ALL AGES LEAD MODEL PARAMETER DESCRIPTIONS					
EXPOSURE PARAMETERS					
Variable	Units	Form	Type	Description	Explanation
DietType	User Option	Value	Integer	Source of diet (Market, Home Garden, etc)	Select from market, garden, recreational hunt/fish, subsistence hunt/fish
ComDietType	User Option	Value	Integer	Combination Diet (Recreational, Subsist)	Combine up to three food sources
DustType	User Option	Value	Integer	Dust type (Residential or Other Dust Sources)	Select from home, school, occupational, recreational dust sources
WaterType	User Option	Value	Integer	Flushed Water or Other Water Sources	Select from home, school, occupational, recreational drinking water sources
HistDietPb	yes/no	Value	Boolean	Use Historical Diet Pb Concentration	Inactive: future use
HistAirPb	yes/no	Value	Boolean	Use Historical Air Pb Concentration	Inactive: future use
HistDustPb	yes/no	Value	Boolean	Use Historical Dust Pb Concentration	Inactive: future use
nStartEndSelection	Years	Value	Integer	Age - start or end selection	Option to specify age at beginning or end of study
timStartDate	User Option	Value	Date	End Date	Last day of study, typically the current date
nTimestepEdit	User Option	Value	Float	Simulation time step	Option to change time step from days to hours
nTimestepUnit	hours/days	Value	Float	Simulation time step unit	(0=days or 1=hours)
AgeRange		Array	String	Age Range Category	Label for each of the 9 age range categories
AgeLo	User Option	Array	Float	Low value for age ranges	Option to select age at beginning of study
AgeHi	User Option	Array	Float	High value for age ranges	Option to select age at end of study
AgeStartDate	User Option	Array	date	Start date for age range duration	Option to set start date for each age range
Duration	Days	Array	Float	Duration for the age range	Option to set length of each age range
OutdoorAirPbConc	m^3/h	Array	Float	Outdoor Air Lead Conc.	User specified outdoor air lead concentration
ResPerOutdoorAirPbConc	% of outdoor	Array	Float	Residential Air Pb Conc	Residential air concentration as a function of outdoor air; can be > 100%
SchPerOutdoorAirPbConc	% of outdoor	Array	Float	School Air Pb Conc.	School air concentration as a function of outdoor air; can be > 100%
OccPerOutdoorAirPbConc	% of outdoor	Array	Float	Occupational Air Pb Conc	Occupational air concentration as a function of outdoor air; can be > 100%
VentRateReside	m^3/hr	Array	Float	Residential Ventilation Rates	Breathing rate in home environment
VentRateSchool	m^3/hr	Array	Float	School Ventilation Rates	Breathing rate at school
VentRateOccupat	m^3/hr	Array	Float	Occupational Ventilation Rates	Breathing rate at work
VentRateRec	m^3/hr	Array	Float	Recreational Ventilation Rates	Breathing rate during recreational
FruitIntake	g/day	Array	Float	Market Fruit Intake]	Total grams of fruit ingested per day from supermarket
FruitPbConc	µg/g	Array	Float	Market Fruit Pb Conc	Lead concentration in fruit from supermarket
VegIntake	g/day	Array	Float	Market Vegetable Intake	Total grams of vegetables ingested per day from supermarket
VegPbConc	µg/g	Array	Float	Market Vegetable Pb Conc	Lead concentration in vegetables from supermarket
MeatIntake	g/day	Array	Float	Market Meat Intake	Total grams of meat ingested per day from supermarket
MeatPbConc	µg/g	Array	Float	Market Meat Pb Conc	Lead concentration in meat from supermarket
FishIntake	g/day	Array	Float	Market Fish Intake	Total gram of fish ingested per day from supermarket
FishPbConc	µg/g	Array	Float	Market Fish Pb Conc	Lead concentration in fish from supermarket

FruitGardenPercent	% of diet	Array	Float	Garden Fruit Intake	Total grams of fruit ingested per day from home garden
FruitGardenPbConc	µg/g	Array	Float	Garden Fruit Pb Conc	Lead concentration in fruit from home garden
VegGardenPercent	% of diet	Array	Float	Garden Vegetable Intake	Total grams of vegetables ingested per day from home garden
