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FINAL INTERIM SOIL CLEANUP GOALS REPORT WITH TRANSMITTAL NSY PORTSMOUTH VA

3/1/1992

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December 3, 1998

Mr. Tim Riordan, P.E.
Department of Navy
Atlantic Division
Naval Facilities Engineering Command
1510 Gilbert Street
Norfolk, VA 23511-2699

RE: Atlantic Wood Industries, Inc., Portsmouth, VA

Dear Tim:

Enclosed is a copy of the final report which used the MULTIMED model to develop clean up goals for constituents of concern that were protective of groundwater at the site. This may be useful in the upcoming work to develop new clean up goals for the AWII site.

Please call if you have any questions.

Sincerely,

ATLANTIC WOOD INDUSTRIES, INC.

Ross F. Worsham
Senior Environmental Engineer

RFW/ikn

Enclosure

FINAL REPORT
INTERIM SOIL CLEANUP GOALS
ATLANTIC WOOD INDUSTRIES, INC.
PORTSMOUTH, VIRGINIA SITE

Prepared for:

ATLANTIC WOOD INDUSTRIES, INC.
SAVANNAH, GEORGIA

Prepared by:

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PROJECT NO. 375600-08

MARCH 1992

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1.0 INTRODUCTION

Atlantic Wood Industries, Inc. (AWI) is performing a Remedial Investigation/Feasibility Study (RI/FS) at their Portsmouth, Virginia facility. A draft Remedial Investigation Report was submitted to the U.S. EPA Region III (EPA) and the Virginia Department of Waste Management (VDWM) in September 1990. Based upon a review of the RI Report, EPA determined that additional RI tasks were required to fully characterize the nature and extent of contamination. In a letter dated June 21, 1991, EPA provided a general outline for additional tasks to fulfill the data requirements. The letter also suggested that AWI prepare a Focussed Feasibility Study to determine interim measures addressing potential sources of contamination, such as "highly contaminated" soils and dense non-aqueous phase liquid (DNAPL). During a meeting on July 16, 1991, EPA suggested using the Multimedia Exposure Assessment Model (Multimed) (EPA, 1991) to determine interim soil cleanup goals that are protective of groundwater.

This report describes the application of Multimed to the Portsmouth site and develops interim soil cleanup goals for potential constituents of concern (PCOCs), which were identified in the Public Health and Environmental Assessment (PHEA) (Keystone, 1991). The remainder of Section 1.0 discusses background, approaches, and lists PCOCs to be modeled for development of interim soil cleanup goals. Section 2.0 discusses the site application objectives of the Multimed model; Section 3.0 discusses parameters defining the input and output files of the model; Section 4.0 discusses the use of the model output data in deriving site-specific interim soil cleanup goals; Section 5.0 presents the results of the modeling, as well as the interim soil cleanup goals derived from the model output; Section 6.0 presents the uncertainties associated with the modeling efforts; and Section 7.0 summarizes the highlights of this report.

1.1 Background

Analytical groundwater data acquired for the shallow, unconfined aquifer during the Remedial Investigation revealed that detectable concentrations of PCOCs were present in the groundwater. These PCOCs include polycyclic aromatic

hydrocarbons (PAHs) phenolics (including pentachlorophenol), volatile organic compounds (VOCS), and metals (arsenic, copper and zinc). The PCOCs were identified in the PHEA, that was performed as part of the Final Remedial Investigation Report (Keystone, 1991) for the site. Analytical data acquired during the Remedial Investigation also revealed the presence of the same classes of PCOCs, in addition to dioxins and furans, in the unsaturated zone soils above the shallow aquifer. The presence of these PCOCs in the soil and groundwater implies the possibility of downward vertical movement of organic leachate from the unsaturated zone to the groundwater of the Columbia Aquifer. Once in the groundwater, the transport of PCOCs from the saturated zone to potential receptor domestic and industrial wells and the Elizabeth River becomes a likely scenario. Although the aquifer is not currently being used as a potable water supply, it could be used a such in the future. Domestic and industrial wells are therefore considered to be potential receptors in a future scenario. The Elizabeth River is also considered a potential environmental receptor for those PCOCs which have leached from the soil into the shallow aquifer at the Portsmouth site.

For the purposes of the Focussed Feasibility Study, it becomes necessary to develop interim soil cleanup goals that will be protective of groundwater and the Elizabeth River. It has been suggested by EPA that this task be performed by applying EPA's Multimed Model to a designated source area at the Portsmouth site.

1.2 Approach

Multimed is a model that is capable of simulating PCOC release, in leachate form, from a source (or designated area) at the site to soils directly beneath the source. In addition, Multimed can be used to further simulate PCOC fate and transport in the unsaturated and saturated zones, followed by possible interception of the subsurface plume by a specified receptor (e.g., a well or surface stream).

This section introduces the soil PCOCs for which interim soil cleanup goals will be derived, and the approach for using Multimed in developing these interim cleanup goals that are protective of the Columbia aquifer beneath the site and the Elizabeth River.

1.2.1 Soil PCOCs to be Modeled Using Multimed

The soil PCOCs for which interim cleanup goals will be developed that are protective of the Columbia Aquifer and the Elizabeth River include the following:

- polycyclic aromatic hydrocarbons (PAHs)
  - benzo(a)anthracene
  - benzo(a)pyrene
  - benzo(b)fluoranthene
  - benzo(k)fluoranthene
  - chrysene
  - dibenzo(a,h)anthracene
  - indeno(1,2,3-cd)pyrene
  - acenaphthene
  - acenaphthylene
  - anthracene
  - benzo(g,h,i)perylene
  - fluoranthene
  - fluorene
  - naphthalene
  - phenanthrene
  - pyrene

- additional PAHs
  - 2-methylnaphthalene
  - dibenzofuran

- volatile organic compounds
  - benzene
  - toluene
  - styrene
  - total xylenes

- phenolic compounds
  - pentachlorophenol
  - phenol
  - 2,4-dimethylphenol
  - 2-methylphenol
  - 4-methylphenol

- dioxins/furans
  - 2,3,7,8-tetrachlorodibenzo-p-dioxin

- metals
  - arsenic
  - copper
  - zinc

1.2.2 Groundwater Approach

Multimed will be used to establish interim soil cleanup goals protective of groundwater beneath the Portsmouth site at a designated downgradient receptor well location. Monitoring well MW-102, installed in the Columbia aquifer, at the western side of the property, has been selected as the receptor well location, because it is situated downgradient from a groundwater mound at the site and PCOCs were detected in groundwater samples collected from this location. In addition, it is more likely that property west of the site, rather than any other parts of the site, may potentially undergo residential development in the future (AWI, 1992). The approach for using Multimed to establish interim soil cleanup goals protective of the surficial Columbia aquifer involves the following steps: 1) model assumed PCOC leachate concentrations from a designated source area, through the unsaturated and saturated zones beneath the Portsmouth site, to predict groundwater concentrations of PCOCs at receptor location MW-102; 2) derive dilution-attenuation factors from the assumed initial leachate concentrations at the source and the modeled groundwater concentrations at receptor location MW-102; 3) multiply the dilution-attenuation factors (derived in step 2) by groundwater performance standards for the PCOCs to obtain targeted PCOC leachate

concentrations at the source; and 4) apply simple mathematical partitioning to the target PCOC leachate concentrations to derive corresponding soil concentrations at the source (interim soil cleanup goals).

A more descriptive and detailed discussion of the approach for establishing interim soil cleanup goals protective of the Columbia aquifer beneath the site is provided in Section 4.0 of this report.

1.2.3 Elizabeth River Approach

The approach for using Multimed to establish interim soil cleanup goals protective of the Elizabeth River involves the following steps: 1) model an assumed PCOC leachate concentration from a designated source area, through the unsaturated and saturated zones beneath the Portsmouth site, to predict groundwater concentrations of PCOCs at the Elizabeth River; 2) derive dilution-attenuation factors from the assumed initial leachate concentrations at the source and the modeled groundwater concentrations at the Elizabeth River; 3) multiply an assumed river mixing (dilution) factor by a set of targeted PCOC river concentrations (ambient water quality criteria) to obtain targeted groundwater PCOC concentrations at the point of groundwater discharge into the river; 4) multiply the dilution-attenuation factors (derived in step 2) by the targeted groundwater PCOC concentrations (derived in step 3) to obtain a targeted leachate concentration at the source; and 5) apply simple mathematical partitioning to the target PCOC leachate concentrations to derive corresponding soil concentrations at the source (interim soil cleanup goals).

The river mixing factor mentioned in the third step assumes a 50:1 dilution to the PCOCs of the Elizabeth River. This factor, although very conservative, is recommended by the State of Virginia for use in NPDES permits when flow data is not available, as discussed in the PHEA (Keystone, 1991).

A more descriptive and detailed discussion of the approach for establishing interim soil cleanup goals protective of the Elizabeth River is provided in Section 4.0 of this report.

1.3 Description of Multimed

The fate and transport of a PCOC(s) released from a source, when using Multimed, is modeled incorporating the known responses of the PCOC to a number of complex physical, chemical and biological processes the PCOC encounters as it moves in the multimedia environment. These responses are incorporated as chemical-specific variable input data by the model user. Other variable input data, such as source-specific and aquifer-specific data, must also be incorporated by the user. For some of the variable input data, the model provides the user with an option to either manually specify values for the variable input data (constant input), or have the model mathematically derive the variable input data from other constant input (derived input).

After all relevant input data have been defined and the type of output desired has been specified, the multimedia transport of each PCOC is mathematically simulated by the model. An output file is then generated showing final concentrations of specific constituents and any other pertinent information (i.e., times of concentration occurrences or statistical distributions resulting from multiple iterations). The final downgradient concentration(s) produced by the model can be used to represent potential toxic exposure concentration(s) that may occur to human and/or environmental receptors.

The following summarizes the functions of Multimed that can be used to establish interim soil cleanup goals for the Portsmouth site:

- solutions for either of two sets of boundary conditions, gaussian or patch, for saturated zone transport that specify concentration distributions emanating from a source;
- steady-state modeling of flow and transport in the unsaturated and saturated zones;
- transient-state modeling through the unsaturated and saturated zones, as a function of time, to produce either maximum concentrations or

time-stepped concentrations at a designated downgradient receptor location;

- deterministic simulations for steady-state and transient-state modeling;
- Monte-Carlo simulations for steady-state modeling;
- generation of random numbers over multiple iterations using the Monte-Carlo simulations; and
- performance of statistical analyses resulting from multiple iterations of Monte-Carlo simulations.

2.0 SITE APPLICATION OBJECTIVES OF THE MULTIMED MODEL

This section discusses the specific capabilities and functions of Multimed that were utilized to model leachate flow and transport in the unsaturated zone, and PCOC dilution-attenuation during transport through the saturated zone beneath the Portsmouth site. This section also provides a general discussion of some of the equations used by Multimed that describe transport in both the unsaturated and saturated zones. Finally, the assumptions and limitations inherent with each module (unsaturated and saturated zone modules) of Multimed will be characterized.

For this report, the Multimed model was applied to the Portsmouth site using two types of flow and transport simulations for development of downgradient groundwater PCOC concentrations in the Columbia Aquifer, for each of the two receptor locations (MW-102 and the Elizabeth River). These two simulations are the deterministic and the Monte-Carlo simulations, and are being performed as suggested by U.S. EPA Region III (U.S. EPA, 1991b).

Discussions of flow and transport in the unsaturated and saturated zones, as well as descriptions of steady-state conditions, and deterministic and Monte-Carlo simulations of Multimed are provided in the following subsections.

2.1 Flow in the Unsaturated Zone

Multimed simulates flow in the unsaturated zone as a steady, downward flow to the water table. The overall equation governing flow in the unsaturated zone is given by a form of Darcy's law (U.S. EPA, 1991a):

$$- K_v k_{rw} [(\delta \tau / \delta z) - 1] = Q,$$

where:

τ	=	the pressure head (m);
z	=	the depth coordinate (m);
K_v	=	the saturated hydraulic conductivity (m/yr);

k_{rw} = the relative hydraulic conductivity (dimensionless); and
Q = the percolation rate (m/yr).

The following lists the assumptions and limitations, as presented in the User's Manual (U.S. EPA, 1991a), on which the unsaturated zone flow model is based:

- Flow of the fluid phase is considered isothermal, one-dimensional and governed by Darcy's Law.
- The flow field is considered to be steady.
- The simultaneous flow of the second phase (i.e., air) can be disregarded.
- Hysteresis effects are neglected in the specification of the characteristic curves.

2.2 Transport in the Unsaturated Zone

The transport of PCOCs in the unsaturated zone is treated as a one-dimensional problem with dispersion occurring in the vertical direction. Linear adsorption and first-order decay of the PCOCs are also considered by the model as important fate and transport mechanisms. The overall transport equation for the unsaturated zone module can be expressed as (U.S. EPA, 1991a):

$$R_v(\delta C/\delta t) = D_v(\delta^2 C/\delta z^2) - V_v(\delta C/\delta z) - \Gamma_v R_v C,$$

where:

C = the dissolved phase PCOC concentration in the unsaturated zone (mg/L);

D_v = the dispersion coefficient in the unsaturated zone (m^2/yr);

Γ_V	=	the first-order degradation rate within the unsaturated zone (1/yr);
R_V	=	the unsaturated zone retardation factor (dimensionless);
V_V	=	unsaturated zone seepage velocity (m/yr);
t	=	time (yr); and
z	=	the vertical coordinate which is positive downwards (m).

The following lists the assumptions and limitations, as presented in the User's Manual (U.S. EPA, 1991a), on which the unsaturated zone transport model is based:

- The flow field within the unsaturated zone is steady-state.
- Seepage velocity and other model parameters (e.g., the dispersion and partition coefficients) are uniform in each layer. Each layer is homogeneous and isotropic.
- Transport is assumed to be strictly one-dimensional. Lateral and transverse advection and dispersion are neglected.
- Adsorption and decay of the solute may be described by a linear equilibrium isotherm and a first-order decay constant, respectively. The products of chemical and biochemical decay are neglected.
- Each layer is approximated as being infinite in thickness. This assumption is valid and introduces negligible errors if the ratio of dispersivity to the layer thickness is small ($<<1.0$).

2.3 Saturated Zone Transport

The three-dimensional solute transport equation on which the saturated zone module is based can be expressed as (U.S. EPA, 1991a):

$$D_x(\delta^2C/\delta x^2) + D_y(\delta^2C/\delta y^2) + D_z(\delta^2C/\delta z^2) - V_s(\delta C/\delta x) = R_s(\delta C/\delta t) + R_s\Gamma_s C + R_s(qC/B\theta),$$

where:

x, y, z	=	spatial coordinates in the longitudinal, lateral and vertical directions, respectively (m);
C	=	dissolved concentration of PCOC (mg/L);
D_x, D_y, D_z	=	dispersion coefficients in the x, y and z directions, respectively (m^2/yr);
V_S	=	one-dimensional, uniform seepage velocity in the x direction (m/yr);
R_S	=	retardation factor in the saturated zone (dimensionless);
t	=	elapsed time (yr);
Γ_S	=	effective first-order decay coefficient in the saturated zone (1/yr);
q	=	net recharge outside the facility, percolating directly into and diluting the PCOC plume (m/yr);
B	=	thickness of the saturated zone (m); and
θ	=	effective porosity for the saturated zone (dimensionless).

The flow domain for the saturated zone is regarded as semi-infinite in the x-direction, infinite in the y-direction, and finite in the z-direction.

Solution of the above equation requires selection of a boundary condition at the source with respect to the distribution of the PCOC along the vertical source plane. The boundary condition used for the Portsmouth site was a gaussian distribution of PCOC concentrations in the lateral direction and uniform distribution over the vertical mixing or source penetration depth (H). Figure 2-1 presents a schematic of the flow domain for this boundary condition (U.S. EPA, 1991a). The maximum dissolved concentration of the solute at the source occurs at the center of the gaussian distribution. The spread of a plume away from a gaussian source is considered by the model as the standard deviation of a gaussian distribution, σ, and can be approximated by the following:

$$\sigma = W/6,$$

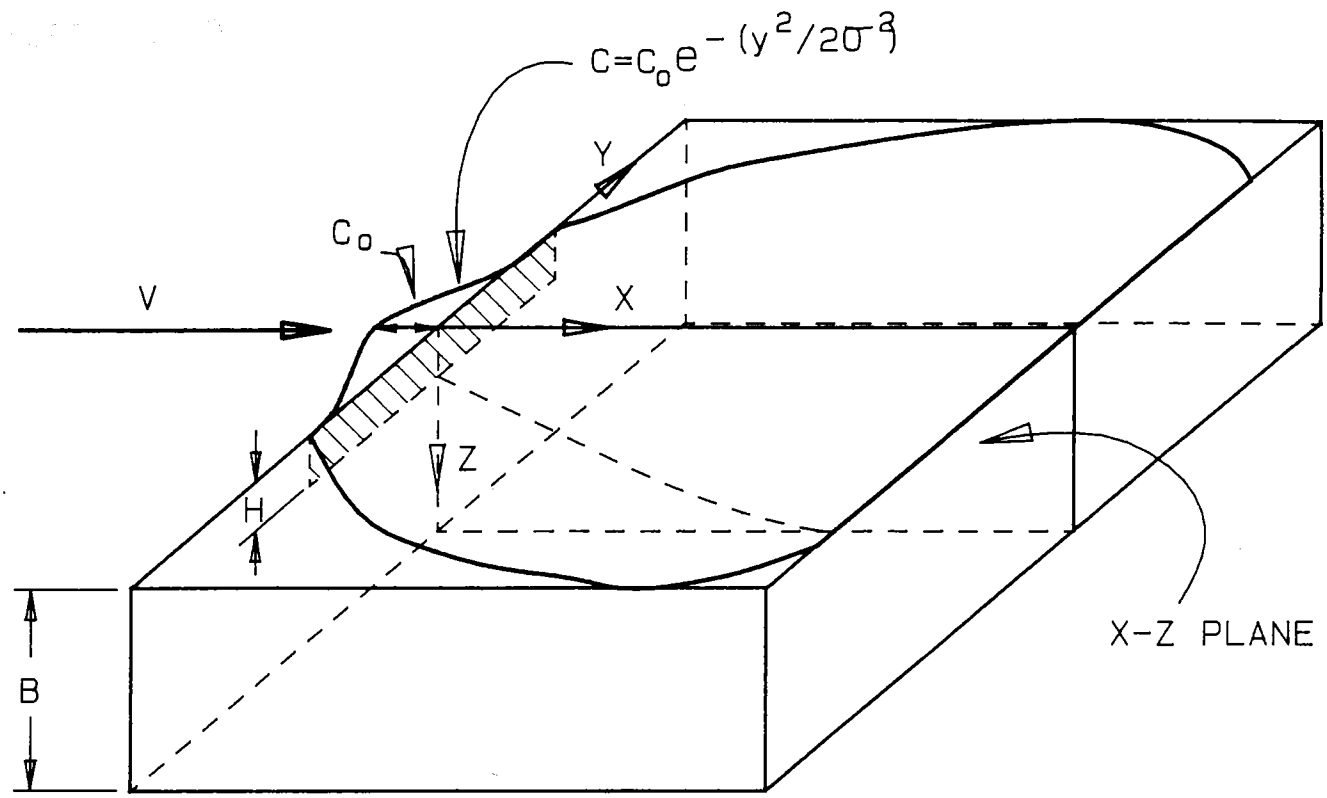
where: W = the width of the source.

The following lists the assumptions and limitations, as presented in the User's Manual (U.S. EPA, 1991a), on which the saturated zone transport model is based:

- A single aquifer with uniform thickness is modeled. The saturated, porous medium properties are isotropic and homogeneous.

- The groundwater flow velocity is steady and uniform. This implies that the recharge through the source and into the groundwater plume is small in comparison with the natural (regional) flow. Also, the tidal effects within the Columbia Aquifer are ignored by the model.

- PCOC degradation/transformation follows the first-order rate law and is restricted to biodegradation and hydrolysis. Both processes were assumed to be negligible, for conservatism, when modeling for the Portsmouth site.



Co = GROUNDWATER CONCENTRATION OF CHEMICAL AT SOURCE AREA, mg/L.

C = GROUNDWATER CONCENTRATION OF CHEMICAL AT SOME POINT DOWNGRADIENT FROMN THE SOURCE AREA.

σ = STANDARD DEVIATION OF THE SOURCE (GAUSSIAN SPREAD), m.

X = LONGITUDINAL DIRECTION FROM SOURCE.

Y = LATERAL DIRECTION FROM SOURCE.

Z = VERTICAL DIRECTION FROM SOURCE.

B = AQUIFER THICKNESS, m.

H = SOURCE THICKNESS (MIXING ZONE DEPTH). m.

V = GROUNDWATER SEEPAGE VELOCITY, m/yr.

FIGURE 2-1

SCHEMATIC DIAGRAM OF THE GAUSSIAN SOURCE BOUNDARY CONDITION FOR THE SATURATED ZONE TRANSPORT MODULE OF THE MULTIMED EXPOSURE ASSESSMENT MODEL

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- PCOC adsorption follows a linear isotherm. Adsorption takes place instantaneously and the adsorbed phase is in local equilibrium.

- The initial PCOC concentration in the Columbia Aquifer is zero.

2.4 Steady-State Conditions

Steady-state conditions in the model were used for the approximation of a system mass balance in which water entering the flow system is balanced by the water leaving the system. There is no significant temporal variation in the system. Thus, the assumption of a steady-state system basically simplifies the mathematical equations used in describing the flow and transport processes, and reduces the amount of input data, since no information on temporal variability is necessary.

The assumption of steady-state flow and transport requires that the source be of sufficiently large mass to ensure that the final downgradient PCOC concentration in the groundwater is maintained at the receptor location. The source is assumed to be continuous and constant, without source decay or any other temporal variation.

2.5 Deterministic and Monte-Carlo Simulations

The Multimed model was run within both a deterministic framework and a Monte-Carlo framework for the steady-state conditions. In the deterministic framework, each input variable is of fixed value and is assumed to have a fixed mathematical relationship with the other variables. Each run of a deterministic model can result in either the output of one maximum concentration or time-stepped concentrations occurring over the modeled time interval.

The deterministic mode of the Multimed model should only be applied to a particular modeling situation(s) in which all values for the input variables are known, or can be assumed with a high level of confidence. If uncertainty in the values of input variables exists, then the simulation(s) may be performed within the Monte-Carlo framework, where the randomness and uncertainties of values inherent with the modeled system can be evaluated.

The Monte-Carlo method provides a means of applying the known uncertainty associated with an input variable to that variable. This uncertainty is expressed as a cumulative probability distribution. For each uncertain input variable, a probability distribution must be specified that best describes the frequencies of occurrences of measured values for that variable. As the Monte-Carlo simulation is run over a large number of iterations (the number of iterations is specified by the user) random values generated from a specified probability distribution are assigned to the variable. The probability distribution may be specified as uniform, $\log_{10}$ uniform, normal, $\log_{10}$ normal, exponential, empirical, or the Johnson System of distributions. Relating the input variable to any one cumulative probability distribution may be difficult. The difficulty arises from the fact that the specification of a distribution for an input variable requires a large amount of site-specific data on that variable that may not be available.

3.0 PARAMETERS DEFINING INPUT AND OUTPUT FILES OF MULTIMED

This section presents a summary of the values used in defining all input variable parameters associated with the unsaturated and saturated zone modules, as well as the options selected for generation of model output.

All values defining the input variable parameters used in the deterministic models of the steady-state conditions assumed for the Portsmouth site are presented in Tables 3-1 through 3-3. Likewise, all values defining the input variable parameters used in the Monte-Carlo models of the steady-state conditions assumed for the Portsmouth site are presented in Tables 3-4 through 3-7. Randomly generated values for input variables not found in Tables 3-4 through 3-7 can be found in Appendix B of this report. Tables 3-1 through 3-7 provide the following information associated with the input data: the name of the variable; the units; numerical value of the variable or range of values for an uncertain variable; type of value input (i.e., constant, derived, or distribution type); and the referenced source for the entered value or range of values.

The type of values assigned to the deterministic, steady-state variables were constant and derived inputs. The type of values assigned to the Monte-Carlo, steady-state variables were constant inputs, derived inputs, or ranges of uniform distribution. A uniform distribution of values was specified for select input variables due to the lack of site-specific data. For a uniform distribution, only minimum and maximum values must be specified. Other distributions (i.e., normal and lognormal) require more information, such as a mean value and standard deviation, which was not available for any of the input variables, due to the lack of site-specific data.

3.1 Input Values for Unsaturated Flow and Transport

Tables 3-1, 3-4, and 3-6 present the deterministic and Monte-Carlo steady-state input values for variables associated with leachate flow and transport of PCOCs in the unsaturated zone. Information from the RI Report (Keystone, 1991) indicates the unsaturated zone beneath the source area generally consists of a silty, sandy soil with some gravel present; this soil was modeled as a single layer. The thickness of

TABLE 3-1
SUMMARY OF INTERIM INPUT PARAMETERS USED IN MODELING
PCOC LEACHATE FLOW AND TRANSPORT THROUGH
THE UNSATURATED ZONE FOR MODELING TO MW-102 AND THE ELIZABETH RIVER
U.S. EPA EXPOSURE ASSESSMENT MULTIMEDIA MODEL
DETERMINISTIC MODEL OF STEADY-STATE CONDITIONS
ATLANTIC WOOD INDUSTRIES, INC.
PORTSMOUTH, VA

INPUT VARIABLE	UNITS	VALUE	INPUT TYPE	COMMENTS
UNSATURATED ZONE MATERIAL VARIABLES				
Depth of Unsaturated Zone	m	1	CONSTANT	(1)
Number of Layers	—	1	CONSTANT	(1)
Saturated Hydraulic Conductivity	cm/hr	4.42	CONSTANT	(2)
Unsaturated Zone Porosity	—	0.38	CONSTANT	(3)
UNSATURATED ZONE FUNCTION VARIABLES				
ALFA Coefficient	1/cm	0.075	CONSTANT	(4)
Residual Water Content	—	0.065	CONSTANT	(5)
Van Genuchten Exponent	—	1.89	CONSTANT	(4)
UNSATURATED ZONE TRANSPORT VARIABLES				
Bulk Density of Soil for Layer	g/cc	1.49	CONSTANT	(6)
Longitudinal Dispersivity of Layer	m	0.042	DERIVED	(7)
Percent Organic Matter	—	0.5	CONSTANT	(8)
Thickness of Layer	m	1	CONSTANT	(1)

NOTES:

(1) Directly obtained or derived from information presented in the Atlantic Wood Final Remedial Investigation Report, September 1991 (Keystone, 1991).

(2) Literature value obtained from Multimed User's Manual (U.S. EPA, 1991a), Table 6-2, for sandy loam.

(3) Value obtained from Multimed User's Manual (U.S. EPA, 1991a), Table 6-3. Represents average porosity for sand (fine and coarse), gravel (fine and coarse), silt, and clay.

(4) Literature value obtained from Multimed User's Manual (U.S. EPA, 1991a), Table 6-5, for sandy loam.

(5) Literature value obtained from Multimed User's Manual (U.S. EPA, 1991a), Table 6-4, for sandy loam.

(6) Literature value obtained from Multimed User's Manual (U.S. EPA, 1991a), Table 6-8, for sandy loam.

(7) Value obtained from the following calculation:

$av = 0.02 + 0.022L$,

where av = longitudinal dispersivity (unsaturated flow in the vertical direction)

L = depth of the unsaturated zone = 1m

(8) Literature obtained from Multimed User's Manual (U.S. EPA, 1991a), Table 6-7, for Group B soils.

TABLE 3-2
SUMMARY OF INTERIM INPUT PARAMETERS USED IN MODELING
PCOC LEACHATE FLOW AND TRANSPORT THROUGH
THE SATURATED ZONE OF THE COLUMBIA AQUIFER
TO RECEPTOR WELL LOCATION MW-102
U.S. EPA EXPOSURE ASSESSMENT MULTIMEDIA MODEL
DETERMINISTIC MODEL OF STEADY-STATE CONDITIONS
ATLANTIC WOOD INDUSTRIES, INC.
PORTSMOUTH, VA

INPUT VARIABLE	UNITS	VALUE	INPUT TYPE	COMMENTS
CHEMICAL-SPECIFIC VARIABLES				
Acid Catalyzed Hydrolysis Rate	1/M-yr	0	CONSTANT	(1)
Base Catalyzed Hydrolysis Rate	1/M-yr	0	CONSTANT	(1)
Biodegradation Coefficient (Sat. Zone)	1/yr	0	CONSTANT	(1)
Dissolved Phase Decay Coefficient	1/yr	0	CONSTANT	(1)
Distribution Coefficient, Kd	—	—	DERIVED	(2)
Neutral Hydrolysis Rate Constant	1/yr	0	CONSTANT	(1)
Normalized Distribution Coefficient, Koc	ml/g	—	CONSTANT	(1)
Overall Chemical Decay Coefficient	1/yr	0	CONSTANT	(3)
Overall First-Order Decay Coefficient	1/yr	0	DERIVED	(4)
Reference Temperature	C	25	CONSTANT	(5)
Solid Phase Decay Coefficient	1/yr	0	CONSTANT	(1)
SOURCE-SPECIFIC VARIABLES				
Area of Western Source	sq.m.	8,260	CONSTANT	(6)
Duration of Pulse	yr	—	CONSTANT	(5)
Infiltration Rate	m/yr	0.317	CONSTANT	(7)
Initial Concentration of Leachate	mg/L	100	CONSTANT	(8)
Length Scale of Source	m	90.88	DERIVED	(6)
Near Field Dilution	—	>1	DERIVED	(7)
Recharge Rate	m/yr	0.317	CONSTANT	(7)
Source Decay Constant	1/yr	0	CONSTANT	(3)
Spread of Contaminant Source	m	15.1	DERIVED	(10)
Width Scale of Source	m	90.88	DERIVED	(6)
AQUIFER-SPECIFIC VARIABLES				
Angle off Centerline of Plume	degree	0	CONSTANT	(5)
Aquifer Porosity	—	0.38	CONSTANT	(11)
Aquifer Thickness	m	5.34	CONSTANT	(9)
Bulk Density	g/cc	1.49	CONSTANT	(12)
Distance to Receptor, Xr	m	183	CONSTANT	(13)
Groundwater Seepage Velocity	m/yr	—	DERIVED	(14)
Hydraulic Conductivity	m/yr	442	CONSTANT	(9)
Hydraulic Gradient	—	0.006	CONSTANT	(9)
Longitudinal Dispersivity	m	18.3	CONSTANT	(15)
Mixing Zone Depth	m	—	DERIVED	(14)
Organic Carbon Content (Fraction), foc	—	0.005	CONSTANT	(16)
Particle Diameter	cm	0.03	CONSTANT	(17)
Retardation Coefficient	—	—	DERIVED	(18)
Temperature of Aquifer	C	18	CONSTANT	(5)
Transverse Dispersivity	m	6.1	CONSTANT	(15)
Vertical Dispersivity	m	1.02	CONSTANT	(15)
pH	—	6.5	CONSTANT	(5)

TABLE 3-2 (CON'T.)
SUMMARY OF INTERIM INPUT PARAMETERS USED IN MODELING
PCOC LEACHATE FLOW AND TRANSPORT THROUGH
THE SATURATED ZONE OF THE COLUMBIA AQUIFER
TO RECEPTOR WELL LOCATION MW-102
U.S. EPA EXPOSURE ASSESSMENT MULTIMEDIA MODEL
DETERMINISTIC MODEL OF STEADY-STATE CONDITIONS
ATLANTIC WOOD INDUSTRIES, INC.
PORTSMOUTH, VA

NOTES FOR TABLE 3-2:

(1) Literature value obtained from Aquatic Fate Process Data for Organic Priority Pollutants (U.S. EPA, 1982).

(2) Distribution coefficient (not presented by model output) was derived from the following calculation:
Kd = Koc * foc,
where Koc = normalized distribution coefficient
foc = organic carbon content (fraction)

(3) Conservative input value assumed.

(4) Value will be zero since it is derived from solid and dissolved phase coefficients, which themselves were assigned a value of zero.

(5) Temporal factors are ignored under steady-state conditions.

(6) Area was designated as shown in Figure 3-1. Model assumed area is square, approximated area at 8,260 sq.m, with length = width = 90.88 m.

(7) Infiltration and recharge rates selected for model represents minimum value derived from Hydrological Evaluation of Landfill Performance (HELP) model.

(8) Assumed value. See Section 3.2.2 for discussion.

(9) Directly obtained or derived from information presented in the Atlantic Wood Final Remedial Investigation Report, September 1991 (Keystone, 1991).

(10) Spread of gaussian contaminant source = width of source/6.

(11) Value represents mean of the mean porosity values for materials ranging from fine sand to clay - Table 6-3, Multimed User's Manual (U.S. EPA, 1991a).

(12) Literature value obtained from Multimed User's Manual (U.S. EPA, 1991a), Table 6-8, for sandy loam.

(13) Determined from Figure 3-1.

(14) Model-derived value unknown to user; not presented in model output (Appendix A).

(15) Longitudinal Dispersivity, aL = 0.1*Xr
Transverse Dispersivity = aL/3
Vertical Dispersivity = 0.056*aL

(16) No site-specific foc data available. Input value of 0.005 is a model default value which falls within range of foc values derived from fom values obtained from Multimed User's Manual, Table 6-7, for Group B soils using the following equation:
foc = fom/172.4.

(17) Mean particle diameter assumed from range given for medium sand in Table 6-10 of Multimed User's Manual (U.S. EPA, 1991a).

(18) Actual model-derived Rd value unknown to user; not presented in model output (Appendix A). See discussion in Section 3.2.3.

TABLE 3-3
SUMMARY OF INTERIM INPUT PARAMETERS USED IN MODELING
PCOC LEACHATE FLOW AND TRANSPORT THROUGH
THE SATURATED ZONE OF THE COLUMBIA AQUIFER
TO THE ELIZABETH RIVER
U.S. EPA EXPOSURE ASSESSMENT MULTIMEDIA MODEL
DETERMINISTIC MODEL OF STEADY-STATE CONDITIONS
ATLANTIC WOOD INDUSTRIES, INC.
PORTSMOUTH, VA

INPUT VARIABLE	UNITS	VALUE	INPUT TYPE	COMMENTS
CHEMICAL-SPECIFIC VARIABLES				
Acid Catalyzed Hydrolysis Rate	1/M-yr	0	CONSTANT	(1)
Base Catalyzed Hydrolysis Rate	1/M-yr	0	CONSTANT	(1)
Biodegradation Coefficient (Sat. Zone)	1/yr	0	CONSTANT	(1)
Dissolved Phase Decay Coefficient	1/yr	0	CONSTANT	(1)
Distribution Coefficient, Kd	--	--	DERIVED	(2)
Neutral Hydrolysis Rate Constant	1/yr	0	CONSTANT	(1)
Normalized Distribution Coefficient, Koc	ml/g	--	CONSTANT	(1)
Overall Chemical Decay Coefficient	1/yr	0	CONSTANT	(3)
Overall First-Order Decay Coefficient	1/yr	0	DERIVED	(4)
Reference Temperature	C	25	CONSTANT	(5)
Solid Phase Decay Coefficient	1/yr	0	CONSTANT	(1)
SOURCE-SPECIFIC VARIABLES				
Area of Eastern Source	sq.m.	10,000	CONSTANT	(6)
Duration of Pulse	yr	--	CONSTANT	(5)
Infiltration Rate	m/yr	0.317	CONSTANT	(7)
Initial Concentration of Leachate	mg/L	100	CONSTANT	(8)
Length Scale of Source	m	100	DERIVED	(6)
Near Field Dilution	--	>1	DERIVED	(7)
Recharge Rate	m/yr	0.317	CONSTANT	(7)
Source Decay Constant	1/yr	0	CONSTANT	(3)
Spread of Contaminant Source	m	16.7	DERIVED	(10)
Width Scale of Source	m	100	DERIVED	(6)
AQUIFER-SPECIFIC VARIABLES				
Angle off Centerline of Plume	degree	0	CONSTANT	(5)
Aquifer Porosity	--	0.38	CONSTANT	(11)
Aquifer Thickness	m	5.34	CONSTANT	(9)
Bulk Density	g/cc	1.49	CONSTANT	(12)
Distance to Receptor, Xr	m	244	CONSTANT	(13)
Groundwater Seepage Velocity	m/yr	--	DERIVED	(14)
Hydraulic Conductivity	m/yr	820	CONSTANT	(9)
Hydraulic Gradient	--	0.006	CONSTANT	(9)
Longitudinal Dispersivity	m	24.4	CONSTANT	(15)
Mixing Zone Depth	m	--	DERIVED	(14)
Organic Carbon Content (Fraction), foc	--	0.005	CONSTANT	(16)
Particle Diameter	cm	0.03	CONSTANT	(17)
Retardation Coefficient	--	--	DERIVED	(18)
Temperature of Aquifer	C	18	CONSTANT	(5)
Transverse Dispersivity	m	8.13	CONSTANT	(15)
Vertical Dispersivity	m	1.37	CONSTANT	(15)
pH	--	6.5	CONSTANT	(5)

TABLE 3-3 (CON'T.)
SUMMARY OF INTERIM INPUT PARAMETERS USED IN MODELING
PCOC LEACHATE FLOW AND TRANSPORT THROUGH
THE SATURATED ZONE OF THE COLUMBIA AQUIFER
TO THE ELIZABETH RIVER
U.S. EPA EXPOSURE ASSESSMENT MULTIMEDIA MODEL
DETERMINISTIC MODEL OF STEADY-STATE CONDITIONS
ATLANTIC WOOD INDUSTRIES, INC.
PORTSMOUTH, VA

NOTES FOR TABLE 3-3:

(1) Literature value obtained from Aquatic Fate Process Data for Organic Priority Pollutants (U.S. EPA, 1982).

(2) Distribution coefficient (not presented by model output) was derived from the following calculation:
Kd = Koc * foc,
where Koc = normalized distribution coefficient
foc = organic carbon content (fraction)

(3) Conservative input value assumed.

(4) Value will be zero since it is derived from solid and dissolved phase coefficients, which themselves were assigned a value of zero.

(5) Temporal factors are ignored under steady-state conditions.

(6) Area was designated as shown in Figure 3-1. Model assumed area is square, approximated area at 10,000 sq.m, with length = width = 100 m.

(7) Infiltration and recharge rates selected for model represents minimum value derived from Hydrological Evaluation of Landfill Performance (HELP) model.

(8) Assumed value. See Section 3.2.2 for discussion.

(9) Directly obtained or derived from information presented in the Atlantic Wood Final Remedial Investigation Report, September 1991 (Keystone, 1991).

(10) Spread of gaussian contaminant source = width of source/6.

(11) Value represents mean of the mean porosity values for materials ranging from fine sand to clay - Table 6-3, Multimed User's Manual (U.S. EPA, 1991a).

(12) Literature value obtained from Multimed User's Manual (U.S. EPA, 1991a), Table 6-8, for sandy loam.

(13) Determined from Figure 3-1.

(14) Model-derived value unknown to user; not presented in model output (Appendix A).

(15) Longitudinal Dispersivity, aL = 0.1*Xr
Transverse Dispersivity = aL/3
Vertical Dispersivity = 0.056*aL

(16) No site-specific foc data available. Input value of 0.005 is a model default value which falls within range of foc values derived from fom values obtained from Multimed User's Manual, Table 6-7, for Group B soils using the following equation:
foc = fom/172.4.

(17) Mean particle diameter assumed from range given for medium sand in Table 6-10 of Multimed User's Manual (U.S. EPA, 1991a).

(18) Actual model-derived Rd value unknown to user; not presented in model output (Appendix A). See discussion in Section 3.2.3.

TABLE 3-4
SUMMARY OF INTERIM INPUT PARAMETERS USED IN MODELING
PCOC LEACHATE FLOW AND TRANSPORT THROUGH
THE UNSATURATED ZONE FOR MODELING TO MW-102
U.S. EPA EXPOSURE ASSESSMENT MULTIMEDIA MODEL
MONTE-CARLO MODEL OF STEADY-STATE CONDITIONS
ATLANTIC WOOD INDUSTRIES, INC.
PORTSMOUTH, VA

INPUT VARIABLE	UNITS	VALUE(S)	INPUT TYPE	COMMENTS
UNSATURATED ZONE MATERIAL VARIABLES				
Depth of Unsaturated Zone	m	0.613 - 1.33	UNIFORM	(1)
Number of Layers	—	1	CONSTANT	(1)
Saturated Hydraulic Conductivity	cm/hr	1.0 - 150	UNIFORM	(2)
Unsaturated Zone Porosity	—	0.250 - 0.500	UNIFORM	(2)
UNSATURATED ZONE FUNCTION VARIABLES				
ALFA Coefficient	1/cm	0.005 - 0.145	UNIFORM	(3)
Residual Water Content	--	0.034 - 0.100	UNIFORM	(4)
Van Genuchten Exponent	--	1.09 - 2.68	UNIFORM	(3)
UNSATURATED ZONE TRANSPORT VARIABLES				
Bulk Density of Soil for Layer	g/cc	1.25 - 1.76	UNIFORM	(5)
Longitudinal Dispersivity of Layer	m	—	DERIVED	(6)
Percent Organic Matter	—	0.180 - 1.30	UNIFORM	(7)
Thickness of Layer	m	0.500 - 2.00	UNIFORM	(1)

NOTES:

(1) Directly obtained or derived from information presented in the Atlantic Wood Final Remedial Investigation Report, September 1991 (Keystone, 1991).

(2) Range of values recommended by Keystone Project Hydrogeologist.

(3) Literature values obtained from Multimed User's Manual (U.S. EPA, 1991a), Table 6-5, for sandy loam.

(4) Literature values obtained from Multimed User's Manual (U.S. EPA, 1991a), Table 6-4, for sandy loam.

(5) Literature values obtained from Multimed User's Manual (U.S. EPA, 1991a), Table 6-8, for sandy loam.

(6) Value obtained from the following calculation:

$av = 0.02 + 0.022L$,

where av = longitudinal dispersivity (unsaturated flow in the vertical direction)

L = depth of the unsaturated zone = 1m

Derived values shown in Appendix B-2.

(7) Literature values obtained from Multimed User's Manual (U.S. EPA, 1991a), Table 6-7, for Group B soils.

