050_TERR_max	50	10	0.05	0.023	0.401	Weeds (78)	Loam	1.68E-04	3.65E-03	1.05E-01
G_RGV2_050_TERR_max	50	10	0.05	0.046	0.401	Weeds (78)	Loam	1.68E-04	3.65E-03	1.05E-01
G_RGV3_050_TERR_max	50	10	0.05	0.15	0.401	Weeds (78)	Loam	1.67E-04	3.63E-03	1.04E-01
G_SLV1_050_TERR_max	50	10	0.005	0.015	0.401	Weeds (78)	Loam	1.67E-04	3.63E-03	1.04E-01
G_SLV2_050_TERR_max	50	10	0.01	0.015	0.401	Weeds (78)	Loam	1.67E-04	3.64E-03	1.05E-01
G_SLV3_050_TERR_max	50	10	0.1	0.015	0.401	Weeds (78)	Loam	1.70E-04	3.69E-03	1.06E-01
G_STV1_050_TERR_max	50	10	0.05	0.015	0.401	Weeds (78)	Silt Loam	1.52E-03	3.30E-02	9.48E-01
G_STV2_050_TERR_max	50	10	0.05	0.015	0.401	Weeds (78)	Silt	1.38E-03	2.99E-02	8.60E-01
G_STV3_050_TERR_max	50	10	0.05	0.015	0.401	Weeds (78)	Clay Loam	3.11E-03	6.75E-02	1.94E+00
G_VGV1_050_TERR_max	50	10	0.05	0.015	0.401	Shrubs (79)	Loam	1.68E-04	3.65E-03	1.05E-01
G_VGV2_050_TERR_max	50	10	0.05	0.015	0.401	Rye Grass (54) Conifer + Hardwood (71)	Loam	1.68E-04	3.65E-03	1.05E-01
G_VGV3_050_TERR_max	50	10	0.05	0.015	0.401			2.21E-04	4.81E-03	1.38E-01

<sup>1</sup>USLE = Universal Soil Loss Equation, which predicts soil loss as a function of soil erodibility, topography, rainfall/runoff, cover, and support management factors.<sup>2</sup>RQ = Risk Quotient = Estimated Dose/Toxicity Reference Value.

**TABLE B-19**

**Potential Risk to Predatory Bird (Bald Eagle) from Long-term Consumption of Contaminated Fish from Pond  
(Pond Impacted by Surface Runoff Modeled in GLEAMS)**

Parameters/ Assumptions	Value	Units
<b>Body weight (BW)</b>	5.15	kg
<b>Food ingestion rate (dry weight [dw])<sup>1</sup></b>	0.1018	kg dw/day
<b>Food ingestion rate (wet weight [ww]) (ir)<sup>2</sup></b>	0.4071	kg ww/day
<b>Bioconcentration factor (BCF)</b>	No value available	L/kg fish
<b>Proportion of diet contaminated (PC)</b>	1	unitless
<b>Toxicity reference value (TRV)<sup>3</sup></b>	No value available	mg/kg-bw/day

TYPICAL APPLICATION RATE											
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>4</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentration (C <sub>pond</sub> mg/L)	Concentrations in fish (C <sub>Fish</sub> ): C <sub>pond</sub> × BCF	Dose estimates (D): (C <sub>Fish</sub> × ir × PC) / BW	Risk Quotient <sup>5</sup>
G_BASE_SAND_005_POND_TYP	5	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_BASE_CLAY_005_POND_TYP	5	10	0.05	0.015	0.401	Weeds (78)	Clay	0.00E+00	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_BASE_LOAM_005_POND_TYP	5	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_BASE_SAND_010_POND_TYP	10	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_BASE_CLAY_010_POND_TYP	10	10	0.05	0.015	0.401	Weeds (78)	Clay	3.10E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_BASE_LOAM_010_POND_TYP	10	10	0.05	0.015	0.401	Weeds (78)	Loam	2.22E-06	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_BASE_SAND_025_POND_TYP	25	10	0.05	0.015	0.401	Weeds (78)	Sand	6.66E-05	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_BASE_CLAY_025_POND_TYP	25	10	0.05	0.015	0.401	Weeds (78)	Clay	8.59E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>

TABLE B-19 (Cont.)