VegGardenPbConc	µg/g	Array	Float	Garden Vegetable Pb Conc	Lead concentration in vegetables from home garden
NatMeatPercent	% of diet	Array	Float	Natural Meat Intake	Total grams of meat ingested per day from hunting
NatMeatPbConc	µg/g	Array	Float	Natural Meat Pb Conc	Lead concentration in meat from hunting
NatFishPercent	% of diet	Array	Float	Natural Fish Intake	Total gram of fish ingested per day from fishing
NatFishPbConc	µg/g	Array	Float	Natural Fish Pb Conc	Lead concentration in fish from fishing
TotalDustIngested	mg/day	Array	Float	Total Dust Ingested	Total milligram of dust ingested per day
ResideDustIngested	% of total	Array	Float	Residential Dust Ingested	Percent of total dust ingestion occurring in residence
ResideDustPbConc	µg/g	Array	Float	Residential Dust Pb Conc	Lead concentration in residential dust
SchoolDustPercent	% of total	Array	Float	School Ingested Dust	Percent of total dust ingestion occurring in
SchoolDustPbConc	µg/g	Array	Float	School Ingested Dust Pb Conc	Lead concentration in school dust
OccDustPercent	% of total	Array	Float	Occupational Ingested Dust	Percent of total dust ingestion occurring in
OccDustPbConc	µg/g	Array	Float	Occupational Ingested Dust Pb Conc	Lead concentration in occupational dust
RecDustPercent	% of total	Array	Float	Recreational Ingested Dust	Percent of total dust ingestion occurring in
RecDustPbConc	µg/g	Array	Float	Recreational Ingested Dust Pb Conc	Lead concentration in recreational dust
TotalDustSurface	m^2 /day	Array	Float	Total Contact Surface Area	Estimated total dust surface area in contact with hand
ResideDustSurface	% of total	Array	Float	Residential Contact Surface Area	Percent of total surface contact occurring in
ResideDustLoading	µg/m^2	Array	Float	Residential Dust Pb Loading	Lead loading in residential dust
SchoolDustSurface	% of total	Array	Float	School Contact Surface Area	Percent of total surface contact occurring in
SchoolDustLoading	µg/m^2	Array	Float	School Dust Pb Loading	Lead loading in school dust
OccDustSurface	% of total	Array	Float	Occupational Contact Surface Area	Percent of total surface contact occurring in
OccDustLoading	µg/m^2	Array	Float	Occupational Dust Pb Loading	Lead loading in occupational dust
RecDustSurface	% of total	Array	Float	Recreational Contact Surface Area	Percent of total surface contact occurring in
RecDustLoading	µg/m^2	Array	Float	Recreational Dust Pb Loading	Lead loading in recreational dust
TVolWatrConsmd	L/day	Array	Float	Total Vol. of Water Consumed	Number of liters of water consumed from all sources
FlushedWater	% of total	Array	Float	Flushed Pb Amt	Percent of total drinking water taken from
LeadConcFlushed	µg/L	Array	Float	Flushed Pb Conc	Concentration of lead in flushed tap water
FirstDraw_Vol	% of total	Array	Float	First Draw Tap Amount	Percent of total drinking water taken from
FirstDraw_Conc	µg/L	Array	Float	First Draw Tap Pb Conc	Concentration of lead in unflushed tap water
PercentFountain	% of total	Array	Float	Fountain Amt	Percent of total drinking water taken from drinking fountains
LeadConcFountain	µg/L	Array	Float	Fountain Pb Conc	Concentration of lead in drinking fountain water
PercentBottled	% of total	Array	Float	Bottled Amt	Percent of total drinking water taken from bottled water
LeadConcBottled	µ	Array	Float	Bottled Pb Conc	Concentration of lead in bottled water
LeadConcPicaSoil	µg/g	Array	Float	Lead Conc. of Soil	Concentration of lead in residential soil
UnitSoil	g/day	Array	Float	Soil Ingested	Amount of soil ingested
LeadConcPain	µg Pb/cm^2	Array	Float	Lead Conc. of Paint Chip	Concentration of lead in paint chip
UnitPaint	cm^2 /day	Array	Float	Paint Chip Ingested	Total surface area of ingested paint chips
LeadConcSkin	µg/g	Array	Float	Lead Conc. of Dust	Concentration of lead in residential dust
UnitMgDust	mg dust/cm^2	Array	Float	Amount of Dust	Mass of residential dust per square centimeter

SurfaceArea	cm^2/day	Array	Float	Exposed Surface Area	Effective dust surface contact area
