Table U-18.
Summary of Toxicity Reference Values for Widlife

CPEC	Toxicity Reference Values for Mammals (mg/kg-day) [c]												
	CSC Proposed Mammal TRVs[g]								BTAG Mammal TRVs[h, z]				
	Low TRV	Species	Endpoint	Sources		High TRV	Species	Endpoint	Sources (primary; secondary)	Low TRV	Sources (primary)	High TRV	Sources (primary)
Inorganic Compounds													
Antimony	0.059	Rat (*Rattus norvegicus*)	REP	Rossi et al, 1987; USEPA, 2007	a	0.59	Rat (*Rattus norvegicus*)	REP	Rossi et al, 1987; USEPA, 2007	a, g	-	-	-	-
Arsenic	1.04	Dog (*Canis familiaris*)	GRO	Neiger and Osweiler, 1989; USEPA, 2007	a	1.66	Rat (*Rattus norvegicus*)	GRO	Neiger and Osweiler, 1989; USEPA, 2007	a, g	0.32	Schroeder & others 1968	4.7	Brown & others 1976
Barium	51.8	-	REP, GRO	Geomean; USEPA, 2007	a	121	-	REP, GRO	Geomean; USEPA, 2007	a, g	-	-	-	-
Beryllium	0.530	Rat (*Rattus norvegicus*)	MOR	Schroeder and Mitchener, 1975; USEPA, 2007	a	0.630	Rat (*Rattus norvegicus*)	GRO	Schroeder and Mitchener, 1975; USEPA, 2007	a, g	-	-	-	-
Cadmium	0.77	Rat (*Rattus norvegicus*)	GRO	Yuhas et al, 1979; USEPA, 2007	a	7.7	Rat (*Rattus norvegicus*)	GRO	Yuhas et al, 1979; USEPA, 2007	a, g	0.06	Webster 1988	2.64	Schroeder & Mitchener 1971
Chromium	2.4	-	REP, GRO	Geomean; USEPA, 2007	a	9.62	-	REP, GRO	Geomean; USEPA, 2007	a, g	-	-	-	-
Cobalt	7.33	-	REP, GRO	Geomean; USEPA, 2007	a	19.3	-	REP, GRO	Geomean; USEPA, 2007	a, g	1.20	Domingo & others 1985	20	Mollenhauer & others 1985
Copper	5.6	Pig (*Sus scrofa*)	GRO, MOR	Allcroft et al, 1961; USEPA, 2007	a	9.34	Pig (Sus scrofa)	GRO, MOR	Allcroft et al, 1961; USEPA, 2007	a, g	2.67	Pocino & others 1991	632	Hebert & others 1993
Cyanide (Total)	4.5	Rat (*Rattus norvegicus*)	REP	NTP, 1993	g	12.5	Rat (*Rattus norvegicus*)	REP	NTP, 1993	g	-	-	-	-
Lead	4.7	Rat (*Rattus norvegicus*)	GRO	Kimmel et al., 1980; USEPA, 2007	a	8.90	Rat (*Rattus norvegicus*)	GRO	Kimmel et al., 1980; USEPA, 2007	a, g	1.00	Wise 1981	241	Krasovskii & others 1979
Manganese	51.5	-	REP, GRO	Geomean; USEPA, 2007	a	146	-	REP, GRO	Geomean; USEPA, 2007	a, g	13.70	Gray & Laskey 1980	159	Gray & Laskey 1980
Mercury	0.25	-	-	EPA – Great Lakes, Khera and Tabacova 1973; CalEPA, 2002b	z	4	-	-	EPA – Great Lakes, Fuyuta & others 1978; CalEPA, 2002	z	0.25	EPA – Great Lakes, Khera and Tabacova 1973	4	EPA – Great Lakes, Fuyuta & others 1978
Molybdenum	0.26	Mouse (*Mus musculus*)	REP	Schroeder and Mitchener, 1971; Sample et al, 1996	b	2.6	Mouse (*Mus musculus*)	REP	Schroeder and Mitchener, 1971; Sample et al, 1996	b	-	-	-	-
Nickel	1.7	Mouse (*Mus musculus*)	REP	Pandey and Srivastava, 2000; USEPA, 2007	a	3.4	Mouse (*Mus musculus*)	REP	Pandey and Srivastava, 2000; USEPA, 2007	a, g	0.13	Smith & others 1993	31.6	Smith & others 1993
Selenium	0.05	-	-	Harr & others, 1967; CalEPA, 2002	z	1.21	-	-	Schroeder & Mitchener, 1971; CalEPA, 2002	z	0.05	Harr & others, 1967	1.21	Schroeder & Mitchener, 1971
Silver	6.02	Pig (*Sus scrofa*)	GRO	Van Vleet, 1976; USEPA, 2007	a	60.2	Pig (Sus scrofa)	GRO	Van Vleet, 1976; USEPA, 2007	a, g	-	-	-	-
Thallium	0.48	-	-	Downs & others 1960; CalEPA, 2002	z	1.43	-	-	Downs & others 1960; CalEPA, 2002	z	0.48	Downs & others 1960	1.43	Downs & others 1960
Tin	25.30	Mouse (*Mus musculus*)	REP	Davis & others 1987; Sample et al, 1996	i	37.8	Mouse (*Mus musculus*)	REP	Davis & others 1987; Sample et al, 1996	i	-	-	-	-
Vanadium	4.16	Mouse (*Mus musculus*)	REP, GRO, MOR	Sanchez et al, 1991; USEPA, 2007	a	8.31	Mouse (*Mus musculus*)	REP, GRO, MOR	Sanchez et al, 1991; USEPA, 2007	a, g	-	-	-	-
Zinc	9.61	-	-	Aughey & others 1977; CalEPA, 2002	z	411.43	-	-	Shlicker & Cox 1968; CalEPA, 2002	z	9.61	Aughey & others 1977	411.43	Shlicker & Cox 1968
Volatile Organic Compounds (VOCs)													
1,1,1 - Trichloroethane	1000	Mouse (*Mus musculus*)	REP	Lane et al. 1982; Sample et al, 1996	b	3550	Mouse (*Mus musculus*)	REP	NTP, 2000	g	-	-	-	-