TABLE 3-5
SUMMARY OF INTERIM INPUT PARAMETERS USED IN MODELING
PCOC LEACHATE FLOW AND TRANSPORT THROUGH
THE SATURATED ZONE OF THE COLUMBIA AQUIFER
TO RECEPTOR WELL LOCATION MW-102
U.S. EPA EXPOSURE ASSESSMENT MULTIMEDIA MODEL
MONTE-CARLO MODEL OF STEADY-STATE CONDITIONS
ATLANTIC WOOD INDUSTRIES, INC.
PORTSMOUTH, VA

INPUT VARIABLE	UNITS	VALUE(S)	INPUT TYPE	COMMENTS
CHEMICAL-SPECIFIC VARIABLES				
Acid Catalyzed Hydrolysis Rate	1/M-yr	0	CONSTANT	(1)
Base Catalyzed Hydrolysis Rate	1/M-yr	0	CONSTANT	(1)
Biodegradation Coefficient (Sat. Zone)	1/yr	0	CONSTANT	(1)
Dissolved Phase Decay Coefficient	1/yr	0	CONSTANT	(1)
Distribution Coefficient, Kd	--	—	DERIVED	(2)
Neutral Hydrolysis Rate Constant	1/yr	0	CONSTANT	(1)
Normalized Distribution Coefficient, Koc	ml/g	14.2 - 5,500,000	UNIFORM	(1)
Overall Chemical Decay Coefficient	1/yr	0	CONSTANT	(3)
Overall First-Order Decay Coefficient	1/yr	0	DERIVED	(4)
Reference Temperature	C	25	CONSTANT	(5)
Solid Phase Decay Coefficient	1/yr	0	CONSTANT	(1)
SOURCE-SPECIFIC VARIABLES				
Area of Western Source	sq.m.	8,260	CONSTANT	(6)
Infiltration Rate	m/yr	0.317 - 0.587	UNIFORM	(7)
Initial Concentration of Leachate	mg/L	100	CONSTANT	(8)
Length Scale of Source	m	90.88	DERIVED	(6)
Near Field Dilution	--	1	DERIVED	(7)
Recharge Rate	m/yr	0.308 - 0.744	UNIFORM	(9)
Source Decay Constant	1/yr	0	CONSTANT	(3)
Spread of Contaminant Source	m	15.1	DERIVED	(10)
Width Scale of Source	m	90.88	DERIVED	(6)
AQUIFER-SPECIFIC VARIABLES				
Angle off Centerline of Plume	degree	0	CONSTANT	(5)
Aquifer Porosity	—	0.26 - 0.57	UNIFORM	(11)
Aquifer Thickness	m	4.57 - 6.10	UNIFORM	(9)
Bulk Density	g/cc	1.25 - 1.76	UNIFORM	(12)
Distance to Receptor, Xr	m	183	CONSTANT	(13)
Groundwater Seepage Velocity	m/yr	—	DERIVED	(14)
Hydraulic Conductivity	m/yr	347 - 536	UNIFORM	(9)
Hydraulic Gradient	—	0.0011 - 0.0100	UNIFORM	(9)
Longitudinal Dispersivity	m	18.3	CONSTANT	(15)
Mixing Zone Depth	m	—	DERIVED	(14)
Organic Carbon Content (Fraction), foc	--	0.0010 - 0.0076	UNIFORM	(16)
Particle Diameter	cm	0.0004 - 0.2000	UNIFORM	(17)
Retardation Coefficient	—	—	DERIVED	(18)
Temperature of Aquifer	C	16 - 25	UNIFORM	(5)
Transverse Dispersivity	m	6.1	CONSTANT	(15)
Vertical Dispersivity	m	1.02	CONSTANT	(15)
pH	—	6.00 - 9.00	CONSTANT	(5)

TABLE 3-5 (CON'T.)
SUMMARY OF INTERIM INPUT PARAMETERS USED IN MODELING
PCOC LEACHATE FLOW AND TRANSPORT THROUGH
THE SATURATED ZONE OF THE COLUMBIA AQUIFER
TO RECEPTOR WELL LOCATION MW-102
U.S. EPA EXPOSURE ASSESSMENT MULTIMEDIA MODEL
MONTE-CARLO MODEL OF STEADY-STATE CONDITIONS
ATLANTIC WOOD INDUSTRIES, INC.
PORTSMOUTH, VA

NOTES FOR TABLE 3-5:

(1) Literature values obtained from Aquatic Fate Process Data for Organic Priority Pollutants (U.S. EPA, 1982).

(2) Distribution coefficient was derived from the following equation:
Kd = Koc * foc,
where Koc = normalized distribution coefficient
Foc = organic carbon content (fraction)
Model-derived values for Kd are presented in Appendix B-2.

(3) Conservative input value assumed.

(4) Value will be zero since it is derived from solid and dissolved phase coefficients, which themselves were assigned a value of zero.

(5) Assumed value(s).

(6) Area was designated as in Figure 3-1. Model assumed area is square, approximated area at 8,260 sq.m., with length = width = 90.88 m.

(7) Infiltration rates selected for model represents the minimum and maximum values derived from the Hydrological Evaluation of Landfill Performance (HELP) model.

(8) Assumed value. See Section 3.2.2 for discussion.

(9) Directly obtained or derived from information presented in the Atlantic Wood Final Remedial Investigation Report, September 1991 (Keystone, 1991).

(10) Spread of gaussian contaminant source = width of source/6. Values presented in Appendix B-3.

(11) Porosity values represent range from fine sand to clay - Table 6-3, Multimed User's Manual (U.S. EPA, 1991a).

(12) Literature values obtained from Multimed User's Manual (U.S. EPA, 1991a), Table 6-8, for sandy loam.

(13) Determined from Figure 3-1.

(14) Model-derived values presented in Appendix B-4.

(15) Longitudinal Dispersivity, aL = 0.1*Xr
Transverse Dispersivity = aL/3
Vertical Dispersivity = 0.056*aL

(16) No site-specific foc data available. Input value range obtained from Multimed User's Manual, Table 6-7, for Group B soils using the following equation:
foc = fom/172.4.

(17) Particle diameter range assumed for particle types ranging from fine silt to coarse gravel, given in Table 6-10 of the Multimed User's Manual (U.S. EPA, 1991a).

(18) Actual model-derived Rd values are presented in Appendix B-4.

TABLE 3-6
SUMMARY OF INTERIM INPUT PARAMETERS USED IN MODELING
PCOC LEACHATE FLOW AND TRANSPORT THROUGH
THE UNSATURATED ZONE FOR MODELING TO THE ELIZABETH RIVER
U.S. EPA EXPOSURE ASSESSMENT MULTIMEDIA MODEL
MONTE-CARLO MODEL OF STEADY-STATE CONDITIONS
ATLANTIC WOOD INDUSTRIES, INC.
PORTSMOUTH, VA

INPUT VARIABLE	UNITS	VALUE(S)	INPUT TYPE	COMMENTS
UNSATURATED ZONE MATERIAL VARIABLES				
Depth of Unsaturated Zone	m	0.500 - 2.00	UNIFORM	(1)
Number of Layers	--	1	CONSTANT	(1)
Saturated Hydraulic Conductivity	cm/hr	1.0 - 150	UNIFORM	(2)
Unsaturated Zone Porosity	--	0.250 - 0.500	UNIFORM	(2)
UNSATURATED ZONE FUNCTION VARIABLES				
ALFA Coefficient	1/cm	0.005 - 0.145	UNIFORM	(3)
Residual Water Content	--	0.034 - 0.100	UNIFORM	(4)
Van Genuchten Exponent	--	1.09 - 2.68	UNIFORM	(3)
UNSATURATED ZONE TRANSPORT VARIABLES				
Bulk Density of Soil for Layer	g/cc	1.25 - 1.76	UNIFORM	(5)
Longitudinal Dispersivity of Layer	m	--	DERIVED	(6)
Percent Organic Matter	--	0.180 - 1.30	UNIFORM	(7)
Thickness of Layer	m	0.500 - 2.00	UNIFORM	(1)

NOTES:

(1) Directly obtained or derived from information presented in the Atlantic Wood Final Remedial Investigation Report, September 1991 (Keystone, 1991).

(2) Range of values recommended by Keystone Project Hydrogeologist.

(3) Literature values obtained from Multimed User's Manual (U.S. EPA, 1991a), Table 6-5, for sandy loam.

(4) Literature values obtained from Multimed User's Manual (U.S. EPA, 1991a), Table 6-4, for sandy loam.

(5) Literature values obtained from Multimed User's Manual (U.S. EPA, 1991a), Table 6-8, for sandy loam.

(6) Value obtained from the following calculation:

$av = 0.02 + 0.022L$,

where av = longitudinal dispersivity (unsaturated flow in the vertical direction)

L = depth of the unsaturated zone = 1m

Derived values shown in Appendix B-2.

(7) Literature values obtained from Multimed User's Manual (U.S. EPA, 1991a), Table 6-7, for Group B soils.

TABLE 3-7
SUMMARY OF INTERIM INPUT PARAMETERS USED IN MODELING
PCOC LEACHATE FLOW AND TRANSPORT THROUGH
THE SATURATED ZONE OF THE COLUMBIA AQUIFER
TO THE ELIZABETH RIVER
U.S. EPA EXPOSURE ASSESSMENT MULTIMEDIA MODEL
MONTE-CARLO MODEL OF STEADY-STATE CONDITIONS
ATLANTIC WOOD INDUSTRIES, INC.
PORTSMOUTH, VA

INPUT VARIABLE	UNITS	VALUE(S)	INPUT TYPE	COMMENTS
CHEMICAL-SPECIFIC VARIABLES				
Acid Catalyzed Hydrolysis Rate	1/M-yr	0	CONSTANT	(1)
Base Catalyzed Hydrolysis Rate	1/M-yr	0	CONSTANT	(1)
Biodegradation Coefficient (Sat. Zone)	1/yr	0	CONSTANT	(1)
Dissolved Phase Decay Coefficient	1/yr	0	CONSTANT	(1)
Distribution Coefficient, Kd	—	—	DERIVED	(2)
Neutral Hydrolysis Rate Constant	1/yr	0	CONSTANT	(1)
Normalized Distribution Coefficient, Koc	ml/g	14.2 - 5,500,000	UNIFORM	(1)
Overall Chemical Decay Coefficient	1/yr	0	CONSTANT	(3)
Overall First-Order Decay Coefficient	1/yr	0	DERIVED	(4)
Reference Temperature	C	25	CONSTANT	(5)
Solid Phase Decay Coefficient	1/yr	0	CONSTANT	(1)
SOURCE-SPECIFIC VARIABLES				
Area of Eastern Source	sq.m.	10,000	CONSTANT	(6)
Infiltration Rate	m/yr	0.317 - 0.587	UNIFORM	(7)
Initial Concentration of Leachate	mg/L	100	CONSTANT	(8)
Length Scale of Source	m	100	DERIVED	(6)
Near Field Dilution	—	1	DERIVED	(7)
Recharge Rate	m/yr	0.308 - 0.744	UNIFORM	(9)
Source Decay Constant	1/yr	0	CONSTANT	(3)
Spread of Contaminant Source	m	16.7	DERIVED	(10)
Width Scale of Source	m	100	DERIVED	(6)
AQUIFER-SPECIFIC VARIABLES				
Angle off Centerline of Plume	degree	0	CONSTANT	(5)
Aquifer Porosity	—	0.26 - 0.57	DERIVED	(11)
Aquifer Thickness	m	4.57 - 6.10	UNIFORM	(9)
Bulk Density	g/cc	1.25 - 1.76	UNIFORM	(12)
Distance to Receptor, Xr	m	244	CONSTANT	(13)
Groundwater Seepage Velocity	m/yr	—	DERIVED	(14)
Hydraulic Conductivity	m/yr	142 - 3,780	UNIFORM	(9)
Hydraulic Gradient	—	0.0059 - 0.0068	UNIFORM	(9)
Longitudinal Dispersivity	m	24.4	CONSTANT	(15)
Mixing Zone Depth	m	—	DERIVED	(14)
Organic Carbon Content (Fraction), foc	—	0.0010 - 0.0076	UNIFORM	(16)
Particle Diameter	cm	0.0004 - 0.2000	UNIFORM	(17)
Retardation Coefficient	—	—	DERIVED	(18)
Temperature of Aquifer	C	16 - 25	UNIFORM	(5)
Transverse Dispersivity	m	8.13	CONSTANT	(15)
Vertical Dispersivity	m	1.37	CONSTANT	(15)
pH	—	6.00 - 9.00	CONSTANT	(5)

TABLE 3-7
SUMMARY OF INTERIM INPUT PARAMETERS USED IN MODELING
PCOC LEACHATE FLOW AND TRANSPORT THROUGH
THE SATURATED ZONE OF THE COLUMBIA AQUIFER
TO THE ELIZABETH RIVER
U.S. EPA EXPOSURE ASSESSMENT MULTIMEDIA MODEL
MONTE-CARLO MODEL OF STEADY-STATE CONDITIONS
ATLANTIC WOOD INDUSTRIES, INC.
PORTSMOUTH, VA

NOTES FOR TABLE 3-6:

(1) Literature values obtained from Aquatic Fate Process Data for Organic Priority Pollutants (U.S. EPA, 1982).

(2) Distribution coefficient was derived from the following equation:
Kd = Koc * foc,
where Koc = normalized distribution coefficient
Foc = organic carbon content (fraction)
Model-derived values for Kd are presented in Appendix B-2.

(3) Conservative input value assumed.

(4) Value will be zero since it is derived from solid and dissolved phase coefficients, which themselves were assigned a value of zero.

(5) Assumed value(s).

(6) Area was designated as in Figure 3-1. Model assumed area is square, approximated area at 10,000 sq.m., with length = width = 100 m.

(7) Infiltration rates selected for model represents the minimum and maximum values derived from the Hydrological Evaluation of Landfill Performance (HELP) model.

(8) Assumed value. See Section 3.2.2 for discussion.

(9) Directly obtained or derived from information presented in the Atlantic Wood Final Remedial Investigation Report, September 1991 (Keystone, 1991).

(10) Spread of gaussian contaminant source = width of source/6. Values presented in Appendix B-3.

(11) Porosity values represent range from fine sand to clay - Table 6-3, Multimed User's Manual (U.S. EPA, 1991a).

(12) Literature values obtained from Multimed User's Manual (U.S. EPA, 1991a), Table 6-8, for sandy loam.

(13) Determined from Figure 3-1.

(14) Model-derived values presented in Appendix B-4.

(15) Longitudinal Dispersivity, aL = 0.1*Xr
Transverse Dispersivity = aL/3
Vertical Dispersivity = 0.056*aL

(16) No site-specific foc data available. Input value range obtained from Multimed User's Manual, Table 6-7, for Group B soils using the following equation:
foc = fom/172.4.

(17) Particle diameter range assumed for particle types ranging from fine silt to coarse gravel, given in Table 6-10 of the Multimed User's Manual (U.S. EPA, 1991a).

(18) Actual model-derived Rd values are presented in Appendix B-4.

(18) Actual model-derived Rd values are presented in Appendix B-4.

this layer varies (approximately) from 0.5 to 2.0 meters on the eastern side of the site. The thickness of this layer on the western side of the site varies (approximately) from 0.613 to 1.33 meters. This range of values was used as input for the Monte-Carlo, steady-state model. A value of 1.0 meter was assumed to be the thickness of the unsaturated zone in the deterministic, steady-state models for both the eastern and western areas of the site.

Values and value ranges for other input variables for the unsaturated zone module, such as residual water content, saturated hydraulic conductivity, porosity, the ALFA coefficient, and the Van Genuchten exponent were obtained from either the RI Report (Keystone, September 1991) or the Multimed user's manual (U.S. EPA, 1991a). The values assigned to these variables in the deterministic, transient-state models are: 0.065 (unitless), 4.42 cm/hr , 0.38 (unitless), 0.075 (unitless), and 2.68 (unitless), respectively. The ranges for residual water content, saturated hydraulic conductivity, porosity, the ALFA coefficient, and the Van Genuchten exponent used in the Monte-Carlo, steady-state model are 0.034 to 0.100 (unitless), 1.00 to 150 cm/hr, 0.25 to 0.50 (unitless), 0.005 to 0.145 (unitless), and 1.09 to 2.68 (unitless), respectively.

Values for the longitudinal dispersivity (a_v) of the unsaturated layer was derived by the model using the following equation (U.S. EPA, 1991):

$$a_v = 0.02 + 0.022L.$$

Where: L = depth of the unsaturated zone.

For the deterministic, steady-state models, a value of 0.042m was entered for the longitudinal dispersivity. For the Monte-Carlo, steady-state model, a value range (of uniform distribution) of 0.031m to 0.064m was derived for longitudinal dispersivity.

The range for percent organic matter (f_{om}) in site soils was obtained from the Multimed user's manual (U.S. EPA, 1991a) for Group B soils (sandy loams). A value for f_{om} of 0.5 was used for the deterministic, transient-state models. A range

of f_{om} values with a minimum of 0.180 and a maximum of 1.30 was used for the Monte-Carlo steady-state model.

3.2 Input Values for Transport in the Saturated Zone

3.2.1 Input Values for Chemical-Specific Variables

The values for the chemical-specific input variables associated with the PCOCs selected for the Portsmouth site, were entered into the saturated zone module of the Multimed model. Tables 3-2 and 3-3 present summaries of the chemical input values used in the deterministic, steady-state models. Tables 3-5 and 3-7 present summaries of the chemical input volumes used in the Monte-Carlo, steady-state models.

Tables 3-2 and 3-3 provide values for the transport variables in the saturated zone deterministic models for the development of output groundwater concentrations at monitoring well MW-102 and the Elizabeth River, respectively.

Tables 3-5 and 3-7 provide values for the transport variables in the saturated zone Monte-Carlo models for the development of output groundwater concentrations at monitoring well MW-102 and the Elizabeth River, respectively.

Literature (U.S. EPA, 1982) indicates that the values for the acid and base catalyzed hydrolysis rates and the neutral hydrolysis rate constant were equal to zero for all modeled PCOCs. For the sake of conservatism, the biodegradation coefficient was also assumed to be equal to zero. The model-derived input values for the solid and dissolved phase decay coefficients, the overall chemical decay coefficient, and the overall first-order decay coefficient were also equal to zero.

The values for the normalized distribution coefficients (constant input) and the distribution coefficients (derived input) for the deterministic, steady-state models are presented in Table 3-8. Values for the normalized distribution coefficient (k_{oc}) were obtained from literature (U.S. EPA, 1982). Under steady-state conditions, varying values of Koc's in both the deterministic and Monte-Carlo models will not

TABLE 3-8
CALCULATION SUMMARY FOR DISTRIBUTION AND RETARDATION COEFFICIENTS
USED IN DEVELOPMENT OF INTERIM SOIL CLEAN-UP GOALS
ATLANTIC WOOD INDUSTRIES, INC.
PORTSMOUTH, VA

Input Variable: Units: Equation for Derivation: Parameter	Fraction Organic Carbon, Foc (unitless) [Constant]	Normalized Distribution Coefficient, Koc (cm3/g) [Constant]	Distribution Coefficient, Kd (cm3/g) [Kd=Foc*Koc]	Bulk Density, p (g/cm3) [Constant]	Effective Porosity of Saturated Zone, P (unitless) [Constant]	Retardation Coefficient, Rd (unitless) [Rd=1+((Kd*p)/P)]
Polynuclear Aromatic Hydrocarbons						
Benzo(a)anthracene	0.005	1,380,000	6,900	1.49	0.38	27,056
Benzo(a)pyrene	0.005	5,500,000	27,500	1.49	0.38	107,830
Benzo(b)fluoranthene	0.005	550,000	2,750	1.49	0.38	10,784
Benzo(g,h,i)perylene	0.005	1600000	8000	1.49	0.38	31369
Benzo(k)fluoranthene	0.005	550,000	2,750	1.49	0.38	10,784
Chrysene	0.005	200,000	1,000	1.49	0.38	3,922
Dibenzo(a,h)anthracene	0.005	3,300,000	16,500	1.49	0.38	64,698
Indeno(123-cd)pyrene	0.005	1,600,000	8,000	1.49	0.38	31,369
Pyrene	0.005	38,000	190	1.49	0.38	746
Acenaphthene	0.005	4,600	23	1.49	0.38	91.2
Acenaphthylene	0.005	2,500	12.5	1.49	0.38	50.0
Anthracene	0.005	14,000	70	1.49	0.38	275
Fluoranthene	0.005	38,000	190	1.49	0.38	746
Fluorene	0.005	7,300	36.5	1.49	0.38	144
Naphthalene	0.005	940	4.7	1.49	0.38	19.4
Phenanthrene	0.005	14,000	70	1.49	0.38	275
Semivolatile Organic Compounds						
2-Methylnaphthalene	0.005	940	4.7	1.49	0.38	19.4
Dibenzofuran	0.005	—	—	—	—	—
Volatile Organic Compounds						
Benzene	0.005	65	0.325	1.49	0.38	2
Toluene	0.005	300	1.5	1.49	0.38	7
Ethylbenzene	0.005	1100	5.5	1.49	0.38	23
Styrene	0.005	—	—	—	—	—
Total Xylenes (1)	0.005	166	0.83	1.49	0.38	4
Phenolic Compounds						
Pentachlorophenol	0.005	53,000	265	1.49	0.38	1,040
Phenol	0.005	14.2	0.071	1.49	0.38	1
2,4-Dimethylphenol	0.005	96	0.48	1.49	0.38	3
2-Methylphenol	0.005	—	—	—	—	—
4-Methylphenol	0.005	—	—	—	—	—
Dioxins/Furans						
2,3,7,8-TCDD	0.005	3300000	16500	1.49	0.38	64,698
Metals						
Arsenic (2)	0.005	—	1.45	1.49	0.38	7
Arsenic (3)	0.005	—	5.0	1.49	0.38	21
Arsenic (4)	0.005	—	13.2	1.49	0.38	53
Copper (2)	0.005	—	1.4	1.49	0.38	6
Copper (3)	0.005	—	22.2	1.49	0.38	88
Copper (4)	0.005	—	333	1.49	0.38	1,307
Zinc (2)	0.005	—	0.1	1.49	0.38	1
Zinc (3)	0.005	—	16.4	1.49	0.38	65
Zinc (4)	0.005	—	8,000	1.49	0.38	31,369

NOTES:

(1) Kd value is for the meta-isomer.

(2) Kd value is mean of the minimum Kd values for As(III) and As(V). The Kd values for copper and zinc are the minimum values (Dragun, 1988).

(3) Kd value is the mean of the mean Kd values for As(III) and As(V). The Kd values for copper and zinc are mean values (Dragun, 1988).

(4) Kd value is mean of the maximum Kd values for As(III) and As(V). The Kd values for copper and zinc are the maximum values (Dragun, 1988)

— Not available.

change the value of the final downgradient groundwater concentration(s). Therefore, since the model requires a value, or range of values for this variable, the K_{oc} of benzo(a)pyrene (5,500,000 cm^3/g) was arbitrarily selected and entered for the deterministic runs and the range of K_{oc} values for all PCOCs (14.2 to 5,500,000 cm^3/g) was entered for the Monte-Carlo runs as a uniform distribution. The distribution coefficient (K_d) was calculated from the entered K_{oc} values and the fraction of organic carbon (f_{oc}) by using the following relationship (U.S. EPA, 1991a):

$$K_d = K_{oc} f_{oc},$$

where f_{oc} is an aquifer-specific variable. Uncertainty is associated with this value due to the lack of site-specific data. Values for the f_{oc} will be discussed in conjunction with the other aquifer-specific parameters in Section 3.2.3. The values for K_d were entered as model-derived input in both the deterministic and the Monte-Carlo, steady-state models.

Model-derived values for K_d, as well as randomly generated values for K_{oc}, used in the Monte-Carlo, steady-state model are presented in Appendix B-3.

A reference temperature of 25°C was entered as a constant input value in both model types.

3.2.2 Input Values for Source-Specific Variables

The values and value ranges for the source-specific input variables associated with the source soils from which the PCOCs are modeled were entered into the saturated zone module of Multimed. Tables 3-2 and 3-3 present summaries of input values used in the deterministic, steady-state models. Tables 3-5 and 3-7 present summaries of input values used in the Monte-Carlo, steady-state models.

Figure 3-1 shows the source areas to be modeled for the site. Two different source areas were used for this modeling effort, one located in the eastern portion (eastern source) of the Portsmouth site, the other in the western portion (western source) of

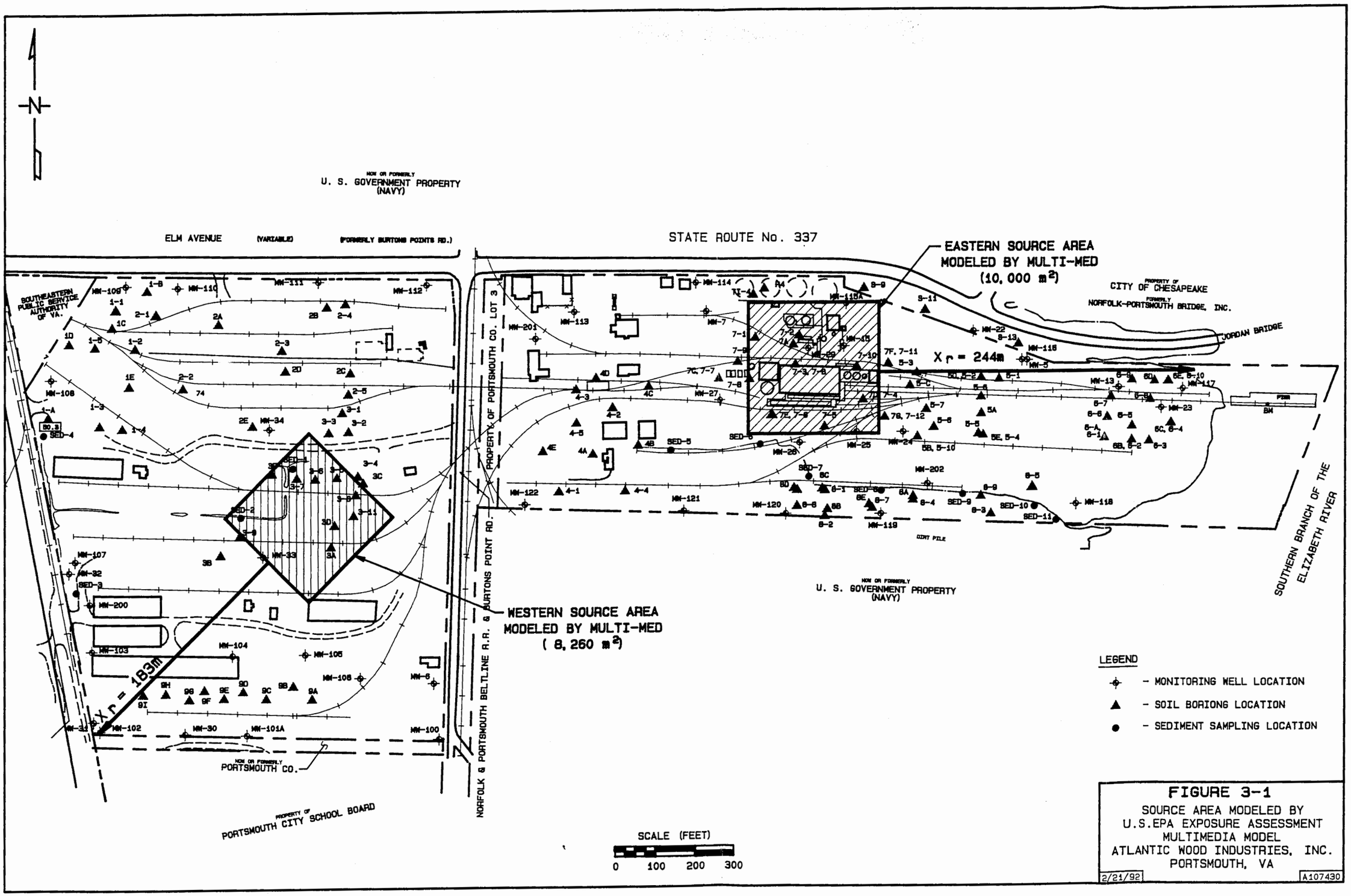


FIGURE 3-1

SOURCE AREA MODELED BY
U.S.EPA EXPOSURE ASSESSMENT
MULTIMEDIA MODEL
ATLANTIC WOOD INDUSTRIES, INC.
PORTSMOUTH, VA

2/21/92 A107430

the Portsmouth site. The western source is an area located within the wood storage area above a groundwater mound, and is approximately 8,260 square meters in size. The size of the western source area was selected to closely approximate the area within the potentiometric contour outlining the groundwater mound which is situated beneath the western portion of the site (see Figure 3-7 of the RI Report). PCOCs originating at the western source will be modeled through the unsaturated and saturated zones to receptor location MW-102. Information derived from modeling PCOCs from the western source area to MW-102 will be used in developing interim soil cleanup goals protective of the groundwater at MW-102.

The eastern source is an area located within the wood treating process area, and is approximately 10,000 square meters in size. PCOCs originating at the eastern source will be modeled through the unsaturated and saturated zones to the Elizabeth River. Information derived from modeling PCOCs from the eastern source area to the Elizabeth River will be used in developing interim soil cleanup goals protective of marine organisms living in the river and the humans who may consume those organisms.

In addition to the area of a source, the model requires that the length and width of the source area also be entered as input values. This imposes an inherent restriction in that the model perceives the source area as rectangular or square-shaped. For this modeling effort, the length and width of the source were derived by Multimed from the area of the source. The length of each side for each area was derived as the square root of the area, thereby defining the geometry of each area to be square shaped. The length of each side for the western and eastern source areas are 90.88 and 100 meters, respectively.

The initial concentration of the leachate for all PCOCs for both the deterministic and the Monte-Carlo steady-state modeling efforts was assumed to be 100 mg/L over the entire source area. This concentration was chosen arbitrarily, since the purpose of using Multimed in developing interim soil clean-up goals is to simply derive PCOC dilution-attenuation factors resulting from transport through the unsaturated and saturated zones.

Tables 3-2 and 3-5 show that the modeled longitudinal distance from the western source area to the receptor well location MW-102 is 183 meters. Tables 3-3 and 3-7 show that the modeled longitudinal distance from the eastern source area to the river is 244 meters. The values used to describe the spread of the contaminant plume from the western and eastern source areas (a gaussian source), 15.1 and 16.7 meters, respectively, are derived inputs for both model types. The equation used for this derivation was discussed in Section 2.3.

A value range for the recharge rate used in the Monte-Carlo models were obtained from the RI Report. An infiltration rate was theoretically derived using U.S. EPA's HELP (Hydrologic Evaluation of Landfill Performance) model. A value of 0.317 m/yr for the infiltration rate was derived using the HELP model by entering known and default soil and climatological data for the Portsmouth site. This value was entered into the deterministic models as the infiltration and recharge rates for both source areas. A range of values, with an arbitrarily selected minimum of 0.001 m/yr and a maximum of 0.317 m/yr, was used for the Monte Carlo models. A copy of the HELP model output can be seen in Appendix C of this report.

3.2.3 Input Values for Aquifer-Specific Variables

The values and value ranges for the aquifer-specific input variables associated with the shallow, unconfined Columbia aquifer that is beneath the Portsmouth site were entered into the saturated zone module of Multimed. Tables 3-2 and 3-3 present summaries of input values used in the deterministic, steady-state models. Tables 3-5 and 3-7 present summaries of input values used in the Monte-Carlo models.

This aquifer is one which consists of silty, sandy soil with some gravel and clayey silt; approximately the same materials that are present in the unsaturated zone. The aquifer thickness range considered for the Monte-Carlo, steady-state simulation in both source areas is 4.57 to 6.10 meters. The constant input value that is used for the deterministic, transient-state simulations is the average of the minimum and maximum values for aquifer thickness, or 5.34 meters. The values for aquifer thickness were obtained from the RI Report (Keystone, 1991). The values used in

the models for the mixing zone depth were derived by the model, since no site-specific data are available.

The porosity input value used for this aquifer was a constant input value (0.38) in the deterministic, steady-state simulations. A range of values (0.26-0.59) of uniform distribution representing porosities for materials ranging from fine sand to clay, was used in the Monte-Carlo simulations. These values were obtained from Table 6-3 of the Multimed User's Manual (U.S. EPA, 1991a). Appendix B-5 presents the values for porosity that were randomly generated over 500 iterations of the steady-state models.

The range of values that is used in the Monte-Carlo models for the bulk density of the aquifer material was obtained from literature (U.S. EPA, 1991a). The minimum value for bulk density is 1.25 g/cc; the maximum value is 1.76 g/cc. The value for bulk density used in the deterministic models represents the mean of the values for sandy loams, or 1.49 g/cc.

The range of values that is used in the Monte-Carlo models for the particle diameter of the aquifer material was obtained from literature (U.S. EPA, 1991a). The minimum value for particle diameter used in the model is 0.0004 cm; the maximum value is 0.2000 cm. The value for the particle diameter used in the deterministic models, 0.03 cm, represents the mean particle diameter for medium sand. This value was obtained from Table 6-10 of the Multimed user's manual (U.S. EPA, 1991a).

All values for hydraulic conductivity in the saturated zone beneath both source areas were obtained from the RI Report (Keystone, 1991). In the deterministic models of the western source area, an average measured value of 442 m/yr was used for hydraulic conductivity. In the Monte-Carlo model for this area, a uniform distribution was specified with minimum and maximum measured values of 347 m/yr and 536 m/yr, respectively. In the deterministic models of the eastern source area, an average measured value of 820 m/yr was used for hydraulic conductivity. In the Monte-Carlo model for this area, a uniform distribution was specified with minimum and maximum measured values of 142 m/yr and 3,780 m/yr, respectively.

The values used in both model types for the hydraulic gradient in the saturated zone were also obtained from the RI Report (Keystone, 1991). In the deterministic models of both areas, an average measured value of 0.006 was used for hydraulic gradient. In the Monte-Carlo models, a uniform distribution was specified for both the western and eastern source areas with measured value ranges of 0.0011 to 0.010 and 0.0059 to 0.0068, respectively. Water elevation measurements were made at monitoring well MW-13 over a 24 hour period. The results of these measurements, shown in Figure 3-8 of the RI Report showed no significant tidal influence on the Columbia Aquifer. Therefore, the hydraulic gradient is not expected to be subject to changes resulting from tidal fluctuations.

The values for groundwater seepage velocity were derived by the model during both types of saturated zone simulations. The outputs for the deterministic models do not indicate the actual groundwater seepage velocities used for simulating saturated zone transport of PCOCs. The values derived by the model for groundwater seepage velocities used during the Monte-Carlo simulations are presented in Appendix B-4.

For the deterministic, transient-state models, a value of 0.005 for the fraction of organic content (f_{oc}) was assumed arbitrarily. Due to the lack of site specific f_{oc} values, a range of literature values (U.S. EPA, 1991a), with a minimum of 0.001 and a maximum of 0.0076, was entered as a uniform distribution in the Monte-Carlo steady-state model for Group B soils. Since the unsaturated and saturated zones consist of similar materials, the f_{oc} in the saturated zone was determined from the percent organic matter (f_{om}) assumed for the unsaturated zone (Section 3) by the following relationship (U.S. EPA, 1991a):

$$f_{oc} = f_{om}/172.4.$$

The retardation factor is used to determine the retardation, due to adsorption, of a PCOC relative to the bulk mass of water transporting the PCOC (Freeze and Cherry, 1979). The retardation factor (R_s) can be calculated from the following

expression relating it to the bulk density (p_b) and effective porosity (θ) of the aquifer material, and the distribution coefficient (K_d) of the PCOC:

$$R_s = 1 + [(p_b K_d)/\theta].$$

Table 3-8 presents a summary of R_s values for each PCOC. This table also presents the values of p_b, K_d and θ that were used to calculated R_s.

In the steady-state simulations, R_s becomes insignificant since it is assumed by the model that each source area is of sufficient size and that the mass of chemical being continuously released is large enough so as to maintain a constant downgradient concentration at the receptor location, thereby forcing the system into equilibrium. Since under steady-state conditions, varying R_s doesn't change the final downgradient concentration(s), no values were entered for this variable in either the deterministic or Monte-Carlo models. Rather, the values for R_s were derived in both sets of models. In the deterministic models, R_s was derived from the K_{oc} value entered for benzo(a)pyrene. In the Monte-Carlo models, a range of R_s values were derived during each iterative simulation, from the K_{oc} values randomly generated within the range of 14.2 to 5,500,000 cm^3/g.

The values entered into both the deterministic and Monte-Carlo models for longitudinal dispersivity (a_L), transverse dispersivity (a_T) and vertical dispersivity (a_V) were all constant input values derived as a fraction of the longitudinal distance to the receptor location (X_r), as described by the following equations (U.S. EPA, 1991):

$$a_L = 0.1X_r;$$
$$a_T = a_L/3.0; \text{ and}$$
$$a_V = 0.056a_L.$$

The values derived for a_L, a_T and a_V for modeling to receptor well MW-102, were 18.3 meters, 6.10 meters and 1.02 meters, respectively.

The values derived for a_L, a_T, and a_V for modeling to the Elizabeth River were 24.4 meters, 8.13 meters and 1.37 meters, respectively.

The angle of the receptor location off of the center line of the modeled plume was entered as zero for both the deterministic and Monte-Carlo, steady-state models. The assumption here was that both downgradient receptors are located along the center line of their respective plumes.

The well vertical distance is defined as the well screen depth expressed as a fraction of the aquifer thickness (U.S. EPA, 1991), and can have values from 0 to 1. The model assumes that the receptor location is a well. Because of this, the well screen depth is perceived by the model as the vertical extent of contamination of the aquifer at the receptor location. For both the deterministic and Monte-Carlo models for each receptor location, a value of 1.0 was used for the modeled well vertical distance, which assumes that the well vertical distance is approximately equal to the aquifer thickness.

The last two aquifer-specific input variables to be discussed are the pH and temperature of the groundwater in the aquifer. The pH was assumed to be 6.5 for the deterministic models, and the pH value range (uniform distribution) was assumed to be 6.0 to 9.0 for the Monte-Carlo, steady-state models. The temperature of the groundwater in the shallow aquifer was assumed to be 18°C for the deterministic, models and the temperature value range (uniform distribution) was assumed to be 16°C to 25°C for the Monte-Carlo, steady-state models.

3.3 Selection of Multimed Output Options

There are two output options for a deterministic model in Multimed. The first option allows for the print-out of a maximum downgradient concentration, which would occur at the receptor location within a specified period of time. The second output option allows for the print-out of a series of time-stepped downgradient concentrations, which would occur at the receptor location over a specified period of time.

For the deterministic models of steady-state conditions at the Portsmouth site, the output option was selected that would present the inputs, followed by the maximum downgradient groundwater concentration that would be expected to occur over a 500-year time period. This concentration represents the modeled groundwater concentration at the point of groundwater discharge from the Columbia Aquifer into the Elizabeth River.

Under steady-state conditions, the output groundwater concentration will be the same for all PCOCs because the differences in retardation among PCOCs become insignificant; therefore, only one set of Monte-Carlo simulations will be performed for steady-state conditions. The output for the Monte-Carlo models of the steady-state conditions at the site will be the standard Multimed statistical Monte-Carlo print-out. This output will present, in addition to the inputs, the following information regarding the modeled downgradient groundwater concentrations at the receptor locations: the mean value; standard deviation; coefficient of variation; minimum and maximum values; 50th, 80th, 85th, 90th, and 95th percentile values; 95 percent confidence intervals for each of the percentile values; a list of eleven values spanning the range of modeled downgradient concentrations showing the percent of time each value was equaled or exceeded, and the percent of time the model spent in deriving concentration values that were between any two of the listed eleven values; plots of a frequency distribution and a cumulative frequency distribution for all of the generated downgradient concentrations; and finally, plots of a frequency distribution and a cumulative frequency distribution for the top 20% of the generated downgradient concentrations.

In addition to the standard Monte-Carlo output, print-outs of randomly generated values for those variables designated to be model-derived, and those variables associated with a large degree of uncertainty that were assigned a uniform probability distribution will be presented in Appendix B of this report. The downgradient groundwater concentrations at each receptor location (sat.out file) will be listed in Appendix B-1; variables specific to unsaturated zone transport (vtrnspt.var file) will be listed in Appendix B-2; chemical-specific (chemical.var file), source-specific (source.var file) and aquifer-specific (aquifer.var file) variables will be listed in Appendices B-3, B-4 and B-5, respectively.

4.0 USE OF OUTPUT DATA FOR DERIVATION OF SITE-SPECIFIC SOIL CLEANUP GOALS

This section presents the calculation procedures used in developing interim soil cleanup goals for the Portsmouth site protective of the groundwater at monitoring well MW-102 and the Elizabeth River.

As stated in previous sections, the purpose of Multimed in the development of interim site-specific cleanup goals is the derivation of dilution-attenuation factors. These derived factors are then used as multipliers for selected performance standards at the receptor locations of interest.

The performance standards selected for each PCOC in the groundwater at MW-102 and Elizabeth River are presented in Table 4-1. The groundwater performance standards in Table 4-1 are maximum contaminant levels (MCLs) and drinking water equivalence levels (DWELs). The performance standards selected for the Elizabeth River are ambient water quality criteria (AWQC) protective of 1) marine organisms and 2) humans consuming aquatic organisms from the river. No AWQCs were selected that would be protective of humans drinking the river water since this does not seem to be a likely scenario in the vicinity of the Portsmouth site. Interim soil cleanup goals protective of the Elizabeth River will therefore be developed for both aquatic organisms in the river, and the humans who may consume those organisms.

Sections 4.1 and 4.2 discuss the calculation procedures for the development of interim soil cleanup goals protective of the groundwater at monitoring well MW-102 and the Elizabeth River, respectively. These discussions will apply to all PCOCs, except for PAHs.

Rather than developing interim soil cleanup levels for each PAH compound individually, as with the other PCOCs, one interim soil cleanup goal for total PAHs will be calculated that will be protective of the groundwater at monitoring well MW-102, marine organisms in the Elizabeth River, and humans consuming organisms from the Elizabeth River. The procedure for this calculation will be discussed in Section 4.3.

TABLE 4-1
SUMMARY OF PERFORMANCE STANDARDS, mg/L
PROPOSED FOR DEVELOPMENT OF INTERIM SOIL CLEANUP GOALS
PROTECTIVE OF GROUNDWATER AND THE ELIZABETH RIVER
ATLANTIC WOOD INDUSTRIES, INC.
PORTSMOUTH, VA.

PCOC	Groundwater Performance Standards	Elizabeth River Performance Standards Ambient Water Quality Criteria	
		Protection of Marine Organisms	Protection of Humans Consuming Marine Organisms
Total Polynuclear Aromatic Hydrocarbons	0.0001 (1)	0.3 (11)	0.0000311 (8)
Semivolatile Organic Compounds			
2-Methylnaphthalene	NA	NA	NA
Dibenzofuran	NA	NA	NA
Volatile Organic Compounds			
Benzene	0.005 (3)	0.7 (7)	0.04 (9)
Toluene	1 (3)	5 (7)	424 (9)
Ethylbenzene	0.7 (3)	0.43 (12)	3.28 (9)
Styrene	0.1 (3)	NA	NA
Total Xylenes	10 (3)	NA	NA
Phenolic Compounds			
Pentachlorophenol	0.001 (3)	0.0079 (6)	29 (8)
Phenol	20 (4)	5.8 (12)	4600 (8)
2,4-Dimethylphenol	0.7 (2)	NA	2.3 (9)
2-Methylphenol	1.78 (2)	NA	NA
4-Methylphenol	1.78 (2)	NA	NA
Dioxins/Furans			
2,3,7,8-TCDD	0.00000005 (1)	NA	1.4000000000E-11 (8)
Metals			
Arsenic	0.0105 (2)	0.036 (6)	0.0000175 (8)
Copper	1.3 (5)	0.00029 (6)	1.3 (10)
Zinc	9 (4)	0.086 (6)	NA

NOTES:
(1) MCL - Proposed standard; Groundwater performance standard for total PAHs is the proposed MCL for benzo(a)anthracene.
(2) Drinking Water Equivalence Level (DWEL) calculated from reference dose; arsenic MCL of 0.05 is currently undergoing regulatory review.
(3) MCL - Final standard
(4) Drinking water equivalent level (DWEL)
(5) Copper - proposed MCL
(6) Ambient Water Quality Criteria - Chronic
(7) Lowest Observed Effect Level - Chronic
(8) Recalculated criteria (using IRIS, as of 9/90) for consumption of organisms. Used where published criteria do not exist.
(9) Published criteria for consumption of organisms.
(10) Recalculated criteria for consumption of water and organisms.
(11) Ambient Water Quality Criteria - Acute; no chronic AWQC available.
(12) Marine Chronic LOEL
NA None available; interim soil cleanup goals cannot be developed.

