Key: I = IRIS; P = PPRTV; A = ATSDR; C = Cal EPA; X = PPRTV Appendix; H = HEAST; J = New Jersey; S = see user guide Section 5; L = see user guide on lead; M = mutagen; V = volatile; E = Environmental Criteria and Assessment Office

Toxicity and Chemical-specific Information																Contaminant		Screening Levels			
SFO $(mg/kg\text{-}day)^{-1}$	key	IUR $(ug/m^3)^{-1}$	key	RfD_o (mg/kg-day)	key	$SRfD_o$ (mg/kg-day)	key	RfC_i (mg/m^3)	key	$SRfC_i$ (mg/m^3)	key	ABS	RAGSe GIABS (unitless)	voc	muta-gen	Analyte	CAS No.	Child Swimmer (ug/L)	key	Child Soil (mg/kg)	key
5.5E-02	I	7.8E-06	I	4.0E-03	I	1.0E-02	P	3.0E-02	I	8.0E-02	P		1	V		Benzene	71-43-2	8.9E+03	nc	5.0E+03	nc
				1.0E-01	I	4.0E-01	H	4.0E-01	I	9.0E-02	H		1	V		Cumene	98-82-8	6.0E+04	nc	2.1E+04	nc
								6.0E+00	I				1	V		Cyclohexane	110-82-7		c	2.5E+05	nc
1.1E-02	C	2.5E-06	C	1.0E-01	I	5.0E-02	P	1.0E+00	I	9.0E+00	P		1	V		Ethylbenzene	100-41-4	1.4E+04	nc	4.5E+04	nc
		2.6E-04	C	2.0E-02	I	2.0E-02	H	9.0E-05	A				0.04			Nickel Soluble Salts	7440-02-0	4.4E+04	nc	1.8E+04	nc
																Polynuclear Aromatic Hydrocarbons (PAHs)			c		c
				6.0E-02	I							0.13	1	V		~Acenaphthene	83-32-9	7.6E+03	nc	4.0E+04	nc
				3.0E-01	I	1.0E+00	P					0.13	1	V		~Anthracene	120-12-7	6.7E+04	nc	6.7E+05	nc
7.3E-01	E	1.1E-04	C									0.13	1		M	~Benz[a]anthracene	56-55-3	1.2E+04	c	9.7E+02	c
7.3E+00	I	1.1E-03	C									0.13	1		M	~Benzo[a]pyrene	50-32-8	1.2E+03	c	9.7E+01	c
7.3E-01	E	1.1E-04	C									0.13	1		M	~Benzo[b]fluoranthene	205-99-2	1.2E+04	c	9.7E+02	c
7.3E-02	E	1.1E-04	C									0.13	1		M	~Benzo[k]fluoranthene	207-08-9	1.2E+05	c	9.7E+03	c
7.3E-03	E	1.1E-05	C									0.13	1		M	~Chrysene	218-01-9	1.2E+06	c	9.7E+04	c
7.3E+00	E	1.2E-03	C									0.13	1		M	~Dibenz[a,h]anthracene	53-70-3	1.2E+03	c	9.7E+01	c
				4.0E-02	I	4.0E-01	H					0.13	1			~Fluoranthene	206-44-0	1.5E+06	nc	2.7E+05	nc
				4.0E-02	I	4.0E-01	H					0.13	1	V		~Fluorene	86-73-7	3.7E+04	nc	2.7E+05	nc
7.3E-01	E	1.1E-04	C									0.13	1		M	~Indeno[1,2,3-cd]pyrene	193-39-5	1.2E+04	c	9.7E+02	c
				4.0E-03	I	4.0E-03	P						1	V		~Methylnaphthalene, 2-	91-57-6	5.2E+02	nc	3.7E+03	nc
		3.4E-05	C	2.0E-02	I			3.0E-03	I			0.13	1	V		~Naphthalene	91-20-3	5.3E+03	nc	3.9E+03	nc
				3.0E-02	I	3.0E-01	P					0.13	1	V		~Pyrene	129-00-0	1.2E+04	nc	2.0E+05	nc
				8.0E-02	I	8.0E-01	P	5.0E+00	I	5.0E+00	P		1	V		Toluene	108-88-3	3.7E+05	nc	3.9E+05	nc
				5.0E-03	S								1			Vanadium and Compounds	NA	1.6E+04	nc	4.6E+03	nc
				2.0E-01	I			7.0E-01	C				1	V		Xylene, m-	108-38-3	5.4E+04	nc	8.2E+04	nc