1,1 - Dichloroethene	30	Rat (Rattus norvegicus)	MOR	Quast et al. 1983; Sample et al, 1996	b	300	-	-	-	t	-	-	-	-
1,1-Dichloroethane	475	Mouse (*Mus musculus*)	MOR	Klaunig et al. 1986	g	4750	-	-	-	t	-	-	-	-
1,2 - Dichloroethene	45.2	Mouse (*Mus musculus*)	GRO	Palmer et al. 1979; Sample et al, 1996	b	452	-	-	-	t	-	-	-	-
1,2-Dibromoethane (EDB)	2.7	Rat (Rattus norvegicus)	REP	NCI, 1978	g	27	Rat (*Rattus norvegicus*)	REP	NCI, 1978	g	-	-	-	-
1,2,3-Trichlorobenzene	19	Dog (*Canis familiaris*)	Hepatic degeneration	Monsanto, 1967; Knapp, 1971	g,w	38	Dog (*Canis familiaris*)	Hepatic degeneration	Monsanto, 1967; Knapp, 1971	g,w	-	-	-	-
1,2-Dichlorobenzene	19	Dog (*Canis familiaris*)	Hepatic degeneration	Monsanto, 1967; Knapp, 1971	g,w	38	Dog (*Canis familiaris*)	Hepatic degeneration	Monsanto, 1967; Knapp, 1971	g,w	-	-	-	-
1,2-Dichloroethane	50	Mouse (*Mus musculus*)	REP	Lane et al. 1982; Sample et al, 1996	b	500	-	-	-	t	-	-	-	-
1,2-Dichloropropane	30	Rat (*Rattus norvegicus*)	REP	Kirk et al, 1989	g	125	Rat (*Rattus norvegicus*)	REP	Kirk et al (1989)	g	-	-	-	-
1,3-Dichlorobenzene	19	Rat (*Rattus norvegicus*)	Hepatic degeneration	Monsanto, 1967; Knapp, 1971	g,w	38	Dog (*Canis familiaris*)	Hepatic degeneration	Monsanto, 1967; Knapp, 1971	g,w	-	-	-	-
1,4-Dichlorobenzene	19	Dog (*Canis familiaris*)	Hepatic degeneration	Monsanto, 1967; Knapp, 1971	g,w	38	Dog (*Canis familiaris*)	Hepatic degeneration	Monsanto, 1967; Knapp, 1971	g,w	-	-	-	-
3,3,5-Trimethylcyclohexanone	-	-	-	-		-	-	-	-		-	-	-	-
Acetone	10	Rat (*Rattus norvegicus*)	Liver and kidney damage	EPA 1986; Sample et al, 1996		50	Rat (*Rattus norvegicus*)	Liver and kidney damage	EPA 1986; Sample et al, 1996	b	-	-	-	-
Acetonitrile	0.46	Rat (*Rattus norvegicus*)	Lesions and other organ effects	Quast et al., 1980; USEPA, 1999	d, u	4.6	Rat (*Rattus norvegicus*)	Lesions and other organ effects	Quast et al., 1980; USEPA, 1999b	d, u	-	-	-	-
Acrolein	0.05	Rat (*Rattus norvegicus*)	MOR	Parent et al., 1992	g	0.5	Rat (*Rattus norvegicus*)	MOR	Parent et al., 1992	g	-	-	-	-
Benzene	26.36	Mouse (*Mus musculus*)	REP	Nawrot and Staples 1979; Sample et al, 1996	b	263.6	Mouse (*Mus musculus*)	REP	Nawrot and Staples 1979; Sample et al, 1996	b	-	-	-	-
Carbon disulfide	11	Rabbit (*Oryctolagus cuniculus*)	REP	Hardin et al. 1981	g	25	Rabbit (*Oryctolagus cuniculus*)	REP	Jones-Price et al. 1984	g	-	-	-	-
Chlorobenzene	19	Dog (*Canis familiaris*)	Hepatic degeneration	Monsanto, 1967; Knapp, 1971	g	38	Dog (*Canis familiaris*)	Hepatic degeneration	Monsanto, 1967; Knapp, 1971	g	-	-	-	-
Chloroform	15	Rat (*Rattus norvegicus*)	Liver/kidney/gonad condition	Palmer et al. 1979; Sample et al, 1996	b	41	Rat (*Rattus norvegicus*)	REP	Palmer et al. 1979; Sample et al, 1996	b	-	-	-	-

Table U-18.
Summary of Toxicity Reference Values for Widlife

CPEC	Toxicity Reference Values for Birs (mg/kg-day)[c]													
	CSC Proposed Bird TRVs[g]									Bird BTAG TRVs[h, z]				
	Low TRV	Species	Endpoint	Sources (primary; secondary)		High TRV	Species	Endpoint	Sources (primary; secondary)		Low TRV	Sources (primary)	High TRV	Sources (primary)
Inorganic Compounds														
Antimony	-	-	-	-	-	-	-	-	-		-	-	-	-
Arsenic	2.24	Chicken (*Gallus domesticus*)	REP, GRO, MOR	Holcman and Stibilj, 1997; USEPA, 2007	a	3.60	Chicken (*Gallus domesticus*)	GRO	Howell and Hill, 1978; USEPA, 2007	a	5.5	Stanley, Jr. & others 1994	22	Stanley, Jr. & others 1994
Barium	20.8	Chicken (*Gallus domesticus*)	MOR	Johnson et al. 1960; Sample et al, 1996	b	41.7	Chicken (*Gallus domesticus*)	MOR	Johnson et al. 1960; Sample et al, 1996	b	-	-	-	-
Beryllium	-	-	-	-		-	-	-	-		-	-	-	-
Cadmium	1.47	-	REP, GRO	Geomean; USEPA, 2007	a	5.88	-	REP, GRO	Geomean; USEPA, 2007	a	0.08	Cain & others 1983	10.4	Richardson & others 1974
Chromium	2.66	-	REP, GRO	Geomean; USEPA, 2007	a	2.78	-	REP, GRO	Geomean; USEPA, 2007	a	-	-	-	-