(5) Finally, multiplication of C_l by the distribution coefficient (K_d), results in a soil concentration at the source corresponding to the interim soil cleanup goal. This partitioning is expressed as the following:

$$C_s = C_l K_d.$$

4.3 Interim Soil Cleanup Goals for Total PAHs

The calculation for developing interim soil cleanup goals for total PAHs that are protective of the groundwater at monitoring well location MW-102 and the Elizabeth River is as follows:

(1) The leachate concentration of total PAHs (C_{lTPAH}) at the source is calculated in the same manner as was done in Sections 4.1 and 4.2:

For protection of groundwater at MW-102,
$C_{lTPAH} = C_{std}DAF;$

For protection of the Elizabeth River,
$C_{lTPAH} = C_{awqc}*RM*DAF.$

Since the MCLs and DWELs for each PAH is different, the lowest groundwater performance standard (0.0001 mg/L - proposed MCL for benzo(a)anthracene) is being used for totals PAHs as a conservative approach.

(2) Since the calculation of an interim soil cleanup goal for total PAHs (C_{sTPAH}) must take into account the K_d of each PAH (K_{dPAH}) as well as the percent distribution of each individual PAH ($\%D_{PAH}$) across the area of interest, the following assumptions can be made regarding the derivation of the interim soil cleanup goal.

For each PAH,

(A) $C_{lPAH} = C_{sPAH}/K_{dPAH}$,

where

(B) $C_{sPAH} = C_{sTPAH} * \%D_{PAH}$.

Substitution of equation (B) into equation (A) yields the following relationship:

(C) $C_{lPAH} = (C_{sTPAH} * \%D_{PAH})/K_{dPAH}$.

For total PAHs, equation (C) becomes:

(D) $C_{lTPAH} = \Sigma\,[(C_{sTPAH} * \%D_{PAH})/K_{dPAH}]$.

By moving C_{sTPAH} outside of the summation and rearranging, the following expression for the calculation of an interim soil cleanup goal for total PAHs is obtained:

(E) $C_{sTPAH} = C_{lTPAH}\ \Sigma(K_{dPAH}/\%D_{PAH})$.

Table 4-2 presents a summary of the adjusted distribution coefficients.

TABLE 4-2
CALCULATION SUMMARY OF ADJUSTED DISTRIBUTION COEFFICIENTS
FOR POLYCYCLIC AROMATIC HYDROCARBONS
ATLANTIC WOOD INDUSTRIES, INC.
PORTSMOUTH, VA.

Polynuclear Aromatic Hydrocarbon	Mean Percent Distribution (%D) (1) (%)	Distribution Coefficient (Kd) (cm3/g)	Adjusted Kd Value (Kd') (2) (cm3/g)
Benzo(a)anthracene	6.33	6900	109,005
Benzo(a)pyrene	5.33	27500	515,947
Benzo(b)fluoranthene	10.0	2750	27,500
Benzo(k)fluoranthene	9.72	2750	28,292
Chrysene	7.66	1000	13,055
Dibenzo(a,h)anthracene	1.55	16500	1,064,516
Indeno(1,2,3-cd)pyrene	3.01	8000	265,781
Acenaphthene	2.96	23	777
Acenaphthylene	1.45	12.5	862
Anthracene	5.75	70	1,217
Benzo(g,h,i)perylene	2.97	8000	269,360
Fluoranthene	15.6	190	1,218
Fluorene	3.23	36.5	1,130
Naphthalene	2.74	4.7	172
Phenanthrene	9.83	70	712
Pyrene	11.8	190	1,610
		Sum Kd' =	2,301,155

NOTES:
(1) %D for each PAH = (mean PAH conc./total mean PAH conc.)*100%
(2) Kd' = Kd/[(%D)/100]

5.0 RESULTS

5.1 Dilution-Attenuation Factors

Table 5-1 presents a summary of the dilution-attenuation factors (DAFs) that were derived from the final downgradient groundwater concentrations estimated at two receptor locations (MW-102 and the Elizabeth River) by the Multimed simulations of steady-state flow and transport from the source areas of the Portsmouth site, through the saturated and unsaturated zones. Table 5-1 shows that two DAFs were determined for each receptor location. One DAF was derived based on the results of a deterministic model, the other was derived based on the 95th percentile results of a Monte-Carlo model of 500 iterative simulations.

The groundwater concentration of all PCOCs estimated at receptor location MW-102 by the deterministic and Monte-Carlo simulations of steady-state conditions were 8.38 mg/L and 2.23 mg/L, respectively. Since the original leachate concentration was 100 mg/L, the corresponding DAFs derived from the results of the deterministic and Monte-Carlo modeling efforts to receptor location MW-102 are 11.9 and 45, respectively.

The groundwater concentration of all PCOCs estimated at the point of groundwater discharge to the Elizabeth River by the deterministic and Monte-Carlo simulations of steady-state conditions were 8.52 mg/L and 10.2 mg/L, respectively. Since the original leachate concentration was 100 mg/L, the corresponding DAFs derived from the results of the deterministic and Monte-Carlo modeling efforts to the Elizabeth River are 11.7 and 9.8, respectively.

The DAFs derived and summarized in Table 5-1 were used to calculate interim soil cleanup goals for the Portsmouth site that are protective of 1) the groundwater at monitoring well MW-102, 2) humans consuming aquatic organisms from the Elizabeth River and 3) marine organisms in the Elizabeth River. These interim soil cleanup goals are presented in Tables 5-2, 5-3 and 5-4, respectively.

TABLE 5-1
SUMMARY OF DILUTION-ATTENUATION FACTORS FROM
FLOW AND TRANSPORT MODELS THROUGH
UNSATURATED AND SATURATED ZONES
U.S. EPA EXPOSURE ASSESSMENT MULTIMEDIA MODEL
STEADY-STATE CONDITIONS
ATLANTIC WOOD INDUSTRIES, INC.
PORTSMOUTH, VA

Model Type for Steady-State Conditions	Assumed Initial Leachate Concentration for Each PCOC at Source (1) (mg/L)	Modeled Final Groundwater Concentration for Each PCOC at Receptor Location		Modeled Dilution-Attenuation Factor (2) for Each PCOC	
		MW-102 (mg/L)	Elizabeth River (mg/L)	MW-102 (unitless)	Elizabeth River (unitless)
Deterministic Models of PCOCs	100	8.38	8.52	11.9	11.7
Monte-Carlo Models of PCOCs (3)	100	2.23	10.2	45	9.8

NOTES:
(1) Initial leachate concentration at source location is in the unsaturated zone. 100 mg/L was assumed for modeling presentation.
(2) Dilution-attenuation factors will be used for calculation of interim soil cleanup levels.
(3) Values presented for Monte-Carlo simulations represent the 95th percentile.

TABLE 5-2
CALCULATION SUMMARY OF INTERIM SOIL CLEANUP GOALS
PROTECTIVE OF GROUNDWATER AT MONITORING WELL MW-102
DETERMINISTIC AND MONTE-CARLO MODELS OF STEADY-STATE CONDITIONS
WESTERN SOURCE AREA
ATLANTIC WOOD INDUSTRIES, INC.
PORTSMOUTH, VA.

PCOC	Groundwater Performance Standard (mg/L)	Modeled Dilution-Attenuation Factor (unitless)		Initial Leachate Concentration at Source Location (mg/L)		Distribution Coefficient (cm^3/g)	Interim Soil Cleanup Goal at Source Location (mg/kg)	
		Deterministic Model	Monte-Carlo Model (2)	Deterministic Model	Monte-Carlo Model (2)		Deterministic Model	Monte-Carlo Model (2)
Total PAHs (1)	0.0001	11.9	45	0.001	0.0045	2,301,155	2,738	10,355
Volatile Organic Compounds								
Benzene	0.005	11.9	45	0.060	0.225	0.325	0.019	0.073
Toluene	1	11.9	45	11.9	45	1.5	17.9	67.5
Ethylbenzene	0.7	11.9	45	8.3	31.5	5.5	45.8	173
Styrene	0.1	11.9	45	1.19	4.5	--	--	--
Total Xylenes	10	11.9	45	119	450	0.83	98.8	374
Phenolic Compounds								
Pentachlorophenol	0.001	11.9	45	0.012	0.045	265	3.15	11.9
Phenol	20	11.9	45	238	900	0.071	16.9	63.9
2,4-Dimethylphenol	0.7	11.9	45	--	31.5	0.48	--	--
2-Methylphenol	1.78	11.9	45	21.2	80.1	--	--	--
4-Methylphenol	1.78	11.9	45	21.2	80.1	--	--	--
Dioxins/Furans								
2,3,7,8-TCDD	5.00E-08	11.9	45	5.95E-07	2.25E-06	1.65E+04	9.82E-03	3.71E-02
Metals								
Arsenic (3)	0.0105	11.9	45	0.125	0.473	1.45	0.181	0.685
Arsenic (4)	0.0105	11.9	45	0.125	0.473	5.0	0.625	2.36
Arsenic (5)	0.0105	11.9	45	0.125	0.473	13.2	1.65	6.24
Copper (3)	1.3	11.9	45	15.5	58.5	1.4	21.7	81.9
Copper (4)	1.3	11.9	45	15.5	58.5	22.2	343	1,299
Copper (5)	1.3	11.9	45	15.5	58.5	333	5152	19,481
Zinc (3)	9	11.9	45	107	405	0.1	10.7	40.5
Zinc (4)	9	11.9	45	107	405	16.4	1756	6,642
Zinc (5)	9	11.9	45	107	405	8,000	856,800	3,240,000

NOTES:

(1) PAHs - polycyclic aromatic hydrocarbons.
Performance standard for total PAHs, 0.0001 mg/L (benzo(a)anthracene), represents the most conservative performance standard of all PAHs.
The value for total PAHs entered into the Kd column, 2,301,155 cm3/g, was derived as the sum of each Kd value weighted by the percent distribution of each PAH (see Table 4-2, sum Kd').

(2) Interim soil cleanup goals presented for the Monte-Carlo model represent the 95th percentile.

(3) Interim soil cleanup goal presented represents a minimum value based upon range of Kd values (Dragun, 1988).

(4) Interim soil cleanup goal presented represents a mean value based upon range of Kd values (Dragun, 1988).

(5) Interim soil cleanup goal presented represents a maximum value based upon range of Kd values (Dragun, 1988).

TABLE 5-3
CALCULATION SUMMARY OF INTERIM SOIL CLEANUP GOALS
PROTECTIVE OF HUMANS CONSUMING AQUATIC ORGANISMS FROM ELIZABETH RIVER
DETERMINISTIC AND MONTE-CARLO MODELS OF STEADY-STATE CONDITIONS
EASTERN SOURCE AREA
ATLANTIC WOOD INDUSTRIES, INC.
PORTSMOUTH, VA.

PCOC	Groundwater Performance Standard (mg/L)	River Mixing Factor (unitless)	Modeled Dilution-Attenuation Factor (unitless)		Initial Leachate Concentration at Source Location (mg/L)		Distribution Coefficient (cm^3/g)	Interim Soil Cleanup Goal at Source Location (mg/kg)	
			Deterministic Model	Monte-Carlo Model (2)	Deterministic Model	Monte-Carlo Model (2)		Deterministic Model	Monte-Carlo Model (2)
Total PAHs (1)	0.0000311	50	11.7	9.8	0.018	0.015	2,301,155	41,866	35,067
Volatile Organic Compounds									
Benzene	0.04	50	11.7	9.8	23.4	19.6	0.325	7.61	6.37
Toluene	424	50	11.7	9.8	248,040	207,760	1.5	372,060	311,640
Ethylbenzene	3.28	50	11.7	9.8	1,919	1,607	5.5	10,553	8,840
Phenolic Compounds									
Pentachlorophenol	29	50	11.7	9.8	16,965	14,210	265	4,495,725	3,765,650
Phenol	4,600	50	11.7	9.8	2,691,000	2,254,000	0.071	191,061	160,034
2,4-Dimethylphenol	2.3	50	11.7	9.8	1,346	1,127	0.48	—	—
Dioxins/Furans									
2,3,7,8-TCDD	1.40E-11	50	11.7	9.8	8.19E-09	6.86E-09	1.65E+04	1.35E-04	1.13E-04
Metals									
Arsenic (3)	0.0000175	50	11.7	9.8	0.010	0.009	1.45	0.015	0.012
Arsenic (4)	0.0000175	50	11.7	9.8	0.010	0.009	5.0	0.051	0.043
Arsenic (5)	0.0000175	50	11.7	9.8	0.010	0.009	13.2	0.135	0.113
Copper (3)	1.3	50	11.7	9.8	761	637	1.4	1,065	892
Copper (4)	1.3	50	11.7	9.8	761	637	22.2	16,883	14,141
Copper (5)	1.3	50	11.7	9.8	761	637	333	253,247	212,121

NOTES:

(1) PAHs - polycyclic aromatic hydrocarbons.
The value for total PAHs entered into the Kd column, 2,301,155 cm3/g, was derived as the sum of each Kd value weighted by the percent distribution of each PAH (see Table 4-2, sum Kd').

(2) Interim soil cleanup goals presented for the Monte-Carlo model represent the 95th percentile.

(3) Interim soil cleanup goal presented represents a minimum value based upon range of Kd values (Dragun, 1988).

(4) Interim soil cleanup goal presented represents a mean value based upon range of Kd values (Dragun, 1988).

(5) Interim soil cleanup goal presented represents a maximum value based upon range of Kd values (Dragun, 1988).

TABLE 5-4
CALCULATION SUMMARY OF INTERIM SOIL CLEANUP GOALS
PROTECTIVE OF MARINE ORGANISMS IN THE ELIZABETH RIVER
DETERMINISTIC AND MONTE-CARLO MODELS OF STEADY-STATE CONDITIONS
EASTERN SOURCE AREA
ATLANTIC WOOD INDUSTRIES, INC.
PORTSMOUTH, VA.

PCOC	Groundwater Performance Standard (mg/L)	River Mixing Factor (unitless)	Modeled Dilution-Attenuation Factor (unitless)		Initial Leachate Concentration at Source Location (mg/L)		Distribution Coefficient (cm^3/g)	Interim Soil Cleanup Goal at Source Location (mg/kg)	
			Deterministic Model	Monte-Carlo Model (2)	Deterministic Model	Monte-Carlo Model (2)		Deterministic Model	Monte-Carlo Model (2)
Total PAHs (1)	0.3	50	11.7	9.8	176	147	2,301,155	403,852,703	338,269,785
Volatile Organic Compounds									
Benzene	0.7	50	11.7	9.8	410	343	0.325	133	111
Toluene	5	50	11.7	9.8	2,925	2,450	1.5	4,388	3,675
Ethylbenzene	0.43	50	11.7	9.8	252	211	5.5	1,384	1,159
Phenolic Compounds									
Pentachlorophenol	0.0079	50	11.7	9.8	4.62	3.87	265	1,225	1,026
Phenol	5.8	50	11.7	9.8	3,393	2,842	0.071	241	202
Metals									
Arsenic (3)	0.036	50	11.7	9.8	21.1	17.6	1.45	30.5	25.6
Arsenic (4)	0.036	50	11.7	9.8	21.1	17.6	5.0	105	88.2
Arsenic (5)	0.036	50	11.7	9.8	21.1	17.6	13.2	278	233
Copper (3)	0.00029	50	11.7	9.8	0.170	0.142	1.4	0.238	0.199
Copper (4)	0.00029	50	11.7	9.8	0.170	0.142	22.2	3.77	3.15
Copper (5)	0.00029	50	11.7	9.8	0.170	0.142	333	56.5	47.3
Zinc (3)	0.086	50	11.7	9.8	50.3	42.1	0.1	5	4
Zinc (4)	0.086	50	11.7	9.8	50.3	42.1	16.4	825	691
Zinc (5)	0.086	50	11.7	9.8	50.3	42.1	8,000	402,480	337,120

NOTES:

(1) PAHs - polycyclic aromatic hydrocarbons.
The value for total PAHs entered into the Kd column, 2,301,155 cm3/g, was derived as the sum of each Kd value weighted by the percent distribution of each PAH (see Table 4-2, sum Kd').

(2) Interim soil cleanup goals presented for the Monte-Carlo model represent the 95th percentile.

(3) Interim soil cleanup goal presented represents a minimum value based upon range of Kd values (Dragun, 1988).

(4) Interim soil cleanup goal presented represents a mean value based upon range of Kd values (Dragun, 1988).

(5) Interim soil cleanup goal presented represents a maximum value based upon range of Kd values (Dragun, 1988).

5.2 Interim Soil Cleanup Goals Protective of Groundwater at MW-102

Table 5-2, shows interim soil cleanup goals for site PCOCs (total PAHs, volatile organic compounds (VOCs), phenolics, 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD), arsenic, copper, and zinc) that are protective of the groundwater at monitoring well MW-102.

Based on the results on the deterministic and Monte-Carlo modeling, Table 5-2 shows that the interim soil cleanup goals derived for total PAHs are 2,738 mg/kg and 10,355 mg/kg, respectively. The interim soil cleanup goals derived for VOCs from the results of the deterministic and Monte-Carlo modeling range from 0.019 mg/kg (benzene) to 98.8 mg/kg (total xylenes) and 0.073 mg/kg (benzene) to 374 mg/kg (total xylenes), respectively. The interim soil cleanup goals derived for phenolics from the results of the deterministic and Monte-Carlo modeling range from 3.15 mg/kg (PCP) to 16.9 mg/kg (phenol) and 11.9 mg/kg (PCP) to 63.9 mg/kg (phenol). Based on the results of the deterministic and Monte-Carlo modeling, the interim soil cleanup goals derived for 2,3,7,8-TCDD are 0.00982 mg/kg and 0.0371 mg/kg, respectively. The interim soil cleanup goals derived for arsenic from the results of the deterministic and Monte-Carlo modeling range from 0.181 mg/kg to 1.65 mg/kg and 0.685 mg/kg to 6.24 mg/kg. The interim soil cleanup goals derived for copper from the results of the deterministic and Monte-Carlo modeling range from 21.7 mg/kg to 5,152 mg/kg and 81.9 mg/kg to 19,481 mg/kg. The interim soil cleanup goals derived for zinc from the results of the deterministic and Monte-Carlo modeling range from 10.7 mg/kg to 856,800 mg/kg and 40.5 mg/kg to 3,240,000 mg/kg.

5.3 Interim Soil Cleanup Goals Protective of Humans Consuming Aquatic Organisms from Elizabeth River

Table 5-3, shows interim soil cleanup goals for site PCOCs (total PAHs, volatile organic compounds (VOCs), phenolics, 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD), arsenic, and copper) that are protective of humans consuming aquatic organisms from the Elizabeth River.

Based on the results on the deterministic and Monte-Carlo modeling, Table 5-3 shows that the interim soil cleanup goals derived for total PAHs are 41,866 mg/kg and 35,067 mg/kg, respectively. The interim soil cleanup goals derived for VOCs from the results of the deterministic and Monte-Carlo modeling range from 7.61 mg/kg (benzene) to 372,060 mg/kg (toluene) and 6.37 mg/kg (benzene) to 311,640 mg/kg (toluene), respectively. The interim soil cleanup goals derived for phenolics from the results of the deterministic and Monte-Carlo modeling range from 191,061 mg/kg (phenol) to 4,495,725 mg/kg (PCP) and 160,034 mg/kg (phenol) to 3,765,650 mg/kg (PCP). Based on the results on the deterministic and Monte-Carlo modeling, the interim soil cleanup goals derived for 2378-TCDD are 0.000135 mg/kg and 0.000113 mg/kg, respectively. The interim soil cleanup goals derived for arsenic from the results of the deterministic and Monte-Carlo modeling range from 0.015 mg/kg to 0.135 mg/kg and 0.012 mg/kg to 0.113 mg/kg. The interim soil cleanup goals derived for copper from the results of the deterministic and Monte-Carlo modeling range from 1,065 mg/kg to 253,247 mg/kg and 892 mg/kg to 212,121 mg/kg.

5.4 Interim Soil Cleanup Goals Protective of Marine Organisms in the Elizabeth River

Table 5-4, shows interim soil cleanup goals for site PCOCs (total PAHs, volatile organic compounds (VOCs), phenolics, arsenic, copper, and zinc) that are protective of marine organisms living in the Elizabeth River.

Based on the results on the deterministic and Monte-Carlo modeling, Table 5-4 shows that the interim soil cleanup goals derived for total PAHs are 403,852,703 mg/kg and 388,269,785 mg/kg, respectively. The interim soil cleanup goals derived for VOCs from the results of the deterministic and Monte-Carlo modeling range from 133 mg/kg (benzene) to 4,388 mg/kg (toluene) and 111 mg/kg (benzene) to 3,675 mg/kg (toluene), respectively. The interim soil cleanup goals derived for phenolics from the results of the deterministic and Monte-Carlo modeling range from 241 mg/kg (phenol) to 1,225 mg/kg (PCP) and 202 mg/kg (phenol) to 1,026 mg/kg (PCP). The interim soil cleanup goals derived for arsenic from the results of the deterministic and Monte-Carlo modeling range from 30.5 mg/kg to 278 mg/kg

and 25.6 mg/kg to 233 mg/kg. The interim soil cleanup goals derived for copper from the results of the deterministic and Monte-Carlo modeling range from 0.238 mg/kg to 56.5 mg/kg and 0.199 mg/kg to 47.3 mg/kg. The interim soil cleanup goals derived for zinc from the results of the deterministic and Monte-Carlo modeling range from 5 mg/kg to 402,480 mg/kg and 4 mg/kg to 337,120 mg/kg.

6.0 UNCERTAINTIES

This section discusses uncertainties inherent with the application of the Multimed model to the Portsmouth site. This section does not include model assumptions and limitations already discussed in Section 2.0.

6.1 Deterministic Model of Steady-State Conditions

For the deterministic models of steady-state conditions, literature values are used for chemical and physical properties of individual PCOCs. These values may not be appropriate for the actual existing conditions at the site. Many of the literature values were obtained from laboratory conditions or field conditions different from those at the site. Many site-specific conditions may cause the chemical and physical properties and behaviors of the PCOCs to deviate from values reported in literature.

In addition, the model evaluates chemicals separately. The behavior in the environment of chemicals which are constituents of mixtures, such as PAHs in creosote, may be different from their behaviors if these chemicals were present and interacting individually with the environment.

6.2 Monte-Carlo Model of Steady-State Conditions

This model assumes a constant, non-decaying source of large area and sufficient chemical mass to force the modeled system into steady-state conditions and equilibrium, such that a constant downgradient groundwater PCOC concentration is maintained at all times. In reality, however, the source strength may decay over time as PCOCs migrate away (downgradient) from the source or degrade naturally.

An uncertainty associated with the Monte Carlo mode exists in the random generation of values from a specified distribution. It is uncertain whether the model considers interdependencies that may exist between or among many of the input variables. For example, K_{OC} values may, in reality, change with the changing pH of

a system. This is probably ignored by the model, especially when K_{OC} values were entered as constant input.

Another consideration for uncertainty also exists in Monte-Carlo simulations. Since there was a very limited base of site-specific data for each input variable, the uniform probability distribution was best suited for the input variables because of the degree of uncertainty associated with them. Hydraulic conductivity, for example, is estimated to follow a log-normal distribution and application of a uniform distribution may not be appropriate, but due to the lack of data for this parameter, it was the only option available.

6.3 Overall Uncertainties

Other overall uncertainties associated with the use of the Multimed model for the Portsmouth site include:

- There is insufficient aquifer-specific data for calibration of the model to actual conditions beneath the site.

- Uncertainties exist in parameter estimation from literature values. This is especially true if values are presented for a particular variable for different types or classifications of materials (i.e., soils), none of which may adequately match the materials in the unsaturated and saturated zones at the Portsmouth site.

- A high degree of uncertainty exists in the selection of a representative location and size of each source area. The model assumes in this report that the geometry of each source area is square, which in reality may not represent the actual geometry of the area. Selection of the area geometry will affect how the plume is modeled.

7.0 SUMMARY

Application of the Multimed model to steady-state conditions at the Portsmouth site resulted in two sets of interim soil cleanup goals that are protective of each of the following: 1) the groundwater at receptor location MW-102; 2) marine organisms inhabiting the Elizabeth River; and 3) humans consuming organisms from the Elizabeth River. The two sets of interim soil cleanup goals were derived from simulating steady-state conditions at the site using deterministic models and Monte-Carlo models.

Using the deterministic model, one final downgradient concentration was obtained from each modeling effort, which was then used in deriving a DAF, and subsequently, interim soil cleanup goals. Each final downgradient groundwater concentration developed by the deterministic model was accompanied by a warning message indicating that the NMF (near field mixing factor) exceeded unity. EPA Region III stated during a phone conversation (U.S. EPA, 1992) that this warning message did not imply that the resulting concentration at the receptor was erroneous. Derivation of interim soil cleanup goals using the results of the Monte-Carlo simulations were performed using the 95th percentile downgradient groundwater concentrations computed by the Multimed model.

Table 7-1 presents a summary of all interim soil cleanup goals derived for the Portsmouth site. A comparison of the interim cleanup goals for organic PCOCs indicated that the most conservative goals for both deterministic and Monte-Carlo models were for protection of groundwater. Of these conservative goals, those for benzene and dioxins (2378-TCDD) represented the most conservative values. These interim goals derived for the protection of the groundwater at MW-102 from benzene and 2378-TCDD in soils, using the deterministic model, were 0.019 mg/kg and 0.00982 mg/kg, respectively. The interim soil cleanup goals derived for the protection of the groundwater at MW-102 from benzene and 2378-TCDD in soils, using the Monte-Carlo model, were 0.073 mg/kg and 0.0371 mg/kg, respectively.

The most conservative interim soil cleanup goals for the inorganic PCOCs were derived for the protection of humans consuming arsenic in aquatic organisms from

TABLE 7-1
SUMMARY OF INTERIM SOIL CLEANUP GOALS
PROTECTIVE OF GROUNDWATER AND THE ELIZABETH RIVER
ATLANTIC WOOD INDUSTRIES, INC.
PORTSMOUTH, VA.

	Interim Soil Cleanup Goals					
	Protective of MW-102 Groundwater (mg/kg)		Protective of Humans Consuming Aquatic Organisms from Elizabeth River (mg/kg)		Protective of Marine Organisms in Elizabeth River (mg/kg)	
PCOC	Deterministic Model	Monte-Carlo Model (2)	Deterministic Model	Monte-Carlo Model (2)	Deterministic Model	Monte-Carlo Model (2)
Total PAHs (1)	2,738	10,355	41,866	35,067	403,852,703	338,269,785
Volatile Organic Compounds						
Benzene	0.019	0.073	7.61	6.37	133	111
Toluene	17.9	67.5	372,060	311,640	4,388	3,675
Ethylbenzene	45.8	173	10,553	8,840	1,384	1,159
Styrene	—	—	—	—	—	—
Total Xylenes	98.8	374	—	—	—	—
Phenolic Compounds						
Pentachlorophenol	3.15	11.9	4,495,725	3,765,650	1,225	1,026
Phenol	16.9	63.9	191,061	160,034	241	202
2,4-Dimethylphenol	—	—	—	—	—	—
2-Methylphenol	—	—	—	—	—	—
4-Methylphenol	—	—	—	—	—	—
Dioxins/Furans						
2,3,7,8-TCDD	9.82E-03	3.71E-02	1.35E-04	1.13E-04	—	—
Metals						
Arsenic (3)	0.181	0.685	0.015	0.012	30.5	25.6
Arsenic (4)	0.625	2.36	0.051	0.043	105	88.2
Arsenic (5)	1.65	6.24	0.135	0.113	278	233
Copper (3)	21.7	81.9	1,065	892	0.238	0.199
Copper (4)	343	1,299	16,883	14,141	3.77	3.15
Copper (5)	5152	19,481	253,247	212,121	56.5	47.3
Zinc (3)	10.7	40.5	—	—	5	4
Zinc (4)	1756	6,642	—	—	825	691
Zinc (5)	856,800	3,240,000	—	—	402,480	337,120

NOTES:

(1) PAHs - polycyclic aromatic hydrocarbons.
Performance standard for total PAHs, 0.0001 mg/L (benzo(a)anthracene), represents the most conservative performa standard of all PAHs.
The value for total PAHs entered into the Kd column, 2,301,155 cm3/g, was derived as the sum of each Kd value we by the percent distribution of each PAH (see Table 4-2, sum Kd').

(2) Interim soil cleanup goals presented for the Monte-Carlo model represent the 95th percentile.

(3) Interim soil cleanup goal presented represents a minimum value based upon range of Kd values (Dragun, 1988).

(4) Interim soil cleanup goal presented represents a mean value based upon range of Kd values (Dragun, 1988).

(5) Interim soil cleanup goal presented represents a maximum value based upon range of Kd values (Dragun, 1988).

— Not Applicable.

the Elizabeth River. The interim soil cleanup goal ranges derived for this scenario using the deterministic and Monte-Carlo models were 0.015 mg/kg to 0.135 mg/kg and 0.012 mg/kg to 0.113 mg/kg, respectively. It should be noted that several of the interim soil cleanup goals derived by the model for arsenic, copper and zinc are below the ranges of literature native soil concentrations that are presented in Table 4-2 of the RI Report; therefore, these goals do not seem realistic.

Several of the interim soil cleanup goals derived for organic and inorganic PCOCs exceed one million parts per million. These include those developed using the deterministic and Monte-Carlo models for PCP concentrations protective of humans consuming aquatic organisms from the Elizabeth River (4,496,725 mg/kg and 3,765,650 mg/kg, respectively), the deterministic and Monte-Carlo models for total PAH concentrations protective of marine organisms living in the Elizabeth River (403,852,703 mg/kg and 33,269,785 mg/kg, respectively), and the Monte-Carlo model for zinc concentrations protective of groundwater at MW-102 (3,240,000 mg/kg). Although, it is physically and chemically impossible to exceed one million parts per million of any PCOC in soil, these numerically-derived values indicate that the "no-action" remedial alternative for remediation of PCP, total PAHs, and zinc would apply to the appropriate source soils under the previously mentioned scenarios.

APPENDIX A

U.S. EPA'S MULTIMEDIA EXPOSURE ASSESSMENT MODEL
DETERMINISTIC MODELS OF STEADY-STATE CONDITIONS
ATLANTIC WOOD INDUSTRIES, INC.
PORTSMOUTH, VIRGINIA SITE

1

U. S. ENVIRONMENTAL PROTECTION AGENCY

EXPOSURE ASSESSMENT

MULTIMEDIA MODEL

MULTIMED (Version 1.01, June 1991)

1

Run options
--- -------

SOIL PCOCs: MODELED FROM WESTERN SOURCE (GROUNDWATER MOUND AREA) TO MW-102

FILE: DET102.INP/OUT
Chemical simulated is ALL PCOCS

Option Chosen Saturated and unsaturated zone models
Run was DETERMIN
Infiltration input by user
Run was steady-state
Reject runs if Y coordinate outside plume
Do not reject runs if Z coordinate outside plume
Gaussian source used in saturated zone model

1

1

UNSATURATED ZONE FLOW MODEL PARAMETERS
(input parameter description and value)

NP	- Total number of nodal points	240
NMAT	- Number of different porous materials	1
KPROP	- Van Genuchten or Brooks and Corey	1
IMSHGN	- Spatial discretization option	1

NYFLAIK - Number of layers in flow model 1

OPTIONS CHOSEN
--- ---
Van Genuchten functional coefficients
User defined coordinate system
1

Layer information

LAYER NO.	LAYER THICKNESS	MATERIAL PROPERTY
1	1.00	1

DATA FOR MATERIAL 1

VADOSE ZONE MATERIAL VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Saturated hydraulic conductivity	cm/hr	CONSTANT	4.42	-999.	0.100E-10	0.100E+05
Unsaturated zone porosity	--	CONSTANT	0.380	-999.	0.100E-08	0.990
Air entry pressure head	m	CONSTANT	0.000E+00	-999.	0.000E+00	-999.
Depth of the unsaturated zone	m	CONSTANT	1.00	-999.	0.100E-08	-999.

DATA FOR MATERIAL 1

VADOSE ZONE FUNCTION VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Residual water content	--	CONSTANT	0.650E-01	-999.	0.100E-08	1.00
Brook and Corey exponent,EN	--	CONSTANT	0.000E+00	-999.	0.000E+00	10.0
ALFA coefficient	1/cm	CONSTANT	0.750E-01	-999.	0.000E+00	1.00
Van Genuchten exponent, ENN	--	CONSTANT	1.89	-999.	1.00	5.00

1

UNSATURATED ZONE TRANSPORT MODEL PARAMETERS

NLAY	- Number of different layers used		1
NTSTPS	- Number of time values concentration calc		40
DUMMY	- Not presently used		1
ISOL	- Type of scheme used in unsaturated zone		1
N	- Stehfest terms or number of increments		18
NTEL	- Points in Lagrangian interpolation		3
NGPTS	- Number of Gauss points		104
NIT	- Convolution integral segments		2
IBOUND	- Type of boundary condition		1
ITSGEN	- Time values generated or input		1
TMAX	- Max simulation time	--	0.0
WTFUN	- Weighting factor	--	1.2

OPTIONS CHOSEN
--- ---
Stehfest numerical inversion algorithm

Nondecaying continuous source
Computer generated times for computing concentrations
1

DATA FOR LAYER 1

VADOSE TRANSPORT VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Thickness of layer	m	CONSTANT	1.00	-999.	0.100E-08	-999.
Longitudinal dispersivity of layer	m	DERIVED	-999.	-999.	0.100E-02	0.100E+05
Percent organic matter	--	CONSTANT	0.500	-999.	0.000E+00	100.
Bulk density of soil for layer	g/cc	CONSTANT	1.49	-999.	0.100E-01	5.00
Biological decay coefficient	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	-999.

1

CHEMICAL SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Solid phase decay coefficient	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	0.100E+11
Dissolved phase decay coefficient	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	0.100E+11
Overall chemical decay coefficient	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	0.100E+11
Acid catalyzed hydrolysis rate	1/M-yr	CONSTANT	0.000E+00	-999.	0.000E+00	-999.
Neutral hydrolysis rate constant	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	-999.
Base catalyzed hydrolysis rate	1/M-yr	CONSTANT	0.000E+00	-999.	0.000E+00	-999.
Reference temperature	C	CONSTANT	25.0	-999.	0.000E+00	100.
Normalized distribution coefficient	ml/g	CONSTANT	0.550E+07	-999.	0.000E+00	-999.
Distribution coefficient	--	DERIVED	-999.	-999.	0.000E+00	0.100E+11
Biodegradation coefficient (sat. zone)	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	-999.
Air diffusion coefficient	cm2/s	CONSTANT	0.000E+00	-999.	0.000E+00	10.0
Reference temperature for air diffusion	C	CONSTANT	25.0	-999.	0.000E+00	100.
Molecular weight	g/M	CONSTANT	0.000E+00	-999.	0.000E+00	-999.
Mole fraction of solute	--	CONSTANT	0.000E+00	-999.	0.100E-08	1.00
Vapor pressure of solute	mm Hg	CONSTANT	0.000E+00	-999.	0.000E+00	100.
Henry's law constant	atm-m^3/M	CONSTANT	0.000E+00	-999.	0.100E-09	1.00
Overall 1st order decay sat. zone	1/yr	DERIVED	0.000E+00	0.000E+00	0.000E+00	1.00
Not currently used		CONSTANT	-999.	-999.	0.000E+00	1.00
Not currently used		CONSTANT	-999.	-999.	0.000E+00	1.00

1

SOURCE SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Infiltration rate	m/yr	CONSTANT	0.317	-999.	0.100E-09	0.100E+11
Area of waste disposal unit	m^2	CONSTANT	0.826E+04	-999.	0.100E-01	-999.
Duration of pulse	yr	CONSTANT	500.	-999.	0.100E-08	-999.
Spread of contaminant source	m	DERIVED	-999.	-999.	0.100E-08	0.100E+11
Recharge rate	m/yr	CONSTANT	0.317	-999.	0.000E+00	0.100E+11
Source decay constant	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	-999.
Initial concentration at landfill	mg/l	CONSTANT	100.	-999.	0.000E+00	-999.
Length scale of facility	m	DERIVED	90.9	-999.	0.100E-08	0.100E+11
Width scale of facility	m	DERIVED	90.9	-999.	0.100E-08	0.100E+11
Near field dilution		DERIVED	1.00	0.000E+00	0.000E+00	1.00

1

AQUIFER SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Particle diameter	cm	CONSTANT	0.300E-01	-999.	0.100E-08	100.
Aquifer porosity	--	CONSTANT	0.380	-999.	0.100E-08	0.990
Bulk density	g/cc	CONSTANT	1.49	-999.	0.100E-01	5.00
Aquifer thickness	m	CONSTANT	5.34	-999.	0.100E-08	0.100E+06
Source thickness (mixing zone depth)	m	DERIVED	-999.	-999.	0.100E-08	0.100E+06
Conductivity (hydraulic)	m/yr	CONSTANT	442.	-999.	0.100E-06	0.100E+09
Gradient (hydraulic)		CONSTANT	0.600E-02	-999.	0.100E-07	-999.
Groundwater seepage velocity	m/yr	DERIVED	-999.	-999.	0.100E-09	0.100E+09
Retardation coefficient	--	DERIVED	-999.	-999.	1.00	0.100E+09
Longitudinal dispersivity	m	CONSTANT	18.3	-999.	0.100E-02	0.100E+05
Transverse dispersivity	m	CONSTANT	6.10	-999.	0.100E-02	0.100E+05
Vertical dispersivity	m	CONSTANT	1.02	-999.	0.100E-02	0.100E+05
Temperature of aquifer	C	CONSTANT	18.0	-999.	0.000E+00	100.
pH	--	CONSTANT	6.50	-999.	0.300	14.0
Organic carbon content (fraction)		CONSTANT	0.500E-02	-999.	0.100E-05	1.00
Well distance from site	m	CONSTANT	183.	-999.	1.00	-999.
Angle off center	degree	CONSTANT	0.000E+00	-999.	0.000E+00	360.
Well vertical distance	m	CONSTANT	1.00	-999.	0.000E+00	1.00

CONCENTRATION AFTER SATURATED ZONE MODEL 8.377

*** WARNING *** Near field mixing factor is greater than 1.

Mixing factor = 4.87

1

U.S. ENVIRONMENTAL PROTECTION AGENCY

EXPOSURE ASSESSMENT

MULTIMEDIA MODEL

MULTIMED (Version 1.01, June 1991)

1

Run options
--- -------

SOIL PCOCs: MODELED FROM EASTERN SOURCE (WOOD PROCESS AREA) TO ELIZABETH RIVER

FILE: DETER.INP/OUT
Chemical simulated is ALL PCOCS

Option Chosen Saturated and unsaturated zone models
Run was DETERMIN
Infiltration input by user
Run was steady-state
Reject runs if Y coordinate outside plume
Do not reject runs if Z coordinate outside plume
Gaussian source used in saturated zone model

1

1

UNSATURATED ZONE FLOW MODEL PARAMETERS
(input parameter description and value)

NP	- Total number of nodal points	240
NMAT	- Number of different porous materials	1
KPROP	- Van Genuchten or Brooks and Corey	1
IMSHGN	- Spatial discretization option	1

NYFLAIR - Number of layers in flow model 1

OPTIONS CHOSEN
------- ------
Van Genuchten functional coefficients
User defined coordinate system
1

Layer information

LAYER NO.	LAYER THICKNESS	MATERIAL PROPERTY
1	1.00	1

DATA FOR MATERIAL 1
---- --- --------
VADOSE ZONE MATERIAL VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Saturated hydraulic conductivity	cm/hr	CONSTANT	4.42	-999.	0.100E-10	0.100E+05
Unsaturated zone porosity	--	CONSTANT	0.380	-999.	0.100E-08	0.990
Air entry pressure head	m	CONSTANT	0.000E+00	-999.	0.000E+00	-999.
Depth of the unsaturated zone	m	CONSTANT	1.00	-999.	0.100E-08	-999.

DATA FOR MATERIAL 1
---- --- --------
VADOSE ZONE FUNCTION VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Residual water content	--	CONSTANT	0.650E-01	-999.	0.100E-08	1.00
Brook and Corey exponent,EN	--	CONSTANT	0.000E+00	-999.	0.000E+00	10.0
ALFA coefficient	1/cm	CONSTANT	0.750E-01	-999.	0.000E+00	1.00
Van Genuchten exponent, ENN	--	CONSTANT	1.89	-999.	1.00	5.00

1

UNSATURATED ZONE TRANSPORT MODEL PARAMETERS

NLAY	- Number of different layers used		1
NTSTPS	- Number of time values concentration calc		40
DUMMY	- Not presently used		1
ISOL	- Type of scheme used in unsaturated zone		1
N	- Stehfest terms or number of increments		18
NTEL	- Points in Lagrangian interpolation		3
NGPTS	- Number of Gauss points		104
NIT	- Convolution integral segments		2
IBOUND	- Type of boundary condition		1
ITSGEN	- Time values generated or input		1
TMAX	- Max simulation time	--	0.0
WTFUN	- Weighting factor	--	1.2

OPTIONS CHOSEN
------- ------
Stehfest numerical inversion algorithm

Nondecaying continuous source
Computer generated times for computing concentrations

1

DATA FOR LAYER 1

VADOSE TRANSPORT VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Thickness of layer	m	CONSTANT	1.00	-999.	0.100E-08	-999.
Longitudinal dispersivity of layer	m	DERIVED	-999.	-999.	0.100E-02	0.100E+05
Percent organic matter	--	CONSTANT	0.500	-999.	0.000E+00	100.
Bulk density of soil for layer	g/cc	CONSTANT	1.49	-999.	0.100E-01	5.00
Biological decay coefficient	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	-999.