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Child Swimmer Equation Inputs

Variable	Value
TR (target cancer risk) unitless	0.0001
THQ (target hazard quotient) unitless	3
AT (averaging time) days/year	365
EF_{swim} (exposure frequency - child) days/year	90
ED_{swim} (exposure duration - child) years	1
LT (lifetime) yr	70
EV_{swim} (event frequency - child) events/day	1
ET_{swim} (exposure time - child) hours/event	1
BW_{swim} (body weight - child) kg	15
IRW_{swim} (water intake rate - child) L/hour	0.05
SA_{swim} (skin surface area - child) cm^2	6600
Skin Thickness cm	0.001
CF (units conversion factor) mg/ug	0.001

cancer SL equation for ingestion

ing=(TR_{swim} * AT * LT * BWswim) / (EFswim * IRWswim * EDswim * Etswim * EVswim* SFO * CF)

cancer SL equation for dermal

DAevent = (DAD * BW_{swim} * LT * AT) / (EVswim * EDswim * EFswim * SAswim)

where DAD = TR * GIABS / SFO

For organics:

cw_ltpt6 = DAevent_car / DAevent_lt

cw_gtpt6 = DAevent_car / DAevent_gt

If EV_{swim} <= t* then derc=cw_ltpt6*1e6

else if EVswim > t* then derc=cw_gtpt6*1e6

For other than organics:

denom=kp*EV_{swim} ;

dermal= DAevent *1e6 / denom

Total cancer SL equation = 1/((1/ing)+(1/dermal))

noncancer SL equation for ingestion

ing=(THQ_{swim} * AT * EDswim * BWswim) / (EFswim * IRWswim * EDswim * Etswim * EVswim* (1/RfD) * CF)

noncancer SL equation for dermal

DAevent = (DAD * BW_{swim} * EDswim * AT) / (EVswim * EDswim * EFswim * SAswim)

where DAD = THQ * GIABS * RfD

For organics:

cw_ltpt6 = Daevent_ncar / DAevent_lt

cw_gtpt6 = DAevent_ncar / DAevent_gt

If EV_{swim} <= t* then dern=cwn_ltpt6*1e6

else if EVswim > t* then dern=cwn_gtpt6*1e6

For other than organics:

denom=kp*EV_{swim} ;

dermal= DAevent *1e6 / denom

Total cancer SL equation = 1/((1/ing)+(1/dermal))

Key: I = IRIS; P = PPRTV; A = ATSDR; C = Cal EPA; X = PPRTV Appendix; H = HEAST; J = New Jersey; S = see user guide Section 5; L = see user guide on lead; M = mutagen; V = volatile; E = Environmental Criteria and Assessment Office