Cobalt	7.61	-	REP, GRO	Geomean; USEPA, 2007	a	11.5	-	REP, GRO	Geomean; USEPA, 2007	a	-	-	-	-
Copper	4.05	Chicken (*Gallus domesticus*)	REP	Ankari et al, 1998; USEPA, 2007	a	12.1	Chicken (*Gallus domesticus*)	REP	Ankari et al, 1998; USEPA, 2007	a	2.3	Norvell & others 1975	52.3	Jensen & Maurice 1978
Cyanide (Total)	0.04	American kestrel (*Falco sparverius*)	MOR	Wiemeyer et al., 1986; USEPA, 1999	d	0.4	American kestrel (*Falco sparverius*)	MOR	Wiemeyer et al., 1986; USEPA, 1999	d	-	-	-	-
Lead	1.63	Chicken (*Gallus domesticus*)	REP	Edens and Garlich, 1983; USEPA, 2007	a	3.3	Chicken (*Gallus domesticus*)	REP	Edens and Garlich, 1983; USEPA, 2007	a	0.014	Edens & others 1976, Edens & Garlich 1983	8.75	Edens & Garlich 1983
Manganese	179	-	REP, GRO	Geomean; USEPA, 2007	a	377	-	REP, GRO	Geomean; USEPA, 2007	a	77.6	Laskey & Edens 1985	776	Laskey & Edens 1985
Mercury	0.039	-	-	EPA – Great Lakes, Heinz 1974, 1975, 1976, 1979; CalEPA, 2002	z	0.18	-	-	EPA – Great Lakes, Heinz & Locke 1976; CalEPA, 2002	z	0.039	EPA – Great Lakes, Heinz 1974, 1975, 1976, 1979	0.18	EPA – Great Lakes, Heinz & Locke 1976
Molybdenum	3.5	Chicken (*Gallus domesticus*)	REP	Lepore and Miller 1965; Sample et al, 1996	b	35.3	Chicken (*Gallus domesticus*)	REP	Lepore and Miller 1965; Sample et al, 1996	b	-	-	-	-
Nickel	6.71	-	REP, GRO	Geomean; USEPA, 2007	a	21.0	-	REP, GRO	Geomean; USEPA, 2007	a	1.38	Cain & Pafford 1981	56.3	Cain & Pafford 1981
Selenium	0.23	-	-	Heinz & others, 1989; CalEPA, 2002	z	0.93	-	-	Heinz & others, 1989; CalEPA, 2002	z	0.23	Heinz & others, 1989	0.93	Heinz & others, 1989
Silver	2.02	Turkey (*Meleagris gallopavo*)	GRO	Jensen et al, 1974; USEPA, 2007	a	20.2	Turkey (*Meleagris gallopavo*)	GRO	Jensen et al, 1974; USEPA, 2007	a	-	-	-	-
Thallium	0.35	European starling (*Sturnus vulgaris*)	MOR	Schafer, 1972; USEPA, 1999	d	3.5	European starling (*Sturnus vulgaris*)	MOR	Schafer, 1972; USEPA, 1999	d	-	-	-	-
Tin	6.8	Japanese quail (*Coturnix japonica*)	REP	Schlatterer & others 1993; Sample et al, 1996	i, z	16.9	Japanese quail (*Coturnix japonica*)	REP	Schlatterer & others 1993; Sample et al, 1996	i, b	-	-	-	-
Vanadium	0.344	Chicken (*Gallus domesticus*)	GRO	Hill, 1979; USEPA, 2007	a	0.7	Chicken (*Gallus domesticus*)	GRO	Hill, 1979; USEPA, 2007	a	-	-	-	-
Zinc	17.2	-	-	Gasaway & Buss 1972; CalEPA, 2002	z	172	-	-	Gasaway & Buss 1972; CalEPA, 2002	z	17.2	Gasaway & Buss 1972	172	Gasaway & Buss 1972
Volatile Organic Compounds (VOCs)														
1,1,1 - Trichloroethane	17.2	Chicken (*Gallus domesticus*)	REP	Alumot at al. 1976; Sample et al, 1996	n, b	34.4	Chicken (*Gallus domesticus*)	REP	Alumot at al. 1976; Sample et al, 1996	n, b	-	-	-	-
1,1 - Dichloroethene	-	-	-	-		-	-	-	-		-	-	-	-
1,1-Dichloroethane	17.2	Chicken (*Gallus domesticus*)	REP	Alumot at al. 1976; Sample et al, 1996	n, b	34.4	Chicken (*Gallus domesticus*)	REP	Alumot at al. 1976; Sample et al, 1996	n, b	-	-	-	-
1,2 - Dichloroethene	-	-	-	-		-	-	-	-		-	-	-	-
1,2-Dibromoethane (EDB)	-	-	-	-		-	-	-	-		-	-	-	-
1,2,3-Trichlorobenzene	NA	-	-	-		NA	-	-	-		-	-	-	-
1,2-Dichlorobenzene	NA	-	-	-		NA	-	-	-		-	-	-	-
1,2-Dichloroethane	17.2	Chicken (*Gallus domesticus*)	REP	Alumot at al. 1976; Sample et al, 1996	n, b	34.4	Chicken (*Gallus domesticus*)	REP	Alumot at al. 1976; Sample et al, 1996	b	-	-	-	-
1,2-Dichloropropane	NA	-	-	-		NA	-	-	-		-	-	-	-
1,3-Dichlorobenzene	NA	-	-	-		NA	-	-	-		-	-	-	-
1,4-Dichlorobenzene	NA	-	-	-		NA	-	-	-		-	-	-	-
3,3,5-Trimethylcyclohexanone	NA	-	-	-		NA	-	-	-		-	-	-	-
Acetone	52	Quail (*Callipepla spp*)	-	Hill and Camardese, 1986; USEPA, 1999	d	5,200	Quail (*Callipepla spp*)	-	Hill and Camardese, 1986; USEPA, 1999	d	-	-	-	-
Acetonitrile	-	-	-	-		-	-	-	-		-	-	-	-
Acrolein	-	-	-	-		-	-	-	-		-	-	-	-
Benzene	-	-	-	-		-	-	-	-		-	-	-	-
Carbon disulfide	-	-	-	-		-	-	-	-		-	-	-	-
Chlorobenzene	NA	-	-	-		NA	-	-	-		-	-	-	-
Chloroform	NA	-	-	-		NA	-	-	-		-	-	-	-

Table U-18.