1

CHEMICAL SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Solid phase decay coefficient	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	0.100E+11
Dissolved phase decay coefficient	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	0.100E+11
Overall chemical decay coefficient	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	0.100E+11
Acid catalyzed hydrolysis rate	l/M-yr	CONSTANT	0.000E+00	-999.	0.000E+00	-999.
Neutral hydrolysis rate constant	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	-999.
Base catalyzed hydrolysis rate	l/M-yr	CONSTANT	0.000E+00	-999.	0.000E+00	-999.
Reference temperature	C	CONSTANT	25.0	-999.	0.000E+00	100.
Normalized distribution coefficient	ml/g	CONSTANT	0.550E+07	-999.	0.000E+00	-999.
Distribution coefficient	--	DERIVED	-999.	-999.	0.000E+00	0.100E+11
Biodegradation coefficient (sat. zone)	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	-999.
Air diffusion coefficient	cm2/s	CONSTANT	0.000E+00	-999.	0.000E+00	10.0
Reference temperature for air diffusion	C	CONSTANT	25.0	-999.	0.000E+00	100.
Molecular weight	g/M	CONSTANT	0.000E+00	-999.	0.000E+00	-999.
Mole fraction of solute	--	CONSTANT	0.000E+00	-999.	0.100E-08	1.00
Vapor pressure of solute	mm Hg	CONSTANT	0.000E+00	-999.	0.000E+00	100.
Henry's law constant	atm-m^3/M	CONSTANT	0.000E+00	-999.	0.100E-09	1.00
Overall 1st order decay sat. zone	1/yr	DERIVED	0.000E+00	0.000E+00	0.000E+00	1.00
Not currently used		CONSTANT	-999.	-999.	0.000E+00	1.00
Not currently used		CONSTANT	-999.	-999.	0.000E+00	1.00

1

SOURCE SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Infiltration rate	m/yr	CONSTANT	0.317	-999.	0.100E-09	0.100E+11
Area of waste disposal unit	m^2	CONSTANT	0.100E+05	-999.	0.100E-01	-999.
Duration of pulse	yr	CONSTANT	500.	-999.	0.100E-08	-999.
Spread of contaminant source	m	DERIVED	-999.	-999.	0.100E-08	0.100E+11
Recharge rate	m/yr	CONSTANT	0.317	-999.	0.000E+00	0.100E+11
Source decay constant	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	-999.
Initial concentration at landfill	mg/l	CONSTANT	100.	-999.	0.000E+00	-999.
Length scale of facility	m	CONSTANT	100.	-999.	0.100E-08	0.100E+11
Width scale of facility	m	CONSTANT	100.	-999.	0.100E-08	0.100E+11
Near field dilution		DERIVED	1.00	0.000E+00	0.000E+00	1.00

1

AQUIFER SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Particle diameter	cm	CONSTANT	0.300E-01	-999.	0.100E-08	100.
Aquifer porosity	--	CONSTANT	0.380	-999.	0.100E-08	0.990
Bulk density	g/cc	CONSTANT	1.49	-999.	0.100E-01	5.00
Aquifer thickness	m	CONSTANT	5.34	-999.	0.100E-08	0.100E+06
Source thickness (mixing zone depth)	m	DERIVED	-999.	-999.	0.100E-08	0.100E+06
Conductivity (hydraulic)	m/yr	CONSTANT	820.	-999.	0.100E-06	0.100E+09
Gradient (hydraulic)		CONSTANT	0.600E-02	-999.	0.100E-07	-999.
Groundwater seepage velocity	m/yr	DERIVED	-999.	-999.	0.100E-09	0.100E+09
Retardation coefficient	--	DERIVED	-999.	-999.	1.00	0.100E+09
Longitudinal dispersivity	m	CONSTANT	24.4	-999.	0.100E-02	0.100E+05
Transverse dispersivity	m	CONSTANT	8.13	-999.	0.100E-02	0.100E+05
Vertical dispersivity	m	CONSTANT	1.37	-999.	0.100E-02	0.100E+05
Temperature of aquifer	C	CONSTANT	18.0	-999.	0.000E+00	100.
pH	--	CONSTANT	6.50	-999.	0.300	14.0
Organic carbon content (fraction)		CONSTANT	0.500E-02	-999.	0.100E-05	1.00
Well distance from site	m	CONSTANT	244.	-999.	1.00	-999.
Angle off center	degree	CONSTANT	0.000E+00	-999.	0.000E+00	360.
Well vertical distance	m	CONSTANT	1.00	-999.	0.000E+00	1.00

CONCENTRATION AFTER SATURATED ZONE MODEL 8.515

*** WARNING *** Near field mixing factor is greater than 1.

Mixing factor = 2.89

APPENDIX B

U.S. EPA'S MULTIMEDIA EXPOSURE ASSESSMENT MODEL MONTE-CARLO MODELS OF STEADY-STATE CONDITIONS ATLANTIC WOOD INDUSTRIES, INC. PORTSMOUTH, VIRGINIA SITE

1

U. S. ENVIRONMENTAL PROTECTION AGENCY

EXPOSURE ASSESSMENT

MULTIMEDIA MODEL

MULTIMED (Version 1.01, June 1991)

1

Run options
--- -------

SOIL PCOCs: MODELED FROM WESTERN SOURCE (GROUNDWATER MOUND AREA) TO MC102

FILE: MC102.INP/OUT
Chemical simulated is ALL PCOCs

Option Chosen	Saturated and unsaturated zone models
Run was	MONTE
Infiltration input by user	
Number of monte carlo simulations	500
Run was steady-state	
Reject runs if Y coordinate outside plume	
Do not reject runs if Z coordinate outside plume	
Gaussian source used in saturated zone model	

1

1

UNSATURATED ZONE FLOW MODEL PARAMETERS
(input parameter description and value)

NP	- Total number of nodal points	240
NMAT	- Number of different porous materials	1
KPROP	- Van Genuchten or Brooks and Corey	1

IMSHGN - Spatial discretization option 1
NVFLAYR - Number of layers in flow model 1

OPTIONS CHOSEN
--- ---
Van Genuchten functional coefficients
User defined coordinate system

DATA FOR MATERIAL 1
--- --- ---
VADOSE ZONE MATERIAL VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Saturated hydraulic conductivity	cm/hr	UNIFORM	-999.	-999.	1.00	150.
Unsaturated zone porosity	--	UNIFORM	-999.	-999.	0.250	0.500
Air entry pressure head	m	CONSTANT	0.000E+00	-999.	0.000E+00	-999.
Depth of the unsaturated zone	m	UNIFORM	-999.	-999.	0.613	1.33

DATA FOR MATERIAL 1
--- --- ---
VADOSE ZONE FUNCTION VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Residual water content	--	UNIFORM	-999.	-999.	0.340E-01	0.100
Brook and Corey exponent.EN	--	CONSTANT	0.000E+00	-999.	0.000E+00	10.0
ALFA coefficient	1/cm	UNIFORM	-999.	-999.	0.500E-02	0.145
Van Genuchten exponent, ENN	--	UNIFORM	-999.	-999.	1.09	2.68

1

UNSATURATED ZONE TRANSPORT MODEL PARAMETERS

NLAY - Number of different layers used 1
NTSTPS - Number of time values concentration calc 40
DUMMY - Not presently used 1
ISOL - Type of scheme used in unsaturated zone 1
N - Stehfest terms or number of increments 18
NTEL - Points in Lagrangian interpolation 3
NGPTS - Number of Gauss points 104
NIT - Convolution integral segments 2
IBOUND - Type of boundary condition 1
ITSGEN - Time values generated or input 1
TMAX - Max simulation time -- 0.0
WTFUN - Weighting factor -- 1.2

OPTIONS CHOSEN
--- ---
Stehfest numerical inversion algorithm
Nondecaying continuous source
Computer generated times for computing concentrations
1

DATA FOR LAYER 1
--- --- ---

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Thickness of layer	m	CONSTANT	1.00	-999.	0.100E-08	-999.
Longitudinal dispersivity of layer	m	DERIVED	-999.	-999.	0.100E-02	0.100E+05
Percent organic matter	--	UNIFORM	-999.	-999.	0.180	1.30
Bulk density of soil for layer	g/cc	UNIFORM	-999.	-999.	1.25	1.76
Biological decay coefficient	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	-999.

1

CHEMICAL SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Solid phase decay coefficient	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	0.100E+11
Dissolved phase decay coefficient	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	0.100E+11
Overall chemical decay coefficient	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	0.100E+11
Acid catalyzed hydrolysis rate	1/M-yr	CONSTANT	0.000E+00	-999.	0.000E+00	-999.
Neutral hydrolysis rate constant	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	-999.
Base catalyzed hydrolysis rate	1/M-yr	CONSTANT	0.000E+00	-999.	0.000E+00	-999.
Reference temperature	C	CONSTANT	25.0	-999.	0.000E+00	100.
Normalized distribution coefficient	ml/g	UNIFORM	-999.	-999.	14.2	0.550E+07
Distribution coefficient	--	DERIVED	-999.	-999.	0.000E+00	0.100E+11
Biodegradation coefficient (sat. zone)	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	-999.
Air diffusion coefficient	cm2/s	CONSTANT	0.000E+00	-999.	0.000E+00	10.0
Reference temperature for air diffusion	C	CONSTANT	25.0	-999.	0.000E+00	100.
Molecular weight	g/M	CONSTANT	0.000E+00	-999.	0.000E+00	-999.
Mole fraction of solute	--	CONSTANT	0.000E+00	-999.	0.100E-08	1.00
Vapor pressure of solute	mm Hg	CONSTANT	0.000E+00	-999.	0.000E+00	100.
Henry's law constant	atm-m^3/M	CONSTANT	0.000E+00	-999.	0.100E-09	1.00
Overall 1st order decay sat. zone	1/yr	DERIVED	0.000E+00	0.000E+00	0.000E+00	1.00
Not currently used		CONSTANT	-999.	-999.	0.000E+00	1.00
Not currently used		CONSTANT	-999.	-999.	0.000E+00	1.00

1

SOURCE SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Infiltration rate	m/yr	UNIFORM	-999.	-999.	0.100E-02	0.317
Area of waste disposal unit	m^2	CONSTANT	0.826E+04	-999.	0.100E-01	-999.
Duration of pulse	yr	CONSTANT	-999.	-999.	0.100E-08	-999.
Spread of contaminant source	m	DERIVED	-999.	-999.	0.100E-08	0.100E+11
Recharge rate	m/yr	UNIFORM	-999.	-999.	0.308	0.744
Source decay constant	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	-999.
Initial concentration at landfill	mg/l	CONSTANT	100.	-999.	0.000E+00	-999.
Length scale of facility	m	DERIVED	90.9	-999.	0.100E-08	0.100E+11
Width scale of facility	m	DERIVED	90.9	-999.	0.100E-08	0.100E+11
Near field dilution		DERIVED	1.00	0.000E+00	0.000E+00	1.00

1

AQUIFER SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Particle diameter	cm	UNIFORM	-999.	-999.	0.400E-03	0.200

Aquifer porosity	--	UNIFORM	-999.	-999.	0.280	0.570
Bulk density	g/cc	UNIFORM	-999.	-999.	1.25	1.76
Aquifer thickness	m	UNIFORM	-999.	-999.	4.57	6.10
Source thickness (mixing zone depth)	m	DERIVED	-999.	-999.	0.100E-08	0.100E+06
Conductivity (hydraulic)	m/yr	UNIFORM	-999.	-999.	347.	536.
Gradient (hydraulic)		UNIFORM	-999.	-999.	0.110E-02	0.100E-01
Groundwater seepage velocity	m/yr	DERIVED	-999.	-999.	0.100E-09	0.100E+09
Retardation coefficient	--	DERIVED	-999.	-999.	1.00	0.100E+09
Longitudinal dispersivity	m	CONSTANT	18.3	-999.	0.100E-02	0.100E+05
Transverse dispersivity	m	CONSTANT	6.10	-999.	0.100E-02	0.100E+05
Vertical dispersivity	m	CONSTANT	1.02	-999.	0.100E-02	0.100E+05
Temperature of aquifer	C	UNIFORM	-999.	-999.	16.0	25.0
pH	--	UNIFORM	-999.	-999.	6.00	9.00
Organic carbon content (fraction)		UNIFORM	-999.	-999.	0.100E-02	0.760E-02
Well distance from site	m	CONSTANT	183.	-999.	1.00	-999.
Angle off center	degree	CONSTANT	0.000E+00	-999.	0.000E+00	360.
Well vertical distance	m	UNIFORM	1.00	-999.	0.000E+00	1.00

1 2365 Values generated which exceeded the specified bounds.

1 ----- RESULTS -----

SATURATED ZONE TRANSPORT

SOIL PCOCs: MODELED FROM WESTERN SOURCE (GROUNDWATER MOUND AREA) TO MC102

FILE: MC102.INP/OUT

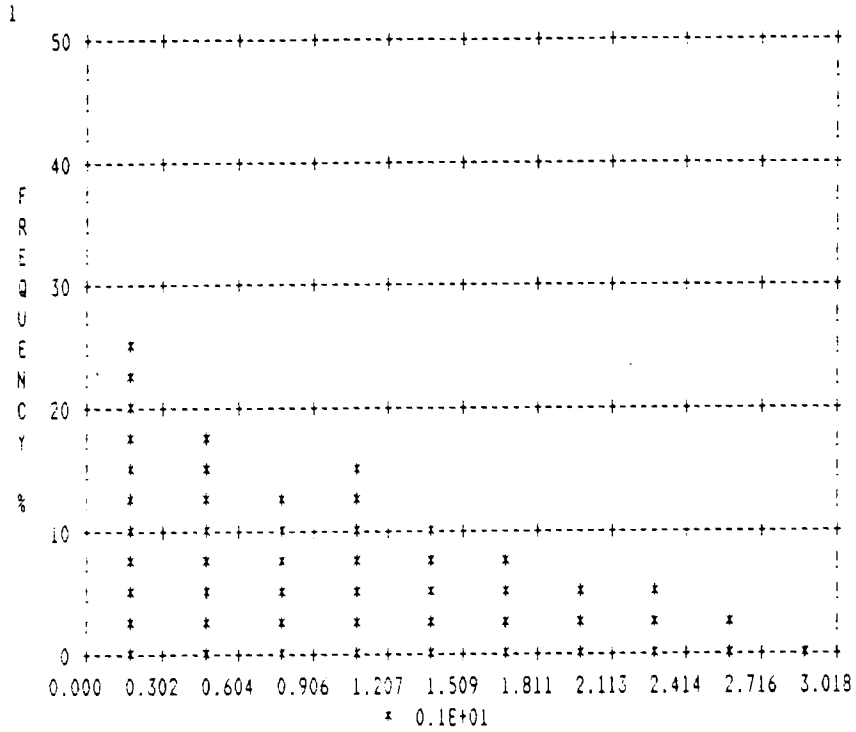
95. PERCENT CONFIDENCE INTERVAL

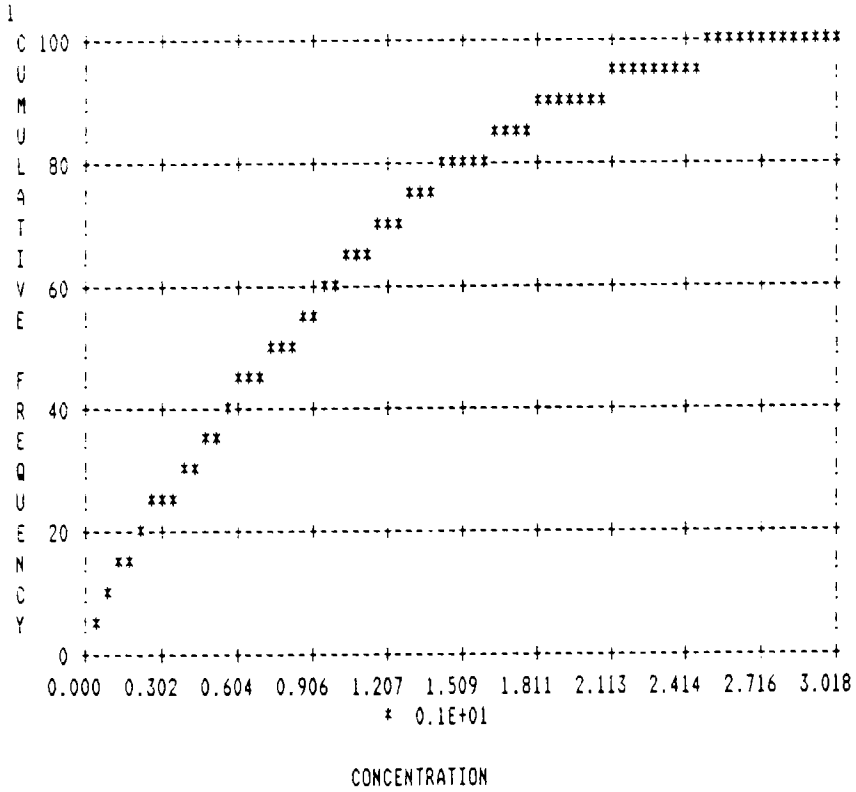
N	:	500		
MEAN	:	0.890		
STANDARD DEVIATION	:	0.701		
COEFFICIENT OF VARIATION	:	0.788		
MINIMUM VALUE	:	0.274E-03		
MAXIMUM VALUE	:	3.02		
50th PERCENTILE	:	0.772	0.675	0.873
80th PERCENTILE	:	1.45	1.38	1.67
85th PERCENTILE	:	1.70	1.57	1.85
90th PERCENTILE	:	1.96	1.79	2.11
95th PERCENTILE	:	2.23	2.14	2.38

-999 UNABLE TO COMPUTE CONFIDENCE BOUND DUE TO INSUFFICIENT DATA

VALUE	% OF TIME EQUALLED OR EXCEEDED	% OF TIME IN INTERVAL
0.274E-03	100.000	
		26.000
0.302	74.000	
		16.800
0.604	57.200	
		13.600
0.906	43.600	
		14.000
1.21	29.600	
		10.600
1.51	19.000	
		6.600
1.81	12.400	
		5.200
2.11	7.200	
		4.200

[illegible]	[illegible]	1.800
2.72	1.200	1.000
3.02	0.200	





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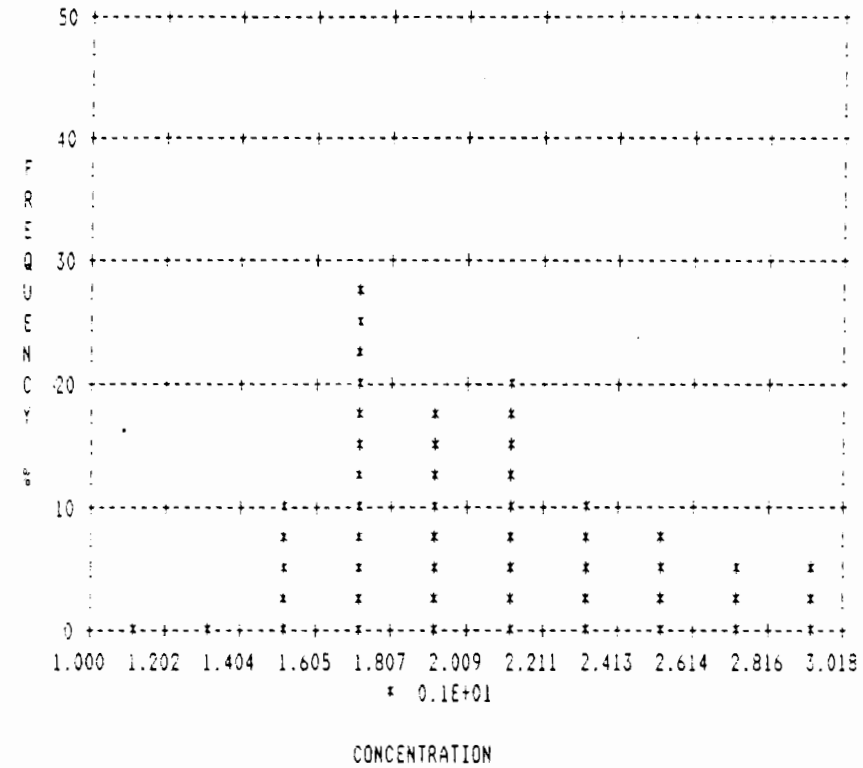
FOLLOWING GRAPHS ARE FOR THE TOP 20% OF THERESULTS

1



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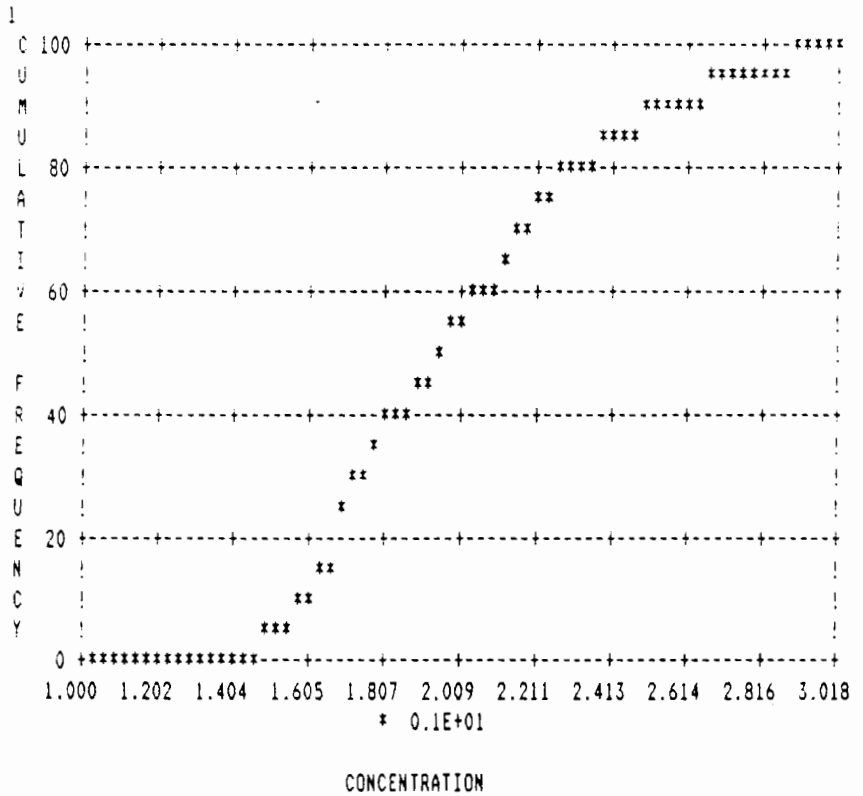

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U. S. ENVIRONMENTAL PROTECTION AGENCY

EXPOSURE ASSESSMENT

MULTIMEDIA MODEL

MULTIMED (Version 1.01, June 1991)

1

Run options
--- -------

SOIL PCOCs: MODELED FROM WOOD PROCESS AREA TO THE ELIZABETH RIVER

FILE: MCER.INP/OUT
Chemical simulated is ALL PCOCs

Option Chosen	Saturated and unsaturated zone models
Run was	MONTE
Infiltration input by user	
Number of monte carlo simulations	500
Run was steady-state	
Reject runs if Y coordinate outside plume	
Do not reject runs if Z coordinate outside plume	
Gaussian source used in saturated zone model	

1

1

UNSATURATED ZONE FLOW MODEL PARAMETERS
(input parameter description and value)

NP	- Total number of nodal points	240
NMAT	- Number of different porous materials	1
KPROP	- Van Genuchten or Brooks and Corey	1

IMSHGN - Spatial discretization option 1
NVFLAYR - Number of layers in flow model 1

OPTIONS CHOSEN
--- ---
Van Genuchten functional coefficients
User defined coordinate system

DATA FOR MATERIAL 1
--- --- ---
VADOSE ZONE MATERIAL VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Saturated hydraulic conductivity	cm/hr	UNIFORM	-999.	-999.	1.00	150.
Unsaturated zone porosity	--	UNIFORM	-999.	-999.	0.250	0.500
Air entry pressure head	m	CONSTANT	0.000E+00	-999.	0.000E+00	-999.
Depth of the unsaturated zone	m	UNIFORM	-999.	-999.	0.500	2.00

DATA FOR MATERIAL 1
--- --- ---
VADOSE ZONE FUNCTION VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Residual water content	--	UNIFORM	-999.	-999.	0.340E-01	0.100
Brook and Corey exponent,EN	--	CONSTANT	0.000E+00	-999.	0.000E+00	10.0
ALFA coefficient	1/cm	UNIFORM	-999.	-999.	0.500E-02	0.145
Van Genuchten exponent, ENN	--	UNIFORM	-999.	-999.	1.09	2.68

1

UNSATURATED ZONE TRANSPORT MODEL PARAMETERS

NLAY - Number of different layers used 1
NTSTPS - Number of time values concentration calc 40
DUMMY - Not presently used 1
ISOL - Type of scheme used in unsaturated zone 1
N - Stehfest terms or number of increments 18
NTEL - Points in Lagrangian interpolation 3
NGPTS - Number of Gauss points 104
NIT - Convolution integral segments 2
IBOUND - Type of boundary condition 1
ITSGEN - Time values generated or input 1
TMAX - Max simulation time -- 0.0
WTFUN - Weighting factor -- 1.2

OPTIONS CHOSEN
--- ---
Stehfest numerical inversion algorithm
Nondecaying continuous source
Computer generated times for computing concentrations
1

DATA FOR LAYER 1
--- --- ---

VADOSE TRANSPORT VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Thickness of layer	m	CONSTANT	1.00	-999.	0.100E-08	-999.
Longitudinal dispersivity of layer	m	DERIVED	-999.	-999.	0.100E-02	0.100E+05
Percent organic matter	--	UNIFORM	-999.	-999.	0.180	1.30
Bulk density of soil for layer	g/cc	UNIFORM	-999.	-999.	1.25	1.76
Biological decay coefficient	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	-999.

1

CHEMICAL SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Solid phase decay coefficient	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	0.100E+11
Dissolved phase decay coefficient	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	0.100E+11
Overall chemical decay coefficient	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	0.100E+11
Acid catalyzed hydrolysis rate	l/M-yr	CONSTANT	0.000E+00	-999.	0.000E+00	-999.
Neutral hydrolysis rate constant	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	-999.
Base catalyzed hydrolysis rate	l/M-yr	CONSTANT	0.000E+00	-999.	0.000E+00	-999.
Reference temperature	C	CONSTANT	25.0	-999.	0.000E+00	100.
Normalized distribution coefficient	ml/g	UNIFORM	-999.	-999.	14.2	0.550E+07
Distribution coefficient	--	DERIVED	-999.	-999.	0.000E+00	0.100E+11
Biodegradation coefficient (sat. zone)	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	-999.
Air diffusion coefficient	cm2/s	CONSTANT	0.000E+00	-999.	0.000E+00	10.0
Reference temperature for air diffusion	C	CONSTANT	25.0	-999.	0.000E+00	100.
Molecular weight	g/M	CONSTANT	0.000E+00	-999.	0.000E+00	-999.
Mole fraction of solute	--	CONSTANT	0.000E+00	-999.	0.100E-08	1.00
Vapor pressure of solute	mm Hg	CONSTANT	0.000E+00	-999.	0.000E+00	100.
Henry's law constant	atm-m^3/M	CONSTANT	0.000E+00	-999.	0.100E-09	1.00
Overall 1st order decay sat. zone	1/yr	DERIVED	0.000E+00	0.000E+00	0.000E+00	1.00
Not currently used		CONSTANT	-999.	-999.	0.000E+00	1.00
Not currently used		CONSTANT	-999.	-999.	0.000E+00	1.00

1

SOURCE SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Infiltration rate	m/yr	CONSTANT	0.317	-999.	0.100E-09	0.100E+11
Area of waste disposal unit	m^2	CONSTANT	0.100E+05	-999.	0.100E-01	-999.
Duration of pulse	yr	CONSTANT	-999.	-999.	0.100E-08	-999.
Spread of contaminant source	m	DERIVED	-999.	-999.	0.100E-08	0.100E+11
Recharge rate	m/yr	UNIFORM	-999.	-999.	0.308	0.744
Source decay constant	1/yr	CONSTANT	0.000E+00	-999.	0.000E+00	-999.
Initial concentration at landfill	mg/l	CONSTANT	100.	-999.	0.000E+00	-999.
Length scale of facility	m	DERIVED	100.	-999.	0.100E-08	0.100E+11
Width scale of facility	m	DERIVED	100.	-999.	0.100E-08	0.100E+11
Near field dilution		DERIVED	1.00	0.000E+00	0.000E+00	1.00

1

AQUIFER SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Particle diameter	cm	UNIFORM	-999.	-999.	0.400E-03	0.200

Aquifer porosity	--	UNIFORM	-999.	-999.	0.280	0.500
Bulk density	g/cc	UNIFORM	-999.	-999.	1.25	1.76
Aquifer thickness	m	UNIFORM	-999.	-999.	4.57	6.10
Source thickness (mixing zone depth)	m	DERIVED	-999.	-999.	0.100E-08	0.100E+06
Conductivity (hydraulic)	m/yr	UNIFORM	-999.	-999.	142.	0.378E+04
Gradient (hydraulic)		UNIFORM	-999.	-999.	0.590E-02	0.680E-02
Groundwater seepage velocity	m/yr	DERIVED	-999.	-999.	0.100E-09	0.100E+09
Retardation coefficient	--	DERIVED	-999.	-999.	1.00	0.100E+09
Longitudinal dispersivity	m	CONSTANT	24.4	-999.	0.100E-02	0.100E+05
Transverse dispersivity	m	CONSTANT	8.13	-999.	0.100E-02	0.100E+05
Vertical dispersivity	m	CONSTANT	1.37	-999.	0.100E-02	0.100E+05
Temperature of aquifer	C	UNIFORM	-999.	-999.	16.0	25.0
pH	--	UNIFORM	-999.	-999.	6.00	9.00
Organic carbon content (fraction)		UNIFORM	-999.	-999.	0.100E-02	0.760E-02
Well distance from site	m	CONSTANT	244.	-999.	1.00	-999.
Angle off center	degree	CONSTANT	0.000E+00	-999.	0.000E+00	360.
Well vertical distance	m	UNIFORM	1.00	-999.	0.000E+00	1.00

1 650 Values generated which exceeded the specified bounds.

1 ----- RESULTS -----

SATURATED ZONE TRANSPORT

SOIL PCOCs: MODELED FROM WOOD PROCESS AREA TO THE ELIZABETH RIVER

FILE: MCER.INP/OUT

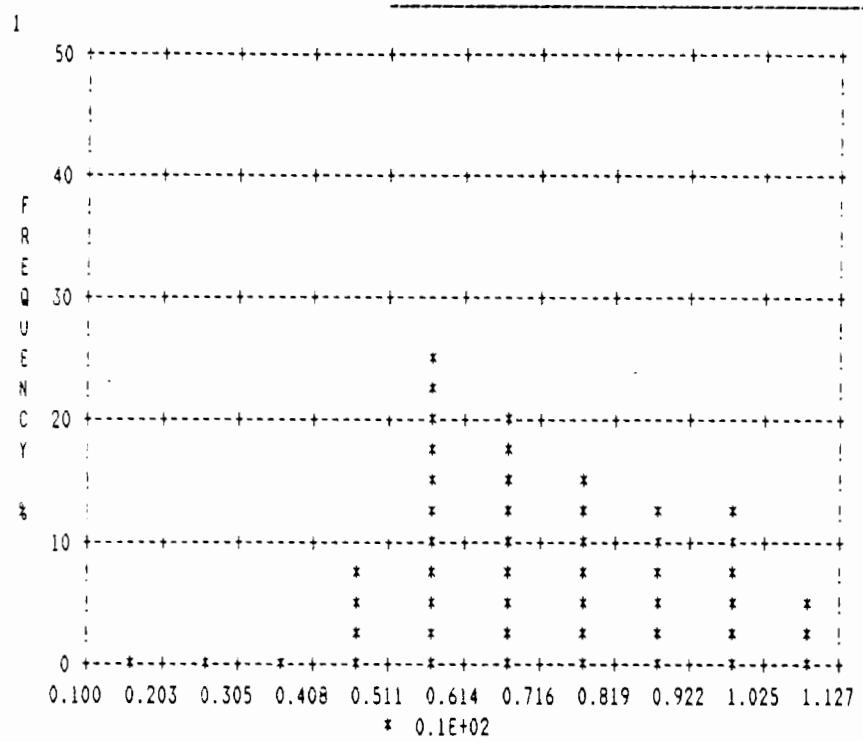
95. PERCENT CONFIDENCE INTERVAL

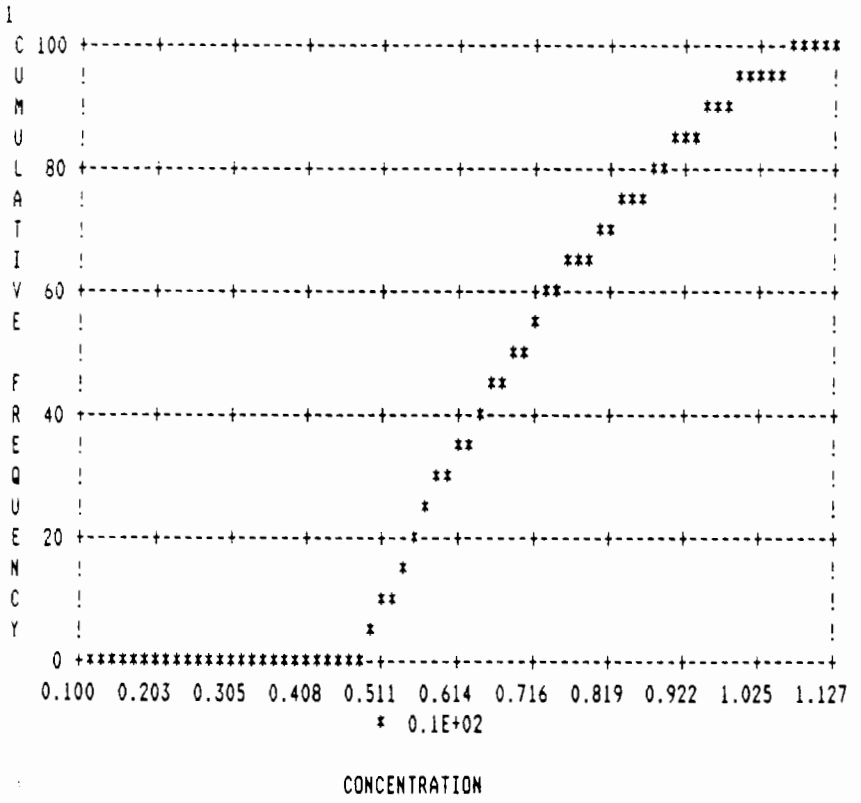
N	:	500		
MEAN	:	7.20		
STANDARD DEVIATION	:	1.68		
COEFFICIENT OF VARIATION	:	0.233		
MINIMUM VALUE	:	4.40		
MAXIMUM VALUE	:	11.3		
50th PERCENTILE	:	6.97	6.78	7.16
80th PERCENTILE	:	8.89	8.62	9.17
85th PERCENTILE	:	9.29	9.02	9.51
90th PERCENTILE	:	9.69	9.49	9.90
95th PERCENTILE	:	10.2	9.98	10.5

-999 UNABLE TO COMPUTE CONFIDENCE BOUND DUE TO INSUFFICIENT DATA

VALUE	% OF TIME EQUALLED OR EXCEEDED	% OF TIME IN INTERVAL
1.00	100.000	
		0.000
2.03	100.000	
		0.000
3.05	100.000	
		0.000
4.08	100.000	
		8.200
5.11	91.800	
		25.800
6.14	66.000	
		20.400
7.16	45.600	
		16.200
8.19	29.400	
		13.200

9.22	16.200	
		11.800
10.2	4.400	
		4.200
11.3	0.200	





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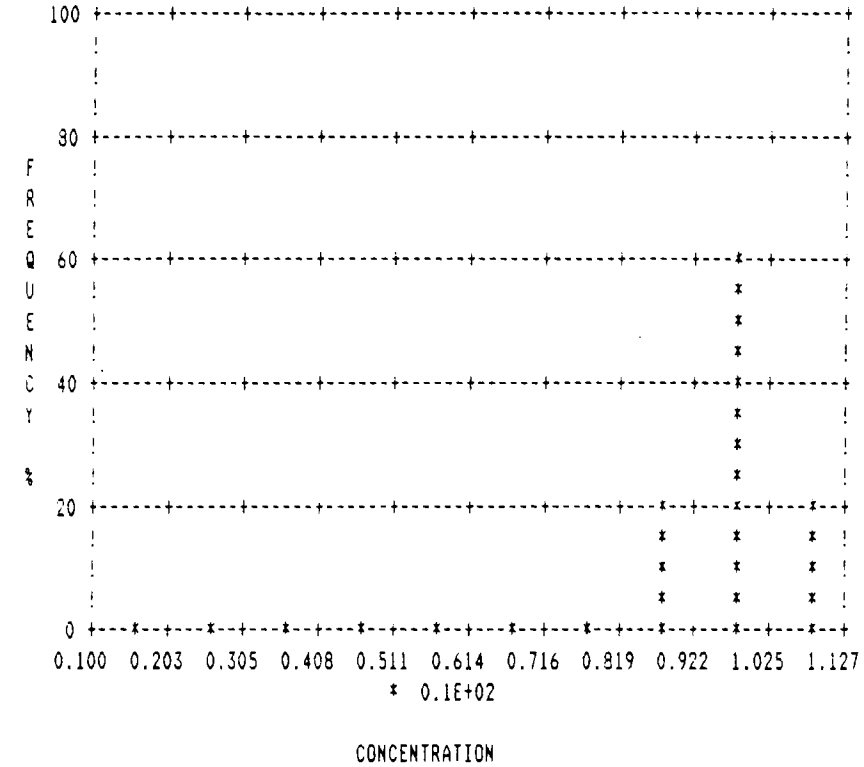
FOLLOWING GRAPHS ARE FOR THE TOP 20% OF THERESULTS

1



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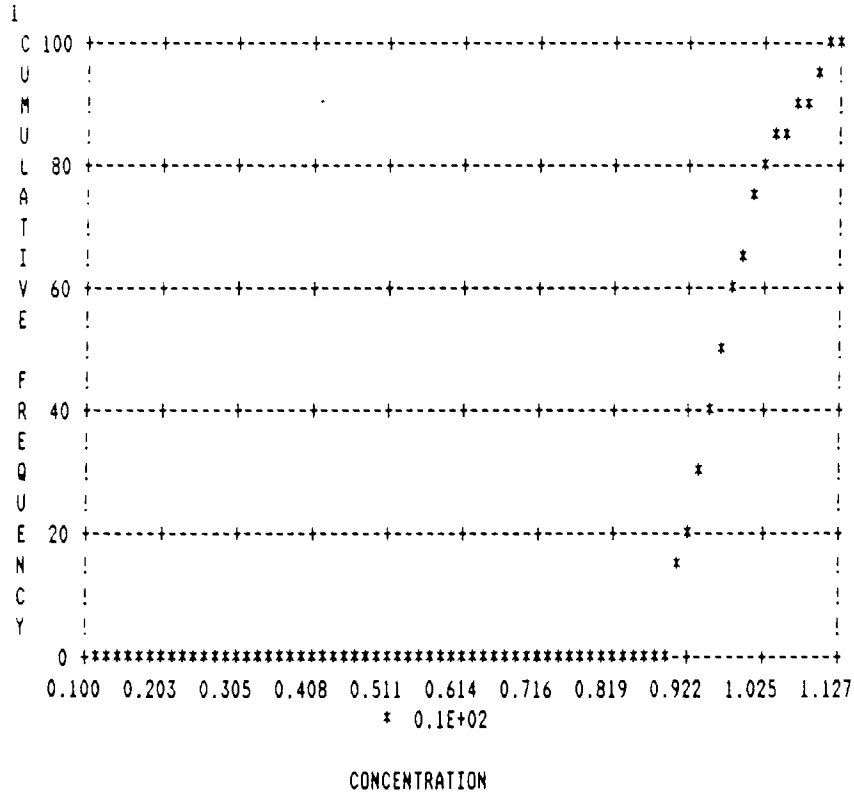