Toxicity and Chemical-specific Information										Contaminant		Screening Levels						
SFO (mg/kg-day)$^{-1}$	key	RfD_o (mg/kg-day)	key	$SRfD_o$ (mg/kg-day)	key	RAGSe GIABS (unitless)	voc	muta-gen	EPD	Analyte	CAS No.	Ingestion TR=1.0E-4 µg/L	Dermal TR=1.0E-4 µg/L	Total TR=1.0E-4 µg/L	Ingestion HI=3 µg/L	Dermal HI=3 µg/L	Total HI=3 µg/L	Recommended SL µg/L
5.5E-02	I	4.0E-03	I	1.0E-02	P	1	V		1	Benzene	71-43-2	1.5E+05	5.0E+04	3.8E+04	3.7E+04	1.2E+04	8.9E+03	8.9E+03
		1.0E-01	I	4.0E-01	H	1	V		1	Cumene	98-82-8				1.5E+06	6.3E+04	6.0E+04	6.0E+04
						1	V		1	Cyclohexane	110-82-7							
1.1E-02	C	1.0E-01	I	5.0E-02	P	1	V		1	Ethylbenzene	100-41-4	7.7E+05	6.6E+04	6.1E+04	1.8E+05	1.6E+04	1.4E+04	1.4E+04
		2.0E-02	I	2.0E-02	H	0.04			1	Nickel Soluble Salts	7440-02-0				7.3E+04	1.1E+05	4.4E+04	4.4E+04
										Polynuclear Aromatic Hydrocarbons (PAHs)								
		6.0E-02	I			1	V		1	~Acenaphthene	83-32-9				2.2E+05	7.9E+03	7.6E+03	7.6E+03
		3.0E-01	I	1.0E+00	P	1	V		1	~Anthracene	120-12-7				3.7E+06	6.8E+04	6.7E+04	6.7E+04
7.3E-01	E					1		M	0	~Benz[a]anthracene	56-55-3	1.2E+04		1.2E+04				1.2E+04
7.3E+00	I					1		M	0	~Benzo[a]pyrene	50-32-8	1.2E+03		1.2E+03				1.2E+03
7.3E-01	E					1		M	0	~Benzo[b]fluoranthene	205-99-2	1.2E+04		1.2E+04				1.2E+04
7.3E-02	E					1		M	0	~Benzo[k]fluoranthene	207-08-9	1.2E+05		1.2E+05				1.2E+05
7.3E-03	E					1		M	0	~Chrysene	218-01-9	1.2E+06		1.2E+06				1.2E+06
7.3E+00	E					1		M	0	~Dibenz[a,h]anthracene	53-70-3	1.2E+03		1.2E+03				1.2E+03
		4.0E-02	I	4.0E-01	H	1			0	~Fluoranthene	206-44-0				1.5E+06		1.5E+06	1.5E+06
		4.0E-02	I	4.0E-01	H	1	V		1	~Fluorene	86-73-7				1.5E+06	3.8E+04	3.7E+04	3.7E+04
7.3E-01	E					1		M	0	~Indeno[1,2,3-cd]pyrene	193-39-5	1.2E+04		1.2E+04				1.2E+04
		4.0E-03	I	4.0E-03	P	1	V		1	~Methylnaphthalene, 2-	91-57-6				1.5E+04	5.3E+02	5.2E+02	5.2E+02
		2.0E-02	I			1	V		1	~Naphthalene	91-20-3				7.3E+04	5.8E+03	5.3E+03	5.3E+03
		3.0E-02	I	3.0E-01	P	1	V		1	~Pyrene	129-00-0				1.1E+06	1.2E+04	1.2E+04	1.2E+04
		8.0E-02	I	8.0E-01	P	1	V		1	Toluene	108-88-3				2.9E+06	4.2E+05	3.7E+05	3.7E+05
		5.0E-03	S			1			1	Vanadium and Compounds	NA				1.8E+04	1.4E+05	1.6E+04	1.6E+04
		2.0E-01	I			1	V		1	Xylene, m-	108-38-3				7.3E+05	5.8E+04	5.4E+04	5.4E+04

Child Soil Equation Inputs

Variable	Value
TR (target cancer risk) unitless	0.0001
THQ (target hazard quotient) unitless	3
AT (averaging time) days/year	365
EF_{soil} (exposure frequency - child) days/year	90
ED_{soil} (exposure duration - child) years	1
LT (lifetime) yr	70
ET_{soil} (exposure time - child) hours/day	8
BW_{soil} (body weight - child) kg	15
IRS_{soil} (soil untake rate - child) mg/day	200
SA_{soil} (skin surface area - child) cm^2	2800
AF_{soil} (skin adherence factor - child) mg/cm^2	0.2
CF (units conversion factor) kg/mg	1.00E-06
CF1 (conversion factor) days/hour	4.17E-02
CF2 (conversion factor) ug/mg	1.00E+03