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CPEC	Toxicity Reference Values for Mammals (mg/kg-day) [c]													
	CSC Proposed Mammal TRVs[g]								BTAG Mammal TRVs[h, z]					
	Low TRV	Species	Endpoint	Sources		High TRV	Species	Endpoint	Sources (primary; secondary)		Low TRV	Sources (primary)	High TRV	Sources (primary)
Diethyl ether	165	Rat (*Rattus norvegicus*)	Renal degeneration	Chun et al. 1992	g, x	1240	Rat (*Rattus norvegicus*)	Re-l degeneration	Chun et al. 1992	g,x	-	-	-	-
Diisopropyl ether	165	Rat (*Rattus norvegicus*)	Renal degeneration	Chun et al. 1992	g, x	1240	Rat (*Rattus norvegicus*)	Re-l degeneration	Chun et al. 1992	g, x	-	-	-	-
Ethylbenzene	29.1	Rat (*Rattus norvegicus*)	Re-l and hepatic degeneration	Wolf et al., 1956	g	291	Rat (*Rattus norvegicus*)	Re-l and hepatic degeneration	Wolf et al. in 1956	g	-	-	-	-
Ethylene glycol	100	Rat (*Rattus norvegicus*)	MOR	Blood et al. 1965	g	250	Rat (*Rattus norvegicus*)	MOR	Blood et al. 1965	g	-	-	-	-
Freon 113 (1,1,2-trichloro-1,2,2-trifluoroethane)	-	-	-	-		-	-	-	-		-	-	-	-
Isopropanol	125	Rat (*Rattus norvegicus*)	Hypoactivity and ataxia	USEPA, 1986	g,j	500	Rat (*Rattus norvegicus*)	Hypoactivity and ataxia	USEPA, 1986	g,j	-	-	-	-
Methylcyclopentane	-	-	-	-		-	-	-	-		-	-	-	-
Methyl ethyl ketone	1771	Rat (*Rattus norvegicus*)	REP	Cox et al. 1975; Sample et al, 1996	b	4571	Rat (*Rattus norvegicus*)	REP	Cox et al. 1975; Sample et al, 1996	b	-	-	-	-
Methyl isobutyl ketone	25	Rat (*Rattus norvegicus*)	Liver and kidney function	Microbiological Associates 1986 (obtained from Health Effects Assessment Summary Tables (HEAST; EPA 1993f); Sample et al, 1996	b	250	-	-	-	t	-	-	-	-
Methylene chloride	5.85	Rat (*Rattus norvegicus*)	Liver histology	NCA 1982; Sample et al, 1996	b	50	Rat (*Rattus norvegicus*)	Liver histology	NCA 1982; Sample et al, 1996	b	-	-	-	-
Nonanal	-	-	-	-		-	-	-	-		-	-	-	-
o-Xylene	2.1	Mouse (*Mus musculus*)	REP	Marks et al. 1982; Sample et al, 1996	b	2.6	Mouse (*Mus musculus*)	REP	Marks et al. 1982; Sample et al, 1996	b	-	-	-	-
Propanal	-	-	-	-		-	-	-	-		-	-	-	-
Tert-Butyl alcohol (TBA)	125	Rat (*Rattus norvegicus*)	Hypoactivity and ataxia	USEPA, 1986	g,j	500	Rat (*Rattus norvegicus*)	Hypoactivity and ataxia	USEPA, 1986	g,j	-	-	-	-
Tetrachloroethylene	1.4	Mouse (*Mus musculus*)	Hepatotoxicity	Buben and O'Flaherty 1985; Sample et al, 1996	b	7	Mouse (Mus musculus)	Hepatotoxicity	Buben and O'Flaherty 1985; Sample et al, 1996	b	-	-	-	-
Tetrahydrofuran	300	Rat (*Rattus norvegicus*)	REP	Hellwig et al. 2002	g	700	Rat (*Rattus norvegicus*)	REP	Hellwig et al. 2002	g	-	-	-	-
Toluene	26	Mouse (*Mus musculus*)	REP	Nawrot and Staples 1979; Sample et al, 1996	b	260	Mouse (*Mus musculus*)	REP	Nawrot and Staples 1979; Sample et al, 1996	b	-	-	-	-
Total Xylenes	2.1	Mouse (*Mus musculus*)	REP	Marks et al. 1982; Sample et al, 1996	b	2.6	Mouse (*Mus musculus*)	REP	Marks et al. 1982; Sample et al, 1996	b	-	-	-	-
Trichloroethylene	0.7	Mouse (*Mus musculus*)	Hepatotoxicity	Buben and O'Flaherty 1985; Sample et al, 1996	b	7	Mouse (*Mus musculus*)	Hepatotoxicity	Buben and O'Flaherty 1985; Sample et al, 1996	b	-	-	-	-
Vinyl chloride	0.17	Rat (*Rattus norvegicus*)	MOR	Feron et al. 1981; Sample et al, 1996	b	1.7	Rat (*Rattus norvegicus*)	MOR	Feron et al. 1981; Sample et al, 1996	b	-	-	-	-
Semi Volatile Organic Compounds (SVOCs)														
Benzoic acid	500	Rat (*Rattus norvegicus*)	Decreased body weights	Marquardt 1960	g	750	Rat (*Rattus norvegicus*)	Decreased body weights	Marquardt 1960	g	-	-	-	-
Bis(2-chloroethyl) ether	2.5	Rat (*Rattus norvegicus*)	Decreased body weights	Weisburger et al, 1981	g	25	Rat (*Rattus norvegicus*)	Decreased body weights	Weisburger et al, 1981	g	-	-	-	-
Bis(2-ethylhexyl)phthalate	18.3	Rat (*Rattus norvegicus*)	REP	Lamb et al. 1987; Sample et al, 1996	b	183	Mouse (*Mus musculus*)	REP	Lamb et al. 1987; Sample et al, 1996	b	-	-	-	-
Diethylphthalate	1910	Rat (*Rattus norvegicus*)	Teratogenic effects	Field et al., 1993	g	3210	Rat (*Rattus norvegicus*)	Teratogenic effects	Field et al., 1993	g	-	-	-	-
Di-n-butylphthalate	550	Mouse (*Mus musculus*)	REP	Lamb et al. 1987; Sample et al, 1996	b	1833	Mouse (*Mus musculus*)	REP	Lamb et al. 1987; Sample et al, 1996	b	-	-	-	-
N-Nitrosodiethylamine	0.002	Mouse (*Mus musculus*)	REP	Anderson et al., 1978	g,l	0.02	Mouse (*Mus musculus*)	REP	Anderson et al., 1978	g,l	-	-	-	-
N-Nitrosodimethylamine	0.002	Mouse (*Mus musculus*)	REP	Anderson et al., 1978	g	0.02	Mouse (*Mus musculus*)	REP	Anderson et al., 1978	g	-	-	-	-
N-Nitrosodipropylamine	0.002	Mouse (*Mus musculus*)	REP	Anderson et al., 1978	g,l	0.02	Mouse (*Mus musculus*)	REP	Anderson et al., 1978	g,l	-	-	-	-