APPENDIX B-1

PRINT-OUTS OF SAT.OUT FILES FOR MONTE-CARLO MODELS OF STEADY-STATE CONDITIONS

1

STEADY STATE SATURATED ZONE TRANSPORT RESULTS

```
RUN NO.    1 CONC IS 0.4955E+00
RUN NO.    2 CONC IS 0.1978E+00
RUN NO.    3 CONC IS 0.4419E-01
RUN NO.    4 CONC IS 0.3955E+00
RUN NO.    5 CONC IS 0.1027E+01
RUN NO.    6 CONC IS 0.8032E+00
RUN NO.    7 CONC IS 0.5540E+00
RUN NO.    8 CONC IS 0.1374E+01
RUN NO.    9 CONC IS 0.1056E+01
RUN NO.   10 CONC IS 0.1322E+01
RUN NO.   11 CONC IS 0.1711E+01
RUN NO.   12 CONC IS 0.1233E+01
RUN NO.   13 CONC IS 0.7056E+00
RUN NO.   14 CONC IS 0.2484E+01
RUN NO.   15 CONC IS 0.9470E+00
RUN NO.   16 CONC IS 0.1338E+01
RUN NO.   17 CONC IS 0.1845E+01
RUN NO.   18 CONC IS 0.6030E+00
RUN NO.   19 CONC IS 0.4580E+00
RUN NO.   20 CONC IS 0.5860E+00
RUN NO.   21 CONC IS 0.8567E+00
RUN NO.   22 CONC IS 0.2122E+00
RUN NO.   23 CONC IS 0.4370E-03
RUN NO.   24 CONC IS 0.1188E+01
RUN NO.   25 CONC IS 0.8790E+00
RUN NO.   26 CONC IS 0.3247E+00
RUN NO.   27 CONC IS 0.3140E+00
RUN NO.   28 CONC IS 0.5871E-01
RUN NO.   29 CONC IS 0.1028E+01
RUN NO.   30 CONC IS 0.8325E+00
RUN NO.   31 CONC IS 0.1424E+01
RUN NO.   32 CONC IS 0.9784E+00
RUN NO.   33 CONC IS 0.7989E+00
RUN NO.   34 CONC IS 0.2795E+00
RUN NO.   35 CONC IS 0.2014E+00
RUN NO.   36 CONC IS 0.6079E+00
RUN NO.   37 CONC IS 0.6119E+00
RUN NO.   38 CONC IS 0.2107E+01
RUN NO.   39 CONC IS 0.4455E-01
RUN NO.   40 CONC IS 0.8974E+00
RUN NO.   41 CONC IS 0.6257E+00
RUN NO.   42 CONC IS 0.4359E+00
RUN NO.   43 CONC IS 0.1245E+00
RUN NO.   44 CONC IS 0.2490E+00
RUN NO.   45 CONC IS 0.2133E+01
RUN NO.   46 CONC IS 0.1043E+01
RUN NO.   47 CONC IS 0.1067E+00
RUN NO.   48 CONC IS 0.6919E+00
RUN NO.   49 CONC IS 0.3354E+00
RUN NO.   50 CONC IS 0.2113E+00
RUN NO.   51 CONC IS 0.5742E+00
RUN NO.   52 CONC IS 0.9015E+00
RUN NO.   53 CONC IS 0.2189E+01
RUN NO.   54 CONC IS 0.9395E+00
RUN NO.   55 CONC IS 0.1890E+00
RUN NO.   56 CONC IS 0.6853E+00
RUN NO.   57 CONC IS 0.2476E+00
RUN NO.   58 CONC IS 0.8920E+00
RUN NO.   59 CONC IS 0.7180E+00
RUN NO.   60 CONC IS 0.5837E+00
RUN NO.   61 CONC IS 0.9310E+00
```

```
RUN NO.  62 CONC IS 0.2647E+01
RUN NO.  63 CONC IS 0.1137E+01
RUN NO.  64 CONC IS 0.8627E+00
RUN NO.  65 CONC IS 0.5743E+00
RUN NO.  66 CONC IS 0.1977E+01
RUN NO.  67 CONC IS 0.5798E-01
RUN NO.  68 CONC IS 0.3804E+00
RUN NO.  69 CONC IS 0.6746E+00
RUN NO.  70 CONC IS 0.3990E+00
RUN NO.  71 CONC IS 0.4515E+00
RUN NO.  72 CONC IS 0.2451E+01
RUN NO.  73 CONC IS 0.1429E+01
RUN NO.  74 CONC IS 0.1361E+01
RUN NO.  75 CONC IS 0.5970E+00
RUN NO.  76 CONC IS 0.4930E+00
RUN NO.  77 CONC IS 0.1879E+01
RUN NO.  78 CONC IS 0.1910E+01
RUN NO.  79 CONC IS 0.2304E+01
RUN NO.  80 CONC IS 0.1297E+01
RUN NO.  81 CONC IS 0.1205E+01
RUN NO.  82 CONC IS 0.9812E+00
RUN NO.  83 CONC IS 0.1975E+01
RUN NO.  84 CONC IS 0.6073E+00
RUN NO.  85 CONC IS 0.4935E-01
RUN NO.  86 CONC IS 0.6162E-01
RUN NO.  87 CONC IS 0.1159E+01
RUN NO.  88 CONC IS 0.4510E+00
RUN NO.  89 CONC IS 0.4832E+00
RUN NO.  90 CONC IS 0.1786E+00
RUN NO.  91 CONC IS 0.1765E+01
RUN NO.  92 CONC IS 0.2685E+00
RUN NO.  93 CONC IS 0.4915E+00
RUN NO.  94 CONC IS 0.9716E+00
RUN NO.  95 CONC IS 0.5262E+00
RUN NO.  96 CONC IS 0.1036E+01
RUN NO.  97 CONC IS 0.5395E+00
RUN NO.  98 CONC IS 0.2586E+00
RUN NO.  99 CONC IS 0.9003E+00
RUN NO. 100 CONC IS 0.1087E+01
RUN NO. 101 CONC IS 0.2208E+00
RUN NO. 102 CONC IS 0.7327E+00
RUN NO. 103 CONC IS 0.2741E-03
RUN NO. 104 CONC IS 0.2823E+01
RUN NO. 105 CONC IS 0.5250E+00
RUN NO. 106 CONC IS 0.2537E+01
RUN NO. 107 CONC IS 0.1015E+01
RUN NO. 108 CONC IS 0.2782E+01
RUN NO. 109 CONC IS 0.1244E+01
RUN NO. 110 CONC IS 0.4316E+00
RUN NO. 111 CONC IS 0.1491E+01
RUN NO. 112 CONC IS 0.1925E+01
RUN NO. 113 CONC IS 0.1007E+01
RUN NO. 114 CONC IS 0.1119E-02
RUN NO. 115 CONC IS 0.1193E+01
RUN NO. 116 CONC IS 0.1732E+00
RUN NO. 117 CONC IS 0.2707E+01
RUN NO. 118 CONC IS 0.2054E+01
RUN NO. 119 CONC IS 0.2000E+00
RUN NO. 120 CONC IS 0.6601E+00
RUN NO. 121 CONC IS 0.4928E-03
RUN NO. 122 CONC IS 0.8669E+00
RUN NO. 123 CONC IS 0.1064E+01
RUN NO. 124 CONC IS 0.3437E+00
RUN NO. 125 CONC IS 0.8026E+00
RUN NO. 126 CONC IS 0.1321E+01
RUN NO. 127 CONC IS 0.4711E-01
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RUN NO. 128 CONC IS 0.3158E+00
RUN NO. 129 CONC IS 0.1486E+01
RUN NO. 130 CONC IS 0.1372E+01
RUN NO. 131 CONC IS 0.2529E-01
RUN NO. 132 CONC IS 0.7521E+00
RUN NO. 133 CONC IS 0.1751E+01
RUN NO. 134 CONC IS 0.1237E+01
RUN NO. 135 CONC IS 0.1957E+01
RUN NO. 136 CONC IS 0.1382E+01
RUN NO. 137 CONC IS 0.2540E+01
RUN NO. 138 CONC IS 0.1518E+01
RUN NO. 139 CONC IS 0.2121E+00
RUN NO. 140 CONC IS 0.9685E+00
RUN NO. 141 CONC IS 0.4483E+00
RUN NO. 142 CONC IS 0.5435E+00
RUN NO. 143 CONC IS 0.1307E+01
RUN NO. 144 CONC IS 0.7217E-01
RUN NO. 145 CONC IS 0.2885E+01
RUN NO. 146 CONC IS 0.5325E+00
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RUN NO. 148 CONC IS 0.1394E+01
RUN NO. 149 CONC IS 0.2242E+00
RUN NO. 150 CONC IS 0.1189E+01
RUN NO. 151 CONC IS 0.5984E+00
RUN NO. 152 CONC IS 0.9055E+00
RUN NO. 153 CONC IS 0.2609E+01
RUN NO. 154 CONC IS 0.3766E-02
RUN NO. 155 CONC IS 0.5558E+00
RUN NO. 156 CONC IS 0.1396E+01
RUN NO. 157 CONC IS 0.1385E+01
RUN NO. 158 CONC IS 0.9889E+00
RUN NO. 159 CONC IS 0.1079E+00
RUN NO. 160 CONC IS 0.8708E+00
RUN NO. 161 CONC IS 0.7602E+00
RUN NO. 162 CONC IS 0.1098E+01
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RUN NO. 164 CONC IS 0.3686E-01
RUN NO. 165 CONC IS 0.2278E+01
RUN NO. 166 CONC IS 0.1520E+01
RUN NO. 167 CONC IS 0.1413E+01
RUN NO. 168 CONC IS 0.2377E-01
RUN NO. 169 CONC IS 0.6069E+00
RUN NO. 170 CONC IS 0.3598E+00
RUN NO. 171 CONC IS 0.6019E+00
RUN NO. 172 CONC IS 0.7791E+00
RUN NO. 173 CONC IS 0.1393E+01
RUN NO. 174 CONC IS 0.1436E+00
RUN NO. 175 CONC IS 0.5557E+00
RUN NO. 176 CONC IS 0.4927E+00
RUN NO. 177 CONC IS 0.5019E+00
RUN NO. 178 CONC IS 0.5913E+00
RUN NO. 179 CONC IS 0.1620E+00
RUN NO. 180 CONC IS 0.1238E+00
RUN NO. 181 CONC IS 0.5578E+00
RUN NO. 182 CONC IS 0.7798E+00
RUN NO. 183 CONC IS 0.2032E+00
RUN NO. 184 CONC IS 0.1324E+00
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RUN NO. 189 CONC IS 0.1237E+01
RUN NO. 190 CONC IS 0.2516E+01
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RUN NO. 199 CONC IS 0.9479E+00
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RUN NO. 205 CONC IS 0.1765E+00
RUN NO. 206 CONC IS 0.8372E+00
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RUN NO. 210 CONC IS 0.1401E+00
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RUN NO. 212 CONC IS 0.2023E+01
RUN NO. 213 CONC IS 0.5502E+00
RUN NO. 214 CONC IS 0.8739E+00
RUN NO. 215 CONC IS 0.2809E+00
RUN NO. 216 CONC IS 0.8280E+00
RUN NO. 217 CONC IS 0.2157E+00
RUN NO. 218 CONC IS 0.2104E+01
RUN NO. 219 CONC IS 0.8090E-01
RUN NO. 220 CONC IS 0.1304E+01
RUN NO. 221 CONC IS 0.1635E+01
RUN NO. 222 CONC IS 0.2739E+00
RUN NO. 223 CONC IS 0.2941E-01
RUN NO. 224 CONC IS 0.1210E+01
RUN NO. 225 CONC IS 0.1141E+01
RUN NO. 226 CONC IS 0.4919E+00
RUN NO. 227 CONC IS 0.9843E+00
RUN NO. 228 CONC IS 0.1230E+01
RUN NO. 229 CONC IS 0.2858E+00
RUN NO. 230 CONC IS 0.1582E+00
RUN NO. 231 CONC IS 0.1016E+01
RUN NO. 232 CONC IS 0.5080E-01
RUN NO. 233 CONC IS 0.3549E+00
RUN NO. 234 CONC IS 0.9818E+00
RUN NO. 235 CONC IS 0.6417E+00
RUN NO. 236 CONC IS 0.1877E+01
RUN NO. 237 CONC IS 0.7417E+00
RUN NO. 238 CONC IS 0.5509E+00
RUN NO. 239 CONC IS 0.1191E+00
RUN NO. 240 CONC IS 0.5993E+00
RUN NO. 241 CONC IS 0.1063E+00
RUN NO. 242 CONC IS 0.1792E+00
RUN NO. 243 CONC IS 0.2051E+01
RUN NO. 244 CONC IS 0.1604E-01
RUN NO. 245 CONC IS 0.1388E+01
RUN NO. 246 CONC IS 0.9413E+00
RUN NO. 247 CONC IS 0.2158E-01
RUN NO. 248 CONC IS 0.4458E+00
RUN NO. 249 CONC IS 0.1955E+01
RUN NO. 250 CONC IS 0.1280E+00
RUN NO. 251 CONC IS 0.3578E+00
RUN NO. 252 CONC IS 0.2145E+01
RUN NO. 253 CONC IS 0.1033E+01
RUN NO. 254 CONC IS 0.8727E+00
RUN NO. 255 CONC IS 0.8807E+00
RUN NO. 256 CONC IS 0.3400E-01
RUN NO. 257 CONC IS 0.1033E+01
RUN NO. 258 CONC IS 0.2282E+00
RUN NO. 259 CONC IS 0.1931E+00

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RUN NO.  260 CONC IS 0.1892E+01
RUN NO.  261 CONC IS 0.1453E+01
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RUN NO.  263 CONC IS 0.1054E+01
RUN NO.  264 CONC IS 0.3880E+00
RUN NO.  265 CONC IS 0.1909E-01
RUN NO.  266 CONC IS 0.1471E+01
RUN NO.  267 CONC IS 0.1189E+00
RUN NO.  268 CONC IS 0.9290E+00
RUN NO.  269 CONC IS 0.1230E+01
RUN NO.  270 CONC IS 0.2182E+01
RUN NO.  271 CONC IS 0.9431E+00
RUN NO.  272 CONC IS 0.1834E+01
RUN NO.  273 CONC IS 0.1626E+01
RUN NO.  274 CONC IS 0.4474E+00
RUN NO.  275 CONC IS 0.7545E+00
RUN NO.  276 CONC IS 0.1207E+01
RUN NO.  277 CONC IS 0.7114E+00
RUN NO.  278 CONC IS 0.2939E+00
RUN NO.  279 CONC IS 0.3585E+00
RUN NO.  280 CONC IS 0.2006E+00
RUN NO.  281 CONC IS 0.7227E+00
RUN NO.  282 CONC IS 0.4417E+00
RUN NO.  283 CONC IS 0.9562E+00
RUN NO.  284 CONC IS 0.4729E-01
RUN NO.  285 CONC IS 0.7415E+00
RUN NO.  286 CONC IS 0.1373E+00
RUN NO.  287 CONC IS 0.1440E+01
RUN NO.  288 CONC IS 0.6747E+00
RUN NO.  289 CONC IS 0.4746E+00
RUN NO.  290 CONC IS 0.3564E+00
RUN NO.  291 CONC IS 0.1378E+01
RUN NO.  292 CONC IS 0.7408E+00
RUN NO.  293 CONC IS 0.1617E+00
RUN NO.  294 CONC IS 0.1665E-02
RUN NO.  295 CONC IS 0.3643E+00
RUN NO.  296 CONC IS 0.1414E+01
RUN NO.  297 CONC IS 0.9889E+00
RUN NO.  298 CONC IS 0.1184E+01
RUN NO.  299 CONC IS 0.5542E+00
RUN NO.  300 CONC IS 0.3772E+00
RUN NO.  301 CONC IS 0.1684E+01
RUN NO.  302 CONC IS 0.1275E+01
RUN NO.  303 CONC IS 0.4167E+00
RUN NO.  304 CONC IS 0.1034E+01
RUN NO.  305 CONC IS 0.6384E-01
RUN NO.  306 CONC IS 0.9864E+00
RUN NO.  307 CONC IS 0.2826E-01
RUN NO.  308 CONC IS 0.1795E+00
RUN NO.  309 CONC IS 0.6627E+00
RUN NO.  310 CONC IS 0.1320E+01
RUN NO.  311 CONC IS 0.1516E+00
RUN NO.  312 CONC IS 0.9764E+00
RUN NO.  313 CONC IS 0.5792E+00
RUN NO.  314 CONC IS 0.1195E+01
RUN NO.  315 CONC IS 0.2272E+00
RUN NO.  316 CONC IS 0.6122E+00
RUN NO.  317 CONC IS 0.1623E+01
RUN NO.  318 CONC IS 0.1686E+01
RUN NO.  319 CONC IS 0.3215E-01
RUN NO.  320 CONC IS 0.2255E+01
RUN NO.  321 CONC IS 0.3877E+00
RUN NO.  322 CONC IS 0.2769E+00
RUN NO.  323 CONC IS 0.7713E+00
RUN NO.  324 CONC IS 0.1008E+01
RUN NO.  325 CONC IS 0.1469E-01
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RUN NO. 326 CONC IS 0.2463E-01
RUN NO. 327 CONC IS 0.2203E+01
RUN NO. 328 CONC IS 0.1046E+01
RUN NO. 329 CONC IS 0.2147E+01
RUN NO. 330 CONC IS 0.5300E+00
RUN NO. 331 CONC IS 0.1680E+01
RUN NO. 332 CONC IS 0.1558E+01
RUN NO. 333 CONC IS 0.2253E+01
RUN NO. 334 CONC IS 0.2303E+00
RUN NO. 335 CONC IS 0.9120E+00
RUN NO. 336 CONC IS 0.2090E+01
RUN NO. 337 CONC IS 0.4854E+00
RUN NO. 338 CONC IS 0.2378E+01
RUN NO. 339 CONC IS 0.1394E+01
RUN NO. 340 CONC IS 0.5172E+00
RUN NO. 341 CONC IS 0.1130E+01
RUN NO. 342 CONC IS 0.4204E-01
RUN NO. 343 CONC IS 0.2267E+00
RUN NO. 344 CONC IS 0.3456E+00
RUN NO. 345 CONC IS 0.8139E+00
RUN NO. 346 CONC IS 0.4793E+00
RUN NO. 347 CONC IS 0.8106E-01
RUN NO. 348 CONC IS 0.1971E+01
RUN NO. 349 CONC IS 0.1285E+01
RUN NO. 350 CONC IS 0.4537E+00
RUN NO. 351 CONC IS 0.1097E+01
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RUN NO. 355 CONC IS 0.2913E+00
RUN NO. 356 CONC IS 0.9962E+00
RUN NO. 357 CONC IS 0.1018E+01
RUN NO. 358 CONC IS 0.1261E+01
RUN NO. 359 CONC IS 0.3560E+00
RUN NO. 360 CONC IS 0.7719E+00
RUN NO. 361 CONC IS 0.3651E+00
RUN NO. 362 CONC IS 0.1428E+00
RUN NO. 363 CONC IS 0.1796E+01
RUN NO. 364 CONC IS 0.1929E+00
RUN NO. 365 CONC IS 0.7331E-01
RUN NO. 366 CONC IS 0.2017E+00
RUN NO. 367 CONC IS 0.1582E+01
RUN NO. 368 CONC IS 0.1556E+01
RUN NO. 369 CONC IS 0.1117E+01
RUN NO. 370 CONC IS 0.4633E+00
RUN NO. 371 CONC IS 0.1038E+01
RUN NO. 372 CONC IS 0.1787E+00
RUN NO. 373 CONC IS 0.2344E+00
RUN NO. 374 CONC IS 0.1734E+01
RUN NO. 375 CONC IS 0.2381E+01
RUN NO. 376 CONC IS 0.4316E-02
RUN NO. 377 CONC IS 0.3005E+01
RUN NO. 378 CONC IS 0.2104E+01
RUN NO. 379 CONC IS 0.8539E+00
RUN NO. 380 CONC IS 0.2150E+01
RUN NO. 381 CONC IS 0.9496E+00
RUN NO. 382 CONC IS 0.1570E+01
RUN NO. 383 CONC IS 0.1200E+01
RUN NO. 384 CONC IS 0.5757E+00
RUN NO. 385 CONC IS 0.8231E+00
RUN NO. 386 CONC IS 0.1710E+00
RUN NO. 387 CONC IS 0.3902E+00
RUN NO. 388 CONC IS 0.1130E+01
RUN NO. 389 CONC IS 0.7886E+00
RUN NO. 390 CONC IS 0.1793E+01
RUN NO. 391 CONC IS 0.7826E+00

RUN NO. 392 CONC IS 0.2237E+01
RUN NO. 393 CONC IS 0.6467E-02
RUN NO. 394 CONC IS 0.2938E+00
RUN NO. 395 CONC IS 0.8310E-02
RUN NO. 396 CONC IS 0.2058E+00
RUN NO. 397 CONC IS 0.5856E+00
RUN NO. 398 CONC IS 0.6555E+00
RUN NO. 399 CONC IS 0.1014E+01
RUN NO. 400 CONC IS 0.1391E+01
RUN NO. 401 CONC IS 0.1091E+01
RUN NO. 402 CONC IS 0.2176E+00
RUN NO. 403 CONC IS 0.2762E+01
RUN NO. 404 CONC IS 0.1345E+00
RUN NO. 405 CONC IS 0.7757E+00
RUN NO. 406 CONC IS 0.5774E-01
RUN NO. 407 CONC IS 0.7639E+00
RUN NO. 408 CONC IS 0.1983E+01
RUN NO. 409 CONC IS 0.3854E+00
RUN NO. 410 CONC IS 0.3065E-01
RUN NO. 411 CONC IS 0.3712E+00
RUN NO. 412 CONC IS 0.9317E+00
RUN NO. 413 CONC IS 0.1418E+01
RUN NO. 414 CONC IS 0.8375E+00
RUN NO. 415 CONC IS 0.1006E+01
RUN NO. 416 CONC IS 0.2363E+01
RUN NO. 417 CONC IS 0.1688E+01
RUN NO. 418 CONC IS 0.7761E+00
RUN NO. 419 CONC IS 0.1748E+01
RUN NO. 420 CONC IS 0.2016E+01
RUN NO. 421 CONC IS 0.1773E+01
RUN NO. 422 CONC IS 0.6043E+00
RUN NO. 423 CONC IS 0.2137E+01
RUN NO. 424 CONC IS 0.4188E-01
RUN NO. 425 CONC IS 0.1743E+00
RUN NO. 426 CONC IS 0.1722E+01
RUN NO. 427 CONC IS 0.1916E+01
RUN NO. 428 CONC IS 0.1628E+00
RUN NO. 429 CONC IS 0.1856E+01
RUN NO. 430 CONC IS 0.1192E+01
RUN NO. 431 CONC IS 0.4717E-02
RUN NO. 432 CONC IS 0.1200E+01
RUN NO. 433 CONC IS 0.1664E+01
RUN NO. 434 CONC IS 0.3018E+01
RUN NO. 435 CONC IS 0.2631E+00
RUN NO. 436 CONC IS 0.1321E+01
RUN NO. 437 CONC IS 0.7099E+00
RUN NO. 438 CONC IS 0.1939E+00
RUN NO. 439 CONC IS 0.2368E+01
RUN NO. 440 CONC IS 0.6076E+00
RUN NO. 441 CONC IS 0.7563E+00
RUN NO. 442 CONC IS 0.1360E+01
RUN NO. 443 CONC IS 0.1694E-01
RUN NO. 444 CONC IS 0.1090E+00
RUN NO. 445 CONC IS 0.2801E+00
RUN NO. 446 CONC IS 0.6294E+00
RUN NO. 447 CONC IS 0.6603E-01
RUN NO. 448 CONC IS 0.6408E-01
RUN NO. 449 CONC IS 0.4661E+00
RUN NO. 450 CONC IS 0.1580E+00
RUN NO. 451 CONC IS 0.1121E+00
RUN NO. 452 CONC IS 0.1676E+01
RUN NO. 453 CONC IS 0.5175E+00
RUN NO. 454 CONC IS 0.2436E-01
RUN NO. 455 CONC IS 0.3239E+00
RUN NO. 456 CONC IS 0.3073E-01
RUN NO. 457 CONC IS 0.6274E-02

RUN NO. 458 CONC IS 0.1028E-01
RUN NO. 459 CONC IS 0.2564E-01
RUN NO. 460 CONC IS 0.5317E+00
RUN NO. 461 CONC IS 0.1355E+01
RUN NO. 462 CONC IS 0.8811E+00
RUN NO. 463 CONC IS 0.3020E+00
RUN NO. 464 CONC IS 0.1668E+01
RUN NO. 465 CONC IS 0.1049E+01
RUN NO. 466 CONC IS 0.1290E+01
RUN NO. 467 CONC IS 0.1844E+01
RUN NO. 468 CONC IS 0.9919E-01
RUN NO. 469 CONC IS 0.5843E-02
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RUN NO. 471 CONC IS 0.1719E+01
RUN NO. 472 CONC IS 0.4648E+00
RUN NO. 473 CONC IS 0.6808E+00
RUN NO. 474 CONC IS 0.5932E+00
RUN NO. 475 CONC IS 0.1708E+01
RUN NO. 476 CONC IS 0.1753E+01
RUN NO. 477 CONC IS 0.2918E+00
RUN NO. 478 CONC IS 0.1093E+01
RUN NO. 479 CONC IS 0.4305E+00
RUN NO. 480 CONC IS 0.2229E+01
RUN NO. 481 CONC IS 0.9761E+00
RUN NO. 482 CONC IS 0.9371E+00
RUN NO. 483 CONC IS 0.1981E+00
RUN NO. 484 CONC IS 0.2453E+01
RUN NO. 485 CONC IS 0.1225E+01
RUN NO. 486 CONC IS 0.1275E+01
RUN NO. 487 CONC IS 0.5245E+00
RUN NO. 488 CONC IS 0.2147E+01
RUN NO. 489 CONC IS 0.1664E+01
RUN NO. 490 CONC IS 0.1701E+01
RUN NO. 491 CONC IS 0.9571E+00
RUN NO. 492 CONC IS 0.1668E+01
RUN NO. 493 CONC IS 0.9346E+00
RUN NO. 494 CONC IS 0.1391E+01
RUN NO. 495 CONC IS 0.2205E+01
RUN NO. 496 CONC IS 0.1198E-02
RUN NO. 497 CONC IS 0.7805E-02
RUN NO. 498 CONC IS 0.1450E+01
RUN NO. 499 CONC IS 0.8781E+00
RUN NO. 500 CONC IS 0.9289E+00

1

STEADY STATE SATURATED ZONE TRANSPORT RESULTS

```
RUN NO.    1 CONC IS 0.5689E+01
RUN NO.    2 CONC IS 0.1053E+02
RUN NO.    3 CONC IS 0.5677E+01
RUN NO.    4 CONC IS 0.5004E+01
RUN NO.    5 CONC IS 0.5079E+01
RUN NO.    6 CONC IS 0.7172E+01
RUN NO.    7 CONC IS 0.6490E+01
RUN NO.    8 CONC IS 0.6301E+01
RUN NO.    9 CONC IS 0.5138E+01
RUN NO.   10 CONC IS 0.6531E+01
RUN NO.   11 CONC IS 0.1030E+02
RUN NO.   12 CONC IS 0.6907E+01
RUN NO.   13 CONC IS 0.6071E+01
RUN NO..  14 CONC IS 0.1020E+02
RUN NO.   15 CONC IS 0.5375E+01
RUN NO.   16 CONC IS 0.7915E+01
RUN NO.   17 CONC IS 0.9513E+01
RUN NO.   18 CONC IS 0.7417E+01
RUN NO.   19 CONC IS 0.6036E+01
RUN NO.   20 CONC IS 0.6891E+01
RUN NO.   21 CONC IS 0.6583E+01
RUN NO.   22 CONC IS 0.5993E+01
RUN NO.   23 CONC IS 0.7293E+01
RUN NO.   24 CONC IS 0.7493E+01
RUN NO.   25 CONC IS 0.6788E+01
RUN NO.   26 CONC IS 0.1027E+02
RUN NO.   27 CONC IS 0.7870E+01
RUN NO.   28 CONC IS 0.6658E+01
RUN NO.   29 CONC IS 0.7114E+01
RUN NO.   30 CONC IS 0.5028E+01
RUN NO.   31 CONC IS 0.6275E+01
RUN NO.   32 CONC IS 0.9894E+01
RUN NO.   33 CONC IS 0.9327E+01
RUN NO.   34 CONC IS 0.6837E+01
RUN NO.   35 CONC IS 0.5241E+01
RUN NO.   36 CONC IS 0.5821E+01
RUN NO.   37 CONC IS 0.7255E+01
RUN NO.   38 CONC IS 0.7102E+01
RUN NO.   39 CONC IS 0.6930E+01
RUN NO.   40 CONC IS 0.8725E+01
RUN NO.   41 CONC IS 0.6730E+01
RUN NO.   42 CONC IS 0.7351E+01
RUN NO.   43 CONC IS 0.5981E+01
RUN NO.   44 CONC IS 0.5013E+01
RUN NO.   45 CONC IS 0.5648E+01
RUN NO.   46 CONC IS 0.9628E+01
RUN NO.   47 CONC IS 0.8990E+01
RUN NO.   48 CONC IS 0.6372E+01
RUN NO.   49 CONC IS 0.9738E+01
RUN NO.   50 CONC IS 0.5887E+01
RUN NO.   51 CONC IS 0.6224E+01
RUN NO.   52 CONC IS 0.7947E+01
RUN NO.   53 CONC IS 0.9168E+01
RUN NO.   54 CONC IS 0.5063E+01
RUN NO.   55 CONC IS 0.8318E+01
RUN NO.   56 CONC IS 0.5855E+01
RUN NO.   57 CONC IS 0.5172E+01
RUN NO.   58 CONC IS 0.7755E+01
RUN NO.   59 CONC IS 0.1015E+02
RUN NO.   60 CONC IS 0.9021E+01
RUN NO.   61 CONC IS 0.6220E+01
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RUN NO.   62 CONC IS 0.9002E+01
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RUN NO.   64 CONC IS 0.1088E+02
RUN NO.   65 CONC IS 0.8853E+01
RUN NO.   66 CONC IS 0.7001E+01
RUN NO.   67 CONC IS 0.7104E+01
RUN NO.   68 CONC IS 0.8332E+01
RUN NO.   69 CONC IS 0.8491E+01
RUN NO.   70 CONC IS 0.6336E+01
RUN NO.   71 CONC IS 0.5750E+01
RUN NO.   72 CONC IS 0.6692E+01
RUN NO.   73 CONC IS 0.5736E+01
RUN NO.   74 CONC IS 0.6008E+01
RUN NO.   75 CONC IS 0.5550E+01
RUN NO.   76 CONC IS 0.6330E+01
RUN NO.   77 CONC IS 0.5441E+01
RUN NO.   78 CONC IS 0.5708E+01
RUN NO.   79 CONC IS 0.6879E+01
RUN NO.   80 CONC IS 0.5053E+01
RUN NO.   81 CONC IS 0.6481E+01
RUN NO.   82 CONC IS 0.9996E+01
RUN NO.   83 CONC IS 0.1059E+02
RUN NO.   84 CONC IS 0.9378E+01
RUN NO.   85 CONC IS 0.4864E+01
RUN NO.   86 CONC IS 0.1004E+02
RUN NO.   87 CONC IS 0.9294E+01
RUN NO.   88 CONC IS 0.4858E+01
RUN NO.   89 CONC IS 0.9749E+01
RUN NO.   90 CONC IS 0.5385E+01
RUN NO.   91 CONC IS 0.8767E+01
RUN NO.   92 CONC IS 0.6352E+01
RUN NO.   93 CONC IS 0.5174E+01
RUN NO.   94 CONC IS 0.5573E+01
RUN NO.   95 CONC IS 0.5275E+01
RUN NO.   96 CONC IS 0.9846E+01
RUN NO.   97 CONC IS 0.7156E+01
RUN NO.   98 CONC IS 0.5524E+01
RUN NO.   99 CONC IS 0.5703E+01
RUN NO.  100 CONC IS 0.8904E+01
RUN NO.  101 CONC IS 0.7760E+01
RUN NO.  102 CONC IS 0.5120E+01
RUN NO.  103 CONC IS 0.8957E+01
RUN NO.  104 CONC IS 0.8329E+01
RUN NO.  105 CONC IS 0.1100E+02
RUN NO.  106 CONC IS 0.7058E+01
RUN NO.  107 CONC IS 0.7011E+01
RUN NO.  108 CONC IS 0.9536E+01
RUN NO.  109 CONC IS 0.9357E+01
RUN NO.  110 CONC IS 0.4851E+01
RUN NO.  111 CONC IS 0.7718E+01
RUN NO.  112 CONC IS 0.9453E+01
RUN NO.  113 CONC IS 0.7750E+01
RUN NO.  114 CONC IS 0.4736E+01
RUN NO.  115 CONC IS 0.8384E+01
RUN NO.  116 CONC IS 0.9825E+01
RUN NO.  117 CONC IS 0.6167E+01
RUN NO.  118 CONC IS 0.6768E+01
RUN NO.  119 CONC IS 0.6663E+01
RUN NO.  120 CONC IS 0.7222E+01
RUN NO.  121 CONC IS 0.6562E+01
RUN NO.  122 CONC IS 0.5019E+01
RUN NO.  123 CONC IS 0.8633E+01
RUN NO.  124 CONC IS 0.7417E+01
RUN NO.  125 CONC IS 0.9492E+01
RUN NO.  126 CONC IS 0.5990E+01
RUN NO.  127 CONC IS 0.6914E+01
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RUN NO. 128 CONC IS [illegible]
RUN NO. 129 CONC IS 0.5622E+01
RUN NO. 130 CONC IS 0.8873E+01
RUN NO. 131 CONC IS 0.9938E+01
RUN NO. 132 CONC IS 0.5472E+01
RUN NO. 133 CONC IS 0.5763E+01
RUN NO. 134 CONC IS 0.6605E+01
RUN NO. 135 CONC IS 0.8035E+01
RUN NO. 136 CONC IS 0.5445E+01
RUN NO. 137 CONC IS 0.8169E+01
RUN NO. 138 CONC IS 0.7043E+01
RUN NO. 139 CONC IS 0.5281E+01
RUN NO. 140 CONC IS 0.5518E+01
RUN NO. 141 CONC IS 0.4557E+01
RUN NO. 142 CONC IS 0.5230E+01
RUN NO. 143 CONC IS 0.7102E+01
RUN NO. 144 CONC IS 0.6244E+01
RUN NO. 145 CONC IS 0.6076E+01
RUN NO. 146 CONC IS 0.4729E+01
RUN NO. 147 CONC IS 0.4701E+01
RUN NO. 148 CONC IS 0.1064E+02
RUN NO. 149 CONC IS 0.4553E+01
RUN NO. 150 CONC IS 0.9273E+01
RUN NO. 151 CONC IS 0.6686E+01
RUN NO. 152 CONC IS 0.8298E+01
RUN NO. 153 CONC IS 0.5753E+01
RUN NO. 154 CONC IS 0.7719E+01
RUN NO. 155 CONC IS 0.4971E+01
RUN NO. 156 CONC IS 0.8811E+01
RUN NO. 157 CONC IS 0.4732E+01
RUN NO. 158 CONC IS 0.5755E+01
RUN NO. 159 CONC IS 0.9794E+01
RUN NO. 160 CONC IS 0.9158E+01
RUN NO. 161 CONC IS 0.5276E+01
RUN NO. 162 CONC IS 0.5460E+01
RUN NO. 163 CONC IS 0.8122E+01
RUN NO. 164 CONC IS 0.5459E+01
RUN NO. 165 CONC IS 0.8817E+01
RUN NO. 166 CONC IS 0.1008E+02
RUN NO. 167 CONC IS 0.6113E+01
RUN NO. 168 CONC IS 0.8354E+01
RUN NO. 169 CONC IS 0.9479E+01
RUN NO. 170 CONC IS 0.9682E+01
RUN NO. 171 CONC IS 0.6008E+01
RUN NO. 172 CONC IS 0.9272E+01
RUN NO. 173 CONC IS 0.5130E+01
RUN NO. 174 CONC IS 0.8893E+01
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RUN NO. 176 CONC IS 0.7935E+01
RUN NO. 177 CONC IS 0.6418E+01
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RUN NO. 179 CONC IS 0.5438E+01
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RUN NO. 181 CONC IS 0.6569E+01
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RUN NO. 192 CONC IS 0.4897E+01
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RUN NO. 228 CONC IS 0.7404E+01
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RUN NO. 259 CONC IS 0.8559E+01

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RUN NO. 325 CONC IS 0.5967E+01

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RUN NO. 448 CONC IS 0.6441E+01
RUN NO. 449 CONC IS 0.6076E+01
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RUN NO. 466 CONC IS 0.5119E+01
RUN NO. 467 CONC IS 0.7861E+01
RUN NO. 468 CONC IS 0.8276E+01
RUN NO. 469 CONC IS 0.7226E+01
RUN NO. 470 CONC IS 0.4971E+01
RUN NO. 471 CONC IS 0.5443E+01
RUN NO. 472 CONC IS 0.5765E+01
RUN NO. 473 CONC IS 0.7586E+01
RUN NO. 474 CONC IS 0.7971E+01
RUN NO. 475 CONC IS 0.1077E+02
RUN NO. 476 CONC IS 0.7682E+01
RUN NO. 477 CONC IS 0.6736E+01
RUN NO. 478 CONC IS 0.8974E+01
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RUN NO. 480 CONC IS 0.5987E+01
RUN NO. 481 CONC IS 0.5428E+01
RUN NO. 482 CONC IS 0.9835E+01
RUN NO. 483 CONC IS 0.5010E+01
RUN NO. 484 CONC IS 0.5417E+01
RUN NO. 485 CONC IS 0.8521E+01
RUN NO. 486 CONC IS 0.5623E+01
RUN NO. 487 CONC IS 0.9591E+01
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RUN NO. 489 CONC IS 0.8226E+01
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RUN NO. 492 CONC IS 0.8383E+01
RUN NO. 493 CONC IS 0.9003E+01
RUN NO. 494 CONC IS 0.7332E+01
RUN NO. 495 CONC IS 0.5871E+01
RUN NO. 496 CONC IS 0.9452E+01
RUN NO. 497 CONC IS 0.6821E+01
RUN NO. 498 CONC IS 0.9066E+01
RUN NO. 499 CONC IS 0.5337E+01
RUN NO. 500 CONC IS 0.7639E+01

APPENDIX B-2

PRINT-OUTS OF VTRNSPT.VAR FILES FOR MONTE-CARLO MODELS OF STEADY-STATE CONDITIONS

DATA FOR LAYER 1

SOIL PCOCs: MODELED FROM WESTERN SOURCE (GROUNDWATER MOUND AREA) TO MC102

FILE: MC102.INP/OUT

VADOSE TRANSPORT

SIMULATION RUN FOR ALL PCOCs

Thickness of layer	m	1.00
Biological decay coefficient	1/yr	0.000E+00

RUN NO.	FOCV	RHO g/cc	A m
1	.325	1.65	.428E-01
2	.392	1.61	.462E-01
3	1.28	1.55	.384E-01
4	1.03	1.67	.356E-01
5	.554	1.29	.468E-01
6	.326	1.60	.431E-01
7	1.22	1.34	.352E-01
8	.687	1.54	.351E-01
9	.533	1.44	.484E-01
10	.375	1.59	.384E-01
11	.309	1.74	.396E-01
12	1.11	1.65	.440E-01
13	1.26	1.54	.475E-01
14	1.17	1.75	.421E-01
15	.837	1.29	.405E-01
16	.277	1.36	.462E-01
17	.335	1.61	.395E-01
18	1.20	1.39	.489E-01
19	.371	1.46	.362E-01
20	.440	1.44	.368E-01
21	.852	1.50	.492E-01
22	.226	1.73	.426E-01
23	1.05	1.63	.483E-01
24	.421	1.73	.414E-01
25	.973	1.61	.421E-01
26	.212	1.31	.451E-01
27	.322	1.58	.463E-01
28	1.00	1.33	.422E-01
29	1.10	1.55	.339E-01
30	.749	1.51	.393E-01
31	.392	1.42	.429E-01
32	.551	1.56	.339E-01
33	.966	1.33	.393E-01
34	.647	1.31	.386E-01
35	.748	1.40	.485E-01
36	1.06	1.68	.388E-01
37	.904	1.61	.348E-01
38	.652	1.27	.390E-01
39	.211	1.56	.410E-01
40	.621	1.71	.483E-01
41	.620	1.38	.397E-01
42	.296	1.68	.375E-01
43	1.17	1.30	.426E-01
44	1.10	1.66	.410E-01

45	.892	1.33	.424E-01
46	.966	1.45	.442E-01
47	.863	1.64	.452E-01
48	.393	1.30	.352E-01
49	.807	1.37	.400E-01
50	.990	1.48	.438E-01
51	.290	1.47	.487E-01
52	.415	1.29	.352E-01
53	.365	1.71	.404E-01
54	.294	1.32	.421E-01
55	.943	1.46	.468E-01
56	1.01	1.31	.436E-01
57	.766	1.62	.487E-01
58	.632	1.42	.349E-01
59	1.17	1.45	.358E-01
60	.427	1.63	.452E-01
61	.892	1.73	.471E-01
62	.321	1.60	.360E-01
63	1.00	1.46	.455E-01
64	.500	1.56	.372E-01
65	.207	1.71	.432E-01
66	1.22	1.34	.435E-01
67	.584	1.44	.344E-01
68	1.20	1.62	.356E-01
69	.741	1.48	.360E-01
70	.358	1.74	.413E-01
71	.471	1.37	.376E-01
72	.458	1.37	.344E-01
73	.364	1.62	.344E-01
74	.945	1.41	.426E-01
75	.304	1.25	.468E-01
76	1.08	1.55	.405E-01
77	1.26	1.31	.382E-01
78	.538	1.49	.362E-01
79	.486	1.70	.422E-01
80	.688	1.30	.470E-01
81	1.04	1.58	.399E-01
82	1.09	1.25	.440E-01
83	.440	1.74	.406E-01
84	.397	1.52	.424E-01
85	.375	1.40	.474E-01
86	.847	1.67	.411E-01
87	.697	1.33	.396E-01
88	1.02	1.40	.486E-01
89	.483	1.71	.441E-01
90	.628	1.61	.383E-01
91	.283	1.63	.468E-01
92	.651	1.26	.423E-01
93	.417	1.63	.430E-01
94	1.30	1.52	.402E-01
95	.837	1.43	.490E-01
96	.364	1.63	.342E-01
97	.427	1.50	.482E-01
98	.968	1.37	.434E-01
99	.261	1.35	.437E-01
100	.903	1.52	.412E-01
101	.439	1.71	.347E-01
102	.201	1.73	.463E-01
103	.202	1.33	.487E-01
104	.241	1.33	.482E-01
105	1.19	1.34	.479E-01
106	1.16	1.61	.490E-01
107	.239	1.73	.348E-01
108	1.20	1.43	.337E-01
109	.765	1.27	.406E-01
110	.997	1.34	.427E-01

111	1.12	1.66	.389E-01
112	.364	1.63	.347E-01
113	.186	1.74	.463E-01
114	.348	1.40	.372E-01
115	.607	1.56	.432E-01
116	.612	1.55	.391E-01
117	.394	1.66	.410E-01
118	.429	1.35	.445E-01
119	.668	1.59	.463E-01
120	.733	1.41	.370E-01
121	.924	1.31	.421E-01
122	.799	1.42	.384E-01
123	.952	1.42	.441E-01
124	1.23	1.55	.378E-01
125	.424	1.44	.401E-01
126	1.02	1.58	.401E-01
127	.228	1.59	.440E-01
128	1.20	1.40	.442E-01
129	1.30	1.56	.441E-01
130	.310	1.39	.339E-01
131	.447	1.52	.388E-01
132	1.28	1.71	.461E-01
133	1.11	1.35	.337E-01
134	.453	1.41	.413E-01
135	1.13	1.74	.406E-01
136	.898	1.44	.439E-01
137	.897	1.75	.342E-01
138	.711	1.56	.365E-01
139	1.13	1.42	.383E-01
140	.746	1.73	.376E-01
141	.699	1.32	.368E-01
142	.539	1.55	.336E-01
143	.443	1.34	.439E-01
144	.454	1.52	.488E-01
145	.307	1.32	.371E-01
146	.638	1.49	.380E-01
147	.867	1.43	.338E-01
148	.565	1.25	.445E-01
149	.422	1.41	.368E-01
150	.669	1.32	.358E-01
151	1.02	1.28	.439E-01
152	.505	1.39	.457E-01
153	.224	1.45	.448E-01
154	.528	1.51	.424E-01
155	.356	1.72	.398E-01
156	.672	1.64	.368E-01
157	.853	1.67	.411E-01
158	.642	1.57	.394E-01
159	1.29	1.65	.416E-01
160	.280	1.31	.422E-01
161	.876	1.35	.341E-01
162	.526	1.52	.445E-01
163	1.15	1.52	.404E-01
164	1.16	1.26	.349E-01
165	.574	1.35	.451E-01
166	.434	1.31	.420E-01
167	1.24	1.43	.349E-01
168	.850	1.70	.439E-01
169	.380	1.73	.338E-01
170	.775	1.36	.439E-01
171	.704	1.55	.348E-01
172	.297	1.28	.443E-01
173	1.22	1.27	.435E-01
174	1.11	1.72	.364E-01
175	.314	1.36	.428E-01
176	.834	1.47	.434E-01

177	.785	1.67	.431E-01
178	.835	1.62	.340E-01
179	.827	1.29	.431E-01
180	.866	1.27	.443E-01
181	.967	1.29	.457E-01
182	1.08	1.68	.374E-01
183	.418	1.68	.368E-01
184	.906	1.65	.355E-01
185	1.12	1.33	.362E-01
186	.377	1.68	.456E-01
187	.373	1.51	.422E-01
188	.867	1.39	.407E-01
189	.309	1.73	.365E-01
190	.223	1.25	.474E-01
191	1.07	1.63	.464E-01
192	.925	1.69	.475E-01
193	.323	1.74	.379E-01
194	1.01	1.43	.473E-01
195	1.25	1.33	.432E-01
196	.855	1.45	.389E-01
197	.595	1.33	.351E-01
198	.325	1.65	.470E-01
199	.600	1.36	.482E-01
200	1.11	1.62	.453E-01
201	1.17	1.32	.468E-01
202	.582	1.31	.336E-01
203	.757	1.63	.388E-01
204	.693	1.42	.365E-01
205	.622	1.43	.374E-01
206	.764	1.58	.407E-01
207	.218	1.38	.374E-01
208	1.01	1.68	.462E-01
209	.202	1.64	.404E-01
210	.643	1.28	.419E-01
211	.310	1.71	.461E-01
212	.706	1.63	.461E-01
213	.407	1.56	.475E-01
214	.269	1.38	.436E-01
215	1.10	1.52	.425E-01
216	1.08	1.39	.484E-01
217	.205	1.51	.480E-01
218	.268	1.40	.401E-01
219	.429	1.43	.437E-01
220	1.18	1.70	.424E-01
221	.747	1.51	.468E-01
222	.918	1.26	.464E-01
223	.317	1.54	.456E-01
224	1.24	1.74	.363E-01
225	.378	1.65	.471E-01
226	.285	1.25	.399E-01
227	1.21	1.65	.398E-01
228	.400	1.50	.401E-01
229	.871	1.72	.437E-01
230	.525	1.63	.383E-01
231	.447	1.57	.403E-01
232	.428	1.53	.336E-01
233	.553	1.44	.414E-01
234	.449	1.67	.362E-01
235	.413	1.58	.340E-01
236	.316	1.61	.339E-01
237	.614	1.61	.452E-01
238	.663	1.29	.459E-01
239	1.06	1.75	.407E-01
240	.752	1.45	.442E-01
241	1.29	1.27	.361E-01
242	.727	1.51	.400E-01

243	1.29	1.64	.381E-01
244	.252	1.74	.361E-01
245	1.01	1.63	.355E-01
246	.241	1.41	.388E-01
247	.788	1.43	.366E-01
248	.728	1.31	.351E-01
249	1.11	1.38	.448E-01
250	.616	1.53	.438E-01
251	.552	1.59	.361E-01
252	1.08	1.63	.363E-01
253	1.09	1.73	.468E-01
254	.265	1.73	.345E-01
255	.222	1.50	.405E-01
256	1.18	1.39	.387E-01
257	.998	1.30	.338E-01
258	.543	1.52	.416E-01
259	.362	1.63	.367E-01
260	.555	1.54	.351E-01
261	.610	1.76	.486E-01
262	1.18	1.26	.367E-01
263	.369	1.65	.488E-01
264	1.22	1.68	.353E-01
265	.250	1.40	.368E-01
266	1.03	1.68	.342E-01
267	.333	1.59	.449E-01
268	1.09	1.33	.482E-01
269	.835	1.38	.481E-01
270	.282	1.73	.452E-01
271	.850	1.43	.374E-01
272	.879	1.40	.488E-01
273	.415	1.50	.456E-01
274	1.27	1.68	.439E-01
275	.525	1.32	.336E-01
276	.792	1.56	.478E-01
277	.911	1.60	.380E-01
278	.935	1.74	.360E-01
279	.511	1.55	.370E-01
280	1.28	1.35	.466E-01
281	.511	1.57	.423E-01
282	.548	1.41	.380E-01
283	1.03	1.49	.461E-01
284	.410	1.75	.389E-01
285	1.05	1.26	.361E-01
286	.652	1.74	.348E-01
287	.326	1.34	.452E-01
288	.502	1.30	.454E-01
289	.594	1.36	.482E-01
290	1.10	1.70	.363E-01
291	.915	1.35	.437E-01
292	1.12	1.60	.388E-01
293	.372	1.66	.490E-01
294	1.19	1.64	.489E-01
295	.757	1.50	.345E-01
296	.595	1.57	.463E-01
297	.792	1.68	.351E-01
298	.404	1.73	.440E-01
299	.848	1.69	.406E-01
300	1.16	1.63	.380E-01
301	.233	1.37	.363E-01
302	.814	1.35	.422E-01
303	1.07	1.51	.399E-01
304	.944	1.34	.452E-01
305	.519	1.30	.361E-01
306	.495	1.73	.449E-01
307	.983	1.34	.381E-01
308	.253	1.44	.454E-01

