APPENDIX E
RISK QUOTIENT METHOD AND LEVELS OF CONCERN

The Risk Quotient Method is the means used by the Office of Pesticide Programs (OPP), Environmental Fate and Effects Division (EFED) integrates the results of exposure and ecotoxicity data. For this method, Risk Quotients (RQs) are calculated by dividing exposure estimates by the acute and chronic ecotoxicity values (*i.e.*, RQ = EXPOSURE/TOXICITY). These RQs are then compared to OPP's levels of concern (LOCs) (see **Table C.1**). These LOCs are criteria used by OPP to indicate potential risk to non-target organisms and the need to consider regulatory action. EFED has defined LOCs for acute risk, potential restricted use classification, and for endangered species.

The criteria indicate that a pesticide used as directed has the potential to cause adverse effects on non-target organisms. LOCs currently address the following risk presumption categories:

(1) **Acute** - there is a potential for acute risk; regulatory action may be warranted in addition to restricted use classification;

(2) **Acute restricted use** - the potential for acute risk is high, but this may be mitigated through restricted use classification;

(3) **Acute endangered species** – there is a potential for acute risk to endangered species, regulatory action may be warranted; and

(4) **Chronic risk** – there is a potential for chronic risk, regulatory action may be warranted.

TABLE C.1. Risk Presumptions and LOCs.

Risk Presumption	RQ	LOC
Birds		
Acute Risk	EEC/LC_{50} or LD_{50}/sqft or LD_{50}/day	0.5
Acute Restricted Use	EEC/LC_{50} or LD_{50}/sqft or LD_{50}/day (or LD_{50} < 50 mg/kg)	0.2
Acute Endangered Species	EEC/LC_{50} or LD_{50}/sqft or LD_{50}/day	0.1
Chronic Risk	EEC/NOAEC	1
Wild Mammals		
Acute Risk	EEC/LC_{50} or LD_{50}/sqft or LD_{50}/day	0.5
Acute Restricted Use	EEC/LC_{50} or LD_{50}/sqft or LD_{50}/day (or LD_{50} < 50 mg/kg)	0.2
Acute Endangered Species	EEC/LC_{50} or LD_{50}/sqft or LD_{50}/day	0.1
Chronic Risk	EEC/NOAEC	1
Terrestrial Invertebrates		
Acute Endangered Species	EEC/LD_{50}	0.05
Aquatic Animals		
Acute Risk	EEC/LC_{50} or EC_{50}	0.5
Acute Restricted Use	EEC/LC_{50} or EC_{50}	0.1
Acute Endangered Species	EEC/LC_{50} or EC_{50}	0.05
Chronic Risk	EEC/NOAEC	1
Terrestrial and Semi-Aquatic Plants		
Acute Risk	EEC/EC_{25}	1
Acute Endangered Species	EEC/EC_{05} or NOAEC	1
Aquatic Plants		
Acute Risk	EEC/EC_{50}	1
Acute Endangered Species	EEC/EC_{05} or NOAEC	1