8.0 3MRA Inputs, Outputs, and Dimensionality

The discussion presented in this section provides an overview of the input and output variables comprising the 3MRA Version 1.0 modeling system. This is broken-down in general summaries, describing overall characteristics of inputs and outputs across the system, and is also presented on a module-by-module basis. Terminology is first revisited along lines of describing the overall dimensionality of the national assessment problem statement. Finally, a presentation of module-level inputs and outputs is provided in simple, tabular form to aid the reader in grasping the dimensionality of 3MRA and its component science modules, and to provide the necessary context from which to appreciate the uncertainty and sensitivity analysis plan described in Section 9.

8.1 Dimensionality of 3MRA Inputs and Outputs

As discussed in Section 4.2.1, the 3MRA modeling system encompasses 966 input variables derived from national, regional, site-based, and chemical properties databases; system level processing control variables; and 45 meteorological model inputs. Over 185 of theses model inputs are explicitly stochastic (i.e., represented as stochastic distribution functions). 3MRA also preserves 372 module-level output variables, in addition to calculations embodied in exit level processing schemes represented within the ELP1 and ELP2 processors.

Reviewing again the terminology introduced in Section 1.3.1 (Helton and Davis, 2000, 2002, 2003), the 3MRA model results can be represented by an output vector function $\mathbf{y} = [y_1, y_2, \ldots, y_{n_y}]$ for an associated input vector $\mathbf{x} = [x_1, x_2, \ldots, x_{n_x}]$, where n_x and n_y represent the number of elements of **x** and **y**, respectively, and there is uncertainty in both **x** and **y**(**x**). The vector **x** represents an input vector (i.e., a set of parameter values) for a single model run. Uncertainty analysis (UA) is the process of evaluating the uncertainty in **y**(**x**) given the total uncertainty in **x**. Sensitivity analysis (SA) is the process of determining how important the elements of **x** are with respect to the uncertainty in **y**(**x**).

To assess UA/SA, we are interested in developing a statistically appropriate sample $\mathbf{x}_k = [x_{k_1}, x_{k_2}, \ldots, x_{k_{n_x}}]$ for k = 1 , 2, …, n_S and related output vector $\mathbf{y}(\mathbf{x}_k) = [y_1(\mathbf{x}_k), y_2(\mathbf{x}_k), \ldots, y_{n_y}(\mathbf{x}_k)]$, where n_S is the number of samples or iterations (i.e., realizations). In it simplest form, **y** could be constructed from a single model run from one, or all, of the model outputs represented within the 3MRA global results files (i.e., GRF files), for $n_s = 1$. Looking only at a single site, for a given WMU-type and chemical, an assessment of the wastestream concentration "exit level" would be derived from the distillation of individual module outputs found within the GRF

files for a set of n_{Cw}*n_s model runs, collected within the ELP1 data structure, and subsequently analyzed through use of the ELP2. Values of x_i of **x** here would be the same for each $\mathbf{x}_k$, aside from the selected values of C_w, where $n_{Cw} = 5$ is the typical number of C_w's evaluated in 3MRA.

Number of Model Runs for the National Assessment

There are n_s* n_{ss}*n_{Cw}*n_C = n_s*90,085 (i.e., n_s*419*5*43) total number of model runs that would be needed to assess UA/SA for various exit levels calculated by 3MRA, for a national assessment across all 43 chemicals, all 201 sites, all 5 WMU-types, and the 5 wastestream concentrations currently parameterized in the 3MRA databases. In summary:

- The values n_x and n_y represent the number of elements of **x** and **y**, respectively,
- The value n_S is the number of samples or iterations (i.e., realizations),
- The value $n_{sites} = 201$ is the number of sites or facilities,
- The value $n_{WMU} = 5$ is the number of WMU-types,
- The value $n_{ss} = 419$ is the number of actual site-source combinations in the 3MRA site-based database,
- The value $n_{Cw} = 5$ is the number of wastestream concentrations considered, and
- The value $n_C = 43$ is the number of chemicals and metals currently considered.

Number of Exit Levels Possible in the National Assessment

For exit level calculations for a given chemical and WMU-type, and one or many sites, the dimensionality of **y** (i.e., n_y) would be determined by the total number of receptor exposure profiles of interest, and specific target risk levels and population percentiles of interest, as previously described in Sections 4.5.7, 4.6.1 and 4.6.2. Recall that, from the perspective of exit level model outputs and a chemical with three risk factors present (human cancer and hazard, and ecological hazard), n_y could range up to 224,850 possible modeling system-level outputs normally captured by the ELP1 and ELP2 calculation schemes. Normally, though, only a small subset of the actual n_y exit level outputs accessible through the ELP2 are currently of direct interest to OSW. The maximum possible set of exit levels can be constructed along an infinite number of "% sites protected levels", an infinite number of probability levels with respect to empirical input uncertainty, and an infinite number of probability levels with respect to empirical output sampling error (OSE) uncertainty (see Sections 2.5.3, 2.6.6, 4.4.5, 4.6.1, and 4.6.2).

For the national assessment of exit levels (ignoring ISE; see Section 2.6.6), 3MRA simulation experiments are typically constructed across all WMU-types at 5 C_w levels, and, thus, **y** is constructed from a set of n_s*n_{ss}*n_{Cw} input vectors, where this is done for each chemical considered. Recall also from Section 4.3.4, based on the random number generator scheme used in 3MRA Version 1.0, all values for x_i of **x** are the same for a given k = 1 , 2, …, n_S across all C_w's, chemicals, and WMU-types selected by the user, for a given initial seed value and set of SiteIDSeed values listed in the site-based database "Facility" table.

8.1.1 Dimensionality of Individual Elements Within Input and Output Vectors

An important distinction in 3MRA is that each element x_i of **x** itself can represent either a scalar value or a multi-dimensional parameter of up to 5 dimensions, where, currently, within the 3MRA Version 1.0 modeling system, the largest dimension for any input x_i of **x** is 3. Considering an output vector **y** constructed from individual output variables found within GRF files, currently, within 3MRA Version 1.0, the largest dimension for any output element y_i of **y** is 3, except for the human risk module output variables that can carry up to 5 dimensions. Dimensionality of individual elements x_i and y_i is derived from spatial or temporal grids, or representation of individual members of "populations" (e.g., the number of waterbody networks, the number of human receptors of a given type, the number of human receptor types, etc.).

Another important distinction in the national assessment strategy of multiple site-based assessments is that for each site, the total dimensionality of a specific input x_i may also be different from site to site (e.g., different sites have different numbers of receptors).

8.1.2 Convention for Representing Input and Output Vectors in 3MRA

In summarizing, without loss of generality to the national assessment, we have referred in previous sections more generally to the simpler notation of $\mathbf{x}_k$, **y** and the mapping $[\mathbf{x}_k, \mathbf{y}(\mathbf{x}_k)]$ in discussing UA/SA, realizing that $n_s * n_{ss} * n_{Cw}$ input vectors $\mathbf{x}_k$ are actually being formed in 3MRA to generate various exit levels of interest, as elements of **y**, for each chemical.

Described by Helton and Davis (2000, 2002, 2003), UA and SA involves five major components:

1) Definition of uncertainty distributions $D_1, D_2, \ldots, D_{n_x}$ that describe the total uncertainty in input factors, if any;
2) Generation of n_{ss} separate $\mathbf{x}_k$ vectors from the input distributions;
3) Generation of $\mathbf{y}(\mathbf{x}_k)$; i.e., via Monte Carlo Simulation;
4) Displays of the uncertainty in **y** from the analysis outcomes of $\mathbf{y}(\mathbf{x}_k)$; i.e. total uncertainty analysis via ELP2; e.g. using CDFs; and
5) Exploration of the mapping $[\mathbf{x}_k, \mathbf{y}(\mathbf{x}_k)]$ to determine the effects of elements of **x** on **y** ; i.e. sensitivity analysis.

8.2 System-Level Summary of Model Inputs and Outputs

There are 921 actual input variables, and 372 output variables tracked within the dictionary system that regulates interactions between individual science modules, and between science modules and system level processors in 3MRA. Not all of these variables change from model run to model run, even in the national assessment application. For example, several variables represent fixed-length indexes used by 3MRA (e.g., string descriptions of quantitative indexes, quantitative indexes of specific entities like aquatic habitats considered by 3MRA, etc.),

or other features of the model domain (e.g., legacy model switches permanently set in their use in 3MRA, etc.).

Tables 8-1 through 8-8 provide an overview of the structure of model inputs and outputs across 3MRA Version 1.0. The tables cover descriptions of:

- **Table 8-1**: Summary of Model Input Dictionaries
- **Table 8-2**: Summary of Model Output Dictionaries
- **Table 8-3**: Summary of Model Input and Output Data Types
- **Table 8-4**: Summary of Model Input and Output Dimensionality
- **Table 8-5**: Summary of National, Regional, and Site-based Model Inputs
- **Table 8-6**: Summary of Model Inputs Derived From Multiple Database Sources
- **Table 8-7**: Summary of Model Input Distribution Types By Module
- **Table 8-8**: Summary of Model Inputs With Multiple Distribution Types

Tables 8-1 and 8-2 breakdown the numbers of SSF inputs and GRF outputs by module, respectively (see also Table 4-3). Table 8-3 shows model input and output variables by data type. Table 8-4 shows the dimensionality of SSF-based x_i model inputs and GRF-based y_i model outputs, as discussed in Section 8.1.1. Table 8-5 presents the various distributions used for input variables, distilled from national, regional, and site-based databases in 3MRA. Table 8-6 depicts model inputs that can have different sources of data for different sites. For example, when site-specific parameterization was available for some sites, but lacking for others, national distributions are used by the SDP to populate site simulation files for the latter. Table 8-7 summarizes the stochastic model input distribution functions used by module. In Table 8-7, certain chemical properties currently included in 3MRA, but not yet active, are indicated by "No data available" (e.g., inputs associated with "activated" biodegradation of organic chemicals). Finally, Table 8-8 summarizes certain model inputs that can have different distribution function type descriptions depending on database source and/or site.

"Other" sources of model input data detailed in Table 8-9 and captured in summaries given in Tables 8-1 through 8-4, and Tables 8-7, and 8-8, include chemical properties data, and human and ecological benchmarks, etc., found within the 3MRA "CPPData" directory. Data not represented in this analysis generally includes that derived from the metal isotherm database (*.iso files) and meteorological database, described in Section 3 and Volume II.

Table 8-1. Summary of 3MRA Version 1.0 Model Input Dictionaries

SystemGroup	3MRA10	
DictCode	ssf	
Number of Inputs		
ModGroup	Dictionary Description	Total
af	aquatic foodweb	21
aq	saturated zone	14
ar	air	23
at	AT	24
cp	chemical properties	142
ee	ecoexposure	14
er	ecorisk	4
ff	farm foodchain	45
hd	header	63
he	human exposure	105
hr	human risk	7
lau	LAU	51
lf	LF	44
si	SI	25
sl	site layout	208
sw	surface water	24
tf	terrestrial foodweb	31
vz	vadose zone	3
wp	WP	50
ws	watershed	23
Grand Total		921

Table 8-2. Summary of 3MRA Version 1.0 Model Output Dictionaries

SystemGroup	3MRA10	
DictCode	grf	
Number of Inputs		
ModGroup	Dictionary Description	Total
af	aquatic foodweb	18
aq	saturated zone	11
ar	air	17
ee	ecoexposure	3
er	ecorisk	27
ff	farm foodchain	39
he	human exposure	78
hr	human risk	39
sl	site layout	4
sr	source	38
sw	surface water	19
tf	terrestrial foodweb	60
vz	vadose zone	5
ws	watershed	14
Grand Total		372

Table 8-3. Summary of 3MRA Version 1.0 Model Input and Output Data Types

SystemGroup	3MRA10	
ModGroup	(All)	
Count of Dimension		
DictCode	DataType	Total
ssf	FLOAT	642
	INTEGER	165
	Logical	12
	String	102
ssf Total		921
grf	FLOAT	121
	INTEGER	232
	Logical	10
	String	9
grf Total		372
Grand Total		1293

Table 8-4. Summary of 3MRA Version 1.0 Model Input and Output Dimensionality

SystemGroup	3MRA10	
ModGroup	(All)	
Count of DataType		
DictCode	Dimension	Total
ssf	0	552
	1	227
	2	111
	3	31
ssf Total		921
grf	0	28
	1	71
	2	151
	3	110
	4	6
	5	6
grf Total		372
Grand Total		1293

Table 8-5. Summary of National, Regional, and Site-based 3MRA Model Inputs

ModGroup	(All)			
Count of Distribution Type	DataSource			
Distribution Type	National	Regional	Site	Grand Total
constant	287	2	249	538
empirical	4			4
gamma	13			13
HydroGeo		4		4
IntUniform	3	1		4
lognormal	51			51
normal	11		4	15
triangular	35		7	42
TrnJohnsonSB	1		8	9
TrnJohnsonSU			2	2
TrnLogNormal			8	8
uniform	29		4	33
weibull	12			12
Grand Total	446	7	282	735

Table 8-6. Summary of 3MRA Model Inputs Derived From Multiple Database Sources

Number of Distribution Types			
ModGroup	Model Input Name	DataSource	Total
aq	AquRandHeteroNorm	National	1
		Site	1
ar	SHight	National	1
		Site	1
sl	SrcArea	National	1
		Site	1
	SrcPh	National	1
		Site	2
Grand Total			9

Table 8-7. Summary of 3MRA Model Input Distribution Types By Module

SystemGroup	3MRA10		
DictCode	ssf		
Number of Inputs			
ModGroup	Dictionary Description	Distribution Type	Total
aq	saturated zone	empirical	1
		IntUniform	1
		normal	1
		TrnJohnsonSB	1
		uniform	3
at	AT	triangular	6
		uniform	3
cp	chemical properties	No data available	13
		triangular	1
		Triangular (Hg); Constant or Uniform organics where applicable; no data other metals)	1
		Triangular (Hg); Constant others	1
		Triangular (Hg); Uniform organics where applicable; no data other metals)	1
		Triangular (same as SrcPh)	1
		Uniform (except Hg; Constant)	1
		Uniform, Constant, or Demp (organics only)	2
ff	farm foodchain	triangular	2
he	human exposure	gamma	13
		lognormal	49
		weibull	12
lau	LAU	lognormal	1
		normal	4
		triangular	5
		TrnJohnsonSB	1
		uniform	4
lf	LF	empirical	1
		lognormal	1
		normal	4
		triangular	8
		TrnJohnsonSB	1
		uniform	3
si	SI	triangular	6
		uniform	5
sl	site layout	empirical	1
		HydroGeo	4
		IntUniform	3
		normal	2
		triangular	1
		TrnLogNormal	2
		uniform	6
		empirical (same as AquPh)	1
sw	surface water	triangular	2
		uniform	3
wp	WP	normal	2
		triangular	9
		TrnLogNormal	1
		uniform	4
ws	watershed	TrnLogNormal	1
		uniform	2
Grand Total			201

Table 8-8. Summary of 3MRA Model Inputs With Multiple Distribution Types
(Analysis excludes chemical properties database)

DataSource	(All)							
Number of Distribution Types		Distribution						
ModGroup	Input Name	constant	normal	triangular	TrnJohnsonSB	TrnJohnsonSU	TrnLogNormal	Grand Total
LAU	Ksat				1		1	2
LF	KsatC				1		1	2
sl	SrcPh	1		2				3
	VadALPHA		1		1		1	3
	VadBETA		1		1	1	1	4
	VadSATK				1		1	2
	VadWCR		1		1	1	1	4
sw	d_epil	1		1				2
	d_hypol	1		1				2
	d_pond	1		1				2
	d_wtlnd	1		1				2
WP	Ksat				1		1	2
ws	Ksat				1		1	2
Grand Total		5	3	6	8	2	8	32

8.3 Module-Level Summary of Model Inputs and Outputs

Summarized in Tables 4-3, 8-1, and 8-2, there are 20 separate input file dictionaries (i.e., SSF) and 15 output file dictionaries (i.e., GRF) for individual modules (e.g., aquifer module, etc.), which include certain system-level data structures (e.g., header file, site layout, and chemical properties) in 3MRA Version 1.0. The header output file simply represents a system-level, model group stamp with no associated output variables. Variables associated with 3MRA model inputs are summarized in Tables 8-9a through 8-9t, and for outputs in Tables 8-10a through 8-10o.

Dictionary Summary Key

In interpreting the various fields shown in Tables 8-9 and 8-10, the following key is provided. Fields in the key description below marked with an asterisk indicate information found in the actual dictionary files of 3MRA Version 1.0. Fields not marked with an asterisk (*) indicate metadata compiled in a separate, cross-comparison analysis of the 3MRA dictionary system and databases, together with test observations of 450,425 model simulations attempted representing 5 national realizations for all 43 chemicals, for all C_w's, and WMU-types, with an initial seed value of 11031. 3MRA does not need or utilize the metadata to actually run, where this information is essentially embedded in the technology in various ways. The additional metadata information is preliminary in nature, and was compiled without opportunity yet for extensive review and cross checking, which is still underway. The analysis was also based on simulations conducted that do not include a recent modification made to the final 3MRA modeling system associated with the random number generation scheme, discussed in Sections 4.3.4 and 6.7.1. As such, values for "TestAvg", "TestMax", and "TestMin" may differ from final 3MRA Version 1.0 results for model inputs described by non-constant distribution types.

The main purpose of the analysis was to provide for additional system-level verification of 3MRA input and output values, and to assess those inputs that are invariant across model runs and/or across various chemicals.

- **Name*** – model input or output name
- **Description* -** description of the variable
- **Unit*** - description of unit associated with the variable
- **DataType*** - internal data type representation of the variable
- **Dimension*** - the number of dimensions associated with the variable
- **Minimum*** - the minimum value the variable is allowed to take-on
- **Maximum*** - the maximum value the variable is allowed to take-on
- **TestAvg** – average value determined in initial extraction test
- **TestMin** - minimum value determined in initial extraction test
- **TestMax** - maximum value determined in initial extraction test
- **FixedIndex** – describes the nature of the variable as variant or invariant
- **National?** – value of 1 is assigned if the variable is currently in the national database
- **Regional?** - value of 1 is assigned if the variable is currently in the regional database
- **Site?** - value of 1 is assigned if the variable is currently in the site-based database
- **Other?** - value of 1 is assigned if the variable is currently in another 3MRA database
- **Dist. Type** – describes the probability density function type used to characterize it
- **# Dist. Types** – the # of distribution types that can be assigned across model runs
- **Is Index?** – the variable is used as a dimensioned index for another variable in 3MRA
- **Index 1*** - the variable name this variable is first indexed across, if dimension > 0
- **Index 2*** - the variable name this variable is next indexed across, if dimension > 1
- **Index 3*** - the variable name this variable is next indexed across, if dimension > 2
- **Index 4*** - the variable name this variable is next indexed across, if dimension > 3
- **Index 5*** - the variable name this variable is next indexed across, if dimension > 4

Several points are made to assist in interpreting the information provided. The field "Dist. Type" shows the stochastic nature of current 3MRA database parameterization. Additional information is sometimes augmented to the description to indicate, for example, if certain chemical-specific issues apply. Values of "constant" indicate only that the input is not explicitly stochastic; the values may still actually change from site to site. Dist. Type lists the first incidence found in underlying queries performed; other types would be identified if # Dist. Types is > 1. Of course, model outputs may all be stochastic, but are not classified and are not assigned values in terms of database source type (e.g., national, regional, site-based, or other). "Is Index?" = 1 indicates this variable is used as a dimensioned index for another variable (see Section 8.1.1). For model outputs in Table 8-10, the following fields above were excluded from the analysis: National?; Regional?; Site?; Other?; Dist. Type; and # Dist. Types.

Fixed-Index Field

For the fields "TestAvg", "TestMin", "TestMax", and "Fixed Index", the data shown in Table 8-9 represents only partially complete information, determined from analysis of actual simulation data based on 447,335 successful model runs (i.e., those without solubility limitations) associated with 5 national realizations for all 43 chemicals currently in the 3MRA chemical properties database. This metadata will, for example, be used by the analyst in constructing appropriate file extraction instruction sets used by the Site Summary Tool, discussed in Section 6. The data shown in these four fields represents preliminary analysis of

most 0-dimension inputs (i.e., scalars) and 1st-order dimension inputs associated with chemical properties. The higher dimension model inputs, and most model outputs were not evaluated in initial extraction tests thus far. This preliminary analysis was designed to serve the planning efforts for SA extractions, and was conducted to establish the variant or invariant behavior of various model inputs across sites, sources, and chemicals.

In "FixedIndex", a positive non-zero entry indicates that the value for the subject model input does not change across model runs. In this case, the value shown gives the maximum index value observed across all model runs (e.g., maximum "NumWBN"). FixedIndex = 0 indicates the model input is variant across model runs; -1 indicates no data is currently available, or that the input is currently inactive. For model inputs, missing or blank cells in TestAvg, TestMin, TestMax, FixedIndex, Dist. Type, or # Dist. Types merely indicates the partially complete nature of this analysis.

Internal Variables

There are several "internal" index variables that are not explicitly represented in 3MRA Version 1.0 (e.g., NumLayer**). These internal variables, in essence, represent hard-wired indexes in various modules, and are all denoted in Index 1 through Index 5 with a double asterisk. These variables are not currently described in any dictionary file. Due to the more robust nature of 3MRA Version 2.0 (Figure 1-1), the variables currently internalized within 3MRA Version 1.0 will eventually all be represented within the 3MRA Version 2.0 dictionary system. Examples of these internal variables are shown throughout Tables 8-9 and 8-10. The indexing was expanded with these additional descriptions to provide a better handle on indexing needed to employ the Site Summary Tool for planned sensitivity analyses. The additions show up in actual "Index #" fields shown in Tables 8-9 and 8-10. These by-and-large-represent index string lists and "Num" type parameters. Table 8-11 provides a short list of the "Num" type internal variables, and is only partially representative of all internal variables one could define. The leading numerical value in each description line of Table 8-11 gives the actual number of elements associated with the index for the current implementation of 3MRA Version 1.0.

Summary of Input Variant and Invariant Model Inputs

Out of 654 input variables checked via the extraction test or otherwise classified as not amenable to sensitivity analysis (e.g., header variables (63), no data in system (21) (i.e., inactive processes, etc.)), 337 were variant in the test and 233 were invariant, the latter representing either fixed index lengths (e.g., cohort descriptions), model domain parameters, or fixed values at national or site scale levels, the latter of which is in some cases tied to variant indexes. Of the 233 invariant inputs, all but 12 are derived from the constant distribution types in the national database. Of the 12 derived from other data sources, 8 are derived from the chemical properties database. The remaining 4 inputs are derived from the site-based database: SrcLocY=0 and SrcLocX=0, representing a relative spatial reference point to the center of the WMU location in the site layout dictionary (sl.ssf), and tilling depth zZ1WMU = 0.2 meters (la.ssf), and WBNRchBodyType (sl.ssf; a fixed length string array index). Within the invariant set of 233 inputs, a small handful would still be classified as variant for future experimentation, but did not express variation in this test.

Table 8-9a. SUI Header Input (SSF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	National?	Regional?	Site?	Other?	Dist. Type	# Dist. Types	Is Index?	Index 1	Index 2	Index 3
Air	Path and filename for air module		String	0						SUI Input	0	0	0	1		1	0			
Aquatic	Path and filename for aquatic foodweb module		String	0						SUI Input	0	0	0	1		1	0			
Aquifer	Path and filename for aquifer module		String	0						SUI Input	0	0	0	1		1	0			
AT	Path and filename for aerated tank module		String	0						SUI Input	0	0	0	1		1	0			
CASID	Chemical CASID for current scenario		String	0						SUI Input	0	0	0	1		1	0			
ChemCnt	Count of Chems		Integer	0	0		43	43	43	SUI Input	0	0	0	1		1	1			
Chems	List of CASIDs for global scenario set		String	1						SUI Input	0	0	0	1		1	0	ChemCnt		
COP	Currently not functional		String	0						SUI Input	0	0	0	1		1	0			
CPDirectory	Chemical properties database directory		String	0						SUI Input	0	0	0	1		1	0			
CW	Wastestream concentration level for current scenario		Integer	0						SUI Input	0	0	0	1		1	0			
CWCnt	Count of Cws		Integer	0	0		5	5	5	SUI Input	0	0	0	1		1	1			
CWs	List of wastestream concentration levels for global scenario set		String	1						SUI Input	0	0	0	1		1	0	CWCnt		
Date	Date current scenario started		String	0						SUI Input	0	0	0	1		1	0			
Debug	Run in debug mode		Integer	0						SUI Input	0	0	0	1		1	0			
DSP	Currently not functional		String	0						SUI Input	0	0	0	1		1	0			
EcoExposure	Path and filename for ecological exposure module		String	0						SUI Input	0	0	0	1		1	0			
EcoRisk	Path and filename for ecological risk module		String	0						SUI Input	0	0	0	1		1	0			
ELP1	Path and filename for exit level processor 1		String	0						SUI Input	0	0	0	1		1	0			
ELP2	Currently not functional; exit level processor 2 currently called outside the SUI		String	0						SUI Input	0	0	0	1		1	0			
Farm	Path and filename for farm foodchain module		String	0						SUI Input	0	0	0	1		1	0			
GRFDirectory	Path for grf files		String	0						SUI Input	0	0	0	1		1	0			
HumanExposure	Path and filename for human exposure module		String	0						SUI Input	0	0	0	1		1	0			
HumanRisk	Path and filename for human risk module		String	0						SUI Input	0	0	0	1		1	0			
Lake	Path and filename for waterbody module; also see Stream		String	0						SUI Input	0	0	0	1		1	0			
LastCw	Defines if this is the last/lowest wastestream concentration level for the current Cw loop. SUI looping order = Cw, Chemical, Realization, Source, and Site		Logical	0						SUI Input	0	0	0	1		1	0			
LAU	Path and filename for land application unit module		String	0						SUI Input	0	0	0	1		1	0			
LF	Path and filename for landfill module		String	0						SUI Input	0	0	0	1		1	0			
Memo	Currently not functional		String	1						SUI Input	0	0	0	1		1	0			
MemoCnt	Count of Memo		Integer	0						SUI Input	0	0	0	1		1	0			
MetDir	Path for meteorogical files		String	0						SUI Input	0	0	0	1		1	0			
MMSP	Path and filename for the multimedia module simulation processor		String	0						SUI Input	0	0	0	1		1	0			
NationDB	Path and filename for national database		String	0						SUI Input	0	0	0	1		1	0			
NewChem	Defines if this a new chemical in the scenario set looping order. SUI looping order = Cw, Chemical, Realization, Source, and Site		Logical	0						SUI Input	0	0	0	1		1	0			
NewRel	Defines if this a new realization in the scenario set looping order. SUI looping order = Cw, Chemical, Realization, Source, and Site		Logical	0						SUI Input	0	0	0	1		1	0			

Table 8-9a. SUI Header Input (SSF) Dictionary Summary (Continued)

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	National?	Regional?	Site?	Other?	Dist. Type	# Dist. Types	Is Index?	Index 1	Index 2	Index 3
Permanent	Path for permanent storage files		String	0						SUI Input	0	0	0	1		1	0			
PSOFDirectory	Path for protective summary output files (I.e. ELP2 output)		String	0						SUI Input	0	0	0	1		1	0			
RealCnt	Total number of realizations to be simulated in the global scenario set		Integer	0						SUI Input	0	0	0	1		1	0			
Realization	Realization number for the current scenario. SUI looping order = Cw, Chemical, Realization, Source, and Site		Integer	0						SUI Input	0	0	0	1		1	0			
RegionDB	Path and filename for regional database		String	0						SUI Input	0	0	0	1		1	0			
RSOFDirectory	Path for risk summary output files (I.e. ELP1 output)		String	0						SUI Input	0	0	0	1		1	0			
SDP	Path and filename for the site definition processor		String	0						SUI Input	0	0	0	1		1	0			
Seed	Initial SUI seed for the global scenario set		Integer	0						SUI Input	0	0	0	1		1	0			
SI	Path and filename for surface impoundment module		String	0						SUI Input	0	0	0	1		1	0			
SiteBasedDB	Path and filename for site-based database		String	0						SUI Input	0	0	0	1		1	0			
SiteCnt	Count of Sites		Integer	0	0		201	201	201	SUI Input	0	0	0	1		1	1			
SiteId	SiteID for the current scenario. SUI looping order = Cw, Chemical, Realization, Source, and Site		String	0						SUI Input	0	0	0	1		1	0			
Sites	List of SiteIDs for the global scenario set		String	1						SUI Input	0	0	0	1		1	0	SiteCnt		
SiteSurveyDB	Currently not functional		String	0						SUI Input	0	0	0	1		1	0			
Source	Source type for the current scenario. SUI looping order = Cw, Chemical, Realization, Source, and Site		String	0						SUI Input	0	0	0	1		1	0			
SrcCnt	Count of Srcs		Integer	0	0		5	5	5	SUI Input	0	0	0	1		1	1			
Srcs	List of Sources for the global scenario set		String	1						SUI Input	0	0	0	1		1	0	SrcCnt		
SSFDirectory	Path for ssf files		String	0						SUI Input	0	0	0	1		1	0			
StaticNationDB	Path and filename for static national database		String	0						SUI Input	0	0	0	1		1	0			
StaticRegionDB	Path and filename for static regional database		String	0						SUI Input	0	0	0	1		1	0			
StopOnError	Stop simulation of the global scenario set on error		Integer	0						SUI Input	0	0	0	1		1	0			
StopOnWarning	Stop simulation of the global scenario set on warning		Integer	0						SUI Input	0	0	0	1		1	0			
StorageLevel	Set storage level (0= minimum, 1= maximum = activate ssf and grf permanent file storage each simulation)		Integer	0						SUI Input	0	0	0	1		1	0			
Stream	Path and filename for waterbody module; also see Lake		String	0						SUI Input	0	0	0	1		1	0			
Terrestrial	Path and filename for terrestrial foodweb module		String	0						SUI Input	0	0	0	1		1	0			
Time	Time of day current scenario started		String	0						SUI Output	0	0	0	1		1	0			
Vadose	Path and filename for vadose zone module		String	0						SUI Input	0	0	0	1		1	0			
Watershed	Path and filename for watershed module		String	0						SUI Input	0	0	0	1		1	0			
WP	Path and filename for waste pile module		String	0						SUI Input	0	0	0	1		1	0			

