Appendix A

Content of Data Groups

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The complete set of input variables required for an execution of the Multimedia Multipathway Simulation Processor (MMSP) is uniquely named and organized into Data Groups. Within a Data Group, each variable is uniquely identified by name and indices. Variable values may be scalar or multi-dimensioned. Scalar variables are accessed by name only. Multi-dimensioned variables are accessed by name and indices (from 1 to 6). Variable data types include integer, real, logical, and character strings.

A.1 Input Data Groups Included in the Site Simulation Files

This subsection enumerates these Data Groups in table format, the variables contained in each, and a description of the indices. The input Data Groups included in the Site Simulation Files (SSF) are described in the following subsections. For a description of the columns in these tables, see Section 2.1 of this document.

A.1.1 HEADER_SSF

Code	**Dimension**	**Data Type**	**Min**
Air	0	String	
Aquatic	0	String	
Aquifer	0	String	
AT	0	String	
CASID	0	String	
ChemCnt	0	Integer	0
Chems	1	String	
COP	0	String	
CPDirectory	0	String	
CW	0	Integer	
CWCnt	0	Integer	0
CWs	1	String	
Date	0	String	
Debug	0	Integer	

Code	Dimension	Data Type	Min
DSP	0	String	
EcoExposure	0	String	
EcoRisk	0	String	
ELP1	0	String	
ELP2	0	String	
Farm	0	String	
GRFDirectory	0	String	
HumanExposure	0	String	
HumanRisk	0	String	
Lake	0	String	
LastCw	0	Logical	
LAU	0	String	
LF	0	String	
Memo	1	String	
MemoCnt	0	Integer	
MetDir	0	String	
MMSP	0	String	
NationDB	0	String	
NewChem	0	Logical	
NewRel	0	Logical	
Permanent	0	String	
PSOFDirectory	0	String	
RealCnt	0	Integer	
Realization	0	Integer	
RegionDB	0	String	
RSOFDirectory	0	String	
SDP	0	String	
Seed	0	Integer	

Code	Dimension	Data Type	Min
SI	0	String	
SiteBasedDB	0	String	
SiteCnt	0	Integer	0
SiteId	0	String	
Sites	1	String	
SiteSurveyDB	0	String	
Source	0	String	
SrcCnt	0	Integer	0
Srcs	1	String	
SSFDirectory	0	String	
StaticNationDB	0	String	
StaticRegionDB	0	String	
StopOnError	0	Integer	
StopOnWarning	0	Integer	
StorageLevel	0	Integer	
Stream	0	String	
Terrestrial	0	String	
Time	0	String	
Vadose	0	String	
WaterShed	0	String	
WP	0	String	

A.1.2. CHEMICAL_SSF

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2
ChemActBioNumProd	1	Integer				Number of products	NumChem	
ChemActBioProdCASID	2	String				Product CASID	NumChem	ChemActBioNumProd
ChemActBioProdName	2	String				Product Name	NumChem	ChemActBioNumProd
ChemActBioProdYield	2	Float	0	5	moles/moles	Product Yeild Coefficient	NumChem	ChemActBioNumProd
ChemActBioRate	1	Float	0	2	1/day	Activated Biodegradation	NumChem	
ChemADiff	1	Float	0	1	cm^2/s	Air Diffusion Coefficient	NumChem	
ChemAerBioNumProd	1	Integer				Number of products	NumChem	
ChemAerBioProdCASID	2	String				Product CASID	NumChem	ChemAerBioNumProd
ChemAerBioProdName	2	String				Product Name	NumChem	ChemAerBioNumProd
ChemAerBioProdYield	2	Float	0	2	moles/moles	Product Yeild Coefficient	NumChem	ChemAerBioNumProd
ChemAerBioRate	1	Float	0	42.5	1/day	Aerobic Biodegradation rate	NumChem	
ChemAnaBioNumProd	1	Integer				Number of products	NumChem	
ChemAnaBioProdCASID	2	String				Product CASID	NumChem	ChemAnaBioNumProd
ChemAnaBioProdName	2	String				Product Name	NumChem	ChemAnaBioNumProd
ChemAnaBioProdYield	2	Float	0	2	moles/moles	Product Yeild Coefficient	NumChem	ChemAnaBioNumProd
ChemAnaBioRate	1	Float	0	2	1/day	Anaerobic Biodegradation	NumChem	
ChemAnaRedNumProd	1	Integer				Number of products	NumChem	
ChemAnaRedProdCASID	2	String				Product CASID	NumChem	ChemAnaRedNumProd
ChemAnaRedProdName	2	String				Product Name	NumChem	ChemAnaRedNumProd
ChemAnaRedProdYield	2	Float	0	2	moles/moles	Product Yeild Coefficient	NumChem	ChemAnaRedNumProd

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2
ChemAnaRedRate	1	Float	0	2	1/day	Anaerobic Reduction	NumChem	
ChemaqmpBCFm	1	float	0	1000000000	L/kg plant tissue	aquatic macrophytes bioconcentration factor (measured)	NumChem	
ChemBa_beef	1	float	0	1	d/g	beef biotransfer factor (dioxins; Hg; metals; special)	NumChem	
ChemBa_milk	1	float	0	1	d/g	milk biotransfer factor (dioxins; Hg; metals; special)	NumChem	
ChemBa_water	1	float	1	1	d/g	biotransfer factor for dissolved contaminant in surface water	NumChem	
ChemBAFbirds_sm	1	Float	0	10000	unitless	bioaccumulation factor in small birds (based on tissue/soil ratio)	NumChem	
ChemBAFherbiverts	1	Float	0	10000	unitless	bioaccumulation factor in larger herbivorous vertebrates (based on tissue/soil ratio)	NumChem	
ChemBAFherp_sm	1	Float	0	10000	unitless	bioaccumulation factor in small herps (based on tissue/soil ratio)	NumChem	
ChemBAFinvert	1	Float	0	10000	unitless	bioaccumulation factor in invertebrates (based on tissue/soil ratio)	NumChem	
ChemBAFmammals_sm	1	Float	0	10000	unitless	bioaccumulation factor in small mammals (based on tissue/soil ratio)	NumChem	
ChemBAFomniverts	1	Float	0	10000	unitless	bioaccumulation factor in larger ominivorous vertebrates (based on tissue/soil ratio)	NumChem	

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2
ChemBAFworms	1	Float	0	10000	unitless	bioaccumulation factor in earthworms (based on tissue/soil ratio)	NumChem	
ChembenthffBAFm	1	float	0	1000000000	L/kg benthos	benthic filter feeders bioaccumulation factor (measured)	NumChem	
ChemBM	1	float	0	100000	mg/kg-d	Factor used in place of RfD when calculating HQ in breast milk	NumChem	
ChemBr_exfruit	1	float	0	10	(µg/g DW plant)/(µg/g soil)	soil-to-plant bioconcentration factor (Hg; metals; special)	NumChem	
ChemBr_exveg	1	float	0	10	(µg/g DW plant)/(µg/g soil)	soil-to-plant bioconcentration factor (Hg; metals; special)	NumChem	
ChemBr_forage	1	float	0	10	(µg/g DW plant)/(µg/g soil)	soil-to-plant bioconcentration factor (Hg; metals; special)	NumChem	
ChemBr_grain	1	float	0	10	(µg/g DW plant)/(µg/g soil)	soil-to-plant bioconcentration factor (Hg; metals; special)	NumChem	
ChemBr_profruit	1	float	0	10	(µg/g DW plant)/(µg/g soil)	soil-to-plant bioconcentration factor (Hg; metals; special)	NumChem	
ChemBr_proveg	1	float	0	10	(µg/g DW plant)/(µg/g soil)	soil-to-plant bioconcentration factor (Hg; metals; special)	NumChem	
ChemBr_root	1	float	0	10	(µg/g DW plant)/(µg/g soil)	soil-to-plant bioconcentration factor (Hg; metals; special)	NumChem	

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2
ChemBr_silage	1	float	0	10	(µg/g DW plant)/(µg/g soil)	soil-to-plant bioconcentration factor (Hg; metals; special)	NumChem	
ChemBreastMilkExp	1	integer	0	1	unitless	Causes breast milk exposure? (1=yes 0=no)	NumChem	
ChemBs	1	float	0	1	fraction	bioavailability fraction of contaminant in soil relative to vegetation	NumChem	
ChemBv_ecf_plant	1	float	1	100	unitless	empirical correction factor for Bv	NumChem	
ChemBv_exfruit	1	float	0	1000000000	(µg/g DW plant)/(µg/g air)	mass-based air-plant biotransfer factor (dioxins; Hg; special)	NumChem	
ChemBv_exveg	1	float	0	10000000	(µg/g DW plant)/(µg/g air)	mass-based air-plant biotransfer factor (dioxins; Hg; special)	NumChem	
ChemBv_forage	1	float	0	1000000000	(µg/g DW plant)/(µg/g air)	mass-based air-plant biotransfer factor (dioxins; Hg; special)	NumChem	
ChemBv_silage	1	float	0	1000000000	(µg/g DW plant)/(µg/g air)	mass-based air-plant biotransfer factor (dioxins; Hg; special)	NumChem	
ChemC_Add	1	integer	0	1	unitless	Cancer additive risk? (1=yes 0=no)	NumChem	
ChemCASID	1	String				CASID	NumChem	
ChemCSCLSedimentRec	2	Float	-999	10000	µg/g	chemical stressor concentration limit for sediment	NumChem	NumReceptor
ChemCSCLSoilRec	2	Float	-999	10000	µg/g	chemical stressor concentration limit for soil (depth averaged)	NumChem	NumReceptor

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2
ChemCSCLWaterDissRec	2	Float	-999	10000	µg/L	dissolved chemical stressor concentration limit for surface water	NumChem	NumReceptor
ChemCSCLWaterTotRec	2	Float	-999	10000	µg/L	total chemical stressor concentration limit for surface water	NumChem	NumReceptor
ChemCSFfood	1	float	0	1000000	(mg/kg-d)-1	Cancer slope factor (food ingestion)	NumChem	
ChemCSFinhal	1	float	0	1000000	(mg/kg-d)-1	Cancer slope factor (inhalation)	NumChem	
ChemCSFwater	1	float	0	1000000	(mg/kg-d)-1	Cancer slope factor (drinking water ingestion)	NumChem	
ChemDen	1	Float	0	10	g/mL	Density	NumChem	
ChemEBRec	2	Float	-999	10000	mg/kg-day	ecological benchmark for receptors that receive ingested doses	NumChem	NumReceptor
ChemEco	1	logical				flag for Ecological Risk Computation	NumChem	
ChemEco	1	logical				flag for Human Risk Computation	NumChem	
Chemfai	1	float			fraction	fraction of ingested contaminant by the infant which is absorbed	NumChem	
ChemFam	1	float	0	1	fraction	Fraction of contaminant ingested by mother that is absorbed	NumChem	
ChemFbl	1	float	0	1	fraction	Fraction of contaminant in whole blood compartment	NumChem	
ChemFf	1	float	0	1	fraction	Fraction of contaminant stored in maternal fat	NumChem	

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2
Chemfoc	0	Float	0	0.4	Fraction	Fraction Organic Content of Medium		
ChemHealthEffect	1	integer	1	3	unitless	1 means Cancengen. 2 means Non-Canrcengin. 3 means both.	NumChem	
ChemHLC	1	Float	0	10	(atm m^3)/mol	Henry's Law Constant	NumChem	
ChemHuman	1	logical				flag for Human Risk Computation	NumChem	
ChemHydNumProd	1	Integer				Number of products	NumChem	
ChemHydProdCASID	2	String				Product CASID	NumChem	ChemCatNumProd
ChemHydProdName	2	String				Product Name	NumChem	ChemCatNumProd
ChemHydProdYield	2	Float	0	2	moles/moles	Product Yeild Coefficient	NumChem	ChemCatNumProd
ChemHydRate	1	Float	0	50	1/day	Catalyzed Hydrolysis	NumChem	
ChemKd	2	Float			L/kg	Partition Coefficient for Med	NumChem	4
ChemKm	1	Float	0	10000	1/day	Metabolic transformation rate in fish	NumChem	
ChemKoc	1	Float	0	1.00E+08	mL/g	Koc	NumChem	
ChemKow	1	Float	0	1.00E+08		Kow	NumChem	
Chemkpm	1	float			unitless	concentration proportionality constant between plasma and breast milk aqueous phase	NumChem	
ChemkpPar_exfruit	1	float	18.07	40.41	1/y	plant surface loss coefficient	NumChem	
ChemkpPar_exveg	1	float	18.07	40.41	1/y	plant surface loss coefficient	NumChem	
ChemkpPar_forage	1	float	18.07	40.41	1/y	plant surface loss coefficient	NumChem	

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2
ChemkpPar_silage	1	float	18.07	40.41	1/y	plant surface loss coefficient	NumChem	
ChemkpVap_exfruit	1	Float	1	180.7	1/y	degradation loss of vapor phase constituents	NumChem	
ChemkpVap_exveg	1	Float	1	180.7	1/y	degradation loss of vapor phase constituents	NumChem	
ChemkpVap_forage	1	Float	1	180.7	1/y	degradation loss of vapor phase constituents	NumChem	
ChemkpVap_silage	1	Float	1	180.7	1/y	degradation loss of vapor phase constituents	NumChem	
ChemKrbc	1	float			unitless	Concentration proportionality constant between red blood cells and plasma	NumChem	
ChemLiqCw	2	Float			mg/L	Liquid Waste Cw's for this chemical	NumChem	ChemNumLiqCw
ChemMed	1	String				Solubility Media (Soil Sediment Surface Water Waste)	4	
ChemMetBioNumProd	1	Integer				Number of products	NumChem	
ChemMetBioProdCASID	2	String				Product CASID	NumChem	ChemMetBioNumProd
ChemMetBioProdName	2	String				Product Name	NumChem	ChemMetBioNumProd
ChemMetBioProdYield	2	Float	0	2	moles/moles	Product Yeild Coefficient	NumChem	ChemMetBioNumProd
ChemMetBioRate	1	Float	0	2	1/day	Anaerobic Biodegradation under Methanogenic Red.	NumChem	
ChemMolWt	1	Float	9	500	g/mole	Molecular weight for the chemical	NumChem	
ChemName	1	String				Chemical Name	NumChem	

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2
ChemName	1	String				Name	NumChem	
ChemNC_Add	1	integer	0	1	unitless	Non-cancer additive risk? (1=yes 0=no)	NumChem	
ChemNumLiqCw	1	Integer	0	5		Number of Liquid Waste Cw's for this chemical	NumChem	
ChemNumSolCw	1	Integer	0	5		Number of Solid Waste Cw's for this chemical	NumChem	
ChemPh	0	Float	0	14	pH units	pH assumed for these properties		
ChemRCF	1	float	0.0001	1000000	(µg/g WW plnt)/(µg/mL sl wat)	root concentration factor (dioxins; Hg; metals; special)	NumChem	
ChemRecName	1	String				Ecological Receptor name	NumReceptor =62	
ChemRfC	1	Float	0	100000	mg/m^3	Reference concentration (inhalation)	NumChem	
ChemRfDfish	1	Float	0	100000	mg/kg-d	Reference dose (fish ingestion)	NumChem	
ChemRfDfood	1	float	0	100000	mg/kg-d	Reference dose (food ingestion)	NumChem	
ChemRfDwater	1	float	0	100000	mg/kg-d	Reference dose (drinking water ingestion)	NumChem	
ChemSMILES	1	String				SMILES notation for the chemical	NumChem	
ChemSO4BioNumProd	1	Integer				Number of products	NumChem	
ChemSO4BioProdCASID	2	String				Product CASID	NumChem	ChemSO4BioNumProd
ChemSO4BioProdName	2	String				Product Name	NumChem	ChemSO4BioNumProd