309	.994	1.55	.469E-01
310	.743	1.58	.403E-01
311	.943	1.67	.413E-01
312	1.25	1.63	.452E-01
313	.878	1.50	.385E-01
314	1.04	1.45	.340E-01
315	1.19	1.33	.379E-01
316	1.27	1.52	.420E-01
317	1.00	1.64	.367E-01
318	.624	1.52	.405E-01
319	.541	1.68	.423E-01
320	.843	1.44	.471E-01
321	.260	1.35	.442E-01
322	.323	1.66	.338E-01
323	1.17	1.31	.342E-01
324	.858	1.70	.343E-01
325	.924	1.45	.451E-01
326	.557	1.27	.364E-01
327	.846	1.29	.476E-01
328	1.12	1.70	.396E-01
329	.824	1.51	.365E-01
330	1.25	1.41	.429E-01
331	.552	1.60	.458E-01
332	.826	1.70	.492E-01
333	.974	1.74	.465E-01
334	.370	1.27	.467E-01
335	.634	1.59	.449E-01
336	.859	1.41	.473E-01
337	1.05	1.66	.352E-01
338	.941	1.47	.467E-01
339	.415	1.27	.389E-01
340	.796	1.38	.337E-01
341	.296	1.70	.428E-01
342	.291	1.44	.454E-01
343	.369	1.75	.491E-01
344	.344	1.31	.428E-01
345	.379	1.35	.366E-01
346	.484	1.53	.379E-01
347	1.06	1.35	.396E-01
348	.726	1.73	.487E-01
349	1.29	1.43	.356E-01
350	.471	1.36	.433E-01
351	.599	1.40	.342E-01
352	.242	1.31	.366E-01
353	1.28	1.29	.345E-01
354	1.20	1.49	.401E-01
355	.617	1.34	.409E-01
356	.460	1.56	.485E-01
357	1.05	1.27	.360E-01
358	.931	1.72	.388E-01
359	.269	1.26	.425E-01
360	1.26	1.50	.349E-01
361	.478	1.34	.387E-01
362	.786	1.30	.363E-01
363	1.12	1.70	.407E-01
364	.712	1.73	.492E-01
365	.324	1.28	.462E-01
366	1.29	1.30	.472E-01
367	.912	1.45	.420E-01
368	.934	1.42	.349E-01
369	.332	1.60	.425E-01
370	.685	1.43	.350E-01
371	1.04	1.31	.354E-01
372	.197	1.59	.368E-01
373	.696	1.41	.475E-01
374	.804	1.45	.433E-01

375	1.00	1.66	.479E-01
376	.903	1.40	.458E-01
377	.589	1.61	.361E-01
378	.998	1.36	.356E-01
379	1.04	1.26	.338E-01
380	.671	1.67	.356E-01
381	.226	1.68	.366E-01
382	.901	1.57	.338E-01
383	1.03	1.71	.439E-01
384	.360	1.34	.412E-01
385	.389	1.62	.427E-01
386	.657	1.33	.404E-01
387	.898	1.28	.465E-01
388	.407	1.67	.469E-01
389	.411	1.37	.451E-01
390	1.01	1.68	.342E-01
391	.470	1.28	.340E-01
392	1.13	1.32	.407E-01
393	1.06	1.54	.407E-01
394	1.23	1.66	.350E-01
395	1.01	1.61	.382E-01
396	1.07	1.36	.416E-01
397	1.21	1.27	.486E-01
398	.940	1.52	.368E-01
399	.565	1.63	.382E-01
400	1.00	1.34	.337E-01
401	.856	1.34	.473E-01
402	.972	1.67	.350E-01
403	.897	1.34	.363E-01
404	.442	1.75	.429E-01
405	1.25	1.37	.447E-01
406	.238	1.56	.369E-01
407	1.22	1.60	.410E-01
408	1.06	1.27	.425E-01
409	.596	1.49	.371E-01
410	.759	1.66	.362E-01
411	.788	1.40	.398E-01
412	.971	1.66	.386E-01
413	.665	1.55	.452E-01
414	.924	1.35	.446E-01
415	.739	1.34	.459E-01
416	.326	1.71	.369E-01
417	.537	1.40	.398E-01
418	.712	1.63	.413E-01
419	.852	1.35	.409E-01
420	.219	1.45	.423E-01
421	.723	1.44	.351E-01
422	.969	1.35	.426E-01
423	.437	1.57	.433E-01
424	.193	1.71	.418E-01
425	.947	1.66	.489E-01
426	.669	1.44	.337E-01
427	.300	1.44	.471E-01
428	.720	1.62	.406E-01
429	.185	1.63	.491E-01
430	.211	1.74	.435E-01
431	.204	1.69	.423E-01
432	.394	1.38	.482E-01
433	.197	1.43	.349E-01
434	1.07	1.30	.348E-01
435	.980	1.50	.397E-01
436	.287	1.26	.443E-01
437	.874	1.59	.430E-01
438	.492	1.73	.459E-01
439	.217	1.49	.482E-01
440	.231	1.68	.463E-01

441	1.22	1.58	.449E-01
442	.836	1.42	.374E-01
443	.795	1.70	.480E-01
444	.524	1.32	.370E-01
445	1.22	1.37	.481E-01
446	1.06	1.36	.491E-01
447	.873	1.63	.436E-01
448	.369	1.48	.368E-01
449	1.05	1.61	.386E-01
450	1.00	1.40	.390E-01
451	.806	1.32	.394E-01
452	.582	1.28	.463E-01
453	.196	1.43	.394E-01
454	1.04	1.32	.406E-01
455	.660	1.37	.459E-01
456	.757	1.37	.483E-01
457	.827	1.34	.406E-01
458	1.17	1.52	.450E-01
459	.993	1.64	.474E-01
460	.225	1.48	.449E-01
461	.931	1.30	.386E-01
462	.618	1.56	.447E-01
463	.990	1.49	.433E-01
464	.638	1.60	.356E-01
465	.286	1.42	.397E-01
466	1.12	1.41	.411E-01
467	1.13	1.56	.479E-01
468	.753	1.41	.335E-01
469	.984	1.69	.367E-01
470	1.29	1.57	.366E-01
471	.410	1.72	.442E-01
472	.678	1.28	.389E-01
473	.661	1.64	.401E-01
474	1.22	1.59	.390E-01
475	1.27	1.50	.479E-01
476	1.28	1.48	.378E-01
477	.417	1.56	.366E-01
478	.992	1.53	.482E-01
479	.763	1.61	.397E-01
480	.235	1.45	.458E-01
481	1.13	1.30	.485E-01
482	.710	1.70	.415E-01
483	.367	1.74	.370E-01
484	1.13	1.33	.418E-01
485	1.02	1.29	.384E-01
486	.683	1.38	.337E-01
487	.578	1.55	.342E-01
488	.245	1.48	.473E-01
489	.598	1.52	.357E-01
490	.673	1.40	.354E-01
491	1.26	1.54	.429E-01
492	.743	1.58	.460E-01
493	.598	1.42	.456E-01
494	.678	1.56	.356E-01
495	.853	1.65	.385E-01
496	.840	1.29	.371E-01
497	.671	1.67	.340E-01
498	.656	1.62	.417E-01
499	.561	1.41	.477E-01
500	.434	1.69	.383E-01

DATA FOR LAYER 1

SOIL PCOCs: MODELED FROM WOOD PROCESS AREA TO THE ELIZABETH RIVER

FILE: MCER.INP/OUT

VADOSE TRANSPORT

SIMULATION RUN FOR ALL PCOCs

Thickness of layer	m	1.00
Biological decay coefficient	1/yr	0.000E+00

RUN NO.	FOCV	RHO g/cc	A m
1	.489	1.43	.313E-01
2	.392	1.61	.577E-01
3	.729	1.54	.623E-01
4	.815	1.36	.411E-01
5	.531	1.45	.586E-01
6	1.16	1.42	.564E-01
7	1.07	1.56	.517E-01
8	.564	1.61	.362E-01
9	.820	1.53	.364E-01
10	1.04	1.33	.316E-01
11	.554	1.29	.589E-01
12	.819	1.32	.485E-01
13	.457	1.60	.582E-01
14	1.22	1.34	.346E-01
15	1.15	1.54	.528E-01
16	1.18	1.28	.352E-01
17	.375	1.59	.413E-01
18	.298	1.31	.525E-01
19	.315	1.72	.615E-01
20	1.04	1.35	.467E-01
21	.349	1.44	.427E-01
22	.979	1.50	.517E-01
23	.550	1.68	.476E-01
24	.717	1.71	.440E-01
25	1.19	1.27	.449E-01
26	1.26	1.54	.603E-01
27	1.17	1.75	.489E-01
28	.629	1.55	.454E-01
29	.881	1.30	.398E-01
30	.909	1.38	.577E-01
31	.260	1.42	.593E-01
32	.277	1.36	.576E-01
33	.335	1.61	.435E-01
34	.476	1.52	.358E-01
35	.477	1.54	.509E-01
36	1.25	1.69	.577E-01
37	.282	1.34	.560E-01
38	.564	1.58	.491E-01
39	.886	1.75	.317E-01
40	.852	1.50	.638E-01
41	.443	1.51	.317E-01
42	1.16	1.39	.311E-01
43	.182	1.58	.431E-01
44	.748	1.61	.514E-01

45	.904	1.60	.539E-01
46	.973	1.61	.491E-01
47	.212	1.31	.553E-01
48	.326	1.35	.628E-01
49	.342	1.56	.408E-01
50	.553	1.27	.315E-01
51	.713	1.32	.531E-01
52	.761	1.33	.410E-01
53	1.01	1.68	.428E-01
54	1.04	1.67	.360E-01
55	.852	1.74	.389E-01
56	.276	1.39	.569E-01
57	1.12	1.53	.417E-01
58	.728	1.27	.534E-01
59	.749	1.51	.432E-01
60	.392	1.42	.507E-01
61	.401	1.73	.628E-01
62	.551	1.56	.319E-01
63	.647	1.31	.417E-01
64	.748	1.40	.623E-01
65	.652	1.27	.425E-01
66	.383	1.49	.627E-01
67	.574	1.40	.626E-01
68	.261	1.52	.549E-01
69	.678	1.63	.561E-01
70	.427	1.30	.588E-01
71	.357	1.27	.392E-01
72	.604	1.60	.460E-01
73	.805	1.55	.329E-01
74	.399	1.61	.386E-01
75	.209	1.27	.431E-01
76	1.27	1.55	.523E-01
77	.601	1.30	.467E-01
78	.448	1.60	.342E-01
79	.377	1.33	.635E-01
80	1.26	1.73	.378E-01
81	.738	1.47	.365E-01
82	.966	1.45	.534E-01
83	.863	1.64	.554E-01
84	.393	1.30	.346E-01
85	.613	1.62	.570E-01
86	.832	1.69	.466E-01
87	.480	1.59	.613E-01
88	.527	1.32	.483E-01
89	.807	1.37	.447E-01
90	.998	1.39	.510E-01
91	.863	1.26	.459E-01
92	.317	1.35	.422E-01
93	.810	1.34	.371E-01
94	.702	1.65	.389E-01
95	1.29	1.37	.477E-01
96	.753	1.39	.364E-01
97	1.21	1.44	.474E-01
98	.983	1.71	.618E-01
99	1.14	1.73	.427E-01
100	.370	1.61	.616E-01
101	.353	1.54	.414E-01
102	.503	1.62	.523E-01
103	.559	1.45	.548E-01
104	.426	1.65	.607E-01
105	1.01	1.31	.522E-01
106	1.27	1.26	.459E-01
107	.955	1.38	.592E-01
108	.427	1.63	.556E-01
109	.892	1.73	.594E-01
110	.875	1.64	.638E-01

111	.321	1.60	.382E-01
112	1.21	1.50	.498E-01
113	1.29	1.50	.409E-01
114	.342	1.75	.459E-01
115	.675	1.59	.540E-01
116	1.00	1.46	.562E-01
117	.392	1.57	.334E-01
118	.649	1.62	.570E-01
119	.975	1.38	.352E-01
120	.837	1.54	.409E-01
121	.309	1.26	.550E-01
122	1.27	1.68	.432E-01
123	.650	1.74	.560E-01
124	.398	1.25	.481E-01
125	.500	1.56	.388E-01
126	.998	1.26	.484E-01
127	.865	1.51	.497E-01
128	.562	1.66	.633E-01
129	1.17	1.61	.428E-01
130	.760	1.45	.351E-01
131	1.15	1.67	.536E-01
132	1.15	1.73	.515E-01
133	.707	1.37	.587E-01
134	.914	1.41	.504E-01
135	1.26	1.30	.405E-01
136	.768	1.51	.569E-01
137	1.22	1.34	.520E-01
138	1.28	1.58	.593E-01
139	1.14	1.48	.595E-01
140	.992	1.28	.396E-01
141	1.18	1.26	.503E-01
142	.799	1.41	.474E-01
143	.625	1.64	.629E-01
144	.430	1.25	.576E-01
145	.608	1.50	.436E-01
146	.879	1.41	.527E-01
147	.893	1.49	.404E-01
148	.358	1.74	.474E-01
149	.266	1.61	.403E-01
150	1.03	1.68	.366E-01
151	1.08	1.55	.550E-01
152	.458	1.37	.330E-01
153	.372	1.40	.607E-01
154	.853	1.44	.599E-01
155	.991	1.54	.332E-01
156	.945	1.41	.502E-01
157	.246	1.37	.504E-01
158	.965	1.57	.568E-01
159	1.24	1.48	.561E-01
160	1.08	1.55	.457E-01
161	.933	1.61	.354E-01
162	.358	1.47	.515E-01
163	1.26	1.47	.545E-01
164	1.02	1.51	.615E-01
165	1.26	1.31	.408E-01
166	.230	1.63	.358E-01
167	1.15	1.69	.318E-01
168	.538	1.49	.366E-01
169	.688	1.30	.592E-01
170	.282	1.47	.586E-01
171	.222	1.52	.440E-01
172	1.04	1.58	.443E-01
173	1.07	1.51	.359E-01
174	.835	1.36	.491E-01
175	.633	1.25	.365E-01
176	.440	1.74	.459E-01

177	.405	1.83	.601E-01
178	.318	1.59	.459E-01
179	.691	1.51	.456E-01
180	.202	1.47	.524E-01
181	1.27	1.44	.459E-01
182	.822	1.40	.324E-01
183	.364	1.69	.326E-01
184	1.07	1.74	.334E-01
185	.697	1.33	.437E-01
186	.820	1.26	.326E-01
187	1.02	1.40	.626E-01
188	.305	1.73	.428E-01
189	.483	1.71	.532E-01
190	.283	1.63	.589E-01
191	1.28	1.48	.519E-01
192	.721	1.48	.382E-01
193	.554	1.29	.336E-01
194	.991	1.52	.349E-01
195	.335	1.73	.380E-01
196	.859	1.52	.368E-01
197	.328	1.33	.566E-01
198	1.24	1.64	.554E-01
199	.265	1.47	.452E-01
200	.791	1.67	.515E-01
201	.438	1.48	.574E-01
202	.417	1.63	.509E-01
203	.894	1.44	.344E-01
204	1.18	1.50	.488E-01
205	.837	1.43	.634E-01
206	.981	1.75	.478E-01
207	.364	1.63	.325E-01
208	.427	1.50	.618E-01
209	.261	1.35	.524E-01
210	.525	1.26	.587E-01
211	.903	1.52	.471E-01
212	1.16	1.69	.431E-01
213	.953	1.54	.560E-01
214	1.09	1.71	.584E-01
215	.439	1.71	.336E-01
216	.639	1.36	.381E-01
217	.684	1.58	.435E-01
218	1.20	1.71	.451E-01
219	.201	1.73	.579E-01
220	.756	1.71	.493E-01
221	.282	1.26	.454E-01
222	.521	1.31	.329E-01
223	1.15	1.47	.594E-01
224	.241	1.33	.618E-01
225	.231	1.37	.569E-01
226	.675	1.36	.327E-01
227	.459	1.43	.465E-01
228	1.04	1.57	.516E-01
229	.417	1.40	.444E-01
230	1.14	1.37	.509E-01
231	1.02	1.35	.457E-01
232	.597	1.72	.558E-01
233	1.21	1.32	.469E-01
234	.748	1.34	.538E-01
235	1.20	1.43	.315E-01
236	.936	1.37	.378E-01
237	1.30	1.75	.490E-01
238	.378	1.66	.605E-01
239	.981	1.60	.581E-01
240	1.24	1.34	.574E-01
241	.894	1.26	.455E-01
242	.340	1.37	.387E-01

243	.507	1.65	.522E-01
244	.718	1.29	.585E-01
245	.364	1.63	.335E-01
246	.233	1.73	.507E-01
247	.186	1.74	.579E-01
248	.671	1.63	.477E-01
249	1.25	1.71	.354E-01
250	1.20	1.68	.568E-01
251	.348	1.40	.388E-01
252	.484	1.52	.397E-01
253	.612	1.55	.427E-01
254	.394	1.66	.467E-01
255	.762	1.73	.574E-01
256	1.28	1.60	.348E-01
257	.447	1.38	.371E-01
258	.879	1.35	.403E-01
259	.429	1.35	.541E-01
260	.668	1.59	.577E-01
261	1.15	1.52	.614E-01
262	.587	1.36	.417E-01
263	1.28	1.32	.419E-01
264	.922	1.35	.607E-01
265	.290	1.33	.609E-01
266	.887	1.76	.596E-01
267	1.10	1.63	.534E-01
268	.402	1.64	.490E-01
269	1.28	1.39	.576E-01
270	.917	1.57	.561E-01
271	.952	1.42	.532E-01
272	.912	1.63	.386E-01
273	.814	1.53	.557E-01
274	1.21	1.50	.423E-01
275	1.23	1.55	.401E-01
276	1.24	1.74	.531E-01
277	.528	1.63	.409E-01
278	.586	1.75	.310E-01
279	1.02	1.58	.449E-01
280	1.03	1.53	.405E-01
281	1.23	1.55	.466E-01
282	1.02	1.55	.427E-01
283	1.09	1.38	.628E-01
284	.476	1.65	.614E-01
285	.946	1.64	.538E-01
286	1.20	1.40	.533E-01
287	1.30	1.56	.531E-01
288	.601	1.65	.427E-01
289	.446	1.35	.441E-01
290	.606	1.47	.629E-01
291	.611	1.64	.481E-01
292	.181	1.26	.323E-01
293	.751	1.34	.581E-01
294	.251	1.26	.351E-01
295	.290	1.28	.365E-01
296	.316	1.36	.500E-01
297	1.03	1.70	.582E-01
298	.861	1.37	.483E-01
299	.271	1.34	.379E-01
300	1.10	1.42	.568E-01
301	.393	1.44	.516E-01
302	.824	1.44	.482E-01
303	.453	1.53	.556E-01
304	1.09	1.67	.513E-01
305	.587	1.67	.448E-01
306	.712	1.47	.559E-01
307	.388	1.47	.482E-01
308	1.11	1.35	.313E-01

309	.329	1.75	.477E-01
310	.530	1.67	.530E-01
311	.453	1.41	.474E-01
312	.221	1.54	.325E-01
313	1.23	1.59	.460E-01
314	1.24	1.60	.368E-01
315	.898	1.44	.529E-01
316	.370	1.30	.450E-01
317	1.14	1.68	.491E-01
318	.252	1.61	.574E-01
319	.738	1.46	.420E-01
320	.897	1.75	.324E-01
321	1.30	1.31	.460E-01
322	1.19	1.65	.638E-01
323	1.08	1.68	.583E-01
324	.711	1.56	.373E-01
325	.899	1.45	.409E-01
326	.707	1.69	.387E-01
327	1.05	1.56	.450E-01
328	.746	1.73	.397E-01
329	1.25	1.46	.487E-01
330	.573	1.37	.538E-01
331	1.28	1.38	.617E-01
332	.975	1.68	.499E-01
333	.227	1.61	.373E-01
334	.877	1.36	.371E-01
335	.319	1.33	.406E-01
336	.453	1.72	.410E-01
337	.358	1.55	.362E-01
338	1.12	1.57	.511E-01
339	.927	1.67	.409E-01
340	.308	1.32	.632E-01
341	.296	1.40	.324E-01
342	.307	1.32	.385E-01
343	.887	1.34	.341E-01
344	1.02	1.31	.588E-01
345	.818	1.61	.514E-01
346	1.25	1.64	.540E-01
347	.638	1.49	.404E-01
348	1.19	1.57	.438E-01
349	.565	1.40	.390E-01
350	.378	1.41	.601E-01
351	.756	1.26	.412E-01
352	.433	1.45	.394E-01
353	.855	1.59	.358E-01
354	1.07	1.42	.415E-01
355	.595	1.60	.339E-01
356	1.05	1.72	.415E-01
357	.965	1.47	.350E-01
358	.226	1.50	.420E-01
359	.946	1.34	.381E-01
360	.867	1.43	.316E-01
361	.565	1.25	.540E-01
362	1.21	1.30	.527E-01
363	1.26	1.65	.593E-01
364	.345	1.61	.379E-01
365	1.19	1.25	.326E-01
366	1.12	1.72	.445E-01
367	.922	1.54	.361E-01
368	.224	1.30	.567E-01
369	.290	1.41	.338E-01
370	.196	1.55	.631E-01
371	.722	1.48	.447E-01
372	1.02	1.28	.528E-01
373	1.20	1.42	.564E-01
374	.590	1.66	.543E-01

375	1.13	[illegible]	[illegible]
376	.224	1.45	.547E-01
377	.528	1.51	.496E-01
378	.518	1.48	.577E-01
379	.695	1.49	.493E-01
380	1.19	1.29	.605E-01
381	.641	1.37	.410E-01
382	1.27	1.38	.334E-01
383	.880	1.33	.386E-01
384	1.11	1.66	.424E-01
385	.681	1.47	.625E-01
386	.261	1.55	.316E-01
387	.279	1.55	.450E-01
388	.859	1.73	.438E-01
389	1.01	1.34	.514E-01
390	.616	1.39	.351E-01
391	1.29	1.65	.479E-01
392	.280	1.31	.492E-01
393	1.05	1.59	.585E-01
394	.774	1.69	.325E-01
395	.654	1.50	.417E-01
396	.876	1.35	.323E-01
397	.350	1.36	.340E-01
398	.474	1.52	.633E-01
399	.526	1.52	.540E-01
400	.574	1.35	.553E-01
401	1.21	1.29	.460E-01
402	.723	1.36	.427E-01
403	.404	1.31	.463E-01
404	.850	1.70	.528E-01
405	1.22	1.45	.348E-01
406	.485	1.73	.491E-01
407	.751	1.26	.483E-01
408	.813	1.70	.549E-01
409	.556	1.39	.393E-01
410	.215	1.56	.321E-01
411	.429	1.73	.433E-01
412	.905	1.25	.562E-01
413	1.06	1.64	.341E-01
414	.506	1.41	.482E-01
415	.784	1.53	.477E-01
416	.704	1.55	.338E-01
417	1.22	1.27	.518E-01
418	.792	1.58	.595E-01
419	1.17	1.54	.437E-01
420	.749	1.33	.621E-01
421	.725	1.76	.339E-01
422	.193	1.60	.540E-01
423	1.22	1.28	.420E-01
424	.834	1.47	.517E-01
425	.241	1.53	.387E-01
426	1.12	1.51	.434E-01
427	.747	1.74	.373E-01
428	1.10	1.74	.366E-01
429	.201	1.39	.375E-01
430	.196	1.60	.474E-01
431	.974	1.66	.637E-01
432	.400	1.73	.506E-01
433	.916	1.61	.363E-01
434	.827	1.29	.512E-01
435	1.06	1.75	.440E-01
436	.445	1.26	.523E-01
437	.382	1.62	.401E-01
438	1.08	1.68	.391E-01
439	.418	1.68	.380E-01
440	.755	1.42	.568E-01

441	.565	1.55	.558E-01
442	.906	1.65	.353E-01
443	.452	1.43	.331E-01
444	.341	1.33	.589E-01
445	1.05	1.51	.602E-01
446	.695	1.52	.600E-01
447	.435	1.26	.530E-01
448	.783	1.52	.318E-01
449	.478	1.44	.355E-01
450	.738	1.63	.426E-01
451	1.24	1.49	.616E-01
452	.701	1.60	.501E-01
453	1.02	1.50	.633E-01
454	.354	1.32	.468E-01
455	1.18	1.53	.628E-01
456	.448	1.38	.447E-01
457	.867	1.39	.461E-01
458	.558	1.67	.505E-01
459	.979	1.36	.330E-01
460	.932	1.63	.409E-01
461	.994	1.41	.594E-01
462	.418	1.30	.581E-01
463	.419	1.62	.547E-01
464	.984	1.44	.631E-01
465	.980	1.46	.623E-01
466	1.20	1.68	.368E-01
467	.223	1.25	.601E-01
468	1.16	1.29	.576E-01
469	1.20	1.51	.469E-01
470	.359	1.68	.372E-01
471	.801	1.64	.605E-01
472	.392	1.67	.356E-01
473	.732	1.53	.504E-01
474	.330	1.43	.434E-01
475	.323	1.74	.403E-01
476	.703	1.62	.598E-01
477	.494	1.41	.329E-01
478	1.01	1.43	.600E-01
479	.780	1.28	.358E-01
480	1.13	1.57	.535E-01
481	1.02	1.65	.336E-01
482	1.25	1.33	.514E-01
483	1.18	1.31	.341E-01
484	.841	1.27	.630E-01
485	.325	1.65	.592E-01
486	.442	1.55	.613E-01
487	.600	1.36	.617E-01
488	1.21	1.44	.353E-01
489	1.06	1.45	.485E-01
490	.592	1.29	.375E-01
491	.346	1.36	.438E-01
492	1.05	1.25	.441E-01
493	1.11	1.62	.558E-01
494	1.13	1.45	.342E-01
495	.972	1.57	.313E-01
496	1.17	1.32	.588E-01
497	1.12	1.36	.614E-01
498	.252	1.32	.314E-01
499	1.16	1.48	.340E-01
500	.986	1.36	.512E-01

APPENDIX B-3

PRINT-OUTS OF CHEMICAL.VAR FILES FOR MONTE-CARLO MODELS OF STEADY-STATE CONDITIONS

SOIL PCOCs: MODELED FROM WESTERN SOURCE (GROUNDWATER MOUND AREA) TO MC102

FILE: MC102.INP/OUT

CHEMICAL SPECIFIC

SIMULATION RUN FOR ALL PCOCs

Solid phase decay coefficient	1/yr	0.000E+00
Dissolved phase decay coefficient	1/yr	0.000E+00
Overall chemical decay coefficient	1/yr	0.000E+00
Acid catalyzed hydrolysis rate	l/M-yr	0.000E+00
Neutral hydrolysis rate constant	1/yr	0.000E+00
Base catalyzed hydrolysis rate	l/M-yr	0.000E+00
Reference temperature	C	25.0
Biodegradation coefficient (sat. zone)	1/yr	0.000E+00
Air diffusion coefficient	cm2/s	0.000E+00
Reference temperature for air diffusion	C	25.0
Molecular weight	g/M	0.000E+00
Mole fraction of solute	--	0.000E+00
Vapor pressure of solute	mm Hg	0.000E+00
Henry's law constant	atm-m^3/M	0.000E+00
Not currently used		-999.
Not currently used		-999.

RUN NO.	DKOC ml/g	KD	KSAT 1/yr
1	.434E+07	.109E+05	.325E-05
2	.178E+07	.487E+04	.809E-05
3	.364E+07	.136E+05	.297E-05
4	.458E+07	.185E+05	.221E-05
5	.466E+07	.181E+05	.193E-05
6	.308E+07	.768E+04	.653E-05
7	.515E+07	.352E+05	.107E-05
8	.464E+06	.117E+04	.392E-04
9	.318E+07	.108E+05	.374E-05
10	.183E+07	.934E+04	.411E-05
11	.512E+07	.183E+05	.222E-05
12	.396E+07	.119E+05	.418E-05
13	.444E+07	.271E+05	.136E-05
14	.451E+07	.704E+04	.697E-05
15	.472E+07	.304E+05	.113E-05
16	.151E+07	.974E+04	.525E-05
17	.416E+07	.561E+04	.940E-05
18	.324E+07	.633E+04	.710E-05
19	.654E+06	.128E+04	.318E-04
20	.150E+07	.751E+04	.580E-05
21	.515E+07	.199E+05	.266E-05
22	.277E+07	.156E+05	.289E-05
23	.844E+06	.154E+04	.264E-04
24	.232E+07	.678E+04	.707E-05
25	.254E+07	.616E+04	.826E-05
26	.631E+06	.468E+04	.847E-05
27	.406E+07	.202E+05	.216E-05
28	.321E+07	.144E+05	.276E-05
29	.257E+07	.125E+05	.430E-05
30	.662E+06	.464E+04	.109E-04
31	.132E+07	.615E+04	.919E-05
32	.368E+07	.179E+05	.244E-05
33	.291E+07	.150E+05	.323E-05
34	.319E+07	.115E+05	.434E-05

35	.199E+07	.462E+04	.878E-05
36	.409E+07	.189E+05	.220E-05
37	.472E+07	.716E+04	.545E-05
38	.224E+07	.307E+04	.210E-04
39	.547E+07	.127E+05	.374E-05
40	.242E+07	.154E+05	.354E-05
41	.412E+06	.154E+04	.235E-04
42	.190E+07	.199E+04	.227E-04
43	.485E+07	.708E+04	.672E-05
44	.164E+07	.381E+04	.112E-04
45	.230E+06	595.	.809E-04
46	.461E+07	.657E+04	.682E-05
47	.510E+06	682.	.554E-04
48	.530E+07	.225E+05	.206E-05
49	.211E+07	.118E+05	.330E-05
50	.203E+07	.328E+04	.146E-04
51	.377E+07	.102E+05	.502E-05
52	.466E+07	.154E+05	.299E-05
53	.374E+07	.281E+05	.167E-05
54	.115E+07	.406E+04	.123E-04
55	.682E+06	.203E+04	.204E-04
56	.397E+07	.148E+05	.250E-05
57	.173E+07	.129E+05	.281E-05
58	.351E+07	.141E+05	.283E-05
59	.897E+06	.558E+04	.756E-05
60	.152E+06	931.	.521E-04
61	.298E+07	.778E+04	.509E-05
62	.248E+07	.920E+04	.507E-05
63	.360E+07	.690E+04	.620E-05
64	.230E+07	.117E+05	.420E-05
65	.353E+07	.195E+05	.217E-05
66	.168E+07	.565E+04	.108E-04
67	.769E+06	.404E+04	.729E-05
68	.139E+07	.788E+04	.459E-05
69	.142E+07	.259E+04	.151E-04
70	.345E+07	.223E+05	.173E-05
71	.893E+06	.417E+04	.107E-04
72	.332E+07	.102E+05	.506E-05
73	.341E+07	.196E+05	.192E-05
74	.361E+07	.175E+05	.251E-05
75	.725E+06	.147E+04	.293E-04
76	.377E+06	.268E+04	.162E-04
77	.536E+07	.369E+05	.111E-05
78	.401E+07	.245E+05	.193E-05
79	.181E+07	.926E+04	.474E-05
80	.527E+07	.351E+05	.100E-05
81	.815E+06	.127E+04	.423E-04
82	.405E+07	.110E+05	.425E-05
83	.476E+07	.263E+05	.182E-05
84	.201E+06	.108E+04	.444E-04
85	.360E+07	.206E+05	.231E-05
86	.260E+07	.129E+05	.349E-05
87	.746E+06	.134E+04	.383E-04
88	.165E+06	295.	.120E-03
89	.177E+07	.756E+04	.556E-05
90	.885E+06	.568E+04	.554E-05
91	.544E+07	.228E+05	.204E-05
92	.400E+07	.781E+04	.450E-05
93	.409E+07	.238E+05	.186E-05
94	.237E+07	.994E+04	.474E-05
95	.252E+07	.122E+05	.407E-05
96	.513E+07	.230E+05	.190E-05
97	.204E+06	811.	.604E-04
98	.475E+07	.187E+05	.213E-05
99	.426E+06	.125E+04	.476E-04
100	.408E+07	.236E+05	.191E-05

101	.281E+07	.548E+04	.526E-05
102	.396E+06	.265E+04	.187E-04
103	.152E+07	.108E+05	.462E-05
104	.352E+07	.917E+04	.665E-05
105	.478E+07	.284E+05	.136E-05
106	.367E+07	.229E+05	.195E-05
107	.431E+07	.271E+05	.154E-05
108	.378E+07	.202E+05	.222E-05
109	.194E+07	.337E+04	.139E-04
110	.546E+07	.310E+05	.144E-05
111	.378E+07	.889E+04	.600E-05
112	.403E+07	.693E+04	.705E-05
113	.745E+06	.428E+04	.955E-05
114	.239E+07	.116E+05	.386E-05
115	.244E+07	.270E+04	.169E-04
116	.153E+07	.114E+05	.317E-05
117	.482E+07	.566E+04	.807E-05
118	.369E+07	.153E+05	.379E-05
119	.302E+07	.125E+05	.308E-05
120	.351E+07	.209E+05	.195E-05
121	.468E+07	.331E+05	.116E-05
122	.370E+07	.272E+05	.151E-05
123	.450E+07	.226E+05	.200E-05
124	.298E+07	.191E+05	.209E-05
125	.380E+07	.149E+05	.301E-05
126	.210E+07	.291E+04	.145E-04
127	.392E+06	611.	.542E-04
128	.216E+07	.998E+04	.458E-05
129	.547E+07	.279E+05	.200E-05
130	.326E+07	.343E+04	.139E-04
131	.534E+07	.303E+05	.112E-05
132	.390E+07	.175E+05	.254E-05
133	.126E+07	.298E+04	.154E-04
134	.599E+06	.352E+04	.129E-04
135	.401E+07	.285E+05	.165E-05
136	.548E+07	.347E+05	.167E-05
137	.318E+07	.226E+05	.248E-05
138	.244E+07	.179E+05	.301E-05
139	.133E+06	553.	.871E-04
140	.302E+07	.455E+04	.100E-04
141	.337E+06	.195E+04	.175E-04
142	.367E+07	.259E+05	.178E-05
143	.279E+07	.177E+05	.250E-05
144	.446E+07	.104E+05	.438E-05
145	.272E+07	.203E+05	.273E-05
146	.387E+07	.281E+05	.162E-05
147	.383E+07	.201E+05	.185E-05
148	.343E+06	386.	.115E-03
149	.502E+07	.221E+05	.206E-05
150	.193E+07	.131E+05	.339E-05
151	.422E+07	.263E+05	.159E-05
152	.514E+07	.232E+05	.205E-05
153	.491E+07	.137E+05	.339E-05
154	.397E+07	.183E+05	.232E-05
155	.176E+06	701.	.547E-04
156	.176E+07	.520E+04	.708E-05
157	.320E+07	.165E+05	.365E-05
158	.517E+06	851.	.588E-04
159	.131E+07	.707E+04	.710E-05
160	.254E+07	.684E+04	.695E-05
161	.280E+07	.707E+04	.693E-05
162	.433E+07	.114E+05	.345E-05
163	.143E+07	.497E+04	.858E-05
164	.322E+07	.360E+04	.117E-04
165	.110E+07	.406E+04	.135E-04
166	.152E+07	.856E+04	.563E-05

167	.390E+07	.113E+05	.552E-05
168	.544E+07	.376E+05	.114E-05
169	.175E+07	.362E+04	.110E-04
170	.279E+07	.324E+04	.173E-04
171	.261E+07	.153E+05	.264E-05
172	.305E+07	.561E+04	.775E-05
173	.149E+07	.271E+04	.162E-04
174	.189E+07	.117E+05	.356E-05
175	.123E+07	.829E+04	.676E-05
176	.291E+07	.130E+05	.284E-05
177	.426E+07	.149E+05	.258E-05
178	.533E+07	.351E+05	.165E-05
179	.744E+06	.168E+04	.269E-04
180	.167E+07	.570E+04	.741E-05
181	.203E+07	.149E+05	.238E-05
182	.447E-07	.974E+04	.426E-05
183	.329E+06	.122E+04	.388E-04
184	.245E+07	.522E+04	.893E-05
185	.385E+07	.187E+05	.184E-05
186	.414E+06	785.	.591E-04
187	.868E+06	.189E+04	.212E-04
188	.123E+07	.325E+04	.137E-04
189	.362E+07	.210E+05	.281E-05
190	.231E+06	762.	.803E-04
191	.524E+07	.127E+05	.393E-05
192	.404E+07	.201E+05	.181E-05
193	.117E+07	.604E+04	.736E-05
194	.240E+07	.416E+04	.135E-04
195	.518E+07	.120E+05	.329E-05
196	.403E+07	.232E+05	.150E-05
197	.726E+06	.376E+04	.125E-04
198	.237E+07	.114E+05	.497E-05
199	.187E+07	.880E+04	.499E-05
200	.963E+06	.276E+04	.152E-04
201	.490E+07	.931E+04	.477E-05
202	.518E+07	.278E+05	.187E-05
203	.300E+07	.133E+05	.278E-05
204	.776E+06	.488E+04	.846E-05
205	.358E+07	.982E+04	.356E-05
206	.217E+07	.120E+05	.406E-05
207	.526E+07	.104E+05	.448E-05
208	.199E+07	.124E+05	.299E-05
209	.386E+07	.445E+04	.105E-04
210	.147E+07	.568E+04	.813E-05
211	.443E+07	.520E+04	.107E-04
212	.150E+06	223.	.215E-03
213	.140E+07	.490E+04	.102E-04
214	.327E+07	.329E+04	.132E-04
215	.252E+07	.483E+04	.985E-05
216	.313E+07	.984E+04	.492E-05
217	.181E+07	.535E+04	.659E-05
218	.409E+06	.196E+04	.316E-04
219	.231E+06	645.	.800E-04
220	.467E+07	.119E+05	.455E-05
221	.523E+07	.181E+05	.272E-05
222	.496E+07	.215E+05	.250E-05
223	.468E+06	.339E+04	.150E-04
224	.514E+07	.606E+04	.881E-05
225	.176E+07	.316E+04	.130E-04
226	.482E+06	.167E+04	.287E-04
227	.534E+06	.176E+04	.220E-04
228	.390E+07	.164E+05	.309E-05
229	.448E+07	.310E+05	.107E-05
230	.456E+07	.317E+05	.120E-05
231	.511E+07	.114E+05	.374E-05
232	.299E+06	895.	.376E-04

233	.241E+06	.125E+04	.509E-04
234	.805E+06	.513E+04	.886E-05
235	.108E+07	.566E+04	.629E-05
236	.417E+07	.275E+05	.206E-05
237	.156E+07	.855E+04	.512E-05
238	.465E+07	.342E+05	.119E-05
239	.457E+07	.121E+05	.302E-05
240	.466E+07	.113E+05	.500E-05
241	.471E+07	.223E+05	.178E-05
242	.301E+06	.217E+04	.149E-04
243	.418E+07	.285E+05	.145E-05
244	.134E+06	929.	.483E-04
245	.819E+06	.481E+04	.115E-04
246	.160E+07	.456E+04	.102E-04
247	.117E+07	.679E+04	.645E-05
248	.326E+06	725.	.505E-04
249	.592E+06	.449E+04	.104E-04
250	.308E+07	.679E+04	.561E-05
251	.158E+07	.112E+05	.388E-05
252	.890E+06	.443E+04	.104E-04
253	.827E+05	293.	.167E-03
254	.328E+07	.133E+05	.294E-05
255	.338E+07	.136E+05	.269E-05
256	.499E+07	.229E+05	.131E-05
257	.144E+07	.972E+04	.429E-05
258	.999E+06	.132E+04	.246E-04
259	.230E+07	.136E+05	.336E-05
260	.447E+06	.110E+04	.394E-04
261	.162E+07	.778E+04	.565E-05
262	.142E+07	.740E+04	.793E-05
263	.858E+06	.116E+04	.372E-04
264	.283E+07	.705E+04	.784E-05
265	.295E+07	.204E+05	.177E-05
266	.527E+07	.120E+05	.397E-05
267	.520E+07	.322E+05	.116E-05
268	.376E+07	.630E+04	.792E-05
269	.504E+07	.178E+05	.253E-05
270	.283E+06	.154E+04	.339E-04
271	.546E+07	.176E+05	.318E-05
272	.521E+06	.333E+04	.147E-04
273	.615E+06	831.	.579E-04
274	.571E+06	.172E+04	.259E-04
275	.279E+07	.675E+04	.643E-05
276	.287E+05	157.	.302E-03
277	.220E+07	.927E+04	.612E-05
278	.367E+07	.255E+05	.174E-05
279	.191E+07	.894E+04	.681E-05
280	.442E+07	.119E+05	.357E-05
281	.387E+07	.743E+04	.627E-05
282	.177E+07	.483E+04	.899E-05
283	.527E+07	.160E+05	.305E-05
284	.302E+07	.201E+05	.202E-05
285	.408E+07	.217E+05	.251E-05
286	.381E+07	.900E+04	.345E-05
287	.259E+07	.114E+05	.544E-05
288	.263E+07	.143E+05	.264E-05
289	.111E+07	.472E+04	.710E-05
290	.292E+07	.161E+05	.265E-05
291	.505E+07	.289E+05	.155E-05
292	.549E+07	.996E+04	.507E-05
293	.387E+07	.101E+05	.390E-05
294	.368E+07	.186E+05	.251E-05
295	.220E+07	.110E+05	.500E-05
296	.165E+06	929.	.479E-04
297	.317E+07	.189E+05	.280E-05
298	.338E+07	.250E+05	.181E-05