Table 8-9b. Site Layout Input (SSF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	National?	Regional?	Site?	Other?	Dist. Type	# Dist. Types	Is Index?	Index 1	Index 2	Index 3
AirLocX	Easting in Site Coordinate System	m	Float	1	-100000	100000					0	0	1	0	Constant	1	0	NumAir		
AirLocY	Northing in Site Coordinate System	m	Float	1	-100000	100000					0	0	1	0	Constant	1	0	NumAir		
AirTemp	Long-Term Average Air Temperature	degrees Celsius	Float	0	0	35	13.7	3.83	24.3	Variant	0	0	1	0	constant	1	0			
AquDir	Groundwater flow direction in degrees from North	degrees	Float	1	0	360					0	0	1	0	constant	1	0	NumAqu		
AquFEOX	Fraction Iron-Hydroxide Adsorbent	fraction	Float	0	6E-05	0.00607	0.00317	9.7E-05	6.04E-03	Variant	1	0	0	0	uniform	1	0			
AquGrad	regional groundwater gradient		Float	1	0	100					0	1	0	0	HydroGeo	1	0	NumAqu		
AquId	Environmental Setting Id for Aquifer		String	1							0	0	1	0	constant	1	0	NumAqu		
AquLOM	Leachate organic matter	mg/L	Float	0	105	1156	606.0	110.4	1150.4	Variant	1	0	0	0	uniform	1	0			
AquLWSIndex	Local watershed index for aquifer		Integer	1	0	5					0	0	1	0	constant	1	0	NumAqu		
AquLWSSubAreaIndex	LWS subarea index for aquifer		Integer	1	0	3					0	0	1	0	constant	1	0	NumAqu		
AquPh	Average Aquifer pH	pH units	Float	0	3	10	6.67	3.41	9.30	Variant	1	0	0	0	empirical	1	0			
AquSATK	saturated hydraulic conductivity (aquifer)	m/yr	Float	1	1E-08	30000000					0	1	0	0	HydroGeo	1	0	NumAqu		
AquTemp	Average Aquifer Temperature	degrees Celsius	Float	0	0	35	14.9	2.5	27.5	Variant	0	0	1	0	constant	1	0			
AquThick	saturated zone thickness	m	Float	1	0	1000					0	1	0	0	HydroGeo	1	0	NumAqu		
AquVadIndex	Index of vadose zone per aquifer		Integer	1	0	5					0	0	1	0	constant	1	0	NumAqu		
AquWellFracZ	location of well screen as a fraction of aquifer depth	fraction	Float	1	0.01	0.99					0	0	1	0	uniform	1	0	NumAquWell		
AquWellLocX	Easting in Site Coordinate System	m	Float	1	-100000	100000					0	0	1	0	Constant	1	0	NumAquWell		
AquWellLocY	Northing in Site Coordinate System	m	Float	1	-100000	100000					0	0	1	0	Constant	1	0	NumAquWell		
AquWSSubIndex	index of watershed for each aquifer		Integer	1	1	100					0	0	1	0	constant	1	0	NumAqu		
ATIndex	uniform distribution needed to select AT index for national tank data		integer	0	1	1872	322.8	4	621	Variant	1	0	0	0	IntUniform	1	0			
BinRange_Label_C	Minimum values of bins for human risk -- cancer	unitless	Float	1	0	1					1	0	0	0	constant	1	0	NumBinC		
BinRange_Label_NC	Minimum values of bins for human risk -- HQ	unitless	Float	1	0	1000000					1	0	0	0	constant	1	0	NumBinNC		
BinRange_Min_C	Minimum values of bins for human risk -- cancer	unitless	Float	1	0	1					1	0	0	0	constant	1	0	NumBinC		
BinRange_Min_NC	Minimum values of bins for human risk -- HQ	unitless	Float	1	0	1000000					1	0	0	0	constant	1	0	NumBinNC		
EcoBinRange_Label	Minimum values of bins for eco risk HQ	unitless	Float	1	0	1000000					1	0	0	0	constant	1	0	NumEcoBin		
EcoBinRange_Min	Minimum values of bins for eco risk HQ	unitless	Float	1	0	1000000					1	0	0	0	constant	1	0	NumEcoBin		
EcoRingHabIndex	index of habitat contained within ecoring (1 = 0 - 1km; 2 = 1 - 2 km)	unitless	Integer	2	0	25					0	0	1	0	constant	1	0	NumEcoRing	EcoRingNumHab	
EcoRingNumHab	number of habitats contained within each eco ring	unitless	Integer	1	0	25					0	0	1	0	constant	1	1	NumEcoRing		
FarmAirFrac	Fraction of farm or crop area impacted by air points	fraction	Float	2	0	1					0	0	1	0	Constant	1	0	NumFarm	FarmNumAir	
FarmAirIndex	Index of air points that impacts farm or crop area		Integer	2	0	10000					0	0	1	0	Constant	1	0	NumFarm	FarmNumAir	
FarmAquIndex	Index of aquifer that impacts farm or crop area		Integer	2	0	100					0	0	1	0	constant	1	0	NumFarm	FarmNumAquWell	
FarmAquWellFrac	Fraction farm uses aquifer well as animal DW source	fraction	Float	2	0	1					0	0	1	0	constant	1	0	NumFarm	FarmNumAquWell	
FarmAquWellIndex	Index of aquifer well that impacts farm or crop area		Integer	2	0	500					0	0	1	0	constant	1	0	NumFarm	FarmNumAquWell	
FarmArea	Area of farm	m^2	Float	1	0	25000000					0	0	1	0	constant	1	0	NumFarm		
FarmBlockGroup	Census block group associated with farm	unitless	String	1							0	0	1	0	constant	1	0	NumFarm		
FarmLWSIndex	local watershed indices associated with each farm	not applicable	Integer	2	0	10					0	0	1	0	constant	1	0	NumFarm	FarmNumLWSSubArea	
FarmLWSSubAreaFrac	fraction of contribution of subarea to farm	fraction	Float	2	0	1					0	0	1	0	constant	1	0	NumFarm	FarmNumLWSSubArea	
FarmLWSSubAreaIndex	index of contributing subarea in local watershed indices associated with each farm	not applicable	Integer	2	0	10					0	0	1	0	constant	1	0	NumFarm	FarmNumLWSSubArea	
FarmNumAir	Number of air points that impact farm or crop area		Integer	1	0	10000					0	0	1	0	Constant	1	1	NumFarm		
FarmNumAquWell	Number of wells in each aquifer impacting farm		Integer	1	0	100					0	0	1	0	constant	1	1	NumFarm		
FarmNumLWS	Number of local watersheds impacting farm or crop area		integer	1	0	5					0	0	1	0	constant	1	0	NumFarm		

Table 8-9b. Site Layout Input (SSF) Dictionary Summary (Continued)

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	National?	Regional?	Site?	Other?	Dist. Type	# Dist. Types	Is Index?	Index 1	Index 2	Index 3
FarmNumLWSSubArea	contributing subarea in local watershed indices associated with each farm	not applicable	Integer	1	0	10					0	0	1	0	constant	1	1	NumFarm		
FarmNumWBNRch	Number of WBN reach that impact farm or crop area		Integer	1	0	100					0	0	1	0	constant	1	1	NumFarm		
FarmNumWSSub	Number of watersheds that impact farm or crop area	unitless	Integer	1	1	100					0	0	1	0	constant	1	1	NumFarm		
FarmPh	Average Farm Foodchain pH	pH units	Float	0	4	9	6.12	4.60	8.84	Variant	0	0	1	0	constant	1	0			
FarmPopulation	population of a farm	unitless	float	3	0	10000					0	0	1	0	constant	1	0	NumFarm	FarmRcpType	5 - NumCohort**
FarmRcpType	Type of human receptor (Beef Farmer, Dairy Farmer, Beef Farmer Fisher, Dairy Farmer Fisher) a particular modeling pathway is turned off by setting the corresponding number of that media to 0.		String	1							1	0	0	0	constant	1	1	NumFarmRcpType		
FarmTemp	Average Farm Foodchain Temperature	degrees Celsius	Float	0	0	35	13.7	3.83	24.3	Variant	0	0	1	0	constant	1	0			
FarmWBNIndex	Index of WBN that impacts farm or crop area		Integer	1	0	50					0	0	1	0	constant	1	0	NumFarm		
FarmWBNRchFrac	Fraction of farm or crop area impacted by WBN reach	fraction	Float	2	0	1					0	0	1	0	constant	1	0	NumFarm	FarmNumWBNRch	
FarmWBNRchIndex	Index of WBN reach that impacts farm or crop area		Integer	2	0	50					0	0	1	0	constant	1	0	NumFarm	FarmNumWBNRch	
FarmWSSubFrac	Fraction of each watershed on farm	unitless	Float	2	0	1					0	0	1	0	constant	1	0	NumFarm	FarmNumWSSub	
FarmWSSubIndex	Index of watersheds that impact farm or crop area	not applicable	Integer	2	1	100					0	0	1	0	constant	1	0	NumFarm	FarmNumWSSub	
focS	fraction organic carbon (soil)	mass fraction	float	1	0.0001	1					0	0	1	0	constant	1	0	NumWSSub		
GWCLass	Hydrogeologic setting (GWClass1 - GWClass13)		String	0							0	0	1	0	constant	1	0			
GWClassIndex	count of rows being passed for aquifer GWClass data	unitless	integer	0	1	62	19.1	1	62	Variant	0	1	0	0	IntUniform	1	0			
HabArea	area of habitat	m^2	Float	1	1	1000000000					0	0	1	0	constant	1	0	NumHab		
HabGroup	Group in which habitat type is attributed: 1 = terrestrial, 2 = aquatic, 3 = wetland	not applicable	String	1							1	0	0	0	constant	1	0	NumHabGroup		
HabIndex	index of habitat type	unitless	Integer	1	1	12					0	0	1	0	constant	1	0	NumHab		
HabNumRange	number of ranges per habitat	unitless	Integer	1	1	50					0	0	1	0	constant	1	1	NumHab		
HabNumWBNRch	Number of WBN reaches that impact habitat range	unitless	Integer	1	0	50					0	0	1	0	constant	1	1	NumHab		
HabRangeAirFrac	Fraction of habitat range impacted by air points	fraction	Float	3	0	1					0	0	1	0	Constant	1	0	NumHab	HabNumRange	HabRangeNumAir
HabRangeAirIndex	Index of air points that impacts habitat range	unitless	Integer	3	0	10000					0	0	1	0	Constant	1	0	NumHab	HabNumRange	HabRangeNumAir
HabRangeAreaFrac	fraction of range that falls within habitat	fraction	Float	2	0	1					0	0	1	0	constant	1	0	NumHab	HabNumRange	
HabRangeFishWBNIndex	index of WBN containing fishable reaches that impact habitat range	unitless	Integer	3	0	50					0	0	1	0	constant	1	0	NumHab	HabNumRange	HRangeNumFishWBNRch
HabRangeLWSIndex	local watershed indices associated with each habitat range	unitless	Integer	3	0	10					0	0	1	0	constant	1	0	NumHab	HabNumRange	HabRangeNumLWSSubA
HabRangeLWSSubAFrac	fraction of contributing LWS subarea	fraction	Float	3	0	1					0	0	1	0	constant	1	0	NumHab	HabNumRange	HabRangeNumLWSSubA
HabRangeLWSSubAIndex	index of contributing subarea in local watershed indices associated with each habitat range	unitless	Integer	3	0	10					0	0	1	0	constant	1	0	NumHab	HabNumRange	HabRangeNumLWSSubA
HabRangeNumAir	Number of air points per habitat range	unitless	Integer	2	0	10000					0	0	1	0	Constant	1	1	NumHab	HabNumRange	
HabRangeNumLWSSubA	contributing subarea in local watershed indices associated with each habitat range	unitless	Integer	2	0	10					0	0	1	0	constant	1	1	NumHab	HabNumRange	
HabRangeNumSISrc	number of surface impoundments that intersect habitat range	unitless	Integer	2	0	1					0	0	1	0	constant	1	0	NumHab	HabNumRange	
HabRangeNumWBNRch	Number of WBN reaches found within habitat range	unitless	Integer	2	0	50					0	0	1	0	constant	1	1	NumHab	HabNumRange	
HabRangeNumWSSub	Number of watersheds that impact habitat range	unitless	Integer	2	0	100					0	0	1	0	constant	1	1	NumHab	HabNumRange	
HabRangeRecIndex	receptor index associated with each habitat range (a single receptor)	unitless	Integer	2	1	66					0	0	1	0	constant	1	1	NumHab	HabNumRange	
HabRangeRecType	type of receptor (e.g., herbivert, omnivert, small mammal, small bird)	not applicable	String	1							1	0	0	0	constant	1	0	HabRangeRecIndex		

Table 8-9b. Site Layout Input (SSF) Dictionary Summary (Continued)

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	National?	Regional?	Site?	Other?	Dist. Type	# Dist. Types	Is Index?	Index 1	Index 2	Index 3
HabRangeWBNIndex	Index of WBN that impacts habitat range	unitless	Integer	3	0	50					0	0	1	0	constant	1	0	NumHab	HabNumRange	HabRangeNumWBNRch
HabRangeWBNRchIndex	Index of WBN reaches that impact habitat range	unitless	Integer	3	0	50					0	0	1	0	constant	1	0	NumHab	HabNumRange	HabRangeNumWBNRch
HabRangeWSSubFrac	Fraction of habitat range impacted by watershed	fraction	Float	3	0	1					0	0	1	0	constant	1	0	NumHab	HabNumRange	HabRangeNumWSSub
HabRangeWSSubIndex	Index of watershed that impacts habitat range	unitless	Integer	3	0	100					0	0	1	0	constant	1	0	NumHab	HabNumRange	HabRangeNumWSSub
HabType	Type of representative habitat (e.g., grassland, pond, wetland)	not applicable	String	1							0	0	1	0	constant	1	0	NumHab		
HabWBNIndex	Index of WBN that impacts habitat range	unitless	Integer	2	0	50					0	0	1	0	constant	1	0	NumHab	HabNumWBNRch	
HabWBNRchFrac	Fraction of habitat range impacted by aquatic	fraction	Float	2	0	1					0	0	1	0	constant	1	0	NumHab	HabNumWBNRch	
HabWBNRchIndex	Index of WBN reaches that impact habitat	unitless	Integer	2	0	50					0	0	1	0	constant	1	0	NumHab	HabNumWBNRch	
HRangeFishWBNRchInde	Index of WBN fishable reaches that impact habitat range	unitless	Integer	3	0	50					0	0	1	0	constant	1	0	NumHab	HabNumRange	HRangeNumFishWBNRch
HRangeNumFishWBNRch	Number of fishable reaches that cross habitat range	unitless	Integer	2	0	50					0	0	1	0	constant	1	1	NumHab	HabNumRange	
HumRcpAirIndex	Index of air points that impact receptor		Integer	1	0	10000					0	0	1	0	Constant	1	0	NumHumRcp		
HumRcpAquIndex	Index of aquifer that impacts receptor	unitless	Integer	1	0	100					0	0	1	0	constant	1	0	NumHumRcp		
HumRcpAquWellFrac	Fraction of HumRcp drinking from wells		Float	1	0	1					0	0	1	0	constant	1	0	NumHumRcp		
HumRcpAquWellIndex	Index of well that impacts receptor for the given aquifer	unitless	Integer	1	0	500					0	0	1	0	constant	1	0	NumHumRcp		
HumRcpLWSIndex	local watershed index for each human receptor	not applicable	Integer	1	0	10					0	0	1	0	constant	1	0	NumHumRcp		
HumRcpLWSSubAreaInde	local watershed subarea index for each human receptor	not applicable	Integer	1	0	10					0	0	1	0	constant	1	0	NumHumRcp		
HumRcpPh	Average shower water pH		Float	0	3	10	6.67	3.41	9.30	Variant	0	0	0	1	empirical (same as AquPh)	1	0			
HumRcpPopulation	population of a HumRcp	unitless	float	3	0	10000					0	0	1	0	constant	1	0	NumHumRcp	HumRcpType	5 - NumCohort**
HumRcpTemp	Typical shower temperature	degrees Celsius	Float	0	0	50	43	43	43	Invariant = 43	1	0	0	0	constant	1	0			
HumRcpType	Type of human receptor (Beef Farmer, Dairy Farmer, Beef Farmer Fisher, Dairy Farmer Fisher) a particular modeling pathway is turned off by setting the corresponding number of that media to 0.		String	1							1	0	0	0	constant	1	1	NumHumRcpType		
HumRcpWSSubIndex	Index of watershed that impacts receptor	not applicable	Integer	1	1	100					0	0	1	0	constant	1	0	NumHumRcp		
HydroGroup	hydrologic soil group needed to select correct correlation by hydrologic soil group		string	0							0	0	1	0	constant	1	0			
HydrologicRegion	USGS Hydrologic Region (USGSHydro1 - USGSHydro20)		String	0							0	0	1	0	constant	1	0			
MaxSrcArea	Maximum tank area (= SI SrcArea for AT, null for other sources)	m^2	float	0	0	100000000	20241	0	1618800	Variant	0	0	1	0	constant	1	0			
MetSta	Met. Station identifier (<MetSta>L.dat, <MetSta>A.dat,<MetSta>M.dat,<MetSta>D.dat,<MetSta>H.dat)		String	0				3812	94860	Variant	0	0	1	0	constant	1	0			
NumAir	Number of Air Points		Integer	0	0	10000	396.3	172	960	Variant	0	0	1	0	Constant	1	1			
NumAqu	Number of aquifers		Integer	0	0	5	0.674	0	1	Variant	0	0	1	0	constant	1	1			
NumAquWell	Number of drinking water wells		Integer	0	0	500	36.5	0	253	Variant	0	0	1	0	Constant	1	1			
NumBinC	Number of Bins for human -- Carcinogen	unitless	Integer	0	0	20	7	7	7	Invariant = 7	1	0	0	0	constant	1	1			
NumBinNC	Number of Bins for human -- nonCarcinogen	unitless	Integer	0	0	20	4	4	4	Invariant = 4	1	0	0	0	constant	1	1			
NumEcoBin	Number of bins for eco -- noncarcinogen	unitless	Integer	0	0	5	5	5	5	Invariant = 5	1	0	0	0	constant	1	1			
NumEcoRing	number of eco rings	unitless	Integer	0	1	3	3	3	3	Invariant = 3	1	0	0	0	constant	1	1			
NumFarm	Number of farm or crop areas		Integer	0	0	100	1.26	0	6	Variant	0	0	1	0	constant	1	1			
NumFarmRcpType	Number of farmer receptor types		Integer	0	1	10	4	4	4	Invariant = 4	1	0	0	0	constant	1	1			
NumHab	number of habitats selected for site simulation	unitless	Integer	0	0	25	4.37	1	11	Variant	0	0	1	0	constant	1	1			
NumHabGroup	Number of general groups into which habitat types are placed	unitless	Integer	0	1	3	3	3	3	Invariant = 3	1	0	0	0	constant	1	1			
NumHabType	Number of habitat types represented at the site	unitless	Integer	0	1	12	3.57	1	6	Variant	0	0	1	0	constant	1	1			
NumHumRcp	Number of human receptor points at a site	unitless	Integer	0	1	10000	117.9	1	647	Variant	0	0	1	0	constant	1	1			

Table 8-9b. Site Layout Input (SSF) Dictionary Summary (Continued)

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	National?	Regional?	Site?	Other?	Dist. Type	# Dist. Types	Is Index?	Index 1	Index 2	Index 3
NumHumRcpType	Number of human receptor types		Integer	0	1	10	4	4	4	Invariant = 4	1	0	0	0	constant	1	1			
NumReceptor	Complete receptor list across all habitat types	unitless	Integer	0	1	66	62	62	62	Invariant = 62	1	0	0	0	constant	1	1			
NumRecGroup	Total receptor groups considered (terrestrial plants; aquatic plants; mammals; birds; amphibians; reptiles; soil biota; sediment biota; aquatic biota)	unitless	Integer	0	1	9	9	9	9	Invariant = 9	1	0	0	0	constant	1	1			
NumRing	number of rings at site		Integer	0	0	100	3	3	3	Invariant = 3	1	0	0	0	constant	1	1			
NumTrophicLevel	Number of possible trophic levels	unitless	Integer	0	1	5	5	5	5	Invariant = 5	1	0	0	0	constant	1	1			
NumVad	Number of vadose zones		Integer	0	0	5	0.674	0	1	Variant	0	0	1	0	constant	1	1			
NumWBN	Number of waterbody networks		Integer	0	0	50	2.52	0	32	Variant	0	0	1	0	constant	1	1			
NumWSSub	Number of watershed sub basins		Integer	0	1	100	13.5	6	25	Variant	0	0	1	0	constant	1	1			
NyrMax	Maximum model simulation time	years	Integer	0	1	10000	10000	10000	10000	Invariant = 10000	1	0	0	0	constant	1	0			
ReceptorIndex	Indices assigned to each receptor	unitless	Integer	1	1	66					1	0	0	0	constant	1	1	NumReceptor		
ReceptorName	Name of receptor (e.g., red-tailed hawk)	not applicable	String	1							1	0	0	0	constant	1	0	NumReceptor		
ReceptorType	Description of receptor (e.g., predator, omnivert, herbivert,etc.)	not applicable	String	1							1	0	0	0	constant	1	0	NumReceptor		
RecGroup	The general receptor groups (e.g., mammals, birds, amphibians, reptiles, soil biota, terrestrial plants, aquatic biota, sediment biota, aquatic plants)	not applicable	String	1							1	0	0	0	constant	1	0	NumReceptor		
RecTrophicLevel	Trophic level into which each receptor falls	not applicable	String	1							1	0	0	0	constant	1	0	NumReceptor		
RingDistance	Distance of ring from source edge	m	Float	1	0	2000					1	0	0	0	constant	1	0	NumRing		
RingFarmFrac	fraction of a farm in a ring	fraction	Float	2	0	1					0	0	1	0	constant	1	0	NumRing	RingNumFarm	
RingFarmIndex	Index of a farm in a ring	unitless	Integer	2	0	100					0	0	1	0	constant	1	0	NumRing	RingNumFarm	
RingHumRcpIndex	Index of a HumRcp in a ring	unitless	Integer	2	0	10000					0	0	1	0	constant	1	0	NumRing	RingNumHumRcp	
RingNumFarm	Number of farms in a ring	unitless	Integer	1	0	100					0	0	1	0	constant	1	1	NumRing		
RingNumHumRcp	Num of HumRcp locations in a ring	unitless	Integer	1	0	1000					0	0	1	0	constant	1	1	NumRing		
SettingID	SettingID (SrcType+SiteID)		String	0							0	0	1	0	constant	1	0			
SiteGeoRefX	Easting in UTM (facility centroid)	m	Float	0				229161	782192	Variant	0	0	1	0	constant	1	0			
SiteGeoRefY	Northing in UTM (facility centroid)	m	Float	0				2875473	5367246	Variant	0	0	1	0	constant	1	0			
SiteLatitude	Site latitude	degrees	Float	0	-90	90	37.6	26.0	48.5	Variant	0	0	1	0	constant	1	0			
SiteLongitude	Site longitude	degrees	Float	0	-180	180	-90.0	-123.3	-67.7	Variant	0	0	1	0	constant	1	0			
SiteSeed	Random seed for each site		Integer	0			16424	247	32594	Variant	1	0	0	0	IntUniform	1	0			
SiteUTMZone	UTM Zone of SiteGeoRef		Integer	0	0	20	15.5	10	19	Variant	0	0	1	0	constant	1	0			
SoilType	soil type for site needed to select correct correlation by soil type		string	0							0	0	1	0	constant	1	0			
SrcArea	Area of source	m^2	Float	0	0.01	100000000	49312	1.34	1618800	Variant	1	0	1	0	constant	1	0			
SrcDepth	Depth of source (0 for AT, WP)	m	Float	0	0	50	1.31	0	16.4	Variant	0	0	1	0	constant	1	0			
SrcId	Environmental Setting Id for Source		String	0							0	0	1	0	constant	1	0			
SrcLocX	Easting in Site Coordinate System (0)	m	Float	0	-100000	100000	0	0	0	Invariant = 0	0	0	1	0	constant	1	0			
SrcLocY	Northing in Site Coordinate System (0)	m	Float	0	-100000	100000	0	0	0	Invariant = 0	0	0	1	0	constant	1	0			
SrcLWSNumSubArea	Number of local watershed subareas		Integer	1	0	10					0	0	1	0	constant	1	1	SrcNumLWS		
SrcLWSSubAreaArea	Area of LWS SubArea	m2	Float	2	0.01	100000000					0	0	1	0	constant	1	0	SrcNumLWS	SrcLWSNumSubArea	
SrcLWSSubAreaIndex	local watershed subarea containing WMU	unitless	Integer	1	0	10					0	0	1	0	constant	1	0	SrcNumLWS		
SrcNumLWS	Number of local watersheds		Integer	0	0	10		1	2	Variant	0	0	1	0	constant	1	1			
SrcPh	Average Waste/Source pH	pH units	Float	0	0	14	7.28	1.66	13.0	Variant	1	0	1	0	triangular	2	0			
SrcTemp	Average Waste/Source Temperature	degrees Celsius	Float	0	0	70	13.7	3.83	24.3	Variant	0	0	1	0	constant	1	0			
SrcType	One of {LAU, LF, WP, AT, SI}		String	0							0	0	1	0	constant	1	0			
TermFrac	Peak output fraction for simulation termination	fraction	Float	0	0	1	0.01	0.01	0.01	Invariant = 0.01	1	0	0	0	constant	1	0			
VadALPHA	soil retention parameter alpha (subsoil)	1/cm	float	0	0	0.3	0.0468	2.67E-04	0.201	Variant	0	0	1	0	normal	3	0			
VadBETA	soil retention parameter beta (subsoil)	unitless	float	0	0	5	1.58	0.905	3.35	Variant	0	0	1	0	normal	4	0			
VadID	Environmental Setting Id for Aquifer		String	1							0	0	1	0	constant	1	0	NumVad		
VadLWSIndex	LWS Index for vadose zone		Integer	1	1	10					0	0	1	0	constant	1	0	NumVad		
VadPh	Average Vadose Zone pH	pH units	Float	0	4	9	6.16	4.55	8.94	Variant	0	0	1	0	constant	1	0			
VadSATK	saturated hydraulic conductivity (subsoil)	cm/hr	float	0	1E-08	1000000	4.36	2.5E-05	56.4	Variant	0	0	1	0	TrnLogNormal	2	0			
VadTemp	Average Vadose Zone Temperature	degrees Celsius	Float	0	0	35	14.9	2.5	27.5	Variant	0	0	1	0	constant	1	0			
VadThick	Vadose zone thickness	m	Float	1	0	1000					0	1	0	0	HydroGeo	1	0	NumVad		
VadWCR	residual water content	L/L	float	0	0	1	0.0697	0.00459	0.147	Variant	0	0	1	0	TrnLogNormal	4	0			
VadWCS	saturated water content (subsoil)	L/L	float	0	0	1	0.417	0.36	0.46	Variant	0	0	1	0	constant	1	0			

Table 8-9b. Site Layout Input (SSF) Dictionary Summary (Continued)

