DOCUMENTATION FOR THE FRAMES-HWIR TECHNOLOGY SOFTWARE SYSTEM, VOLUME 12: CONTEXTUAL DICTIONARY

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Summary

The U.S. Environmental Protection Agency (EPA) is developing a comprehensive environmental exposure and risk analysis software system for agency-wide application. The software system being prototyped (initial design and implementation) will be applied to the technical assessment of exposures and risks relevant to the Hazardous Waste Identification Rule (HWIR). The software system adapted to automate this assessment is the Framework for Risk Analysis in Multimedia Environmental Systems (FRAMES), developed by the Pacific Northwest National Laboratory (PNNL). The process used to develop the FRAMES-HWIR Technology Software System includes steps for requirements analysis, design, specification, and development, with testing and quality assurance composing a critical portion of each step. This report describes the terminology used in the system documentation and provides a list of commonly used acronyms and abbreviations.

Contents

1.0 Introduction

The U.S. Environmental Protection Agency (EPA) is developing a comprehensive environmental exposure and risk analysis software system for agency-wide application. The software system being prototyped (initial design and implementation) will be applied to the technical assessment of exposures and risks relevant to the Hazardous Waste Identification Rule (HWIR). The HWIR is designed to determine quantitative criteria for allowing a specific class of industrial waste streams to no longer require disposal as a hazardous waste (that is, to exit Subtitle C) and allow disposal in Industrial Subtitle D facilities. Hazardous waste constituents with values less than these exit criteria levels would be reclassified as nonhazardous wastes under the Resource Conservation and Recovery Act.

The software system adapted to automate this assessment is the Framework for Risk Analysis in Multimedia Environmental Systems (FRAMES), developed by the Pacific Northwest National Laboratory (PNNL). The FRAMES-HWIR Technology Software System consists of a series of components within a system framework (Figure 1.1). The process used to develop the FRAMES-HWIR Technology Software System includes steps for requirements analysis, design, specification, and development, with testing and quality assurance composing a critical portion of each step.

A large team of organizations assisted with the design and implementation of various components of the software system, including the EPA Office of Solid Waste and the Office of Research and Development, several government contractors, and PNNL. Each organization brought its own nomenclature and expectations for terms related to software development. To facilitate teaming, the organizations agreed to use consistent terms for the FRAMES-HWIR Technology Software System development effort.