N-Nitrosomethylethylamine	0.002	Mouse (*Mus musculus*)	REP	Anderson et al., 1978	g,l	0.02	Mouse (*Mus musculus*)	REP	Anderson et al., 1978	g,l	-	-	-	-
N-Nitrosopyrrolidine	-	-	-	-		-	-	-	-		-	-	-	-
Organochlorine Pesticides														
4,4'-DDD	0.147	Rat (*Rattus norvegicus*)	REP	Wrenn et al., 1970; USEPA, 2005a		0.735	Rat (*Rattus norvegicus*)	REP	Wrenn et al., 1970; USEPA, 2007	a, g	0.8	EPA – Great Lakes, Fitzhugh 1948	16	EPA – Great Lakes, Clement and Oakley 1974
4,4'-DDE	0.147	Rat (*Rattus norvegicus*)	REP	Wrenn et al., 1970; USEPA, 2005a		0.735	Rat (*Rattus norvegicus*)	REP	Wrenn et al., 1970; USEPA, 2007	a, g	0.8	EPA – Great Lakes, Fitzhugh 1948	16	EPA – Great Lakes, Clement and Oakley 1974
4,4'-DDT	0.147	Rat (*Rattus norvegicus*)	REP	Wrenn et al., 1970; USEPA, 2005a		0.735	Rat (*Rattus norvegicus*)	REP	Wrenn et al., 1970; USEPA, 2007	a, g	0.8	EPA – Great Lakes, Fitzhugh 1948	16	EPA – Great Lakes, Clement and Oakley 1974
Aldrin	0.1	-	-	Paul & others 1992; CalEPA, 2002b		1	-	-	Paul & others 1992; CalEPA, 2002	z	0.1	Paul & others 1992	1	Paul & others 1992
BHC (technical HCH)	0.05	-	-	Naishtein and Leibovich 1971; CalEPA, 2002b	,s	3.75	-	-	Sircz & Lahiri 1989; CalEPA, 2002b	s	0.05	Naishtein and Leibovich 1971	3.75	Sirczr & Lahiri 1989

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CPEC	Toxicity Reference Values for Birs (mg/kg-day)[c]													
	CSC Proposed Bird TRVs[g]										Bird BTAG TRVs[h, z]			
	Low TRV	Species	Endpoint	Sources (primary; secondary)		High TRV	Species	Endpoint	Sources (primary; secondary)		Low TRV	Sources (primary)	High TRV	Sources (primary)
Diethyl ether	NA	-	-	-		NA	-	-	-		-	-	-	-
Diisopropyl ether	-	-	-	-		-	-	-	-		-	-	-	-
Ethylbenzene	-	-	-	-		-	-	-	-		-	-	-	-
Ethylene glycol	-	-	-	-		-	-	-	-		-	-	-	-
Freon 113 (1,1,2-trichloro-1,2,2-trifluoroethane)	-	-	-	-		-	-	-	-		-	-	-	-
Isopropanol	-	-	-	-		-	-	-	-		-	-	-	-
Methylcyclopentane	-	-	-	-		-	-	-	-		-	-	-	-
Methyl ethyl ketone	-	-	-	-		-	-	-	-		-	-	-	-
Methyl isobutyl ketone	-	-	-	-		-	-	-	-		-	-	-	-
Methylene chloride	-	-	-	-		-	-	-	-		-	-	-	-
Nonanal	-	-	-	-		-	-	-	-		-	-	-	-
o-Xylene	NA	-	-	-		NA	-	-	-		-	-	-	-
Propanal	-	-	-	-		-	-	-	-		-	-	-	-
Tert-Butyl alcohol (TBA)	-	-	-	-		-	-	-	-		-	-	-	-
Tetrachloroethylene	-	-	-	-		-	-	-	-		-	-	-	-
Tetrahydrofuran	-	-	-	-		-	-	-	-		-	-	-	-
Toluene	-	-	-	-		-	-	-	-		-	-	-	-
Total Xylenes	NA	-	-	-		NA	-	-	-		-	-	-	-
Trichloroethylene	-	-	-	-		-	-	-	-		-	-	-	-
Vinyl chloride	NA	-	-	-		NA	-	-	-		-	-	-	-
Semi Volatile Organic Compounds (SVOCs)														
Benzoic acid	-	-	-	-		-	-	-	-		-	-	-	-
Bis(2-chloroethyl) ether	-	-	-	-		-	-	-	-		-	-	-	-
Bis(2-ethylhexyl)phthalate	1.1	Ringed dove (*Streptopelia risoria*)	REP	Peakall 1974; Sample et al, 1996	[b]	11.1	Ringed dove (*Streptopelia risoria*)			[t]	-	-	-	-
Diethylphthalate	0.11	Ringed dove (*Streptopelia risoria*)	REP	Peakall 1974; Sample et al, 1996	[m,b]	1.1	Ringed dove (*Streptopelia risoria*)	REP	Peakall 1974; Sample et al, 1996	[m, b]	-	-	-	-
Di-n-butylphthalate	0.11	Ringed dove (*Streptopelia risoria*)	REP	Peakall 1974; Sample et al, 1996	[b]	1.1	Ringed dove (*Streptopelia risoria*)	REP	Peakall 1974; Sample et al, 1996	[b]	-	-	-	-
N-Nitrosodiethylamine	-	-	-	-		-	-	-	-		-	-	-	-
N-Nitrosodimethylamine	-	-	-	-		-	-	-	-		-	-	-	-
N-Nitrosodipropylamine	-	-	-	-		-	-	-	-		-	-	-	-
N-Nitrosomethylethylamine	-	-	-	-		-	-	-	-		-	-	-	-
N-Nitrosopyrrolidine	-	-	-	-		-	-	-	-		-	-	-	-
Organochlorine Pesticides														
4,4'-DDD	0.227	Chicken (*Gallus domesticus*)	GRO	Cecil et al., 1978; USEPA, 2007	[a]	2.27	Chicken (*Gallus domesticus*)	GRO	Cecil et al., 1978; USEPA, 2007	[a]	0.009	EPA – Great Lakes, Anderson et al. 1975	1.5	EPA – Great Lakes, Heath et al. 1969
4,4'-DDE	0.227	Chicken (*Gallus domesticus*)	GRO	Cecil et al., 1978; USEPA, 2007	[a]	2.27	Chicken (*Gallus domesticus*)	GRO	Cecil et al., 1978; USEPA, 2007	[a]	0.009	EPA – Great Lakes, Anderson et al. 1975	0.6	EPA – Great Lakes, Heath et al. 1969
4,4'-DDT	0.227	Chicken (*Gallus domesticus*)	GRO	Cecil et al., 1978; USEPA, 2007	[a]	2.27	Chicken (*Gallus domesticus*)	GRO	Cecil et al., 1978; USEPA, 2007	[a]	0.009	EPA – Great Lakes, Anderson et al. 1975	1.5	EPA – Great Lakes, Heath et al. 1969
Aldrin	0.027	Japanese quail (*Coturnix japonica*)	MOR	Hill et al., 1975	[g]	0.27	Japanese quail (*Coturnix japonica*)	MOR	Hil et al., 1975	[g]	-	-	-	-
BHC (technical HCH)	2	Mallard duck (*Anas platyrhynchos*)	REP	Chakravarty and Lahiri 1986; Chakravarty et al. 1986; Sample et al, 1996	[b]	20	Mallard duck (*Anas platyrhynchos*)	REP	Chakravarty and Lahiri 1986; Chakravarty et al. 1986; Sample et al, 1996	[s, b]	-	-	-	-

Table U-18.