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	National?	Regional?	Site?	Other?	Dist. Type	# Dist. Types	Is Index?	Index 1	Index 2	Index 3
WBNDOC	DOC of stream, lake, and wetland reaches in waterbody network	mg/L	float	1	0	50					0	0	1	0	constant	1	0	3 - WBNNumRchBodyType**		
WBNFishableRchIndex	index of reaches that are fishable	unitless	Integer	2	0	50					0	0	1	0	constant	1	0	NumWBN	WBNNumFishableRch	
WBNfocAbS	fraction organic carbon of abiotic solids in water column	fraction	Float	0	0	0.5	0.240	0.0026	0.497	Variant	1	0	0	0	uniform	1	0			
WBNfocBioS	fraction organic carbon of biotic solids in water column	fraction	Float	0	0.2	1	0.617	0.204	0.996	Variant	1	0	0	0	uniform	1	0			
WBNfocSed	fraction organic carbon in sediments of stream, lake, and wetland reaches	fraction	Float	1	0	0.5					1	0	0	0	uniform	1	0	3 - WBNNumRchBodyType**		
WBNId	Environmental Setting Id for WBN		Integer	1	0	100					0	0	1	0	constant	1	0	NumWBN		
WBNNumFishableRch	number of fishable reaches	unitless	Integer	1	0	50					0	0	1	0	constant	1	1	NumWBN		
WBNNumRch	Number of reaches for this network		Integer	1	1	50					0	0	1	0	constant	1	1	NumWBN		
WBNpH	pH of stream, lake, and wetland reaches in the waterbody network	pH units	float	1	4	9.5					0	0	1	0	constant	1	0	3 - WBNNumRchBodyType**		
WBNRchAirFrac	Fraction of this reach impacted by air point	fraction	Float	3	0	1					0	0	1	0	Constant	1	0	NumWBN	WBNNumRch	WBNRchNumAir
WBNRchAirIndex	Index of air point that impacts this reach		Integer	3	1	10000					0	0	1	0	Constant	1	0	NumWBN	WBNNumRch	WBNRchNumAir
WBNRchAquFrac	Fraction of this reach impacted by the aquifer	fraction	Float	3	0	1					0	0	1	0	constant	1	0	NumWBN	WBNNumRch	WBNRchNumAqu
WBNRchAquIndex	Index of aquifer that impacts this reach		Integer	3	0	5					0	0	1	0	constant	1	0	NumWBN	WBNNumRch	WBNRchNumAqu
WBNRchArea	reach surface area (nonstream reaches)	m2	float	2	0	1000000000					0	0	1	0	constant	1	0	NumWBN	WBNNumRch	
WBNRchBodyType	Type of waterbody (Stream, Lake, Wetland)		String	2				3	3	Invariant = 3	0	0	1	0	constant	1	0	NumWBN	WBNNumRch	
WBNRchHypoAreaFrac	fraction of total surface area for hypolimnion	fraction	float	2	0	1					0	0	1	0	constant	1	0	NumWBN	WBNNumRch	
WBNRchLength	Reach Length	m	Float	2	0	10000					0	0	1	0	constant	1	0	NumWBN	WBNNumRch	
WBNRchLocX	Easting in Site Coordinate System	m	Float	3	-100000	100000					0	0	1	0	Constant	1	0	NumWBN	WBNNumRch	WBNRchNumLoc
WBNRchLocY	Northing in Site Coordinate System	m	Float	3	-100000	100000					0	0	1	0	Constant	1	0	NumWBN	WBNNumRch	WBNRchNumLoc
WBNRchNumAir	Number of points that impact this reach		Integer	2	0	10000					0	0	1	0	Constant	1	1	NumWBN	WBNNumRch	
WBNRchNumAqu	Number of aquifer that impact this reach		Integer	2	0	2					0	0	1	0	constant	1	1	NumWBN	WBNNumRch	
WBNRchNumLoc	number of x,y points associated with watershed	unitless	Integer	2	1	1000					0	0	1	0	Constant	1	1	NumWBN	WBNNumRch	
WBNRchNumRch	Number of reaches that impact this reach		Integer	2	0	15					0	0	1	0	constant	1	1	NumWBN	WBNNumRch	
WBNRchNumWSSub	Number of watersheds that impacts this reach		Integer	2	0	15					0	0	1	0	constant	1	1	NumWBN	WBNNumRch	
WBNRchOrder	stream order	unitless	Integer	2	1	10					0	0	1	0	constant	1	0	NumWBN	WBNNumRch	
WBNRchRchFrac	Fraction of this reach impacted by another reach	fraction	Float	3	0	1					0	0	1	0	constant	1	0	NumWBN	WBNNumRch	WBNRchNumRch
WBNRchRchIndex	Index of reach that impacts this reach		Integer	3	0	50					0	0	1	0	constant	1	0	NumWBN	WBNNumRch	WBNRchNumRch
WBNRchSrcLWSFrac	fraction of waterbody network reach impacted by the source local watershed	fraction	float	2	0	1					0	0	1	0	constant	1	0	NumWBN	WBNNumRch	
WBNRchSrcLWSIndex	index of local watershed from source		integer	2	0	10					0	0	1	0	constant	1	0	NumWBN	WBNNumRch	
WBNRchType	Type of reach (Headwater, exiting, other)		String	2							0	0	1	0	constant	1	0	NumWBN	WBNNumRch	
WBNRchWSSubFrac	Fraction of this reach impacted by watershed	fraction	Float	3	0	1					0	0	1	0	constant	1	0	NumWBN	WBNNumRch	WBNRchNumWSSub
WBNRchWSSubIndex	Index of watershed that impacts this reach		Integer	3	0	50					0	0	1	0	constant	1	0	NumWBN	WBNNumRch	WBNRchNumWSSub
WBNTemp	median temperature of stream, lake, and wetland reaches in waterbody network	degrees Celsius	float	1	0	35					0	0	1	0	constant	1	0	3 - WBNNumRchBodyType**		
WBNTempMax	maximum temperature of stream, lake, and wetland reaches in waterbody network	degrees Celsius	float	1	0	45					0	0	1	0	constant	1	0	3 - WBNNumRchBodyType**		
WBNTOC	TOC of stream, lake, and wetland reaches in waterbody network	mg/L	float	1	0	100					0	0	1	0	constant	1	0	3 - WBNNumRchBodyType**		
WBNTSS	TSS of stream, lake, and wetland reaches in waterbody network	mg/L	float	1	0	1000					0	0	1	0	constant	1	0	3 - WBNNumRchBodyType**		
WBNWaterHardness	water hardness	mg CaCO3 eq/L	Float	1	5	3000					0	0	1	0	constant	1	0	3 - WBNNumRchBodyType**		
WSPh	Watershed soil pH	pH units	Float	0	4	9	6.17	4.60	8.88	Variant	0	0	1	0	constant	1	0			
WSSubAirFrac	Fraction of WSSub represented by air points	fraction	Float	2	0	1					0	0	1	0	Constant	1	0	NumWSSub	WSSubNumAir	
WSSubAirIndex	Index of air point that represents subasin		Integer	2	1	10000					0	0	1	0	Constant	1	0	NumWSSub	WSSubNumAir	
WSSubArea	Area of subasin	m^2	Float	1	0	10000000000					0	0	1	0	constant	1	0	NumWSSub		
WSSubNumAir	Number of air points that represent subasin		Integer	1	1	10000					0	0	1	0	Constant	1	1	NumWSSub		
WSSubNumSubArea	Number of watershed subbasin subareas (= 1)		Integer	1	1	9					0	0	1	0	constant	1	0	NumWSSub		
WSTemp	Average Watershed Temperature	degrees Celsius	Float	0	0	35	13.7	3.83	24.3	Variant	0	0	1	0	constant	1	0			

Table 8-9c. Chemical Properties Input (SSF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	National?	Regional?	Site?	Other?	Dist. Type	#Dist. Types	Is Index?	Index 1	Index 2	Index 3
ChemActBioNumProd	Number of products		Integer	1			0	0	0	No Data*	0	0	0	1	No data available	1	1	NumChem		
ChemActBioProdCASID	Product CASID		String	2						No Data*	0	0	0	1	No data available	1	0	NumChem	ChemActBioNumProd	
ChemActBioProdName	Product Name		String	2						No Data*	0	0	0	1	No data available	1	0	NumChem	ChemActBioNumProd	
ChemActBioProdYield	Product Yield Coefficient	moles/moles	Float	2	0	5				No Data*	0	0	0	1	No data available	1	0	NumChem	ChemActBioNumProd	
ChemActBioRate	Activated Biodegradation	1/day	Float	1	0	2	0	0	0	No Data*	0	0	0	1	No data available	1	0	NumChem		
ChemADiff	Air Diffusion Coefficient	cm^2/s	Float	1	0	1	0.0470	0	0.133	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemAerBioNumProd	Number of products		Integer	1				0	1	Variant	0	0	0	1	Constant (Hg only)	1	1	NumChem		
ChemAerBioProdCASID	Product CASID		String	2							0	0	0	1	Constant (Hg only)	1	0	NumChem	ChemAerBioNumProd	
ChemAerBioProdName	Product Name		String	2							0	0	0	1	Constant (Hg only)	1	0	NumChem	ChemAerBioNumProd	
ChemAerBioProdYield	Product Yield Coefficient	moles/moles	Float	2	0	2					0	0	0	1	Constant (Hg only)	1	0	NumChem	ChemAerBioNumProd	
ChemAerBioRate	Aerobic Biodegradation rate	1/day	Float	1	0	42.5	0.702	0	42.5	Variant	0	0	0	1	Triangular (Hg); Uniform organics where applicable; no data other metals)	1	0	NumChem		
ChemAnaBioNumProd	Number of products		Integer	1				0	1	Variant	0	0	0	1	Constant	1	1	NumChem		
ChemAnaBioProdCASID	Product CASID		String	2							0	0	0	1	Constant (Hg only)	1	0	NumChem	ChemAnaBioNumProd	
ChemAnaBioProdName	Product Name		String	2							0	0	0	1	Constant (Hg only)	1	0	NumChem	ChemAnaBioNumProd	
ChemAnaBioProdYield	Product Yield Coefficient	moles/moles	Float	2	0	2					0	0	0	1	Constant (Hg only)	1	0	NumChem	ChemAnaBioNumProd	
ChemAnaBioRate	Anaerobic Biodegradation	1/day	Float	1	0	2	0.0126	0	0.250	Variant	0	0	0	1	Triangular (Hg); Constant or Uniform organics where applicable; no data other metals)	1	0	NumChem		
ChemAnaRedNumProd	Number of products		Integer	1				0	1	Variant	0	0	0	1	Constant (Hg only)	1	1	NumChem		
ChemAnaRedProdCASID	Product CASID		String	2							0	0	0	1	Constant (Hg only)	1	0	NumChem	ChemAnaRedNumProd	
ChemAnaRedProdName	Product Name		String	2							0	0	0	1	Constant (Hg only)	1	0	NumChem	ChemAnaRedNumProd	
ChemAnaRedProdYield	Product Yield Coefficient	moles/moles	Float	2	0	2					0	0	0	1	Constant (Hg only)	1	0	NumChem	ChemAnaRedNumProd	
ChemAnaRedRate	Anaerobic Reduction	1/day	Float	1	0	2	0.00085	0	0.0977	Variant	0	0	0	1	Triangular (Hg only)	1	0	NumChem		
ChemaqmpBCFmd	bioconcentration factor for aquatic plants based on measured, dissolved water concentration	L/kg ww	float	1	-999	1000000000	580.5	0.34	10000	Variant	0	0	0	1	Constant (no data available)	1	0	NumChem		
ChemaqmpBCFmt	bioaccumulation factor for aquatic plants based on measured, total water concentration	L/kg ww	float	1	-999	1000000000	-999	-999	-999	No Data	0	0	0	1	Constant (where available)	1	0	NumChem		
ChemaqmpBSAFm	biota-sediment accumulation factor for aquatic plants based on measured, total sediment concentration	kg/kg ww	float	1	-999	1000000000	-999	-999	-999	No Data	0	0	0	1	Constant (no data available)	1	0	NumChem		
ChemBa_beef	beef biotransfer factor based on whole weight concentration and total concentration in soil (dioxins; Hg; metals; special)	d/kg	float	1	0	1	0.633	1.50E-04	1	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemBa_milk	milk biotransfer factor based on whole weight concentration and total concentration in soil(dioxins; Hg; metals; special)	d/kg	float	1	0	1	0.629	0.0000009	1	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemBa_water	biotransfer factor for dissolved contaminant in surface water based on whole weight concentration and total concentration in soil	d/kg	float	1	1	1	1	1	1	Invariant = 1	0	0	0	1	Constant	1	0	NumChem		
ChemBAFbirds_sm	bioaccumulation factor in small birds converted to reflect whole weight tissue concentration and total concentration in soil	unitless	Float	1	0	10000	0.778	0.0025	2.1	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemBAFherbiverts	bioaccumulation factor in larger herbivorous vertebrates converted to reflect whole weight tissue concentration and total concentration in soil	unitless	Float	1	0	10000	0.778	0.0025	2.1	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemBAFherp_sm	bioaccumulation factor in small herps converted to reflect whole weight tissue concentration and total concentration in soil	unitless	Float	1	0	10000	0.797	0.004	2.1	Variant	0	0	0	1	Constant	1	0	NumChem		

Table 8-9c. Chemical Properties Input (SSF) Dictionary Summary (Continued)

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	National?	Regional?	Site?	Other?	Dist. Type	# Dist. Types	Is Index?	Index 1	Index 2	Index 3
ChemBAFinvert	bioaccumulation factor in invertebrates converted to reflect whole weight tissue concentration and total concentration in soill	unitless	Float	1	0	10000	0.936	0.09	1.60	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemBAFmammals_sm	bioaccumulation factor in small mammals converted to reflect whole weight tissue concentration and total concentration in soil	unitless	Float	1	0	10000	0.728	0.0025	1.1	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemBAFomniverts	bioaccumulation factor in larger ominivorous vertebrates converted to reflect whole weight tissue concentration and total concentration in soil	unitless	Float	1	0	10000	0.728	0.0025	1.1	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemBAFworms	bioaccumulation factor in earthworms converted to reflect whole weight tissue concentration and total concentration in soil	unitless	Float	1	0	10000	0.766	0.007	1.9	Variant	0	0	0	1	Constant	1	0	NumChem		
ChembenthffBAFmd	bioaccumulation factor for benthic filter feeders based on measured, dissolved water concentration	L/kg ww	float	1	-999	1000000000	13.3	0.94	380	Variant	0	0	0	1	Constant (no data available)	1	0	NumChem		
ChembenthffBAFmt	bioaccumulation factor for benthic filter feeders based on measured, total water concentration	L/kg ww	float	1	-999	1000000000	-999	-999	-999	No Data	0	0	0	1	Constant (where available)	1	0	NumChem		
ChembenthffBSAFm	biota-sediment accumulation factor for benthic filter feeders based on measured, total sediment concentration	kg/kg ww	float	1	-999	1000000000	-999	-999	-999	No Data	0	0	0	1	Constant (no data available)	1	0	NumChem		
ChemBM	Factor used in place of RfD when calculating HQ in breast milk	mg/kg-d	float	1	0	100000	1.19422E-09	0	0.00000005	Variant	0	0	0	1	Constant (TCDD only)	1	0	NumChem		
ChemBr_exfruit	soil-to-plant bioconcentration factor (Hg; metals; special)	(ug/g DW plant)/(ug/g soil)	float	1	-999	10	0.701	0	1.5	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemBr_exveg	soil-to-plant bioconcentration factor (Hg; metals; special)	(ug/g DW plant)/(ug/g soil)	float	1	-999	10	0.673	0	1	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemBr_forage	soil-to-plant bioconcentration factor (Hg; metals; special)	(ug/g DW plant)/(ug/g soil)	float	1	-999	10	0.671	0	1	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemBr_grain	soil-to-plant bioconcentration factor (Hg; metals; special)	(ug/g DW plant)/(ug/g soil)	float	1	-999	10	0.657	0	1	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemBr_profruit	soil-to-plant bioconcentration factor (Hg; metals; special)	(ug/g DW plant)/(ug/g soil)	float	1	-999	10	0.825	0.004	1	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemBr_proveg	soil-to-plant bioconcentration factor (Hg; metals; special)	(ug/g DW plant)/(ug/g soil)	float	1	-999	10	0.825	0.004	1	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemBr_root	soil-to-plant bioconcentration factor (Hg; metals; special)	(ug/g DW plant)/(ug/g soil)	float	1	-999	10	0.674	4.00E-04	1	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemBr_silage	soil-to-plant bioconcentration factor (Hg; metals; special)	(ug/g DW plant)/(ug/g soil)	float	1	-999	10	0.713	0	1.6	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemBreastMilkExp	Causes breast milk exposure? (1=yes, 0=no)	unitless	integer	1	0	1	0.0239	0	1	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemBs	bioavailability fraction of contaminant in soil relative to vegetation	fraction	float	1	0	1	0.992	0.65	1	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemBv_ecf_plant	empirical correction factor for Bv	unitless	float	1	1	100	63.2	1	100	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemBv_exfruit	mass-based air-plant biotransfer factor (dioxins; Hg; special)	(ug/g DW plant)/(ug/g air)	float	1	-999	1000000000	3070.7	0	65500	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemBv_exveg	mass-based air-plant biotransfer factor (dioxins; Hg; special)	(ug/g DW plant)/(ug/g air)	float	1	-999	1000000000	3070.7	0	65500	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemBv_forage	mass-based air-plant biotransfer factor (dioxins; Hg; special)	(ug/g DW plant)/(ug/g air)	float	1	-999	1000000000	3032.3	0	65500	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemBv_silage	mass-based air-plant biotransfer factor (dioxins; Hg; special)	(ug/g DW plant)/(ug/g air)	float	1	-999	1000000000	3032.3	0	65500	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemC_Add	Cancer additive risk? (1=yes, 0=no)	unitless	integer	1	0	1	0.167	0	1	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemCASID	CASID		String	1							0	0	0	1	Constant	1	0	NumChem		
ChemCSCLSedimentRec	chemical stressor concentration limit for sediment	ug/g	Float	2	-999	10000					0	0	0	1	Constant (where available by species)	1	0	NumChem	NumReceptor	

Table 8-9c. Chemical Properties Input (SSF) Dictionary Summary (Continued)

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	National?	Regional?	Site?	Other?	Dist. Type	#Dist. Types	Is Index?	Index 1	Index 2	Index 3
ChemCSCLSoilRec	chemical stressor concentration limit for soil (depth averaged)	ug/g	Float	2	-999	10000					0	0	0	1	Constant (where available by species)	1	0	NumChem	NumReceptor	
ChemCSCLWaterDissRec	dissolved chemical stressor concentration limit for surface water	mg/L	Float	2	-999	10000					0	0	0	1	Constant (where available by species)	1	0	NumChem	NumReceptor	
ChemCSCLWaterTotRec	total chemical stressor concentration limit for surface water	mg/L	Float	2	-999	10000					0	0	0	1	Constant (where available by species)	1	0	NumChem	NumReceptor	
ChemCSFfood	Cancer slope factor (food ingestion)	(mg/kg-d)-1	float	1	0	1000000	3585.1	0	150000	Variant	0	0	0	1	Constant (where available)	1	0	NumChem		
ChemCSFinhal	Cancer slope factor (inhalation)	(mg/kg-d)-1	float	1	0	1000000	3584.4	0	150000	Variant	0	0	0	1	Constant (where available)	1	0	NumChem		
ChemCSFwater	Cancer slope factor (drinking water ingestion)	(mg/kg-d)-1	float	1	0	1000000	3585.1	0	150000	Variant	0	0	0	1	Constant (where available)	1	0	NumChem		
ChemDen	Density	g/mL	Float	1	0	10	1.02	0	10	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemEBRec	ecological benchmark for receptors that receive ingested doses	mg/kg-day	Float	2	-999	10000					0	0	0	1	Constant (where available by species)	1	0	NumChem	NumReceptor	
ChemEco	flag for Ecological Risk Computation		logical	1				0	1	Variant	0	0	0	1	Constant	1	0	NumChem		
Chemfai	fraction of ingested contaminant by the infant which is absorbed	fraction	float	1			0.0215	0	0.9	Variant	0	0	0	1	Constant (TCDD only)	1	0	NumChem		
ChemFam	Fraction of contaminant ingested by mother that is absorbed	fraction	float	1	0	1	0.0239	0	1	Variant	0	0	0	1	Constant (TCDD only)	1	0	NumChem		
ChemFbl	Fraction of contaminant in whole blood compartment	fraction	float	1	0	1	0	0	0	Invariant = 0	0	0	0	1	Constant (TCDD only)	1	0	NumChem		
ChemFf	Fraction of contaminant stored in maternal fat	fraction	float	1	0	1	0.0215	0	0.9	Variant	0	0	0	1	Constant (TCDD only)	1	0	NumChem		
Chemfoc	Fraction Organic Content of Medium	fraction	Float	0	0	0.4	0.2	0.2	0.2	Invariant = 0.2	0	0	0	1	Constant (All = 0.2)	1	0			
ChemFracNeutral	Fraction of chemical concentration in the neutral species at a given pH and T	fraction	Float	1	0	1	0.600	0	1	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemHealthEffect	1 means Carcinogen. 2 means Non-Carcinogen. 3 means both.	unitless	integer	1	1	3	2.19	1	3	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemHLC	Henry's Law Constant	(atm m^3)/mol	Float	1	0	10	0.00304	0	0.0628	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemHuman	flag for Human Risk Computation		logical	1				0	1	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemHydNumProd	Number of products		Integer	1			0	0	0	Invariant = 0	0	0	0	1	Constant (organics only, where available)	1	1	NumChem		
ChemHydProdCASID	Product CASID		String	2							0	0	0	1	Constant	1	0	NumChem	ChemHydNumProd	
ChemHydProdName	Product Name		String	2							0	0	0	1	Constant	1	0	NumChem	ChemHydNumProd	
ChemHydProdYield	Product Yield Coefficient	moles/moles	Float	2	0	2					0	0	0	1	Constant	1	0	NumChem	ChemHydNumProd	
ChemHydRate	Catalyzed Hydrolysis	1/day	Float	1	0	25000	0.052699666	0	2850.8	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemKd	Partition Coefficient for Med	L/kg	Float	2							0	0	0	1	Triangular	1	0	NumChem	8 - NumChemMed**	
ChemKDoc	Koc	mL/g	Float	1	0	100000000	13318.00358	0	158000	Variant	0	0	0	1	Triangular (Hg); Constant others	1	0	NumChem		
ChemKm	Metabolic transformation rate in fish	1/day	Float	1	0	10000	0	0	0	Invariant = 0	0	0	0	1	Constant (All = 0)	1	0	NumChem		
ChemKoc	Koc	mL/g	Float	1	0	100000000	512122	0	29820365.99	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemKow	Kow		Float	1	0	100000000	1069949.676	0	62303575.29	Variant	0	0	0	1	Constant	1	0	NumChem		
Chemkpm	concentration proportionality constant between plasma and breast milk aqueous phase	unitless	float	1			0.0239	0	1	Variant	0	0	0	1	Constant (TCDD only)	1	0	NumChem		
ChemkpPar_exfruit	plant surface loss coefficient	1/y	float	1	18.07	40.41	18.8	18.1	40.4	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemkpPar_exveg	plant surface loss coefficient	1/y	float	1	18.07	40.41	18.8	18.1	40.4	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemkpPar_forage	plant surface loss coefficient	1/y	float	1	18.07	40.41	18.8	18.1	40.4	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemkpPar_silage	plant surface loss coefficient	1/y	float	1	18.07	40.41	18.8	18.1	40.4	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemkpVap_exfruit	degradation loss of vapor phase constituents	1/y	Float	1	1	180.7	78.1	1	119.4	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemkpVap_exveg	degradation loss of vapor phase constituents	1/y	Float	1	1	180.7	78.1	1	119.4	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemkpVap_forage	degradation loss of vapor phase constituents	1/y	Float	1	1	180.7	78.1	1	119.4	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemkpVap_silage	degradation loss of vapor phase constituents	1/y	Float	1	1	180.7	78.1	1	119.4	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemKrbc	Concentration proportionality constant between red blood cells and plasma	unitless	float	1			0.0239	0	1	Variant	0	0	0	1	Constant (TCDD only)	1	0	NumChem		
ChemLiqCw	Liquid Waste Cw's for this chemical	mg/L	Float	2							0	0	0	1	Constant	1	0	NumChem	ChemNumLiqCw	

Table 8-9c. Chemical Properties Input (SSF) Dictionary Summary (Continued)

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	National?	Regional?	Site?	Other?	Dist. Type	# Dist. Types	Is Index?	Index 1	Index 2	Index 3
ChemMed	Solubility Media (Soil, Sediment,Surface Water, LAU, WP, LF, SI, AT)		String	1						Index Desc. (*8	0	0	0	1	Constant	1	0	8 - NumChemM		
ChemMetBioNumProd	Number of products		Integer	1			0	0	0	No Data*	0	0	0	1	No data available	1	1	NumChem		
ChemMetBioProdCASID	Product CASID		String	2						No Data*	0	0	0	1	No data available	1	0	NumChem	ChemMetBioNumProd	
ChemMetBioProdName	Product Name		String	2						No Data*	0	0	0	1	No data available	1	0	NumChem	ChemMetBioNumProd	
ChemMetBioProdYield	Product Yield Coefficient	moles/moles	Float	2	0	2				No Data*	0	0	0	1	No data available	1	0	NumChem	ChemMetBioNumProd	
ChemMetBioRate	Anaerobic Biodegradation under Methanogenic Red.	1/day	Float	1	0	2	0.00468	0	0.57	Variant	0	0	0	1	Uniform, Constant, or Demp (organics only)	1	0	NumChem		
ChemMolWt	Molecular weight for the chemical	g/mole	Float	1	9	500	139.8	9.01	390.6	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemName	Chemical Name		String	1							0	0	0	1	Constant	1	0	NumChem		
ChemNC_Add	Non-cancer additive risk? (1=yes, 0=no)	unitless	integer	1	0	1	0.0955	0	1	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemNeglonpKa	Negative log10 of acid dissociation constant for generation of ionic species 1-,2-,3-,etc.	pH units	Float	2							0	0	0	1	Constant	1	0	NumChem	NumNeglon	
ChemNeglonSpecies	Flag indicating presence of negative ionic species 1-, 2-, 3-,etc.		Logical	2							0	0	0	1	Constant	1	0	NumChem	NumNeglon	
ChemNumLiqCw	Number of Liquid Waste Cw's for this chemical		Integer	1	0	5	5	5	5	Invariant = 5	0	0	0	1	Constant	1	1	NumChem		
ChemNumSolCw	Number of Solid Waste Cw's for this chemical		Integer	1	0	5	5	5	5	Invariant = 5	0	0	0	1	Constant	1	1	NumChem		
ChemPh	pH assumed for these properties	pH units	Float	0	0	14	6.84	1.66	13.0	Variant	0	0	0	1	Triangular (same as SrcPh)	1	0			
ChemPoslonpKb	Negative log10 of base dissociation constant for generation of ionic species 1+,2+,3+,etc.	pH units	Float	2							0	0	0	1	Constant	1	0	NumChem	NumPoslon	
ChemPoslonSpecies	Flag indicating presence of positive ionic species 1+, 2+,3+,etc.		Logical	2							0	0	0	1	Constant	1	0	NumChem	NumPoslon	
ChemRCF	root concentration factor (dioxins; Hg; metals; special)	(ug/g WW plnt)/(ug/mL sl wat)	float	1	0.0001	1000000	122.3	1	5200	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemRecName	Ecological Receptor name		String	1							0	0	0	1	Constant	1	0	NumReceptor		
ChemRfC	Reference concentration (inhalation)	mg/m3	Float	1	0	100000	0.165	0	3	Variant	0	0	0	1	Constant (where available)	1	0	NumChem		
ChemRfDfish	Reference dose (fish ingestion)	mg/kg-d	Float	1	0	100000	0.120	0	1.5	Variant	0	0	0	1	Constant (where available)	1	0	NumChem		
ChemRfDfood	Reference dose (food ingestion)	mg/kg-d	float	1	0	100000	0.120	0	1.5	Variant	0	0	0	1	Constant (where available)	1	0	NumChem		
ChemRfDwater	Reference dose (drinking water ingestion)	mg/kg-d	float	1	0	100000	0.120	0	1.5	Variant	0	0	0	1	Constant (where available)	1	0	NumChem		
ChemSMILES	SMILES notation for the chemical		String	1							0	0	0	1	Constant	1	0	NumChem		
ChemSO4BioNumProd	Number of products		Integer	1			0	0	0	No Data*	0	0	0	1	No data available	1	1	NumChem		
ChemSO4BioProdCASID	Product CASID		String	2						No Data*	0	0	0	1	No data available	1	0	NumChem	ChemSO4BioNumProd	
ChemSO4BioProdName	Product Name		String	2						No Data*	0	0	0	1	No data available	1	0	NumChem	ChemSO4BioNumProd	
ChemSO4BioProdYield	Product Yield Coefficient	moles/moles	Float	2	0	2				No Data*	0	0	0	1	No data available	1	0	NumChem	ChemSO4BioNumProd	
ChemSO4BioRate	Anaerobic Biodegradation under SO4 Red.	1/day	Float	1	0	2	0.00292	0	0.2	Variant	0	0	0	1	Uniform, Constant, or Demp (organics only)	1	0	NumChem		
ChemSol	Solubility for each media	mg/L	Float	2	0	0					0	0	0	1	Constant	1	0	NumChem	8 - NumChemMed**	
ChemSolCw	Solid Waste Cw's for this chemical	ug/g	Float	2							0	0	0	1	Constant	1	0	NumChem	ChemNumSolCw	
Chemt_halfb	Biological half-life of chemical in lactating women	d	float	1			61.0	0	2555	Variant	0	0	0	1	Constant (TCDD only)	1	0	NumChem		
ChemT3fishBAFmd	T3 fish whole-body bioaccumulation factor based on a measured, total water concentration	L/kg ww	float	1	-999	1000000000		-999	172100	Variant	0	0	0	1	Constant (no data available)	1	0	NumChem		
ChemT3fishBAFmt	T3 fish whole-body bioaccumulation factor based on a measured, dissolved water concentration	L/kg ww	float	1	-999	1000000000	-999	-999	-999	No Data	0	0	0	1	Constant (where available)	1	0	NumChem		
ChemT3musBAFmd	T3 fillet bioaccumulation factor based on a measured, dissolved water concentration	L/kg ww	float	1	-999	1000000000		-999	485	Variant	0	0	0	1	Constant (where available)	1	0	NumChem		
ChemT3musBAFmt	T3 fillet bioaccumulation factor based on a measured, total water concentration	L/kg ww	float	1	-999	1000000000	-999	-999	-999	No Data	0	0	0	1	Constant (where available)	1	0	NumChem		

Table 8-9c. Chemical Properties Input (SSF) Dictionary Summary (Continued)

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	National?	Regional?	Site?	Other?	Dist. Type	# Dist. Types	Is Index?	Index 1	Index 2	Index 3
ChemT4fishBAFmd	T4 fish whole-body bioaccumulation factor based on measured, total water concentration	L/kg ww	float	1	-999	1000000000		-999	264100	Variant	0	0	0	1	Constant (no data available)	1	0	NumChem		
ChemT4fishBAFmt	T4 fish whole-body bioaccumulation factor based on measured, dissolved water concentration	L/kg ww	float	1	-999	1000000000	-999	-999	-999	No Data	0	0	0	1	Constant (where available)	1	0	NumChem		
ChemT4musBAFmd	T4 fillet bioaccumulation factor based on a measured, total water concentration	L/kg ww	float	1	-999	1000000000		-999	1692	Variant	0	0	0	1	Constant (where available)	1	0	NumChem		
ChemT4musBAFmt	T4 fillet bioaccumulation factor based on a measured, dissolved water concentration	L/kg ww	float	1	-999	1000000000	-999	-999	-999	No Data	0	0	0	1	Constant (where available)	1	0	NumChem		
ChemTemp	Temperature assumed for these properties	degrees Celsius	Float	0	0	43	18.8	2.5	43	Variant	0	0	0	1	Constant (by site; same as SrcTemp)	1	0			
ChemType	Chemical Type (O, M, Hg, S, D)		string	1							0	0	0	1	Constant	1	0	NumChem		
ChemVol	Volume	mL	Float	1	0	500	85.8	0	391.0	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemVp	Vapor Pressure	torr	Float	1	0	4000	86.9	0	3665.4	Variant	0	0	0	1	Constant	1	0	NumChem		
ChemWDiff	Water Diffusion Coefficient	cm^2/s	Float	1	0	0.01	0.00162	2.28425E-06	9.99E-03	Variant	0	0	0	1	Uniform (except Hg; Constant)	1	0	NumChem		
NumChem	Number of chemicals described		Integer	0				1	3	Variant	0	0	0	1	Constant	1	1			
NumNegIon	Number of negative ionic species produced by an organic acid,NumChem		Integer	1	0	2	0.0701	0	1	Variant	0	0	0	1	Constant	1	1	NumChem		
NumPosIon	Number of positive ionic species produced by an organic base		Integer	1	0	2	0.0467	0	1	Variant	0	0	0	1	Constant	1	1	NumChem		