ResidentialActivityTime	Days	Array	Float	Residential	Active time in residential setting
SchoolActivityTime	Days	Array	Float	School	Active time in school setting
OccupationalActivityTime	Days	Array	Float	Occupational	Active time in occupational setting
RecreationalActivityTim	Days	Array	Float	Recreational	Active time in recreational setting
ResidentialActivityRati	%	Array	Float	Residential Activity Ratio	Percent of Residential time spent indoors
SchoolActivityRatio	%	Array	Float	School Activity Ratio	Percent of School time spent indoors
OccupationalActivityRat	%	Array	Float	Occupational Activity Ratio	Percent of Occupational time spent indoors
RecreationalActivityRat	%	Array	Float	Recreational Activity Ratio	Percent of Recreational time spent indoors
SleepTime	Hours	Array	Float	Daily Sleep	Average hours spent sleeping/resting without dust contact

MODEL CONTROL PARAMETERS					
Variable	Units	Form	Type	Description	EXPLANATION
expage		Value	Integer	Exposure Age	Age at beginning of study
endday		Value	Integer	Last Day	Last day of study
ncycle		Value	Integer	Maximum Cycles	Maximum number of study cycles (e.g. days)
ifetal		Value	Float	Fetal Exposure On/Off	Not Active – reserved for future use
delt0	User Option	Value	Float	Fixed Length Delta Option	On'Off switch for fixed length Delta
delta		Array	Float	Delta Step Lengths	Length of cycle for biokinetic model
iskip		Value	Integer	Output Step Interval	Number of study cycles per output cycle (e.g. 100)
iacute	User Option	Value	Integer	Acute/Chronic	Switch from chronic (default) to acute
inmode	User Option	Value	Integer	Mode of Intake	Select Injection Inhalation Ingestion Combination
irbc		Value	Float	Linear/Nonlinear Model	Switch to use linear/non-linear mode – non-linear default
rbcnl		Value	Float	RBC Threshold Concentration	Threshold above which Pb adsorption on RBC becomes nonlinear
satrat		Value	Float	Nonlinear parameter 2	Required parameter for non-linear mode – value of 350
power		Value	Float	Power	1.5 for selected equations
ichel	User Option	Value	Float	Chelation On/Off	Switch to turn on/off input mode-default off
chage		Array	Float	Given ages that have explicit values	Age for which values are entered manually
ndelt	User Option	Value	Integer	Different Step Lengths	Option to select unequal time steps
icyc	years	Array	Integer	Age Ranges for Deltas	Age at which Delta values change
q		Array	Integer	Index of outputs	List of selected outputs
linput	User Option	Value	Boolean	Manual input	Option to input value manually
numage	Unit	Value	Integer	Number of Age Ranges	Set number of age ranges – default 9
xmxage	Years	Value	Integer	Maximum Age	Selected upper age for modeled scenario
deltfix		Value	Float	Fixed Delta	Default: variable; can set fixed time step
bUseBodySize	y/n	Value	Integer	Body Size Curve (on/off)	Not active; can specify growth curve computation
sBoneCompute	y/n	Value	String	Bone Computation?	Switch to use Leggett of O'Flaherty model

BIOKINETIC PARAMETERS					
Variable	Units	FORM	Type	Description	EXPLANATION
rdecay		Value	Float	Pb Decay Rate	Not used, Default 0
arcort		Array	Float	Cortical Bone Turnover	Cortical Bone Turnover rate by age range; edited by age
artrab		Array	Float	Trabecular Bone Turnover	Trabecular Bone Turnover rate by age range; edited by age
arcs2b	Mass Pb/day	Array	Float	Transfer from Cortical Surface to Blood	Transfer per time step from cortical surface to blood
arts2b	Mass Pb/day	Array	Float	Transfer from Trabecular Surface to Blood	Transfer per time step from trabecular surface to blood
arcsdf		Array	Float	Cortical Surface to Volume Transfer	Transfer per time step from cortical surface to cortical volume
artsdf		Array	Float	Trabecular Surface to Volume Transfer	Transfer per time step from cortical surface to trabecular volume
rdiff	Mass Pb/day	Array	Float	Total Transfer from Exchange Bone Volume	Transfer per time step from exchange bone volume to non-exchange