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2
ChemSO4BioProdYield	2	Float	0	2	moles/moles	Product Yeild Coefficient	NumChem	ChemSO4BioNumProd
ChemSO4BioRate	1	Float	0	2	1/day	Anaerobic Biodegradation under SO4 Red.	NumChem	
ChemSol	2	Float	0	0	mg/L	Solubility for each media	NumChem	8
ChemSolCw	2	Float			µg/g	Solid Waste Cw's for this chemical	NumChem	ChemNumSolCw
Chemt_halfb	1	float			d	Biological half-life of chemical in lactating women	NumChem	
ChemT3fishBAFm	1	float	0	1000000000	L/kg	T3 fish/shellfish bioaccumulation factor (measured)	NumChem	
ChemT3musBAFm	1	Float	0	1000000000	L/kg		NumChem	
ChemT4fishBAFm	1	float	0	1000000000	L/kg	T4 fish bioaccumulation factor (measured)	NumChem	
ChemT4musBAFm	1	Float	0	1000000000	L/kg		NumChem	
ChemTemp	0	Float	0	43	degrees Celsius	Temperature assumed for these properties		
ChemType	1	string				Chemical Type (O; M; Hg; S; D)	NumChem	
ChemVol	1	Float	0	500	mL	Volume	NumChem	
ChemVp	1	Float	0	4000	torr	Vapor Pressure		
ChemWDiff	1	Float	0	1.00E-02	cm^2/s	Water Diffusion Coefficient	NumChem	
NumChem	0	Integer				Number of chemicals described		

A.1.3. SITE_LAYOUT_SSF

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
AirLocX	1	Float	-100000	100000	m	Easting in Site Coordinate System	NumAir		
AirLocY	1	Float	-100000	100000	m	Northing in Site Coordinate System	NumAir		
AirTemp	0	Float	0	35	degrees Celsius	Long-Term Average Air Temperature			
AquDir	1	Float	0	360	degrees	Groundwater flow direction in degrees from North	NumAqu		
AquFEOX	0	Float	0.000064	0.00607	fraction	Fraction Iron-Hydroxide Adsorbent			
AquGrad	1	Float	0	100		regional groundwater gradient	NumAqu		
AquId	1	String				Environmental Setting Id for Aquifer	NumAqu		
AquLOM	0	Float	105	1156	mg/L	Leachate organic matter			
AquLWSIndex	1	Integer	0	5		Local watershed index for aquifer	NumAqu		
AquLWSSubArea Index	1	Integer	0	3		LWS subarea index for aquifer	NumAqu		
AquPh	0	Float	3	10	pH units	Average Aquifer pH			
AquSATK	1	Float	0.00000001	30000000	m/yr	saturated hydraulic conductivity (aquifer)	NumAqu		
AquTemp	0	Float	0	35	degrees Celsius	Average Aquifer Temperature			
AquThick	1	Float	0	1000	m	saturated zone thickness	NumAqu		

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
AquVadIndex	1	Integer	0	5		Index of vadose zone per aquifer	NumAqu		
AquWellFracZ	1	Float	0.01	0.99	Fraction	location of well screen as a fraction of aquifer depth	NumAquWell		
AquWellLocX	1	Float	-100000	100000	m	Easting in Site Coordinate System	NumAquWell		
AquWellLocY	1	Float	-100000	100000	m	Northing in Site Coordinate System	NumAquWell		
AquWSSubIndex	1	Integer	1	100		index of watershed for each aquifer	NumAqu		
ATIndex	0	integer	1	1872		uniform distribution needed to select AT index for national tank data			
BinRange_Min_C	1	Float	0	1	unitless	Minimum values of bins for human risk -- cancer	NumBinC		
BinRange_Min_NC	1	Float	0	1000000	unitless	Minimum values of bins for human risk -- HQ	NumBinNC		
EcoBinRange_Min	1	Float	0	1000000	unitless	Minimum values of bins for eco risk HQ	NumEcoBin		
EcoRingHabIndex	2	Integer	0	25	unitless	index of habitat contained within eco ring (1 = 0 - 1km; 2 = 1 - 2 km)	NumEcoRing	EcoRingNum Hab	
EcoRingNumHab	1	Integer	0	25	unitless	number of habitats contained within each eco ring	NumEcoRing		
FarmAirFrac	2	Float	0	1	fraction	Fraction of farm or crop area impacted by air points	NumFarm	FarmNumAir	

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
FarmAirIndex	2	Integer	0	10000		Index of air points that impacts farm or crop area	NumFarm	FarmNumAir	
FarmAquIndex	2	Integer	0	100		Index of aquifer that impacts farm or crop area	NumFarm	FarmNumAquWell	
FarmAquWellFrac	2	Float	0	1	fraction	Fraction farm uses aquifer well as animal DW source	NumFarm	FarmNumAquWell	
FarmAquWellIndex	2	Integer	0	500		Index of aquifer well that impacts farm or crop area	NumFarm	FarmNumAquWell	
FarmArea	1	Float	0	25000000	m^2	Area of farm	NumFarm		
FarmBlockGroup	1	String			unitless	Census block group associated with farm	NumFarm		
FarmLWSIndex	2	Integer	0	10	not applicable	local watershed indices associated with each farm	NumFarm	FarmNumLWSSubArea	
FarmLWSSubAreaFrac	2	Float	0	1	fraction	fraction of contribution of subarea to farm	NumFarm	FarmNumLWSSubArea	
FarmLWSSubAreaIndex	2	Integer	0	10	not applicable	index of contributing subarea in local watershed indices associated with each farm	NumFarm	FarmNumLWSSubArea	
FarmNumAir	1	Integer	0	10000		Number of air points that impact farm or crop area	NumFarm		
FarmNumAquWell	1	Integer	0	100		Number of wells in each aquifer impacting farm	NumFarm		
FarmNumLWS	1	integer	0	5		Number of local watersheds impacting farm or crop area	NumFarm		
FarmNumLWSSubArea	1	Integer	0	10	not applicable	contributing subarea in local watershed indices associated with each farm	NumFarm		

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
FarmNumWBNRch	1	Integer	0	100		Number of WBN reach that impact farm or crop area	NumFarm		
FarmNumWSSub	1	Integer	1	100	unitless	Number of watersheds that impact farm or crop area	NumFarm		
FarmPh	0	Float	4	9	pH units	Average Farm Foodchain pH			
FarmPopulation	3	float	0	10000	unitless	population of a farm	NumFarm	FarmRcpType	Age
FarmRcpType	1	String				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.	NumFarmRcp Type		
FarmTemp	0	Float	0	35	degrees Celsius	Average Farm Foodchain Temperature			
FarmWBNIndex	1	Integer	0	50		Index of WBN that impacts farm or crop area	NumFarm		
FarmWBNRchFrac	2	Float	0	1	fraction	Fraction of farm or crop area impacted by WBN reach	NumFarm	FarmNumWBN Rch	
FarmWBNRchIndex	2	Integer	0	50		Index of WBN reach that impacts farm or crop area	NumFarm	FarmNumWBN Rch	
FarmWSSubFrac	2	Float	0	1	unitless	Fraction of each watershed on farm	NumFarm	FarmNumWS Sub	
FarmWSSubIndex	2	Integer	1	100	not applicable	Index of watersheds that impact farm or crop area	NumFarm	FarmNumWS Sub	
focS	1	float	0.0001	1	mass fraction	fraction organic carbon (soil)	NumWSSub		

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
GWCLass	0	String				Hydrogeologic setting (GWClass1 - GWClass13)			
GWClassIndex	0	integer	1	62	unitless	count of rows being passed for aquifer GWClass data			
HabArea	1	Float	1	1000000000	m^2	area of habitat	NumHab		
HabGroup	1	String			not applicable	Group in which habitat type is attributed: 1 = terrestrial 2 = aquatic 3 = wetland	NumHabGroup		
HabIndex	1	Integer	1	12	unitless	index of habitat type	NumHab		
HabNumRange	1	Integer	1	50	unitless	number of ranges per habitat	NumHab		
HabNumWBNRch	1	Integer	0	50	unitless	Number of WBN reaches that impact habitat range	NumHab		
HabRangeAirFrac	3	Float	0	1	fraction	Fraction of habitat range impacted by air points	NumHab	HabNumRange	HabRangeNum Air
HabRangeAirIndex	3	Integer	0	10000	unitless	Index of air points that impacts habitat range	NumHab	HabNumRange	HabRangeNum Air
HabRangeAreaFrac	2	Float	0	1	fraction	fraction of range that falls within habitat	NumHab	HabNumRange	
HabRangeFishWBN Index	3	Integer	0	50	unitless	index of WBN containing fishable reaches that impact habitat range	NumHab	HabNumRange	HrangeNum FishWBNRch
HabRangeLWSIndex	3	Integer	0	10	unitless	local watershed indices associated with each habitat range	NumHab	HabNumRange	HabRangeNum LWSSubA
HabRangeLWSSubA Frac	3	Float	0	1	fraction	fraction of contributing LWS subarea	NumHab	HabNumRange	HabRangeNum LWSSubA

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
HabRangeLWSSubA Index	3	Integer	0	10	unitless	index of contributing subarea in local watershed indices associated with each habitat range	NumHab	HabNumRange	HabRangeNum LWSSubA
HabRangeNumAir	2	Integer	0	10000	unitless	Number of air points per habitat range	NumHab	HabNumRange	
HabRangeNumLWS SubA	2	Integer	0	10	unitless	contributing subarea in local watershed indices associated with each habitat range	NumHab	HabNumRange	
HabRangeNumSISrc	2	Integer	0	1	unitless	number of surface impoundments that intersect habitat range	NumHab	HabNumRange	
HabRangeNumWBN Rch	2	Integer	0	50	unitless	Number of WBN reaches found within habitat range	NumHab	HabNumRange	
HabRangeNumWS Sub	2	Integer	0	100	unitless	Number of watersheds that impact habitat range	NumHab	HabNumRange	
HabRangeRecIndex	2	Integer	1	66	unitless	receptor index associated with each habitat range (a single receptor)	NumHab	HabNumRange	
HabRangeRecType	1	String			not applicable	type of receptor (e.g. herbivert omnivert small mammal small bird)	HabRangeRec Index		
HabRangeWBN Index	3	Integer	0	50	unitless	Index of WBN that impacts habitat range	NumHab	HabNumRange	HabRangeNum WBNRch
HabRangeWBNRch Index	3	Integer	0	50	unitless	Index of WBN reaches that impact habitat range	NumHab	HabNumRange	HabRangeNum WBNRch
HabRangeWSSub Frac	3	Float	0	1	fraction	Fraction of habitat range impacted by watershed	NumHab	HabNumRange	HabRangeNum WSSub

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
HabRangeWSSub Index	3	Integer	0	100	unitless	Index of watershed that impacts habitat range	NumHab	HabNumRange	HabRangeNum WSSub
HabType	1	String			not applicable	Type of representative habitat (e.g. grassland pond wetland)	NumHab		
HabWBNIndex	2	Integer	0	50	unitless	Index of WBN that impacts habitat range	NumHab	HabNumWBN Rch	
HabWBNRchFrac	2	Float	0	1	fraction	Fraction of habitat range impacted by aquatic	NumHab	HabNumWBN Rch	
HabWBNRchIndex	2	Integer	0	50	unitless	Index of WBN reaches that impact habitat	NumHab	HabNumWBN Rch	
HrangeFishWBN RchInde	3	Integer	0	50	unitless	Index of WBN fishable reaches that impact habitat range	NumHab	HabNumRange	HrangeNum FishWBNRch
HrangeNumFish WBNRch	2	Integer	0	50	unitless	Number of fishable reaches that cross habitat range	NumHab	HabNumRange	
HumRcpAirIndex	1	Integer	0	10000		Index of air points that impact receptor	NumHumRcp		
HumRcpAquIndex	1	Integer	0	100	unitless	Index of aquifer that impacts receptor	NumHumRcp		
HumRcpAquWell Frac	1	Float	0	1		Fraction of HumRcp drinking from wells	NumHumRcp		
HumRcpAquWell Index	1	Integer	0	500	unitless	Index of well that impacts receptor for the given aquifer	NumHumRcp		
HumRcpLWSIndex	1	Integer	0	10	not applicable	local watershed index for each human receptor	NumHumRcp		
HumRcpLWSSub AreaInde	1	Integer	0	10	not applicable	local watershed subarea index for each human receptor	NumHumRcp		

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
HumRcpPh	0	Float	3	10	pH units	Average shower water pH			
HumRcpPopulation	3	float	0	10000	unitless	population of a HumRcp	NumHumRcp	HumRcpType	Age
HumRcpTemp	0	Float	0	50	degrees Celsius	Typical shower temperature			
HumRcpType	1	String				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.	NumHumRcp Type		
HumRcpWSSub Index	1	Integer	1	100	not applicable	Index of watershed that impacts receptor	NumHumRcp		
HydroGroup	0	string				hydrologic soil group needed to select correct correlation by hydrologic soil group			
HydrologicRegion	0	String				USGS Hydrologic Region (USGSHydro1 - USGSHydro20)			
MaxSrcArea	0	float	0	100000000	m^2	Maximum tank area (= SI SrcArea for AT null for other sources)			
MetSta	0	String				Met. Station identifier (<MetSta>L.dat <MetSta>A.dat <MetSta>M.dat <MetSta>D.dat <MetSta>H.dat)			
NumAir	0	Integer	0	10000		Number of Air Points			
NumAqu	0	Integer	0	5		Number of aquifers			

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
NumAquWell	0	Integer	0	500		Number of drinking water wells			
NumBinC	0	Integer	0	20	unitless	Number of Bins for human -- Carcinogen			
NumBinNC	0	Integer	0	20	unitless	Number of Bins for human -- nonCarcinogen			
NumEcoBin	0	Integer	0	5	unitless	Number of bins for eco -- noncarcinogen			
NumEcoRing	0	Integer	1	3	unitless	number of eco rings			
NumFarm	0	Integer	0	100		Number of farm or crop areas			
NumFarmRcpType	0	Integer	1	10		Number of farmer receptor types			
NumHab	0	Integer	0	25	unitless	number of habitats selected for site simulation			
NumHabGroup	0	Integer	1	3	unitless	Number of general groups into which habitat types are placed			
NumHabType	0	Integer	1	12	unitless	Number of habitat types represented at the site			
NumHumRcp	0	Integer	1	10000	unitless	Number of human receptor points at a site			
NumHumRcpType	0	Integer	1	10		Number of human receptor types			
NumReceptor	0	Integer	1	66	unitless	Complete receptor list across all habitat types			

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
NumRecGroup	0	Integer	1	9	unitless	Total receptor groups considered (terrestrial plants; aquatic plants; mammals; birds; amphibians; reptiles; soil biota; sediment biota; aquatic biota)			
NumRing	0	Integer	0	100		number of rings at site			
NumTrophicLevel	0	Integer	1	5	unitless	Number of possible trophic levels			
NumVad	0	Integer	0	5		Number of vadose zones			
NumWBN	0	Integer	0	50		Number of waterbody networks			
NumWSSub	0	Integer	1	100		Number of watershed sub basins			
NyrMax	0	Integer	1	10000	years	Maximum model simulation time			
ReceptorIndex	1	Integer	1	66	unitless	Indices assigned to each receptor	NumReceptor		
ReceptorName	1	String			not applicable	Name of receptor (e.g. red-tailed hawk)	NumReceptor		
ReceptorType	1	String			not applicable	Description of receptor (e.g. predator omnivert herbivert etc.)	NumReceptor		
RecGroup	1	String			not applicable	The general receptor groups (e.g. mammals birds amphibians reptiles soil biota terrestrial plants aquatic biota sediment biota aquatic plants)	NumReceptor		
RecTrophicLevel	1	String			not applicable	Trophic level into which each receptor falls	NumReceptor		

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
RingDistance	1	Float	0	2000	m	Distance of ring from source edge	NumRing		
RingFarmFrac	2	Float	0	1	fraction	fraction of a farm in a ring	NumRing	RingNumFarm	
RingFarmIndex	2	Integer	0	100	unitless	Index of a farm in a ring	NumRing	RingNumFarm	
RingHumRcpIndex	2	Integer	0	10000	unitless	Index of a HumRcp in a ring	NumRing	RingNumHum Rcp	
RingNumFarm	1	Integer	0	100	unitless	Number of farms in a ring	NumRing		
RingNumHumRcp	1	Integer	0	1000	unitless	Num of HumRcp locations in a ring	NumRing		
SettingID	0	String				SettingID (SrcType+SiteID)			
SiteGeoRefX	0	Float			m	Easting in UTM (facility centroid)			
SiteGeoRefY	0	Float			m	Northing in UTM (facility centroid)			
SiteLatitude	0	Float	-90	90	degrees				
SiteLongitude	0	Float	-180	180	degrees				
SiteSeed	0	Integer				Random seed for each site			
SiteUTMZone	0	Integer	0	20		UTM Zone of SiteGeoRef			
SoilType	0	string				soil type for site needed to select correct correlation by soil type			
SrcArea	0	Float	0.01	100000000	m^2	Area of source			
SrcDepth	0	Float	0	50	m	Depth of source (0 for AT WP)			
SrcId	0	String				Environmental Setting Id for Source			