Table 8-9d. Aerated Tank (AT) Input (SSF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	National?	Regional?	Site?	Other?	Dist. Type	#Dist. Types	Is Index?	Index 1	Index 2	Index 3
bio_yield	biomass yield	g/g	FLOAT	0	0	1	0.597	0.407	0.798	Variant	1	0	0	0	uniform	1	0			
C_in	chemical concentration (influent)	mg/L	FLOAT	0	0	1000000	323.9	1E-11	10000	Variant	0	0	0	1	SystemLevel	1	0			
CBOD	BOD (influent)	g/cm3	FLOAT	0	0	1	0.0293	0.0042	0.0825	Variant	1	0	0	0	triangular	1	0			
d_imp	impeller diameter	cm	FLOAT	0	0	200	61	61	61	Invariant = 61	1	0	0	0	constant	1	0			
d_setpt	fraction of SI occupied by sediments (max.)	fraction	FLOAT	0	0.1	0.99	0.3	0.3	0.3	Invariant = 0.3	1	0	0	0	constant	1	0			
d_wmu	depth (liquid)	m	FLOAT	0	0.2	46	2.58	1.32	4.70	Variant	1	0	0	0	constant	1	0			
dmeanTSS	particle diameter (mean, waste suspended solids)	cm	FLOAT	0	0	0.01	0.00132	6.34E-04	2.37E-03	Variant	1	0	0	0	triangular	1	0			
EconLife	economic life of a tank/SI	year	INTEGER	0	0	100	20	20	20	Invariant = 20	1	0	0	0	constant	1	0			
F_aer	fraction surface area-turbulent	fraction	FLOAT	0	0	1	0.509	0.2	0.922	Variant	1	0	0	0	constant	1	0			
focW	fraction organic carbon (waste solids)	mass frac	float	0	0	1	0.387	0.080	0.843	Variant	1	0	0	0	triangular	1	0			
fwmu	fraction hazardous waste in WMU	mass frac	float	0	0	1	0.448	0.0189	0.966	Variant	1	0	0	0	uniform	1	0			
J	oxygen transfer factor	lb O2/h-hp	FLOAT	0	2.9	3	3	3	3	Invariant = 3	1	0	0	0	constant	1	0			
k_dec	digestion (sediments)	1/s	FLOAT	0	0	0.001	6.39E-07	4.67E-07	8.68E-07	Variant	1	0	0	0	uniform	1	0			
kba1	biologically active solids/total solids (ratio)	unitless	FLOAT	0	0	1	0.623	0.200	0.879	Variant	1	0	0	0	triangular	1	0			
MWt_H2O	molecular weight (liquid [water])	g/mol	FLOAT	0	18	18	18	18	18	Invariant = 18	1	0	0	0	constant	1	0			
n_imp	impellers/aerators (number)	unitless	INTEGER	0	0	20	1	1	1	Invariant = 1	1	0	0	0	constant	1	0			
NumEcon	number of economic lifetimes		INTEGER	0	1	5	2	2	2	Invariant = 2	1	0	0	0	constant	1	0			
O2eff	oxygen transfer correction factor	unitless	FLOAT	0	0.8	0.85	0.83	0.83	0.83	Invariant = 0.83	1	0	0	0	constant	1	0			
Powr	impellers/aerators (total power)	hp	FLOAT	0	0	5000	0.60	0.25	4.38	Variant	1	0	0	0	constant	1	0			
Q_wmu	volumetric flow rate (tank)	m3/s	FLOAT	0	1E-20	10	0.00642	4.80E-07	0.471	Variant	1	0	0	0	constant	1	0			
rho_l	density (liquid [water])	g/cm3	FLOAT	0	0.96	1.5	0.998	0.998	0.998	Invariant = 0.998	1	0	0	0	constant	1	0			
rho_part	solids density	g/cm3	FLOAT	0	1	5	2.42	1.18	3.85	Variant	1	0	0	0	triangular	1	0			
TSS_in	total suspended solids (influent)	g/cm3	FLOAT	0	0	1	0.00368	4.31E-04	9.31E-03	Variant	1	0	0	0	triangular	1	0			
w_imp	impeller speed	rad/s	FLOAT	0	0	260	126	126	126	Invariant = 126	1	0	0	0	constant	1	0			

Table 8-9e. Land Application Unit (LAU) Input (SSF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	National?	Regional?	Site?	Other?	Dist. Type	# Dist. Types	Is Index?	Index 1	Index 2	Index 3
asdm	mode of the aggregate size distribution (till zone surface)	mm	float	0	0.1	100	5	5	5	Invariant = 5	1	0	0	0	constant	1	0			
bcm	boundary condition multiplier (lower boundary)	unitless	float	0	0	1	1	1	1	Invariant = 1	1	0	0	0	constant	1	0			
BDw	dry bulk density (waste solids)	g/cm3	float	0	1	2.65	1.87	1.09	2.53	Variant	1	0	0	0	triangular	1	0			
C	USLE cover factor (all subareas except WMU)	unitless	float	2	0	1					0	0	1	0	constant	1	0	SrcNumLWS	SrcLWSNumSubArea	
CN	SCS curve number (all subareas except WMU)	unitless	float	2	0	100					0	0	1	0	constant	1	0	SrcNumLWS	SrcLWSNumSubArea	
CNwmu	SCS curve number (WMU)	unitless	float	0	0	100	75.6	46.9	88.8	Variant	0	0	1	0	triangular	1	0			
ConVs	settling velocity (suspended solids)	m/d	float	0	0	10	0.458	0.0553	0.990	Variant	1	0	0	0	uniform	1	0			
CTPwaste	constituent concentration in waste (wet)	ug/g	float	0	0	1000000	1000.8	1E-08	100000	Variant	0	0	0	1	SystemLevel	1	0			
CutOffYr	operating life	year	integer	0	1	1000	40	40	40	Invariant = 40	1	0	0	0	constant	1	0			
Cwmu	USLE cover factor (WMU)	unitless	float	0	0	1	0.409	0.132	0.641	Variant	1	0	0	0	triangular	1	0			
deltDiv	time step divider (for debugging)	unitless	integer	0	1	10	1	1	1	Invariant = 1	1	0	0	0	constant	1	0			
DRZ	depth (root zone, all subareas)	cm	float	2	0	1000					0	0	1	0	constant	1	0	SrcNumLWS	SrcLWSNumSubArea	
effdust	dust suppression control efficiency	unitless	float	0	0	1	0.515	0.0355	0.934	Variant	1	0	0	0	normal	1	0			
fcult	number of cultivations per application	unitless	float	0	1	5	2.07	1	4	Variant	0	0	1	0	constant	1	0			
fd	frequency of surface disturbance per month (active LAU)	1/mo	float	0	0	30	5.79	0.0833	18.0	Variant	0	0	1	0	constant	1	0			
focS	fraction organic carbon (soil, all subareas)	mass fraction	float	2	0	1					0	0	1	0	constant	1	0	SrcNumLWS	SrcLWSNumSubArea	
focW	fraction organic carbon (waste solids)	mass fraction	float	0	0	1	0.443	0.0519	0.909	Variant	1	0	0	0	triangular	1	0			
fwmu	fraction hazardous waste in WMU	mass fraction	float	0	0	1	0.464	0.00616	0.981	Variant	1	0	0	0	uniform	1	0			
Infild	input infiltration rate (for debugging)	m/d	float	0	0	100	0	0	0	Invariant = 0	1	0	0	0	constant	1	0			
K	USLE erodibility factor (All subareas except WMU)	kg/m2	float	2	0	1					0	0	1	0	constant	1	0	SrcNumLWS	SrcLWSNumSubArea	
Ksat	saturated hydraulic conductivity (soil, all subareas)	cm/h	float	2	1E-08	1000000					0	0	1	0	TrnJohnsonSB	2	0	SrcNumLWS	SrcLWSNumSubArea	
Kwmu	USLE erodibility factor (WMU)	kg/m2	float	0	0	1	0.0618	0.0224	0.0941	Variant	0	0	1	0	constant	1	0			
Lc	roughness ratio (till zone surface)	unitless	float	0	0	0.1	0.0003006	1.01E-04	9.50E-04	Variant	1	0	0	0	lognormal	1	0			
mt	distance vehicle travels on LAU surface	m	float	0	0	2000	340.8	9.00	1101.9	Variant	0	0	1	0	constant	1	0			
Nappl	waste applications per year	1/year	integer	0	1	100	29.3	1	88	Variant	0	0	1	0	constant	1	0			
nv	vehicles/day (mean annual)	1/d	float	0	0	100	6.67	3.19E-04	74.9	Variant	0	0	1	0	constant	1	0			
nw	wheels per vehicle (mean)	unitless	float	0	4	10	6.99	6	10	Variant	0	0	1	0	constant	1	0			
P	USLE erosion control factor (all subareas except WMU)	unitless	float	2	0	1					0	0	1	0	constant	1	0	SrcNumLWS	SrcLWSNumSubArea	
Pwmu	USLE erosion control factor (WMU)	unitless	float	0	0	1	0.5	0.5	0.5	Invariant = 0.5	1	0	0	0	constant	1	0			
Rappl	wet waste application rate	Mg/m2-year	float	0	0	10	0.218	5.32E-05	1.26	Variant	0	0	1	0	constant	1	0			
RunID	run identification label (optional)		string	0							1	0	0	0	constant	1	0			
SMb	soil moisture coefficient b (all subareas)	unitless	float	2	0	12					0	0	1	0	constant	1	0	SrcNumLWS	SrcLWSNumSubArea	
SMFC	soil moisture field capacity (all subareas)	volume %	float	3	0	100					0	0	1	0	constant	1	0	SrcNumLWS	SrcLWSNumSubArea	4 - NumLayer**
SMWP	soil moisture wilting point (all subareas)	volume %	float	3	0	100					0	0	1	0	constant	1	0	SrcNumLWS	SrcLWSNumSubArea	4 - NumLayer**
solid	percent solids (waste)	mass percent	float	0	0	100	13.5	0.225	28.8	Variant	1	0	0	0	uniform	1	0			
Ss	silt content (soil; top 20 cm)	mass percent	float	0	0	100	37.7	5	72.5	Variant	0	0	1	0	constant	1	0			
Sw	silt content (waste solids)	mass percent	float	0	0	100	33.1	3.03	70.0	Variant	1	0	0	0	triangular	1	0			
Theta	slope (local watershed)	degrees	float	1	0	75					0	0	1	0	constant	1	0	SrcNumLWS		
thetawZ1d	input volumetric water content in till zone (for debugging)	volume fraction	float	0	0	1	0	0	0	Invariant = 0	1	0	0	0	constant	1	0			
thetawZ2d	input volumetric water content in LAU subsoil zone (for debugging)	volume fraction	float	0	0	1	0	0	0	Invariant = 0	1	0	0	0	constant	1	0			
veg	fraction vegetative cover (inactive LAU)	fraction	float	0	0	1	0.912	0.806	0.997	Variant	1	0	0	0	normal	1	0			
vs	vehicle speed (mean)	km/h	float	0	0	100	30.7	20.7	39.0	Variant	1	0	0	0	normal	1	0			
vw	vehicle weight (mean)	Mg	float	0	0	100	26.7	21	43.8	Variant	0	0	1	0	constant	1	0			
WCS	saturated water content (all subareas, total porosity)	volume fraction	float	2	0	1					0	0	1	0	constant	1	0	SrcNumLWS	SrcLWSNumSubArea	
X	flow length (local watershed, all subareas)	m	float	2	0	20000					0	0	1	0	uniform	1	0	SrcNumLWS	SrcLWSNumSubArea	
zava	averaging depth upper (depth averaged soil concentration)	m	float	0	0	10	0	0	0	Invariant = 0	1	0	0	0	constant	1	0			
zavb	averaging depth lower (depth averaged soil concentration)	m	float	0	0.01	1010	0.1	0.1	0.1	Invariant = 0.1	1	0	0	0	constant	1	0			
zruf	roughness height (inactive LAU)	cm	float	0	0.1	100	3.04	2.07	3.97	Variant	1	0	0	0	normal	1	0			
zZ1sa	depth (modeled soil column, subareas other than WMU)	m	float	0	0.01	1	0.1	0.1	0.1	Invariant = 0.1	1	0	0	0	constant	1	0			
zZ1WMU	depth (tilling, LAU)	m	float	0	0.01	10	0.2	0.2	0.2	Invariant = 0.2	0	0	1	0	constant	1	0			
zZ2WMU	subsoil layer thickness	m	float	0	0	1000	0	0	0	Invariant = 0	1	0	0	0	constant	1	0			

Table 8-9f. Landfill (LF) Input (SSF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	National?	Regional?	Site?	Other?	Dist. Type	# Dist. Types	Is Index?	Index 1	Index 2	Index 3
asdm	mode of the aggregate size distribution (LF waste zone surface)	mm	float	0	0.1	100	1.60	0.141	6.60	Variant	1	0	0	0	empirical	1	0			
bcm	boundary condition multiplier (lower boundary)	unitless	float	0	0	1	1	1	1	Invariant = 1	1	0	0	0	constant	1	0			
BDw	dry bulk density (waste)	g/cm3	float	0	1	2.65	1.78	1.09	2.53	Variant	1	0	0	0	triangular	1	0			
CTPwaste	constituent concentration in waste (dry)	ug/g	float	0	0	1000000	1107.0	1E-08	100000	Variant	0	0	0	1	SystemLevel	1	0			
deltDiv	time step divider (for debugging)	unitless	integer	0	1	10	1	1	1	Invariant = 1	1	0	0	0	constant	1	0			
DRZ_W	depth (root zone in LF waste zone)	cm	float	0	0	1000	50	50	50	Invariant = 50	1	0	0	0	constant	1	0			
effdust	dust suppression control efficiency	unitless	float	0	0	1	0.518	0.0447	0.943	Variant	1	0	0	0	normal	1	0			
fd	frequency of surface disturbance per month (active LF cell)	1/mo	float	0	0	70	25.0	0.0395	60	Variant	0	0	1	0	constant	1	0			
focC	fraction organic carbon (cover soil)	mass fraction	float	0	0	1	0.00518	0	0.0264	Variant	0	0	1	0	constant	1	0			
focS_lf	fraction organic carbon (subsoil)	mass fraction	float	0	0	1	0.00518	0	0.0264	Variant	0	0	1	0	constant	1	0			
focW	fraction organic carbon (waste)	mass fraction	float	0	0	1	0.388	0.0283	0.816	Variant	1	0	0	0	triangular	1	0			
fwmu	fraction hazardous waste in WMU	mass fraction	float	0	0	1	0.525	0.0144	0.990	Variant	1	0	0	0	uniform	1	0			
Infild	input infiltration rate (for debugging)	m/d	float	0	0	100	0	0	0	Invariant = 0	1	0	0	0	constant	1	0			
KsatC	saturated hydraulic conductivity (LF cover soil)	cm/h	float	0	1E-08	1000000	3.68	8.338E-05	54.7	Variant	0	0	1	0	TrnJohnsonSB	2	0			
KsatW	saturated hydraulic conductivity (waste)	cm/h	float	0	1E-08	1000000	4.00	0.208	9.01	Variant	1	0	0	0	triangular	1	0			
Lc	roughness ratio (LF waste zone surface)	unitless	float	0	0	0.1	0.0003553	1.01E-04	9.55E-04	Variant	1	0	0	0	lognormal	1	0			
load	waste loading rate (dry)	Mg/y	float	0	0	100000000	20099	8.66	260441	Variant	0	0	1	0	constant	1	0			
mcW	volumetric water content (waste on trucks)	volume percent	float	0	0	100	37.4	4.86	69.8	Variant	1	0	0	0	triangular	1	0			
mt	distance vehicle travels on active LF cell surface	m	float	0	0	2000	248.3	11.0	1088.9	Variant	0	0	1	0	constant	1	0			
Nly	number of waste layers in a cell	unitless	integer	0	1	365	2.78	1	8	Variant	0	0	1	0	constant	1	0			
Nop	spreading/compacting operations per day	1/d	float	0	0	100	0.834	1.32E-03	2	Variant	0	0	1	0	constant	1	0			
nv	vehicles/day (mean annual)	1/d	float	0	0	100	1.65	1.32E-03	17.2	Variant	0	0	1	0	constant	1	0			
nw	wheels per vehicle (mean)	unitless	float	0	4	10	6.71	6	10	Variant	0	0	1	0	constant	1	0			
porW	porosity (total, waste)	volume fraction	float	0	0	1	0.530	0.237	0.741	Variant	1	0	0	0	triangular	1	0			
RunID	run identification label (optional)		string	0							1	0	0	0	constant	1	0			
SMbC	soil moisture coefficient b (LF cover soil)	unitless	float	0	0	12	6.93	4.05	11.4	Variant	0	0	1	0	constant	1	0			
SMbS	soil moisture coefficient b (subsoil)	unitless	float	0	0	12	6.93	4.05	11.4	Variant	0	0	1	0	constant	1	0			
SMbW	soil moisture coefficient b (waste)	unitless	float	0	0	12	7.01	4.08	9.94	Variant	1	0	0	0	uniform	1	0			
SMFC_W	soil moisture field capacity (LF waste zone)	volume %	float	0	0	100	51.4	5.28	90.0	Variant	1	0	0	0	triangular	1	0			
SMWP_W	soil moisture wilting point (LF waste zone)	volume %	float	0	0	100	47.7	8.16	85.1	Variant	1	0	0	0	triangular	1	0			
Sw	silt content (waste)	mass percent	float	0	0	100	11.0	2.30	20.6	Variant	1	0	0	0	uniform	1	0			
thetawCd	input volumetric water content in LF cover soil (for debugging)	volume fraction	float	0	0	1	0	0	0	Invariant = 0	1	0	0	0	constant	1	0			
thetawSd	input volumetric water content in LF subsoil zone (for debugging)	volume fraction	float	0	0	1	0	0	0	Invariant = 0	1	0	0	0	constant	1	0			
thetawWd	input volumetric water content in LF waste zone (for debugging)	volume fraction	float	0	0	1	0	0	0	Invariant = 0	1	0	0	0	constant	1	0			
veg	fraction vegetative cover (inactive LF cell)	fraction	float	0	0	1	0.910	0.809	0.997	Variant	1	0	0	0	normal	1	0			
vs	vehicle speed (mean)	km/h	float	0	0	100	31.7	20.6	39.8	Variant	1	0	0	0	normal	1	0			
vw	vehicle weight (mean)	Mg	float	0	0	100	28.8	24	50.7	Variant	0	0	1	0	constant	1	0			
WCS_C	saturated water content (cover soil, total porosity)	volume fraction	float	0	0	1	0.417	0.36	0.45	Variant	0	0	1	0	constant	1	0			
zava	averaging depth upper (depth averaged soil concentration)	m	float	0	0	10	0	0	0	Invariant = 0	1	0	0	0	constant	1	0			
zavb	averaging depth lower (depth averaged soil concentration)	m	float	0	0.01	1010	0.2	0.2	0.2	Invariant = 0.2	1	0	0	0	constant	1	0			
zC	optional soil cover thickness	m	float	0	0	10	0.603	0.337	0.841	Variant	1	0	0	0	triangular	1	0			
zruf	roughness height (inactive LF cell)	cm	float	0	0.1	100	3.00	2.07	3.97	Variant	1	0	0	0	normal	1	0			
zS	thickness of liner (or subsoil zone)	m	float	0	0	500	0	0	0	Invariant = 0	1	0	0	0	constant	1	0			
zW	waste zone thickness	m	float	0	0	500	2.58	0.509	7.83	Variant	0	0	1	0	constant	1	0			

Table 8-9g. Surface Impoundment (SI) Input (SSF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	National?	Regional?	Site?	Other?	Dist. Type	# Dist. Types	Is Index?	Index 1	Index 2	Index 3
bio_yield	biomass yield	g/g	FLOAT	0	0	1	0.597	0.402	0.796	Variant	1	0	0	0	uniform	1	0			
C_in	chemical concentration (influent)	mg/L	FLOAT	0	0	1000000	342.1	1E-11	10000	Variant	0	0	0	1	SystemLevel	1	0			
CBOD	BOD (influent)	g/cm3	FLOAT	0	0	1	0.0385	2.36E-03	0.0903	Variant	1	0	0	0	triangular	1	0			
d_imp	impeller diameter	cm	FLOAT	0	0	200	61	61	61	Invariant = 61	1	0	0	0	constant	1	0			
d_setpt	fraction of SI occupied by sediments (max.)	fraction	FLOAT	0	0.1	0.99	0.433	0.2	0.76	Variant	0	0	1	0	constant	1	0			
d_wmu	depth of wmu	m	FLOAT	0	0.3	46	2.90	0.420	16.4	Variant	0	0	1	0	constant	1	0			
dmeanTSS	particle diameter (mean, waste suspended solids)	cm	FLOAT	0	0	0.01	0.0013802	5.75E-04	2.32E-03	Variant	1	0	0	0	triangular	1	0			
EconLife	economic life of a tank/SI	year	INTEGER	0	0	100	50	50	50	Invariant = 50	1	0	0	0	constant	1	0			
F_aer	fraction surface area-turbulent	fraction	FLOAT	0	0	1	0.434	0.0161	0.791	Variant	0	0	1	0	constant	1	0			
focW	fraction organic carbon (waste solids)	mass fraction	float	0	0	1	0.464	0.0448	0.909	Variant	1	0	0	0	triangular	1	0			
fwmu	fraction hazardous waste in WMU	mass fraction	float	0	0	1	0.497	0.00616	0.990	Variant	1	0	0	0	uniform	1	0			
hydc_sed	saturated hydraulic conductivity (sediment layer)	m/s	FLOAT	0	0	0.001	4.874E-07	6.565E-09	9.90E-07	Variant	1	0	0	0	uniform	1	0			
J	oxygen transfer factor	lb O2/h-hp	FLOAT	0	2.9	3	3	3	3	Invariant = 3	1	0	0	0	constant	1	0			
k_dec	digestion (sediments)	1/s	FLOAT	0	0	0.001	6.876E-07	4.623E-07	8.658E-07	Variant	1	0	0	0	uniform	1	0			
kba1	biologically active solids/total solids (ratio)	unitless	FLOAT	0	0	1	0.608	0.156	0.871	Variant	1	0	0	0	triangular	1	0			
MWt_H2O	molecular weight (liquid [water])	g/mol	FLOAT	0	18	18	18	18	18	Invariant = 18	1	0	0	0	constant	1	0			
n_imp	impellers/aerators (number)	unitless	INTEGER	0	0	85	16.6	0	83	Variant	0	0	1	0	constant	1	0			
NumEcon	number of economic lifetimes		INTEGER	0	1	5	1	1	1	Invariant = 1	1	0	0	0	constant	1	0			
O2eff	oxygen transfer correction factor	unitless	FLOAT	0	0.8	0.85	0.826	0.800	0.849	Variant	1	0	0	0	uniform	1	0			
Powr	impellers/aerators (total power)	hp	FLOAT	0	0	5000	1326.9	2.72	5000	Variant	0	0	1	0	constant	1	0			
Q_wmu	volumetric flow rate (tank)	m3/s	FLOAT	0	1E-20	10	0.0124	7.922E-11	0.411	Variant	0	0	1	0	constant	1	0			
rho_l	density (liquid [water])	g/cm3	FLOAT	0	0.96	1.5	0.998	0.998	0.998	Invariant = 0.998	1	0	0	0	constant	1	0			
rho_part	solids density	g/cm3	FLOAT	0	1	5	2.45	1.16	3.71	Variant	1	0	0	0	triangular	1	0			
TSS_in	total suspended solids (influent)	g/cm3	FLOAT	0	0	1	0.00366	2.45E-04	9.03E-03	Variant	1	0	0	0	triangular	1	0			
w_imp	impeller speed	rad/s	FLOAT	0	0	260	126	126	126	Invariant = 126	1	0	0	0	constant	1	0			

Table 8-9h. Waste Pile (WP) Input (SSF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	National?	Regional?	Site?	Other?	Dist. Type	# Dist. Types	Is Index?	Index 1	Index 2	Index 3
bcm	boundary condition multiplier (lower boundary)	unitless	float	0	0	1	1	1	1	Invariant = 1	1	0	0	0	constant	1	0			
BDw	dry bulk density (waste)	g/cm3	float	0	1	2.65	1.85	1.09	2.49	Variant	1	0	0	0	triangular	1	0			
C	USLE cover factor (all subareas except WMU)	unitless	float	2	0	1					0	0	1	0	constant	1	0	SrcNumLWS	SrcLWSNumSubArea	
CN	SCS curve number (all subareas except WMU)	unitless	float	2	0	100					0	0	1	0	constant	1	0	SrcNumLWS	SrcLWSNumSubArea	
CNwmu	SCS curve number (WMU)	unitless	float	0	0	100	74.5	36.99	88.4	Variant	0	0	1	0	triangular	1	0			
ConVs	settling velocity (suspended solids)	m/d	float	0	0	10	0.546	0.0571	0.990	Variant	1	0	0	0	uniform	1	0			
CTPwaste	constituent concentration in waste (dry)	ug/g	float	0	0	1000000	1105.1	1E-08	100000	Variant	0	0	0	1	SystemLeve	1	0			
CutOffYr	operating life	year	integer	0	1	1000	30	30	30	Invariant = 30	1	0	0	0	constant	1	0			
Cwmu	USLE cover factor (WMU)	unitless	float	0	0	1	1	1	1	Invariant = 1	1	0	0	0	constant	1	0			
deltDiv	time step divider (for debugging)	unitless	integer	0	1	10	1	1	1	Invariant = 1	1	0	0	0	constant	1	0			
DRZ	depth (root zone, all subareas)	cm	float	2	0	1000					0	0	1	0	constant	1	0	SrcNumLWS	SrcLWSNumSubArea	
DRZ_W	depth (WP root zone)	cm	float	0	0	1000	50	50	50	Invariant = 50	1	0	0	0	constant	1	0			
effdust	dust suppression control efficiency	unitless	float	0	0	1	0.507	0.0374	0.998	Variant	1	0	0	0	normal	1	0			
focS	fraction organic carbon (soil, all subareas)	mass fraction	float	2	0	1					0	0	1	0	constant	1	0	SrcNumLWS	SrcLWSNumSubArea	
focW	fraction organic carbon (waste)	mass fraction	float	0	0	1	0.323	0.0283	0.786	Variant	1	0	0	0	triangular	1	0			
fwmu	fraction hazardous waste in WMU	mass fraction	float	0	0	1	0.509	0.0085	0.990	Variant	1	0	0	0	uniform	1	0			
Infild	input infiltration rate (for debugging)	m/d	float	0	0	100	0	0	0	Invariant = 0	1	0	0	0	constant	1	0			
K	USLE erodibility factor (All subareas except WMU)	kg/m2	float	2	0	1					0	0	1	0	constant	1	0	SrcNumLWS	SrcLWSNumSubArea	
Ksat	saturated hydraulic conductivity (soil, all subareas)	cm/h	float	2	1E-08	1000000					0	0	1	0	TrnLogNorm	2	0	SrcNumLWS	SrcLWSNumSubArea	
KsatW	saturated hydraulic conductivity (waste)	cm/h	float	0	1E-08	1000000	3.82	0.208	9.01	Variant	1	0	0	0	triangular	1	0			
Kwmu	USLE erodibility factor (WMU)	kg/m2	float	0	0	1	0.0590	0.00672	0.0986	Variant	0	0	1	0	constant	1	0			
load	waste loading rate (dry)	Mg/y	float	0	0	100000000	23579	7.57	492625.3	Variant	0	0	1	0	constant	1	0			
mcW	volumetric water content (waste on trucks)	volume percent	float	0	0	100	40.4	5.66	67.9	Variant	1	0	0	0	triangular	1	0			
mt	distance vehicle travels on WP surface	m	float	0	0	2000	51.9	2.60	550.9	Variant	0	0	1	0	constant	1	0			
Nop	spreading/compacting operations per day	1/d	float	0	0	500	0.675	1.38E-03	2	Variant	0	0	1	0	constant	1	0			
nv	vehicles/day (mean annual)	1/d	float	0	0	100	2.08	1.38E-03	38.5	Variant	0	0	1	0	constant	1	0			
nw	wheels per vehicle (mean)	unitless	float	0	4	10	6.65	6	10	Variant	0	0	1	0	constant	1	0			
P	USLE erosion control factor (all subareas except WMU)	unitless	float	2	0	1					0	0	1	0	constant	1	0	SrcNumLWS	SrcLWSNumSubArea	
porW	porosity (total, waste)	volume fraction	float	0	0	1	0.487	0.230	0.720	Variant	1	0	0	0	triangular	1	0			
Pwmu	USLE erosion control factor (WMU)	unitless	float	0	0	1	1	1	1	Invariant = 1	1	0	0	0	constant	1	0			
RunID	run identification label (optional)		string	0							1	0	0	0	constant	1	0			
SMb	soil moisture coefficient b (all subareas)	unitless	float	2	0	12					0	0	1	0	constant	1	0	SrcNumLWS	SrcLWSNumSubArea	
SMbW	soil moisture coefficient b (waste)	unitless	float	0	0	12	7.14	4.03	9.94	Variant	1	0	0	0	uniform	1	0			
SMFC	soil moisture field capacity (all subareas)	volume %	float	3	0	100					0	0	1	0	constant	1	0	SrcNumLWS	SrcLWSNumSubArea	4 - NumLayer**
SMFC_W	soil moisture field capacity (WP)	volume %	float	0	0	100	48.4	5.08	92.8	Variant	1	0	0	0	triangular	1	0			
SMWP	soil moisture wilting point (all subareas)	volume %	float	3	0	100					0	0	1	0	constant	1	0	SrcNumLWS	SrcLWSNumSubArea	4 - NumLayer**
SMWP_W	soil moisture wilting point (WP)	volume %	float	0	0	100	49.1	5.08	92.8	Variant	1	0	0	0	triangular	1	0			
Sw	silt content (waste)	mass percent	float	0	0	100	30.8	3.03	69.8	Variant	1	0	0	0	triangular	1	0			
Theta	slope (local watershed)	degrees	float	1	0	75					0	0	1	0	constant	1	0	SrcNumLWS		
thetawZ1d	input volumetric water content in WP (for debugging)	volume fraction	float	0	0	1	0	0	0	Invariant = 0	1	0	0	0	constant	1	0			
thetawZ2d	input volumetric water content in WP subsoil zone (for debugging)	volume fraction	float	0	0	1	0	0	0	Invariant = 0	1	0	0	0	constant	1	0			
vs	vehicle speed (mean)	km/h	float	0	0	100	30.6	20.7	39.8	Variant	1	0	0	0	normal	1	0			
vw	vehicle weight (mean)	Mg	float	0	0	100	35.7	30	65	Variant	0	0	1	0	constant	1	0			
WCS	saturated water content (all subareas, total porosity)	volume fraction	float	2	0	1					0	0	1	0	constant	1	0	SrcNumLWS	SrcLWSNumSubArea	
X	flow length (local watershed, all subareas)	m	float	2	0	20000					0	0	1	0	uniform	1	0	SrcNumLWS	SrcLWSNumSubArea	
zava	averaging depth upper (depth averaged soil concentration)	m	float	0	0	10	0	0	0	Invariant = 0	1	0	0	0	constant	1	0			
zavb	averaging depth lower (depth averaged soil concentration)	m	float	0	0.01	1010	0.1	0.1	0.1	Invariant = 0.1	1	0	0	0	constant	1	0			
zZ1sa	depth (modeled soil column, subareas other than WMU)	m	float	0	0.01	1	0.1	0.1	0.1	Invariant = 0.1	1	0	0	0	constant	1	0			
zZ1WMU	height (WP)	m	float	0	0.2	10	1.83	1	10	Variant	0	0	1	0	constant	1	0			
zZ2WMU	subsoil layer thickness	m	float	0	0	1000	0	0	0	Invariant = 0	1	0	0	0	constant	1	0			