This report describes those terms and provides a list of commonly used acronyms and abbreviations. Other components developed by PNNL are described in companion documents as listed in the reference list (Section 4.0); the system itself is documented in a summary report entitled, *Overview of the FRAMES-HWIR Technology Software System*.
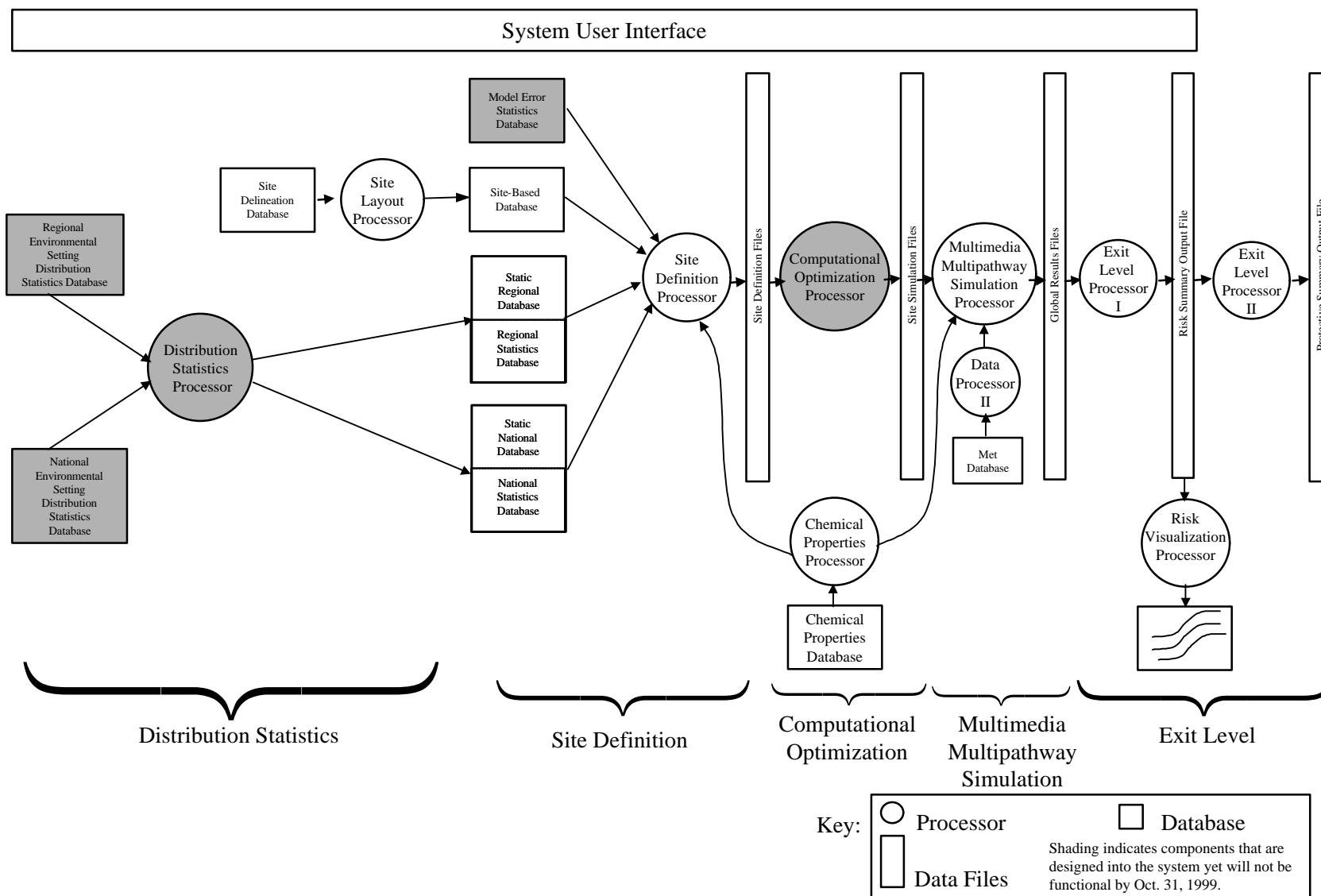
Figure 1.1 Overview of the FRAMES-HWIR Technology Software System

2.0 Terms

The following terms, which are listed in alphabetical order, are used in the FRAMES-HWIR Technology Software Development effort.

aerated tank source module—module within the Multimedia Multipathway Simulation Processor that models the release of contaminants from an aerated tank; for modeling purposes, the only environmental release mechanism assumed for this source type is volatilization of contaminants to the the air; provides input to the air module only.

air module—fate and transport module within the Multimedia Multipathway Simulation Processor that models contaminant transport through the air pathway; receives input from the source modules; may provide input to the watershed module, the surface water module, the farm foodchain module, the terrestrial foodchain module, and the human exposure module.

aquatic foodchain module—foodchain module within the Multimedia Multipathway Simulation Processor that simulates contaminant movement through the water-based foodchain; receives input from the surface water module; may provide input to the ecological risk module, ecological exposure module, and the human risk module.

aquifer module—fate and transport module within the Multimedia Multipathway Simulation Processor that models contaminant behavior through the ground water; receives input from the vadose zone module; may provide input to the surface water module, farm foodchain module, and human exposure module.

assumption—statement regarding the scientific basis of how a computer program models a real-world activity or occurrence.

chemical properties database—collection of data on properties of chemicals of interest, including such information as molecular weight and density.

Chemical Properties Processor—processor that gathers appropriate chemical properties data from the chemical properties database to supply necessary information to the Site Definition Processor and modules within the Multimedia Multipathway Simulation Processor.

compiler—computer program that converts higher-level language to machine language to allow easier sharing of information between programs; adds instructions and subroutines to the original program.