cancer SL equation for ingestion ing = (TR * AT * LT * BW_{soil}) / (EF_{soil} * IRS_{soil} * ED_{soil} * SFO * CF)
cancer SL equation for dermal dermal = (TR * AT * LT * BW_{soil}) / (EF_{soil} * ED_{soil} * SA_{soil} * AF_{soil} * (SFO/GIABS) * ABS * CF)
cancer SL equation for inhalation inh = TR * AT * LT / (EF_{soil} * ED_{soil} * ET_{soil} * CF1 * IUR * ((1/VF)+(1/PEF)) * CF2
Total cancer SL equation = 1/((1/ing)+(1/dermal)+(1/inh))

noncancer SL equation for ingestion ing=(THQ * AT * ED_{soil} * BW_{soil}) / (EF_{soil} * ED_{soil} * IRS_{soil} * (1/RfD) * CF)
noncancer SL equation for dermal dermal = (THQ * AT * ED_{soil} * BW_{soil}) / (EF_{soil} * ED_{soil} * SA_{soil} * AF_{soil} * ABS * CF * (1/RfD * GIABS))
noncancer SL equation for inhalation inh = THQ * AT * ED_{soil} / (EF_{soil} * ED_{soil} * ET_{soil} * CF1 * (1/RfC) * ((1/VF)+(1/PEF))
Total cancer SL equation = 1/((1/ing)+(1/dermal)+(1/inh))

Key: I = IRIS; P = PPRTV; A = ATSDR; C = Cal EPA; X = PPRTV Appendix; H = HEAST; J = New Jersey; S = see user guide Section 5; L = see user guide on lead; M = mutagen; V = volatile; E = Environmental Criteria and Assessment Of