Table 8-9i. Aquifer (Saturated Zone) Input (SSF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	National?	Regional?	Site?	Other?	Dist. Type	# Dist. Types	Is Index?	Index 1	Index 2	Index 3
AL	Longitudinal dispersivity	m	Float	0	0	1000	47.5	0.15	305.5	Variant	1	0	0	0	empirical	1	0			
ALATRatio	Horizontal Transverse dispersivity	m	Float	0	0	1000	8	8	8	Invariant = 8	1	0	0	0	constant	1	0			
ALAVRatio	Vertical Transverse dispersivity	m	Float	0	0	1000	160	160	160	Invariant = 160	1	0	0	0	constant	1	0			
ANIST	Anisotropy ratio		Float	0	0	1000	508.5	5.16	989.6	Variant	1	0	0	0	uniform	1	0			
AquAnaBioRandUnif	Uniformly distributed random number used to choose the anaerobic biodegradation regime: 0=methanogenic; 1= sulfate reducing		Integer	0	0	1	0.52	0	1	Variant	1	0	0	0	IntUniform	1	0			
AquDoFracture	Logical flag to turn fractures on or off		Logical	0				1	1	Invariant = 1	1	0	0	0	constant	1	0			
AquDoHetero	Logical flag to turn heterogeneity on or off		Logical	0				1	1	Invariant = 1	1	0	0	0	constant	1	0			
AquFractureID	Indicator for degree of fracturing of saturated porous media		Integer	0	0	3	0.29	0	3	Variant	0	0	1	0	constant	1	0			
AquRandFractUnif	Uniformly distributed random number-used when AquDoFracture==TRUE		Float	0	0	1	0.53	1.40E-03	0.991	Variant	1	0	0	0	uniform	1	0			
AquRandHeteroNorm	Normally distributed random numbers with 0 mean and std of 1-used when AquDoHetero==TRUE		Float	1	-3	3					1	0	1	0	normal	1	0	NumAquWell		
AquRandHeteroUnif	Uniformly distributed random number-used when AquDoHetero==TRUE		Float	0	0	1	0.49	4.10E-04	0.990	Variant	1	0	0	0	uniform	1	0			
BDENS	Bulk Density of soil	g/cm3	Float	0	0	100	1.54	1.16	1.93	Variant	0	0	0	1		1	0			
FOC	Fraction Organic Carbon	fraction	Float	0	0	1	0.00068	2.81E-05	8.17E-03	Variant	1	0	0	0	TrnJohnsonSB	1	0			
POR	Effective Porosity		Float	0	0	1	0.227	0.05	0.378	Variant	0	0	0	1		1	0			

Table 8-9j. Vadose Zone Input (SSF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	National?	Regional?	Site?	Other?	Dist. Type	# Dist. Types	Is Index?	Index 1	Index 2	Index 3
DISPR	Longitudinal Dispersivity	m	Float	0	0.001	22.02	0.439	0.0267	13.4	Variant	0	0	0	1		1	0			
POM	Percent Organic Matter	g/g	Float	0	0	100	0.834	0	6	Variant	0	0	1	0	constant	1	0			
RHOB	Bulk Density of Soil	g/cm3	Float	0	0	25	1.54	1.43	1.70	Variant	0	0	1	0	constant	1	0			

Table 8-9k. Air Input (SSF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	National?	Regional?	Site?	Other?	Dist. Type	# Dist. Types	Is Index?	Index 1	Index 2	Index 3
AirData	Required by ISC. Upper air (Met.) station number		STRING	0				3160	94823	Variant	0	0	1	0	constant	1	0			
AirSplineAngle	Angles used in polar mesh.	degrees	FLOAT	1	0	360					1	0	0	0	constant	1	0	NumAirSplineAngle		
AirSplineDistance	Radial distances of polar mesh	m	FLOAT	1	0	2000					1	0	0	0	constant	1	0	NumAirSplineDist		
AnemHght	Required by ISC. Anemometer height	m	FLOAT	0	0	1000	6.88	6.1	12.2	Variant	0	0	1	0	constant	1	0			
ArrayLen	Required by ISC. Length of array	unitless	INTEGER	0	0	5	4	4	4	Invariant = 4	1	0	0	0	constant	1	1			
DryDpStr	Required by ISC. Dry depletion option		STRING	0							1	0	0	0	constant	1	0			
IceScav	Required by ISC. Gas scavenging coefficient by frozen precipitation (1-dim. Array)	h/s-mm	FLOAT	0	0	1000000	0.00017	0.00017	0.00017	Invariant = 0.00017	1	0	0	0	constant	1	0			
LiqScav	Required by ISC. Gas scavenging coefficient by liquid precipitation (1-dim. Array)	h/s-mm	FLOAT	0	0	1000000	0.00017	0.00017	0.00017	Invariant = 0.00017	1	0	0	0	constant	1	0			
MASSFRAX	Required by ISC. Fraction of particle size (1 dim. Array for each particle-emitting source type, I.e. LAU, LF, and WP in that order)	fraction	FLOAT	2	0	10					1	0	0	0	constant	1	0	3 - NumPartEmitSrc**	ArrayLen	
MASSFRAXOption	flag for internal calculation of PMF (true) or (false) read from ar.ssf		logical	0				1	1	Invariant = 1	1	0	0	0	constant	1	0			
NumAirSplineAngle	Number of angles used to construct the polar mesh used to construct the spline	unitless	INTEGER	0	0	72	8	8	8	Invariant = 8	1	0	0	0	constant	1	1			
NumAirSplineDist	Number of distances used to construct the polar mesh used to construct the spline	unitless	INTEGER	0	0	50	10	10	10	Invariant = 10	1	0	0	0	constant	1	1			
PARTDIAM	Required by ISC. Paricle diameter (1 dim. Array)	um	FLOAT	1	0	50					1	0	0	0	constant	1	0	ArrayLen		
PARTSICE	Required by ISC. Particle scavenging coefficient by frozen precipitation (1 dim. Array)	h/s-mm	FLOAT	1	0	10					1	0	0	0	constant	1	0	ArrayLen		
PARTSLIQ	Required by ISC. Particle scavenging coefficient by liquid precipitation (1 dim. Array)	h/s-mm	FLOAT	1	0	10					1	0	0	0	constant	1	0	ArrayLen		
RuralStr	Required by ISC. Rural or urban		STRING	0							0	0	1	0	constant	1	0			
SCIMBYHR	Required by ISC. Sets model to skim through Metfile, picking certain hours according to array specifications	unitless	INTEGER	1	0	1000					1	0	0	0	constant	1	0	4 - NumScimByHr**		
ScimStr	Required by ISC. SCIM option		STRING	0							1	0	0	0	constant	1	0			
SHight	Required by ISC. Source height	m	FLOAT	0	0	1000	1.25	0	10	Variant	1	0	1	0	constant	1	0			
SplineOption	0=no spline; 1 = spline	unitless	INTEGER	0	0	1	0	0	0	Invariant = 0	1	0	0	0	constant	1	0			
StartYr	Required by ISC. Starting year of Met. File		String	0			1963.5	1961	1981	Variant	0	0	1	0	constant	1	0			
SurfData	Required by ISC. Surace (Met.) station number		STRING	0				3812	94860	Variant	0	0	1	0	constant	1	0			
WetDpStr	Required by ISC. Wet depletion option		STRING	0							1	0	0	0	constant	1	0			

Table 8-9l. Watershed Input (SSF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	National?	Regional?	Site?	Other?	Dist. Type	# Dist. Types	Is Index?	Index 1	Index 2
a_BF	regression coefficient a for baseflow model	m/d	float	0	0	1000	0.0125	2.7E-06	0.492	Variant	0	1	0	0	constant	1	0		
b_BF	regression coefficient b for baseflow model	unitless	float	0	0	10	0.958	0.488	1.17	Variant	0	1	0	0	constant	1	0		
bcm	boundary condition multiplier (lower boundary)	unitless	float	0	0	1	1	1	1	Invariant = 1	1	0	0	0	constant	1	0		
C	USLE cover factor	unitless	float	1	0	1					0	0	1	0	constant	1	0	NumWSSub	
CN	SCS curve number	unitless	float	1	0	100					0	0	1	0	constant	1	0	NumWSSub	
ConVs	settling velocity (suspended solids)	m/d	float	0	0	10	0.544	0.0507	0.990	Variant	1	0	0	0	uniform	1	0		
deltDiv	time step divider (for debugging)	unitless	integer	0	1	10	1	1	1	Invariant = 1	1	0	0	0	constant	1	0		
DRZ	depth (root zone)	cm	float	1	0	1000					0	0	1	0	constant	1	0	NumWSSub	
Infild	input infiltration rate (for debugging)	m/d	float	0	0	100	0	0	0	Invariant = 0	1	0	0	0	constant	1	0		
K	USLE erodibility factor	kg/m2	float	1	0	1					0	0	1	0	constant	1	0	NumWSSub	
Ksat	saturated hydraulic conductivity (soil)	cm/h	float	1	1E-08	1000000					0	0	1	0	TrnLogNorm:	2	0	NumWSSub	
P	USLE erosion control factor (watershed j)	unitless	float	1	0	1					0	0	1	0	constant	1	0	NumWSSub	
RunID	run identification label (optional)		string	0							1	0	0	0	constant	1	0		
SMb	soil moisture coefficient b	unitless	float	1	0	12					0	0	1	0	constant	1	0	NumWSSub	
SMFC	soil moisture field capacity	volume %	float	2	0	100					0	0	1	0	constant	1	0	NumWSSub	4 - NumLayer**
SMWP	soil moisture wilting point	volume %	float	2	0	100					0	0	1	0	constant	1	0	NumWSSub	4 - NumLayer**
Theta	slope (watershed)	degrees	float	1	0	75					0	0	1	0	constant	1	0	NumWSSub	
thetawZ1d	input volumetric water content in till zone (for debugging)	volume fraction	float	0	0	1	0	0	0	Invariant = 0	1	0	0	0	constant	1	0		
WCS	saturated water content (total porosity)	volume fraction	float	1	0	1					0	0	1	0	constant	1	0	NumWSSub	
X	flow length (watershed)	m	float	1	0	50000					0	0	1	0	uniform	1	0	NumWSSub	
zava	averaging depth upper (depth averaged soil concentration)	m	float	0	0	10	0	0	0	Invariant = 0	1	0	0	0	constant	1	0		
zavb	averaging depth lower (depth averaged soil concentration)	m	float	0	0.01	100	0.05	0.05	0.05	Invariant = 0.05	1	0	0	0	constant	1	0		
zZ1sa	depth (modeled soil column)	m	float	0	0.01	1	0.05	0.05	0.05	Invariant = 0.05	1	0	0	0	constant	1	0		

Table 8-9m. Surface Water Input (SSF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	National?	Regional?	Site?	Other?	Dist. Type	# Dist. Types	Is Index?	Index 1	Index 2	Index 3
ahyd_d	hydraulic coeff, depth multiplier	m	FLOAT	0	0	10	1	1	1	Invariant = 1	1	0	0	0	constant	1	0			
ahyd_W	hydraulic coeff, width multiplier	m	FLOAT	0	0	100	10	10	10	Invariant = 10	1	0	0	0	constant	1	0			
bhyd_d	hydraulic coeff, depth exponent		FLOAT	0	0	1	0.4	0.4	0.4	Invariant = 0.4	1	0	0	0	constant	1	0			
bhyd_W	hydraulic coeff, width exponent		FLOAT	0	0	1	0.25	0.25	0.25	Invariant = 0.25	1	0	0	0	constant	1	0			
C_upstream	upstream chemical concentration	mg/L	FLOAT	1	0	100					0	0	0	1	SystemLevel	1	0	NumChem		
d_epil	depth of epilimnion; min value of 0.1 checked in sw module	m	FLOAT	2	0	5					0	0	1	0	constant	2	0	NumWBN	WBNNumRch	
d_hypol	depth of hypolimnion; min value of 1 checked in sw module	m	FLOAT	2	0	20					0	0	1	0	constant	2	0	NumWBN	WBNNumRch	
d_pond	depth of pond; min value of 0.5 checked in sw module	m	float	2	0	3					0	0	1	0	triangular	2	0	NumWBN	WBNNumRch	
d_wtlnd	depth of wetland; min value of 0.05 checked in sw module	m	float	2	0	2					0	0	1	0	triangular	2	0	NumWBN	WBNNumRch	
DepthBenthos	surficial sediment layer depth	cm	float	1	1	10					1	0	0	0	constant	1	0	3 - NumRchType**		
DepthSedRes	underlying sediment layer depth	cm	float	1	10	30					1	0	0	0	constant	1	0	3 - NumRchType**		
E_sw	sediment-water column diffusion coefficient	cm2/sec	float	1	0	0.0001					1	0	0	0	constant	1	0	3 - NumRchType**		
E_thermocline	thermocline diffusion coefficient	cm2/sec	FLOAT	0	0	0.01	0.00505	4.1E-06	9.99E-03	Variant	1	0	0	0	uniform	1	0			
k_PlankCMin	Plankton carbon mineralization rate constant	yr^-1	FLOAT	0	0	1	0.5	0.5	0.5	Invariant = 0.5	1	0	0	0	constant	1	0			
k_SedG2	Sediment mineralization rate constant, G2 fraction	yr^-1	FLOAT	0	0	0.6	0.3	0.3	0.3	Invariant = 0.3	1	0	0	0	constant	1	0			
k_SedG3	Sediment mineralization rate constant, G3 fraction	yr^-1	FLOAT	0	0	0.1	0.05	0.05	0.05	Invariant = 0.05	1	0	0	0	constant	1	0			
porBenthos	surficial sediment layer porosity	Lw/L	FLOAT	1	0.2	0.99					1	0	0	0	uniform	1	0	3 - NumRchType**		
porSedRes	underlying sediment layer porosity	Lw/L	FLOAT	1	0.1	0.9					1	0	0	0	uniform	1	0	3 - NumRchType**		
Q_upstream	upstream flow	m3/day	FLOAT	2	0	10000000000					0	0	1	0	constant	1	0	NumWBN	WBNNumRch	
rhoDBenthos	surficial sediment layer dry bulk density	g/mL	FLOAT	1	0.03	2.2					1	0	0	0	constant	1	0	3 - NumRchType**		
rhoDSedRes	underlying sediment layer dry bulk density	g/mL	FLOAT	1	0.3	2.5					1	0	0	0	constant	1	0	3 - NumRchType**		
S_upstream	upstream suspended solids concentration	mg/L	FLOAT	0	0	1000	50	50	50	Invariant = 50	1	0	0	0	constant	1	0			
TrophicIndex	trophic index		INTEGER	1	1	7					1	0	0	0	constant	1	0	3 - NumRchType**		
v_bury	underlying sediment layer burial rate	mm/yr	FLOAT	1	0	1000					1	0	0	0	constant	1	0	3 - NumRchType**		

Table 8-9n. Aquatic Foodweb Input (SSF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	National?	Regional?	Site?	Other?	Dist. Type	# Dist. Types	Is Index?	Index 1	Index 2	Index 3
a_fish	model slope of BCF regression equation across all tissues in fish	unitless	float	0	0.7	0.78	0.74	0.74	0.74	Invariant = 0.74	1	0	0	0	constant	1	0			
a_mus	model slope of BCF regression equation for muscle tissue in fish	unitless	float	0	0.63	1.21	0.69	0.69	0.69	Invariant = 0.69	1	0	0	0	constant	1	0			
b_fish	model intercept of BCF regression equation across all tissues in fish	unitless	float	0	0.94	1.06	1	1	1	Invariant = 1	1	0	0	0	constant	1	0			
b_mus	model intercept of BCF regression equation for muscle tissue in fish	unitless	float	0	0.28	1.24	0.92	0.92	0.92	Invariant = 0.92	1	0	0	0	constant	1	0			
BiotaTypeIndex	index of biota	unitless	Integer	2	0	1					1	0	0	0	constant	1	1	8 - NumAqHabType**	16 - NumAqBiotaType**	
BwFish	fish body weight	kg	Float	2	-999	35					1	0	0	0	constant	1	0	8 - NumAqHabType**	16 - NumAqBiotaType**	
c_fish	error term in BCF regression equation across all tissues in fish	unitless	float	0	0.58	0.86	0.72	0.72	0.72	Invariant = 0.72	1	0	0	0	constant	1	0			
c_mus	error term in BCF regression equation for muscle tissue in fish	unitless	float	0	0.28	1.24	0.76	0.76	0.76	Invariant = 0.76	1	0	0	0	constant	1	0			
FiletFrac	fraction of fish that is filet	unitless	Float	1	0	1					1	0	0	0	constant	1	0	BiotaTypeIndex		
FishWaterFrac	water fraction across all tissues of fish	unitless	float	0	0.61	0.77	0.75	0.75	0.75	Invariant = 0.75	1	0	0	0	constant	1	0			
LipFrac	lipid fraction	unitless	Float	2	-999	1					1	0	0	0	constant	1	0	8 - NumAqHabType**	16 - NumAqBiotaType**	
LipFracMus	lipid fraction in fish muscle (filet)	unitless	Float	2	0	1					1	0	0	0	constant	1	0	8 - NumAqHabType**	16 - NumAqBiotaType**	
MaxPreyPref	maximum dietary preference for items in the AqFW	unitless	Float	3	-999	1					1	0	0	0	constant	1	0	8 - NumAqHabType**	16 - NumAqBiotaType**	16 - NumAqBiotaType**
MinPreyPref	minimum dietary preference for items in the AqFW	unitless	Float	3	-999	1					1	0	0	0	constant	1	0	8 - NumAqHabType**	16 - NumAqBiotaType**	16 - NumAqBiotaType**
MusWaterFrac	water fraction in muscle (filet) of fish	unitless	float	0	0.6	0.9	0.79	0.79	0.79	Invariant = 0.79	1	0	0	0	constant	1	0			
NumBiotaTypes	number of biota types in a given AqFW	unitless	Integer	1	1	20		8	12	Variant	1	0	0	0	constant	1	0	8 - NumAqHabType**		
rho_lip	density (organic carbon)	kg/L	float	0	1	1	1	1	1	Invariant = 1	1	0	0	0	constant	1	0			
rho_OC	density (lipids)	kg/L	float	0	1	1	1	1	1	Invariant = 1	1	0	0	0	constant	1	0			
T3EdibleFish	edible T3 fish for human consumption	unitless	Integer	2	0	1					1	0	0	0	constant	1	0	8 - NumAqHabType**	16 - NumAqBiotaType**	
T3NumEdibleFish	number of edible T3 fish in AqFW	unitless	Integer	1	0	5					1	0	0	0	constant	1	0	8 - NumAqHabType**		
T3NumFish	number of T3 fish in AqFW	fish	Integer	1	1	5					1	0	0	0	constant	1	0	8 - NumAqHabType**		

Table 8-9o. Farm Foodchain Input (SSF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	National?	Regional?	Site?	Other?	Dist. Type	# Dist. Types	Is Index?	Index 1	Index 2	Index 3
Fforage_beef	fraction of forage grown in contaminated soil (beef cattle)	fraction	FLOAT	0	1	1	1	1	1	Invariant = 1	1	0	0	0	constant	1	0			
Fforage_dairy	fraction of forage grown in contaminated soil (dairy cattle)	fraction	FLOAT	0	1	1	1	1	1	Invariant = 1	1	0	0	0	constant	1	0			
Fgrain_beef	fraction of grain grown in contaminated soil (beef cattle)	fraction	FLOAT	0	1	1	1	1	1	Invariant = 1	1	0	0	0	constant	1	0			
Fgrain_dairy	fraction of grain grown in contaminated soil (dairy cattle)	fraction	FLOAT	0	1	1	1	1	1	Invariant = 1	1	0	0	0	constant	1	0			
Fsilage_beef	fraction of silage grown in contaminated soil (beef cattle)	fraction	FLOAT	0	1	1	1	1	1	Invariant = 1	1	0	0	0	constant	1	0			
Fsilage_dairy	fraction of silage grown in contaminated soil (dairy cattle)	fraction	FLOAT	0	1	1	1	1	1	Invariant = 1	1	0	0	0	constant	1	0			
Fw_exfruit	fraction of wet deposition that adheres to plant	unitless	Float	0	0.6	0.6	0.6	0.6	0.6	Invariant = 0.6	1	0	0	0	constant	1	0			
Fw_exveg	fraction of wet deposition that adheres to plant	unitless	Float	0	0.6	0.6	0.6	0.6	0.6	Invariant = 0.6	1	0	0	0	constant	1	0			
Fw_forage	fraction of wet deposition that adheres to plant	unitless	Float	0	0.6	0.6	0.6	0.6	0.6	Invariant = 0.6	1	0	0	0	constant	1	0			
Fw_silage	fraction of wet deposition that adheres to plant	unitless	Float	0	0.6	0.6	0.6	0.6	0.6	Invariant = 0.6	1	0	0	0	constant	1	0			
MAFexfruit	moisture adjustment factor to convert DW into WW for exposed above-ground fruits	percent	Float	0	85	85	85	85	85	Invariant = 85	1	0	0	0	constant	1	0			
MAFexveg	moisture adjustment factor to convert DW into WW for above-ground vegetables	percent	FLOAT	0	82	91.8	91.8	91.8	91.8	Invariant = 91.8	1	0	0	0	constant	1	0			
MAFleaf	moisture adjustment factor for wet leaf	unitless	Float	0	85	85	85	85	85	Invariant = 85	1	0	0	0	constant	1	0			
MAFprofruit	moisture adjustment factor to convert DW into WW for protected above-ground fruits	percent	FLOAT	0	80	89.59	89.59	89.6	89.6	Invariant = 89.6	1	0	0	0	constant	1	0			
MAFproveg	moisture adjustment factor to convert DW into WW for protected above-ground vegetables	percent	FLOAT	0	80	80.2	80.2	80.2	80.2	Invariant = 80.2	1	0	0	0	constant	1	0			
MAFroot	moisture adjustment factor to convert DW into WW for root vegetables	percent	FLOAT	0	87	87.32	87.32	87.3	87.3	Invariant = 87.3	1	0	0	0	constant	1	0			
Qp_forage_beef	consumption rate: forage (beef cattle)	kg DW/d	FLOAT	0	8.8	8.8	8.8	8.8	8.8	Invariant = 8.8	1	0	0	0	constant	1	0			
Qp_forage_dairy	consumption rate: forage (dairy cattle)	kg DW/d	FLOAT	0	11	11	11	11	11	Invariant = 11	1	0	0	0	constant	1	0			
Qp_grain_beef	consumption rate: grain (beef cattle)	kg DW/d	FLOAT	0	0.05	0.47	0.47	0.47	0.47	Invariant = 0.47	1	0	0	0	constant	1	0			
Qp_grain_dairy	consumption rate: grain (dairy cattle)	kg DW/d	FLOAT	0	2.6	2.6	2.6	2.6	2.6	Invariant = 2.6	1	0	0	0	constant	1	0			
Qp_silage_beef	consumption rate: silage (beef cattle)	kg DW/d	FLOAT	0	2.5	2.5	2.5	2.5	2.5	Invariant = 2.5	1	0	0	0	constant	1	0			
Qp_silage_dairy	consumption rate: silage (dairy cattle)	kg DW/d	FLOAT	0	3.3	3.3	3.3	3.3	3.3	Invariant = 3.3	1	0	0	0	constant	1	0			
Qs_beef	consumption rate: soil (beef cattle)	kg/d	FLOAT	0	0.04	0.39	0.39	0.39	0.39	Invariant = 0.39	1	0	0	0	constant	1	0			
Qs_dairy	consumption rate: soil (dairy cattle)	kg/d	FLOAT	0	0.4	0.41	0.41	0.41	0.41	Invariant = 0.41	1	0	0	0	constant	1	0			
Qw_beef	consumption rate: water (beef cattle)	L/d	FLOAT	0	36	85.06	57.8	36.59	81.7	Variant	1	0	0	0	triangular	1	0			
Qw_dairy	consumption rate: water (dairy cattle)	L/d	FLOAT	0	59	124.53	91.5	59.9	119.8	Variant	1	0	0	0	triangular	1	0			
rho_leaf	leaf density	g/L FW	Float	0	770	770	770	770	770	Invariant = 770	1	0	0	0	constant	1	0			
Rp_exfruit	interception fraction	unitless	FLOAT	0	0.01	0.052	0.052	0.052	0.052	Invariant = 0.052	1	0	0	0	constant	1	0			
Rp_exveg	interception fraction	unitless	Float	0	0.05	0.05	0.05	0.05	0.05	Invariant = 0.05	1	0	0	0	constant	1	0			
Rp_forage	interception fraction	unitless	FLOAT	0	0.05	0.47	0.47	0.47	0.47	Invariant = 0.47	1	0	0	0	constant	1	0			
Rp_silage	interception fraction	unitless	FLOAT	0	0.4	0.44	0.44	0.44	0.44	Invariant = 0.44	1	0	0	0	constant	1	0			
tp_exfruit	length of plant exposure to deposition	y	FLOAT	0	0.1	0.123	0.123	0.123	0.123	Invariant = 0.123	1	0	0	0	constant	1	0			
tp_exveg	length of plant exposure to deposition	y	FLOAT	0	0.1	0.123	0.123	0.123	0.123	Invariant = 0.123	1	0	0	0	constant	1	0			
tp_forage	length of plant exposure to deposition	y	Float	0	0.12	0.12	0.12	0.12	0.12	Invariant = 0.12	1	0	0	0	constant	1	0			
tp_silage	length of plant exposure to deposition	y	Float	0	0.16	0.16	0.16	0.16	0.16	Invariant = 0.16	1	0	0	0	constant	1	0			
VapDdv	vapor phase dry deposition velocity	cm/sec	Float	0	1	1	1	1	1	Invariant = 1	1	0	0	0	constant	1	0			
VGag_exfruit	empirical correction factor	unitless	FLOAT	0	0	0.01	0.01	0.01	0.01	Invariant = 0.01	1	0	0	0	constant	1	0			
VGag_exveg	empirical correction factor	unitless	Float	0	0.01	0.01	0.01	0.01	0.01	Invariant = 0.01	1	0	0	0	constant	1	0			
VGag_forage	empirical correction factor	unitless	Float	0	1	1	1	1	1	Invariant = 1	1	0	0	0	constant	1	0			
VGag_silage	empirical correction factor	unitless	Float	0	0.5	0.5	0.5	0.5	0.5	Invariant = 0.5	1	0	0	0	constant	1	0			
VGbg_root	empirical correction factor	unitless	Float	0	0.01	0.01	0.01	0.01	0.01	Invariant = 0.01	1	0	0	0	constant	1	0			
Yp_exfruit	crop yield	kg DW/m2	FLOAT	0	0.01	0.09	0.09	0.09	0.09	Invariant = 0.09	1	0	0	0	constant	1	0			
Yp_exveg	crop yield	kg DW/m2	FLOAT	0	0.02	0.18	0.18	0.18	0.18	Invariant = 0.18	1	0	0	0	constant	1	0			
Yp_forage	crop yield	kg DW/m2	FLOAT	0	0.3	0.31	0.31	0.31	0.31	Invariant = 0.31	1	0	0	0	constant	1	0			
Yp_silage	crop yield	kg DW/m2	FLOAT	0	0.3	0.31	0.31	0.31	0.31	Invariant = 0.31	1	0	0	0	constant	1	0			