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
SrcLocX	0	Float	-100000	100000	m	Easting in Site Coordinate System (0)			
SrcLocY	0	Float	-100000	100000	m	Northing in Site Coordinate System (0)			
SrcLWSNumSub Area	1	Integer	0	10		Number of local watershed subareas	SrcNumLWS		
SrcLWSSubArea Area	2	Float	1	100000000	m^2	Area of LWS SubArea	SrcNumLWS	SrcLWSNum SubArea	
SrcLWSSubArea Index	1	Integer	0	10	unitless	local watershed subarea containing WMU	SrcNumLWS		
SrcNumLWS	0	Integer	0	10		Number of local watersheds			
SrcPh	0	Float	0	14	pH units	Average Waste/Source pH			
SrcTemp	0	Float	0	70	degrees Celsius	Average Waste/Source Temperature			
SrcType	0	String				One of {LAU LF WP AT SI}			
TermFrac	0	Float	0	1	fraction	Peak output fraction for simulation termination			
VadALPHA	0	float	0	0.3	1/cm	soil retention parameter alpha (subsoil)			
VadBETA	0	float	0	5	unitless	soil retention parameter beta (subsoil)			
VadID	1	String				Environmental Setting Id for Aquifer	NumVad		
VadLWSIndex	1	Integer	1	10		LWS Index for vadose zone	NumVad		
VadPh	0	Float	4	9	pH units	Average Vadose Zone pH			

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
VadSATK	0	float	0.00000001	1000000	cm/hr	saturated hydraulic conductivity (subsoil)			
VadTemp	0	Float	0	35	degrees Celsius	Average Vadose Zone Temperature			
VadThick	1	Float	0	1000	m	Vadose zone thickness	NumVad		
VadWCR	0	float	0	1	L/L	residual water content			
VadWCS	0	float	0	1	L/L	saturated water content (subsoil)			
WBNDOC	1	float	0	50	mg/L	DOC of stream	lake	and wetland reaches in waterbody network	3
WBNFishableRch Index	2	Integer	0	50	unitless	index of reaches that are fishable	NumWBN	WBNNum FishableRch	
WBNfocAbS	0	Float	0	0.5	Fraction	fraction organic carbon of abiotic solids in water column			
WBNfocBioS	0	Float	0.2	1	fraction	fraction organic carbon of biotic solids in water column			
WBNfocSed	1	Float	0	0.5	Fraction	fraction organic carbon in sediments of stream	lake	and wetland reaches	3
WBNId	1	Integer	0	100		Environmental Setting Id for WBN	NumWBN		
WBNNumFishable Rch	1	Integer	0	50	unitless	number of fishable reaches	NumWBN		
WBNNumRch	1	Integer	1	50		Number of reaches for this network	NumWBN		

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
WBNpH	1	float	4	9.5	PH units	pH of stream	lake	and wetland reaches in the waterbody network	3
WBNRchAirFrac	3	Float	0	1	fraction	Fraction of this reach impacted by air point	NumWBN	WBNNumRch	WBNRchNumAir
WBNRchAirIndex	3	Integer	1	10000		Index of air point that impacts this reach	NumWBN	WBNNumRch	WBNRchNumAir
WBNRchAquFrac	3	Float	0	1	fraction	Fraction of this reach impacted by the aquifer	NumWBN	WBNNumRch	WBNRchNumAqu
WBNRchAquIndex	3	Integer	0	5		Index of aquifer that impacts this reach	NumWBN	WBNNumRch	WBNRchNumAqu
WBNRchArea	2	float	0	1000000000	m^2	reach surface area (nonstream reaches)	NumWBN	WBNNumRch	
WBNRchBodyType	2	String				Type of waterbody (Stream Lake Wetland)	NumWBN	WBNNumRch	
WBNRchHypoAreaFrac	2	float	0	1	fraction	fraction of total surface area for hypolimnion	NumWBN	WBNNumRch	
WBNRchLength	2	Float	0	10000	m	Reach Length	NumWBN	WBNNumRch	
WBNRchLocX	3	Float	-100000	100000	m	Easting in Site Coordinate System	NumWBN	WBNNumRch	WBNRchNumLoc
WBNRchLocY	3	Float	-100000	100000	m	Northing in Site Coordinate System	NumWBN	WBNNumRch	WBNRchNumLoc
WBNRchNumAir	2	Integer	0	10000		Number of points that impact this reach	NumWBN	WBNNumRch	
WBNRchNumAqu	2	Integer	0	2		Number of aquifer that impact this reach	NumWBN	WBNNumRch	

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
WBNRchNumLoc	2	Integer	1	1000	unitless	number of x	y points associated with watershed	NumWBN	WBNNumRch
WBNRchNumRch	2	Integer	0	15		Number of reaches that impact this reach	NumWBN	WBNNumRch	
WBNRchNumWS Sub	2	Integer	0	15		Number of watersheds that impacts this reach	NumWBN	WBNNumRch	
WBNRchOrder	2	Integer	1	10	unitless	stream order	NumWBN	WBNNumRch	
WBNRchRchFrac	3	Float	0	1	fraction	Fraction of this reach impacted by another reach	NumWBN	WBNNumRch	WBNRchNum Rch
WBNRchRchIndex	3	Integer	0	50		Index of reach that impacts this reach	NumWBN	WBNNumRch	WBNRchNum Rch
WBNRchSrcLWS Frac	2	float	0	1	fraction	fraction of waterbody network reach impacted by the source local watershed	NumWBN	WBNNumRch	
WBNRchSrcLWS Index	2	integer	0	10		index of local watershed from source	NumWBN	WBNNumRch	
WBNRchType	2	String				Type of reach (Headwater exiting other)	NumWBN	WBNNumRch	
WBNRchWSSub Frac	3	Float	0	1	fraction	Fraction of this reach impacted by watershed	NumWBN	WBNNumRch	WBNRchNum WSSub
WBNRchWSSub Index	3	Integer	0	50		Index of watershed that impacts this reach	NumWBN	WBNNumRch	WBNRchNum WSSub
WBNTemp	1	float	0	35	degrees Celsius	median temperature of stream	lake	and wetland reaches in waterbody network	3

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
WBNTempMax	1	float	0	45	degrees Celsius	maximum temperature of stream	lake	and wetland reaches in waterbody network	3
WBNTOC	1	float	0	100	mg/L	TOC of stream	lake and wetland reaches in waterbody network	3	
WBNTSS	1	float	0	1000	mg/L	TSS of stream	lake and wetland reaches in waterbody network	3	
WBNWaterHardness	1	Float	5	3000	mg $CaCO_3$ eq/L	water hardness	3		
WSPh	0	Float	4	9	pH units	Watershed soil pH			
WSSubAirFrac	2	Float	0	1	fraction	Fraction of WSSub represented by air points	NumWSSub	WSSubNumAir	
WSSubAirIndex	2	Integer	1	10000		Index of air point that represents subasin	NumWSSub	WSSubNumAir	
WSSubArea	1	Float	0	10000000000	m^2	Area of subasin	NumWSSub		
WSSubNumAir	1	Integer	1	10000		Number of air points that represent subasin	NumWSSub		
WSSubNumSubArea	1	Integer	1	9		Number of watershed subbasin subareas (= 1)	NumWSSub		
WSTemp	0	Float	0	35	degrees Celsius	Average Watershed Temperature			

A.1.4 AIR_SSF

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2
AirData	0	STRING				Required by ISC		
AirSplineAngle	1	FLOAT	0	360	degrees	Angles used in polar mesh.	NumAirSpline Angle	
AirSplineDistance	1	FLOAT	0	2000	m	Radial distances of polar mesh	NumAirSpline Dist	
AnemHght	0	FLOAT	0	1000	m	Required by ISC		
ArrayLen	0	INTEGER	0	5	unitless	Required by ISC		
DryDpStr	0	STRING				Required by ISC		
IceScav	0	FLOAT	0	1000000	h/s-mm	Required by ISC		
LiqScav	0	FLOAT	0	1000000	h/s-mm	Required by ISC		
MASSFRAX	2	FLOAT	0	10	fraction	Required by ISC	3 (LAU WP LF)	ArrayLen (4)
MASSFRAXOption	0	logical				flag for internal calculation of PMF (true) or (false) read from ar.ssf		
NumAirSplineAngle	0	INTEGER	0	72	unitless	Number of angles used to construct the polar mesh used to construct the spline		
NumAirSplineDist	0	INTEGER	0	50	unitless	Number of distances used to construct the polar mesh used to construct the spline		
PARTDIAM	1	FLOAT	0	50	μm	Required by ISC	ArrayLen	
PARTSICE	1	FLOAT	0	10	h/s-mm	Required by ISC	ArrayLen	
PARTSLIQ	1	FLOAT	0	10	h/s-mm	Required by ISC	ArrayLen	
RuralStr	0	STRING				Required by ISC		

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2
SCIMBYHR	1	INTEGER	0	1000	unitless	Required by ISC	4	
ScimStr	0	STRING				Required by ISC		
SHight	0	FLOAT	0	1000	m	Required by ISC		
SplineOption	0	INTEGER	0	1	unitless	0=no spline; 1 = spline		
StartYr	0	String				Required by ISC		
SurfData	0	STRING				Required by ISC		
WetDpStr	0	STRING				Required by ISC		

A.1.5 VADOSE_ZONE_SSF

Code	Dimension	Data Type	Min	Max	Units	Desc
DISPR	0	Float	0.001	22.02	M	Longitudinal Dispersivity
POM	0	Float	0	100	g/g	Percent Organic Matter
RHOB	0	Float	0	25	g/cm^3	Bulk Density of Soil

A.1.6 SATURATED_ZONE_SSF

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1
AL	0	Float	0	1000	m	Longitudinal dispersivity	
ALATRatio	0	Float	0	1000	m	Horizontal Transverse dispersivity	
ALAVRatio	0	Float	0	1000	m	Vertical Transverse dispersivity	
ANIST	0	Float	0	1000		Anisotropy ratio	
AquAnaBioRandUnif	0	Integer	0	1		Uniformly distributed random number used to choose the anaerobic biodegradation regime: 0=methanogenic; 1= sulfate reducing	
AquDoFracture	0	Logical				Logical flag to turn fractures on or off	
AquDoHetero	0	Logical				Logical flag to turn heterogeneity on or off	
AquFractureID	0	Integer	0	3		Indicator for degree of fracturing of saturated porous media	
AquRandFractUnif	0	Float	0	1		Uniformly distributed random number-used when AquDoFracture==TRUE	
AquRandHeteroNorm	1	Float	-3	3		Normally distributed random numbers with 0 mean and std of 1-used when AquDoHetero==TRUE	NumAquWell
AquRandHeteroUnif	0	Float	0	1		Uniformly distributed random number-used when AquDoHetero==TRUE	
BDENS	0	Float	0	100	g/cm^3	Bulk Density of soil	
FOC	0	Float	0	1	fraction	Fraction Organic Carbon	
POR	0	Float	0	1		Effective Porosity	

A.1.7 WATERSHED_SSF

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2
a_BF	0	float	0	1000	m/d	regression coefficient a for baseflow model		
b_BF	0	float	0	10	unitless	regression coefficient b for baseflow model		
bcm	0	float	0	1	unitless	boundary condition multiplier (lower boundary)		
C	1	float	0	1	unitless	USLE cover factor	NumWSSub	
CN	1	float	0	100	unitless	SCS curve number	NumWSSub	
ConVs	0	float	0	10	m/d	settling velocity (suspended solids)		
deltDiv	0	integer	1	10	unitless	time step divider (for debugging)		
DRZ	1	float	0	1000	cm	depth (root zone)	NumWSSub	
Infild	0	float	0	100	m/d	input infiltration rate (for debugging)		
K	1	float	0	1	kg/m^2	USLE erodibility factor	NumWSSub	
Ksat	1	float	0.00000001	1000000	cm/h	saturated hydraulic conductivity (soil)	NumWSSub	
P	1	float	0	1	unitless	USLE erosion control factor (watershed j)	NumWSSub	
RunID	0	string				run identification label (optional)		
SMb	1	float	0	12	unitless	soil moisture coefficient b	NumWSSub	
SMFC	2	float	0	100	volume %	soil moisture field capacity	NumWSSub	nlayer
SMWP	2	float	0	100	volume %	soil moisture wilting point	NumWSSub	nlayer
Theta	1	float	0	75	degrees	slope (watershed)	NumWSSub	
thetawZ1d	0	float	0	1	volume fraction	input volumetric water content in till zone (for debugging)		

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2
WCS	1	float	0	1	volume fraction	saturated water content (total porosity)	NumWSSub	
X	1	float	0	50000	m	flow length (watershed)	NumWSSub	
zava	0	float	0	10	m	averaging depth upper (depth averaged soil concentration)		
zavb	0	float	0.01	100	m	averaging depth lower (depth averaged soil concentration)		
zZ1sa	0	float	0.01	1	m	depth (modeled soil column)		

A.1.8 SURFACE_WATER_SSF

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
ahyd_d	0	FLOAT	0	10	m	hydraulic coeff depth multiplier			
ahyd_W	0	FLOAT	0	100	m	hydraulic coeff width multiplier			
bhyd_d	0	FLOAT	0	1		hydraulic coeff depth exponent			
bhyd_W	0	FLOAT	0	1		hydraulic coeff width exponent			
C_upstream	1	FLOAT	0	100	mg/L	upstream chemical concentration	NumChem		
d_epil	2	FLOAT	0	5	m	depth of epilimnion	WBN	NumRch	!min of 0.1 checked in sw module
d_hypol	2	FLOAT	0	20	m	depth of hypolimnion	WBN	NumRch	!min of 1 checked in sw module
d_pond	2	float	0	3	m	depth of pond	WBN	NumRch	!min of 0.5 checked in sw module

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
d_wtlnd	2	float	0	2	m	depth of wetland	WBN	NumRch	!min of 0.05 checked in sw module
DepthBenthos	1	float	1	10	cm	surficial sediment layer depth	NumRchType		
DepthSedRes	1	float	10	30	cm	underlying sediment layer depth	NumRchType		
E_sw	1	float	0	1.00E-04	cm^2/sec	sediment-water column diffusion coefficient	NumRchType		
E_thermocline	0	FLOAT	0	0.01	cm^2/sec	thermocline diffusion coefficient			
k_PlankCMin	0	FLOAT	0	1	Yr^{-1}	Plankton carbon mineralization rate constant			
k_SedG2	0	FLOAT	0	0.6	Yr^{-1}	Sediment mineralization rate constant G2 fraction			
k_SedG3	0	FLOAT	0	0.1	Yr^{-1}	Sediment mineralization rate constant G3 fraction			
porBenthos	1	FLOAT	0.2	0.99	Lw/L	surficial sediment layer porosity	NumRchType		
porSedRes	1	FLOAT	0.1	0.9	Lw/L	underlying sediment layer porosity	NumRchType		
Q_upstream	2	FLOAT	0	1.00E+10	m^3/day	upstream flow	WBN	NumRch	
rhoDBenthos	1	FLOAT	0.03	2.2	G/mL	surficial sediment layer dry bulk density	NumRchType		
rhoDSedRes	1	FLOAT	0.3	2.5	G/mL	underlying sediment layer dry bulk density	NumRcType		
S_upstream	0	FLOAT	0	1000	mg/L	upstream suspended solids concentration			
TrophicIndex	1	INTEGER	1	7		trophic index	NumRchType		
v_bury	1	FLOAT	0	1000	mm/yr	underlying sediment layer burial rate	NumRchType		