**Potential Risk to Predatory Bird (Bald Eagle) from Long-term Consumption of Contaminated Fish from Pond  
(Pond Impacted by Surface Runoff Modeled in GLEAMS)**

GLEAMS ID	TYPICAL APPLICATION RATE										Dose estimates (D): ( $C_{\text{Fish}} \times ir \times PC$ ) / BW	Risk Quotient <sup>5</sup>
	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>4</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentration ( $C_{\text{pond}}$ mg/L)	Concentrations in fish ( $C_{\text{fish}}$ ): $C_{\text{pond}} \times BCF$			
G_BASE_LOAM_025_PO ND_TYP	25	10	0.05	0.015	0.401	Weeds (78)	Loam	7.00E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>	
G_BASE_SAND_050_PO ND_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Sand	5.54E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>	
G_BASE_CLAY_050_PO ND_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Clay	5.60E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>	
G_BASE_LOAM_050_PO ND_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Loam	4.19E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>	
G_BASE_SAND_100_PO ND_TYP	100	10	0.05	0.015	0.401	Weeds (78)	Sand	5.44E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>	
G_BASE_CLAY_100_PO ND_TYP	100	10	0.05	0.015	0.401	Weeds (78)	Clay	4.25E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>	
G_BASE_LOAM_100_PO ND_TYP	100	10	0.05	0.015	0.401	Weeds (78)	Loam	3.12E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>	
G_BASE_SAND_150_PO ND_TYP	150	10	0.05	0.015	0.401	Weeds (78)	Sand	5.01E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>	
G_BASE_CLAY_150_PO ND_TYP	150	10	0.05	0.015	0.401	Weeds (78)	Clay	3.60E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>	
G_BASE_LOAM_150_PO ND_TYP	150	10	0.05	0.015	0.401	Weeds (78)	Loam	2.43E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>	
G_BASE_SAND_200_PO ND_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Sand	4.48E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>	
G_BASE_CLAY_200_PO ND_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Clay	3.31E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>	
G_BASE_LOAM_200_PO ND_TYP	200	10	0.05	0.015	0.401	Weeds (78)	Loam	1.91E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>	
G_BASE_SAND_250_PO ND_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Sand	4.02E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>	
G_BASE_CLAY_250_PO ND_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Clay	3.16E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>	
G_BASE_LOAM_250_PO ND_TYP	250	10	0.05	0.015	0.401	Weeds (78)	Loam	1.59E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>	

**TABLE B-19 (Cont.)**
**Potential Risk to Predatory Bird (Bald Eagle) from Long-term Consumption of Contaminated Fish from Pond  
(Pond Impacted by Surface Runoff Modeled in GLEAMS)**

TYPICAL APPLICATION RATE											
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>4</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentration (C <sub>pond</sub> mg/L)	Concentrations in fish (C <sub>Fish</sub> ): C <sub>pond</sub> × BCF	Dose estimates (D): (C <sub>Fish</sub> × ir × PC) / BW	Risk Quotient <sup>5</sup>
G_ARV1_050_POND_TYP	50	1	0.05	0.015	0.401	Weeds (78)	Loam	2.73E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_ARV2_050_POND_TYP	50	100	0.05	0.015	0.401	Weeds (78)	Loam	4.68E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_ARV3_050_POND_TYP	50	1,000	0.05	0.015	0.401	Weeds (78)	Loam	4.74E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_ERV1_050_POND_TYP	50	10	0.05	0.015	0.05	Weeds (78)	Loam	4.19E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_ERV2_050_POND_TYP	50	10	0.05	0.015	0.2	Weeds (78)	Loam	4.19E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_ERV3_050_POND_TYP	50	10	0.05	0.015	0.5	Weeds (78)	Loam	4.19E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_RGV1_050_POND_TYP	50	10	0.05	0.023	0.401	Weeds (78)	Loam	4.19E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_RGV2_050_POND_TYP	50	10	0.05	0.046	0.401	Weeds (78)	Loam	4.19E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_RGV3_050_POND_TYP	50	10	0.05	0.15	0.401	Weeds (78)	Loam	4.19E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_SLV1_050_POND_TYP	50	10	0.005	0.015	0.401	Weeds (78)	Loam	4.19E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_SLV2_050_POND_TYP	50	10	0.01	0.015	0.401	Weeds (78)	Loam	4.19E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_SLV3_050_POND_TYP	50	10	0.1	0.015	0.401	Weeds (78)	Loam	4.19E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_STV1_050_POND_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Silt Loam	4.62E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_STV2_050_POND_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Silt	4.09E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_STV3_050_POND_TYP	50	10	0.05	0.015	0.401	Weeds (78)	Clay Loam	4.81E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_VGV1_050_POND_TYP	50	10	0.05	0.015	0.401	Shrubs (79)	Loam	4.19E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>