Table 8-9p. Terrestrial Foodweb Input (SSF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	National?	Regional?	Site?	Other?	Dist. Type	# Dist. Types	Is Index?	Index 1	Index 2	Index 3
Bv_ecf_plant	empirical correction factor for Bv	unitless	Float	0	100	100	100	100	100	Invariant = 100	1	0	0	0	constant	1	0			
Fw_exfruit	fraction of wet deposition that adheres to plant	unitless	Float	0	0.6	0.6	0.6	0.6	0.6	Invariant = 0.6	1	0	0	0	constant	1	0			
Fw_exveg	fraction of wet deposition that adheres to plant	unitless	Float	0	0.6	0.6	0.6	0.6	0.6	Invariant = 0.6	1	0	0	0	constant	1	0			
Fw_forage	fraction of wet deposition that adheres to plant	unitless	Float	0	0.6	0.6	0.6	0.6	0.6	Invariant = 0.6	1	0	0	0	constant	1	0			
Fw_silage	fraction of wet deposition that adheres to plant	unitless	Float	0	0.6	0.6	0.6	0.6	0.6	Invariant = 0.6	1	0	0	0	constant	1	0			
MAFexfruit	moisture adjustment factor to convert DW into WW for exposed above-ground fruits	percent	Float	0	85	85	85	85	85	Invariant = 85	1	0	0	0	constant	1	0			
MAFexveg	moisture adjustment factor to convert DW into WW for above-ground vegetables	percent	Float	0	92	92	92	92	92	Invariant = 92	1	0	0	0	constant	1	0			
MAFforage	moisture adjustment factor to convert DW into WW for forage	percent	Float	0	92	92	92	92	92	Invariant = 92	1	0	0	0	constant	1	0			
MAFgrain	moisture adjustment factor to convert DW into WW for grain (analogy to profruit)	percent	Float	0	90	90	90	90	90	Invariant = 90	1	0	0	0	constant	1	0			
MAFleaf	moisture adjustment factor for wet leaf	unitless	Float	0	85	85	85	85	85	Invariant = 85	1	0	0	0	constant	1	0			
MAFroot	moisture adjustment factor to convert DW into WW for root vegetables	percent	Float	0	87	87	87	87	87	Invariant = 87	1	0	0	0	constant	1	0			
MAFsilage	moisture adjustment factor to convert DW into WW for silage	percent	Float	0	92	92	92	92	92	Invariant = 92	1	0	0	0	constant	1	0			
rho_leaf	leaf density	g/L FW	Float	0	770	770	770	770	770	Invariant = 770	1	0	0	0	constant	1	0			
Rp_exfruit	interception fraction	unitless	Float	0	0.052	0.052	0.052	0.052	0.052	Invariant = 0.052	1	0	0	0	constant	1	0			
Rp_exveg	interception fraction	unitless	Float	0	0.05	0.05	0.05	0.05	0.05	Invariant = 0.05	1	0	0	0	constant	1	0			
Rp_forage	interception fraction	unitless	Float	0	0.47	0.47	0.47	0.47	0.47	Invariant = 0.47	1	0	0	0	constant	1	0			
Rp_silage	interception fraction	unitless	Float	0	0.44	0.44	0.44	0.44	0.44	Invariant = 0.44	1	0	0	0	constant	1	0			
tp_exfruit	length of plant exposure to deposition	y	Float	0	0.123	0.123	0.123	0.123	0.123	Invariant = 0.123	1	0	0	0	constant	1	0			
tp_exveg	length of plant exposure to deposition	y	Float	0	0.123	0.123	0.123	0.123	0.123	Invariant = 0.123	1	0	0	0	constant	1	0			
tp_forage	length of plant exposure to deposition	y	Float	0	0.12	0.12	0.12	0.12	0.12	Invariant = 0.12	1	0	0	0	constant	1	0			
tp_silage	length of plant exposure to deposition	y	Float	0	0.16	0.16	0.16	0.16	0.16	Invariant = 0.16	1	0	0	0	constant	1	0			
VapDdv	vapor phase dry deposition velocity	cm/sec	Float	0	1	1	1	1	1	Invariant = 1	1	0	0	0	constant	1	0			
VGag_exfruit	empirical correction factor	unitless	Float	0	0.01	0.01	0.01	0.01	0.01	Invariant = 0.01	1	0	0	0	constant	1	0			
VGag_exveg	empirical correction factor	unitless	Float	0	0.01	0.01	0.01	0.01	0.01	Invariant = 0.01	1	0	0	0	constant	1	0			
VGag_forage	empirical correction factor	unitless	Float	0	1	1	1	1	1	Invariant = 1	1	0	0	0	constant	1	0			
VGag_silage	empirical correction factor	unitless	Float	0	0.5	0.5	0.5	0.5	0.5	Invariant = 0.5	1	0	0	0	constant	1	0			
VGbg_root	empirical correction factor	unitless	Float	0	0.01	0.01	0.01	0.01	0.01	Invariant = 0.01	1	0	0	0	constant	1	0			
Yp_exfruit	crop yield	kg DW/m2	Float	0	0.09	0.09	0.09	0.09	0.09	Invariant = 0.09	1	0	0	0	constant	1	0			
Yp_exveg	crop yield	kg DW/m2	Float	0	0.18	0.18	0.18	0.18	0.18	Invariant = 0.18	1	0	0	0	constant	1	0			
Yp_forage	crop yield	kg DW/m2	Float	0	0.31	0.31	0.31	0.31	0.31	Invariant = 0.31	1	0	0	0	constant	1	0			
Yp_silage	crop yield	kg DW/m2	Float	0	0.31	0.31	0.31	0.31	0.31	Invariant = 0.31	1	0	0	0	constant	1	0			

Table 8-9q. Human Exposure Input (SSF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	National?	Regional?	Site?	Other?	Dist. Type	# Dist. Types	Is Index?	Index 1	Index 2	Index 3
BF	event frequency (shower)	event/d	FLOAT	0	0	10000	1	1	1	Invariant = 1	1	0	0	0	constant	1	0			
Bri_cr1	inhalation (breathing) rate (child 1 resident)	m3/d	FLOAT	0	0	100000	4.67	0.549	16.1	Variant	1	0	0	0	lognormal	1	0			
Bri_cr2	inhalation (breathing) rate (child 2 resident)	m3/d	FLOAT	0	0	100000	7.59	1.62	33.4	Variant	1	0	0	0	lognormal	1	0			
Bri_cr3	inhalation (breathing) rate (child 3 resident)	m3/d	FLOAT	0	0	100000	11.7	4.64	30.4	Variant	1	0	0	0	lognormal	1	0			
Bri_cr4	inhalation (breathing) rate (child 4 resident)	m3/d	FLOAT	0	0	100000	14.2	5.94	36.2	Variant	1	0	0	0	lognormal	1	0			
Bri_r	inhalation (breathing) rate (adult resident)	m3/d	FLOAT	0	0	100000	13.8	5.40	34.4	Variant	1	0	0	0	lognormal	1	0			
BWa	body weight (adult)	kg	FLOAT	0	0	100000	72.3	40.1	130.7	Variant	1	0	0	0	lognormal	1	0			
BWc1	body weight (child 1)	kg	FLOAT	0	0	100000	9.26	6.31	13.1	Variant	1	0	0	0	gamma	1	0			
BWc2	body weight (child 2)	kg	FLOAT	0	0	100000	15.4	10.3	24.0	Variant	1	0	0	0	lognormal	1	0			
BWc3	body weight (child 3)	kg	FLOAT	0	0	100000	31.4	17.2	57.7	Variant	1	0	0	0	lognormal	1	0			
BWc4	body weight (child 4)	kg	FLOAT	0	0	100000	59.5	33.93	87.7	Variant	1	0	0	0	lognormal	1	0			
CRb_af	consumption rate: beef (adult farmer)	g WW/kg/d	FLOAT	0	0	100000	2.78	0.0973	14.0	Variant	1	0	0	0	lognormal	1	0			
CRb_cf_2	consumption rate: beef (child 2 farmer)	g WW/kg/d	FLOAT	0	0	100000	4.15	0.153	31.2	Variant	1	0	0	0	lognormal	1	0			
CRb_cf_3	consumption rate: beef (child 3 farmer)	g WW/kg/d	FLOAT	0	0	100000	3.14	0.296	31.2	Variant	1	0	0	0	lognormal	1	0			
CRb_cf_4	consumption rate: beef (child 4 farmer)	g WW/kg/d	FLOAT	0	0	100000	1.68	0.0831	5.55	Variant	1	0	0	0	gamma	1	0			
CRbm_cr_1	consumption rate: breast milk (child 1 resident)	mL/d	FLOAT	0	0	2500	427.3	14.4	1176.2	Variant	1	0	0	0	lognormal	1	0			
CRfr_cf_2	consumption rate: exposed fruit (child 2 farmer)	g WW/kg/d	FLOAT	0	0	100000	2.15	0.0696	8.83	Variant	1	0	0	0	gamma	1	0			
CRfr_cf_3	consumption rate: exposed fruit (child 3 farmer)	g WW/kg/d	FLOAT	0	0	100000	2.41	0.0251	34.7	Variant	1	0	0	0	lognormal	1	0			
CRfr_cf_4	consumption rate: exposed fruit (child 4 farmer)	g WW/kg/d	FLOAT	0	0	100000	1.34	0.0482	12.8	Variant	1	0	0	0	lognormal	1	0			
CRfr_cg_2	consumption rate: exposed fruit (child 2 gardener)	g WW/kg/d	FLOAT	0	0	100000	2.07	0.0206	7.66	Variant	1	0	0	0	gamma	1	0			
CRfr_cg_3	consumption rate: exposed fruit (child 3 gardener)	g WW/kg/d	FLOAT	0	0	100000	2.48	0.117	14.4	Variant	1	0	0	0	lognormal	1	0			
CRfr_cg_4	consumption rate: exposed fruit (child 4 gardener)	g WW/kg/d	FLOAT	0	0	100000	1.52	0.0311	15.5	Variant	1	0	0	0	lognormal	1	0			
CRfr_f	consumption rate: exposed fruit (farmer)	g WW/kg/d	FLOAT	0	0	100000	3.79	0.105	18.7	Variant	1	0	0	0	lognormal	1	0			
CRfr_g	consumption rate: exposed fruit (gardener)	g WW/kg/d	FLOAT	0	0	100000	1.59	0.0684	10.9	Variant	1	0	0	0	lognormal	1	0			
CRfs_a	consumption rate: fish (adult)	g/d	FLOAT	0	0	100000	8.83	0.0663	356.1	Variant	1	0	0	0	lognormal	1	0			
CRfs_c_2	consumption rate: fish (child 2)	g/d	FLOAT	0	0	100000	5.14	0.105	118.8	Variant	1	0	0	0	lognormal	1	0			
CRfs_c_3	consumption rate: fish (child 3)	g/d	FLOAT	0	0	100000	6.94	0.0944	85.2	Variant	1	0	0	0	lognormal	1	0			
CRfs_c_4	consumption rate: fish (child 4)	g/d	FLOAT	0	0	100000	9.97	0.0740	72.5	Variant	1	0	0	0	lognormal	1	0			
CRl_cf_2	consumption rate: exposed vegetables (child 2 farmer)	g WW/kg/d	FLOAT	0	0	100000	2.69	0.0582	18.5	Variant	1	0	0	0	gamma	1	0			
CRl_cf_3	consumption rate: exposed vegetables (child 3 farmer)	g WW/kg/d	FLOAT	0	0	100000	2.04	0.0359	15.4	Variant	1	0	0	0	lognormal	1	0			
CRl_cf_4	consumption rate: exposed vegetables (child 4 farmer)	g WW/kg/d	FLOAT	0	0	100000	0.918	0.0130	4.93	Variant	1	0	0	0	gamma	1	0			
CRl_cg2	consumption rate: exposed vegetables (child 2 gardener)	g WW/kg/d	FLOAT	0	0	100000	2.69	0.0405	14.3	Variant	1	0	0	0	gamma	1	0			
CRl_cg3	consumption rate: exposed vegetables (child 3 gardener)	g WW/kg/d	FLOAT	0	0	100000	1.63	0.0322	15.4	Variant	1	0	0	0	lognormal	1	0			
CRl_cg4	consumption rate: exposed vegetables (child 4 gardener)	g WW/kg/d	FLOAT	0	0	100000	0.833	0.0134	6.03	Variant	1	0	0	0	gamma	1	0			
CRl_f	consumption rate: exposed vegetables (adult farmer)	g WW/kg/d	FLOAT	0	0	100000	2.02	0.124	20.7	Variant	1	0	0	0	lognormal	1	0			
CRl_g	consumption rate: exposed vegetables (gardener)	g WW/kg/d	FLOAT	0	0	100000	1.67	1.42E-03	7.92	Variant	1	0	0	0	weibull	1	0			
CRm_af	consumption rate: milk (adult farmer)	g WW/kg/d	FLOAT	0	0	100000	14.9	0.0912	51.1	Variant	1	0	0	0	weibull	1	0			
CRm_cf_2	consumption rate: milk (child 2 farmer)	g WW/kg/d	FLOAT	0	0	100000	22.3	2.03	63.7	Variant	1	0	0	0	weibull	1	0			
CRm_cf_3	consumption rate: milk (child 3 farmer)	g WW/kg/d	FLOAT	0	0	100000	13.0	0.281	46.6	Variant	1	0	0	0	weibull	1	0			
CRm_cf_4	consumption rate: milk (child 4 farmer)	g WW/kg/d	FLOAT	0	0	100000	6.53	0.141	24.1	Variant	1	0	0	0	weibull	1	0			
CRpfr_cf_2	consumption rate: protected fruit (child 2 farmer)	g WW/kg/d	FLOAT	0	0	100000	7.45	0.138	101.1	Variant	1	0	0	0	lognormal	1	0			
CRpfr_cf_3	consumption rate: protected fruit (child 3 farmer)	g WW/kg/d	FLOAT	0	0	100000	7.15	0.111	64.5	Variant	1	0	0	0	lognormal	1	0			
CRpfr_cf_4	consumption rate: protected fruit (child 4 farmer)	g WW/kg/d	FLOAT	0	0	100000	4.13	0.0303	41.5	Variant	1	0	0	0	lognormal	1	0			
CRpfr_cg_2	consumption rate: protected fruit (child 2 gardener)	g WW/kg/d	FLOAT	0	0	100000	4.11	0.0721	61.6	Variant	1	0	0	0	lognormal	1	0			
CRpfr_cg_3	consumption rate: protected fruit (child 3 gardener)	g WW/kg/d	FLOAT	0	0	100000	6.40	0.138	47.2	Variant	1	0	0	0	lognormal	1	0			
CRpfr_cg_4	consumption rate: protected fruit (child 4 gardener)	g WW/kg/d	FLOAT	0	0	100000	5.81	0.0500	30.2	Variant	1	0	0	0	lognormal	1	0			
CRpfr_f	consumption rate: protected fruit (adult farmer)	g WW/kg/d	FLOAT	0	0	100000	7.02	0.0345	110.3	Variant	1	0	0	0	lognormal	1	0			
CRpfr_g	consumption rate: protected fruit (adult gardener)	g WW/kg/d	FLOAT	0	0	100000	5.12	0.0464	100.5	Variant	1	0	0	0	lognormal	1	0			
CRpl_cf_2	consumption rate: protected vegetables (child 2 farmer)	g WW/kg/d	FLOAT	0	0	100000	2.27	0.177	12.9	Variant	1	0	0	0	lognormal	1	0			
CRpl_cf_3	consumption rate: protected vegetables (child 3 farmer)	g WW/kg/d	FLOAT	0	0	100000	1.15	0.0975	6.67	Variant	1	0	0	0	lognormal	1	0			
CRpl_cf_4	consumption rate: protected vegetables (child 4 farmer)	g WW/kg/d	FLOAT	0	0	100000	0.849	0.0728	3.36	Variant	1	0	0	0	lognormal	1	0			
CRpl_cg_2	consumption rate: protected vegetables (child 2 gardener)	g WW/kg/d	FLOAT	0	0	100000	1.92	0.118	12.8	Variant	1	0	0	0	lognormal	1	0			

Table 8-9q. Human Exposure Input (SSF) Dictionary Summary (Continued)

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	National?	Regional?	Site?	Other?	Dist. Type	# Dist. Types	Is Index?	Index 1	Index 2	Index 3
CRpl_cg_3	consumption rate: protected vegetables (child 3 gardener)	g WW/kg/d	FLOAT	0	0	100000	1.01	0.102	5.45	Variant	1	0	0	0	lognormal	1	0			
CRpl_cg_4	consumption rate: protected vegetables (child 4 gardener)	g WW/kg/d	FLOAT	0	0	100000	0.830	0.0616	3.73	Variant	1	0	0	0	lognormal	1	0			
CRpl_f	consumption rate: protected vegetables (adult farmer)	g WW/kg/d	FLOAT	0	0	100000	1.41	0.0542	14.4	Variant	1	0	0	0	lognormal	1	0			
CRpl_g	consumption rate: protected vegetables (adult gardener)	g WW/kg/d	FLOAT	0	0	100000	0.885	0.0488	5.77	Variant	1	0	0	0	lognormal	1	0			
CRr_cf_2	consumption rate: root vegetables (child 2 farmer)	g WW/kg/d	FLOAT	0	0	100000	1.92	0.0124	22.7	Variant	1	0	0	0	lognormal	1	0			
CRr_cf_3	consumption rate: root vegetables (child 3 farmer)	g WW/kg/d	FLOAT	0	0	100000	1.32	1.65E-03	14.2	Variant	1	0	0	0	weibull	1	0			
CRr_cf_4	consumption rate: root vegetables (child 4 farmer)	g WW/kg/d	FLOAT	0	0	100000	0.828	0.0150	5.19	Variant	1	0	0	0	weibull	1	0			
CRr_cg_2	consumption rate: root vegetables (child 2 gardener)	g WW/kg/d	FLOAT	0	0	100000	2.78	0.0254	24.5	Variant	1	0	0	0	lognormal	1	0			
CRr_cg_3	consumption rate: root vegetables (child 3 gardener)	g WW/kg/d	FLOAT	0	0	100000	1.35	4.59E-04	8.84	Variant	1	0	0	0	weibull	1	0			
CRr_cg_4	consumption rate: root vegetables (child 4 gardener)	g WW/kg/d	FLOAT	0	0	100000	1.05	3.65E-04	5.59	Variant	1	0	0	0	weibull	1	0			
CRr_f	consumption rate: root vegetables (farmer)	g WW/kg/d	FLOAT	0	0	100000	1.10	0.0501	9.69	Variant	1	0	0	0	lognormal	1	0			
CRr_g	consumption rate: root vegetables (gardener)	g WW/kg/d	FLOAT	0	0	100000	1.16	5.63E-04	10.6	Variant	1	0	0	0	weibull	1	0			
CRs_cr2	ingestion rate:soil (child 2 resident)	kg/d	FLOAT	0	0	100000	0.000111034	2.32156E-06	2.18E-03	Variant	1	0	0	0	lognormal	1	0			
CRs_cr3	ingestion rate:soil (child 3 resident)	kg/d	FLOAT	0	0	100000	5.26401E-05	1.05513E-06	3.63E-04	Variant	1	0	0	0	lognormal	1	0			
CRs_cr4	ingestion rate:soil (child 4 resident)	kg/d	FLOAT	0	0	100000	6.24594E-05	1.16741E-06	1.09E-03	Variant	1	0	0	0	lognormal	1	0			
CRs_r	ingestion rate:soil (adult resident)	kg/d	FLOAT	0	0	100000	4.95603E-05	1.36729E-06	3.77E-04	Variant	1	0	0	0	lognormal	1	0			
CRw_cr1	ingestion rate: drinking water (child 1 resident)	ml/d	FLOAT	0	0	100000	311.3	3.41	1767.3	Variant	1	0	0	0	weibull	1	0			
CRw_cr2	ingestion rate: drinking water (child 2 resident)	ml/d	FLOAT	0	0	100000	672.3	32.78	2103.8	Variant	1	0	0	0	gamma	1	0			
CRw_cr3	ingestion rate: drinking water (child 3 resident)	ml/d	FLOAT	0	0	100000	816.2	123.7	2174.2	Variant	1	0	0	0	gamma	1	0			
CRw_cr4	ingestion rate: drinking water (child 4 resident)	ml/d	FLOAT	0	0	100000	888.9	45.3	3179.6	Variant	1	0	0	0	gamma	1	0			
CRw_r	ingestion rate: drinking water (adult resident)	ml/d	FLOAT	0	0	100000	1483.7	158.9	4048.7	Variant	1	0	0	0	gamma	1	0			
DD	water droplet diameter	cm	FLOAT	0	0	10000	0.1	0.1	0.1	Invariant = 0.1	1	0	0	0	constant	1	0			
EFr	exposure frequency (adult resident)	d/y	FLOAT	0	0	365	350	350	350	Invariant = 350	1	0	0	0	constant	1	0			
Fb_f	fraction contaminated: beef (farmer)	fraction	FLOAT	0	0	1	0.485	0.485	0.485	Invariant = 0.485	1	0	0	0	constant	1	0			
fbp	fraction of whole blood that is plasma	fraction	FLOAT	0	0	1	0.65	0.65	0.65	Invariant = 0.65	1	0	0	0	constant	1	0			
Ff_s	fraction contaminated: fish	fraction	FLOAT	0	0	1	0.325	0.325	0.325	Invariant = 0.325	1	0	0	0	constant	1	0			
ffm	fraction of mother's weight that is fat	fraction	FLOAT	0	0	1	0.3	0.3	0.3	Invariant = 0.3	1	0	0	0	constant	1	0			
Ffr_f	fraction homegrown: exposed fruit (farmer)	fraction	FLOAT	0	0	1	0.328	0.328	0.328	Invariant = 0.328	1	0	0	0	constant	1	0			
Ffr_g	fraction homegrown: exposed fruit (gardener)	fraction	FLOAT	0	0	1	0.116	0.116	0.116	Invariant = 0.116	1	0	0	0	constant	1	0			
Fl_f	fraction homegrown: exposed vegetables (farmer)	fraction	FLOAT	0	0	1	0.42	0.42	0.42	Invariant = 0.42	1	0	0	0	constant	1	0			
Fl_g	fraction contaminated:homegrown exposed vegetables (gardener)	fraction	FLOAT	0	0	1	0.233	0.233	0.233	Invariant = 0.233	1	0	0	0	constant	1	0			
Fm_f	fraction contaminated: milk (farmer)	fraction	FLOAT	0	0	1	0.254	0.254	0.254	Invariant = 0.254	1	0	0	0	constant	1	0			
fmbm	fraction of fat in maternal breast milk	fraction	FLOAT	0	0	1	0.04	0.04	0.04	Invariant = 0.04	1	0	0	0	constant	1	0			
Fpfr_f	fraction homegrown: protected fruit (farmer)	fraction	FLOAT	0	0	1	0.03	0.03	0.03	Invariant = 0.03	1	0	0	0	constant	1	0			
Fpfr_g	fraction homegrown: protected fruit (gardener)	fraction	FLOAT	0	0	1	0.094	0.094	0.094	Invariant = 0.094	1	0	0	0	constant	1	0			
Fpl_f	fraction homegrown: protected vegetables (farmer)	fraction	FLOAT	0	0	1	0.394	0.394	0.394	Invariant = 0.394	1	0	0	0	constant	1	0			
Fpl_g	fraction homegrown: protected vegetables (gardener)	fraction	FLOAT	0	0	1	0.178	0.178	0.178	Invariant = 0.178	1	0	0	0	constant	1	0			
fpm	fraction of mother's weight that is plasma	fraction	FLOAT	0	0	1	0.046	0.046	0.046	Invariant = 0.046	1	0	0	0	constant	1	0			
Fr_f	fraction homegrown: root vegetables (farmer)	fraction	FLOAT	0	0	1	0.173	0.173	0.173	Invariant = 0.173	1	0	0	0	constant	1	0			
Fr_g	fraction homegrown: root vegetables (gardener)	fraction	FLOAT	0	0	1	0.106	0.106	0.106	Invariant = 0.106	1	0	0	0	constant	1	0			
Fs	fraction contaminated: soil	fraction	FLOAT	0	0	1	1	1	1	Invariant = 1	1	0	0	0	constant	1	0			
FT3fish	fraction of fish consumed that is T3 fish	fraction	FLOAT	0	0	1	0.36	0.36	0.36	Invariant = 0.36	1	0	0	0	constant	1	0			
FT4fish	fraction of fish consumed that is T4 fish	fraction	FLOAT	0	0	1	0.64	0.64	0.64	Invariant = 0.64	1	0	0	0	constant	1	0			
Fw	fraction contaminated: drinking water	fraction	FLOAT	0	0	1	1	1	1	Invariant = 1	1	0	0	0	constant	1	0			
Hn	nozzle height	cm	FLOAT	0	0	10000	180	180	180	Invariant = 180	1	0	0	0	constant	1	0			
Rshower	shower rate	L/min	FLOAT	0	0	10000	5.5	5.5	5.5	Invariant = 5.5	1	0	0	0	constant	1	0			
t_bathroom	time in shower and bathroom	min	FLOAT	0	0	10000	9.84	1.01	68.7	Variant	1	0	0	0	weibull	1	0			
t_shower	shower time	min	FLOAT	0	0	10000	15.7	2.27	49.0	Variant	1	0	0	0	gamma	1	0			
Vbath	bathroom volume	m3	FLOAT	0	0	10000	10	10	10	Invariant = 10	1	0	0	0	constant	1	0			
Vn	terminal velocity of droplet	cm/s	FLOAT	0	0	10000	400	400	400	Invariant = 400	1	0	0	0	constant	1	0			
VRbh	bathroom to house ventilation rate	L/min	FLOAT	0	0	10000	300	300	300	Invariant = 300	1	0	0	0	constant	1	0			
VRsb	shower to bathroom ventilation rate	L/min	FLOAT	0	0	10000	100	100	100	Invariant = 100	1	0	0	0	constant	1	0			
Vshower	shower volume	m3	FLOAT	0	0	10000	2	2	2	Invariant = 2	1	0	0	0	constant	1	0			

Table 8-9r. Human Risk Input (SSF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	National?	Regional?	Site?	Other?	Dist. Type	# Dist. Types	Is Index?	Index 1	Index 2	Index 3
DoExposed	Option on whether to include all receptors (true) or exosed receptors (false) in CDF calculations		LOGICAL	0			0	0	0	Invariant = 0	1	0	0	0	constant	1	0			
ExDur_Car_Block	ExDur for Non-Farms and Carcenigen	unitless	INTEGER	0	0	100	9	9	9	Invariant = 9	1	0	0	0	constant	1	0			
ExDur_Car_Farm	ExDur for Farms and Carcenigen	unitless	INTEGER	0	0	100	9	9	9	Invariant = 9	1	0	0	0	constant	1	0			
ExDur_NCar_Block	ExDur for Non-Farms and Non-Carcenigen	unitless	INTEGER	0	0	100	1	1	1	Invariant = 1	1	0	0	0	constant	1	0			
ExDur_NCar_Farm	ExDur for Farms and Non-Carcenigen	unitless	INTEGER	0	0	100	1	1	1	Invariant = 1	1	0	0	0	constant	1	0			
LifeTime	Used for Risk_HQ calculation (L)	unitless	FLOAT	0	0	1000	76.5	76.5	76.5	Invariant = 76.5	1	0	0	0	constant	1	0			
RegPercentile	Registered Percentile	unitless	FLOAT	0	0	100	100	100	100	Invariant = 100	1	0	0	0	constant	1	0			

Table 8-9s. Ecological Exposure Input (SSF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	National?	Regional?	Site?	Other?	Dist. Type	# Dist. Types	Is Index?	Index 1	Index 2	Index 3
BodyWt_rec	body weight of each receptor	kg	Float	1	0	200					1	0	0	0	constant	1	0	ReceptorIndex		
CR_food	consumption rate of food items for each receptor	kg/day	Float	1	0	50					1	0	0	0	constant	1	0	ReceptorIndex		
CR_water	consumption rate of water for each receptor	L/day	Float	1	0	10					1	0	0	0	constant	1	0	ReceptorIndex		
CRfrac_sed	consumption rate of sediment for each receptor	mass fraction	Float	1	0	1					1	0	0	0	constant	1	0	ReceptorIndex		
CRfrac_soil	consumption rate of surficial soil for each receptor	mass fraction	Float	1	0	1					1	0	0	0	constant	1	0	ReceptorIndex		
DWconvertWW	moisture adjustment factor	kg WW / kg DW	Float	1	0	100					1	0	0	0	constant	1	0	NumPrey		
HabitatIndex	Index of habitat types	unitless	Integer	1	1	12					1	0	0	0	constant	1	0	NumHabitat		
HabitatType	description of habitat type		String	1							1	0	0	0	constant	1	0	NumHabitat		
MaxPreyPref_HabRange	maximum dietary preference for items found in habitat range	unitless	Float	3	-999	1					1	0	0	0	constant	1	0	NumHabitat	HabRangeRecIndex	NumPrey
MinPreyPref_HabRange	minimum dietary preference for items found in habitat range	unitless	Float	3	-999	1					1	0	0	0	constant	1	0	NumHabitat	HabRangeRecIndex	NumPrey
NumHabitat	number of habitat types represented	unitless	Integer	0	1	12	12	12	12	Invariant = 12	1	0	0	0	constant	1	1			
NumPrey	number of potential prey items	unitless	Integer	0	1	20	20	20	20	Invariant = 20	1	0	0	0	constant	1	1			
PreyIndex	numerical index of potential prey items	unitless	Integer	1	1	20		20	20	Invariant = 20	1	0	0	0	constant	1	0	NumPrey		
PreyType	text description of each prey item		String	1				20	20	Invariant = 20	1	0	0	0	constant	1	0	NumPrey		

Table 8-9t. Ecological Risk Input (SSF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	National?	Regional?	Site?	Other?	Dist. Type	# Dist. Types	Is Index?	Index 1	Index 2	Index 3
DoExposed	Option on whether to include all receptors (true) or exosed receptors (false) in risk calculations		Logical	0			0	0	0	Invariant = 0	1	0	0	0	constant	1	0			
EcoRegPercentile	policy criterion for selecting critical year for maximum HQ	unitless	Float	0	0	100	100	100	100	Invariant = 100	1	0	0	0	constant	1	0			
HabitatIndex	Index of habitat types	unitless	Integer	1	1	12					1	0	0	0	constant	1	0	NumHabitat		
NumHabitat	number of habitat types represented	unitless	Integer	0	1	12	12	12	12	Invariant = 12	1	0	0	0	constant	1	1			