Computational Optimization Processor—processor that assimilates the exposure and risk scenario as contained in the Site Definition Files and establishes, based on specific rules, a modified scenario that is technically complete and computationally efficient.

database—collection of data, generated external to the FRAMES-HWIR Technology Software System, arranged for ease of retrieval by various computer programs.

data file—collection of data generated by the FRAMES-HWIR Technology Software System arranged for ease of retrieval by various computer programs.

data group—collection of related parameters (for example, data describing site atmospheric conditions) within a database or data file.

Data Processor II—processor developed by EPA to access appropriate data from the MET (meteorological) database for modules in the Multimedia Multipathway Simulation Processor.

design—*noun*: comprehensive description of how a piece of software will function (that is, how it will meet its requirements); hence, a design document includes such a description.
       verb: to identify how a piece of software will function and meet its requirements; hence, we design a piece of software by writing down the description. In either case, for the FRAMES-HWIR Technology Software System, design includes short-term, as well as longer-term, capabilities of the software.

development—process of programming to meet user requirements as specified in the software design.

directory—collection of files and subdirectories.

Distribution Statistics Processor—processor that randomly samples from statistical distributions representing measurement variability and sampling error related to the statistics of parameters required by the models (for example, distribution, mean, standard deviation, and range).

dynamic link library—modular set of routines that link to their calling programs at run time rather than during compilation; standardizes a common set of routines used by more than one program.

ecological exposure module—exposure module within the Multimedia Multipathway Simulation Processor that calculates exposure to ecological receptors; may receive input from the terrestrial foodchain module and the aquatic foodchain module; provides input to the ecological risk module.

ecological risk module—risk module within the Multimedia Multipathway Simulation Processor that calculates risk (or hazard quotient) to ecological receptors; receives input from the ecological exposure module; provides input to the exit level processor.

executable—self-contained set of coded instructions designed to process and control a particular component of the FRAMES-HWIR Technology Software System.

Exit Level Processors—processors that use the individual site simulations generated by the Multimedia Multipathway Simulation Processor to tabulate information for determining levels of protection on the exit criteria for contamination; ELP I produces the Risk Summary Output File; ELP II takes the Risk Summary Output File and generates the Protective Summary Output File. The Risk Summary Output File becomes input to the Risk Visualization Processor. The two files generated by the ELPs contain site-based exposure and risk information that is used to establish a national distribution of risks. The national distribution of risks, and all related data, forms the technical basis for EPA to select chemical-specific levels for each source type.

exposure and risk modules—modules within the Multimedia Multipathway Simulation Processor that calculate risk numbers or hazard quotients for either human or ecological receptors; includes human exposure module, ecological risk module, ecological exposure module, and human risk module.

farm foodchain module—foodchain module within the Multimedia Multipathway Simulation Processor that simulates contaminant movement through a farm-related foodchain; may receive input from the aquifer module, air module, and surface water module; provides input to the human exposure module.

fate and transport modules—modules within the Multimedia Multipathway Simulation Processor that simulate contaminant behavior through a sequence of environmental media; include air module, watershed module, vadose zone module, aquifer module, and surface water module.

file—see data file.

foodchain modules—modules within the Multimedia Multipathway Simulation Processor that simulate contaminant movement through a particular food web to human or ecological receptors; include farm foodchain module, aquatic foodchain module, and terrestrial foodchain module.

FRAMES-HWIR Technology Software System—name of the technology being developed to automate EPA's HWIR Assessment Strategy; FRAMES in this context stands for Framework for Risk Analysis in Multimedia Environmental Systems and is a software system developed by the Pacific Northwest National Laboratory for the U.S. Department of Energy.

geographic reference point—latitude and longitude used to locate a site geographically; the point is translated into Universal Transverse Mercator (UTM) coordinates to facilitate location of various physical entities (for example, streams and receptors) at a site.

Global Results Files—collection of data groups populated by execution of appropriate models in the appropriate sequence in the Multimedia Multipathway Simulation Processor and used to provide input to the Exit Level Processors. Each site and each pathway of exposure has a Global Results File; these files are stored in a common directory.

human exposure module—exposure module within the Multimedia Multipathway Simulation Processor that models how humans might be exposed to contamination through various environmental pathways; may receive input from the aquifer module, air module, surface water module, farm foodchain module, and aquatic foodchain module; provides input to the human risk module.

human risk module—risk module within the Multimedia Multipathway Simulation Processor that simulates human health impact that might result from exposures by human receptors to contamination in environmental pathways; receives input from the human exposure module; provides input to the exit level processor.