TABLE B-19 (Cont.)

**Potential Risk to Predatory Bird (Bald Eagle) from Long-term Consumption of Contaminated Fish from Pond  
(Pond Impacted by Surface Runoff Modeled in GLEAMS)**

TYPICAL APPLICATION RATE											
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>4</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentration (C <sub>pond</sub> mg/L)	Concentrations in fish (C <sub>Fish</sub> ): C <sub>pond</sub> × BCF	Dose estimates (D): (C <sub>Fish</sub> × ir × PC) / BW	Risk Quotient <sup>5</sup>
G_VGV2_050_POND_TYP	50	10	0.05	0.015	0.401	Rye Grass (54)	Loam	4.19E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_VGV3_050_POND_TYP	50	10	0.05	0.015	0.401	Conifer + Hardwood (71)	Loam	4.06E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
MAXIMUM APPLICATION RATE											
G_BASE_SAND_005_Pond_max	5	10	0.05	0.015	0.401	Weeds (78)	Sand	0.00E+00	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_BASE_CLAY_005_Pond_max	5	10	0.05	0.015	0.401	Weeds (78)	Clay	0.00E+00	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_BASE_LOAM_005_Pond_max	5	10	0.05	0.015	0.401	Weeds (78)	Loam	0.00E+00	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_BASE_SAND_010_Pond_max	10	10	0.05	0.015	0.401	Weeds (78)	Sand	5.17E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_BASE_CLAY_010_Pond_max	10	10	0.05	0.015	0.401	Weeds (78)	Clay	3.69E-06	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_BASE_LOAM_010_Pond_max	10	10	0.05	0.015	0.401	Weeds (78)	Loam	1.11E-04	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_BASE_SAND_025_Pond_max	25	10	0.05	0.015	0.401	Weeds (78)	Sand	1.43E-02	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_BASE_CLAY_025_Pond_max	25	10	0.05	0.015	0.401	Weeds (78)	Clay	3.91E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_BASE_LOAM_025_Pond_max	25	10	0.05	0.015	0.401	Weeds (78)	Loam	1.17E-02	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_BASE_SAND_050_Pond_max	50	10	0.05	0.015	0.401	Weeds (78)	Sand	9.23E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_BASE_CLAY_050_Pond_max	50	10	0.05	0.015	0.401	Weeds (78)	Clay	9.33E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_BASE_LOAM_050_Pond_max	50	10	0.05	0.015	0.401	Weeds (78)	Loam	6.98E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_BASE_SAND_100_Pond_max	100	10	0.05	0.015	0.401	Weeds (78)	Sand	9.07E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>

**TABLE B-19 (Cont.)**
**Potential Risk to Predatory Bird (Bald Eagle) from Long-Term Consumption of Contaminated Fish from Pond  
(Pond Impacted by Surface Runoff Modeled in GLEAMS)**