Toxicity and Chemical-specific Information																Contaminant		Screening Levels								
SFO (mg/kg-day)$^{-1}$	key	IUR (ug/m^3)$^{-1}$	key	RfD_o (mg/kg-day)	key	$SRfD_o$ (mg/kg-day)	key	RfC_i (mg/m^3)	key	$SRfC_i$ (mg/m^3)	key	ABS	RAGSe GIABS (unitless)	voc	muta-gen	Analyte	CAS No.	Ingestion SL TR=1.0E-4 (mg/kg)	Dermal SL TR=1.0E-4 (mg/kg)	Inhalation SL TR=1.0E-4 (mg/kg)	Carcinogenic SL TR=1.0E-4 (mg/kg)	Ingestion SL HQ=3 (mg/kg)	Dermal SL HQ=3 (mg/kg)	Inhalation SL HQ=3 (mg/kg)	Noncarcinogenic SL HI=3 (mg/kg)	Recommended Screening Level (mg/kg)
5.5E-02	I	7.8E-06	I	4.0E-03	I	1.0E-02	P	3.0E-02	I	8.0E-02	P		1	V		Benzene	71-43-2	3.9E+04		4.2E+01	1.3E+04	9.1E+03		1.1E+04	5.0E+03	5.0E+03
				1.0E-01	I	4.0E-01	H	4.0E-01	I	9.0E-02	H		1	V		Cumene	98-82-8					3.7E+05		2.2E+04	2.1E+04	2.1E+04
								6.0E+00	I				1	V		Cyclohexane	110-82-7							2.5E+05	2.5E+05	2.5E+05
1.1E-02	C	2.5E-06	C	1.0E-01	I	5.0E-02	P	1.0E+00	I	9.0E+00	P		1	V		Ethylbenzene	100-41-4	1.9E+05		2.1E+02	6.5E+04	4.6E+04		2.0E+06	4.5E+04	4.5E+04
		2.6E-04	C	2.0E-02	I	2.0E-02	H	9.0E-05	A				0.04			Nickel Soluble Salts	7440-02-0			4.5E+05		1.8E+04		4.5E+06	1.8E+04	1.8E+04
																Polynuclear Aromatic Hydrocarbons (PAHs)										
				6.0E-02	I							0.13	1	V		~Acenaphthene	83-32-9					5.5E+04	1.5E+05		4.0E+04	4.0E+04
				3.0E-01	I	1.0E+00	P					0.13	1	V		~Anthracene	120-12-7					9.1E+05	2.5E+06		6.7E+05	6.7E+05
7.3E-01	E	1.1E-04	C									0.13	1		M	~Benz[a]anthracene	56-55-3	2.9E+03	8.0E+03	1.1E+06	9.7E+02					9.7E+02
7.3E+00	I	1.1E-03	C									0.13	1		M	~Benzo[a]pyrene	50-32-8	2.9E+02	8.0E+02	1.1E+05	9.7E+01					9.7E+01
7.3E-01	E	1.1E-04	C									0.13	1		M	~Benzo[b]fluoranthene	205-99-2	2.9E+03	8.0E+03	1.1E+06	9.7E+02					9.7E+02
7.3E-02	E	1.1E-04	C									0.13	1		M	~Benzo[k]fluoranthene	207-08-9	2.9E+04	8.0E+04	1.1E+06	9.7E+03					9.7E+03
7.3E-03	E	1.1E-05	C									0.13	1		M	~Chrysene	218-01-9	2.9E+05	8.0E+05	1.1E+07	9.7E+04					9.7E+04
7.3E+00	E	1.2E-03	C									0.13	1		M	~Dibenz[a,h]anthracene	53-70-3	2.9E+02	8.0E+02	9.6E+04	9.7E+01					9.7E+01
				4.0E-02	I	4.0E-01	H					0.13	1			~Fluoranthene	206-44-0					3.7E+05	1.0E+06		2.7E+05	2.7E+05
				4.0E-02	I	4.0E-01	H					0.13	1	V		~Fluorene	86-73-7					3.7E+05	1.0E+06		2.7E+05	2.7E+05
7.3E-01	E	1.1E-04	C									0.13	1		M	~Indeno[1,2,3-cd]pyrene	193-39-5	2.9E+03	8.0E+03	1.1E+06	9.7E+02					9.7E+02
				4.0E-03	I	4.0E-03	P						1	V		~Methylnaphthalene, 2-	91-57-6					3.7E+03			3.7E+03	3.7E+03
		3.4E-05	C	2.0E-02	I			3.0E-03	I			0.13	1	V		~Naphthalene	91-20-3			1.2E+02		1.8E+04	5.0E+04	5.5E+03	3.9E+03	3.9E+03
				3.0E-02	I	3.0E-01	P					0.13	1	V		~Pyrene	129-00-0					2.7E+05	7.5E+05		2.0E+05	2.0E+05
				8.0E-02	I	8.0E-01	P	5.0E+00	I	5.0E+00	P		1	V		Toluene	108-88-3					7.3E+05		8.4E+05	3.9E+05	3.9E+05
				5.0E-03	S								1			Vanadium and Compounds	NA					4.6E+03			4.6E+03	4.6E+03
				2.0E-01	I			7.0E-01	C				1	V		Xylene, m-	108-38-3					1.8E+05		1.5E+05	8.2E+04	8.2E+04