A.1.9 AQUATIC_FOODCHAIN_SSF

Code	Dim	Data Type	Min	Max	Units	Desc
a_fish	0	float	0.7	0.78	Unitless	model slope of BCF regression equation across all tissues in fish
a_mus	0	float	0.63	1.21	Unitless	model slope of BCF regression equation for muscle tissue in fish
b_fish	0	float	0.94	1.06	Unitless	model intercept of BCF regression equation across all tissues in fish
b_mus	0	float	0.28	1.24	Unitless	model intercept of BCF regression equation for muscle tissue in fish
BiotaTypeIndex	2	Integer	0	1	unitless	index of biota
BwFish	2	Float	-999	35	kg	fish body weight
c_fish	0	float	0.58	0.86	Unitless	error term in BCF regression equation across all tissues in fish
c_mus	0	float	0.28	1.24	Unitless	error term in BCF regression equation for muscle tissue in fish
FiletFrac	1	Float	0	1	unitless	fraction of fish that is filet
FishWaterFrac	0	float	0.61	0.77	Unitless	water fraction across all tissues of fish
LipFrac	2	Float	-999	1	unitless	lipid fraction
LipFracMus	2	Float	0	1	unitless	lipid fraction in fish muscle (filet)
MaxPreyPref	3	Float	-999	1	unitless	maximum dietary preference for items in the AqFW
MinPreyPref	3	Float	-999	1	unitless	minimum dietary preference for items in the AqFW
MusWaterFrac	0	float	0.6	0.9	Unitless	water fraction in muscle (filet) of fish
NumBiotaTypes	1	Integer	1	20	unitless	number of biota types in a given AqFW
rho_lip	0	float	1	1	kg/L	density (organic carbon)
rho_OC	0	float	1	1	kg/L	density (lipids)
T3EdibleFish	2	Integer	0	1	unitless	edible T3 fish for human consumption

Code	Dim	Data Type	Min	Max	Units	Desc
T3NumEdibleFish	1	Integer	0	5	unitless	number of edible T3 fish in AqFW
T3NumFish	1	Integer	1	5	fish	number of T3 fish in AqFW

A.1.10 TERRESTRIAL_FOODCHAIN_SSF

Code	Dim	Data Type	Min	Max	Units	Description
Bv_ecf_plant	0	Float	100	100	unitless	empirical correction factor for Bv
Fw_exfruit	0	Float	0.6	0.6	Unitless	fraction of wet deposition that adheres to plant
Fw_exveg	0	Float	0.6	0.6	Unitless	fraction of wet deposition that adheres to plant
Fw_forage	0	Float	0.6	0.6	Unitless	fraction of wet deposition that adheres to plant
Fw_silage	0	Float	0.6	0.6	Unitless	fraction of wet deposition that adheres to plant
MAFexfruit	0	Float	85	85	percent	moisture adjustment factor to convert DW into WW for exposed above-ground fruits
MAFexveg	0	Float	92	92	percent	moisture adjustment factor to convert DW into WW for above-ground vegetables
MAFforage	0	Float	92	92	percent	moisture adjustment factor to convert DW into WW for forage
MAFgrain	0	Float	90	90	percent	moisture adjustment factor to convert DW into WW for grain (analogy to profruit)
MAFleaf	0	Float	85	85	unitless	moisture adjustment factor for wet leaf
MAFroot	0	Float	87	87	percent	moisture adjustment factor to convert DW into WW for root vegetables
MAFsilage	0	Float	92	92	percent	moisture adjustment factor to convert DW into WW for silage
rho_leaf	0	Float	770	770	g/L FW	leaf density
Rp_exfruit	0	Float	0.052	0.052	unitless	interception fraction
Rp_exveg	0	Float	0.05	0.05	Unitless	interception fraction

Code	Dim	Data Type	Min	Max	Units	Description
Rp_forage	0	Float	0.47	0.47	Unitless	interception fraction
Rp_silage	0	Float	0.44	0.44	Unitless	interception fraction
tp_exfruit	0	Float	0.123	0.123	y	length of plant exposure to deposition
tp_exveg	0	Float	0.123	0.123	y	length of plant exposure to deposition
tp_forage	0	Float	0.12	0.12	Y	length of plant exposure to deposition
tp_silage	0	Float	0.16	0.16	Y	length of plant exposure to deposition
VapDdv	0	Float	1	1	cm/sec	vapor phase dry deposition velocity
VGag_exfruit	0	Float	0.01	0.01	Unitless	empirical correction factor
VGag_exveg	0	Float	0.01	0.01	Unitless	empirical correction factor
VGag_forage	0	Float	1	1	unitless	empirical correction factor
VGag_silage	0	Float	0.5	0.5	Unitless	empirical correction factor
VGbg_root	0	Float	0.01	0.01	Unitless	empirical correction factor
Yp_exfruit	0	Float	0.09	0.09	Kg DW/m^2	crop yield
Yp_exveg	0	Float	0.18	0.18	Kg DW/m^2	crop yield
Yp_forage	0	Float	0.31	0.31	Kg DW/m^2	crop yield
Yp_silage	0	Float	0.31	0.31	Kg DW/m^2	crop yield

A.1.11 FARM_FOODCHAIN_SSF

Code	Dim	Data Type	Min	Max	Units	Desc
Fforage_beef	0	FLOAT	1	1	fraction	fraction of forage grown in contaminated soil (beef cattle)
Fforage_dairy	0	FLOAT	1	1	fraction	fraction of forage grown in contaminated soil (dairy cattle)
Fgrain_beef	0	FLOAT	1	1	fraction	fraction of grain grown in contaminated soil (beef cattle)
Fgrain_dairy	0	FLOAT	1	1	fraction	fraction of grain grown in contaminated soil (dairy cattle)
Fsilage_beef	0	FLOAT	1	1	fraction	fraction of silage grown in contaminated soil (beef cattle)
Fsilage_dairy	0	FLOAT	1	1	fraction	fraction of silage grown in contaminated soil (dairy cattle)
Fw_exfruit	0	Float	0.6	0.6	Unitless	fraction of wet deposition that adheres to plant
Fw_exveg	0	Float	0.6	0.6	Unitless	fraction of wet deposition that adheres to plant
Fw_forage	0	Float	0.6	0.6	Unitless	fraction of wet deposition that adheres to plant
Fw_silage	0	Float	0.6	0.6	Unitless	fraction of wet deposition that adheres to plant
MAFexfruit	0	Float	85	85	percent	moisture adjustment factor to convert DW into WW for exposed above-ground fruits
MAFexveg	0	FLOAT	82	91.77	Percent	moisture adjustment factor to convert DW into WW for above-ground vegetables
MAFleaf	0	Float	85	85	unitless	moisture adjustment factor for wet leaf
MAFprofruit	0	FLOAT	80	89.59	Percent	moisture adjustment factor to convert DW into WW for protected above-ground fruits
MAFproveg	0	FLOAT	80	80.23	Percent	moisture adjustment factor to convert DW into WW for protected above-ground vegetables
MAFroot	0	FLOAT	87	87.32	Percent	moisture adjustment factor to convert DW into WW for root vegetables
Qp_forage_beef	0	FLOAT	8.8	8.8	Kg DW/d	consumption rate: forage (beef cattle)
Qp_forage_dairy	0	FLOAT	11	11	kg DW/d	consumption rate: forage (dairy cattle)
Qp_grain_beef	0	FLOAT	0.05	0.47	Kg DW/d	consumption rate: grain (beef cattle)
Qp_grain_dairy	0	FLOAT	2.6	2.6	Kg DW/d	consumption rate: grain (dairy cattle)

Code	Dim	Data Type	Min	Max	Units	Desc
Qp_silage_beef	0	FLOAT	2.5	2.5	Kg DW/d	consumption rate: silage (beef cattle)
Qp_silage_dairy	0	FLOAT	3.3	3.3	Kg DW/d	consumption rate: silage (dairy cattle)
Qs_beef	0	FLOAT	0.04	0.39	Kg/d	consumption rate: soil (beef cattle)
Qs_dairy	0	FLOAT	0.4	0.41	Kg/d	consumption rate: soil (dairy cattle)
Qw_beef	0	FLOAT	36	85.06	L/d	consumption rate: water (beef cattle)
Qw_dairy	0	FLOAT	59	124.53	L/d	consumption rate: water (dairy cattle)
rho_leaf	0	Float	770	770	g/L FW	leaf density
Rp_exfruit	0	FLOAT	0.01	0.052	unitless	interception fraction
Rp_exveg	0	Float	0.05	0.05	Unitless	interception fraction
Rp_forage	0	FLOAT	0.05	0.47	Unitless	interception fraction
Rp_silage	0	FLOAT	0.4	0.44	Unitless	interception fraction
tp_exfruit	0	FLOAT	0.1	0.123	y	length of plant exposure to deposition
tp_exveg	0	FLOAT	0.1	0.123	y	length of plant exposure to deposition
tp_forage	0	Float	0.12	0.12	Y	length of plant exposure to deposition
tp_silage	0	Float	0.16	0.16	Y	length of plant exposure to deposition
VapDdv	0	Float	1	1	cm/sec	vapor phase dry deposition velocity
VGag_exfruit	0	FLOAT	0	0.01	Unitless	empirical correction factor
VGag_exveg	0	Float	0.01	0.01	Unitless	empirical correction factor
VGag_forage	0	Float	1	1	unitless	empirical correction factor
VGag_silage	0	Float	0.5	0.5	Unitless	empirical correction factor
VGbg_root	0	Float	0.01	0.01	Unitless	empirical correction factor

Code	Dim	Data Type	Min	Max	Units	Desc
Yp_exfruit	0	FLOAT	0.01	0.09	Kg DW/m^2	crop yield
Yp_exveg	0	FLOAT	0.02	0.18	Kg DW/m^2	crop yield
Yp_forage	0	FLOAT	0.3	0.31	Kg DW/m^2	crop yield
Yp_silage	0	FLOAT	0.3	0.31	Kg DW/m^2	crop yield

A.1.12 ECOLOGICAL_RISK_SSF

Code	Dim	Data Type	Min	Max	Units	Description	Dim1
EcoRegPercentile	0	Float	0	100	unitless	policy criterion for selecting critical year for maximum HQ	
HabitatIndex	1	Integer	1	12	unitless	Index of habitat types	NumHabitat
NumHabitat	0	Integer	1	12	unitless	number of habitat types represented	
DoExposed	0	Logical					

A.1.13 HUMAN_EXPOSURE_SSF

Code	Dim	Data Type	Min	Max	Units	Description
BF	0	FLOAT	0	10000	event/d	event frequency (shower)
Bri_cr1	0	FLOAT	0	100000	m^3/d	inhalation (breathing) rate (child 1 resident)
Bri_cr2	0	FLOAT	0	100000	m^3/d	inhalation (breathing) rate (child 2 resident)
Bri_cr3	0	FLOAT	0	100000	m^3/d	inhalation (breathing) rate (child 3 resident)
Bri_cr4	0	FLOAT	0	100000	m^3/d	inhalation (breathing) rate (child 4 resident)
Bri_r	0	FLOAT	0	100000	m^3/d	inhalation (breathing) rate (adult resident)
BWa	0	FLOAT	0	100000	kg	body weight (adult)

Code	Dim	Data Type	Min	Max	Units	Description
BWc1	0	FLOAT	0	100000	kg	body weight (child 1)
BWc2	0	FLOAT	0	100000	kg	body weight (child 2)
BWc3	0	FLOAT	0	100000	kg	body weight (child 3)
BWc4	0	FLOAT	0	100000	kg	body weight (child 4)
CRb_af	0	FLOAT	0	100000	g WW/kg/d	consumption rate: beef (adult farmer)
CRb_cf_2	0	FLOAT	0	100000	g WW/kg/d	consumption rate: beef (child 2 farmer)
CRb_cf_3	0	FLOAT	0	100000	g WW/kg/d	consumption rate: beef (child 3 farmer)
CRb_cf_4	0	FLOAT	0	100000	g WW/kg/d	consumption rate: beef (child 4 farmer)
CRbm_cr_1	0	FLOAT	0	2500	mL/d	consumption rate: breast milk (child 1 resident)
CRfr_cf_2	0	FLOAT	0	100000	g WW/kg/d	consumption rate: exposed fruit (child 2 farmer)
CRfr_cf_3	0	FLOAT	0	100000	g WW/kg/d	consumption rate: exposed fruit (child 3 farmer)
CRfr_cf_4	0	FLOAT	0	100000	g WW/kg/d	consumption rate: exposed fruit (child 4 farmer)
CRfr_cg_2	0	FLOAT	0	100000	g WW/kg/d	consumption rate: exposed fruit (child 2 gardener)
CRfr_cg_3	0	FLOAT	0	100000	g WW/kg/d	consumption rate: exposed fruit (child 3 gardener)
CRfr_cg_4	0	FLOAT	0	100000	g WW/kg/d	consumption rate: exposed fruit (child 4 gardener)
CRfr_f	0	FLOAT	0	100000	g WW/kg/d	consumption rate: exposed fruit (farmer)
CRfr_g	0	FLOAT	0	100000	g WW/kg/d	consumption rate: exposed fruit (gardener)
CRfs_a	0	FLOAT	0	100000	g/d	consumption rate: fish (adult)
CRfs_c_2	0	FLOAT	0	100000	g/d	consumption rate: fish (child 2)
CRfs_c_3	0	FLOAT	0	100000	g/d	consumption rate: fish (child 3)

Code	Dim	Data Type	Min	Max	Units	Description
CRfs_c_4	0	FLOAT	0	100000	g/d	consumption rate: fish (child 4)
CRl_cf_2	0	FLOAT	0	100000	g WW/kg/d	consumption rate: exposed vegetables (child 2 farmer)
CRl_cf_3	0	FLOAT	0	100000	g WW/kg/d	consumption rate: exposed vegetables (child 3 farmer)
CRl_cf_4	0	FLOAT	0	100000	g WW/kg/d	consumption rate: exposed vegetables (child 4 farmer)
CRl_cg2	0	FLOAT	0	100000	g WW/kg/d	consumption rate: exposed vegetables (child 2 gardener)
CRl_cg3	0	FLOAT	0	100000	g WW/kg/d	consumption rate: exposed vegetables (child 3 gardener)
CRl_cg4	0	FLOAT	0	100000	g WW/kg/d	consumption rate: exposed vegetables (child 4 gardener)
CRl_f	0	FLOAT	0	100000	g WW/kg/d	consumption rate: exposed vegetables (adult farmer)
CRl_g	0	FLOAT	0	100000	g WW/kg/d	consumption rate: exposed vegetables (gardener)
CRm_af	0	FLOAT	0	100000	g WW/kg/d	consumption rate: milk (adult farmer)
CRm_cf_2	0	FLOAT	0	100000	g WW/kg/d	consumption rate: milk (child 2 farmer)
CRm_cf_3	0	FLOAT	0	100000	g WW/kg/d	consumption rate: milk (child 3 farmer)
CRm_cf_4	0	FLOAT	0	100000	g WW/kg/d	consumption rate: milk (child 4 farmer)
CRpfr_cf_2	0	FLOAT	0	100000	g WW/kg/d	consumption rate: protected fruit (child 2 farmer)
CRpfr_cf_3	0	FLOAT	0	100000	g WW/kg/d	consumption rate: protected fruit (child 3 farmer)
CRpfr_cf_4	0	FLOAT	0	100000	g WW/kg/d	consumption rate: protected fruit (child 4 farmer)
CRpfr_cg_2	0	FLOAT	0	100000	g WW/kg/d	consumption rate: protected fruit (child 2 gardener)
CRpfr_cg_3	0	FLOAT	0	100000	g WW/kg/d	consumption rate: protected fruit (child 3 gardener)
CRpfr_cg_4	0	FLOAT	0	100000	g WW/kg/d	consumption rate: protected fruit (child 4 gardener)
CRpfr_f	0	FLOAT	0	100000	g WW/kg/d	consumption rate: protected fruit (adult farmer)