MAXIMUM APPLICATION RATE											
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>4</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentration (C <sub>pond</sub> mg/L)	Concentrations in fish (C <sub>Fish</sub> ): C <sub>pond</sub> × BCF	Dose estimates (D): (C <sub>Fish</sub> × ir × PC) / BW	Risk Quotient <sup>5</sup>
G_BASE_CLAY_100_Pond_max	100	10	0.05	0.015	0.401	Weeds (78)	Clay	7.08E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_BASE_LOAM_100_Pond_max	100	10	0.05	0.015	0.401	Weeds (78)	Loam	5.20E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_BASE_SAND_150_Pond_max	150	10	0.05	0.015	0.401	Weeds (78)	Sand	8.35E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_BASE_CLAY_150_Pond_max	150	10	0.05	0.015	0.401	Weeds (78)	Clay	6.00E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_BASE_LOAM_150_Pond_max	150	10	0.05	0.015	0.401	Weeds (78)	Loam	4.06E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_BASE_SAND_200_Pond_max	200	10	0.05	0.015	0.401	Weeds (78)	Sand	7.46E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_BASE_CLAY_200_Pond_max	200	10	0.05	0.015	0.401	Weeds (78)	Clay	5.52E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_BASE_LOAM_200_Pond_max	200	10	0.05	0.015	0.401	Weeds (78)	Loam	3.19E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_BASE_SAND_250_Pond_max	250	10	0.05	0.015	0.401	Weeds (78)	Sand	6.71E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_BASE_CLAY_250_Pond_max	250	10	0.05	0.015	0.401	Weeds (78)	Clay	5.26E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_BASE_LOAM_250_Pond_max	250	10	0.05	0.015	0.401	Weeds (78)	Loam	2.65E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_ARV1_050_Pond_max	50	1	0.05	0.015	0.401	Weeds (78)	Loam	4.54E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_ARV2_050_Pond_max	50	100	0.05	0.015	0.401	Weeds (78)	Loam	7.79E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_ARV3_050_Pond_max	50	1,000	0.05	0.015	0.401	Weeds (78)	Loam	7.89E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_ERV1_050_Pond_max	50	10	0.05	0.015	0.05	Weeds (78)	Loam	6.98E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_ERV2_050_Pond_max	50	10	0.05	0.015	0.2	Weeds (78)	Loam	6.98E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>

TABLE B-19 (Cont.)

**Potential Risk to Predatory Bird (Bald Eagle) from Long-term Consumption of Contaminated Fish from Pond  
(Pond Impacted by Surface Runoff Modeled in GLEAMS)**

MAXIMUM APPLICATION RATE											
GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE <sup>4</sup> Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentration (C <sub>pond</sub> mg/L)	Concentrations in fish (C <sub>Fish</sub> ): C <sub>pond</sub> × BCF	Dose estimates (D): (C <sub>Fish</sub> × ir × PC) / BW	Risk Quotient <sup>5</sup>
G_ERV3_050_Pond_max	50	10	0.05	0.015	0.5	Weeds (78)	Loam	6.98E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_RGV1_050_Pond_max	50	10	0.05	0.023	0.401	Weeds (78)	Loam	6.98E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_RGV2_050_Pond_max	50	10	0.05	0.046	0.401	Weeds (78)	Loam	6.98E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_RGV3_050_Pond_max	50	10	0.05	0.15	0.401	Weeds (78)	Loam	6.98E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_SLV1_050_Pond_max	50	10	0.005	0.015	0.401	Weeds (78)	Loam	6.98E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_SLV2_050_Pond_max	50	10	0.01	0.015	0.401	Weeds (78)	Loam	6.98E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_SLV3_050_Pond_max	50	10	0.1	0.015	0.401	Weeds (78)	Loam	6.98E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_STV1_050_Pond_max	50	10	0.05	0.015	0.401	Weeds (78)	Silt Loam	7.70E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_STV2_050_Pond_max	50	10	0.05	0.015	0.401	Weeds (78)	Silt	6.82E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_STV3_050_Pond_max	50	10	0.05	0.015	0.401	Weeds (78)	Clay Loam	8.01E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_VGV1_050_Pond_max	50	10	0.05	0.015	0.401	Shrubs (79)	Loam	6.98E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_VGV2_050_Pond_max	50	10	0.05	0.015	0.401	Rye Grass (54)	Loam	6.98E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>
G_VGV3_050_Pond_max	50	10	0.05	0.015	0.401	Conifer + Hardwood (71)	Loam	6.76E-03	NC <sup>6</sup>	NC <sup>6</sup>	NC <sup>6</sup>

<sup>1</sup>Calculated using algorithm developed by Nagy (1987) for all birds; where food ingestion rate (kg dw/day) = 0.0582×(BW)<sup>0.651</sup>.