HWIR Assessment Strategy—scientific approach used for the EPA initiative to assess hazardous waste sites for the potential to exit Industrial Subtitle D status for particular waste streams. The HWIR Assessment Strategy is documented in the draft report (Marin and Saleem 1997) *A Preliminary Framework for Finite-Source Multimedia, Multipathway, and Multireceptor Risk Assessment (3MRA)*.

HWIR Input/Output Dynamic Link Library—modular set of routines to simplify the interface between existing and new codes; provide a flexible and expandable storage format for input and output.

HWIR Monte Carlo Dynamic Link Library—modular set of routines to simplify the interface between the Statistical DLL and the system components; allows the Statistical DLL to run with various compilers.

HWIR Statistical Dynamic Link Library—modular set of routines that facilitate the calculation of statistical parameters for several system components.

implementation—resource- and schedule-constrained translation of design into an operating software system.

input/output specifications—detailed descriptions of data and their format; necessary to allow processors and modules within processors to transfer information effectively with each other.

land application unit source module—module within the Multimedia Multipathway Simulation Processor that models contaminant release from a land application unit; for modeling purposes, includes volatilization and particulate suspension to the air, leaching, and overland release mechanisms; utilizes two distinct models, one with input surface hydrology that will sample annual average values for infiltration, runoff, and evapotranspiration from regional distributions while estimating erosion on an annual average based on a random sampling of appropriate parameters; one with simulated surface hydrology that will function at the source and reflect a precipitation event-based methodology using daily meteorological data and source surface cover data to simulate infiltration, runoff, evapotranspiration, and erosion; may provide input to the air module, watershed module, and vadose zone module.

landfill source module—module within the Multimedia Multipathway Simulation Processor that models contaminant release from a landfill; for modeling purposes, includes volatilization and particulate suspension to the air, leaching, and overland release mechanisms; utilizes two distinct models, one with input surface hydrology that will sample annual average values for infiltration, runoff, and evapotranspiration from regional distributions while estimating erosion on an annual average based on a random sampling of appropriate parameters; one with simulated surface hydrology that will function at the source and reflect a precipitation event-based methodology; uses daily meteorological data and source surface cover data to simulate infiltration, runoff, evapotranspiration, and erosion; may provide input to the air module, watershed module, and vadose zone module.

legacy code or legacy model—models or programs developed before the FRAMES-HWIR Technology Software System development effort that will be used to implement some portion of the HWIR Assessment Strategy and may require modification for efficient use.

limitation—a characteristic of a given model that bounds how results are estimated, provided, or interpreted.

location—the geographic reference point for a site in latitude/longitude coordinates (UTM coordinates will also be used).

Met (meteorological) database—collection of data related to meteorological phenomena at or near hazardous waste facilities.

model—*noun*: scientifically based computer calculations that simulate physical or physiological phenomena.
    verb: to execute a set of scientifically based calculations to simulate physical or physiological phenomena.

model error statistics database—collection of data describing the likelihood of errors in particular scientific models used in the system; provides input to the Site Definition Processor.

module—components within the Multimedia Multipathway Simulation Processor that, when collectively viewed and applied to a site, represent the modeling system for conducting exposure and risk assessment. A module comprises some combination or subset of model, pre-processor, post-processor, and module user interface. For the HWIR Assessment Strategy, modules include source modules, fate and transport modules, foodchain modules, and exposure and risk modules.

Module Execution Manager—component within the Multimedia Multipathway Simulation Processor that manages the flow of information within the modules, as well as the storage of information.