Contaminant		Chemical-specific Information														
Analyte	CAS No.	EPD	MW (g/mole)	Kp (cm/hr)	GIABS	ABS	FA	τ (lag time per event) hr/event	τ* (time to reach steady state) hr	DAevent (absorbed dose per event if event < 2.4=τ) mg/cm2-event	DAevent (absorbed dose per event if event >2.4=τ) mg/cm2-event	DAevent (carcinogenic absorbed dose per event) mg/cm2-event	DAevent (noncarcinogenic absorbed dose per event) mg/cm2-event	B	c (correlation coefficient)	b (correlation coefficient)
Benzene	71-43-2	1	78.11	0.0149	1		1	0.2919103	0.7005848	0.0222506	0.0233202	0.0019385	0.0004569	0.0506485	0.3679128	0.3348277
Cumene	98-82-8	1	120.2	0.0897	1		1	0.5028635	1.2068724	0.1758119	0.1868493		0.0182772	0.3782434	0.6200971	0.589197
Cyclohexane	110-82-7	1	84.16	0.102	1		1	0.3156464	0.7575514	0.1583913	0.1609489			0.3598982	0.6050146	0.5723011
Ethylbenzene	100-41-4	1	106.17	0.0493	1		1	0.4194851	1.0067643	0.0882543	0.0904686	0.0096925	0.0022846	0.1953775	0.4742294	0.435454
Nickel Soluble Salts	7440-02-0	1	58.69	0.0002	0.04		1	0.2271268	0.5451042	0.0002634	0.0002908		0.0000366	0.0005893	0.3337263	0.303644
Polynuclear Aromatic Hydrocarbons (PAHs																
~Acenaphthene	83-32-9	1	154.21	0.086	1	0.13	1	0.7803823	1.8729176	0.2099824	0.2456459		0.0027416	0.4107536	0.6470339	0.6199831
~Anthracene	120-12-7	1	178.24	0.142	1	0.13	1	1.0645326	2.5548783	0.4049473	0.5656928		0.045693	0.7291512	0.921924	0.9815461
~Benz[a]anthracene	56-55-3	0	228.3	0.552	1	0.13	1	2.0327581	4.8786193	2.1752672	5.3904495			3.2078842	3.2871006	7.9850735
~Benzo[a]pyrene	50-32-8	0	252.32	0.713	1	0.13	1	2.7725611	6.6541466	3.2814121	9.9174456			4.3560416	4.4182766	13.84455
~Benzo[b]fluoranthene	205-99-2	0	252.32	0.417	1	0.13	1	2.7725611	6.6541466	1.9191428	5.2828472			2.5476429	2.641602	5.370748
~Benzo[k]fluoranthene	207-08-9	0	252.32	0.691	1	0.13	1	2.7725611	6.6541466	3.1801624	9.5664791			4.2216336	4.2854706	13.072259
~Chrysene	218-01-9	0	228.3	0.596	1	0.13	1	2.0327581	4.8786193	2.348658	5.8957412			3.4635851	3.5382635	9.1454893
~Dibenz[a,h]anthracene	53-70-3	0	278.36	0.953	1	0.13	0.6	3.8816145	9.3158747	3.1137306	11.613495			6.1153732	6.1622201	26.068907
~Fluoranthene	206-44-0	0	202.26	0.308	1	0.13	1	1.4519592	3.4847021	1.0257904	1.9225968			1.684738	1.8088966	2.7797429
~Fluorene	86-73-7	1	166.22	0.11	1	0.13	1	0.9113919	2.1873405	0.2902525	0.3674264		0.0182772	0.5454576	0.7611434	0.7593841
~Indeno[1,2,3-cd]pyrene	193-39-5	0	276.34	1.24	1	0.13	0.6	3.7816085	9.0758603	3.9989125	15.144246			7.92812	7.9654552	42.780351
~Methylnaphthalene, 2-	91-57-6	1	142.2	0.0917	1		1	0.668205	1.603692	0.2071834	0.2341236		0.0001828	0.4205773	0.6552237	0.6295004
~Naphthalene	91-20-3	1	128.18	0.0466	1	0.13	1	0.5574838	1.3379612	0.0961685	0.1009397		0.0009139	0.202919	0.4800227	0.4411751
~Pyrene	129-00-0	1	202.26	0.201	1	0.13	1	1.4519592	3.4847021	0.6694281	1.1451704		0.0137079	1.0994556	1.258227	1.5478109
Toluene	108-88-3	1	92.14	0.0311	1		1	0.3499315	0.8398355	0.050849	0.0521353		0.0365544	0.1148183	0.4138207	0.377383
Vanadium and Compounds	NA	1	50.94	0.001	1		1	0.2054834	0.4931603	0.0012529	0.0014094		0.0002303	0.0027451	0.3351659	0.3049538
Xylene, m-	108-38-3	1	106.17	0.0532	1		1	0.4194851	1.0067643	0.0952359	0.0976948		0.0091386	0.2108333	0.4861258	0.4472334