<sup>2</sup>Assumes fish are 75% water (USEPA 1993; Table 4-1 - value for bony fishes).

<sup>3</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

<sup>4</sup>USLE = Universal Soil Loss Equation, which predicts soil loss as a function of soil erodibility, topography, rainfall/runoff, cover, and support management factors.

<sup>5</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>6</sup>NC = Not calculated. No Overdrive TRV available. See dicamba and diflufenzoxyr worksheets. RQ derived using sum of RQs derived using dicamba and diflufenzoxyr EECs and TRVs.

**TABLE B-20**
**Potential Risks to Non-Target Terrestrial Plants from Herbicide in Dust Deposited from Wind Erosion**

<b>WIND EROSION - modeled in CALPUFF TYPICAL APPLICATION RATE</b>							
Cal Puff Scenario ID	Watershed Location	Distance from Receptor (km)	Terrestrial Concentration (lb/acre)	Typical Species		Rare, Threatened, and Endangered Species	
				TRV <sup>1</sup>	RQ <sup>2</sup>	TRV <sup>1</sup>	RQ <sup>2</sup>
dust_MT_0.5_typ	MT	0.5	1.41E-06	0.0043	3.28E-04	4.00E-03	8.82E-04
dust_MT_5_typ	MT	5	7.99E-07	0.0043	1.86E-04	4.00E-03	5.00E-04
dust_MT_50_typ	MT	50	9.57E-11	0.0043	2.23E-08	4.00E-03	5.98E-08
dust_OR_0.5_typ	OR	0.5	8.08E-07	0.0043	1.88E-04	4.00E-03	5.05E-04
dust_OR_5_typ	OR	5	3.08E-07	0.0043	7.16E-05	4.00E-03	1.93E-04
dust_OR_50_typ	OR	50	1.08E-10	0.0043	2.52E-08	4.00E-03	6.78E-08
dust_WY_0.5_typ	WY	0.5	1.60E-07	0.0043	3.71E-05	4.00E-03	9.98E-05
dust_WY_5_typ	WY	5	1.10E-07	0.0043	2.56E-05	4.00E-03	6.88E-05
dust_WY_50_typ	WY	50	2.71E-11	0.0043	6.30E-09	4.00E-03	1.69E-08
<b>MAXIMUM APPLICATION RATE</b>							
dust_MT_0.5_max	MT	0.5	2.35E-06	0.0043	5.47E-04	4.00E-03	1.47E-03
dust_MT_5_max	MT	5	1.33E-06	0.0043	3.10E-04	4.00E-03	8.33E-04
dust_MT_50_max	MT	50	1.80E-10	0.0043	4.18E-08	4.00E-03	1.12E-07
dust_OR_0.5_max	OR	0.5	1.35E-06	0.0043	3.13E-04	4.00E-03	8.42E-04
dust_OR_5_max	OR	5	5.13E-07	0.0043	1.19E-04	4.00E-03	3.21E-04
dust_OR_50_max	OR	50	1.81E-10	0.0043	4.20E-08	4.00E-03	1.13E-07
dust_WY_0.5_max	WY	0.5	2.66E-07	0.0043	6.19E-05	4.00E-03	1.66E-04
dust_WY_5_max	WY	5	1.84E-07	0.0043	4.27E-05	4.00E-03	1.15E-04
dust_WY_50_max	WY	50	4.51E-11	0.0043	1.05E-08	4.00E-03	2.82E-08

<sup>1</sup>Toxicity Reference Value (TRV) - TRVs relate the dose of a compound with a potentially adverse effect. TRVs were selected during a review of the ecotoxicological literature.