Code	Dim	Data Type	Min	Max	Units	Description
CRpfr_g	0	FLOAT	0	100000	g WW/kg/d	consumption rate: protected fruit (adult gardener)
CRpl_cf_2	0	FLOAT	0	100000	g WW/kg/d	consumption rate: protected vegetables (child 2 farmer)
CRpl_cf_3	0	FLOAT	0	100000	g WW/kg/d	consumption rate: protected vegetables (child 3 farmer)
CRpl_cf_4	0	FLOAT	0	100000	g WW/kg/d	consumption rate: protected vegetables (child 4 farmer)
CRpl_cg_2	0	FLOAT	0	100000	g WW/kg/d	consumption rate: protected vegetables (child 2 gardener)
CRpl_cg_3	0	FLOAT	0	100000	g WW/kg/d	consumption rate: protected vegetables (child 3 gardener)
CRpl_cg_4	0	FLOAT	0	100000	g WW/kg/d	consumption rate: protected vegetables (child 4 gardener)
CRpl_f	0	FLOAT	0	100000	g WW/kg/d	consumption rate: protected vegetables (adult farmer)
CRpl_g	0	FLOAT	0	100000	g WW/kg/d	consumption rate: protected vegetables (adult gardener)
CRr_cf_2	0	FLOAT	0	100000	g WW/kg/d	consumption rate: root vegetables (child 2 farmer)
CRr_cf_3	0	FLOAT	0	100000	g WW/kg/d	consumption rate: root vegetables (child 3 farmer)
CRr_cf_4	0	FLOAT	0	100000	g WW/kg/d	consumption rate: root vegetables (child 4 farmer)
CRr_cg_2	0	FLOAT	0	100000	g WW/kg/d	consumption rate: root vegetables (child 2 gardener)
CRr_cg_3	0	FLOAT	0	100000	g WW/kg/d	consumption rate: root vegetables (child 3 gardener)
CRr_cg_4	0	FLOAT	0	100000	g WW/kg/d	consumption rate: root vegetables (child 4 gardener)
CRr_f	0	FLOAT	0	100000	g WW/kg/d	consumption rate: root vegetables (farmer)
CRr_g	0	FLOAT	0	100000	g WW/kg/d	consumption rate: root vegetables (gardener)
CRs_cr2	0	FLOAT	0	100000	kg/d	ingestion rate:soil (child 2 resident)
CRs_cr3	0	FLOAT	0	100000	kg/d	ingestion rate:soil (child 3 resident)
CRs_cr4	0	FLOAT	0	100000	kg/d	ingestion rate:soil (child 4 resident)

Code	Dim	Data Type	Min	Max	Units	Description
CRs_r	0	FLOAT	0	100000	kg/d	ingestion rate:soil (adult resident)
CRw_cr1	0	FLOAT	0	100000	ml/d	ingestion rate: drinking water (child 1 resident)
CRw_cr2	0	FLOAT	0	100000	ml/d	ingestion rate: drinking water (child 2 resident)
CRw_cr3	0	FLOAT	0	100000	ml/d	ingestion rate: drinking water (child 3 resident)
CRw_cr4	0	FLOAT	0	100000	ml/d	ingestion rate: drinking water (child 4 resident)
CRw_r	0	FLOAT	0	100000	ml/d	ingestion rate: drinking water (adult resident)
DD	0	FLOAT	0	10000	cm	water droplet diameter
EFr	0	FLOAT	0	365	d/y	exposure frequency (adult resident)
Fb_f	0	FLOAT	0	1	fraction	fraction contaminated: beef (farmer)
fbp	0	FLOAT	0	1	fraction	fraction of whole blood that is plasma
Ff_s	0	FLOAT	0	1	fraction	
ffm	0	FLOAT	0	1	fraction	fraction of mother’s weight that is fat
Ffr_f	0	FLOAT	0	1	fraction	fraction homegrown: exposed fruit (farmer)
Ffr_g	0	FLOAT	0	1	fraction	fraction homegrown: exposed fruit (gardener)
Fl_f	0	FLOAT	0	1	fraction	fraction homegrown: exposed vegetables (farmer)
Fl_g	0	FLOAT	0	1	fraction	fraction contaminated:homegrown exposed vegetables (gardener)
Fm_f	0	FLOAT	0	1	fraction	fraction contaminated: milk (farmer)
fmbm	0	FLOAT	0	1	fraction	fraction of fat in maternal breast milk
Fpfr_f	0	FLOAT	0	1	fraction	fraction homegrown: protected fruit (farmer)
Fpfr_g	0	FLOAT	0	1	fraction	fraction homegrown: protected fruit (gardener)

Code	Dim	Data Type	Min	Max	Units	Description
Fpl_f	0	FLOAT	0	1	fraction	fraction homegrown: protected vegetables (farmer)
Fpl_g	0	FLOAT	0	1	fraction	fraction homegrown: protected vegetables (gardener)
fpm	0	FLOAT	0	1	fraction	fraction of mother's weight that is plasma
Fr_f	0	FLOAT	0	1	fraction	fraction homegrown: root vegetables (Farmer)
Fr_g	0	FLOAT	0	1	fraction	fraction homegrown: root vegetables (Gardener)
Fs	0	FLOAT	0	1	fraction	fraction contaminated: soil
FT3fish	0	FLOAT	0	1	fraction	fraction of fish consumed that is T3 fish
FT4fish	0	FLOAT	0	1	fraction	fraction of fish consumed that is T4 fish
Fw	0	FLOAT	0	1	fraction	fraction contaminated: drinking water
Hn	0	FLOAT	0	10000	cm	nozzle height
Rshower	0	FLOAT	0	10000	L/min	shower rate
t_sb	0	FLOAT	0	10000	min	time in shower and bathroom
t_shower	0	FLOAT	0	10000	min	shower time
Vbath	0	FLOAT	0	10000	m^3	bathroom volume
Vn	0	FLOAT	0	10000	cm/s	terminal velocity of droplet
VRbh	0	FLOAT	0	10000	L/min	bathroom to house ventilation rate
VRsb	0	FLOAT	0	10000	L/min	shower to bathroom ventilation rate
Vshower	0	FLOAT	0	10000	m^3	shower volume

A.1.14 HUMAN_RISK_SSF

Code	Dim	Data Type	Min	Max	Units	Description
ExDur_Car_Block	0	INTEGER	0	100	unitless	ExDur for Non-Farms and Carcenigen
ExDur_Car_Farm	0	INTEGER	0	100	unitless	ExDur for Farms and Carcenigen
ExDur_NCar_Block	0	INTEGER	0	100	unitless	ExDur for Non-Farms and Non-Carcenigen
ExDur_NCar_Farm	0	INTEGER	0	100	unitless	ExDur for Farms and Non-Carcenigen
LifeTime	0	FLOAT	0	1000	unitless	Used for Risk_HQ calculation (L)
RegPercentile	0	FLOAT	0	100	unitless	Registered Percentile
DoExposed	0	LOGICAL				

A.1.15 LAND_APPLICATION_UNIT_SSF

Code	Dimension	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
asdm	0	float	0.1	100	mm	mode of the aggregate size distribution (till zone surface)			
bcm	0	float	0	1	unitless	boundary condition multiplier (lower boundary)			
BDw	0	float	1	2.65	g/cm^3	dry bulk density (waste solids)			
C	2	float	0	1	unitless	USLE cover factor (all subareas except WMU)	SrcNumLWS	SrcLWSNumSubArea	
CN	2	float	0	100	unitless	SCS curve number (all subareas except WMU)	SrcNumLWS	SrcLWSNumSubArea	
CNwmu	0	float	0	100	unitless	SCS curve number (WMU)			
ConVs	0	float	0	10	m/d	settling velocity (suspended solids)			
CTPwaste	0	float	0	1000000	µg/g	constituent concentration in waste (wet)			
CutOffYr	0	integer	1	1000	year	operating life			

Code	Dimension	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
Cwmu	0	float	0	1	unitless	USLE cover factor (WMU)			
deltDiv	0	integer	1	10	unitless	time step divider (for debugging)			
DRZ	2	float	0	1000	cm	depth (root zone	all subareas)	SrcNumLWS	SrcLWS NumSubA rea
effdust	0	float	0	1	unitless	dust suppression control efficiency			
fcult	0	float	1	5	unitless	number of cultivations per application			
fd	0	float	0	30	1/mo	frequency of surface disturbance per month (active LAU)			
focS	2	float	0	1	mass fraction	fraction organic carbon (soil all subareas)	SrcNumLWS	SrcLWSNumSubArea	
focW	0	float	0	1	mass fraction	fraction organic carbon (waste solids)			
fwmu	0	float	0	1	mass fraction	fraction hazardous waste in WMU			
Infild	0	float	0	100	m/d	input infiltration rate (for debugging)			
K	2	float	0	1	kg/m^2	USLE erodibility factor (All subareas except WMU)	SrcNumLWS	SrcLWSNumSubArea	
Ksat	2	float	0.0000 0001	1000000	cm/h	saturated hydraulic conductivity (soil all subareas)	SrcNumLWS	SrcLWSNumSubArea	
Kwmu	0	float	0	1	kg/m^2	USLE erodibility factor (WMU)			
Lc	0	float	0	0.1	Unitless	roughness ratio (till zone surface)			
mt	0	float	0	2000	m	distance vehicle travels on LAU surface			
Nappl	0	integer	1	100	1/year	waste applications per year			

Code	Dimension	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
nv	0	float	0	100	1/d	vehicles/day (mean annual)			
nw	0	float	4	10	unitless	wheels per vehicle (mean)			
P	2	float	0	1	unitless	USLE erosion control factor (all subareas except WMU)	SrcNumLWS	SrcLWSNumSubArea	
Pwmu	0	float	0	1	unitless	USLE erosion control factor (WMU)			
Rappl	0	float	0	10	Mg/m^{2-} year	wet waste application rate			
RunID	0	string				run identification label (optional)			
SMb	2	float	0	12	unitless	soil moisture coefficient b (all subareas)	SrcNumLWS	SrcLWSNumSubArea	
SMFC	3	float	0	100	volume %	soil moisture field capacity (all subareas)	SrcNumLWS	SrcLWSNumSubArea	nlayer
SMWP	3	float	0	100	volume %	soil moisture wilting point (all subareas)	SrcNumLWS	SrcLWSNumSubArea	nlayer
solid	0	float	0	100	mass percent	percent solids (waste)			
Ss	0	float	0	100	mass percent	silt content (soil; top 20 cm)			
Sw	0	float	0	100	mass percent	silt content (waste solids)			
Theta	1	float	0	75	degrees	slope (local watershed)	SrcNumLWS		
thetawZ1d	0	float	0	1	volume fraction	input volumetric water content in till zone (for debugging)			
thetawZ2d	0	float	0	1	volume fraction	input volumetric water content in LAU subsoil zone (for debugging)			
veg	0	float	0	1	fraction	fraction vegetative cover (inactive LAU)			
vs	0	float	0	100	km/h	vehicle speed (mean)			

Code	Dimension	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
vw	0	float	0	100	Mg	vehicle weight (mean)			
WCS	2	float	0	1	volume fraction	saturated water content (all subareas total porosity)	SrcNumLWS	SrcLWSNumSubArea	
X	2	float	0	20000	m	flow length (local watershed all subareas)	SrcNumLWS	SrcLWSNumSubArea	
zava	0	float	0	10	m	averaging depth upper (depth averaged soil concentration)			
zavb	0	float	0.01	1010	m	averaging depth lower (depth averaged soil concentration)			
zruf	0	float	0.1	100	cm	roughness height (inactive LAU)			
zZ1sa	0	float	0.01	1	m	depth (modeled soil column subareas other than WMU)			
zZ1WMU	0	float	0.01	10	m	depth (tilling LAU)			
zZ2WMU	0	float	0	1000	m	subsoil layer thickness			

A.1.16 LANDFILL_SSF

Code	Dim	Data Type	Min	Max	Units	Description
asdm	0	float	0.1	100	mm	mode of the aggregate size distribution (LF waste zone surface)
bcm	0	float	0	1	unitless	boundary condition multiplier (lower boundary)
BDw	0	float	1	2.65	g/cm^3	dry bulk density (waste)
CTPwaste	0	float	0	1000000	µg/g	constituent concentration in waste (dry)
deltDiv	0	integer	1	10	unitless	time step divider (for debugging)
DRZ_W	0	float	0	1000	cm	depth (root zone in LF waste zone)

Code	Dim	Data Type	Min	Max	Units	Description
effdust	0	float	0	1	unitless	dust suppression control efficiency
fd	0	float	0	30	1/mo	frequency of surface disturbance per month (active LF cell)
focC	0	float	0	1	mass fraction	fraction organic carbon (cover soil)
focS_lf	0	float	0	1	mass fraction	fraction organic carbon (subsoil)
focW	0	float	0	1	mass fraction	fraction organic carbon (waste)
fwmu	0	float	0	1	mass fraction	fraction hazardous waste in WMU
Infild	0	float	0	100	m/d	input infiltration rate (for debugging)
KsatC	0	float	0.00000001	1000000	cm/h	saturated hydraulic conductivity (LF cover soil)
KsatW	0	float	0.00000001	1000000	cm/h	saturated hydraulic conductivity (waste)
Lc	0	float	0	0.1	Unitless	roughness ratio (LF waste zone surface)
load	0	float	0	100000000	Mg/y	waste loading rate (dry)
mcW	0	float	0	100	volume percent	volumetric water content (waste on trucks)
mt	0	float	0	2000	m	distance vehicle travels on active LF cell surface
Nly	0	integer	1	365	unitless	number of waste layers in a cell
Nop	0	float	0	100	1/d	spreading/compacting operations per day
nv	0	float	0	100	1/d	vehicles/day (mean annual)
nw	0	float	4	10	unitless	wheels per vehicle (mean)
porW	0	float	0	1	volume fraction	porosity (total waste)
RunID	0	string				run identification label (optional)
SMbC	0	float	0	12	unitless	soil moisture coefficient b (LF cover soil)

Code	Dim	Data Type	Min	Max	Units	Description
SMbS	0	float	0	12	unitless	soil moisture coefficient b (subsoil)
SMbW	0	float	0	12	unitless	soil moisture coefficient b (waste)
SMFC_W	0	float	0	100	volume %	soil moisture field capacity (LF waste zone)
SMWP_W	0	float	0	100	volume %	soil moisture wilting point (LF waste zone)
Sw	0	float	0	100	mass percent	silt content (waste)
thetawCd	0	float	0	1	volume fraction	input volumetric water content in LF cover soil (for debugging)
thetawSd	0	float	0	1	volume fraction	input volumetric water content in LF subsoil zone (for debugging)
thetawWd	0	float	0	1	volume fraction	input volumetric water content in LF waste zone (for debugging)
veg	0	float	0	1	fraction	fraction vegetative cover (inactive LF cell)
vs	0	float	0	100	km/h	vehicle speed (mean)
vw	0	float	0	100	Mg	vehicle weight (mean)
WCS_C	0	float	0	1	volume fraction	saturated water content (cover soil total porosity)
zava	0	float	0	10	m	averaging depth upper (depth averaged soil concentration)
zavb	0	float	0.01	1010	m	averaging depth lower (depth averaged soil concentration)
zC	0	float	0	10	m	optional soil cover thickness
zruf	0	float	0.1	100	cm	roughness height (inactive LF cell)
zS	0	float	0	500	m	thickness of liner (or subsoil zone)
zW	0	float	0	500	m	waste zone thickness

A.1.17 WASTEPILE_SSF

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
bcm	0	float	0	1	unitless	boundary condition multiplier (lower boundary)			
BDw	0	float	1	2.65	g/cm^3	dry bulk density (waste)			
C	2	float	0	1	unitless	USLE cover factor (all subareas except WMU)	SrcNumLWS	SrcLWSNumSubArea	
CN	2	float	0	100	unitless	SCS curve number (all subareas except WMU)	SrcNumLWS	SrcLWSNumSubArea	
CNwmu	0	float	0	100	unitless	SCS curve number (WMU)			
ConVs	0	float	0	10	m/d	settling velocity (suspended solids)			
CTPwaste	0	float	0	1000000	µg/g	constituent concentration in waste (dry)			
CutOffYr	0	integer	1	1000	year	operating life			
Cwmu	0	float	0	1	unitless	USLE cover factor (WMU)			
deltDiv	0	integer	1	10	unitless	time step divider (for debugging)			
DRZ	2	float	0	1000	cm	depth (root zone all subareas)	SrcNumLWS	SrcLWSNumSubArea	
DRZ_W	0	float	0	1000	cm	depth (WP root zone)			
effdust	0	float	0	1	unitless	dust suppression control efficiency			
focS	2	float	0	1	mass fraction	fraction organic carbon (soil all subareas)	SrcNumLWS	SrcLWSNumSubArea	
focW	0	float	0	1	mass fraction	fraction organic carbon (waste)			
fwmu	0	float	0	1	mass fraction	fraction hazardous waste in WMU			
Infild	0	float	0	100	m/d	input infiltration rate (for debugging)			

