Appendix D

Human Health Risk Assessment Tables: Lead Model

Table D-1 IEUBK Model Output for Residential Children, Fill Area
LEAD MODEL Version 0.99d

AIR CONCENTRATION: 0.100 ug Pb/m3 DEFAULT
Indoor AIR Pb Conc: 30.0 percent of outdoor.
Other AIR Parameters:

Age	Time Outdoors (hr)	Vent. Rate (m3/day)	Lung Abs. (%)
0-1	1.0	2.0	32.0
1-2	2.0	3.0	32.0
2-3	3.0	5.0	32.0
3-4	4.0	5.0	32.0
4-5	4.0	5.0	32.0
5-6	4.0	7.0	32.0
6-7	4.0	7.0	32.0

DIET: DEFAULT

DRINKING WATER Conc: 4.00 ug Pb/L DEFAULT
WATER Consumption: DEFAULT

SOIL & DUST:
Soil: constant conc.
Dust: constant conc.

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
0-1	417.0	200.0
1-2	417.0	200.0
2-3	417.0	200.0
3-4	417.0	200.0
4-5	417.0	200.0
5-6	417.0	200.0
6-7	417.0	200.0

Additional Dust Sources: None DEFAULT

PAINT Intake: 0.00 ug Pb/day DEFAULT

MATERNAL CONTRIBUTION: Infant Model
Maternal Blood Conc: 2.50 ug Pb/dL

CALCULATED BLOOD Pb and Pb UPTAKES:

YEAR	Blood Level (ug/dL)	Total Uptake (ug/day)	Soil+Dust Uptake (ug/day)
0.5-1:	5.2	9.65	6.79
1-2:	5.8	14.11	10.64
2-3:	5.4	14.70	10.80
3-4:	5.2	14.83	10.97
4-5:	4.3	12.26	8.35
5-6:	3.7	11.78	7.59

6-7:	3.4	11.74	7.21	

YEAR	Diet Uptake (ug/day)	Water Uptake (ug/day)	Paint Uptake (ug/day)	Air Uptake (ug/day)
0.5-1:	2.48	0.36	0.00	0.02
1-2:	2.55	0.88	0.00	0.03
2-3:	2.91	0.93	0.00	0.06
3-4:	2.84	0.96	0.00	0.07
4-5:	2.81	1.03	0.00	0.07
5-6:	2.99	1.10	0.00	0.09
6-7:	3.32	1.12	0.00	0.09
6-7:	3.31	1.12	0.00	0.09

Table D-2. Adult Lead Risk Spreadsheet, Fill Area

Lead Exposure Model

EQUATION:

$$PbB_{final} = PbB_{initial} + \frac{C_s \times BKSF \times IR \times AF \times EF}{AT}$$

where:	PbB_{final}	=		Final lead concentration in plasma (μg/dL)
	$PbB_{initial}$	=	2.2	Initial lead concentration in plasma (μg/dL)
	$C_{s\ tot}$	=	417	Concentration of lead in total soil (μg/g)
	$C_{s\ surf}$	=	471	Concentration of lead in surface soil (μg/g)
	BKSF	=	0.40	Biokinetic Slope Factor (μg.day/μg.dL)
	IR	=	*	Ingestion rate (g/day)
	AF	=	0.12	Absorption fraction (unitless)
	EF	=	*	Exposure frequency (days/yr)
	AT	=	365	Averaging time (days/yr)

* Scenario/Receptor dependent

SCENARIO	RECEPTOR RME			RECEPTOR AE		
Construction/ Excavation Workers	PbB_{final} =	6.1	μg/dL	PbB_{final} =	2.7	μg/dL
Trespassers	PbB_{final} =	2.7	μg/dL	PbB_{final} =	2.3	μg/dL
Maintenance Workers	PbB_{final} =	2.7	μg/dL	PbB_{final} =	2.3	μg/dL
Commercial Workers	PbB_{final} =	3.0	μg/dL	PbB_{final} =	2.4	μg/dL