<sup>2</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

**TABLE B-21**  
**Potential Risks to Aquatic Species from Accidental Spill to Pond (Acute Exposure)**

Parameters/Assumptions	Value	Units			
<b>Volume of pond (Vp)</b>	1,011,715	L			
<b>Volume of spill (Vspill) - Truck (Vspill<sub>t</sub>)</b>	757	L			
<b>Herbicide concentration in mixture (Cm)<sup>1</sup> - Truck mixture (Cm<sub>t</sub>)</b>	2,097.19	mg/L			
<b>Risk Quotients<sup>2</sup></b>					
Scenario	Concentrations in water (Cw): Cm × Vspill / Vp	Units	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
Truck spill into pond	1.57	mg/L	NC <sup>3</sup>	4.02E-03	1.43E+01

<sup>1</sup>Based on herbicide mixed for the maximum application rate, where truck spray rate is 25 gallons per acre.

Cm = [application rate x (1/spray rate)] converted from lb/gallon to mg/L.

<sup>2</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.

<sup>3</sup> NC = Not calculated. No Overdrive TRV available. See dicamba and diflufenzoxyr worksheets. RQ derived using sum of RQs derived using dicamba and diflufenzoxyr EECs and TRVs.

**TABLE B-22**  
**Potential Risks to Aquatic Species from Accidental Direct Spray of Pond  
and Stream (Acute Exposure)**

Parameters/Assumptions	Rate	Value	Units
<b>Pond</b>			
<b>Application rates (R)</b>	Typical	0.2625	lb/acre
	Maximum	0.4375	lb/acre
<b>Area of pond (Area)</b>		0.25	acre
<b>Volume of pond (Vol)</b>		1,011,715	L
<b>Mass sprayed on pond (R x Area)</b>	Typical	29,767.0	mg
	Maximum	49,611.6	mg
<b>Concentration in pond water (Mass/Volume)</b>	Typical	0.0294	mg/L
	Maximum	0.0490	mg/L
<b>Stream</b>			
<b>Width of stream</b>		2	m
<b>Length of stream impacted by direct spray</b>		636.15	m
<b>Area of stream impacted by spray (Area)</b>		1,272.3	m <sup>2</sup>
<b>Depth of stream</b>		0.2	m
<b>Instantaneous volume of stream impacted by direct spray (Vol)</b>		254,460	L
<b>Mass sprayed on stream (R x Area)</b>	Typical	0.0825	lb
	Maximum	0.1375	lb
<b>Mass sprayed on stream - converted to mg</b>	Typical	37,434.4	mg
	Maximum	62,390.6	mg
<b>Concentration in stream water (Mass/Vol)</b>	Typical	0.1471	mg/L
	Maximum	0.2451	mg/L

Scenario	Application Rate	Concentration in water (mg/L)	Risk Quotients <sup>1</sup>		
			Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
<b>Acute</b>					
Direct spray to pond	Typical application	2.94E-02	NC <sup>2</sup>	7.54E-05	2.67E-01
	Maximum application	4.90E-02	NC <sup>2</sup>	1.26E-04	4.46E-01
Direct spray to stream	Typical application	1.47E-01	NC <sup>2</sup>	3.77E-04	1.34E+00
	Maximum application	2.45E-01	NC <sup>2</sup>	6.29E-04	2.23E+00
<b>Chronic</b>					
Direct spray to pond	Typical application	2.94E-02	NC <sup>2</sup>	2.26E-04	1.28E+01
	Maximum application	4.90E-02	NC <sup>2</sup>	3.77E-04	2.13E+01
Direct spray to stream	Typical application	1.47E-01	NC <sup>2</sup>	1.13E-03	6.40E+01
	Maximum application	2.45E-01	NC <sup>2</sup>	1.89E-03	1.07E+02

<sup>1</sup>Risk Quotient = Estimated Dose/Toxicity Reference Value.  
<sup>2</sup>NC = Not calculated. No Overdrive TRV available. See dicamba and diflufenzoxyr worksheets. RQ derived using sum of RQs derived using dicamba and diflufenzoxyr EECs and TRVs.

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