flong	Mass Pb/day	Array	Float	Transfer from Exchange to Non-exchange Volume	Transfer per time step from non-exchange bone to exchange bone
rlvr1	Mass Pb/day	Value	Float	Transfer from Liver 1	Mass of lead transfer from Liver 1 per time step
rkdn1		Value	Float	Transfer from Kidney 1	Mass of lead transfer from Kidney 1 per time step
arblad	Mass Pb/day	Array	Float	Transfer from Bladder to Urine	Mass of lead transfer from Bladder to Urine per time step
arlvr2	Mass Pb/day	Array	Float	Transfer from Liver 2	Mass of lead transfer from Liver 2 per time step
arkdn2	Mass Pb/day	Array	Float	Transfer from Kidney 2	Mass of lead transfer from Kidney 2 per time step
rsof0	Mass Pb/day	Value	Float	Transfer from Fast Soft Tissue	Mass of lead transfer from Fast Soft Tissue per time step
rsof1	Mass Pb/day	Value	Float	Transfer from Intermediate Soft Tissue	Mass of lead transfer from Intermediate Soft Tissue per time step
rsof2	Mass Pb/day	Value	Float	Transfer from Slow Soft Tissue	Mass of lead transfer from slow Soft Tissue per time step
arbran	Mass Pb/day	Array	Float	Transfer Rates from Brain	Mass of lead transfer from Brain per time step
tourin	Decimal %	Value	Float	Deposition Fraction in Urine	Fraction of Pb Deposited in Urine from Bladder
tofece	Decimal %	Value	Float	Deposition Fraction in Feces	Fraction of Pb Deposited in Feces from Small Intestine
toswet	Decimal %	Value	Float	Deposition Fraction in Sweat	Fraction of Pb Deposited in Sweat from Intermediate Soft Tissue
s2hair	Decimal %	Value	Float	Intermediate Soft Tissue to Excretion Fraction	Fraction of Pb Excreted with hail, nails and skin
atbone	Decimal %	Array	Float	Deposition Fraction in Bone	Fraction of Pb deposited in bone
atfrac	Decimal %	Array	Float	Deposition Fraction in Trabecular Bone	Fraction deposited in trabecular bone
tolvr1	Decimal %	Value	Float	Deposition Fraction in Liver 1	Fraction deposited in fast Liver
h1toh2	Decimal %	Value	Float	Deposition Fraction from Liver 1 to Liver 2	Fraction deposited in slow Liver from fast liver
h1tosi	Decimal %	Value	Float	Deposition Fraction from Liver to Small Intestine	Fraction deposited in Small Intestine from Liver
h1tobl	Decimal %	Value	Float	Deposition Fraction from Liver to Plasma	Fraction deposited in Plasma from Liver
tokdn1	Decimal %	Value	Float	Deposition Fraction in Kidney 1	Fraction deposited in kidney with rapid turnover
tokdn2	Decimal %	Value	Float	Deposition Fraction in Kidney 2	Fraction deposited in kidney with slow turnover
atsof0	Decimal %	Array	Float	Deposition Fraction in Fast Soft Tissue	Fraction deposited in soft tissue with fast turnover
atsof1	Decimal %	Array	Float	Deposition Fraction in Intermediate Soft Tissue	Fraction deposited in soft tissue with intermediate turnover
atsof2	Decimal %	Array	Float	Deposition Fraction in Slow Soft Tissue	Fraction deposited in soft tissue with slow turnover

atbran	Decimal %	Array	Float	Deposition Fraction in Brain	Fraction deposited in Brain
torbc	Decimal %	Value	Float	Deposition Fraction in RBC	Fraction deposited in Red Blood Cells
toevf	Decimal %	Value	Float	Deposition Fraction in EVF	Fraction deposited in Extravascular Fluids
sizevf	Decimal %	Value	Float	Size of EVF Relative to Plasma	Fraction of total blood plasma that is outside blood vessels
rplas	Mass Pb/day	Value	Float	Transfer Rate from Plasma	Rate of Pb movement from blood plasma
toprot		Value	Float	Deposition Fraction for Plasma Proteins	Rate of Pb deposition from plasma to plasma proteins
rprot	Mass Pb/day	Value	Float	Rate of Loss For Plasma Proteins	Rate of Pb movement from plasma proteins to plasma
arrbc	Mass Pb/day		Float	Transfer Rate From RBC	Rate of Pb movement from red blood cells to blood plasma
rbcvol	dL	Value	Float	RBC Reference Volume	Age related volume of red blood cells
plsvol	dL	Value	Float	Plasma Reference Volume	Age related volume of blood plasma
aamtbl	dL		Float	Amount of Blood	Age related volume of total blood