299	.474E+07	.342E+05	.115E-05
300	.468E+07	.333E+05	.127E-05
301	.328E+07	.237E+05	.194E-05
302	.318E+07	.115E+05	.484E-05
303	.374E+07	.628E+04	.684E-05
304	.882E+06	.261E+04	.196E-04
305	.111E+07	.556E+04	.861E-05
306	.537E+07	.223E+05	.175E-05
307	.483E+07	.141E+05	.270E-05
308	.542E+07	.369E+05	.152E-05
309	.265E+07	.457E+04	.113E-04
310	.100E+07	.447E+04	.106E-04
311	.430E+06	.255E+04	.179E-04
312	.115E+07	.554E+04	.862E-05
313	.524E+07	.383E+05	.117E-05
314	.270E+07	.366E+04	.145E-04
315	.508E+07	.345E+05	.125E-05
316	.437E+07	.490E+04	.773E-05
317	.770E+06	.109E+04	.650E-04
318	.227E+07	.143E+05	.406E-05
319	.229E+07	.100E+05	.512E-05
320	.299E+05	166.	.259E-03
321	.129E+07	.924E+04	.473E-05
322	.249E+07	.271E+04	.113E-04
323	.387E+07	.159E+05	.335E-05
324	.302E+07	.204E+05	.234E-05
325	.347E+07	.202E+05	.213E-05
326	.494E+07	.106E+05	.302E-05
327	.409E+07	.205E+05	.276E-05
328	.471E+07	.324E+05	.124E-05
329	.491E+07	.320E+05	.137E-05
330	.277E+07	.184E+05	.261E-05
331	.527E+07	.227E+05	.188E-05
332	.928E+05	392.	.111E-03
333	.295E+07	.224E+05	.270E-05
334	.336E+07	.253E+05	.163E-05
335	.529E+07	.167E+05	.283E-05
336	.428E+07	.934E+04	.632E-05
337	.379E+07	.213E+05	.210E-05
338	.233E+07	.859E+04	.796E-05
339	.466E+07	.264E+05	.163E-05
340	.119E+07	.675E+04	.584E-05
341	.279E+07	.196E+05	.240E-05
342	.304E+07	.208E+05	.167E-05
343	.207E+07	.116E+05	.314E-05
344	.351E+07	.179E+05	.247E-05
345	.366E+07	.207E+05	.204E-05
346	.597E+05	96.4	.386E-03
347	.502E+07	.345E+05	.120E-05
348	.859E+06	.201E+04	.262E-04
349	.549E+07	.360E+05	.130E-05
350	.144E+07	.770E+04	.502E-05
351	.493E+07	.136E+05	.339E-05
352	.197E+07	.111E+05	.395E-05
353	.176E+06	229.	.209E-03
354	.374E+06	.210E+04	.184E-04
355	.531E+07	.351E+05	.118E-05
356	.251E+07	.486E+04	.134E-04
357	.484E+07	.808E+04	.406E-05
358	.122E+07	.594E+04	.976E-05
359	.159E+06	199.	.231E-03
360	.171E+07	.354E+04	.139E-04
361	.139E+07	.739E+04	.657E-05
362	.203E+07	.360E+04	.117E-04
363	.245E+07	.630E+04	.734E-05
364	.318E+07	.237E+05	.193E-05

365	.809E+06	.488E+04	.357E-03
366	.256E+07	.307E+04	.152E-04
367	.224E+07	.106E+05	.400E-05
368	.332E+07	.154E+05	.334E-05
369	.166E+07	.114E+05	.448E-05
370	.292E+07	.200E+05	.190E-05
371	.531E+07	.787E+04	.586E-05
372	.336E+06	.165E+04	.283E-04
373	.256E+07	.445E+04	.103E-04
374	.490E+07	.340E+05	.152E-05
375	.192E+07	.351E+04	.142E-04
376	.154E+07	.109E+05	.352E-05
377	.382E+07	.562E+04	.785E-05
378	.391E+06	.172E+04	.352E-04
379	.495E+07	.949E+04	.556E-05
380	.588E+05	244.	.273E-03
381	.391E+07	.219E+05	.211E-05
382	.226E+07	.310E+04	.185E-04
383	.288E+07	.475E+04	.102E-04
384	.272E+07	.347E+04	.132E-04
385	.504E+07	.234E+05	.225E-05
386	.377E+07	.158E+05	.275E-05
387	.401E+07	.259E+05	.143E-05
388	.246E+07	.102E+05	.475E-05
389	.142E+07	.636E+04	.603E-05
390	.520E+07	.254E+05	.218E-05
391	.730E+06	.365E+04	.139E-04
392	.623E+06	.295E+04	.197E-04
393	.812E+06	.183E+04	.246E-04
394	.425E+07	.101E+05	.322E-05
395	.374E+06	.250E+04	.156E-04
396	.225E+07	.156E+05	.320E-05
397	.451E+06	.192E+04	.215E-04
398	.456E+07	.126E+05	.389E-05
399	.447E+07	.225E+05	.216E-05
400	.209E+07	.126E+05	.315E-05
401	.263E+07	.420E+04	.118E-04
402	.308E+06	.136E+04	.287E-04
403	.479E+06	.190E+04	.291E-04
404	.204E+07	.109E+05	.365E-05
405	.125E+06	317.	.128E-03
406	.290E+07	.745E+04	.599E-05
407	.484E+07	.605E+04	.554E-05
408	.516E+07	.203E+05	.243E-05
409	.162E+06	263.	.167E-03
410	.322E+07	.499E+04	.951E-05
411	.181E+07	.344E+04	.144E-04
412	.385E+07	.280E+05	.204E-05
413	.537E+07	.305E+05	.193E-05
414	.204E+07	.132E+05	.402E-05
415	.181E+07	.601E+04	.650E-05
416	.503E+07	.520E+04	.109E-04
417	.182E+07	.756E+04	.618E-05
418	.391E+07	.191E+05	.188E-05
419	.379E+07	.151E+05	.416E-05
420	.478E+07	.282E+05	.135E-05
421	.295E+07	.968E+04	.462E-05
422	.391E+07	.402E+04	.917E-05
423	.235E+06	790.	.715E-04
424	.997E+06	.242E+04	.157E-04
425	.178E+07	.108E+05	.410E-05
426	.461E+06	489.	.870E-04
427	.501E+07	.230E+05	.211E-05
428	.407E+07	.232E+05	.159E-05
429	.242E+07	.169E+05	.330E-05
430	.417E+07	.125E+05	.321E-05

431	.189E+07	.118E+05	.374E-05
432	.198E+07	.102E+05	.373E-05
433	.129E+07	.133E+04	.296E-04
434	.451E+07	.177E+05	.278E-05
435	.494E+07	.103E+05	.392E-05
436	.274E+07	.109E+05	.454E-05
437	.354E+07	.208E+05	.193E-05
438	.346E+07	.256E+05	.153E-05
439	.303E+07	.220E+05	.270E-05
440	.846E+06	997.	.388E-04
441	.207E+06	878.	.599E-04
442	.393E+07	.223E+05	.182E-05
443	.387E+07	.107E+05	.336E-05
444	.198E+07	.250E+04	.172E-04
445	.202E+07	.120E+05	.396E-05
446	.274E+07	.129E+05	.304E-05
447	.316E+06	.176E+04	.179E-04
448	.263E+07	.605E+04	.675E-05
449	.820E+06	.106E+04	.381E-04
450	.664E+06	.441E+04	.105E-04
451	.732E+06	.543E+04	.752E-05
452	.219E+07	.354E+04	.164E-04
453	.861E+06	.212E+04	.272E-04
454	.232E+07	.808E+04	.411E-05
455	.228E+07	.123E+05	.332E-05
456	.538E+07	.139E+05	.307E-05
457	.132E+07	.512E+04	.665E-05
458	.430E+07	.303E+05	.120E-05
459	.701E+06	.154E+04	.218E-04
460	.313E+07	.360E+04	.981E-05
461	.123E+07	.581E+04	.817E-05
462	.900E+06	.594E+04	.659E-05
463	.135E+07	.101E+05	.490E-05
464	.400E+07	.436E+04	.130E-04
465	.480E+07	.320E+05	.121E-05
466	.439E+07	.819E+04	.543E-05
467	.458E+07	.100E+05	.480E-05
468	.133E+07	.961E+04	.349E-05
469	.399E+07	.179E+05	.182E-05
470	.288E+07	.147E+05	.308E-05
471	.522E+07	.361E+05	.126E-05
472	.263E+07	.936E+04	.416E-05
473	.360E+07	.141E+05	.222E-05
474	.124E+07	.801E+04	.531E-05
475	.232E+06	990.	.557E-04
476	.496E+07	.330E+05	.143E-05
477	.478E+07	.976E+04	.350E-05
478	.238E+07	.870E+04	.496E-05
479	.291E+07	.720E+04	.675E-05
480	.535E+07	.896E+04	.551E-05
481	.313E+07	.400E+04	.107E-04
482	.368E+07	.197E+05	.218E-05
483	.103E+07	.709E+04	.568E-05
484	.349E+07	.994E+04	.636E-05
485	.542E+06	.144E+04	.282E-04
486	.303E+07	.529E+04	.761E-05
487	.518E+07	.134E+05	.298E-05
488	.402E+07	.118E+05	.379E-05
489	.311E+07	.153E+05	.294E-05
490	.971E+06	.160E+04	.316E-04
491	.930E+06	.547E+04	.940E-05
492	.428E+07	.243E+05	.219E-05
493	.140E+07	.467E+04	.115E-04
494	.393E+07	.164E+05	.294E-05
495	.471E+07	.191E+05	.283E-05
496	.222E+07	.561E+04	.692E-05

497	.192E+08	288.	[illegible]
498	.436E+07	.133E+05	.425E-05
499	.337E+06	692.	.681E-04
500	.266E+07	.709E+04	.691E-05

SOIL PCOCs: MODELED FROM WOOD PROCESS AREA TO THE ELIZABETH RIVER

FILE: MCER.INP/OUT

CHEMICAL SPECIFIC

SIMULATION RUN FOR ALL PCOCs

Solid phase decay coefficient	1/yr	0.000E+00
Dissolved phase decay coefficient	1/yr	0.000E+00
Overall chemical decay coefficient	1/yr	0.000E+00
Acid catalyzed hydrolysis rate	1/M-yr	0.000E+00
Neutral hydrolysis rate constant	1/yr	0.000E+00
Base catalyzed hydrolysis rate	1/M-yr	0.000E+00
Reference temperature	C	25.0
Biodegradation coefficient (sat. zone)	1/yr	0.000E+00
Air diffusion coefficient	cm2/s	0.000E+00
Reference temperature for air diffusion	C	25.0
Molecular weight	g/M	0.000E+00
Mole fraction of solute	--	0.000E+00
Vapor pressure of solute	mm Hg	0.000E+00
Henry's law constant	atm-m^3/M	0.000E+00
Not currently used		-999.
Not currently used		-999.

RUN NO.	DKOC ml/g	KD	KSAT 1/yr
1	.432E+07	.157E+05	.502E-05
2	.178E+07	.487E+04	.809E-05
3	.290E+07	.169E+05	.490E-05
4	.160E+07	.377E+04	.259E-04
5	.263E+07	.584E+04	.129E-04
6	.177E+07	.127E+05	.414E-05
7	.237E+07	.819E+04	.890E-05
8	.141E+07	.984E+04	.621E-05
9	.240E+07	.279E+04	.390E-04
10	.120E+07	.811E+04	.685E-05
11	.466E+07	.181E+05	.193E-05
12	.516E+07	.202E+05	.349E-05
13	.333E+07	.212E+05	.410E-05
14	.515E+07	.352E+05	.107E-05
15	.258E+07	.578E+04	.156E-04
16	.454E+07	.897E+04	.857E-05
17	.183E+07	.934E+04	.411E-05
18	.479E+07	.335E+05	.218E-05
19	.390E+07	.203E+05	.400E-05
20	.287E+07	.155E+05	.445E-05
21	.414E+07	.265E+05	.266E-05
22	.179E+07	.121E+05	.616E-05
23	.527E+07	.134E+05	.562E-05
24	.302E+07	.214E+05	.277E-05
25	.107E+07	.808E+04	.822E-05
26	.444E+07	.271E+05	.136E-05
27	.451E+07	.704E+04	.697E-05
28	.202E+07	.109E+05	.652E-05
29	.394E+07	.291E+05	.216E-05
30	.116E+07	.762E+04	.126E-04
31	.269E+07	.700E+04	.987E-05
32	.151E+07	.974E+04	.525E-05
33	.416E+07	.561E+04	.940E-05
34	.484E+05	304.	.231E-03

35	.255E+07	.897E+04	.940E-05
36	.343E+07	.234E+05	.284E-05
37	.280E+07	.587E+04	.107E-04
38	.212E+07	.140E+05	.539E-05
39	.197E+07	.145E+05	.388E-05
40	.515E+07	.199E+05	.266E-05
41	.228E+05	119.	.486E-03
42	.361E+07	.226E+05	.222E-05
43	.422E+07	.162E+05	.472E-05
44	.162E+07	.105E+05	.870E-05
45	.455E+07	.116E+05	.617E-05
46	.254E+07	.616E+04	.826E-05
47	.631E+06	.468E+04	.847E-05
48	.535E+07	.306E+05	.213E-05
49	.456E+07	.319E+05	.142E-05
50	.291E+07	.180E+05	.383E-05
51	.321E+06	.176E+04	.469E-04
52	.520E+06	.368E+04	.178E-04
53	.286E+07	.944E+04	.513E-05
54	.529E+07	.279E+05	.351E-05
55	.513E+07	.336E+05	.142E-05
56	.111E+07	.757E+04	.133E-04
57	.441E+07	.296E+05	.298E-05
58	.136E+07	.182E+04	.373E-04
59	.662E+06	.464E+04	.109E-04
60	.132E+07	.615E+04	.919E-05
61	.535E+07	.276E+05	.242E-05
62	.368E+07	.179E+05	.244E-05
63	.319E+07	.115E+05	.434E-05
64	.199E+07	.462E+04	.878E-05
65	.224E+07	.307E+04	.210E-04
66	.531E+07	.189E+05	.309E-05
67	.474E+07	.672E+04	.951E-05
68	.108E+07	.154E+04	.338E-04
69	.265E+07	.730E+04	.835E-05
70	.212E+07	.484E+04	.146E-04
71	.217E+07	.907E+04	.724E-05
72	.511E+07	.160E+05	.392E-05
73	.254E+06	.191E+04	.374E-04
74	.138E+06	480.	.152E-03
75	.343E+06	898.	.877E-04
76	.356E+06	374.	.184E-03
77	.478E+07	.292E+05	.246E-05
78	.169E+07	.127E+05	.636E-05
79	.460E+07	.331E+05	.175E-05
80	.239E+07	.161E+05	.478E-05
81	.794E+06	.505E+04	.161E-04
82	.461E+07	.657E+04	.682E-05
83	.510E+06	682.	.554E-04
84	.530E+07	.225E+05	.206E-05
85	.425E+07	.233E+05	.514E-05
86	.352E+07	.521E+04	.769E-05
87	.355E+07	.157E+05	.295E-05
88	.218E+07	.101E+05	.802E-05
89	.211E+07	.118E+05	.330E-05
90	.256E+07	.194E+05	.434E-05
91	.357E+07	.162E+05	.302E-05
92	.117E+07	.464E+04	.148E-04
93	.143E+07	.291E+04	.280E-04
94	.346E+07	.961E+04	.874E-05
95	.340E+07	.101E+05	.717E-05
96	.498E+07	.978E+04	.501E-05
97	.696E+06	823.	.707E-04
98	.562E+06	.291E+04	.247E-04
99	.485E+07	.262E+05	.280E-05
100	.476E+07	.330E+05	.145E-05

101	.166E+07	.567E+04	.6[illegible]E-05
102	.538E+07	.324E+05	.291E-05
103	.532E+07	.312E+05	.147E-05
104	.215E+07	.100E+05	.406E-05
105	.397E+07	.148E+05	.250E-05
106	.402E+07	.278E+05	.253E-05
107	.192E+07	.611E+04	.999E-05
108	.152E+06	931.	.521E-04
109	.298E+07	.778E+04	.509E-05
110	.239E+07	.922E+04	.876E-05
111	.248E+07	.920E+04	.507E-05
112	.312E+05	225.	.252E-03
113	.355E+07	.193E+05	.356E-05
114	.353E+07	.193E+05	.421E-05
115	.349E+07	.129E+05	.417E-05
116	.360E+07	.690E+04	.620E-05
117	.137E+06	394.	.247E-03
118	.522E+06	.359E+04	.158E-04
119	.206E+06	.103E+04	.758E-04
120	.319E+07	.832E+04	.656E-05
121	.443E+07	.200E+05	.339E-05
122	.298E+07	.488E+04	.190E-04
123	.301E+07	.221E+05	.308E-05
124	.369E+05	251.	.242E-03
125	.230E+07	.117E+05	.420E-05
126	.494E+06	.374E+04	.216E-04
127	.111E+07	.694E+04	.842E-05
128	.416E+07	.305E+05	.188E-05
129	.391E+07	.251E+05	.388E-05
130	.283E+07	.144E+05	.419E-05
131	.439E+07	.201E+05	.225E-05
132	.436E+07	.243E+05	.324E-05
133	.547E+07	.272E+05	.376E-05
134	.208E+07	.958E+04	.618E-05
135	.264E+07	.498E+04	.115E-04
136	.532E+07	.842E+04	.852E-05
137	.168E+07	.565E+04	.108E-04
138	.380E+07	.244E+05	.299E-05
139	.243E+07	.409E+04	.176E-04
140	.119E+06	706.	.122E-03
141	.207E+07	.847E+04	.120E-04
142	.521E+06	.153E+04	.528E-04
143	.483E+07	.266E+05	.263E-05
144	.329E+07	.175E+05	.368E-05
145	.227E+06	.126E+04	.614E-04
146	.491E+07	.168E+05	.577E-05
147	.418E+07	.216E+05	.390E-05
148	.345E+07	.223E+05	.173E-05
149	.481E+07	.280E+05	.341E-05
150	.523E+07	.141E+05	.430E-05
151	.295E+07	.100E+05	.851E-05
152	.332E+07	.102E+05	.506E-05
153	.491E+07	.188E+05	.450E-05
154	.277E+07	.585E+04	.894E-05
155	.488E+07	.124E+05	.691E-05
156	.361E+07	.175E+05	.251E-05
157	.194E+07	.232E+04	.418E-04
158	.502E+07	.313E+05	.216E-05
159	.214E+07	.475E+04	.905E-05
160	.377E+06	.268E+04	.162E-04
161	.403E+07	.112E+05	.857E-05
162	.203E+07	.515E+04	.142E-04
163	.245E+07	.314E+04	.219E-04
164	.225E+07	.124E+05	.592E-05
165	.536E+07	.369E+05	.111E-05
166	.185E+07	.441E+04	.141E-04

167	.204E+07	.850E+04	.415E-05
168	.401E+07	.245E+05	.193E-05
169	.527E+07	.351E+05	.100E-05
170	.169E+07	.184E+04	.280E-04
171	.132E+07	.463E+04	.171E-04
172	.815E+06	.127E+04	.423E-04
173	.138E+07	.372E+04	.266E-04
174	.496E+07	.109E+05	.462E-05
175	.137E+07	.391E+04	.283E-04
176	.476E+07	.263E+05	.182E-05
177	.365E+07	.960E+04	.101E-04
178	.240E+07	.118E+05	.770E-05
179	.250E+07	.144E+05	.547E-05
180	.547E+07	.111E+05	.767E-05
181	.491E+07	.288E+05	.241E-05
182	.526E+07	.249E+05	.238E-05
183	.260E+07	.180E+05	.639E-05
184	.144E+07	.581E+04	.183E-04
185	.746E+06	.134E+04	.383E-04
186	.182E+07	.473E+04	.179E-04
187	.165E+06	295.	.120E-03
188	.609E+06	.406E+04	.120E-04
189	.177E+07	.756E+04	.556E-05
190	.544E+07	.228E+05	.204E-05
191	.471E+07	.785E+04	.100E-04
192	.147E+07	.303E+04	.323E-04
193	.455E+07	.179E+05	.490E-05
194	.232E+07	.969E+04	.850E-05
195	.386E+07	.102E+05	.575E-05
196	.822E+06	.498E+04	.116E-04
197	.357E+06	.102E+04	.677E-04
198	.512E+07	.279E+05	.152E-05
199	.543E+07	.313E+05	.249E-05
200	.241E+07	.898E+04	.107E-04
201	.383E+07	.167E+05	.587E-05
202	.409E+07	.238E+05	.186E-05
203	.459E+07	.183E+05	.363E-05
204	.213E+07	.510E+04	.158E-04
205	.252E+07	.122E+05	.407E-05
206	.471E+07	.775E+04	.108E-04
207	.513E+07	.230E+05	.190E-05
208	.204E+06	811.	.604E-04
209	.426E+06	.125E+04	.476E-04
210	.242E+07	.658E+04	.939E-05
211	.408E+07	.236E+05	.191E-05
212	.797E+06	.245E+04	.190E-04
213	.195E+07	.128E+05	.469E-05
214	.448E+07	.285E+05	.206E-05
215	.261E+07	.848E+04	.620E-05
216	.156E+07	.107E+05	.648E-05
217	.516E+07	.209E+05	.249E-05
218	.329E+07	.188E+05	.342E-05
219	.396E+06	.265E+04	.187E-04
220	.246E+07	.124E+05	.411E-05
221	.388E+07	.159E+05	.575E-05
222	.265E+07	.122E+05	.830E-05
223	.259E+07	.149E+05	.483E-05
224	.352E+07	.917E+04	.665E-05
225	.297E+07	.121E+05	.589E-05
226	.503E+06	.357E+04	.233E-04
227	.525E+07	.349E+05	.216E-05
228	.524E+07	.326E+05	.201E-05
229	.260E+06	734.	.107E-03
230	.113E+07	.166E+04	.345E-04
231	.471E+07	.254E+05	.319E-05
232	.453E+07	.181E+05	.314E-05

233	.285E+07	.849E+04	.107E-04
234	.499E+07	.263E+05	.330E-05
235	.378E+07	.202E+05	.222E-05
236	.646E+06	.434E+04	.162E-04
237	.310E+07	.213E+05	.367E-05
238	.453E+05	149.	.538E-03
239	.196E+07	.123E+05	.625E-05
240	.384E+07	.791E+04	.873E-05
241	.374E+07	.746E+04	.759E-05
242	.467E+07	.112E+05	.499E-05
243	.392E+06	.216E+04	.323E-04
244	.822E+06	.274E+04	.238E-04
245	.403E+07	.693E+04	.705E-05
246	.449E+07	.838E+04	.717E-05
247	.745E+06	.428E+04	.955E-05
248	.466E+07	.307E+05	.326E-05
249	.357E+07	.411E+04	.236E-04
250	.513E+07	.260E+05	.335E-05
251	.239E+07	.116E+05	.386E-05
252	.227E+07	.554E+04	.872E-05
253	.153E+07	.114E+05	.317E-05
254	.482E+07	.566E+04	.807E-05
255	.303E+06	.130E+04	.572E-04
256	.161E+07	.194E+04	.298E-04
257	.280E+07	.129E+05	.627E-05
258	.865E+06	.545E+04	.135E-04
259	.369E+07	.153E+05	.379E-05
260	.302E+07	.125E+05	.308E-05
261	.543E+07	.326E+05	.194E-05
262	.623E+06	.423E+04	.147E-04
263	.435E+07	.158E+05	.434E-05
264	.420E+07	.743E+04	.108E-04
265	.471E+07	.182E+05	.388E-05
266	.115E+07	.324E+04	.226E-04
267	.238E+07	.761E+04	.903E-05
268	.153E+07	.107E+05	.662E-05
269	.109E+07	.328E+04	.179E-04
270	.187E+05	116.	.634E-03
271	.450E+07	.226E+05	.200E-05
272	.365E+07	.253E+05	.356E-05
273	.513E+06	.172E+04	.265E-04
274	.163E+06	585.	.148E-03
275	.298E+07	.191E+05	.209E-05
276	.141E+07	.645E+04	.140E-04
277	.283E+07	.447E+04	.146E-04
278	.329E+07	.188E+05	.428E-05
279	.210E+07	.291E+04	.145E-04
280	.150E+07	.965E+04	.643E-05
281	.351E+07	.562E+04	.120E-04
282	.112E+07	.330E+04	.140E-04
283	.519E+07	.310E+05	.272E-05
284	.399E+06	.272E+04	.232E-04
285	.536E+07	.139E+05	.359E-05
286	.216E+07	.988E+04	.458E-05
287	.547E+07	.279E+05	.200E-05
288	.206E+07	.331E+04	.220E-04
289	.301E+07	.816E+04	.900E-05
290	.531E+07	.273E+05	.333E-05
291	.163E+07	.885E+04	.926E-05
292	.391E+07	.249E+05	.264E-05
293	.369E+07	.158E+05	.395E-05
294	.948E+06	.259E+04	.190E-04
295	.491E+07	.326E+05	.160E-05
296	.323E+06	548.	.149E-03
297	.417E+07	.986E+04	.580E-05
298	.166E+07	.886E+04	.759E-05

299	.400E+07	.855E+04	.856E-05
300	.733E+06	.273E+04	.403E-04
301	.106E+07	.477E+04	.156E-04
302	.536E+07	.600E+04	.110E-04
303	.516E+07	.312E+05	.184E-05
304	.120E+07	.549E+04	.137E-04
305	.451E+07	.537E+04	.110E-04
306	.264E+07	.954E+04	.570E-05
307	.177E+07	.651E+04	.133E-04
308	.126E+07	.298E+04	.154E-04
309	.828E+06	.362E+04	.168E-04
310	.797E+06	.466E+04	.141E-04
311	.599E+06	.352E+04	.129E-04
312	.133E+06	279.	.216E-03
313	.456E+07	.308E+05	.164E-05
314	.245E+07	.146E+05	.461E-05
315	.548E+07	.347E+05	.167E-05
316	.530E+07	.308E+05	.296E-05
317	.303E+07	.103E+05	.519E-05
318	.160E+07	.289E+04	.182E-04
319	.541E+07	.297E+05	.375E-05
320	.318E+07	.226E+05	.248E-05
321	.129E+07	.936E+04	.613E-05
322	.289E+07	.142E+05	.563E-05
323	.497E+06	.103E+04	.726E-04
324	.244E+07	.179E+05	.301E-05
325	.247E+07	.263E+04	.250E-04
326	.203E+07	.383E+04	.130E-04
327	.112E+07	.292E+04	.294E-04
328	.302E+07	.455E+04	.100E-04
329	.495E+07	.346E+05	.136E-05
330	.946E+06	.187E+04	.469E-04
331	.465E+07	.613E+04	.978E-05
332	.683E+04	31.7	.209E-02
333	.489E+07	.627E+04	.853E-05
334	.133E+07	.753E+04	.593E-05
335	.339E+07	.630E+04	.679E-05
336	.325E+07	.103E+05	.492E-05
337	.197E+07	.654E+04	.739E-05
338	.547E+07	.300E+05	.263E-05
339	.361E+07	.680E+04	.829E-05
340	.535E+04	17.6	.576E-02
341	.364E+07	.218E+05	.318E-05
342	.272E+07	.203E+05	.273E-05
343	.306E+06	.126E+04	.570E-04
344	.182E+07	.506E+04	.121E-04
345	.109E+07	.708E+04	.836E-05
346	.359E+07	.221E+05	.437E-05
347	.387E+07	.281E+05	.162E-05
348	.318E+07	.543E+04	.154E-04
349	.426E+07	.315E+05	.229E-05
350	.362E+07	.161E+05	.353E-05
351	.297E+07	.177E+05	.395E-05
352	.270E+07	.754E+04	.915E-05
353	.277E+07	.181E+05	.310E-05
354	.270E+05	69.3	.893E-03
355	.299E+07	.218E+05	.370E-05
356	.520E+07	.385E+05	.139E-05
357	.355E+07	.227E+05	.256E-05
358	.897E+06	.177E+04	.328E-04
359	.162E+07	.751E+04	.744E-05
360	.383E+07	.201E+05	.185E-05
361	.343E+06	386.	.115E-03
362	.110E+07	.185E+04	.406E-04
363	.417E+07	.714E+04	.902E-05
364	.141E+06	416.	.149E-03

365	.517E+07	.688E+04	.109E-04
366	.547E+07	.214E+05	.304E-05
367	.389E+07	.731E+04	.106E-04
368	.355E+07	.217E+05	.270E-05
369	.841E+06	.404E+04	.172E-04
370	.238E+07	.417E+04	.176E-04
371	.119E+06	558.	.135E-03
372	.422E+07	.263E+05	.159E-05
373	.988E+06	.276E+04	.425E-04
374	.173E+07	.761E+04	.847E-05
375	.142E+06	979.	.101E-03
376	.491E+07	.137E+05	.339E-05
377	.397E+07	.183E+05	.232E-05
378	.429E+07	.131E+05	.543E-05
379	.451E+07	.326E+05	.198E-05
380	.501E+07	.293E+05	.228E-05
381	.420E+07	.437E+04	.174E-04
382	.450E+07	.290E+05	.231E-05
383	.441E+07	.153E+05	.334E-05
384	.843E+05	291.	.163E-03
385	.190E+07	.583E+04	.128E-04
386	.157E+07	.867E+04	.732E-05
387	.362E+07	.152E+05	.421E-05
388	.265E+07	.641E+04	.107E-04
389	.517E+07	.277E+05	.173E-05
390	.278E+07	.209E+05	.255E-05
391	.131E+07	.707E+04	.710E-05
392	.254E+07	.684E+04	.695E-05
393	.550E+07	.289E+05	.271E-05
394	.978E+06	979.	.687E-04
395	.308E+07	.178E+05	.692E-05
396	.280E+07	.707E+04	.693E-05
397	.159E+07	.412E+04	.175E-04
398	.418E+06	.155E+04	.540E-04
399	.433E+07	.114E+05	.345E-05
400	.110E+07	.406E+04	.135E-04
401	.313E+07	.206E+05	.295E-05
402	.107E+06	551.	.111E-03
403	.496E+07	.499E+04	.114E-04
404	.544E+07	.376E+05	.114E-05
405	.215E+07	.110E+05	.600E-05
406	.108E+07	.228E+04	.287E-04
407	.510E+07	.186E+05	.504E-05
408	.432E+07	.908E+04	.109E-04
409	.350E+07	.114E+05	.530E-05
410	.357E+07	.213E+05	.239E-05
411	.304E+07	.442E+04	.125E-04
412	.150E+06	481.	.171E-03
413	.365E+06	.151E+04	.432E-04
414	.328E+07	.175E+05	.363E-05
415	.867E+06	.565E+04	.844E-05
416	.261E+07	.153E+05	.264E-05
417	.149E+07	.271E+04	.162E-04
418	.205E+07	.488E+04	.159E-04
419	.143E+07	.444E+04	.153E-04
420	.460E+07	.128E+05	.351E-05
421	.259E+07	.392E+04	.225E-04
422	.138E+07	.479E+04	.167E-04
423	.798E+06	.179E+04	.307E-04
424	.291E+07	.130E+05	.284E-05
425	.227E+07	.500E+04	.971E-05
426	.417E+07	.260E+05	.213E-05
427	.149E+07	.728E+04	.111E-04
428	.128E+07	.330E+04	.213E-04
429	.440E+07	.150E+05	.625E-05
430	.303E+06	383.	.206E-03

431	[illegible]	[illegible]	[illegible]
432	.233E+07	.146E+05	.632E-05
433	.120E+07	.231E+04	.345E-04
434	.744E+06	.168E+04	.269E-04
435	.226E+07	.688E+04	.149E-04
436	.387E+07	.608E+04	.151E-04
437	.182E+07	.983E+04	.527E-05
438	.447E+07	.974E+04	.426E-05
439	.329E+06	.122E+04	.388E-04
440	.463E+07	.184E+05	.261E-05
441	.500E+07	.131E+05	.706E-05
442	.245E+07	.522E+04	.898E-05
443	.342E+07	.232E+05	.219E-05
444	.521E+07	.216E+05	.295E-05
445	.538E+07	.205E+05	.437E-05
446	.404E+07	.517E+04	.128E-04
447	.534E+07	.341E+05	.278E-05
448	.130E+07	.192E+04	.368E-04
449	.343E+07	.174E+05	.420E-05
450	.284E+07	.188E+05	.440E-05
451	.320E+07	.429E+04	.156E-04
452	.667E+06	.307E+04	.284E-04
453	.205E+07	.555E+04	.146E-04
454	.438E+07	.179E+05	.421E-05
455	.291E+07	.122E-05	.732E-05
456	.899E+06	.448E+04	.137E-04
457	.123E+07	.325E+04	.137E-04
458	.313E+07	.150E+05	.484E-05
459	.265E+07	.309E+04	.150E-04
460	.457E+07	.265E+05	.428E-05
461	.238E+07	.147E+05	.765E-05
462	.367E+07	.172E+05	.368E-05
463	.367E+07	.163E+05	.564E-05
464	.861E+06	.546E+04	.158E-04
465	.348E+07	.223E+05	.373E-05
466	.980E+06	.463E+04	.163E-04
467	.231E+06	762.	.803E-04
468	.139E+07	.567E+04	.960E-05
469	.215E+07	.138E+05	.513E-05
470	.528E+07	.370E+05	.251E-05
471	.910E+05	537.	.112E-03
472	.622E+06	.277E+04	.242E-04
473	.442E+07	.618E+04	.946E-05
474	.486E+07	.147E+05	.488E-05
475	.117E+07	.604E+04	.736E-05
476	.424E+07	.111E+05	.497E-05
477	.310E+07	.513E+04	.110E-04
478	.240E+07	.416E+04	.135E-04
479	.259E+07	.536E+04	.167E-04
480	.370E+07	.150E+05	.557E-05
481	.458E+07	.534E+04	.170E-04
482	.518E+07	.120E+05	.329E-05
483	.357E+07	.131E+05	.816E-05
484	.478E+07	.322E+05	.219E-05
485	.237E+07	.114E+05	.497E-05
486	.428E+07	.230E+05	.312E-05
487	.187E+07	.880E+04	.499E-05
488	.118E+07	.556E+04	.116E-04
489	.143E+07	.896E+04	.491E-05
490	.419E+06	.218E+04	.308E-04
491	.295E+07	.127E+05	.476E-05
492	.222E+07	.835E+04	.568E-05
493	.963E+06	.276E+04	.152E-04
494	.902E+06	.452E+04	.121E-04
495	.378E+07	.574E+04	.126E-04
496	.490E+07	.931E+04	.477E-05

497	.106E+07	.228E+04	.267E-04
498	.250E+07	.970E+04	.411E-05
499	.244E+07	.480E+04	.169E-04
500	.328E+07	.188E+05	.387E-05

APPENDIX B-4

PRINT-OUTS OF SOURCE.VAR FILES FOR MONTE-CARLO MODELS OF STEADY-STATE CONDITIONS

SOIL PCOCs: MODELED FROM WESTERN SOURCE (GROUNDWATER MOUND AREA) TO MC102

FILE: MC102.INP/OUT

SOURCE SPECIFIC

SIMULATION RUN FOR ALL PCOCs

Area of waste disposal unit	m^2	0.826E+04
Duration of pulse	yr	-999.
Source decay constant	1/yr	0.000E+00
Initial concentration at landfill	mg/l	100.

RUN NO.	QG m/yr	QD m/yr	SIGMA m	L (m)	WID (m)	DF
1	.139E-01	.326	15.1	90.9	90.9	.157
2	.111E-01	.322	15.1	90.9	90.9	.211
3	.193E-02	.309	15.1	90.9	90.9	.340E-01
4	.148E-01	.327	15.1	90.9	90.9	.214
5	.293E-01	.347	15.1	90.9	90.9	.297
6	.282E-01	.346	15.1	90.9	90.9	.351
7	.243E-01	.340	15.1	90.9	90.9	.367
8	.551E-01	.383	15.1	90.9	90.9	.635
9	.277E-01	.345	15.1	90.9	90.9	.256
10	.467E-01	.371	15.1	90.9	90.9	.512
11	.615E-01	.391	15.1	90.9	90.9	.617
12	.662E-01	.398	15.1	90.9	90.9	.880
13	.260E-01	.343	15.1	90.9	90.9	.342
14	.875E-01	.427	15.1	90.9	90.9	.720
15	.289E-01	.347	15.1	90.9	90.9	.315
16	.390E-01	.360	15.1	90.9	90.9	.374
17	.673E-01	.399	15.1	90.9	90.9	.659
18	.204E-01	.335	15.1	90.9	90.9	.261
19	.190E-01	.333	15.1	90.9	90.9	.287
20	.237E-01	.339	15.1	90.9	90.9	.340
21	.590E-01	.388	15.1	90.9	90.9	.945
22	.138E-01	.326	15.1	90.9	90.9	.281
23	.259E-02	.310	15.1	90.9	90.9	.199
24	.680E-01	.400	15.1	90.9	90.9	.932
25	.571E-01	.385	15.1	90.9	90.9	.896
26	.336E-01	.353	15.1	90.9	90.9	.752
27	.107E-01	.321	15.1	90.9	90.9	.147
28	.231E-01	.339	15.1	90.9	90.9	.870
29	.581E-01	.387	15.1	90.9	90.9	.835
30	.356E-01	.356	15.1	90.9	90.9	.491
31	.418E-01	.364	15.1	90.9	90.9	.393
32	.629E-01	.393	15.1	90.9	90.9	.950
33	.389E-01	.360	15.1	90.9	90.9	.572
34	.257E-01	.342	15.1	90.9	90.9	.572
35	.135E-01	.325	15.1	90.9	90.9	.278
36	.473E-01	.372	15.1	90.9	90.9	.863
37	.241E-01	.340	15.1	90.9	90.9	.337
38	.775E-01	.414	15.1	90.9	90.9	.715
39	.142E-01	.326	15.1	90.9	90.9	.528
40	.431E-01	.366	15.1	90.9	90.9	.613
41	.259E-01	.342	15.1	90.9	90.9	.372
42	.365E-01	.357	15.1	90.9	90.9	.731
43	.295E-01	.347	15.1	90.9	90.9	.918
44	.125E-01	.324	15.1	90.9	90.9	.221
45	.843E-01	.423	15.1	90.9	90.9	.797
46	.313E-01	.350	15.1	90.9	90.9	.329

47	.255E-02	.310	15.1	90.9	90.9	.267E-01
48	.157E-01	.328	15.1	90.9	90.9	.132
49	.424E-01	.365	15.1	90.9	90.9	.984
50	.112E-01	.322	15.1	90.9	90.9	.208
51	.244E-01	.340	15.1	90.9	90.9	.359
52	.299E-01	.348	15.1	90.9	90.9	.350
53	.877E-01	.428	15.1	90.9	90.9	.822
54	.595E-01	.389	15.1	90.9	90.9	.907
55	.136E-01	.325	15.1	90.9	90.9	.292
56	.173E-01	.331	15.1	90.9	90.9	.168
57	.704E-02	.316	15.1	90.9	90.9	.857E-01
58	.485E-01	.374	15.1	90.9	90.9	.721
59	.257E-01	.342	15.1	90.9	90.9	.331
60	.300E-01	.348	15.1	90.9	90.9	.484
61	.362E-01	.357	15.1	90.9	90.9	.461
62	.882E-01	.428	15.1	90.9	90.9	.677
63	.290E-01	.347	15.1	90.9	90.9	.256
64	.604E-01	.390	15.1	90.9	90.9	.970
65	.219E-01	.337	15.1	90.9	90.9	.304
66	.944E-01	.437	15.1	90.9	90.9	.985
67	.126E-02	.308	15.1	90.9	90.9	.117E-01
68	.114E-01	.322	15.1	90.9	90.9	.141
69	.265E-01	.343	15.1	90.9	90.9	.365
70	.217E-01	.337	15.1	90.9	90.9	.380
71	.186E-01	.332	15.1	90.9	90.9	.281
72	.102	.448	15.1	90.9	90.9	.913
73	.470E-01	.372	15.1	90.9	90.9	.481
74	.584E-01	.387	15.1	90.9	90.9	.695
75	.290E-01	.347	15.1	90.9	90.9	.455
76	.220E-01	.337	15.1	90.9	90.9	.341
77	.498E-01	.375	15.1	90.9	90.9	.381
78	.687E-01	.401	15.1	90.9	90.9	.657
79	.974E-01	.441	15.1	90.9	90.9	.903
80	.411E-01	.363	15.1	90.9	90.9	.423
81	.677E-01	.400	15.1	90.9	90.9	.919
82	.282E-01	.345	15.1	90.9	90.9	.290
83	.493E-01	.375	15.1	90.9	90.9	.341
84	.475E-01	.372	15.1	90.9	90.9	.868
85	.217E-01	.337	15.1	90.9	90.9	.850
86	.264E-02	.310	15.1	90.9	90.9	.458E-01
87	.535E-01	.380	15.1	90.9	90.9	.693
88	.245E-01	.340	15.1	90.9	90.9	.421
89	.150E-01	.327	15.1	90.9	90.9	.185
90	.625E-02	.315	15.1	90.9	90.9	.914E-01
91	.662E-01	.398	15.1	90.9	90.9	.669
92	.171E-01	.330	15.1	90.9	90.9	.338
93	.118E-01	.323	15.1	90.9	90.9	.113
94	.577E-01	.386	15.1	90.9	90.9	.857
95	.164E-01	.329	15.1	90.9	90.9	.202
96	.490E-01	.374	15.1	90.9	90.9	.663
97	.152E-01	.328	15.1	90.9	90.9	.171
98	.111E-01	.322	15.1	90.9	90.9	.182
99	.604E-01	.390	15.1	90.9	90.9	.948
100	.301E-01	.348	15.1	90.9	90.9	.292
101	.787E-02	.317	15.1	90.9	90.9	.115
102	.423E-01	.365	15.1	90.9	90.9	.677
103	.604E-02	.315	15.1	90.9	90.9	.569
104	.109	.457	15.1	90.9	90.9	.859
105	.370E-01	.358	15.1	90.9	90.9	.681
106	.100	.445	15.1	90.9	90.9	.858
107	.641E-01	.395	15.1	90.9	90.9	.953
108	.107	.454	15.1	90.9	90.9	.850
109	.722E-01	.406	15.1	90.9	90.9	.975
110	.279E-01	.345	15.1	90.9	90.9	.517
111	.792E-01	.416	15.1	90.9	90.9	.971
112	.602E-01	.390	15.1	90.9	90.9	.528

113	.382E-01	.38[illegible]	15.1	[illegible]	[illegible]	.34[illegible]
114	.938E-02	.320	15.1	90.9	90.9	.740
115	.574E-01	.386	15.1	90.9	90.9	.747
116	.228E-01	.338	15.1	90.9	90.9	.600
117	.986E-01	.443	15.1	90.9	90.9	.783
118	.757E-01	.411	15.1	90.9	90.9	.708
119	.209E-01	.335	15.1	90.9	90.9	.506
120	.177E-01	.331	15.1	90.9	90.9	.185
121	.318E-02	.311	15.1	90.9	90.9	.248
122	.489E-01	.374	15.1	90.9	90.9	.741
123	.351E-01	.355	15.1	90.9	90.9	.393
124	.222E-01	.337	15.1	90.9	90.9	.427
125	.592E-01	.388	15.1	90.9	90.9	.983
126	.437E-01	.367	15.1	90.9	90.9	.460
127	.387E-02	.312	15.1	90.9	90.9	.938E-01
128	.351E-01	.355	15.1	90.9	90.9	.804
129	.547E-01	.382	15.1	90.9	90.9	.588
130	.566E-01	.385	15.1	90.9	90.9	.661
131	.688E-02	.316	15.1	90.9	90.9	.253
132	.375E-01	.358	15.1	90.9	90.9	.565
133	.716E-01	.405	15.1	90.9	90.9	.754
134	.386E-01	.360	15.1	90.9	90.9	.399
135	.660E-01	.398	15.1	90.9	90.9	.602
136	.550E-01	.383	15.1	90.9	90.9	.631
137	.102	.447	15.1	90.9	90.9	.875
138	.693E-01	.402	15.1	90.9	90.9	.809
139	.895E-02	.319	15.1	90.9	90.9	.146
140	.360E-01	.356	15.1	90.9	90.9	.445
141	.283E-01	.346	15.1	90.9	90.9	.517
142	.178E-01	.331	15.1	90.9	90.9	.225
143	.430E-01	.366	15.1	90.9	90.9	.452
144	.162E-01	.329	15.1	90.9	90.9	.534
145	.118	.469	15.1	90.9	90.9	.938
146	.366E-01	.357	15.1	90.9	90.9	.665
147	.378E-01	.359	15.1	90.9	90.9	.384
148	.605E-01	.390	15.1	90.9	90.9	.717
149	.299E-01	.348	15.1	90.9	90.9	.759
150	.720E-01	.406	15.1	90.9	90.9	.999
151	.422E-01	.365	15.1	90.9	90.9	.752
152	.541E-01	.381	15.1	90.9	90.9	.823
153	.106	.453	15.1	90.9	90.9	.899
154	.264E-02	.310	15.1	90.9	90.9	.129
155	.203E-01	.335	15.1	90.9	90.9	.277
156	.545E-01	.382	15.1	90.9	90.9	.617
157	.540E-01	.381	15.1	90.9	90.9	.613
158	.548E-01	.382	15.1	90.9	90.9	.795
159	.328E-02	.311	15.1	90.9	90.9	.440E-01
160	.418E-01	.364	15.1	90.9	90.9	.599
161	.334E-01	.353	15.1	90.9	90.9	.475
162	.408E-01	.363	15.1	90.9	90.9	.488
163	.224E-01	.338	15.1	90.9	90.9	.644
164	.160E-01	.329	15.1	90.9	90.9	.642
165	.745E-01	.409	15.1	90.9	90.9	.617
166	.484E-01	.373	15.1	90.9	90.9	.474
167	.721E-01	.406	15.1	90.9	90.9	.896
168	.254E-02	.310	15.1	90.9	90.9	.692E-01
169	.326E-01	.352	15.1	90.9	90.9	.531
170	.385E-01	.360	15.1	90.9	90.9	.853
171	.316E-01	.350	15.1	90.9	90.9	.510
172	.386E-01	.360	15.1	90.9	90.9	.574
173	.770E-01	.413	15.1	90.9	90.9	.982
174	.451E-02	.313	15.1	90.9	90.9	.614E-01
175	.510E-01	.377	15.1	90.9	90.9	.985
176	.168E-01	.330	15.1	90.9	90.9	.222
177	.175E-01	.331	15.1	90.9	90.9	.234
178	.349E-01	.355	15.1	90.9	90.9	.590

