Appendix E. Chlorpyrifos Aquatic Toxicity Data Reviewed					
Assessment Endpoint	**Acute/ Chronic**	**Species**	**Toxicity Value Used in Risk Assessment (ug a.i./L)**	**MRID/ ECOTOX Ref.**	**Comment**
Freshwater fish (can be used as a surrogate for aquatic-phase amphibians)	Acute	Bluegill Sunfish, *Lepomis macrocirus*	96-h LC50 = 1.8	40098001 Mayer & Ellersick, 1986	Acceptable; a static test conducted using TGAI[1]
		Guppy, *Poecilla reticulate*	96-h LC50 = 2.9	E72831 De Silva & Samayawardhena, 2002	Supplemental; the study was conducted using Lorsban; the study was non-guideline but scientifically sound
		Fathead minnow, Pimephales promelas	96-hr LC50 = 203	00155781 Holcombe, Phipps & Tanner 1982	Acceptable.
	Chronic	Fathead minnow, *P. promelas*	Life-Cycle NOAEC = 0.57	42834401 Mayes *et al*., 1993	Supplemental; acetone controls significantly affected number of spawns & number of eggs (flow-thru life cycle test). LOAEC = 0.00109 mg a.i./L.
		Guppy, *P. reticulate*	14-d LOAEC = 0.2 No NOAEC (NOAEC = <0. 2)	E72831 De Silva & Samayawardhena, 2002	Supplemental; the study was conducted using Lorsban; the study was non-guideline but scientifically sound. Mortality, paralysis and histological abnormalities (no NOAEC)
	Acute	African clawed frog, *Xenopus laevis*	96-h LC50 = 0.6	E86343 Richards, 2000	Supplemental; not native species; not from peer-reviewed literature, so not useable for RQ.
		Yellow-legged	24-h LC50 =	E92498 Sparling & Fellers 2007	Supplemental; concentrations not confirmed and study

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Aquatic-Phase Amphibians		frog, *Rana boylii*	3.0		was non-guideline (no guidelines currently exist for an amphibian acute toxicity test) but scientifically sound
	Chronic	*X. laevis*	LOAEC = 0. 1 No NOAEC (NOAEC = <0. 1)	E71867 Richards & Kendall, 2003	Supplemental; no NOAEC, not native species and study was non-guideline (no guidelines currently exist for an amphibian chronic test) but scientifically sound
Freshwater Invertebrates	Acute	Blackfly, Simulium vittatum IS-7	24-h LC50 = 0. 06	E80409 Hyder *et al*., 2005	Acceptable; the study was conducted using TGAI
		Daphnid, *Ceriodaphnia dubia*	96-h LC50 = 0. 07	E108483 Pablo *et al*., 2008	Acceptable; the study was conducted using TGAI
		Midge, *Chironomus tentans* Daphnid, *Daphnia magna*	96-h sediment: NOAEC = 32 ug/Kg NOAEC = 180 ug/Kg	E13342 Hooftman *et al*., 1993	Supplemental
		C. dubia	96-h LC50 = 0. 08	E67777 Foster *et al*, 1998	Acceptable; the study was conducted using TGAI
		Freshwater shrimp, *Paratya*	96-hr LC50 = 0. 08	E18468 Olima *et al*., 1997	Supplemental; non-native species.

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Assessment Endpoint	**Acute/ Chronic**	**Species**	**Toxicity Value Used in Risk Assessment (ug a.i./L)**	**MRID/ ECOTOX Ref.**	**Comment**
		australiensis			
	Chronic	Daphnid, *C.* cf *dubia*	33-d NOAEC = 0. 025	E65825 Rose *et al*., 2002	Supplemental
		Freshwater shrimp, *P. australiensis*	NOEC = 0. 04	00018468 Olima *et al*., 1997	Supplemental; non-native species.
		Midge, *C. tentans*	20-d NOAEC = 0.02	E89548 Rakotondravelo *et al*, 2006.	Supplemental; no NOAEC
		Midge, *C. riparius* *Daphnia magna*	21-d sediment: NOAEC = 32 ug/Kg NOAEC = 56 ug/Kg	E13342 Hooftman *et al*., 1993	Supplemental; * midge had same acute and chronic NOAEC, possibly due to low dissolved oxygen..
Estuarine/ marine fish	Acute	Tidewater silverside, *Menidia peninsulae*	LC50 = 0. 70	E11868 Borthwick *et al*., 1985	Supplemental; unknown control mortality, but adjusted for mortality.
		M. peninsulae	LC50 = 0. 96	40228401 Mayer, 1986	Supplemental; too small Tidewater Silverside (1-day old larvae).
	Chronic	Atlantic silverside, *M. menidia*	NOAEC = 0. 28	00154718 Goodman *et al*., 1985	Supplemental; raw data unavailable Atlantic silverside (28-day, flow-through with measured concentrations).
Estuarine/ marine invertebrates	Acute	Mysid shrimp, *Americamysis bahia*	LC50 = 0. 035 ug/Kg	40228401 Mayer, 1986	Acceptable; mysid shrimp (1-day old juveniles used).
				42664901	Supplemental; strong

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Assessment Endpoint	**Acute/ Chronic**	**Species**	**Toxicity Value Used in Risk Assessment (ug a.i./L)**	**MRID/ ECOTOX Ref.**	**Comment**
	Chronic	*A. bahia*	NOAEC < 0. 0046	Sved *et al*., 1993	solvent effects on production of young shrimp (flow-though test; C14 measured)
Aquatic plants	Acute	Alga, *Isochrysis galbana*	EC50 = 140	40228401 Mayer, 1986	Supplemental; not a recommended test species
Aquatic plants	Chronic	No data available			

[1]TGAI = Technical grade active ingredient