chleff	N/A	Value	Float	Chelation Factor 1	Not Active – reserved for future use
chel1	N/A	Value	Float	Chelation Factor 2	Not Active – reserved for future use
chel221	N/A	Value	Float	Chelation Factor 3	Not Active – reserved for future use

BIOKINETIC PARAMETERS (con't)					
Variable	Units	Form	Type	Description	EXPLANATION
kdermal	N/A	Value	Float	Dermal Absorption Factor	Not Active – reserved for future use
r1		Value	Float	Lung Compartment 1 Fraction	Factor for absorbed Pb in one lung compartment
r2		Value	Float	Lung Compartment 2 Fraction	Factor for absorbed Pb in one lung compartment
r3		Value	Float	Lung Compartment 3 Fraction	Factor for absorbed Pb in one lung compartment
r4		Value	Float	Lung Compartment 4 Fraction	Factor for absorbed Pb in one lung compartment
br1		Value	Float	Lung Compartment 1 Rate	Rate of absorption of Pb in one lung compartment
br2		Value	Float	Lung Compartment 2 Rate	Rate of absorption of Pb in one lung compartment
br3		Value	Float	Lung Compartment 3 Rate	Rate of absorption of Pb in one lung compartment
br4		Value	Float	Lung Compartment 4 Rate	Rate of absorption of Pb in one lung compartment
af1	Decimal %	Array	Float	GI Absorption Fraction	Fraction of Pb absorbed from total GI Tract Pb
agscal	Decimal %	Array	Float	Rate of Movement thru GI Tract	Fraction of Pb per day trhough GI Tract
ciliar	Decimal %	Value	Float	Fraction to GI	Fraction of Lung Pb transferred to GI Tract by mucociliary lift
rstmc		Value	Float	Stomach Transfer Rate	Transfer from stomach 1st order kinetics
rsic		Value	Float	Small Intestine Transfer Rate	Transfer from Small Intestine 1st order kinetics
ruli		Value	Float	Upper Large Intestine Transfer Rate	Transfer from Large Intestine 1 1st order kinetics
rlli		Value	Float	Lower Large Intestine Transfer Rate	Transfer from Large Intestine 2 1st order kinetics
PRENATAL PARAMETERS (INACTIVE)					
Variable		Form	Type	Description	EXPLANATION
bldmot	N/A	Value	Float	Mother's Blood Pb Concentration	Not Active – reserved for future use
bratio	N/A	Value	Float	Fetus:Mother Blood Ratio	Not Active – reserved for future use
sofin	N/A	Value	Float	Soft Tissue Pb at Birth	Not Active – reserved for future use
rbcin	N/A	Value	Float	RBC Pb at Birth	Not Active – reserved for future use
bonin	N/A	Value	Float	Bone Pb at Birth	Not Active – reserved for future use
renin	N/A	Value	Float	Kidney Pb at Birth	Not Active – reserved for future use

hepin	N/A	Value	Float	Liver Pb at Birth	Not Active – reserved for future use
branin	N/A	Value	Float	Brain Pb at Birth	Not Active – reserved for future use
BODY PARAMETERS					
Variable		Form	Type	Description	EXPLANATION
argcurve	Kg	Array	Float	Growth Curve	Body Mass by Age
argckdne	Decimal %	Array	Float	Kidney Size Ratio	Size of Kidney relative to body mass, by age
argccort	Decimal %	Array	Float	Cortical Bone Size Ratio	Size of Cortical Bone mass relative to body mass, by age
argctrab	Decimal %	Array	Float	Trabecular Bone Size Ratio	Size of Trabecular Bone mass relative to body mass, by age
argcskel	Decimal %	Array	Float	Skeleton Size Ratio	Size of total Skeleton relative to body mass, by age
PERSON DESCRIPTION PARAMETERS					
Variable		Form	Type	Description	EXPLANATION
nGender	User Option	Value	Integer	Gender	Male or Female Body size and growth curves
Ethnicity	N/A	Value	String	Ethnicity	Not Active – reserved for future use
fAgeInYears	Yr	Value	Float	Age in years	Age in years throughout study
fAgeOnConception	Yr	Value	Integer	Age on start of conception (Yrs)	Not Active – reserved for future use
fPregnancyLength	Day	Value	Float	Pregnancy length	Not Active – reserved for future use
fWeight	Kg	Value	Float	Weight in pounds	Not Active – reserved for future use
strBoolOutput	User Option	Value	String	Selected output	Compiled output according to user selections
BioOutput	User Option	Array	String	Biokinetics computation output	Computed output of age related biokinetic values