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
K	2	float	0	1	kg/m^2	USLE erodibility factor (All subareas except WMU)	SrcNumLWS	SrcLWSNumSubArea	
Ksat	2	float	0.00000001	1000000	cm/h	saturated hydraulic conductivity (soil all subareas)	SrcNumLWS	SrcLWSNumSubArea	
KsatW	0	float	0.00000001	1000000	cm/h	saturated hydraulic conductivity (waste)			
Kwmu	0	float	0	1	kg/m^2	USLE erodibility factor (WMU)			
load	0	float	0	100000000	Mg/y	waste loading rate (dry)			
mcW	0	float	0	100	volume percent	volumetric water content (waste on trucks)			
mt	0	float	0	2000	m	distance vehicle travels on WP surface			
Nop	0	float	0	500	1/d	spreading/compacting operations per day			
nv	0	float	0	100	1/d	vehicles/day (mean annual)			
nw	0	float	4	10	unitless	wheels per vehicle (mean)			
P	2	float	0	1	unitless	USLE erosion control factor (all subareas except WMU)	SrcNumLWS	SrcLWSNumSubArea	
porW	0	float	0	1	volume fraction	porosity (total waste)			
Pwmu	0	float	0	1	unitless	USLE erosion control factor (WMU)			
RunID	0	string				run identification label (optional)			
SMb	2	float	0	12	unitless	soil moisture coefficient b (all subareas)	SrcNumLWS	SrcLWSNumSubArea	
SMbW	0	float	0	12	unitless	soil moisture coefficient b (waste)			
SMFC	3	float	0	100	volume %	soil moisture field capacity (all subareas)	SrcNumLWS	SrcLWSNumSubArea	nlayer
SMFC_W	0	float	0	100	volume %	soil moisture field capacity (WP)			

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
SMWP	3	float	0	100	volume %	soil moisture wilting point (all subareas)	SrcNumLWS	SrcLWSNumSubArea	nlayer
SMWP_W	0	float	0	100	volume %	soil moisture wilting point (WP)			
Sw	0	float	0	100	mass percent	silt content (waste)			
Theta	1	float	0	75	degrees	slope (local watershed)	SrcNumLWS		
thetawZ1d	0	float	0	1	volume fraction	input volumetric water content in WP (for debugging)			
thetawZ2d	0	float	0	1	volume fraction	input volumetric water content in WP subsoil zone (for debugging)			
vs	0	float	0	100	km/h	vehicle speed (mean)			
vw	0	float	0	100	Mg	vehicle weight (mean)			
WCS	2	float	0	1	volume fraction	saturated water content (all subareas total porosity)	SrcNumLWS	SrcLWSNumSubArea	
X	2	float	0	20000	m	flow length (local watershed all subareas)	SrcNumLWS	SrcLWSNumSubArea	
zava	0	float	0	10	m	averaging depth upper (depth averaged soil concentration)			
zavb	0	float	0.01	1010	m	averaging depth lower (depth averaged soil concentration)			
zZ1sa	0	float	0.01	1	m	depth (modeled soil column subareas other than WMU)			
zZ1WMU	0	float	0.2	10	m	height (WP)			
zZ2WMU	0	float	0	1000	m	subsoil layer thickness			

A.1.18 AERATED_TANK_SSF

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1
bio_yield	0	FLOAT	0	1	g/g	biomass yield	
C_in	0	FLOAT	0	1000000	mg/L	chemical concentration (influent)	
CBOD	0	FLOAT	0	1	g/cm^3	BOD (influent)	
d_imp	0	FLOAT	0	200	cm	impeller diameter	
d_setpt	0	FLOAT	0.1	0.99	Fraction	fraction of SI occupied by sediments (max.)	
D_wmu	0	FLOAT	0.2	46	m	depth (liquid)	
dmeanTSS	0	FLOAT	0	0.01	Cm	particle diameter (mean	waste suspended solids)
EconLife	0	INTEGER	0	100	year	economic life of a tank/SI	
F_aer	0	FLOAT	0	1	fraction	fraction surface area-turbulent	
focW	0	float	0	1	mass fraction	fraction organic carbon (waste solids)	
fwmu	0	float	0	1	mass fraction	fraction hazardous waste in WMU	
J	0	FLOAT	2.9	3	lb O2/h-hp	oxygen transfer factor	
k_dec	0	FLOAT	0	0.001	1/s	digestion (sediments)	
kba1	0	FLOAT	0	1	unitless	biologically active solids/total solids (ratio)	
MWt_H2O	0	FLOAT	18	18	g/mol	molecular weight (liquid [water])	
n_imp	0	INTEGER	0	20	unitless	impellers/aerators (number)	
NumEcon	0	INTEGER	1	5		number of economic lifetimes	
O2eff	0	FLOAT	0.8	0.85	Unitless	oxygen transfer correction factor	
Powr	0	FLOAT	0	5000	hp	impellers/aerators (total power)	
Q_wmu	0	FLOAT	1.00E-20	10	m^3/s	volumetric flow rate (tank)	

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1
rho_l	0	FLOAT	0.96	1.5	g/cm^3	density (liquid [water])	
rho_part	0	FLOAT	1	5	g/cm^3	solids density	
TSS_in	0	FLOAT	0	1	g/cm^3	total suspended solids (influent)	
w_imp	0	FLOAT	0	260	rad/s	impeller speed	

A.1.19 SURFACE_IMPOUNDMENT_SSF

Code	Dim	Data Type	Min	Max	Units	Desc
bio_yield	0	FLOAT	0	1	g/g	biomass yield
C_in	0	FLOAT	0	1000000	mg/L	chemical concentration (influent)
CBOD	0	FLOAT	0	1	g/cm^3	BOD (influent)
d_imp	0	FLOAT	0	200	cm	impeller diameter
d_setpt	0	FLOAT	0.1	0.99	Fraction	fraction of SI occupied by sediments (max.)
D_wmu	0	FLOAT	0.3	46	m	depth of wmu
dmeanTSS	0	FLOAT	0	0.01	cm	particle diameter (mean waste suspended solids)
EconLife	0	INTEGER	0	100	year	economic life of a tank/SI
F_aer	0	FLOAT	0	1	fraction	fraction surface area-turbulent
focW	0	float	0	1	mass fraction	fraction organic carbon (waste solids)
fwmu	0	float	0	1	mass fraction	fraction hazardous waste in WMU
hydc_sed	0	FLOAT	0	0.001	m/s	saturated hydraulic conductivity (sediment layer)
J	0	FLOAT	2.9	3	lb O2/h-hp	oxygen transfer factor
k_dec	0	FLOAT	0	0.001	1/s	digestion (sediments)

Code	Dim	Data Type	Min	Max	Units	Desc
kba1	0	FLOAT	0	1	unitless	biologically active solids/total solids (ratio)
MWt_H2O	0	FLOAT	18	18	g/mol	molecular weight (liquid [water])
n_imp	0	INTEGER	0	66	unitless	impellers/aerators (number)
NumEcon	0	INTEGER	1	5		number of economic lifetimes
O2eff	0	FLOAT	0.8	0.85	Unitless	oxygen transfer correction factor
Powr	0	FLOAT	0	5000	hp	impellers/aerators (total power)
Q_wmu	0	FLOAT	1.00E-20	10	m^3/s	volumetric flow rate (tank)
rho_l	0	FLOAT	0.96	1.5	g/cm^3	density (liquid [water])
rho_part	0	FLOAT	1	5	g/cm^3	solids density
TSS_in	0	FLOAT	0	1	g/cm^3	total suspended solids (influent)
w_imp	0	FLOAT	0	260	rad/s	impeller speed

A.2 Output Data Groups Included in the Global Results Files

The complete set of output variables required for an execution of the MMSP are uniquely named and organized into Data Groups. Within a Data Group, each variable is uniquely identified by name and indices. Variable values may be scalar or multidimensioned. Scalar variables are accessed by name only. Multidimensioned variables are accessed by name and indices (from 1 to 6). Variable data types include integer, real, and character logical strings. Section 4.0 describes how variables are formatted and additional properties.

This section enumerates these output Data Groups included in the Global Results Files (GRF), the variables contained in each, and a description of the indices.

A.2.1 SOURCE_GRF

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3	Dim4
AnnInfil	2	float	0	.03	M/d	leachate infiltration rate (annual avg.)	WMU subarea(s) only)	NumLWS	NyrMet	
CE	1	float	0	1.00E+08	$g/m^2/d$	constituent mass emission rate-PM30	CENY			
CENY	0	integer	0	10000		number of years in outputs				
CEYR	1	integer	1	10000	year	year associated with output	CENY			
CTda	3	float	0	1e+06	µg/g	depth averaged soil concentration (from zava to zavb)	NumLWS	LWSNumSubArea	CTdaNY	
CTdaNY	2	integer	0	10000		number of years in outputs	NumLWS	LWSNumSubArea		
CTdaYR	3	integer	1	10000	year	year associated with output	NumLWS	LWSNumSubArea	CTdaNY	
CTss	3	float	0	1E+06	µg/g	soil concentration (annual average	all subareas)	NumLWS	LWSNumSubArea	CTssNY
CTssNY	2	integer	0	10000		number of years in outputs	NumLWS	LWSNumSubArea		
CTssYR	3	integer	1	10000	year	year associated with output	NumLWS	LWSNumSubArea	CTssNY	
LeachFlux	2	float	0	1.00E+08	$g/m^2/d$	leachate contaminant flux	NumLWS	LeachFluxNY		
LeachFluxNY	1	integer	0	10000		number of years in outputs	NumLWS			
LeachFluxYR	2	integer	1	10000	year	year associated with output	NumLWS	LeachFluxNY		
NyrMet	0	integer	1	100	year	number of years in the available met record				
PE30	1	float	0	1.00E+08	$g/m^2/d$	eroded solids mass emission rate-PM30	PE30NY			
PE30NY	0	integer	0	10000		number of years in outputs				

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3	Dim4
PE30YR	1	integer	1	10000	year	year associated with output	CENY			
PMF	2	float	0	1	mass fraction	particulate emission particle size distribution	PMFNY	4		
PMFNY	0	integer	0	10000		number of years in outputs				
PMFYR	1	integer	1	10000	year	year associated with output	PMFNY			
Runoff	2	float	0	1.00E+04	m^3/d	runoff	NumLWS	NyrMet		
SrcCE	0	logical				flag for chemical sorbed to particulates emissions presence				
SrcH2O	0	logical				flag for surface water presence				
SrcLeachMet	0	logical				flag for leachate presence when leachate is met-driven				
SrcLeachSrc	0	logical				Flag for leachate presence when leachate is not met-driven (unit is active)				
SrcOvl	0	logical				Flag for overland flow presence				
SrcSoil	0	logical				flag for soil presence				
SrcVE	0	logical				flag for volatile emissions presence				
SWConcTot	1	float	0	1.00E+05	mg/L	total chem concentration in surface water	SWConcTotNY			
SWConcTot NY	0	integer	0	10000		number of years in outputs				
SWConcTot YR	1	integer	1	10000	year	year associated with output	SWConcTotNY			

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3	Dim4
SWLoadChem	2	float	0	1.00E+08	g/d	chemical load to waterbody	NumLWS	SWLoadChemNY		
SWLoadChem NY	1	integer	0	10000		number of years in outputs	NumLWS			
SWLoadChem YR	2	integer	1	10000	year	year associated with output	NumLWS	SWLoadChemNY		
SWLoadSolid	2	float	0	1.00E+10	g/d	total suspended solids load to waterbody	NumLWS	NyrMet		
VE	1	float	0	1.00E+08	$g/m^2/d$	volatile emission rate	VENY			
VENY	0	integer	0	10000		number of years in outputs				
VEYR	1	integer	1	10000	year	year associated with output	VENY			

A.2.2 AIR_GRF

Code	Dim	Data Type	Min	Max	Units	Desc
CVap	2	FLOAT	0	0	$\mu g/m^3$	Concentration of vapor
CVapNY	1	Integer	0	100000		Concentration of vapor number of years reported
CVapYR	2	Integer	0	100000	Year	Concentration of vapor years
ParDDep	2	FLOAT	0	100000	$g/m^2/d$	Particulate dry deposition
ParDDepNY	1	Integer	0	100000		Particulate dry deposition number of years reported
ParDDepYR	2	Integer	0	100000	Year	Particulate dry deposition years
ParWDep	2	FLOAT	0	100000	$g/m^2/d$	Particulate wet deposition
ParWDepNY	1	Integer	0	100000		Particulate wet deposition number of years reported

Code	Dim	Data Type	Min	Max	Units	Desc
ParWDepYR	2	Integer	0	100000	Year	Particulate wet deposition years
PM10	2	FLOAT	0	100000	$\mu g/m^3$	Particulate concentration under 10 microns
PM10NY	1	Integer	0	100000		Particulate concentration under 10 microns number of years
PM10YR	2	Integer	0	100000	Year	Particulate concentration under 10 microns years
SrcCE	0	logical				Flag defining if particulates are reported
SrcVE	0	logical				Flag defining if vapors are reported
VapWDep	2	FLOAT	0	100000	$g/m^2/d$	Vapor wet deposition
VapWDepNY	1	Integer	0	100000		Vapor wet deposition number of years reported
VapWDepYR	2	Integer	0	100000	Year	Vapor wet deposition years

A.2.3 VADOSE_ZONE_GRF

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2
CWT	2	Float	0	1000000	mg/L	Concentrations at Water Table	NTS	NumChem
NTS	0	Integer	0	200	yr	Number of Time-Conc/Flux Pairs in TWT and CWT		
SINFIL	0	Float	0	11	m/yr	Longterm average waterflux beneath source		
TSOURC	0	Float	0	10000	yr	Duration of Source Boundary Condition		
TWT	1	Float	0	10000	yr	Times for CWT	NTS	

A.2.4 SATURATED_ZONE_GRF

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
AquRchMassFlux	2	Float	0	1.00E+15	g/yr	Mass Flux from Aquifer to Reach	NumChem	AquRchMassFluxNY	
AquRchMassFluxNY	1	Integer	0	10000		Number of Time - Mass-Flux-to-Reach Pairs	NumChem		
AquRchMassFluxYR	2	Float	0	10000	year	Time of Mass Flux from Aquifer to Reach	NumChem	AquRchMassFluxNY	
AquRchWaterFlux	0	Float	0	2.00E+13	m^3/day	Total GW Flux to Reach			
AquWellConc	3	Float	0	1000000	mg/L	Obs. Well Conc.	AquWellNum	NumChem	AquWellConc NY
AquWellConcFlag	1	Logical				Flag indicating well is within plume: T - yes	F - no	AquWellNum	
AquWellConcNY	2	Integer	0	10000		Number of Time - Obs. Well Conc Pairs	AquWellNum	NumChem	
AquWellConcYr	3	Integer	0	10000	year	Time of Obs. Well Conc.	AquWellNum	NumChem	AquWellConc NY

A.2.5 WATERSHED_GRF

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2
AnnInfil	2	float	0	100	m/d	annual average recharge rate	NumWSSub	NyrMet
BFann	1	float	0	1.00E+08	m^3/d	long-term avg baseflow to waterbody	NumWSSub	
CTdaR	2	float	0	1000000	µg/g	depth averaged soil concentration (from zava to zavb)	NumWSSub	CTdaRNY
CTdaRNY	1	integer	0	10000		number of years in outputs	NumWSSub	
CTdaRYR	2	integer	1	10000	year	year associated with output	NumWSSub	CTdaRNY

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2
CTssR	2	float	0	1000000	µg/g	surface soil concentration	NumWSSub	CTssRNY
CTssRNY	1	integer	0	10000		number of years in outputs	NumWSSub	
CTssRYR	2	integer	1	10000	year	year associated with output	NumWSSub	CTssRNY
NyrMet	0	integer	1	100	year	number of years in the available met record		
RunoffR	2	float	0	1.00E+08	m^3/d	runoff flow to waterbody	NumWSSub	NyrMet
SWLoadChemR	2	float	0	100000000	g/d	chemical load (deposition only) to waterbody	NumWSSub	SWLoadChem RNY
SWLoadChemRNY	1	integer	0	10000		number of years in outputs	NumWSSub	
SWLoadChemRYR	2	integer	1	10000	year	year associated with output	NumWSSub	SWLoadChem RNY
SWLoadSolidR	2	float	0	10000000000	g/d	total suspended solids (runoff)	NumWSSub	NyrMet

A.2.6 SURFACE_WATER_GRF

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1
WBNConcBenthDiss	3	Float	0	1000000	mg/L	;(WBNNumChem WBNNumRch WBNConcBenthDissNY)	
WBNConcBenthDissNY	2	Integer	0	10000		;(WBNNumChem WBNNumRch)	
WBNConcBenthDissYr	3	Integer	0	10000	year	;(WBNNumChem WBNNumRch WBNConcBenthDissNY)	
WBNConcBenthTot	3	Float	0	1000000	µg/g	;(WBNNumChem	WBNNumRch WBNConc BenthTotNY)
WBNConcBenthTotNY	2	Integer	0	10000		;(WBNNumChem WBNNumRch)	
WBNConcBenthTotYr	3	Integer	0	10000	year	;(WBNNumChem WBNNumRch WBNConcBenthTotNY)	