Table 8-10a. Site Layout Output (GRF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	Is Index?	Index 1	Index 2	Index 3
MMSPTime	Timestamp when the MMSP Module Execution Manager completes processing	s	Float	0	0	0					0			
Models	MMSP Module list for those run		String	1	0	0					0	NumModels		
NumModels	Number of MMSP Modules run		Integer	0	0	0	18	18	18	Invariant = 18	1			
Times	Run times for MMSP Modules run	s	Float	1	0	0					0	NumModels		

Table 8-10b. Source Output (GRF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	Is Index?	Index 1	Index 2	Index 3
AnnInfil	leachate infiltration rate (annual avg., WMU subarea(s) only)	m/d	float	2	0	0.03					0	SrcNumLWS	NyrMet	
CE	constituent mass emission rate-PM30	g/m2/d	float	1	0	100000000					0	CENY		
CENY	number of years in outputs		integer	0	0	10000	39.8	18	200	Variant	1			
CEYR	year associated with output	year	integer	1	1	10000					0	CENY		
CTda	depth averaged soil concentration (from zava to zavb)	ug/g	float	3	0	1000000					0	SrcNumLWS	SrcLWSNumSubArea	CTdaNY
CTdaNY	number of years in outputs		integer	2	0	10000					1	SrcNumLWS	SrcLWSNumSubArea	
CTdaYR	year associated with output	year	integer	3	1	10000					0	SrcNumLWS	SrcLWSNumSubArea	CTdaNY
CTss	soil concentration (annual average, all subareas)	ug/g	float	3	0	1000000					0	SrcNumLWS	SrcLWSNumSubArea	CTssNY
CTssNY	number of years in outputs		integer	2	0	10000					1	SrcNumLWS	SrcLWSNumSubArea	
CTssYR	year associated with output	year	integer	3	1	10000					0	SrcNumLWS	SrcLWSNumSubArea	CTssNY
LeachFlux	leachate contaminant flux	g/m2/d	float	2	0	100000000					0	SrcNumLWS	LeachFluxNY	
LeachFluxNY	number of years in outputs		integer	1	0	10000					1	SrcNumLWS		
LeachFluxYR	year associated with output	year	integer	2	1	10000					0	SrcNumLWS	LeachFluxNY	
NyrMet	number of years in the available met record	year	integer	0	1	100	31.7	10	50	Variant	1			
PE30	eroded solids mass emission rate-PM30	g/m2/d	float	1	0	100000000					0	PE30NY		
PE30NY	number of years in outputs		integer	0	0	10000	39.8	18	200	Variant	1			
PE30YR	year associated with output	year	integer	1	1	10000					0	CENY		
PMF	particulate emission particle size distribution	mass fraction	float	2	0	1					0	PMFNY	ArrayLen	
PMFNY	number of years in outputs		integer	0	0	10000	39.8	18	200	Variant	1			
PMFYR	year associated with output	year	integer	1	1	10000					0	PMFNY		
Runoff	runoff	m3/d	float	2	0	10000					0	SrcNumLWS	NyrMet	
SrcCE	flag for chemical sorbed to particulates emissions presence		logical	0							0			
SrcH2O	flag for surface water presence		logical	0							0			
SrcLeachMet	flag for leachate presence when leachate is met-driven		logical	0							0			
SrcLeachSrc	flag for leachate presence when leachate is not met-driven (unit is active)		logical	0							0			
SrcOvl	flag for overland flow presence		logical	0							0			
SrcSoil	flag for soil presence		logical	0							0			
SrcVE	flag for volatile emissions presence		logical	0							0			
SWConcTot	total chem concentration in surface water	mg/L	float	1	0	100000					0	SWConcTotNY		
SWConcTotNY	number of years in outputs		integer	0	0	10000					1			
SWConcTotYR	year associated with output	year	integer	1	1	10000					0	SWConcTotNY		
SWLoadChem	chemical load to waterbody	g/d	float	2	0	100000000					0	SrcNumLWS	SWLoadChemNY	
SWLoadChemNY	number of years in outputs		integer	1	0	10000					1	SrcNumLWS		
SWLoadChemYR	year associated with output	year	integer	2	1	10000					0	SrcNumLWS	SWLoadChemNY	
SWLoadSolid	total suspended solids load to waterbody	g/d	float	2	0	10000000000					0	SrcNumLWS	NyrMet	
VE	volatile emission rate	g/m2/d	float	1	0	100000000					0	VENY		
VENY	number of years in outputs		integer	0	0	10000	33.6	0	200	Variant	1			
VEYR	year associated with output	year	integer	1	1	10000					0	VENY		

Table 8-10c. Aquifer (Saturated Zone) Output (GRF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	Is Index?	Index 1	Index 2	Index 3
AquRchMassFlux	Mass Flux from Aquifer to Reach	g/yr	Float	2	0	1E+15					0	NumChem	AquRchMassFluxNY	
AquRchMassFluxNY	Number of Time - Mass-Flux-to-Reach Pairs		Integer	1	0	10000	46.6	1	7348	Variant	1	NumChem		
AquRchMassFluxYR	Time of Mass Flux from Aquifer to Reach	year	Float	2	0	10000					0	NumChem	AquRchMassFluxNY	
AquRchWaterFlux	Total GW Flux to Reach	m3/day	Float	0	0	2E+13					0			
AquWellConc	Obs. Well Conc.	mg/L	Float	3	0	1000000					0	NumAquWell	NumChem	AquWellConcNY
AquWellConcFlag	Flag indicating well is within plume: T - yes, F - no		Logical	1							0	NumAquWell		
AquWellConcNY	Number of Time - Obs. Well Conc Pairs		Integer	2	0	10000					1	NumAquWell	NumChem	
AquWellConcYr	Time of Obs. Well Conc.	year	Integer	3	0	10000					0	NumAquWell	NumChem	AquWellConcNY
WBNRchAquFrac	Fraction of this reach impacted by the aquifer	fraction	Float	3	0	1					0	NumWBN	WBNNumRch	WBNRchNumAqu
WBNRchAquIndex	Index of aquifer that impacts this reach		Integer	3	0	5					0	NumWBN	WBNNumRch	WBNRchNumAqu
WBNRchNumAqu	Number of aquifer that impacts this reach		Integer	2	0	2					1	NumWBN	WBNNumRch	

Table 8-10d. Vadose Zone Output (GRF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	Is Index?	Index 1	Index 2	Index 3
CWT	Concentrations at Water Table	mg/L	Float	2	0	1000000					0	NTS	NumChem	
NTS	Number of Time-Conc/Flux Pairs in TWT and CWT	yr	Integer	0	0	200	163.3	1	200	Variant	1			
SINFIL	Longterm average waterflux beneath source	m/yr	Float	0	0	11					0			
TSOURC	Duration of Source Boundary Condition	yr	Float	0	0	10000					0			
TWT	Times for CWT	yr	Float	1	0	10000					0	NTS		

Table 8-10e. Air Output (GRF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	Is Index?	Index 1	Index 2	Index 3
CVap	2-dimensional array that provides information on total number of years of activity for volatiles at each receptor location and volatile concentration in each year	ug/m3	FLOAT	2	0	0					0	NumAir	CVapNY	
CVapNY	Number of years in the time series corresponding to this variable		Integer	1	0	100000					1	NumAir		
CVapYR	Time series of years corresponding to this variable	Year	Integer	2	0	100000					0	NumAir	CVapNY	
ParDDep	2-dimensional array that provides information on total number of years of activity for particulate dry deposition at each receptor location and dry deposition flux for each year	g/m2/d	FLOAT	2	0	100000					0	NumAir	ParDDepNY	
ParDDepNY	Number of years in the time series corresponding to this variable		Integer	1	0	100000					1	NumAir		
ParDDepYR	Time series of years corresponding to this variable	Year	Integer	2	0	100000					0	NumAir	ParDDepNY	
ParWDep	2-dimensional array that provides information on total number of years of activity for particulate wet deposition at each receptor location and wet deposition flux for each year	g/m2/d	FLOAT	2	0	100000					0	NumAir	ParWDepNY	
ParWDepNY	Number of years in the time series corresponding to this variable		Integer	1	0	100000					1	NumAir		
ParWDepYR	Time series of years corresponding to this variable	Year	Integer	2	0	100000					0	NumAir	ParWDepNY	
PM10	2-dimensional array that provides information on total number of years of activity for PM10 at each receptor location and PM10 concentration in each year	ug/m3	FLOAT	2	0	100000					0	NumAir	PM10NY	
PM10NY	Number of years in the time series corresponding to this variable		Integer	1	0	100000					1	NumAir		
PM10YR	Time series of years corresponding to this variable	Year	Integer	2	0	100000					0	NumAir	PM10NY	
SrcCE	flag to tell if particle		logical	0							0			
SrcVE	flag to tell if vapor		logical	0							0			
VapWDep	2-dimensional array that provides information on total number of years of activity for wet deposition at each receptor location and wet deposition flux for each year	g/m2/d	FLOAT	2	0	100000					0	NumAir	VapWDepNY	
VapWDepNY	Number of years in the time series corresponding to this variable		Integer	1	0	100000					1	NumAir		
VapWDepYR	Time series of years corresponding to this variable	Year	Integer	2	0	100000					0	NumAir	VapWDepNY	

Table 8-10f. Watershed Output (GRF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	Is Index?	Index 1	Index 2	Index 3
AnnInfil	annual average recharge rate	m/d	float	2	0	100					0	NumWSSub	NyrMet	
BFann	long-term avg baseflow to waterbody	m3/d	float	1	0	100000000					0	NumWSSub		
CTdaR	depth averaged soil concentration (from zava to zavb)	ug/g	float	2	0	1000000					0	NumWSSub	CTdaRNY	
CTdaRNY	number of years in outputs		integer	1	0	10000					1	NumWSSub		
CTdaRYR	year associated with output	year	integer	2	1	10000					0	NumWSSub	CTdaRNY	
CTssR	surface soil concentration	ug/g	float	2	0	1000000					0	NumWSSub	CTssRNY	
CTssRNY	number of years in outputs		integer	1	0	10000					1	NumWSSub		
CTssRYR	year associated with output	year	integer	2	1	10000					0	NumWSSub	CTssRNY	
NyrMet	number of years in the available met record	year	integer	0	1	100	14.5	10	27	Variant	1			
RunoffR	runoff flow to waterbody	m3/d	float	2	0	100000000					0	NumWSSub	NyrMet	
SWLoadChemR	chemical load (deposition only) to waterbody	g/d	float	2	0	100000000					0	NumWSSub	SWLoadChemRNY	
SWLoadChemRNY	number of years in outputs		integer	1	0	10000					1	NumWSSub		
SWLoadChemRYR	year associated with output	year	integer	2	1	10000					0	NumWSSub	SWLoadChemRNY	
SWLoadSolidR	total suspended solids (runoff)	g/d	float	2	0	10000000000					0	NumWSSub	NyrMet	

Table 8-10g. Surface Water Output (GRF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	Is Index?	Index 1	Index 2	Index 3
WBNConcBenthDiss	Dissolved chemical concentration in the surficial benthic layer	mg/L	Float	3	0	1000000					0	WBNNumChem	WBNNumRch	WBNConcBenthDissNY
WBNConcBenthDissNY	Number of years in the time series corresponding to this variable		Integer	2	0	10000					1	WBNNumChem	WBNNumRch	
WBNConcBenthDissYr	Time series of years corresponding to this variable	year	Integer	3	0	10000					0	WBNNumChem	WBNNumRch	WBNConcBenthDissNY
WBNConcBenthTot	Total chemical concentration in the surficial benthic layer	ug/g	Float	3	0	1000000					0	WBNNumChem	WBNNumRch	WBNConcBenthTotNY
WBNConcBenthTotNY	Number of years in the time series corresponding to this variable		Integer	2	0	10000					1	WBNNumChem	WBNNumRch	
WBNConcBenthTotYr	Time series of years corresponding to this variable	year	Integer	3	0	10000					0	WBNNumChem	WBNNumRch	WBNConcBenthTotNY
WBNConcWaterDiss	Dissolved chemical concentration in the water column	mg/L	Float	3	0	1000000					0	WBNNumChem	WBNNumRch	WBNConcWaterDissNY
WBNConcWaterDissNY	Number of years in the time series corresponding to this variable		Integer	2	0	10000					1	WBNNumChem	WBNNumRch	
WBNConcWaterDissYr	Time series of years corresponding to this variable	year	Integer	3	0	10000					0	WBNNumChem	WBNNumRch	WBNConcWaterDissNY
WBNConcWaterTot	Total chemical concentration in the water column	mg/L	Float	3	0	1000000					0	WBNNumChem	WBNNumRch	WBNConcWaterTotNY
WBNConcWaterTotNY	Number of years in the time series corresponding to this variable		Integer	2	0	10000					1	WBNNumChem	WBNNumRch	
WBNConcWaterTotYr	Time series of years corresponding to this variable	year	Integer	3	0	10000					0	WBNNumChem	WBNNumRch	WBNConcWaterTotNY
WBNfocBenth	Organic carbon content of benthic sediments	fraction	Float	2	0	0.5					0	WBNNumRch	WBNfocBenthNY	
WBNfocBenthNY	Number of years in the time series corresponding to this variable		Integer	1	0	10000					1	WBNNumRch		
WBNfocBenthYr	Time series of years corresponding to this variable	year	Integer	2	0	10000					0	WBNNumRch	WBNfocBenthNY	
WBNNumChem	number of chemicals in output file		Integer	0	1	10		1	3	Variant	1			
WBNTSSWater	Total suspended solids concentration in the water column	mg/L	Float	2	0	70000					0	WBNNumRch	WBNTSSWaterNY	
WBNTSSWaterNY	Number of years in the time series corresponding to this variable		Integer	1	0	10000					1	WBNNumRch		
WBNTSSWaterYr	Time series of years corresponding to this variable	year	Integer	2	0	10000					0	WBNNumRch	WBNTSSWaterNY	

Table 8-10h. Aquatic Foodweb Output (GRF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	Is Index?	Index 1	Index 2	Index 3
Caqmp	Concentration of contaminant in aquatic plants	mg/kg WW	FLOAT	3	0	1000000					0	NumWBN	WBNNumRch	CaqmpNY
CaqmpNY	Number of years in the time series corresponding to this variable		INTEGER	2	0	10000					1	NumWBN	WBNNumRch	
CaqmpYR	Time series of years corresponding to this variable	year	INTEGER	3	0	10000					0	NumWBN	WBNNumRch	CaqmpNY
Cbenthff	Concentration of contaminant in benthic organisms	unitless	FLOAT	3	0	1000000					0	NumWBN	WBNNumRch	CbenthffNY
CbenthffNY	Number of years in the time series corresponding to this variable		INTEGER	2	0	10000					1	NumWBN	WBNNumRch	
CbenthffYR	Time series of years corresponding to this variable	year	INTEGER	3	0	10000					0	NumWBN	WBNNumRch	CbenthffNY
CT3Filet	Concentration of contaminant in trophic level 3 fish filet	mg/kg WW	FLOAT	3	0	1000000					0	NumWBN	WBNNumRch	CT3FiletNY
CT3FiletNY	Number of years in the time series corresponding to this variable		INTEGER	2	0	10000					1	NumWBN	WBNNumRch	
CT3FiletYR	Time series of years corresponding to this variable	year	INTEGER	3	0	10000					0	NumWBN	WBNNumRch	CT3FiletNY
CT3Fish	Concentration of contaminant in trophic level 3 fish	mg/kg WW	FLOAT	3	0	1000000					0	NumWBN	WBNNumRch	CT3FishNY
CT3FishNY	Number of years in the time series corresponding to this variable		INTEGER	2	0	10000					1	NumWBN	WBNNumRch	
CT3FishYR	Time series of years corresponding to this variable	year	INTEGER	3	0	10000					0	NumWBN	WBNNumRch	CT3FishNY
CT4Filet	Concentration of contaminant in trophic level 4 fish filet	mg/kg WW	FLOAT	3	0	1000000					0	NumWBN	WBNNumRch	CT4FiletNY
CT4FiletNY	Number of years in the time series corresponding to this variable		INTEGER	2	0	10000					1	NumWBN	WBNNumRch	
CT4FiletYR	Time series of years corresponding to this variable	year	INTEGER	3	0	10000					0	NumWBN	WBNNumRch	CT4FiletNY
CT4Fish	Concentration of contaminant in trophic level 4 fish	mg/kg WW	FLOAT	3	0	1000000					0	NumWBN	WBNNumRch	CT4FishNY
CT4FishNY	Number of years in the time series corresponding to this variable		INTEGER	2	0	10000					1	NumWBN	WBNNumRch	
CT4FishYR	Time series of years corresponding to this variable	year	INTEGER	3	0	10000					0	NumWBN	WBNNumRch	CT4FishNY

Table 8-10i. Farm Foodchain Output (GRF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	Is Index?	Index 1	Index 2	Index 3
Abeef_farm	beef concentration	mg/kg WW	FLOAT	2	0	1000000000					0	NumFarm	Abeef_farmNY	
Abeef_farmNY	number of years in the time series cooresponding to this parameter		INTEGER	1	0	100000000					1	NumFarm		
Abeef_farmYR	time series of years cooresponding to this parameter	Year	INTEGER	2	0	100000000					0	NumFarm	Abeef_farmNY	
Amilk_farm	milk concentration	mg/kg WW	FLOAT	2	0	1000000000					0	NumFarm	Amilk_farmNY	
Amilk_farmNY	number of years in the time series cooresponding to this parameter		INTEGER	1	0	100000000					1	NumFarm		
Amilk_farmYR	time series of years cooresponding to this parameter	Year	INTEGER	2	0	100000000					0	NumFarm	Amilk_farmNY	
CTssAve_farm	concentration in root vegetables	ug/g	FLOAT	2	0	1000000000					0	NumFarm	CTssAve_farmNY	
CTssAve_farmNY	number of years in the time series cooresponding to this parameter		INTEGER	1	0	100000000					1	NumFarm		
CTssAve_farmYR	time series of years cooresponding to this parameter	Year	INTEGER	2	0	100000000					0	NumFarm	CTssAve_farmNY	
Pexfruit_farm	concentration in exposed above-ground fruits	mg/kg WW	FLOAT	2	0	1000000000					0	NumFarm	Pexfruit_farmNY	
Pexfruit_farmNY	number of years in the time series cooresponding to this parameter		INTEGER	1	0	100000000					1	NumFarm		
Pexfruit_farmYR	time series of years cooresponding to this parameter	Year	INTEGER	2	0	100000000					0	NumFarm	Pexfruit_farmNY	
Pexfruit_garden	concentration in exposed above-ground fruits	mg/kg WW	FLOAT	2	0	1000000000					0	NumHumRcp	Pexfruit_gardenNY	
Pexfruit_gardenNY	number of years in the time series cooresponding to this parameter		INTEGER	1	0	100000000					1	NumHumRcp		
Pexfruit_gardenYR	time series of years cooresponding to this parameter	Year	INTEGER	2	0	100000000					0	NumHumRcp	Pexfruit_gardenNY	
Pexveg_farm	concentration in exposed above-ground vegetables	mg/kg WW	FLOAT	2	0	1000000000					0	NumFarm	Pexveg_farmNY	
Pexveg_farmNY	number of years in the time series cooresponding to this parameter		INTEGER	1	0	100000000					1	NumFarm		
Pexveg_farmYR	time series of years cooresponding to this parameter	Year	INTEGER	2	0	100000000					0	NumFarm	Pexveg_farmNY	
Pexveg_garden	concentration in exposed above-ground vegetables	mg/kg WW	FLOAT	2	0	1000000000					0	NumHumRcp	Pexveg_gardenNY	
Pexveg_gardenNY	number of years in the time series cooresponding to this parameter		INTEGER	1	0	100000000					1	NumHumRcp		
Pexveg_gardenYR	time series of years cooresponding to this parameter	Year	INTEGER	2	0	100000000					0	NumHumRcp	Pexveg_gardenNY	
Pprofruit_farm	concentration in protected above-ground fruits	mg/kg WW	FLOAT	2	0	1000000000					0	NumFarm	Pprofruit_farmNY	
Pprofruit_farmNY	number of years in the time series cooresponding to this parameter		INTEGER	1	0	100000000					1	NumFarm		
Pprofruit_farmYR	time series of years cooresponding to this parameter	Year	INTEGER	2	0	100000000					0	NumFarm	Pprofruit_farmNY	
Pprofruit_garden	concentration in protected above-ground fruits	mg/kg WW	FLOAT	2	0	1000000000					0	NumHumRcp	Pprofruit_gardenNY	
Pprofruit_gardenNY	number of years in the time series cooresponding to this parameter		INTEGER	1	0	100000000					1	NumHumRcp		
Pprofruit_gardenYR	time series of years cooresponding to this parameter	Year	INTEGER	2	0	100000000					0	NumHumRcp	Pprofruit_gardenNY	
Pproveg_farm	concentration in protected above-ground vegetables	mg/kg WW	FLOAT	2	0	1000000000					0	NumFarm	Pproveg_farmNY	
Pproveg_farmNY	number of years in the time series cooresponding to this parameter		INTEGER	1	0	100000000					1	NumFarm		
Pproveg_farmYR	time series of years cooresponding to this parameter	Year	INTEGER	2	0	100000000					0	NumFarm	Pproveg_farmNY	
Pproveg_garden	concentration in protected above-ground vegetables	mg/kg WW	FLOAT	2	0	1000000000					0	NumHumRcp	Pproveg_gardenNY	
Pproveg_gardenNY	number of years in the time series cooresponding to this parameter		INTEGER	1	0	100000000					1	NumHumRcp		
Pproveg_gardenYR	time series of years cooresponding to this parameter	Year	INTEGER	2	0	100000000					0	NumHumRcp	Pproveg_gardenNY	
Proot_farm	concentration in root vegetables	mg/kg WW	FLOAT	2	0	1000000000					0	NumFarm	Proot_farmNY	
Proot_farmNY	number of years in the time series cooresponding to this parameter		INTEGER	1	0	100000000					1	NumFarm		
Proot_farmYR	time series of years cooresponding to this parameter	Year	INTEGER	2	0	100000000					0	NumFarm	Proot_farmNY	
Proot_garden	concentration in root vegetables	mg/kg WW	FLOAT	2	0	1000000000					0	NumHumRcp	Proot_gardenNY	
Proot_gardenNY	number of years in the time series cooresponding to this parameter		INTEGER	1	0	100000000					1	NumHumRcp		
Proot_gardenYR	time series of years cooresponding to this parameter	Year	INTEGER	2	0	100000000					0	NumHumRcp	Proot_gardenNY	

Table 8-10j. Terrestrial Foodweb Output (GRF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	Is Index?	Index 1	Index 2	Index 3
Cbirds_sm_max	Contaminant concentration found in small birds, maximum	mg/kg WW	Float	2	0	10000000					0	NumHab	Cbirds_sm_maxNY	
Cbirds_sm_maxNY	Number of years in the time series corresponding to this variable		Integer	1	0	10000000					1	NumHab		
Cbirds_sm_maxYR	Time series of years corresponding to this variable	Year	Integer	2	0	10000000					0	NumHab	Cbirds_sm_maxNY	
Cbirds_sm_min	Contaminant concentration found in small birds, minimum	mg/kg WW	Float	2	0	10000000					0	NumHab	Cbirds_sm_minNY	
Cbirds_sm_minNY	Number of years in the time series corresponding to this variable		Integer	1	0	10000000					1	NumHab		
Cbirds_sm_minYR	Time series of years corresponding to this variable	Year	Integer	2	0	10000000					0	NumHab	Cbirds_sm_minNY	
Cherbiverts_max	Contaminant concentration found in herbivore vertebrates, maximum	mg/kg WW	Float	2	0	10000000					0	NumHab	Cherbiverts_maxNY	
Cherbiverts_maxNY	Number of years in the time series corresponding to this variable		Integer	1	0	10000000					1	NumHab		
Cherbiverts_maxYR	Time series of years corresponding to this variable	Year	Integer	2	0	10000000					0	NumHab	Cherbiverts_maxNY	
Cherbiverts_min	Contaminant concentration found in herbivore vertebrates, minimum	mg/kg WW	Float	2	0	10000000					0	NumHab	Cherbiverts_minNY	
Cherbiverts_minNY	Number of years in the time series corresponding to this variable		Integer	1	0	10000000					1	NumHab		
Cherbiverts_minYR	Time series of years corresponding to this variable	Year	Integer	2	0	10000000					0	NumHab	Cherbiverts_minNY	
CHerp_sm_max	Contaminant concentration found in small herpetofauna, maximum	mg/kg WW	Float	2	0	1000000					0	NumHab	CHerp_sm_maxNY	
CHerp_sm_maxNY	Number of years in the time series corresponding to this variable		Integer	1	0	1000000					1	NumHab		
CHerp_sm_maxYR	Time series of years corresponding to this variable	Year	Integer	2	0	1000000					0	NumHab	CHerp_sm_maxNY	
CHerp_sm_min	Contaminant concentration found in small herpetofauna, minimum	mg/kg WW	Float	2	0	1000000					0	NumHab	CHerp_sm_minNY	
CHerp_sm_minNY	Number of years in the time series corresponding to this variable		Integer	1	0	1000000					1	NumHab		
CHerp_sm_minYR	Time series of years corresponding to this variable	Year	Integer	2	0	1000000					0	NumHab	CHerp_sm_minNY	
Cinvert_HabRange	Contaminant concentration found in small invertebrates in each habitat	mg/kg WW	Float	3	0	10000000					0	NumHab	HabNumRange	Cinvert_HabRangeNY
Cinvert_HabRangeNY	Number of years in the time series corresponding to this variable		Integer	2	0	10000000					1	NumHab	HabNumRange	
Cinvert_HabRangeYR	Time series of years corresponding to this variable	Year	Integer	3	0	10000000					0	NumHab	HabNumRange	Cinvert_HabRangeNY
Cmammals_sm_max	Contaminant concentration found in small mammals, maximum	mg/kg WW	Float	2	0	10000000					0	NumHab	Cmammals_sm_maxNY	
Cmammals_sm_maxNY	Number of years in the time series corresponding to this variable		Integer	1	0	10000000					1	NumHab		
Cmammals_sm_maxYR	Time series of years corresponding to this variable	Year	Integer	2	0	10000000					0	NumHab	Cmammals_sm_maxNY	
Cmammals_sm_min	Contaminant concentration found in small mammals, minimum	mg/kg WW	Float	2	0	10000000					0	NumHab	Cmammals_sm_minNY	
Cmammals_sm_minNY	Number of years in the time series corresponding to this variable		Integer	1	0	10000000					1	NumHab		
Cmammals_sm_minYR	Time series of years corresponding to this variable	Year	Integer	2	0	10000000					0	NumHab	Cmammals_sm_minNY	
Comniverts_max	Contaminant concentration found in omnivore vertebrates, maximum	mg/kg WW	Float	2	0	10000000					0	NumHab	Comniverts_maxNY	
Comniverts_maxNY	Number of years in the time series corresponding to this variable		Integer	1	0	10000000					1	NumHab		
Comniverts_maxYR	Time series of years corresponding to this variable	Year	Integer	2	0	10000000					0	NumHab	Comniverts_maxNY	
Comniverts_min	Contaminant concentration found in omnivore vertebrates, minimum	mg/kg WW	Float	2	0	10000000					0	NumHab	Comniverts_minNY	

Table 8-10j. Terrestrial Foodweb Output (GRF) Dictionary Summary (Continued)

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	Is Index?	Index 1	Index 2	Index 3
Comniverts_minNY	Number of years in the time series corresponding to this variable		Integer	1	0	10000000					1	NumHab		
Comniverts_minYR	Time series of years corresponding to this variable	Year	Integer	2	0	10000000					0	NumHab	Comniverts_minNY	
CTdaAveHabRange	Average depth average soil concentration in habitat range.	ug/g	Float	3	0	10000000					0	NumHab	HabNumRange	CTdaAveHabRangeNY
CTdaAveHabRangeNY	Number of years in the time series corresponding to this variable		Integer	2	0	10000000					1	NumHab	HabNumRange	
CTdaAveHabRangeYR	Time series of years corresponding to this variable	Year	Integer	3	0	10000000					0	NumHab	HabNumRange	CTdaAveHabRangeNY
CTssAveHabRange	Surficial soil concentration in habitat range.	ug/g	Float	3	0	10000000					0	NumHab	HabNumRange	CTssAveHabRangeNY
CTssAveHabRangeNY	Number of years in the time series corresponding to this variable		Integer	2	0	10000000					1	NumHab	HabNumRange	
CTssAveHabRangeYR	Time series of years corresponding to this variable	Year	Integer	3	0	10000000					0	NumHab	HabNumRange	CTssAveHabRangeNY
Cworms_HabRange	Concentration of contaminant found in worms in habitat range.	mg/kg WW	Float	3	0	10000000					0	NumHab	HabNumRange	Cworms_HabRangeNY
Cworms_HabRangeNY	Number of years in the time series corresponding to this variable		Integer	2	0	10000000					1	NumHab	HabNumRange	
Cworms_HabRangeYR	Time series of years corresponding to this variable	Year	Integer	3	0	10000000					0	NumHab	HabNumRange	Cworms_HabRangeNY
Pexfruit_HabRange	Concentration of contaminant found in exposed fruit in habitat range.	mg/kg WW	Float	3	0	10000000					0	NumHab	HabNumRange	Pexfruit_HabRangeNY
Pexfruit_HabRangeNY	Number of years in the time series corresponding to this variable		Integer	2	0	10000000					1	NumHab	HabNumRange	
Pexfruit_HabRangeYR	Time series of years corresponding to this variable	Year	Integer	3	0	10000000					0	NumHab	HabNumRange	Pexfruit_HabRangeNY
Pexveg_HabRange	Concentration of contaminant found in exposed vegetables in habitat range.	mg/kg WW	Float	3	0	10000000					0	NumHab	HabNumRange	Pexveg_HabRangeNY
Pexveg_HabRangeNY	Number of years in the time series corresponding to this variable		Integer	2	0	10000000					1	NumHab	HabNumRange	
Pexveg_HabRangeYR	Time series of years corresponding to this variable	Year	Integer	3	0	10000000					0	NumHab	HabNumRange	Pexveg_HabRangeNY
Pforage_HabRange	Concentration of contaminant found in forage in habitat range.	mg/kg WW	Float	3	0	10000000					0	NumHab	HabNumRange	Pforage_HabRangeNY
Pforage_HabRangeNY	Number of years in the time series corresponding to this variable		Integer	2	0	10000000					1	NumHab	HabNumRange	
Pforage_HabRangeYR	Time series of years corresponding to this variable	Year	Integer	3	0	10000000					0	NumHab	HabNumRange	Pforage_HabRangeNY
Pgrain_HabRange	Concentration of contaminant found in grain in habitat range.	mg/kg WW	Float	3	0	10000000					0	NumHab	HabNumRange	Pgrain_HabRangeNY
Pgrain_HabRangeNY	Number of years in the time series corresponding to this variable		Integer	2	0	10000000					1	NumHab	HabNumRange	
Pgrain_HabRangeYR	Time series of years corresponding to this variable	Year	Integer	3	0	10000000					0	NumHab	HabNumRange	Pgrain_HabRangeNY
Proot_HabRange	Concentration of contaminant found in root vegetables in habitat range.	mg/kg WW	Float	3	0	10000000					0	NumHab	HabNumRange	Proot_HabRangeNY
Proot_HabRangeNY	Number of years in the time series corresponding to this variable		Integer	2	0	10000000					1	NumHab	HabNumRange	
Proot_HabRangeYR	Time series of years corresponding to this variable	Year	Integer	3	0	10000000					0	NumHab	HabNumRange	Proot_HabRangeNY
Psilage_HabRange	Concentration of contaminant found in silage in habitat range.	mg/kg WW	Float	3	0	10000000					0	NumHab	HabNumRange	Psilage_HabRangeNY
Psilage_HabRangeNY	Number of years in the time series corresponding to this variable		Integer	2	0	10000000					1	NumHab	HabNumRange	
Psilage_HabRangeYR	Time series of years corresponding to this variable	Year	Integer	3	0	10000000					0	NumHab	HabNumRange	Psilage_HabRangeNY