Multimedia Multipathway Simulation Processor—implements the release, transport, exposure, and risk/hazard assessment modeling protocol by choosing and linking the appropriate models to supply results to the Exit Level Processors; consists of a Module Execution Manager and a collection of individual software modules each representing one of the fundamental elements of the risk assessment process (see module).

output specifications—see input/output specifications.

overland pathway—potential route of contamination from the waste management unit to a human or ecological receptor through environmental media.

parameter—an input or output value associated with calculations in a model or module.

processor—program within the FRAMES-HWIR Technology Software System (that is, Distribution Statistics Processor, Site Layout Processor, Site Definition Processor, Chemical Properties Processor, Computational Optimization Processor, Multimedia Multipathway Simulation Processor, Risk Visualization Processor, and Exit Level Processors) that results in a series of changes to data or data groups to support the HWIR Assessment Strategy.

program—a computer procedure for solving a problem, including collecting data, processing, and presenting results.

Protective Summary Output File—collection of data generated by the Exit Level Processor II to show a range of levels at which a chemical concentration would be considered to provide minimal impacts to human health and the environment. (Note the term *protective* has yet to be defined.)

regional/national environmental setting distribution statistics databases—collection of data containing stochastic parameters (a subset of the Site Definition File data) whose stochastic characteristics are themselves described with statistical distributions; one database contains information on environmental parameters collected for specific regions of the country identified by latitude/longitude descriptions; the other contains information on environmental parameters at a national level; data are used by the Distribution Statistics Processor.

regional/national static databases—collection of data containing individual parameters (a subset of the Site Definition File data); one database contains information on environmental parameters collected for specific regions of the country identified by latitude/longitude descriptions; the other contains information on environmental parameters at a national level; data are used by the Site Definition Processor.

regional/national statistics databases—collection of data containing individual parameters (a subset of the Site Definition File data) with statistical distribution characteristics themselves described with statistical distributions; one database contains information on environmental parameters collected for specific regions of the country identified by latitude/longitude descriptions; the other contains information on environmental parameters at a national level; data are generated by the Distribution Statistics Processor for use by the Site Definition Processor.

requirements—characteristics and behaviors that a piece of software must possess to function adequately for its intended purpose.

Risk Summary Output File—collection of data generated by the Exit Level Processor I to summarize risk to human and ecological receptors under a variety of scenarios associated with a particular site and chemical.

Risk Visualization Processor—processor that generates graphical representations of various aspects of risk information; receives input from the Risk Summary Output File.

run—see simulation.

shared routine—computer program made available to other programs for use in conducting common tasks.

shareware—see shared routine.

simulation—a single execution of the Multimedia Multipathway Simulation Processor and associated processors in which the Multimedia Multipathway Simulation Processor executes the modules defined for that specific scenario.

site—for the purposes of the HWIR Assessment Strategy, an Industrial Subtitle D facility with one or more waste management units within a bounded area of approximately 20 km^2.

Site Definition Files—collection of data groups that result from executing the Site Definition Processor; provides input to the Computational Optimization Processor; represents a complete data set for implementation of the Multimedia Multipathway Simulation Processor.

Site Definition Processor—the processor that organizes all data for input to the Site Definition Files by accessing databases containing all the necessary information and executing a hierarchical protocol to read these data files and extract the required data; it also provides the preliminary simulation plan and control information that could be used by the Multimedia Multipathway Simulation Processor.

site delineation database—collection of data describing environmental features at hazardous waste facilities, using a grid to locate key features; provides input to the Site Layout Processor to translate grid information for use in the site-based database.

Site Layout Processor—the processor that translates grid information related to environmental features at particular sites for use in the site-based database.

Site Simulation Files—collection of optimized data groups based on the Site Definition Files that result from execution of the Computational Optimization Processor for input to the Multimedia Multipathway Simulation Processor.

site survey database—collection of data describing latitude and longitude for each site being simulated.

source code—the original text version of a software program in a certain computer language. The source code is compiled into an executable format by the appropriate compiler.

source modules—modules within the Multimedia Multipathway Simulation Processor that model contaminant release for a particular source type: aerated tank, land application unit, landfill, surface impoundment, and waste pile.

spaghetti code—needlessly convoluted or complex code.

specification—detailed description of an interface to a computer program or set of subroutines allowing another programmer to develop a program that would make proper use of the subroutines.

surface impoundment source module—module within the Multimedia Multipathway Simulation Processor that models contaminant release from a surface impoundment; for modeling purposes, the only release mechanisms considered are volatilization to the air and leaching; may provide input to the air module and the vadose zone module.

surface water module—a fate and transport module within the Multimedia Multipathway Simulation processor that models contaminant behavior in surface waters such as streams, lakes and ponds; may receive input from the aquifer module, air module, and watershed module; may provide input to the aquatic foodchain module, farm foodchain module, and human exposure module.