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1
WBNConcWaterDiss	3	Float	0	1000000	mg/L	;(WBNNumChem WBNNumRch WBNConcWaterDissNY)	
WBNConcWaterDissNY	2	Integer	0	10000		;(WBNNumChem WBNNumRch)	
WBNConcWaterDissYr	3	Integer	0	10000	year	;(WBNNumChem WBNNumRch WBNConcWaterDissNY)	
WBNConcWaterTot	3	Float	0	1000000	mg/L	;(WBNNumChem WBNNumRch WBNConcWaterTotNY)	
WBNConcWaterTotNY	2	Integer	0	10000		;(WBNNumChem WBNNumRch)	
WBNConcWaterTotYr	3	Integer	0	10000	year	;(WBNNumChem WBNNumRch WBNConcWaterTotNY)	
WBNfocBenth	2	Float	0	0.5	Fraction	;(WBNNumRch WBNfocBenthNY)	
WBNfocBenthNY	1	Integer	0	10000		;(WBNNumRch)	
WBNfocBenthYr	2	Integer	0	10000	year	;(WBNNumRch WBNfocBenthNY)	
WBNNumChem	0	Integer	1	10		;number of chemicals in output file	
WBNTSSWater	2	Float	0	70000	mg/L	;(WBNNumRch WBNTSSWaterNY)	
WBNTSSWaterNY	1	Integer	0	10000		;(WBNNumRch)	
WBNTSSWaterYr	2	Integer	0	10000	year	;(WBNNumRch WBNTSSWaterNY)	

A.2.7 AQUATIC_FOODCHAIN_GRF

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
Caqmp	3	FLOAT	0	1000000	mg/kg WW		NumWBN	WBNNumRch	CaqmpNY
CaqmpNY	2	INTEGER	0	10000			NumWBN	WBNNumRch	
CaqmpYR	3	INTEGER	0	10000	year		NumWBN	WBNNumRch	CaqmpNY

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
Cbenthff	3	FLOAT	0	1000000	unitless		NumWBN	WBNNumRch	CbenthffNY
CbenthffNY	2	INTEGER	0	10000			NumWBN	WBNNumRch	
CbenthffYR	3	INTEGER	0	10000	year		NumWBN	WBNNumRch	CbenthffNY
CT3Filet	3	FLOAT	0	1000000	mg/kg WW		NumWBN	WBNNumRch	CT3FiletNY
CT3FiletNY	2	INTEGER	0	10000			NumWBN	WBNNumRch	
CT3FiletYR	3	INTEGER	0	10000	year		NumWBN	WBNNumRch	CT3FiletNY
CT3Fish	3	FLOAT	0	1000000	mg/kg WW		NumWBN	WBNNumRch	CT3FishNY
CT3FishNY	2	INTEGER	0	10000			NumWBN	WBNNumRch	
CT3FishYR	3	INTEGER	0	10000	year		NumWBN	WBNNumRch	CT3FishNY
CT4Filet	3	FLOAT	0	1000000	mg/kg WW		NumWBN	WBNNumRch	CT4FiletNY
CT4FiletNY	2	INTEGER	0	10000			NumWBN	WBNNumRch	
CT4FiletYR	3	INTEGER	0	10000	year		NumWBN	WBNNumRch	CT4FiletNY
CT4Fish	3	FLOAT	0	1000000	mg/kg WW		NumWBN	WBNNumRch	CT4FishNY
CT4FishNY	2	INTEGER	0	10000			NumWBN	WBNNumRch	
CT4FishYR	3	INTEGER	0	10000	year		NumWBN	WBNNumRch	CT4FishNY

A.2.8 TERRESTRIAL_FOODCHAIN_GRF

Code	Dimension	Data Type	Min	Max	Units
Cbirds_sm_max	2	Float	0	10000000	mg/kg WW
Cbirds_sm_maxNY	1	Integer	0	10000000	
Cbirds_sm_maxYR	2	Integer	0	10000000	Year

Code	Dimension	Data Type	Min	Max	Units
Cbirds_sm_min	2	Float	0	10000000	mg/kg WW
Cbirds_sm_minNY	1	Integer	0	10000000	
Cbirds_sm_minYR	2	Integer	0	10000000	Year
Cherbiverts_max	2	Float	0	10000000	mg/kg WW
Cherbiverts_maxNY	1	Integer	0	10000000	
Cherbiverts_maxYR	2	Integer	0	10000000	Year
Cherbiverts_min	2	Float	0	10000000	mg/kg WW
Cherbiverts_minNY	1	Integer	0	10000000	
Cherbiverts_minYR	2	Integer	0	10000000	Year
CHerp_sm_max	2	Float	0	1.00E+06	mg/kg WW
CHerp_sm_maxNY	1	Integer	0	1.00E+06	
CHerp_sm_maxYR	2	Integer	0	1.00E+06	Year
CHerp_sm_min	2	Float	0	1.00E+06	mg/kg WW
CHerp_sm_minNY	1	Integer	0	1.00E+06	
CHerp_sm_minYR	2	Integer	0	1.00E+06	Year
Cinvert_HabRange	3	Float	0	10000000	mg/kg WW
Cinvert_HabRangeNY	2	Integer	0	10000000	
Cinvert_HabRangeYR	3	Integer	0	10000000	Year
Cmammals_sm_max	2	Float	0	10000000	mg/kg WW
Cmammals_sm_maxNY	1	Integer	0	10000000	
Cmammals_sm_maxYR	2	Integer	0	10000000	Year

Code	Dimension	Data Type	Min	Max	Units
Cmammals_sm_min	2	Float	0	10000000	mg/kg WW
Cmammals_sm_minNY	1	Integer	0	10000000	
Cmammals_sm_minYR	2	Integer	0	10000000	Year
Comniverts_max	2	Float	0	10000000	mg/kg WW
Comniverts_maxNY	1	Integer	0	10000000	
Comniverts_maxYR	2	Integer	0	10000000	Year
Comniverts_min	2	Float	0	10000000	mg/kg WW
Comniverts_minNY	1	Integer	0	10000000	
Comniverts_minYR	2	Integer	0	10000000	Year
CTdaAveHabRange	3	Float	0	10000000	µg/g
CTdaAveHabRangeNY	2	Integer	0	10000000	
CTdaAveHabRangeYR	3	Integer	0	10000000	Year
CTssAveHabRange	3	Float	0	10000000	µg/g
CTssAveHabRangeNY	2	Integer	0	10000000	
CTssAveHabRangeYR	3	Integer	0	10000000	Year
Cworms_HabRange	3	Float	0	10000000	mg/kg WW
Cworms_HabRangeNY	2	Integer	0	10000000	
Cworms_HabRangeYR	3	Integer	0	10000000	Year
Pexfruit_HabRange	3	Float	0	10000000	mg/kg WW
Pexfruit_HabRangeNY	2	Integer	0	10000000	
Pexfruit_HabRangeYR	3	Integer	0	10000000	Year

Code	Dimension	Data Type	Min	Max	Units
Pexveg_HabRange	3	Float	0	10000000	mg/kg WW
Pexveg_HabRangeNY	2	Integer	0	10000000	
Pexveg_HabRangeYR	3	Integer	0	10000000	Year
Pforage_HabRange	3	Float	0	10000000	mg/kg WW
Pforage_HabRangeNY	2	Integer	0	10000000	
Pforage_HabRangeYR	3	Integer	0	10000000	Year
Pgrain_HabRange	3	Float	0	10000000	mg/kg WW
Pgrain_HabRangeNY	2	Integer	0	10000000	
Pgrain_HabRangeYR	3	Integer	0	10000000	Year
Proot_HabRange	3	Float	0	10000000	mg/kg WW
Proot_HabRangeNY	2	Integer	0	10000000	
Proot_HabRangeYR	3	Integer	0	10000000	Year
Psilage_HabRange	3	Float	0	10000000	mg/kg WW
Psilage_HabRangeNY	2	Integer	0	10000000	
Psilage_HabRangeYR	3	Integer	0	10000000	Year

A.2.9 FARM_FOODCHAIN_GRF

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2
Abeef_farm	2	FLOAT	0	1.00E+09	mg/kg WW	NumFarm	Abeef_farmNY	beef concentration
Abeef_farmNY	1	INTEGER	0	1.00E+08		NumFarm	beef concentration	
Abeef_farmYR	2	INTEGER	0	1.00E+08	Year	NumFarm	Abeef_farmYRNY	beef concentration
Amilk_farm	2	FLOAT	0	1.00E+09	mg/kg WW	NumFarm	Amilk_farmNY	milk concentration
Amilk_farmNY	1	INTEGER	0	1.00E+08		NumFarm	milk concentration	
Amilk_farmYR	2	INTEGER	0	1.00E+08	Year	NumFarm	Amilk_farmYRNY	milk concentration
CTssAve_farm	2	FLOAT	0	1.00E+09	µg/g	NumFarm	CTssAve_farmNY	concentration in root vegetables
CTssAve_farmNY	1	INTEGER	0	1.00E+08		NumFarm	concentration in root vegetables	
CTssAve_farmYR	2	INTEGER	0	1.00E+08	Year	NumFarm	CTssAve_farmYRNY	concentration in root vegetables
Pexfruit_farm	2	FLOAT	0	1.00E+09	mg/kg WW	NumFarm	Pexfruit_farmNY	concentration in exposed above-ground fruits
Pexfruit_farmNY	1	INTEGER	0	1.00E+08		NumFarm	concentration in exposed above-ground fruits	
Pexfruit_farmYR	2	INTEGER	0	1.00E+08	Year	NumFarm	Pexfruit_farmYRNY	concentration in exposed above-ground fruits
Pexfruit_garden	2	FLOAT	0	1.00E+09	mg/kg WW	NumHumRcp	Pexfruit_gardenNY	concentration in exposed above-ground fruits
Pexfruit_gardenNY	1	INTEGER	0	1.00E+08		NumHumRcp		concentration in exposed above-ground fruits
Pexfruit_gardenYR	2	INTEGER	0	1.00E+08	Year	NumHumRcp	Pexfruit_gardenYRNY	concentration in exposed above-ground fruits
Pexveg_farm	2	FLOAT	0	1.00E+09	mg/kg WW	NumFarm	Pexveg_farmNY	concentration in exposed above-ground vegetables

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2
Pexveg_farmNY	1	INTEGER	0	1.00E+08		NumFarm	concentration in exposed above-ground vegetables	
Pexveg_farmYR	2	INTEGER	0	1.00E+08	Year	NumFarm	Pexveg_farmYRNY	concentration in exposed above-ground vegetables
Pexveg_garden	2	FLOAT	0	1.00E+09	mg/kg WW	NumHumRcp	Pexveg_gardenNY	concentration in exposed above-ground vegetables
Pexveg_gardenNY	1	INTEGER	0	1.00E+08		NumHumRcp		concentration in exposed above-ground vegetables
Pexveg_gardenYR	2	INTEGER	0	1.00E+08	Year	NumHumRcp	Pexveg_gardenYRNY	concentration in exposed above-ground vegetables
Pprofruit_farm	2	FLOAT	0	1.00E+09	mg/kg WW	NumFarm	Pprofruit_farmNY	concentration in protected above-ground fruits
Pprofruit_farmNY	1	INTEGER	0	1.00E+08		NumFarm	concentration in protected above-ground fruits	
Pprofruit_farmYR	2	INTEGER	0	1.00E+08	Year	NumFarm	Pprofruit_farmYRNY	concentration in protected above-ground fruits
Pprofruit_garden	2	FLOAT	0	1.00E+09	mg/kg WW	NumHumRcp	Pprofruit_gardenNY	concentration in protected above-ground fruits
Pprofruit_gardenNY	1	INTEGER	0	1.00E+08		NumHumRcp		concentration in protected above-ground fruits
Pprofruit_gardenYR	2	INTEGER	0	1.00E+08	Year	NumHumRcp	Pprofruit_gardenYRNY	concentration in protected above-ground fruits
Pproveg_farm	2	FLOAT	0	1.00E+09	mg/kg WW	NumFarm	Pproveg_farmNY	concentration in protected above-ground vegetables
Pproveg_farmNY	1	INTEGER	0	1.00E+08		NumFarm	concentration in protected above-ground vegetables	

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2
Pproveg_farmYR	2	INTEGER	0	1.00E+08	Year	NumFarm	Pproveg_farmYRNY	concentration in protected above-ground vegetables
Pproveg_garden	2	FLOAT	0	1.00E+09	mg/kg WW	NumHumRcp	Pproveg_gardenNY	concentration in protected above-ground vegetables
Pproveg_gardenNY	1	INTEGER	0	1.00E+08		NumHumRcp		concentration in protected above-ground vegetables
Pproveg_gardenYR	2	INTEGER	0	1.00E+08	Year	NumHumRcp	Pproveg_gardenYRNY	concentration in protected above-ground vegetables
Proot_farm	2	FLOAT	0	1.00E+09	mg/kg WW	NumFarm	Proot_farmNY	concentration in root vegetables
Proot_farmNY	1	INTEGER	0	1.00E+08		NumFarm		concentration in root vegetables
Proot_farmYR	2	INTEGER	0	1.00E+08	Year	NumFarm	Proot_farmYRNY	concentration in root vegetables
Proot_garden	2	FLOAT	0	1.00E+09	mg/kg WW	NumHumRcp	Proot_gardenNY	concentration in root vegetables
Proot_gardenNY	1	INTEGER	0	1.00E+08		NumHumRcp		concentration in root vegetables
Proot_gardenYR	2	INTEGER	0	1.00E+08	Year	NumHumRcp	Proot_gardenYRNY	concentration in root vegetables

A.2.10 ECOLOGICAL_RISK_GRF

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
HQcdf_HabGroup	3	Integer	0	100	unitless	NumEcoRing	NumEcoBin	NumHabGroup	Cumulative percentile of receptor HQs
HQcdf_HabType	3	Integer	0	100	unitless	NumEcoRing	NumEcoBin	NumHabType	Cumulative percentile of receptor HQs
HQcdf_RecGroup	3	Integer	0	100	unitless	NumEcoRing	NumEcoBin	NumRecGroup	Cumulative percentile of receptor HQs

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
HQcdf_RGHabGroup	3	Integer	0	100	unitless	NumEcoBins	NumRecGroup	NumHabGroup	Cumulative percentile of receptor HQs
HQcdf_TLHabGroup	3	Integer	0	100	unitless	NumEcoBins	NumTrophicLevel	NumHabGroup	Cumulative percentile of receptor HQs
HQcdf_TrophicLevel	3	Integer	0	100	unitless	NumEcoRing	NumEcoBin	NumTrophicLevel	Cumulative percentile of receptor HQs
HQHabGroupTcrit	2	Integer	0	10000	year	NumEcoRing	NumHabGroup	Time output at which maximum HQ occurs	
HQHabTypeTcrit	2	Integer	0	10000	year	NumEcoRing	NumHabType	Time output at which maximum HQ occurs	
HQMax	1	Float	0	1.00E+09	unitless	NumEcoRing	maximum HQ across the site		
HQMaxHabGroup	1	Integer	0	10	unitless	NumEcoRing	habitat index for the maximum HQ at the site		
HQMaxHabType	1	String			not applicable	NumEcoRing	habitat type for the maximum HQ at the site		
HQMaxRec	1	Integer	0	66	unitless	NumEcoRing		receptor index for the maximum HQ at the site	
HQMaxRecGroup	1	String			not applicable	NumEcoRing		receptor group for the maximum HQ at the site	
HQMaxTcrit	1	Integer	0	10000	year	NumEcoRing	year with maximum HQ across all eco receptors at the site		

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
HQMaxTrophicLevel	1	Integer	0	5	unitless	NumEcoRing	trophic level of receptor for the maximum HQ at the site		
HQRecGroupTcrit	2	Integer	0	10000	year	NumEcoRing	NumRecGroup	Time output at which maximum HQ occurs	
HQRGHabGroupTcrit	2	Integer	0	10000	year	NumRecGroup	NumHabGroup	Time output at which maximum HQ occurs	
HQTLHabGroupTcrit	2	Integer	0	10000	year	NumTrophicLevel	NumHabGroup	Time output at which maximum HQ occurs	
HQTrophicLevelTcrit	2	Integer	0	10000	year	NumEcoRing	NumTrophicLevel	Time output at which maximum HQ occurs	