Table D-3 IEUBK Model Output for Resident Children, Other Area
LEAD MODEL Version 0.99d

AIR CONCENTRATION: 0.100 ug Pb/m3 DEFAULT
Indoor AIR Pb Conc: 30.0 percent of outdoor.
Other AIR Parameters:

Age	Time Outdoors (hr)	Vent. Rate (m3/day)	Lung Abs. (%)
0-1	1.0	2.0	32.0
1-2	2.0	3.0	32.0
2-3	3.0	5.0	32.0
3-4	4.0	5.0	32.0
4-5	4.0	5.0	32.0
5-6	4.0	7.0	32.0
6-7	4.0	7.0	32.0

DIET: DEFAULT

DRINKING WATER Conc: 4.00 ug Pb/L DEFAULT
WATER Consumption: DEFAULT

SOIL & DUST:
Soil: constant conc.
Dust: constant conc.

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
0-1	179.0	200.0
1-2	179.0	200.0
2-3	179.0	200.0
3-4	179.0	200.0
4-5	179.0	200.0
5-6	179.0	200.0
6-7	179.0	200.0

Additional Dust Sources: None DEFAULT

PAINT Intake: 0.00 ug Pb/day DEFAULT

MATERNAL CONTRIBUTION: Infant Model
Maternal Blood Conc: 2.50 ug Pb/dL

CALCULATED BLOOD Pb and Pb UPTAKES:

YEAR	Blood Level (ug/dL)	Total Uptake (ug/day)	Soil+Dust Uptake (ug/day)
0.5-1:	4.0	7.40	4.47
1-2:	4.4	10.61	7.03
2-3:	4.1	11.11	7.10
3-4:	3.9	11.15	7.19
4-5:	3.3	9.40	5.43
5-6:	2.9	9.16	4.92

6-7:	2.6	9.25	4.66	

YEAR	Diet Uptake (ug/day)	Water Uptake (ug/day)	Paint Uptake (ug/day)	Air Uptake (ug/day)
0.5-1:	2.54	0.37	0.00	0.02
1-2:	2.63	0.91	0.00	0.03
2-3:	2.99	0.96	0.00	0.06
3-4:	2.91	0.99	0.00	0.07
4-5:	2.86	1.05	0.00	0.07
5-6:	3.03	1.11	0.00	0.09
6-7:	3.36	1.13	0.00	0.09

Table D-4. Adult Lead Risk Spreadsheet, Other Area

Lead Exposure Model

EQUATION:

$$PbB_{final} = PbB_{initial} + \frac{C_s \times BKSF \times IR \times AF \times EF}{AT}$$

where:	PbB_{final}	=		Final lead concentration in plasma (μg/dL)
	$PbB_{initial}$	=	2.2	Initial lead concentration in plasma (μg/dL)
	$C_{s\ tot}$	=	179	Concentration of lead in total soil (μg/g)
	$C_{s\ surf}$	=	179	Concentration of lead in surface soil (μg/g)
	BKSF	=	0.40	Biokinetic Slope Factor (μg.day/μg.dL)
	IR	=	*	Ingestion rate (g/day)
	AF	=	0.12	Absorption fraction (unitless)
	EF	=	*	Exposure frequency (days/yr)
	AT	=	365	Averaging time (days/yr)

* Scenario/Receptor dependent

SCENARIO	RECEPTOR RME			RECEPTOR AE		
Construction/ Excavation Workers	PbB_{final} =	3.9	μg/dL	PbB_{final} =	2.4	μg/dL
Trespassers	PbB_{final} =	2.4	μg/dL	PbB_{final} =	2.2	μg/dL
Maintenance Workers	PbB_{final} =	2.4	μg/dL	PbB_{final} =	2.2	μg/dL
Commercial Workers	PbB_{final} =	2.5	μg/dL	PbB_{final} =	2.3	μg/dL