System User Interface—the interface that allows the user to interact with the system and connects, interacts with, and directs the other processors housed in the FRAMES-HWIR Technology Software System, managing the overall execution of the software system.

terrestrial foodchain module—foodchain module within the Multimedia Multipathway Simulation Processor that simulates contaminant movement through the terrestrial food web to ecological receptors;

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may receive input from the air module and surface water module; provides input to the ecological risk/exposure module.

test—an activity designed to assess the quality of a component. As applied to documents, tests consist of critical reviews. As applied to software, tests are specific cases executed to verify a requirement or uncover an error.

test plan—a detailed procedure for conducting a software test program. Test plans include a description of the component being tested, a summary of the requirements being tested, detailed descriptions of test cases, including the instructions necessary for conducting each test, and the expected results for each test to provide some criteria for deciding whether or not the test was successful.

transformation products—byproducts produced from chemicals as a result of environmental degradation.

vadose zone module—a fate and transport module within the Multimedia Multipathway Simulation Processor that models contaminant behavior in the subsurface above the ground water; may receive input from the land application unit, landfill, waste pile, and surface impoundment source modules; provides input to the aquifer module.

variable—an input or output parameter whose value can vary based on calculations in a model or module.

waste management unit—a single source of contamination that could result in contaminant release to multiple environmental media; may include more than one of a single source type (for example, three aerated tanks in a grouping might be one waste management unit).

waste pile source module—module within the Multimedia Multipathway Simulation Processor that models contaminant release from a waste pile; for modeling purposes includes volatilization and particulate suspension to the air, leaching, and overland release mechanisms; utilizes two distinct models, one with input surface hydrology that will sample from regional distributions annual average values for infiltration, runoff, and evapotranspiration while estimating erosion on an annual average based on a random sampling of appropriate parameters; and one with simulated surface hydrology that will function at the source and reflect a precipitation event-based methodology using daily meteorological data and source surface cover data to simulate infiltration, runoff, evapotranspiration, and erosion; may provide input to the air module, surface water module, vadose zone module, and watershed module.

watershed module—a fate and transport module within the Multimedia Multipathway Simulation Processor that simulates contaminant movement overland and through the interconnected creeks and rivers comprising a regional watershed; may receive input from land application, landfill, and waste pile source modules, and the air module; provides input to the surface water module.

3.0 Acronyms and Abbreviations

The following acronyms and abbreviations, which are listed in alphabetical order, are commonly found within FRAMES-HWIR Technology Software System documentation. Note that only those acronyms and abbreviations used by more than one component are included.

ABF—Aquatic Bioaccumulation Factors Data Table; table used by the Chemical Properties Processor to determine these factors for a particular simulation.

ActBio—Activated Biodegradation Data Table; table used by the Chemical Properties Processor to determine this type of biodegradation for a particular simulation.

AerBio—Aerobic Biodegradation Data Table; table used by the Chemical Properties Processor to determine this type of biodegradation for a particular simulation.

AF—aquatic foodchain module; foodchain module within the Multimedia Multipathway Simulation Processor that simulates contaminant movement through the water-based foodchain.

AnaBio—Anaerobic Biodegradation Data Table; table used by the Chemical Properties Processor to determine this type of biodegradation for a particular simulation.

AQ—aquifer module; fate and transport module within the Multimedia Multipathway Simulation Processor that models contaminant behavior through the ground water.

AR—air module; fate and transport module within the Multimedia Multipathway Simulation Processor that models contaminant transport through the air pathway.

ASCII—American Standard Code for Information Interchange; language used by many components of the FRAMES-HWIR Technology Software System to facilitate interchange of information.

AT—aerated tank source module; module within the Multimedia Multipathway Simulation Processor that models the release of contaminants from an aerated tank.

C_w (concentration of chemical in waste stream)—concentration of chemicals associated with a representative sample of a generator waste stream before disposal.