Summary of Toxicity Reference Values for Widlife

CPEC	Toxicity Reference Values for Mammals (mg/kg-day) [c]												
	CSC Proposed Mammal TRVs[g]								BTAG Mammal TRVs[h, z]				
	Low TRV	Species	Endpoint	Sources		High TRV	Species	Endpoint	Sources (primary; secondary)		Low TRV	Sources (primary)	High TRV	Sources (primary)
Chlordane	4.6	Mouse (*Mus musculus*)	REP	WHO 1984 (secondary source; Primary citation: Keplinger, M.L., W.B. Deichman, and F. Sala. 1968. Effects of pesticides on reproduction in mice. Ind. Med. Surg. 37: 525.); Sample et al, 1996		9.2	Mouse (*Mus musculus*)	REP	WHO 1984 (secondary source; Primary citation: Keplinger, M.L., W.B. Deichman, and F. Sala. 1968. Effects of pesticides on reproduction in mice. Ind. Med. Surg. 37: 525.); Sample et al, 1996	b	-	-	-	-
Dieldrin	0.02	Rat (*Rattus norvegicus*)	REP	Treon and Cleveland 1955; Sample et al, 1996		0.2	Rat (*Rattus norvegicus*)	REP	Treon and Cleveland 1955; Sample et al, 1996	b	-	-	-	-
Endosulfan I	0.15	Rat (*Rattus norvegicus*)	REP	Dikshith et al. 1984; Sample et al, 1996	k	1.5	-	-	-	t	-	-	-	-
Endosulfan II	0.15	Rat (*Rattus norvegicus*)	REP	Dikshith et al. 1984; Sample et al, 1996	k	1.5	-	-	-	t	-	-	-	-
Endosulfan sulfate	0.15	Rat (*Rattus norvegicus*)	REP	Dikshith et al. 1984; Sample et al, 1996	k	1.5	-	-	-	t	-	-	-	-
Endrin	0.092	Mouse (*Mus musculus*)	REP	Good and Ware 1969; Sample et al, 1996		0.92	Mouse (*Mus musculus*)	REP	Good and Ware 1969; Sample et al, 1996	b	-	-	-	-
Heptachlor	0.13	-	-	Shain & others 1977; CalEPA, 2002b		6.8	-	-	Norotsky & others 1995; CalEPA, 2002	z	0.13	Shain & others 1977	6.8	Norotsky & others 1995
Heptachlor epoxide	0.13	-	-	Shain & others 1977; CalEPA, 2002b	,y	6.8	-	-	Norotsky & others 1995; CalEPA, 2002b	y	-	-	-	-
Hexachlorobenzene	0.15	Rat (*Rattus norvegicus*)	REP	Arnold et al. 1985	g	1.5	Rat (*Rattus norvegicus*)	REP	Arnold et al. 1985	g	-	-	-	-
Kepone (chlordecone)	0.08	Rat (*Rattus norvegicus*)	GRO, MOR	Larson et al. 1979; Sample et al, 1996		0.4	Rat (*Rattus norvegicus*)	GRO, MOR	Larson et al. 1979; Sample et al, 1996	b	-	-	-	-
Methoxychlor	2.5	-	-	Gray & others 1989; CalEPA, 2002b		50	-	-	Gray & others 1989; CalEPA, 2002	z	2.5	Gray & others 1989	50	Gray & others 1989
Mirex	0.007	Rat (*Rattus norvegicus*)	Histological changes in liver/thyroid	Chu et al, 1981a	g	0.07	Rat (*Rattus norvegicus*)	Histological changes in liver/thyroid	Chu et al, 1981a	g	-	-	-	-
Polychlorinated Biphenyls (PCBs)														
Aroclor 1260	0.36	-	-	Simmons and McKee 1992; CalEPA, 2002b		1.28	-	-	Linzey 1987; CalEPA, 2002	z	0.36	Simmons and McKee 1992	1.28	Linzey 1987
Total PCB Congeners	0.36	-	-	Simmons and McKee 1992; CalEPA, 2002b		1.28	-	-	Linzey 1987; CalEPA, 2002	z	0.36	Simmons and McKee 1992	1.28	Linzey 1987
Total Avian PCB TEQ	NA	-	-	-		NA	-	-	-		-	-	-	-
Total Mammalian PCB TEQ	0.000001	Rat (*Rattus norvegicus*)	REP	Murray et al. 1979; Sample et al, 1996	v	0.00001	Rat (*Rattus norvegicus*)	REP	Murray et al. 1979; Sample et al, 1996	v	-	-	-	-
Organophosphate Pesticides/Herbicides														
2,4-D	8	Dog (*Canis familiaris*)	MOR	Rhodia, Inc., 1969	g, p	25	Dog (*Canis familiaris*)	MOR	Rhodia, Inc., 1969	g, p	-	-	-	-
2,4-DB	8	Dog (*Canis familiaris*)	MOR	Rhodia, Inc., 1969	g	25	Dog (*Canis familiaris*)	MOR	Rhodia, Inc., 1969	g	-	-	-	-
2,4,5-T	1	Rat (*Rattus norvegicus*)	REP	Smith et al, 1981	g	10	Rat (*Rattus norvegicus*)	REP	Smith et al, 1981	g	-	-	-	-
2,4,5-TP (Silvex)	25	Rat (*Rattus norvegicus*)	REP	NAS, 1977	g	50	Rat (*Rattus norvegicus*)	REP	NAS, 1977	g	-	-	-	-
2-sec-Butyl-4,6-dinitrophenol (Dinoseb)	0.1	Rat (*Rattus norvegicus*)	REP	Dow Chemical, 1981	g	1	Rat (*Rattus norvegicus*)	REP	Dow Chemical, 1981	g	-	-	-	-
Dalapon	8.45	Rat (*Rattus norvegicus*)	Changes in kidney weight	Paynter, 1960	g	28.2	Rat (*Rattus norvegicus*)	Changes in kidney weight	Paynter, 1960	g	-	-	-	-
Dichlorprop	8	Dog (*Canis familiaris*)	MOR	Rhodia, Inc., 1969	g,p	25	Dog (*Canis familiaris*)	MOR	Rhodia, Inc., 1969	g,p	-	-	-	-