Table 8-10k. Human Exposure Output (GRF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	Is Index?	Index 1	Index 2	Index 3
Cambient_Farm	Farm-specific modeled ambient air concentration used in evaluating inhalation risk. Separate estimates are generated for each modeled year.	mg/m3	FLOAT	3	0	1000000					0	NumFarm	5 - NumCohort**	Cambient_FarmNY
Cambient_FarmNY	Number of years in the time series corresponding to this variable		INTEGER	2	0	1000000					1	NumFarm	5 - NumCohort**	
Cambient_FarmYR	Time series of years corresponding to this variable	Year	INTEGER	3	0	1000000					0	NumFarm	5 - NumCohort**	Cambient_FarmNY
Cambient_HumRcp	Residential location-specific modeled ambient air concentration used in evaluating inhalation risk. Separate estimates are generated for each modeled year.	mg/m3	FLOAT	3	0	1000000					0	NumHumRcp	5 - NumCohort**	Cambient_HumRcpNY
Cambient_HumRcpNY	Number of years in the time series corresponding to this variable		INTEGER	2	0	1000000					1	NumHumRcp	5 - NumCohort**	
Cambient_HumRcpYR	Time series of years corresponding to this variable	Year	INTEGER	3	0	1000000					0	NumHumRcp	5 - NumCohort**	Cambient_HumRcpNY
Csb_Farm	Farm/crop area-specific modeled shower/bath air concentration used in evaluating inhalation risk. Separate estimates are generated for each modeled year.	mg/m3	FLOAT	3	0	1000000					0	NumFarm	5 - NumCohort**	Csb_FarmNY
Csb_FarmNY	Number of years in the time series corresponding to this variable		INTEGER	2	0	1000000					1	NumFarm	5 - NumCohort**	
Csb_FarmYR	Time series of years corresponding to this variable	Year	INTEGER	3	0	1000000					0	NumFarm	5 - NumCohort**	Csb_FarmNY
Csb_HumRcp	Residential location-specific modeled shower/bath air concentration used in evaluating inhalation risk. Separate estimates are generated for each modeled year.	mg/m3	FLOAT	3	0	1000000					0	NumHumRcp	5 - NumCohort**	Csb_HumRcpNY
Csb_HumRcpNY	Number of years in the time series corresponding to this variable		INTEGER	2	0	1000000					1	NumHumRcp	5 - NumCohort**	
Csb_HumRcpYR	Time series of years corresponding to this variable	Year	INTEGER	3	0	1000000					0	NumHumRcp	5 - NumCohort**	Csb_HumRcpNY
IngBeef_Farm	Chemical-specific average daily dose from the ingestion of beef for a beef farmer	mg/kg-d	FLOAT	3	0	1000000					0	NumFarm	5 - NumCohort**	IngBeef_FarmNY
IngBeef_FarmNY	Number of years in the time series corresponding to this variable		INTEGER	2	0	1000000					1	NumFarm	5 - NumCohort**	
IngBeef_FarmYR	Time series of years corresponding to this variable	Year	INTEGER	3	0	1000000					0	NumFarm	5 - NumCohort**	IngBeef_FarmNY
IngBMBeefF	Chemical-specific average daily dose from the ingestion of breastmilk, for the infant of a beef farmer	mg/kg-d	FLOAT	2	0	1000000					0	NumFarm	IngBMBeefFNY	
IngBMBeefFNY	Number of years in the time series corresponding to this variable		INTEGER	1	0	1000000					1	NumFarm		
IngBMBeefFYR	Time series of years corresponding to this variable	Year	INTEGER	2	0	1000000					0	NumFarm	IngBMBeefFNY	
IngBMFisherBeefF	Chemical-specific average daily dose from the ingestion of breastmilk, for the infant of a beef farmer who is also a recreational fisher	mg/kg-d	FLOAT	2	0	1000000					0	NumFarm	IngBMFisherBeefFNY	
IngBMFisherBeefFNY	Number of years in the time series corresponding to this variable		INTEGER	1	0	1000000					1	NumFarm		
IngBMFisherBeefFYR	Time series of years corresponding to this variable	Year	INTEGER	2	0	1000000					0	NumFarm	IngBMFisherBeefFNY	
IngBMFisherGardenerH	Chemical-specific average daily dose from the ingestion of breastmilk, for the infant of a non-farmer who is a gardener and a recreational fisher	mg/kg-d	FLOAT	2	0	1000000					0	NumHumRcp	IngBMFisherGardenerHNY	
IngBMFisherGardenerHNY	Number of years in the time series corresponding to this variable		INTEGER	1	0	1000000					1	NumHumRcp		
IngBMFisherGardenerHYR	Time series of years corresponding to this variable	Year	INTEGER	2	0	1000000					0	NumHumRcp	IngBMFisherGardenerHNY	
IngBMFisherMilkF	Chemical-specific average daily dose from the ingestion of breastmilk, for the infant of a milk farmer	mg/kg-d	FLOAT	2	0	1000000					0	NumFarm	IngBMFisherMilkFNY	
IngBMFisherMilkFNY	Number of years in the time series corresponding to this variable		INTEGER	1	0	1000000					1	NumFarm		
IngBMFisherMilkFYR	Time series of years corresponding to this variable	Year	INTEGER	2	0	1000000					0	NumFarm	IngBMFisherMilkFNY	
IngBMFisherResidentH	Chemical-specific average daily dose from the ingestion of breastmilk, for the infant of a non-farmer who is also a recreational fisher	mg/kg-d	FLOAT	2	0	1000000					0	NumHumRcp	IngBMFisherResidentHNY	
IngBMFisherResidentHNY	Number of years in the time series corresponding to this variable		INTEGER	1	0	1000000					1	NumHumRcp		
IngBMFisherResidentHYR	Time series of years corresponding to this variable	Year	INTEGER	2	0	1000000					0	NumHumRcp	IngBMFisherResidentHNY	

Table 8-10k. Human Exposure Output (GRF) Dictionary Summary (Continued)

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	Is Index?	Index 1	Index 2	Index 3
lngBMGardenerH	Chemical-specific average daily dose from the ingestion of breastmilk, for the infant of a home gardener	mg/kg-d	FLOAT	2	0	1000000					0	NumHumRcp	lngBMGardenerHNY	
lngBMGardenerHNY	Number of years in the time series corresponding to this variable		INTEGER	1	0	1000000					1	NumHumRcp		
lngBMGardenerHYR	Time series of years corresponding to this variable	Year	INTEGER	2	0	1000000					0	NumHumRcp	lngBMGardenerHNY	
lngBMMilkF	Chemical-specific average daily dose from the ingestion of breastmilk, for the infant of a milk farmer	mg/kg-d	FLOAT	2	0	1000000					0	NumFarm	lngBMMilkFNY	
lngBMMilkFNY	Number of years in the time series corresponding to this variable		INTEGER	1	0	1000000					1	NumFarm		
lngBMMilkFYR	Time series of years corresponding to this variable	Year	INTEGER	2	0	1000000					0	NumFarm	lngBMMilkFNY	
lngBMResidentH	Chemical-specific average daily dose from the ingestion of breastmilk, for the infant of a non-farming resident	mg/kg-d	FLOAT	2	0	1000000					0	NumHumRcp	lngBMResidentHNY	
lngBMResidentHNY	Number of years in the time series corresponding to this variable		INTEGER	1	0	1000000					1	NumHumRcp		
lngBMResidentHYR	Time series of years corresponding to this variable	Year	INTEGER	2	0	1000000					0	NumHumRcp	lngBMResidentHNY	
lngFish_Farm	Chemical-specific average daily dose from the ingestion of fish, for a farmer	mg/kg-d	FLOAT	3	0	1000000					0	NumFarm	5 - NumCohort**	lngFish_FarmNY
lngFish_FarmNY	Number of years in the time series corresponding to this variable		INTEGER	2	0	1000000					1	NumFarm	5 - NumCohort**	
lngFish_FarmYR	Time series of years corresponding to this variable	Year	INTEGER	3	0	1000000					0	NumFarm	5 - NumCohort**	lngFish_FarmNY
lngFish_HumRcp	Chemical-specific average daily dose for the nonfarmer, resulting from the ingestion of fish	mg/kg-d	FLOAT	3	0	1000000					0	NumHumRcp	5 - NumCohort**	lngFish_HumRcpNY
lngFish_HumRcpNY	Number of years in the time series corresponding to this variable		INTEGER	2	0	1000000					1	NumHumRcp	5 - NumCohort**	
lngFish_HumRcpYR	Time series of years corresponding to this variable	Year	INTEGER	3	0	1000000					0	NumHumRcp	5 - NumCohort**	lngFish_HumRcpNY
lngMilk_Farm	Chemical-specific average daily dose for the farmer, resulting from the ingestion of milk	mg/kg-d	FLOAT	3	0	1000000					0	NumFarm	5 - NumCohort**	lngMilk_FarmNY
lngMilk_FarmNY	Number of years in the time series corresponding to this variable		INTEGER	2	0	1000000					1	NumFarm	5 - NumCohort**	
lngMilk_FarmYR	Time series of years corresponding to this variable	Year	INTEGER	3	0	1000000					0	NumFarm	5 - NumCohort**	lngMilk_FarmNY
lngSoil_Farm	Chemical-specific average daily dose for the farmer, resulting from the ingestion of soil	mg/kg-d	FLOAT	3	0	1000000					0	NumFarm	5 - NumCohort**	lngSoil_FarmNY
lngSoil_FarmNY	Number of years in the time series corresponding to this variable		INTEGER	2	0	1000000					1	NumFarm	5 - NumCohort**	
lngSoil_FarmYR	Time series of years corresponding to this variable	Year	INTEGER	3	0	1000000					0	NumFarm	5 - NumCohort**	lngSoil_FarmNY
lngSoil_HumRcp	Chemical-specific average daily dose for the non-farmer, resulting from the ingestion of soil	mg/kg-d	FLOAT	3	0	1000000					0	NumHumRcp	5 - NumCohort**	lngSoil_HumRcpNY
lngSoil_HumRcpNY	Number of years in the time series corresponding to this variable		INTEGER	2	0	1000000					1	NumHumRcp	5 - NumCohort**	
lngSoil_HumRcpYR	Time series of years corresponding to this variable	Year	INTEGER	3	0	1000000					0	NumHumRcp	5 - NumCohort**	lngSoil_HumRcpNY
lngVeg_Farm	Chemical-specific average daily dose for the farmer, resulting from the ingestion of vegetables	mg/kg-d	FLOAT	3	0	1000000					0	NumFarm	5 - NumCohort**	lngVeg_FarmNY
lngVeg_FarmNY	Number of years in the time series corresponding to this variable		INTEGER	2	0	1000000					1	NumFarm	5 - NumCohort**	
lngVeg_FarmYR	Time series of years corresponding to this variable	Year	INTEGER	3	0	1000000					0	NumFarm	5 - NumCohort**	lngVeg_FarmNY
lngVeg_HumRcp	Chemical-specific average daily dose for the non-farmer, resulting from the ingestion of vegetables	mg/kg-d	FLOAT	3	0	1000000					0	NumHumRcp	5 - NumCohort**	lngVeg_HumRcpNY
lngVeg_HumRcpNY	Number of years in the time series corresponding to this variable		INTEGER	2	0	1000000					1	NumHumRcp	5 - NumCohort**	
lngVeg_HumRcpYR	Time series of years corresponding to this variable	Year	INTEGER	3	0	1000000					0	NumHumRcp	5 - NumCohort**	lngVeg_HumRcpNY
lngWater_Farm	Chemical-specific average daily dose for the farmer, resulting from the ingestion of water	mg/kg-d	FLOAT	3	0	1000000					0	NumFarm	5 - NumCohort**	lngWater_FarmNY
lngWater_FarmNY	Number of years in the time series corresponding to this variable		INTEGER	2	0	1000000					1	NumFarm	5 - NumCohort**	
lngWater_FarmYR	Time series of years corresponding to this variable	Year	INTEGER	3	0	1000000					0	NumFarm	5 - NumCohort**	lngWater_FarmNY
lngWater_HumRcp	Chemical-specific average daily dose for the non-farmer, resulting from the ingestion of water	mg/kg-d	FLOAT	3	0	1000000					0	NumHumRcp	5 - NumCohort**	lngWater_HumRcpNY
lngWater_HumRcpNY	Number of years in the time series corresponding to this variable		INTEGER	2	0	1000000					1	NumHumRcp	5 - NumCohort**	

Table 8-10k. Human Exposure Output (GRF) Dictionary Summary (Continued)

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	Is Index?	Index 1	Index 2	Index 3
IngWater_HumRcpYR	Time series of years corresponding to this variable	Year	INTEGER	3	0	1000000					0	NumHumRcp	5 - NumCohort**	IngWater_HumRcpNY
InhAir_Farm	Chemical-specific average daily dose for the farmer, resulting from the inhalation of air	mg/kg-d	FLOAT	3	0	1000000					0	NumFarm	5 - NumCohort**	InhAir_FarmNY
InhAir_FarmNY	Number of years in the time series corresponding to this variable		INTEGER	2	0	1000000					1	NumFarm	5 - NumCohort**	
InhAir_FarmYR	Time series of years corresponding to this variable	Year	INTEGER	3	0	1000000					0	NumFarm	5 - NumCohort**	InhAir_FarmNY
InhAir_HumRcp	Chemical-specific average daily dose for the farmer, resulting from the inhalation of air	mg/kg-d	FLOAT	3	0	1000000					0	NumHumRcp	5 - NumCohort**	InhAir_HumRcpNY
InhAir_HumRcpNY	Number of years in the time series corresponding to this variable		INTEGER	2	0	1000000					1	NumHumRcp	5 - NumCohort**	
InhAir_HumRcpYR	Time series of years corresponding to this variable	Year	INTEGER	3	0	1000000					0	NumHumRcp	5 - NumCohort**	InhAir_HumRcpNY
InhShower_Farm	Chemical-specific average daily dose for the farmer, resulting from the inhalation in the shower	mg/kg-d	FLOAT	3	0	1000000					0	NumFarm	5 - NumCohort**	InhShower_FarmNY
InhShower_FarmNY	Number of years in the time series corresponding to this variable		INTEGER	2	0	1000000					1	NumFarm	5 - NumCohort**	
InhShower_FarmYR	Time series of years corresponding to this variable	Year	INTEGER	3	0	1000000					0	NumFarm	5 - NumCohort**	InhShower_FarmNY
InhShower_HumRcp	Chemical-specific average daily dose for the non-farmer, resulting from the inhalation in the shower	mg/kg-d	FLOAT	3	0	1000000					0	NumHumRcp	5 - NumCohort**	InhShower_HumRcpNY
InhShower_HumRcpNY	Number of years in the time series corresponding to this variable		INTEGER	2	0	1000000					1	NumHumRcp	5 - NumCohort**	
InhShower_HumRcpYR	Time series of years corresponding to this variable	Year	INTEGER	3	0	1000000					0	NumHumRcp	5 - NumCohort**	InhShower_HumRcpNY

Table 8-10l. Human Risk Output (GRF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	Is Index?	Index 1	Index 2	Index 3	Index 4	Index 5
CohortDescrip	Cohort Description		STRING	1				5	5	Invariant = 5	0	5 - NumCohort**				
HQ_1	CDFs of population in HQ bins via option 1	unitless	FLOAT	5	0	10000000					0	NumHumRcpType	5 - NumCohort**	HQ_1_Index	9 - NumPath**	NumBinNC
HQ_1_Index	Number of HQ_1 output for path/ring/Critical year	unitless	INTEGER	2	0	10000000					1	NumHumRcpType	5 - NumCohort**			
HQ_1_PathIndex	Index of path for where Tmax was found for Option 1 (HQ)	unitless	INTEGER	3	0	26					0	NumHumRcpType	5 - NumCohort**	HQ_1_Index		
HQ_1_RingIndex	Index of the ring where Tmax was found for Option 1 (HQ)	unitless	INTEGER	3	0	9					0	NumHumRcpType	5 - NumCohort**	HQ_1_Index		
HQ_1_TcrIndex	Index of the Critical Year for Option 1 (HQ)	unitless	INTEGER	3	0	10000					0	NumHumRcpType	5 - NumCohort**	HQ_1_Index		
HQ_1_Value	HQ value for other pathways at same year	Risk/HQ	FLOAT	4	0	0					0	NumHumRcpType	5 - NumCohort**	HQ_1_Index	13 - NumAllPath**	
HQ_2	CDFs of population in HQ bins via option 2	unitless	FLOAT	5	0	10000000					0	NumHumRcpType	5 - NumCohort**	HQ_2_Index	9 - NumPath**	NumBinNC
HQ_2_Index	Number of HQ_2 output for path/ring/Critical year	unitless	INTEGER	2	0	10000000					1	NumHumRcpType	5 - NumCohort**			
HQ_2_PathIndex	Index of path for where Tmax was found for Option 2 (HQ)	unitless	INTEGER	3	0	26					0	NumHumRcpType	5 - NumCohort**	HQ_2_Index		
HQ_2_RingIndex	Index of the ring where Tmax was found for Option 2 (HQ)	unitless	INTEGER	3	0	9					0	NumHumRcpType	5 - NumCohort**	HQ_2_Index		
HQ_2_TcrIndex	Index of the Critical Year for Option 2 (HQ)	unitless	INTEGER	3	0	10000					0	NumHumRcpType	5 - NumCohort**	HQ_2_Index		
HQ_2_Value	HQ value for other pathways at same year	Risk/HQ	FLOAT	4	0	0					0	NumHumRcpType	5 - NumCohort**	HQ_1_Index	13 - NumAllPath**	
HQ_3	CDFs of population in HQ bins via option 3	unitless	FLOAT	5	0	10000000					0	NumHumRcpType	5 - NumCohort**	HQ_3_Index	9 - NumPath**	NumBinNC
HQ_3_Index	Number of HQ_3 output for path/ring/Critical year	unitless	INTEGER	2	0	10000000					1	NumHumRcpType	5 - NumCohort**			
HQ_3_PathIndex	Index of path for where Tmax was found for Option 3 (HQ)	unitless	INTEGER	3	0	26					0	NumHumRcpType	5 - NumCohort**	HQ_3_Index		
HQ_3_RingIndex	Index of the ring where Tmax was found for Option 3 (HQ)	unitless	INTEGER	3	0	9					0	NumHumRcpType	5 - NumCohort**	HQ_3_Index		
HQ_3_TcrIndex	Index of the Critical Year for Option 3 (HQ)	unitless	INTEGER	3	0	10000					0	NumHumRcpType	5 - NumCohort**	HQ_3_Index		
HQ_3_Value	HQ value for other pathways at same year	Risk/HQ	FLOAT	4	0	0					0	NumHumRcpType	5 - NumCohort**	HQ_1_Index	13 - NumAllPath**	
PathDescrip	Path Description		STRING	1							0	9 - NumPath**				
RegPercentile	policy criterion for selecting critical year for maximum risk	unitless	FLOAT	0	0	100					0					
Risk_1	CDFs of population in risk bins via option 1	unitless	FLOAT	5	0	10000000					0	NumHumRcpType	5 - NumCohort**	Risk_1_Index	9 - NumPath**	NumBinC
Risk_1_Index	Number of Risk_1 output for path/ring/Critical year	unitless	INTEGER	2	0	10000000					1	NumHumRcpType	5 - NumCohort**			
Risk_1_PathIndex	Index of path for where Tmax was found for Option 1 (Risk)	unitless	INTEGER	3	0	26					0	NumHumRcpType	5 - NumCohort**	Risk_1_Index		
Risk_1_RingIndex	Index of the ring where Tmax was found for Option 1 (Risk)	unitless	INTEGER	3	0	9					0	NumHumRcpType	5 - NumCohort**	Risk_1_Index		
Risk_1_TcrIndex	Index of the Critical Year for Option 1 (Risk)	unitless	INTEGER	3	0	10000					0	NumHumRcpType	5 - NumCohort**	Risk_1_Index		
Risk_1_Value	Risk value for other pathways at same year	Risk/HQ	FLOAT	4	0	0					0	NumHumRcpType	5 - NumCohort**	HQ_1_Index	13 - NumAllPath**	
Risk_2	CDFs of population in risk bins via option 2	unitless	FLOAT	5	0	10000000					0	NumHumRcpType	5 - NumCohort**	Risk_2_Index	9 - NumPath**	NumBinC
Risk_2_Index	Number of Risk_2 output for path/ring/Critical year	unitless	INTEGER	2	0	10000000					1	NumHumRcpType	5 - NumCohort**			
Risk_2_PathIndex	Index of path for where Tmax was found for Option 2 (Risk)	unitless	INTEGER	3	0	26					0	NumHumRcpType	5 - NumCohort**	Risk_2_Index		
Risk_2_RingIndex	Index of the ring where Tmax was found for Option 2 (Risk)	unitless	INTEGER	3	0	9					0	NumHumRcpType	5 - NumCohort**	Risk_2_Index		
Risk_2_TcrIndex	Index of the Critical Year for Option 2 (Risk)	unitless	INTEGER	3	0	10000					0	NumHumRcpType	5 - NumCohort**	Risk_2_Index		
Risk_2_Value	Risk value for other pathways at same year	Risk/HQ	FLOAT	4	0	0					0	NumHumRcpType	5 - NumCohort**	HQ_1_Index	13 - NumAllPath**	
Risk_3	CDFs of population in risk bins via option 3	unitless	FLOAT	5	0	10000000					0	NumHumRcpType	5 - NumCohort**	Risk_3_Index	9 - NumPath**	NumBinC
Risk_3_Index	Number of Risk_3 output for path/ring/Critical year	unitless	INTEGER	2	0	10000000					1	NumHumRcpType	5 - NumCohort**			
Risk_3_PathIndex	Index of path for where Tmax was found for Option 3 (Risk)	unitless	INTEGER	3	0	26					0	NumHumRcpType	5 - NumCohort**	Risk_3_Index		
Risk_3_RingIndex	Index of the ring where Tmax was found for Option 3 (Risk)	unitless	INTEGER	3	0	9					0	NumHumRcpType	5 - NumCohort**	Risk_3_Index		
Risk_3_TcrIndex	Index of the Critical Year for Option 3 (Risk)	unitless	INTEGER	3	0	10000					0	NumHumRcpType	5 - NumCohort**	Risk_3_Index		
Risk_3_Value	Risk value for other pathways at same year	Risk/HQ	FLOAT	4	0	0					0	NumHumRcpType	5 - NumCohort**	HQ_1_Index	13 - NumAllPath**	

Table 8-10m. Ecological Exposure Output (GRF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	Is Index?	Index 1	Index 2	Index 3
Dose_rec	Dose of contaminant to receptor	mg/kg-day	Float	3	0	10000000					0	NumHab	HabNumRange	Dose_recYR
Dose_recNY	Number of years in the time series corresponding to this variable		Integer	2	0	1000000					0	NumHab	HabNumRange	
Dose_recYR	Time series of years corresponding to this variable	Year	Integer	3	0	1000000					1	NumHab	HabNumRange	Dose_recYR

Table 8-10n. Ecological Risk Output (GRF) Dictionary Summary

Name	Description	Unit	DataType	Dimension	Minimum	Maximum	TestAvg	TestMin	TestMax	Variant Data Across Models Runs in Test?	Is Index?	Index 1	Index 2	Index 3
DistLabel	Labels for Distances (<1000m, 1000m - 2000m, <2000m)	not applicable	String	1							0	NumDistances		
HabTypeLabel	Labels for Habitat Types (GRASSLANDS,SHRUBSCRUB,FOREST,CROPS,RESIDENTIAL,STREAM,POND,LAKE,PERMFLOODGRASSFORB,PERMFLOODSHRUBSCRUB,PERMFLOODFOREST,NOHABITAT)	not applicable	String	1							0	NumHabType		
HQcdf_HabGroup	Cumulative percentile of receptor HQs	unitless	Integer	3	0	100					0	NumEcoRing	NumEcoBin	NumHabGroup
HQcdf_HabType	Cumulative percentile of receptor HQs	unitless	Integer	3	0	100					0	NumEcoRing	NumEcoBin	NumHabType
HQcdf_RecGroup	Cumulative percentile of receptor HQs	unitless	Integer	3	0	100					0	NumEcoRing	NumEcoBin	NumRecGroup
HQcdf_RGHabGroup	Cumulative percentile of receptor HQs	unitless	Integer	3	0	100					0	NumEcoBin	NumRecGroup	NumHabGroup
HQcdf_TLHabGroup	Cumulative percentile of receptor HQs	unitless	Integer	3	0	100					0	NumEcoBin	NumTrophicLevel	NumHabGroup
HQcdf_TrophicLevel	Cumulative percentile of receptor HQs	unitless	Integer	3	0	100					0	NumEcoRing	NumEcoBin	NumTrophicLevel
HQHabGroupTcrit	Time output at which maximum HQ occurs	year	Integer	2	0	10000					0	NumEcoRing	NumHabGroup	
HQHabTypeTcrit	Time output at which maximum HQ occurs	year	Integer	2	0	10000					0	NumEcoRing	NumHabType	
HQMax	maximum HQ across the site	unitless	Float	1	0	1000000000					0	NumEcoRing		
HQMaxHabGroup	habitat index for the maximum HQ at the site	unitless	Integer	1	0	10					0	NumEcoRing		
HQMaxHabType	habitat type for the maximum HQ at the site	not applicable	String	1							0	NumEcoRing		
HQMaxRec	receptor index for the maximum HQ at the site	unitless	Integer	1	0	66					0	NumEcoRing		
HQMaxRecGroup	receptor group for the maximum HQ at the site	not applicable	String	1							0	NumEcoRing		
HQMaxTcrit	year with maximum HQ across all eco receptors at the site	year	Integer	1	0	10000					0	NumEcoRing		
HQMaxTrophicLevel	trophic level of receptor for the maximum HQ at the site	unitless	Integer	1	0	5					0	NumEcoRing		
HQRecGroupTcrit	Time output at which maximum HQ occurs	year	Integer	2	0	10000					0	NumEcoRing	NumRecGroup	
HQRGHabGroupTcrit	Time output at which maximum HQ occurs	year	Integer	2	0	10000					0	NumRecGroup	NumHabGroup	
HQTLHabGroupTcrit	Time output at which maximum HQ occurs	year	Integer	2	0	10000					0	NumTrophicLevel	NumHabGroup	
HQTrophicLevelTcrit	Time output at which maximum HQ occurs	year	Integer	2	0	10000					0	NumEcoRing	NumTrophicLevel	
NumDistances	Number of distance labels		Integer	0	1	3	3	3	3	Invariant = 3	1			
NumHabType	Number of habitat type labels		Integer	0	1	12	12	12	12	Invariant = 12	1			
NumRecGroup	Number of receptor group labels		Integer	0	1	9	9	9	9	Invariant = 9	1			
NumTrophicLevel	Number of trophic level labels		Integer	0	1	5	5	5	5	Invariant = 5	1			
RecGroupLabel	Labels for Receptor Groups in order (MAMMAL,BIRD,AMPHIBIAN,REPTILE,SOILBIOTA,TERRESTRIALPLANT,AQUATICBIOTA,SEDIMENTBIOTA,AQUATICPLANT)	not applicable	String	1							0	NumRecGroup		
TrophicLevelLabel	Labels for trophic levels (PRODUCERS,T1,T2,T3,COMMUNITIES)	not applicable	String	1							0	NumTrophicLevel		

Table 8-11. Partial List of Internal Variable Descriptions in 3MRA Version 1.0

Internal Variable Index
9 - NumPath**
8 - NumChemMed**
8 - NumAqHabType**
5 - NumCohort**
4 - NumScimByHr**
4 - NumLayer**
3 - WBNNumRchBodyType**
3 - NumRchType**
3 - NumPartEmitSrc**
16 - NumAqBiotaType**
13 - NumAllPath**