CAT—Catalyzed Hydrolosis Data Table; table used by the Chemical Properties Processor to determine these factors for a particular simulation.

CDF—Cumulative Distribution Function; mathematical expression of variability within a parameter.

COP—Computational Optimization Processor; the processor that assimilates the exposure and risk scenario as contained in the Site Definition Files and establishes, based on specific *rules*, a modified scenario that is technically complete and computationally efficient.

CPP—Chemical Properties Processor; the processor that gathers appropriate chemical properties data from the chemical properties database to supply necessary information to the Site Definition Processor and modules within the Multimedia Multipathway Simulation Processor.

CP.SSF—Chemical Properties Site Simulation File; file containing appropriate chemical properties data to the Multimedia Multipathway Simulation Processsor.

DIC—Dictionary File; data files used to identify appropriate parameters for each type of Site Simulation File in the system.

DLL—dynamic link library; a modular set of routines that link to their calling programs at run time rather than during compilation; standardizes a common set of routines used by more than one program.

DSP—Distribution Statistics Processor; the processor that randomly samples from statistical distributions representing measurement variability and sampling error related to the statistics of parameters required by the models (for example, distribution, mean, standard deviation, and range).

EB—Ecological Benchmarks Data Table; table used by the Chemical Properties Processor to determine these species for a particular simulation.

EBF—Ecological Bioaccumulation Factors Data Table; table used by the Chemical Properties Processor to determine these factors for a particular simulation.

EE—ecological exposure module; exposure module within the Multimedia Multipathway Simulation Processor that calculates exposure to ecological receptors.

ELP—Exit Level Processor; processors that take the individual site simulations generated by the Multimedia Multipathway Simulation Processor and tabulate information to discern levels of protection for decisions on the exit criteria for contamination.

EPA—U.S. Environmental Protection Agency; agency charged with conducting an assessment of hazardous waste concentration appropriate to protect human health and the environment in waste management units.

ER—ecological risk module; risk module within the Multimedia Multipathway Simulation Processor that calculates risk (or hazard quotient) to ecological receptors.

FF—farm foodchain module; foodchain module within the Multimedia Multipathway Simulation Processor that simulates contaminant movement through a farm-related foodchain.

FRAMES—Framework for Risk Analysis in Multimedia Environmental Systems; the software system developed by the Pacific Northwest National Laboratory, which forms the base for the FRAMES-HWIR Technology Software System.

GIS—Geographic Information System; program designed to translate geographic information into a graphical overlay.

GRF—Global Results Files; collection of data groups populated by execution of appropriate models in the appropriate sequence in the Multimedia Multipathway Simulation Processor and used to provide input to the Exit Level Processors. Each site and each pathway of exposure has a Global Results File; these files are stored in a common directory.

HE—human exposure module; exposure module within the Multimedia Multipathway Simulation Processor that models how humans might be exposed to contamination through various environmental pathways.

HHB—Human Health Benchmarks Data Table; table used by the Chemical Properties Processor to determine these health factors for a particular simulation.

HR—human risk module; risk module within the Multimedia Multipathway Simulation Processor that simulates human health impact that might result from exposures by human receptors to contamination in environmental pathways.

HWIR—Hazardous Waste Identification Rule; assessment of hazardous waste concentration appropriate to protect human health and the environment in waste management units.

HWIRIO.DLL—HWIR Input/Output Dynamic Link Library; a modular set of routines to simplify the interface between existing and new codes; provides a flexible and expandable storage format for input and output.

HWIRMC.DLL—HWIR Mmonte Carlo Dynamic Link Library; a modular set of routines to simplify the interface between the Statistical Dynamic Link Library and the system components and to allow the Statistical DLL to run with various compilers.

LAU—land application unit source module; module within the Multimedia Multipathway Simulation Processor that models contaminant release from a land application unit.

LF—landfill source module; module within the Multimedia Multipathway Simulation Processor that models contaminant release from a landfill.

Met—meteorological (that is, the meteorological database).

MethBio—Methanogenic Biodegradation Data Table; table used by the Chemical Properties Processor to determine this type of biodegradation for a particular simulation.