MCPA	0.15	Dog (*Canis familiaris*)	Histopathological changes in kidney/liver	Industry Task Force on MCPA Research, 1986b	g	0.75	Dog (*Canis familiaris*)	Histopathological changes in kidney/liver	Industry Task Force on MCPA Research, 1986b	g	-	-	-	-
MCPP	3	Rat (*Rattus norvegicus*)	Increased kidney weight	BASF, 1985	g	9	Rat (*Rattus norvegicus*)	Increased kidney weight	BASF, 1985	g	-	-	-	-
Dioxin/Furans														
Total Avian Dioxin TEQ	NA	-	-	-		NA	-	-	-		-	-	-	-
Total Mammalian Dioxin TEQ	0.000001	Rat (*Rattus norvegicus*)	REP	Murray et al. 1979; Sample et al, 1996	v	0.00001	Rat (*Rattus norvegicus*)	REP	Murray et al. 1979; Sample et al, 1996	v, b	-	-	-	-
Polycyclic Aromatic Hydrocarbons (PAHs)														
LMW PAHs	50	-	-	Navarro & others 1991; CalEPA, 2002b	f	150	-	-	Navarro & others 1991; CalEPA, 2002	f, z	-	-	-	-
HMW PAHs	1.31	-	-	Neal & Rigdon 1967; CalEPA, 2002b	e	32.8	-	-	Rigdon & Neal 1969	e	-	-	-	-

Table U-18.
Summary of Toxicity Reference Values for Widlife

CPEC	Toxicity Reference Values for Birs (mg/kg-day)[c]													
	CSC Proposed Bird TRVs[g]										Bird BTAG TRVs[h, z]			
	Low TRV	Species	Endpoint	Sources (primary; secondary)		High TRV	Species	Endpoint	Sources (primary; secondary)		Low TRV	Sources (primary)	High TRV	Sources (primary)
Chlordane	2.1	Red-winged Blackbird (*Agelaius phoeniceus*)	MOR	Stickel et al. 1983; Sample et al, 1996	b	10.7	Red-winged Blackbird (*Agelaius phoeniceus*)	MOR	Stickel et al. 1983; Sample et al, 1996	b	-	-	-	-
Dieldrin	0.077	Barn owl (*Tyto alba*)	REP	Mendenhall et al. 1983; Sample et al, 1996	b	0.77	Barn owl (*Tyto alba*)	REP	Mendenhall et al. 1983; Sample et al, 1996	b	-	-	-	-
Endosulfan I	10	Gray Partridge (*Perdix perdix*)	REP	Abiola 1992; Sample et al, 1996	b	100	Gray Partridge (*Perdix perdix*)	REP	Abiola 1992; Sample et al, 1996	b	-	-	-	-
Endosulfan II	10	Gray Partridge (*Perdix perdix*)	REP	Abiola 1992; Sample et al, 1996	b	100	Gray Partridge (*Perdix perdix*)	REP	Abiola 1992; Sample et al, 1996	b	-	-	-	-
Endosulfan sulfate	10	Gray Partridge (*Perdix perdix*)	REP	Abiola 1992; Sample et al, 1996	k, b	100	Gray Partridge (*Perdix perdix*)	REP	Abiola 1992; Sample et al, 1996	k, b	-	-	-	-
Endrin	0.01	Screech owl (*Otus asio*)	REP	Fleming et al. 1982; Sample et al, 1996	b	0.1	Screech owl (*Otus asio*)	REP	Fleming et al. 1982; Sample et al, 1996	b	-	-	-	-
Heptachlor	0.65	Quail (*Callipepla spp*)	MOR	Hill and Camardese, 1986; USEPA, 1999	d	6.5	Quail (*Callipepla spp*)	MOR	Hill and Camardese, 1986; USEPA, 1999	d	-	-	-	-
Heptachlor epoxide	0.65	Quail (*Callipepla spp*)	MOR	Hill and Camardese, 1986; USEPA, 1999	d, y	6.5	Quail (*Callipepla spp*)	MOR	Hill and Camardese, 1986; USEPA, 1999	d, y	-	-	-	-
Hexachlorobenzene	0.225	Quail (*Callipepla spp*)	MOR	Hill and Camardese, 1986; USEPA, 1999	d	22.5	Quail (*Callipepla spp*)	MOR	Hill and Camardese, 1986; USEPA, 1999	d	-	-	-	-
Kepone (chlordecone)	1.56	Japanese quail (*Coturnix japonica*)	REP	Eroschenko and Place, 1977	g	15.6	Japanese quail (*Coturnix japonica*)	REP	Eroschenko and Place, 1977	g	-	-	-	-
Methoxychlor	3.2	Mallard duck (*Anas platyrhynchos*)	MOR	USEPA, 2000	g	32	Mallard duck (*Anas platyrhynchos*)	MOR	USEPA, 2000	g	-	-	-	-
Mirex	0.2	Common Grackle (*Quiscalus quiscula*)	MOR	Stickel et al., 1973	g	2.0	Common Grackle (*Quiscalus quiscula*)	MOR	Stickel et al., 1973	g	-	-	-	-
Polychlorinated Biphenyls (PCBs)														
Aroclor 1260	0.09	-	-	Platonow & Reinhart 1973; CalEPA, 2002	z	1.27	-	-	Britton and Huston 1973; CalEPA, 2002	z	0.09	Platonow & Reinhart 1973; CalEPA, 2002b	1.27	Britton and Huston 1973; CalEPA, 2002b
Total PCB Congeners	0.09	-	-	Platonow & Reinhart 1973; CalEPA, 2002	z	1.27	-	-	Britton and Huston 1973; CalEPA, 2002	z	0.09	Platonow & Reinhart 1973; CalEPA, 2002b	1.27	Britton and Huston 1973; CalEPA, 2002b
Total Avian PCB TEQ	0.0000140	Ring-necked Pheasant (*Phasianus colchicus*)	REP	Nosek et al. 1992; Sample et al, 1996	v, b	0.0001400	Ring-necked Pheasant (*Phasianus colchicus*)	REP	Nosek et al. 1992; Sample et al, 1996	v, b	-	-	-	-
Total Mammalian PCB TEQ	NA	-	-	-		NA	-	-	-		-	-	-	-