A.2.11 HUMAN_EXPOSURE_GRF

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
Cambient_Farm	3	FLOAT	0	1.00E+06	mg/m^3		NumFarm	NumCohort	Cambient_FarmNY
Cambient_FarmNY	2	INTEGER	0	1.00E+06		NumFarm	NumCohort		
Cambient_FarmYR	3	INTEGER	0	1.00E+06	Year	NumFarm	NumCohort	Cambient_FarmNY	
Cambient_HumRcp	3	FLOAT	0	1.00E+06	mg/m^3		NumHumRcp	NumCohort	Cambient_HumRcpNY
Cambient_HumRcpNY	2	INTEGER	0	1.00E+06		NumHumRcp	NumCohort		
Cambient_HumRcpYR	3	INTEGER	0	1.00E+06	Year	NumHumRcp	NumCohort	Cambient_HumRcpNY	
Csb_Farm	3	FLOAT	0	1.00E+06	mg/m^3		NumFarm	NumCohort	Csb_FarmNY
Csb_FarmNY	2	INTEGER	0	1.00E+06		NumFarm	NumCohort		
Csb_FarmYR	3	INTEGER	0	1.00E+06	Year	NumFarm	NumCohort	Csb_FarmNY	

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
Csb_HumRcp	3	FLOAT	0	1.00E+06	mg/m^3		NumHumRcp	NumCohort	Csb_HumRcpNY
Csb_HumRcpNY	2	INTEGER	0	1.00E+06		NumHumRcp	NumCohort		
Csb_HumRcpYR	3	INTEGER	0	1.00E+06	Year	NumHumRcp	NumCohort	Csb_HumRcpNY	
IngBeef_Farm	3	FLOAT	0	1.00E+06	mg/kg-d		NumFarm	NumCohort	IngBeef_FarmNY
IngBeef_FarmNY	2	INTEGER	0	1.00E+06		NumFarm	NumCohort		
IngBeef_FarmYR	3	INTEGER	0	1.00E+06	Year	NumFarm	NumCohort	IngBeef_FarmNY	
IngBMBeefF	2	FLOAT	0	1.00E+06	mg/kg-d		NumFarm	IngBMBeefFNY	
IngBMBeefFNY	1	INTEGER	0	1.00E+06		NumFarm			
IngBMBeefFYR	2	INTEGER	0	1.00E+06	Year	NumFarm		IngBMBeefFNY	
IngBMFisherBeefF	2	FLOAT	0	1.00E+06	mg/kg-d		NumFarm	IngBMFisherBeefFNY	
IngBMFisherBeefFNY	1	INTEGER	0	1.00E+06		NumFarm			
IngBMFisherBeefFYR	2	INTEGER	0	1.00E+06	Year	NumFarm		IngBMFisherBeefFNY	
IngBMFisherGardenerH	2	FLOAT	0	1.00E+06	mg/kg-d		NumHumRcp	IngBMFisherGardener HNY	
IngBMFisherGardenerH NY	1	INTEGER	0	1.00E+06		NumHumRcp			
IngBMFisherGardenerH YR	2	INTEGER	0	1.00E+06	Year	NumHumRcp		IngBMFisherGardener HNY	
IngBMFisherMilkF	2	FLOAT	0	1.00E+06	mg/kg-d		NumFarm	IngBMFisherMilkFNY	
IngBMFisherMilkFNY	1	INTEGER	0	1.00E+06		NumFarm			
IngBMFisherMilkFYR	2	INTEGER	0	1.00E+06	Year	NumFarm		IngBMFisherMilkFNY	
IngBMFisherResidentH	2	FLOAT	0	1.00E+06	mg/kg-d		NumHumRcp	IngBMFisherResidentHNY	

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
IngBMFisherResident HNY	1	INTEGER	0	1.00E+06		NumHumRcp			
IngBMFisherResident HYR	2	INTEGER	0	1.00E+06	Year	NumHumRcp		IngBMFisherResidentHNY	
IngBMGardenerH	2	FLOAT	0	1.00E+06	mg/kg-d		NumHumRcp	IngBMGardenerHNY	
IngBMGardenerHNY	1	INTEGER	0	1.00E+06		NumHumRcp			
IngBMGardenerHYR	2	INTEGER	0	1.00E+06	Year	NumHumRcp		IngBMGardenerHNY	
IngBMMilkF	2	FLOAT	0	1.00E+06	mg/kg-d		NumFarm	IngBMMilkFNY	
IngBMMilkFNY	1	INTEGER	0	1.00E+06		NumFarm			
IngBMMilkFYR	2	INTEGER	0	1.00E+06	Year	NumFarm		IngBMMilkFNY	
IngBMResidentH	2	FLOAT	0	1.00E+06	mg/kg-d		NumHumRcp	IngBMResidentHNY	
IngBMResidentHNY	1	INTEGER	0	1.00E+06		NumHumRcp			
IngBMResidentHYR	2	INTEGER	0	1.00E+06	Year	NumHumRcp		IngBMResidentHNY	
IngFish_Farm	3	FLOAT	0	1.00E+06	mg/kg-d		NumFarm	NumCohort	IngFish_FarmNY
IngFish_FarmNY	2	INTEGER	0	1.00E+06		NumFarm	NumCohort		
IngFish_FarmYR	3	INTEGER	0	1.00E+06	Year	NumFarm	NumCohort	IngFish_FarmNY	
IngFish_HumRcp	3	FLOAT	0	1.00E+06	mg/kg-d		NumHumRcp	NumCohort	IngFish_HumRcpNY
IngFish_HumRcpNY	2	INTEGER	0	1.00E+06		NumHumRcp	NumCohort		
IngFish_HumRcpYR	3	INTEGER	0	1.00E+06	Year	NumHumRcp	NumCohort	IngFish_HumRcpNY	
IngMilk_Farm	3	FLOAT	0	1.00E+06	mg/kg-d		NumFarm	NumCohort	IngMilk_FarmNY
IngMilk_FarmNY	2	INTEGER	0	1.00E+06		NumFarm	NumCohort		
IngMilk_FarmYR	3	INTEGER	0	1.00E+06	Year	NumFarm	NumCohort	IngMilk_FarmNY	

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
IngSoil_Farm	3	FLOAT	0	1.00E+06	mg/kg-d		NumFarm	NumCohort	IngSoil_FarmNY
IngSoil_FarmNY	2	INTEGER	0	1.00E+06		NumFarm	NumCohort		
IngSoil_FarmYR	3	INTEGER	0	1.00E+06	Year	NumFarm	NumCohort	IngSoil_FarmNY	
IngSoil_HumRcp	3	FLOAT	0	1.00E+06	mg/kg-d		NumHumRcp	NumCohort	IngSoil_HumRcpNY
IngSoil_HumRcpNY	2	INTEGER	0	1.00E+06		NumHumRcp	NumCohort		
IngSoil_HumRcpYR	3	INTEGER	0	1.00E+06	Year	NumHumRcp	NumCohort	IngSoil_HumRcpNY	
IngVeg_Farm	3	FLOAT	0	1.00E+06	mg/kg-d		NumFarm	NumCohort	IngVeg_FarmNY
IngVeg_FarmNY	2	INTEGER	0	1.00E+06		NumFarm	NumCohort		
IngVeg_FarmYR	3	INTEGER	0	1.00E+06	Year	NumFarm	NumCohort	IngVeg_FarmNY	
IngVeg_HumRcp	3	FLOAT	0	1.00E+06	mg/kg-d		NumHumRcp	NumCohort	IngVeg_HumRcpNY
IngVeg_HumRcpNY	2	INTEGER	0	1.00E+06		NumHumRcp	NumCohort		
IngVeg_HumRcpYR	3	INTEGER	0	1.00E+06	Year	NumHumRcp	NumCohort	IngVeg_HumRcpNY	
IngWater_Farm	3	FLOAT	0	1.00E+06	mg/kg-d		NumFarm	NumCohort	IngWater_FarmNY
IngWater_FarmNY	2	INTEGER	0	1.00E+06		NumFarm	NumCohort		
IngWater_FarmYR	3	INTEGER	0	1.00E+06	Year	NumFarm	NumCohort	IngWater_FarmNY	
IngWater_HumRcp	3	FLOAT	0	1.00E+06	mg/kg-d		NumHumRcp	NumCohort	IngWater_HumRcpNY
IngWater_HumRcpNY	2	INTEGER	0	1.00E+06		NumHumRcp	NumCohort		
IngWater_HumRcpYR	3	INTEGER	0	1.00E+06	Year	NumHumRcp	NumCohort	IngWater_HumRcpNY	
InhAir_Farm	3	FLOAT	0	1.00E+06	mg/kg-d		NumFarm	NumCohort	InhAir_FarmNY
InhAir_FarmNY	2	INTEGER	0	1.00E+06		NumFarm	NumCohort		
InhAir_FarmYR	3	INTEGER	0	1.00E+06	Year	NumFarm	NumCohort	InhAir_FarmNY	

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3
InhAir_HumRcp	3	FLOAT	0	1.00E+06	mg/kg-d		NumHumRcp	NumCohort	InhAir_HumRcpNY
InhAir_HumRcpNY	2	INTEGER	0	1.00E+06		NumHumRcp	NumCohort		
InhAir_HumRcpYR	3	INTEGER	0	1.00E+06	Year	NumHumRcp	NumCohort	InhAir_HumRcpNY	
InhShower_Farm	3	FLOAT	0	1.00E+06	mg/kg-d		NumFarm	NumCohort	InhShower_FarmNY
InhShower_FarmNY	2	INTEGER	0	1.00E+06		NumFarm	NumCohort		
InhShower_FarmYR	3	INTEGER	0	1.00E+06	Year	NumFarm	NumCohort	InhShower_FarmNY	
InhShower_HumRcp	3	FLOAT	0	1.00E+06	mg/kg-d		NumHumRcp	NumCohort	InhShower_HumRcpNY
InhShower_HumRcp NY	2	INTEGER	0	1.00E+06		NumHumRcp	NumCohort		
InhShower_HumRcp YR	3	INTEGER	0	1.00E+06	Year	NumHumRcp	NumCohort	InhShower_HumRcpNY	

A.2.12 HUMAN_RISK_GRF

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3	Dim4	Dim5	Dim6
CohortDescrip	1	STRING				Cohort Description	NumCohort					
HQ_1	5	FLOAT	0	1.00E+07	unitless	CDFs of population in HQ bins via option 1	NumRcp	NumCohort	HQ_1_ Index	Num Path	NumBin NC	
HQ_1_Index	2	INTEGER	0	1.00E+07	unitless	Number of HQ_1 output for path/ring/Critical year	NumRcp	NumCohort				
HQ_1_Path Index	3	INTEGER	0	2.60E+01	unitless	Index of path for where Tmax was found for Option 1 (HQ)	NumRcp	NumCohort	HQ_1_ Index			
HQ_1_Ring Index	3	INTEGER	0	9.00E+00	unitless	Index of the ring where Tmax was found for Option 1 (HQ)	NumRcp	NumCohort	HQ_1_ Index			

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3	Dim4	Dim5	Dim6
HQ_1_Tcr Index	3	INTEGER	0	1.00E+04	unitless	Index of the Critical Year for Option 1 (HQ)	NumRcp	NumCohort	HQ_1_ Index			
HQ_2	5	FLOAT	0	1.00E+07	unitless	CDFs of population in HQ bins via option 2	NumRcp	NumCohort	HQ_2_ Index	Num Path	NumBin NC	
HQ_2_Index	2	INTEGER	0	1.00E+07	unitless	Number of HQ_2 output for path/ring/Critical year	NumRcp	NumCohort				
HQ_2_Path Index	3	INTEGER	0	2.60E+01	unitless	Index of path for where Tmax was found for Option 2 (HQ)	NumRcp	NumCohort	HQ_2_ Index			
HQ_2_Ring Index	3	INTEGER	0	9.00E+00	unitless	Index of the ring where Tmax was found for Option 2 (HQ)	NumRcp	NumCohort	HQ_2_ Index			
HQ_2_Tcr Index	3	INTEGER	0	1.00E+04	unitless	Index of the Critical Year for Option 2 (HQ)	NumRcp	NumCohort	HQ_2_ Index			
HQ_3	5	FLOAT	0	1.00E+07	unitless	CDFs of population in HQ bins via option 3	NumRcp	NumCohort	HQ_3_ Index	Num Path	NumBin NC	
HQ_3_Index	2	INTEGER	0	1.00E+07	unitless	Number of HQ_3 output for path/ring/Critical year	NumRcp	NumCohort				
HQ_3_Path Index	3	INTEGER	0	2.60E+01	unitless	Index of path for where Tmax was found for Option 3 (HQ)	NumRcp	NumCohort	HQ_3_ Index			
HQ_3_Ring Index	3	INTEGER	0	9.00E+00	unitless	Index of the ring where Tmax was found for Option 3 (HQ)	NumRcp	NumCohort	HQ_3_ Index			
HQ_3_TcrInde x	3	INTEGER	0	1.00E+04	unitless	Index of the Critical Year for Option 3 (HQ)	NumRcp	NumCohort	HQ_3_ Index			
PathDescrip	1	STRING				Path Description	NumPath					
RegPercentile	0	FLOAT	0	100	unitless							
Risk_1	5	FLOAT	0	1.00E+07	unitless	CDFs of population in risk bins via option 1	NumRcp	NumCohort	Risk_1_ Index	Num Path	Num BinC	

Code	Dim	Data Type	Min	Max	Units	Desc	Dim1	Dim2	Dim3	Dim4	Dim5	Dim6
Risk_1_Index	2	INTEGER	0	1.00E+07	unitless	Number of Risk_1 output for path/ring/Critical year	NumRcp	NumCohort				
Risk_1_Path Index	3	INTEGER	0	2.60E+01	unitless	Index of path for where Tmax was found for Option 1 (Risk)	NumRcp	NumCohort	Risk_1_ Index			
Risk_1_Ring Index	3	INTEGER	0	9.00E+00	unitless	Index of the ring where Tmax was found for Option 1 (Risk)	NumRcp	NumCohort	Risk_1_ Index			
Risk_1_Tcr Index	3	INTEGER	0	1.00E+04	unitless	Index of the Critical Year for Option 1 (Risk)	NumRcp	NumCohort	Risk_1_ Index			
Risk_2	5	FLOAT	0	1.00E+07	unitless	CDFs of population in risk bins via option 2	NumRcp	NumCohort	Risk_2_ Index	Num Path	Num BinC	
Risk_2_Index	2	INTEGER	0	1.00E+07	unitless	Number of Risk_2 output for path/ring/Critical year	NumRcp	NumCohort				
Risk_2_Path Index	3	INTEGER	0	2.60E+01	unitless	Index of path for where Tmax was found for Option 2 (Risk)	NumRcp	NumCohort	Risk_2_ Index			
Risk_2_Ring Index	3	INTEGER	0	9.00E+00	unitless	Index of the ring where Tmax was found for Option 2 (Risk)	NumRcp	NumCohort	Risk_2_ Index			
Risk_2_Tcr Index	3	INTEGER	0	1.00E+04	unitless	Index of the Critical Year for Option 2 (Risk)	NumRcp	NumCohort	Risk_2_ Index			
Risk_3	5	FLOAT	0	1.00E+07	unitless	CDFs of population in risk bins via option 3	NumRcp	NumCohort	Risk_3_ Index	Num Path	Num BinC	
Risk_3_Index	2	INTEGER	0	1.00E+07	unitless	Number of Risk_3 output for path/ring/Critical year	NumRcp	NumCohort				
Risk_3_Path Index	3	INTEGER	0	2.60E+01	unitless	Index of path for where Tmax was found for Option 3 (Risk)	NumRcp	NumCohort	Risk_3_In dex			
Risk_3_Ring ndex	3	INTEGER	0	9.00E+00	unitless	Index of the ring where Tmax was found for Option 3 (Risk)	NumRcp	NumCohort	Risk_3_In dex			
Risk_3_Tcr Index	3	INTEGER	0	1.00E+04	unitless	Index of the Critical Year for Option 3 (Risk)	NumRcp	NumCohort	Risk_3_In dex			

A.2.13 SITE_LAYOUT_GRF

Code	Dimension	Data Type	Min	Max	Units
MMSPTime	0	Float	0	0	s
Models	1	String	0	0	
NumModels	0	Integer	0	0	
Times	1	Float	0	0	s