MICP—Metal/Inorganic Chemical Property Data Table; table used by the Chemical Properties Processor to identify basic chemical properties for these types of chemicals for a particular simulation.

MMSP—Multimedia Multipathway Simulation Processor; implements the release, transport, exposure, and risk/hazard assessment modeling protocol by choosing and linking the appropriate models to supply results to the Exit Level Processors; consists of a collection of individual software modules, each representing a modeling-based approach to one of the fundamental elements of the risk assessment process.

OCP—Organic Chemical Property Data Table; table used by the Chemical Properties Processor to determine whether to identify basic chemical properties for these types of chemicals for a particular simulation.

OPPI—Office of Policy, Planning, and Information; a now out-of-existence EPA group that developed a comprehensive database listing site location information for waste facilities.

ORD—Office of Research and Development; EPA group responsible for development of the FRAMES-HWIR Technology Software System.

OSW—Office of Solid Waste; EPA group responsible for development of the assessment strategy for the FRAMES-HWIR Technology Software System.

PNNL—Pacific Northwest National Laboratory; the organization designing the FRAMES-HWIR Technology Software System and developing most of the processors.

PSOF—Protective Summary Output File; collection of data generated by the Exit Level Processor II to show a range of levels at which a chemical concentration would be considered to provide minimal impacts to human health and the environment. (Note the term *protective* has yet to be defined.)

RSOF—Risk Summary Output File; collection of data generated by the Exit Level Processor I to summarize risk to human and ecological receptors under a variety of scenarios associated with a particular site and chemical.

RVP—Risk Visualization Processor; processor that generates graphical representations of various aspects of risk information; receives input from the Risk Summary Output File.

SDF—Site Definition Files; collection of data groups that result from executing the Site Definition Processor.

SDP—Site Definition Processor; the processor that organizes all data for input to the Site Definition Files by accessing databases containing all the necessary information and executing a hierarchical protocol to read these data files and extract the required data.

SI—surface impoundment source module; module within the Multimedia Multipathway Simulation Processor that models contaminant release from a surface impoundment.

SL—site layout; usually describing the set of information detailing the characteristics of a site for simulation.

SLP—Site Layout Processor; the processor that translates grid information related to environmental features at particular sites for use in the site-based database.

SO4Bio—SO_4 Reducation Biodegradation Data Table; table used by the Chemical Properties Processor to determine this type of biodegradation for a particular simulation.

SSF—Site Simulation Files; collection of optimized data groups that result from execution of the Computational Optimization Processor for input to the Multimedia Multipathway Simulation Processor.

STAT.DLL—HWIR Statistical Dynamic Link Library; a modular set of routines that facilitate the calculation of statistical parameters for several system components.

SUI—System User Interface; the interface that allows the user to interact with the system and connects, interacts with, and directs the other processors housed in the FRAMES-HWIR Technology Software System, managing the overall execution of the software system.

SW—surface water fate and transport module; a fate and transport module within the Multimedia Multipathway Simulation Processor that models contaminant behavior in surface waters such as streams, lakes, and ponds.

TF—terrestrial foodchain module; foodchain module within the Multimedia Multipathway Simulation Processor that simulates contaminant movement through the terrestrial food web to ecological receptors.

TP—Transformation Products Data Table; set of seven tables used by the Chemical Properties Processor to describe various types of transformation for a particular simulation.

UTM—Universal Transverse Mercator; a simple and accurate system for specifying a point between 80 degrees South latitude and 84 degrees North latitude on the surface of the Earth.

VZ—vadose zone fate and transport module; a fate and transport module within the Multimedia Multipathway Simulation Processor that models contaminant behavior in the subsurface above the groundwater.

WMU—waste management unit; a single source of contamination that could result in contaminant release to multiple environmental media; may include more than one of a single source type (for example, three aerated tanks in a grouping might be one waste management unit).

WP—Waste Pile Source Module; module within the Multimedia Multipathway Simulation Processor that models contaminant release from a waste pile.

WS—Watershed Fate and Transport Module; fate and transport module within the Multimedia Multipathway Simulation Processor that simulates contaminant movement overland and through interconnected creeks and rivers comprising a regional watershed.

4.0 References

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