Organophosphate Pesticides/Herbicides														
2,4-D	NA	-	-	-		-	-	-	-		-	-	-	-
2,4-DB	1.2	Northern bobwhite (*Colinus virginianus*)	MOR	USEPA, 2000	g	12	Northern bobwhite (*Colinus virginianus*)	MOR	USEPA, 2000	g	-	-	-	-
2,4,5-T	NA	-	-	-		NA	-	-	-		-	-	-	-
2,4,5-TP (Silvex)	2.4	Northern bobwhite (*Colinus virginianus*)	MOR	Hill et al., 1975	g	23.6	Northern bobwhite (*Colinus virginianus*)	MOR	Hill et al., 1975	g	-	-	-	-
2-sec-Butyl-4,6-dinitrophenol (Dinoseb)	0.32	Japanese quail (*Coturnix japonica*)	MOR	Hill et al., 1975	g	3.2	Japanese quail (*Coturnix japonica*)	MOR	Hill et al., 1975	g	-	-	-	-
Dalapon	285	Mallard duck (*Anas platyrhynchos*)	MOR	USFWS, 1975	g	2850	Mallard duck (*Anas platyrhynchos*)	MOR	USFWS, 1975	t	-	-	-	-
Dichlorprop	1.2	Northern bobwhite (*Colinus virginianus*)	MOR	USEPA, 2000	g,p	12	Northern bobwhite (*Colinus virginianus*)	MOR	USEPA, 2000	g,p	-	-	-	-
MCPA	1.14	Mallard duck (*A-s platyrhynchos*)	MOR	USEPA, 2000	g	11.4	Mallard duck (*Anas platyrhynchos*)	MOR	USEPA, 2000	g	-	-	-	-
MCPP	1.14	Mallard duck (*Anas platyrhynchos*)	MOR	USEPA, 2000	g,o	11.4	Mallard duck (*Anas platyrhynchos*)	MOR	USEPA, 2000	g,o	-	-	-	-
Dioxin/Furans														
Total Avian Dioxin TEQ	0.0000140	Ring-necked Pheasant (*Phasianus colchicus*)	REP	Nosek et al. 1992; Sample et al, 1996	b	0.0001400	Ring-necked Pheasant (*Phasianus colchicus*)	REP	Nosek et al. 1992; Sample et al, 1996	b	-	-	-	-
Total Mammalian Dioxin TEQ	NA	-	-	-		NA	-	-	-		-	-	-	-
Polycyclic Aromatic Hydrocarbons (PAHs)														
LMW PAHs	22.8	Mallard duck (*Anas platyrhynchos*)	Organ weight	Patton and Dieter, 1980	f	228	Mallard duck (*Anas platyrhynchos*)	Organ weight	Patton and Dieter, 1980	f	-	-	-	-
HMW PAHs	10.0	European starling (*Sturnus vulgaris*)	Decreased body mass	Trust et al., 1994	e	100	European starling (*Sturnus vulgaris*)	Decreased body mass	Trust et al., 1994	e	-	-	-	-

Table U-18.
Summary of Toxicity Reference Values for Wildlife

mg/kg-day	Milligrams per kilogram per day.
BERA	Baseline Ecological Risk Assessment
BTAG	Biological Technical Advisory Group.
CPEC	Chemicals of potential ecological concern.
Endpoints	REP = reproduction; GRO = growth; MOR = mortality
NA	Not applicable; TRVs required for badger exposed to deep soil only.
TEQ	Toxic equivalent quotient.
TRV	Toxicity reference value.
-	Not available.
[a]	From EcoSSL Guidnce (USEPA, 2007).
[b]	From ORNL Report (Sample et al., 1996).
[c]	Low TRVs are based on NOAEL and high TRVs are based on LOAEL.
[d]	Reported NOAEL values are used as the low TRV and the "Dose" (i.e., before uncertainty factors were applied) reported is used as the high TRV. Reported LOAEL values are used as the high TRV and a UF of 10 applied to calculate the low TRV. Note: some of the TRVs listed in this reference may not be appropriate.
[e]	Benzo(a)pyrene values used as surrogate for high molecular weight PAHs.
[f]	Naphthalene values used as surrogate for all low molecular weight PAHs.
[g]	derived for the BERA as described in Attachment 2
[h]	Navy/BTAG TRV workgroup selected biological effects that primarily related to growth, reproduction, and development; however, all effects deemed ecologically relevant were considered when developing TRVs.
[i]	Dibutyltin and tributyltin value used
[j]	Butanol used as a surrogate for TRV derivation.
[k]	Endosulfan used as surrogate for TRV derivation
[l]	N-nitrosodimethylamine used as surrogate
[m]	Di-n-butylphthalate values used as a surrogate
[n]	1,2-Dichloroethane value used as surrogate.
[o]	MCPA surrogate used.
[p]	2,4-DB surrogate used.
[q]	Benzene values used as surrogate.
[r]	Butanol used as a surrogate for TRV derivation.
[s]	Lindane (gamma-HCH) surrogate used.
[t]	A UF of 0.1 was applied to extrapolate a high TRV from the NOAEL-based TRV.
[u]	Acrylonitrile used as surrogate.
[v]	Based on 2,3,7,8-tetrachlorodibenzodioxin (TCDD).
[w]	Chlorobenzene used as surrogate.
[x]	MTBE used as surrogate.
[y]	Heptachlor used as surrogate
[z]	From CalEPA Guidance (CalEPA, 2002).

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