179	.159E-01	.326	15.1	90.9	90.9	[illegible]
180	.419E-02	.312	15.1	90.9	90.9	.608E-01
181	.173E-01	.330	15.1	90.9	90.9	.209
182	.496E-01	.375	15.1	90.9	90.9	.802
183	.584E-02	.315	15.1	90.9	90.9	.725E-01
184	.518E-02	.314	15.1	90.9	90.9	.830E-01
185	.165E-01	.329	15.1	90.9	90.9	.291
186	.889E-01	.429	15.1	90.9	90.9	.904
187	.286E-02	.311	15.1	90.9	90.9	.567E-01
188	.869E-01	.427	15.1	90.9	90.9	.968
189	.596E-01	.389	15.1	90.9	90.9	.767
190	.108	.455	15.1	90.9	90.9	.952
191	.278E-01	.345	15.1	90.9	90.9	.553
192	.283E-01	.346	15.1	90.9	90.9	.694
193	.202E-01	.334	15.1	90.9	90.9	.289
194	.788E-01	.415	15.1	90.9	90.9	.960
195	.205E-01	.335	15.1	90.9	90.9	.227
196	.838E-02	.318	15.1	90.9	90.9	.267
197	.399E-01	.362	15.1	90.9	90.9	.415
198	.835E-01	.422	15.1	90.9	90.9	.857
199	.497E-01	.375	15.1	90.9	90.9	.716
200	.423E-01	.365	15.1	90.9	90.9	.548
201	.435E-01	.367	15.1	90.9	90.9	.427
202	.414E-01	.364	15.1	90.9	90.9	.422
203	.247E-01	.341	15.1	90.9	90.9	.916
204	.333E-01	.353	15.1	90.9	90.9	.436
205	.325E-01	.351	15.1	90.9	90.9	.915
206	.447E-01	.368	15.1	90.9	90.9	.673
207	.284E-01	.346	15.1	90.9	90.9	.459
208	.235E-02	.310	15.1	90.9	90.9	.562E-01
209	.844E-01	.423	15.1	90.9	90.9	.786
210	.149E-01	.327	15.1	90.9	90.9	.377
211	.628E-01	.393	15.1	90.9	90.9	.885
212	.901E-01	.431	15.1	90.9	90.9	.913
213	.259E-01	.342	15.1	90.9	90.9	.405
214	.301E-01	.348	15.1	90.9	90.9	.363
215	.256E-01	.342	15.1	90.9	90.9	.569
216	.310E-01	.349	15.1	90.9	90.9	.399
217	.108E-01	.322	15.1	90.9	90.9	.194
218	.978E-01	.442	15.1	90.9	90.9	.980
219	.256E-01	.342	15.1	90.9	90.9	.891
220	.706E-01	.404	15.1	90.9	90.9	.920
221	.778E-01	.414	15.1	90.9	90.9	.891
222	.295E-01	.347	15.1	90.9	90.9	.687
223	.135E-01	.325	15.1	90.9	90.9	.558
224	.637E-01	.394	15.1	90.9	90.9	.848
225	.373E-01	.358	15.1	90.9	90.9	.406
226	.298E-01	.348	15.1	90.9	90.9	.528
227	.474E-01	.372	15.1	90.9	90.9	.656
228	.424E-01	.365	15.1	90.9	90.9	.469
229	.586E-02	.315	15.1	90.9	90.9	.459E-01
230	.323E-01	.351	15.1	90.9	90.9	.945
231	.602E-01	.390	15.1	90.9	90.9	.881
232	.147E-02	.309	15.1	90.9	90.9	.192E-01
233	.103E-01	.321	15.1	90.9	90.9	.123
234	.358E-01	.356	15.1	90.9	90.9	.435
235	.240E-01	.340	15.1	90.9	90.9	.324
236	.667E-01	.399	15.1	90.9	90.9	.639
237	.206E-01	.335	15.1	90.9	90.9	.218
238	.200E-01	.334	15.1	90.9	90.9	.271
239	.894E-02	.319	15.1	90.9	90.9	.201
240	.344E-01	.354	15.1	90.9	90.9	.575
241	.140E-01	.326	15.1	90.9	90.9	.388
242	.414E-02	.312	15.1	90.9	90.9	.407E-01
243	.646E-01	.396	15.1	90.9	90.9	.552
244	.159E-01	.329	15.1	90.9	90.9	.789

246	.234E-01	.339	15.1	90.9	90.9	.210
247	.296E-02	.311	15.1	90.9	90.9	.887E-01
248	.118E-01	.323	15.1	90.9	90.9	.127
249	.645E-01	.396	15.1	90.9	90.9	.581
250	.308E-02	.311	15.1	90.9	90.9	.324E-01
251	.265E-01	.343	15.1	90.9	90.9	.531
252	.634E-01	.394	15.1	90.9	90.9	.505
253	.645E-01	.396	15.1	90.9	90.9	.950
254	.593E-01	.388	15.1	90.9	90.9	.943
255	.315E-01	.350	15.1	90.9	90.9	.389
256	.338E-02	.311	15.1	90.9	90.9	.892E-01
257	.351E-01	.355	15.1	90.9	90.9	.404
258	.566E-02	.314	15.1	90.9	90.9	.602E-01
259	.163E-01	.329	15.1	90.9	90.9	.368
260	.819E-01	.420	15.1	90.9	90.9	.850
261	.702E-01	.403	15.1	90.9	90.9	.849
262	.673E-01	.399	15.1	90.9	90.9	.711
263	.613E-01	.391	15.1	90.9	90.9	.881
264	.311E-01	.350	15.1	90.9	90.9	.631
265	.717E-02	.317	15.1	90.9	90.9	.290
266	.675E-01	.400	15.1	90.9	90.9	.799
267	.352E-02	.311	15.1	90.9	90.9	.458E-01
268	.471E-01	.372	15.1	90.9	90.9	.676
269	.403E-01	.362	15.1	90.9	90.9	.432
270	.100	.445	15.1	90.9	90.9	.981
271	.292E-01	.347	15.1	90.9	90.9	.322
272	.895E-01	.430	15.1	90.9	90.9	.977
273	.767E-01	.412	15.1	90.9	90.9	.878
274	.446E-01	.368	15.1	90.9	90.9	.925
275	.377E-01	.359	15.1	90.9	90.9	.567
276	.694E-01	.402	15.1	90.9	90.9	.947
277	.474E-01	.372	15.1	90.9	90.9	.797
278	.135E-01	.325	15.1	90.9	90.9	.227
279	.386E-01	.360	15.1	90.9	90.9	.857
280	.168E-01	.330	15.1	90.9	90.9	.379
281	.205E-01	.335	15.1	90.9	90.9	.221
282	.467E-01	.371	15.1	90.9	90.9	.985
283	.328E-01	.352	15.1	90.9	90.9	.386
284	.222E-01	.337	15.1	90.9	90.9	.882
285	.543E-01	.382	15.1	90.9	90.9	.923
286	.371E-02	.312	15.1	90.9	90.9	.442E-01
287	.790E-01	.416	15.1	90.9	90.9	.991
288	.206E-01	.335	15.1	90.9	90.9	.240
289	.192E-01	.333	15.1	90.9	90.9	.285
290	.412E-01	.363	15.1	90.9	90.9	.929
291	.671E-01	.399	15.1	90.9	90.9	.831
292	.569E-01	.385	15.1	90.9	90.9	.977
293	.711E-02	.316	15.1	90.9	90.9	.121
294	.587E-02	.315	15.1	90.9	90.9	.402
295	.289E-01	.346	15.1	90.9	90.9	.590
296	.589E-01	.388	15.1	90.9	90.9	.683
297	.351E-01	.355	15.1	90.9	90.9	.420
298	.411E-01	.363	15.1	90.9	90.9	.462
299	.228E-01	.338	15.1	90.9	90.9	.332
300	.355E-01	.356	15.1	90.9	90.9	.755
301	.699E-01	.403	15.1	90.9	90.9	.754
302	.690E-01	.402	15.1	90.9	90.9	.908
303	.113E-01	.322	15.1	90.9	90.9	.127
304	.395E-01	.361	15.1	90.9	90.9	.485
305	.178E-02	.309	15.1	90.9	90.9	.224E-01
306	.233E-01	.339	15.1	90.9	90.9	.194
307	.287E-02	.311	15.1	90.9	90.9	.764E-01
308	.296E-01	.348	15.1	90.9	90.9	.816
309	.458E-01	.370	15.1	90.9	90.9	.793
310	.591E-01	.388	15.1	90.9	90.9	.724

311	.628E-01	.352	15.1	90.9	90.9	.968
312	.321E-01	.351	15.1	90.9	90.9	.367
313	.354E-01	.356	15.1	90.9	90.9	.610
314	.658E-01	.397	15.1	90.9	90.9	.891
315	.305E-01	.349	15.1	90.9	90.9	.773
316	.305E-01	.349	15.1	90.9	90.9	.480
317	.802E-01	.417	15.1	90.9	90.9	.930
318	.808E-01	.418	15.1	90.9	90.9	.914
319	.244E-02	.310	15.1	90.9	90.9	.576E-01
320	.863E-01	.426	15.1	90.9	90.9	.781
321	.352E-01	.355	15.1	90.9	90.9	.737
322	.149E-01	.327	15.1	90.9	90.9	.273
323	.445E-01	.368	15.1	90.9	90.9	.702
324	.264E-01	.343	15.1	90.9	90.9	.247
325	.161E-01	.329	15.1	90.9	90.9	.818
326	.127E-02	.308	15.1	90.9	90.9	.248E-01
327	.999E-01	.445	15.1	90.9	90.9	.971
328	.403E-01	.362	15.1	90.9	90.9	.497
329	.970E-01	.441	15.1	90.9	90.9	.955
330	.408E-01	.363	15.1	90.9	90.9	.766
331	.597E-01	.389	15.1	90.9	90.9	.601
332	.582E-01	.387	15.1	90.9	90.9	.619
333	.866E-01	.426	15.1	90.9	90.9	.786
334	.122E-01	.327	15.1	90.9	90.9	.225
335	.315E-01	.350	15.1	90.9	90.9	.377
336	.854E-01	.424	15.1	90.9	90.9	.827
337	.402E-01	.362	15.1	90.9	90.9	.786
338	.107	.454	15.1	90.9	90.9	.988
339	.465E-01	.371	15.1	90.9	90.9	.483
340	.288E-01	.346	15.1	90.9	90.9	.489
341	.540E-01	.381	15.1	90.9	90.9	.715
342	.861E-02	.318	15.1	90.9	90.9	.287
343	.349E-01	.355	15.1	90.9	90.9	.911
344	.167E-01	.330	15.1	90.9	90.9	.282
345	.573E-01	.386	15.1	90.9	90.9	.939
346	.131E-01	.325	15.1	90.9	90.9	.145
347	.903E-02	.319	15.1	90.9	90.9	.241
348	.684E-01	.401	15.1	90.9	90.9	.632
349	.554E-01	.383	15.1	90.9	90.9	.675
350	.381E-01	.359	15.1	90.9	90.9	.757
351	.580E-01	.387	15.1	90.9	90.9	.802
352	.480E-01	.373	15.1	90.9	90.9	.536
353	.556E-01	.383	15.1	90.9	90.9	.941
354	.318E-02	.311	15.1	90.9	90.9	.568E-01
355	.399E-01	.362	15.1	90.9	90.9	.970
356	.599E-01	.389	15.1	90.9	90.9	.886
357	.266E-01	.343	15.1	90.9	90.9	.249
358	.532E-01	.380	15.1	90.9	90.9	.647
359	.189E-01	.333	15.1	90.9	90.9	.332
360	.472E-01	.372	15.1	90.9	90.9	.758
361	.353E-01	.355	15.1	90.9	90.9	.760
362	.165E-01	.329	15.1	90.9	90.9	.426
363	.525E-01	.379	15.1	90.9	90.9	.451
364	.490E-02	.313	15.1	90.9	90.9	.539E-01
365	.265E-01	.343	15.1	90.9	90.9	.956
366	.946E-02	.320	15.1	90.9	90.9	.165
367	.674E-01	.400	15.1	90.9	90.9	.755
368	.530E-01	.380	15.1	90.9	90.9	.537
369	.420E-01	.365	15.1	90.9	90.9	.501
370	.163E-01	.329	15.1	90.9	90.9	.222
371	.340E-01	.354	15.1	90.9	90.9	.381
372	.326E-01	.352	15.1	90.9	90.9	.914
373	.644E-02	.316	15.1	90.9	90.9	.762E-01
374	.826E-01	.421	15.1	90.9	90.9	.920
375	.910E-01	.432	15.1	90.9	90.9	.798
376	.227E-02	.310	15.1	90.9	90.9	.104

378	.895E-01	.430	15.1	90.9	90.9	.874
379	.285E-01	.346	15.1	90.9	90.9	.339
380	.100	.445	15.1	90.9	90.9	.991
381	.609E-01	.391	15.1	90.9	90.9	.928
382	.467E-01	.371	15.1	90.9	90.9	.430
383	.432E-01	.366	15.1	90.9	90.9	.493
384	.248E-01	.341	15.1	90.9	90.9	.369
385	.418E-01	.364	15.1	90.9	90.9	.620
386	.223E-01	.337	15.1	90.9	90.9	.585
387	.388E-01	.360	15.1	90.9	90.9	.831
388	.547E-01	.382	15.1	90.9	90.9	.727
389	.241E-01	.340	15.1	90.9	90.9	.273
390	.821E-01	.420	15.1	90.9	90.9	.891
391	.490E-01	.374	15.1	90.9	90.9	.789
392	.965E-01	.440	15.1	90.9	90.9	.916
393	.160E-01	.329	15.1	90.9	90.9	.972
394	.734E-02	.317	15.1	90.9	90.9	.774E-01
395	.893E-02	.319	15.1	90.9	90.9	.468
396	.655E-02	.316	15.1	90.9	90.9	.886E-01
397	.159E-01	.328	15.1	90.9	90.9	.170
398	.356E-01	.356	15.1	90.9	90.9	.573
399	.521E-01	.379	15.1	90.9	90.9	.732
400	.625E-01	.393	15.1	90.9	90.9	.752
401	.510E-01	.377	15.1	90.9	90.9	.677
402	.294E-01	.347	15.1	90.9	90.9	.752
403	.932E-01	.435	15.1	90.9	90.9	.702
404	.312E-02	.311	15.1	90.9	90.9	.312E-01
405	.353E-01	.355	15.1	90.9	90.9	.507
406	.666E-02	.316	15.1	90.9	90.9	.183
407	.193E-01	.333	15.1	90.9	90.9	.184
408	.852E-01	.424	15.1	90.9	90.9	.861
409	.119E-01	.323	15.1	90.9	90.9	.151
410	.565E-02	.314	15.1	90.9	90.9	.185
411	.163E-01	.329	15.1	90.9	90.9	.259
412	.361E-01	.356	15.1	90.9	90.9	.460
413	.701E-01	.403	15.1	90.9	90.9	.862
414	.603E-01	.390	15.1	90.9	90.9	.984
415	.392E-01	.361	15.1	90.9	90.9	.491
416	.932E-01	.435	15.1	90.9	90.9	.832
417	.597E-01	.389	15.1	90.9	90.9	.598
418	.215E-01	.336	15.1	90.9	90.9	.225
419	.547E-01	.382	15.1	90.9	90.9	.500
420	.585E-01	.387	15.1	90.9	90.9	.472
421	.730E-01	.407	15.1	90.9	90.9	.767
422	.245E-01	.340	15.1	90.9	90.9	.350
423	.652E-01	.397	15.1	90.9	90.9	.533
424	.252E-02	.310	15.1	90.9	90.9	.529E-01
425	.184E-01	.332	15.1	90.9	90.9	.454
426	.819E-01	.420	15.1	90.9	90.9	.915
427	.689E-01	.402	15.1	90.9	90.9	.658
428	.460E-02	.313	15.1	90.9	90.9	.569E-01
429	.909E-01	.432	15.1	90.9	90.9	.986
430	.373E-01	.358	15.1	90.9	90.9	.390
431	.509E-02	.314	15.1	90.9	90.9	.273
432	.315E-01	.350	15.1	90.9	90.9	.281
433	.596E-01	.389	15.1	90.9	90.9	.604
434	.123	.477	15.1	90.9	90.9	.948
435	.811E-02	.318	15.1	90.9	90.9	.105
436	.678E-01	.400	15.1	90.9	90.9	.867
437	.156E-01	.328	15.1	90.9	90.9	.125
438	.140E-01	.326	15.1	90.9	90.9	.299
439	.873E-01	.427	15.1	90.9	90.9	.757
440	.394E-01	.361	15.1	90.9	90.9	.684
441	.359E-01	.356	15.1	90.9	90.9	.528
442	.486E-01	.374	15.1	90.9	90.9	.530

443	.219E-01	.316	15.1	90.9	90.9	.834E-01
444	.102E-01	.321	15.1	90.9	90.9	.250
445	.126E-01	.324	15.1	90.9	90.9	.210
446	.426E-01	.365	15.1	90.9	90.9	.741
447	.334E-02	.311	15.1	90.9	90.9	.636E-01
448	.600E-02	.315	15.1	90.9	90.9	.152
449	.171E-01	.330	15.1	90.9	90.9	.238
450	.319E-01	.351	15.1	90.9	90.9	.930
451	.134E-01	.325	15.1	90.9	90.9	.360
452	.755E-01	.411	15.1	90.9	90.9	.841
453	.371E-01	.358	15.1	90.9	90.9	.687
454	.196E-01	.334	15.1	90.9	90.9	.905
455	.778E-02	.317	15.1	90.9	90.9	.777E-01
456	.568E-02	.314	15.1	90.9	90.9	.186
457	.547E-02	.314	15.1	90.9	90.9	.278
458	.361E-02	.312	15.1	90.9	90.9	.146
459	.153E-01	.328	15.1	90.9	90.9	.670
460	.186E-01	.332	15.1	90.9	90.9	.249
461	.480E-01	.373	15.1	90.9	90.9	.522
462	.420E-01	.365	15.1	90.9	90.9	.597
463	.346E-01	.354	15.1	90.9	90.9	.806
464	.777E-01	.414	15.1	90.9	90.9	.875
465	.366E-01	.357	15.1	90.9	90.9	.427
466	.595E-01	.389	15.1	90.9	90.9	.742
467	.864E-01	.426	15.1	90.9	90.9	.931
468	.107E-01	.321	15.1	90.9	90.9	.279
469	.327E-02	.311	15.1	90.9	90.9	.151
470	.156E-02	.309	15.1	90.9	90.9	.199E-01
471	.636E-01	.394	15.1	90.9	90.9	.647
472	.403E-01	.362	15.1	90.9	90.9	.804
473	.165E-01	.329	15.1	90.9	90.9	.154
474	.212E-01	.336	15.1	90.9	90.9	.281
475	.698E-01	.403	15.1	90.9	90.9	.744
476	.810E-01	.418	15.1	90.9	90.9	.890
477	.101E-01	.321	15.1	90.9	90.9	.141
478	.284E-01	.346	15.1	90.9	90.9	.259
479	.278E-01	.345	15.1	90.9	90.9	.517
480	.844E-01	.423	15.1	90.9	90.9	.765
481	.635E-01	.394	15.1	90.9	90.9	.963
482	.286E-01	.346	15.1	90.9	90.9	.313
483	.179E-01	.331	15.1	90.9	90.9	.415
484	.976E-01	.441	15.1	90.9	90.9	.855
485	.436E-01	.367	15.1	90.9	90.9	.492
486	.349E-01	.355	15.1	90.9	90.9	.321
487	.231E-01	.338	15.1	90.9	90.9	.352
488	.611E-01	.391	15.1	90.9	90.9	.470
489	.563E-01	.384	15.1	90.9	90.9	.553
490	.643E-01	.395	15.1	90.9	90.9	.664
491	.308E-01	.349	15.1	90.9	90.9	.348
492	.841E-01	.423	15.1	90.9	90.9	.969
493	.249E-01	.341	15.1	90.9	90.9	.241
494	.721E-01	.406	15.1	90.9	90.9	.906
495	.837E-01	.422	15.1	90.9	90.9	.764
496	.514E-02	.314	15.1	90.9	90.9	.367
497	.122E-02	.308	15.1	90.9	90.9	.388E-01
498	.790E-01	.416	15.1	90.9	90.9	.988
499	.458E-01	.370	15.1	90.9	90.9	.674
500	.553E-01	.383	15.1	90.9	90.9	.834

SOIL PCOCs: MODELED FROM WOOD PROCESS AREA TO THE ELIZABETH RIVER

FILE: MCER.INP/OUT

SOURCE SPECIFIC

SIMULATION RUN FOR ALL PCOCs

Infiltration rate	m/yr	0.317
Area of waste disposal unit	m^2	0.100E+05
Duration of pulse	yr	-999.
Source decay constant	1/yr	0.000E+00
Initial concentration at landfill	mg/l	100.

RUN NO.	QD m/yr	SIGMA m	L (m)	WID (m)	DF
1	.650	16.7	100.	100.	.730
2	.322	16.7	100.	100.	.771
3	.657	16.7	100.	100.	.645
4	.742	16.7	100.	100.	.499
5	.689	16.7	100.	100.	.868
6	.519	16.7	100.	100.	.743
7	.547	16.7	100.	100.	.527
8	.576	16.7	100.	100.	.916
9	.709	16.7	100.	100.	.730
10	.558	16.7	100.	100.	.581
11	.347	16.7	100.	100.	.855
12	.540	16.7	100.	100.	.736
13	.614	16.7	100.	100.	.659
14	.340	16.7	100.	100.	.783
15	.691	16.7	100.	100.	.660
16	.471	16.7	100.	100.	.870
17	.371	16.7	100.	100.	.761
18	.500	16.7	100.	100.	.928
19	.614	16.7	100.	100.	.750
20	.541	16.7	100.	100.	.735
21	.566	16.7	100.	100.	.766
22	.621	16.7	100.	100.	.702
23	.501	16.7	100.	100.	.656
24	.494	16.7	100.	100.	.726
25	.548	16.7	100.	100.	.803
26	.343	16.7	100.	100.	.813
27	.427	16.7	100.	100.	.568
28	.560	16.7	100.	100.	.721
29	.520	16.7	100.	100.	.900
30	.739	16.7	100.	100.	.608
31	.594	16.7	100.	100.	.696
32	.360	16.7	100.	100.	.814
33	.399	16.7	100.	100.	.990
34	.545	16.7	100.	100.	.741
35	.709	16.7	100.	100.	.630
36	.629	16.7	100.	100.	.803
37	.512	16.7	100.	100.	.880
38	.522	16.7	100.	100.	.705
39	.537	16.7	100.	100.	.708
40	.388	16.7	100.	100.	.637
41	.540	16.7	100.	100.	.592
42	.486	16.7	100.	100.	.608
43	.623	16.7	100.	100.	.632
44	.724	16.7	100.	100.	.725
45	.645	16.7	100.	100.	.801

47	.353	16.7	100.	100.	.596
48	.582	16.7	100.	100.	.631
49	.381	16.7	100.	100.	.976
50	.616	16.7	100.	100.	.858
51	.597	16.7	100.	100.	.628
52	.468	16.7	100.	100.	.936
53	.379	16.7	100.	100.	.708
54	.733	16.7	100.	100.	.622
55	.444	16.7	100.	100.	.793
56	.625	16.7	100.	100.	.811
57	.718	16.7	100.	100.	.628
58	.466	16.7	100.	100.	.668
59	.356	16.7	100.	100.	.871
60	.364	16.7	100.	100.	.628
61	.583	16.7	100.	100.	.543
62	.393	16.7	100.	100.	.726
63	.342	16.7	100.	100.	.921
64	.325	16.7	100.	100.	.876
65	.414	16.7	100.	100.	.804
66	.514	16.7	100.	100.	.591
67	.525	16.7	100.	100.	.766
68	.394	16.7	100.	100.	.578
69	.439	16.7	100.	100.	.900
70	.576	16.7	100.	100.	.889
71	.646	16.7	100.	100.	.578
72	.555	16.7	100.	100.	.667
73	.650	16.7	100.	100.	.613
74	.614	16.7	100.	100.	.572
75	.667	16.7	100.	100.	.539
76	.589	16.7	100.	100.	.729
77	.645	16.7	100.	100.	.917
78	.653	16.7	100.	100.	.655
79	.542	16.7	100.	100.	.727
80	.736	16.7	100.	100.	.599
81	.566	16.7	100.	100.	.593
82	.350	16.7	100.	100.	.781
83	.310	16.7	100.	100.	.737
84	.328	16.7	100.	100.	.600
85	.741	16.7	100.	100.	.730
86	.361	16.7	100.	100.	.875
87	.398	16.7	100.	100.	.905
88	.740	16.7	100.	100.	.739
89	.365	16.7	100.	100.	.797
90	.688	16.7	100.	100.	.530
91	.408	16.7	100.	100.	.726
92	.577	16.7	100.	100.	.581
93	.691	16.7	100.	100.	.807
94	.652	16.7	100.	100.	.803
95	.645	16.7	100.	100.	.994
96	.373	16.7	100.	100.	.903
97	.520	16.7	100.	100.	.750
98	.674	16.7	100.	100.	.651
99	.654	16.7	100.	100.	.649
100	.399	16.7	100.	100.	.726
101	.480	16.7	100.	100.	.799
102	.713	16.7	100.	100.	.720
103	.351	16.7	100.	100.	.587
104	.419	16.7	100.	100.	.648
105	.331	16.7	100.	100.	.969
106	.525	16.7	100.	100.	.890
107	.531	16.7	100.	100.	.719
108	.348	16.7	100.	100.	.674
109	.357	16.7	100.	100.	.667
110	.742	16.7	100.	100.	.734
111	.428	16.7	100.	100.	.542

112	.385	16.7	100.	100.	.832
113	.479	16.7	100.	100.	.961
114	.735	16.7	100.	100.	.825
115	.440	16.7	100.	100.	.797
116	.347	16.7	100.	100.	.726
117	.575	16.7	100.	100.	1.00
118	.551	16.7	100.	100.	.735
119	.557	16.7	100.	100.	.664
120	.511	16.7	100.	100.	.688
121	.560	16.7	100.	100.	.611
122	.743	16.7	100.	100.	.573
123	.431	16.7	100.	100.	.881
124	.498	16.7	100.	100.	.954
125	.390	16.7	100.	100.	.923
126	.622	16.7	100.	100.	.695
127	.530	16.7	100.	100.	.949
128	.474	16.7	100.	100.	.705
129	.658	16.7	100.	100.	.712
130	.413	16.7	100.	100.	.815
131	.350	16.7	100.	100.	.769
132	.659	16.7	100.	100.	.824
133	.633	16.7	100.	100.	.817
134	.564	16.7	100.	100.	.758
135	.464	16.7	100.	100.	.920
136	.646	16.7	100.	100.	.913
137	.437	16.7	100.	100.	.673
138	.528	16.7	100.	100.	.714
139	.706	16.7	100.	100.	.578
140	.674	16.7	100.	100.	.658
141	.716	16.7	100.	100.	.978
142	.713	16.7	100.	100.	.577
143	.524	16.7	100.	100.	.842
144	.590	16.7	100.	100.	.829
145	.614	16.7	100.	100.	.660
146	.695	16.7	100.	100.	.994
147	.704	16.7	100.	100.	.966
148	.337	16.7	100.	100.	.885
149	.711	16.7	100.	100.	.998
150	.385	16.7	100.	100.	.763
151	.557	16.7	100.	100.	.713
152	.448	16.7	100.	100.	.844
153	.645	16.7	100.	100.	.709
154	.467	16.7	100.	100.	.658
155	.681	16.7	100.	100.	.952
156	.387	16.7	100.	100.	.653
157	.723	16.7	100.	100.	.874
158	.607	16.7	100.	100.	.991
159	.374	16.7	100.	100.	.886
160	.337	16.7	100.	100.	.588
161	.646	16.7	100.	100.	.989
162	.683	16.7	100.	100.	.625
163	.459	16.7	100.	100.	.856
164	.683	16.7	100.	100.	.609
165	.375	16.7	100.	100.	.620
166	.366	16.7	100.	100.	.956
167	.605	16.7	100.	100.	.782
168	.401	16.7	100.	100.	.600
169	.363	16.7	100.	100.	.716
170	.358	16.7	100.	100.	.743
171	.619	16.7	100.	100.	.620
172	.400	16.7	100.	100.	.918
173	.687	16.7	100.	100.	.851
174	.394	16.7	100.	100.	.696
175	.651	16.7	100.	100.	.880
176	.375	16.7	100.	100.	.490
177	.579	16.7	100.	100.	.783

178	.607	16.7	100.	100.	.812
179	.653	16.7	100.	100.	.878
180	.685	16.7	100.	100.	.683
181	.566	16.7	100.	100.	.670
182	.486	16.7	100.	100.	.693
183	.722	16.7	100.	100.	.733
184	.713	16.7	100.	100.	.850
185	.380	16.7	100.	100.	.987
186	.688	16.7	100.	100.	.683
187	.340	16.7	100.	100.	.814
188	.474	16.7	100.	100.	.813
189	.327	16.7	100.	100.	.621
190	.398	16.7	100.	100.	.645
191	.548	16.7	100.	100.	.693
192	.685	16.7	100.	100.	.965
193	.562	16.7	100.	100.	.940
194	.565	16.7	100.	100.	.766
195	.453	16.7	100.	100.	.955
196	.586	16.7	100.	100.	.760
197	.622	16.7	100.	100.	.752
198	.386	16.7	100.	100.	.890
199	.648	16.7	100.	100.	.680
200	.670	16.7	100.	100.	.649
201	.690	16.7	100.	100.	.682
202	.323	16.7	100.	100.	.700
203	.656	16.7	100.	100.	.552
204	.567	16.7	100.	100.	.625
205	.329	16.7	100.	100.	.981
206	.648	16.7	100.	100.	.609
207	.374	16.7	100.	100.	.621
208	.328	16.7	100.	100.	.848
209	.390	16.7	100.	100.	.738
210	.378	16.7	100.	100.	.917
211	.348	16.7	100.	100.	.625
212	.357	16.7	100.	100.	.886
213	.517	16.7	100.	100.	.749
214	.515	16.7	100.	100.	.913
215	.317	16.7	100.	100.	.853
216	.556	16.7	100.	100.	.897
217	.477	16.7	100.	100.	.672
218	.586	16.7	100.	100.	.632
219	.365	16.7	100.	100.	.729
220	.476	16.7	100.	100.	.838
221	.739	16.7	100.	100.	.952
222	.702	16.7	100.	100.	.626
223	.625	16.7	100.	100.	.572
224	.457	16.7	100.	100.	.630
225	.665	16.7	100.	100.	.648
226	.680	16.7	100.	100.	.876
227	.581	16.7	100.	100.	.697
228	.504	16.7	100.	100.	.812
229	.604	16.7	100.	100.	.696
230	.373	16.7	100.	100.	.731
231	.657	16.7	100.	100.	.906
232	.567	16.7	100.	100.	.692
233	.642	16.7	100.	100.	.711
234	.696	16.7	100.	100.	.602
235	.454	16.7	100.	100.	.776
236	.508	16.7	100.	100.	.931
237	.455	16.7	100.	100.	.830
238	.638	16.7	100.	100.	.686
239	.694	16.7	100.	100.	.938
240	.503	16.7	100.	100.	.777
241	.527	16.7	100.	100.	.890
242	.426	16.7	100.	100.	.853
243	.469	16.7	100.	100.	.708

244	.528	16.7	100.	100.	.658
245	.390	16.7	100.	100.	.658
246	.547	16.7	100.	100.	.696
247	.387	16.7	100.	100.	.719
248	.633	16.7	100.	100.	.704
249	.569	16.7	100.	100.	.893
250	.612	16.7	100.	100.	.662
251	.320	16.7	100.	100.	.957
252	.417	16.7	100.	100.	.789
253	.338	16.7	100.	100.	.703
254	.443	16.7	100.	100.	.715
255	.703	16.7	100.	100.	.517
256	.540	16.7	100.	100.	.777
257	.637	16.7	100.	100.	.633
258	.471	16.7	100.	100.	.649
259	.411	16.7	100.	100.	.679
260	.335	16.7	100.	100.	.729
261	.497	16.7	100.	100.	.870
262	.483	16.7	100.	100.	.551
263	.559	16.7	100.	100.	.776
264	.518	16.7	100.	100.	.718
265	.674	16.7	100.	100.	.662
266	.667	16.7	100.	100.	.791
267	.537	16.7	100.	100.	.948
268	.627	16.7	100.	100.	.965
269	.483	16.7	100.	100.	.899
270	.594	16.7	100.	100.	.682
271	.355	16.7	100.	100.	.688
272	.676	16.7	100.	100.	.618
273	.400	16.7	100.	100.	.883
274	.698	16.7	100.	100.	.790
275	.337	16.7	100.	100.	.956
276	.718	16.7	100.	100.	.788
277	.620	16.7	100.	100.	.761
278	.652	16.7	100.	100.	.694
279	.367	16.7	100.	100.	.699
280	.479	16.7	100.	100.	.947
281	.557	16.7	100.	100.	.595
282	.389	16.7	100.	100.	.907
283	.564	16.7	100.	100.	.752
284	.672	16.7	100.	100.	.576
285	.486	16.7	100.	100.	.571
286	.355	16.7	100.	100.	.688
287	.382	16.7	100.	100.	.945
288	.609	16.7	100.	100.	.866
289	.623	16.7	100.	100.	.750
290	.690	16.7	100.	100.	.610
291	.655	16.7	100.	100.	.593
292	.587	16.7	100.	100.	.671
293	.451	16.7	100.	100.	.883
294	.474	16.7	100.	100.	.579
295	.509	16.7	100.	100.	.698
296	.669	16.7	100.	100.	.508
297	.499	16.7	100.	100.	.623
298	.528	16.7	100.	100.	.595
299	.577	16.7	100.	100.	.728
300	.724	16.7	100.	100.	.697
301	.571	16.7	100.	100.	.784
302	.620	16.7	100.	100.	.960
303	.414	16.7	100.	100.	.692
304	.699	16.7	100.	100.	.646
305	.514	16.7	100.	100.	.639
306	.439	16.7	100.	100.	.755
307	.739	16.7	100.	100.	.858
308	.405	16.7	100.	100.	.772
309	.578	16.7	100.	100.	.714

310	.519	16.7	100.	100.	.717
311	.360	16.7	100.	100.	.883
312	.542	16.7	100.	100.	.609
313	.458	16.7	100.	100.	.992
314	.560	16.7	100.	100.	.817
315	.383	16.7	100.	100.	.827
316	.736	16.7	100.	100.	.922
317	.511	16.7	100.	100.	.863
318	.467	16.7	100.	100.	.787
319	.695	16.7	100.	100.	.927
320	.447	16.7	100.	100.	.636
321	.462	16.7	100.	100.	.817
322	.521	16.7	100.	100.	.665
323	.713	16.7	100.	100.	.594
324	.402	16.7	100.	100.	.920
325	.597	16.7	100.	100.	.949
326	.444	16.7	100.	100.	.779
327	.719	16.7	100.	100.	.782
328	.356	16.7	100.	100.	.609
329	.466	16.7	100.	100.	.896
330	.527	16.7	100.	100.	.737
331	.423	16.7	100.	100.	.783
332	.458	16.7	100.	100.	.801
333	.482	16.7	100.	100.	.663
334	.428	16.7	100.	100.	.767
335	.413	16.7	100.	100.	.624
336	.434	16.7	100.	100.	.629
337	.442	16.7	100.	100.	.750
338	.596	16.7	100.	100.	.673
339	.437	16.7	100.	100.	.984
340	.652	16.7	100.	100.	.948
341	.707	16.7	100.	100.	.595
342	.469	16.7	100.	100.	.519
343	.614	16.7	100.	100.	.891
344	.548	16.7	100.	100.	.682
345	.590	16.7	100.	100.	.585
346	.662	16.7	100.	100.	.831
347	.357	16.7	100.	100.	.796
348	.652	16.7	100.	100.	.999
349	.742	16.7	100.	100.	.726
350	.511	16.7	100.	100.	.906
351	.649	16.7	100.	100.	.667
352	.673	16.7	100.	100.	.912
353	.384	16.7	100.	100.	.983
354	.491	16.7	100.	100.	.947
355	.656	16.7	100.	100.	.593
356	.401	16.7	100.	100.	.865
357	.490	16.7	100.	100.	.789
358	.427	16.7	100.	100.	.974
359	.337	16.7	100.	100.	.728
360	.359	16.7	100.	100.	.977
361	.390	16.7	100.	100.	.676
362	.712	16.7	100.	100.	.832
363	.473	16.7	100.	100.	.923
364	.494	16.7	100.	100.	.689
365	.620	16.7	100.	100.	.877
366	.519	16.7	100.	100.	.989
367	.611	16.7	100.	100.	.703
368	.477	16.7	100.	100.	.642
369	.528	16.7	100.	100.	.623
370	.614	16.7	100.	100.	.621
371	.668	16.7	100.	100.	.647
372	.365	16.7	100.	100.	.795
373	.725	16.7	100.	100.	.678
374	.537	16.7	100.	100.	.957
375	.709	16.7	100.	100.	.606

376	.455	16.7	100.	100.	.879
377	.310	16.7	100.	100.	.857
378	.572	16.7	100.	100.	.710
379	.509	16.7	100.	100.	.872
380	.584	16.7	100.	100.	.878
381	.645	16.7	100.	100.	.791
382	.421	16.7	100.	100.	.678
383	.490	16.7	100.	100.	.558
384	.482	16.7	100.	100.	.707
385	.593	16.7	100.	100.	.687
386	.568	16.7	100.	100.	.872
387	.625	16.7	100.	100.	.877
388	.647	16.7	100.	100.	.598
389	.494	16.7	100.	100.	.991
390	.490	16.7	100.	100.	.814
391	.311	16.7	100.	100.	.730
392	.364	16.7	100.	100.	.746
393	.480	16.7	100.	100.	.843
394	.679	16.7	100.	100.	.920
395	.736	16.7	100.	100.	.787
396	.353	16.7	100.	100.	.905
397	.699	16.7	100.	100.	.723
398	.535	16.7	100.	100.	.956
399	.363	16.7	100.	100.	.944
400	.409	16.7	100.	100.	.692
401	.536	16.7	100.	100.	.663
402	.419	16.7	100.	100.	.802
403	.472	16.7	100.	100.	.540
404	.310	16.7	100.	100.	.833
405	.615	16.7	100.	100.	.684
406	.535	16.7	100.	100.	.786
407	.714	16.7	100.	100.	.548
408	.709	16.7	100.	100.	.780
409	.432	16.7	100.	100.	.325
410	.472	16.7	100.	100.	.604
411	.519	16.7	100.	100.	.599
412	.711	16.7	100.	100.	.690
413	.436	16.7	100.	100.	.689
414	.576	16.7	100.	100.	.595
415	.471	16.7	100.	100.	.611
416	.350	16.7	100.	100.	.778
417	.413	16.7	100.	100.	.926
418	.648	16.7	100.	100.	.868
419	.556	16.7	100.	100.	.578
420	.413	16.7	100.	100.	.972
421	.609	16.7	100.	100.	.826
422	.632	16.7	100.	100.	.929
423	.510	16.7	100.	100.	.756
424	.330	16.7	100.	100.	.628
425	.494	16.7	100.	100.	.656
426	.431	16.7	100.	100.	.609
427	.670	16.7	100.	100.	.748
428	.526	16.7	100.	100.	.779
429	.606	16.7	100.	100.	.753
430	.648	16.7	100.	100.	.741
431	.427	16.7	100.	100.	.785
432	.589	16.7	100.	100.	.683
433	.536	16.7	100.	100.	.653
434	.326	16.7	100.	100.	.375
435	.681	16.7	100.	100.	.823
436	.741	16.7	100.	100.	.585
437	.505	16.7	100.	100.	.595
438	.375	16.7	100.	100.	.772
439	.315	16.7	100.	100.	.614
440	.411	16.7	100.	100.	.900
441	.601	16.7	100.	100.	.978

442	.514	16.7	100.	100.	.[illegible]
443	.427	16.7	100.	100.	.747
444	.552	16.7	100.	100.	.961
445	.688	16.7	100.	100.	.889
446	.415	16.7	100.	100.	.667
447	.658	16.7	100.	100.	.703
448	.577	16.7	100.	100.	.774
449	.614	16.7	100.	100.	.679
450	.686	16.7	100.	100.	.661
451	.577	16.7	100.	100.	.647
452	.524	16.7	100.	100.	.720
453	.655	16.7	100.	100.	.658
454	.507	16.7	100.	100.	.670
455	.620	16.7	100.	100.	.636
456	.582	16.7	100.	100.	.684
457	.427	16.7	100.	100.	.306
458	.635	16.7	100.	100.	.920
459	.353	16.7	100.	100.	.796
460	.729	16.7	100.	100.	.753
461	.696	16.7	100.	100.	.946
462	.416	16.7	100.	100.	.705
463	.542	16.7	100.	100.	.723
464	.666	16.7	100.	100.	.709
465	.698	16.7	100.	100.	.657
466	.728	16.7	100.	100.	.581
467	.455	16.7	100.	100.	.654
468	.412	16.7	100.	100.	.614
469	.514	16.7	100.	100.	.888
470	.722	16.7	100.	100.	.763
471	.635	16.7	100.	100.	.972
472	.647	16.7	100.	100.	.641
473	.490	16.7	100.	100.	.916
474	.468	16.7	100.	100.	.896
475	.334	16.7	100.	100.	.913
476	.473	16.7	100.	100.	.672
477	.551	16.7	100.	100.	.671
478	.415	16.7	100.	100.	.969
479	.741	16.7	100.	100.	.601
480	.620	16.7	100.	100.	.737
481	.667	16.7	100.	100.	.800
482	.335	16.7	100.	100.	.687
483	.738	16.7	100.	100.	.646
484	.669	16.7	100.	100.	.795
485	.422	16.7	100.	100.	.718
486	.658	16.7	100.	100.	.720
487	.375	16.7	100.	100.	.811
488	.524	16.7	100.	100.	.933
489	.427	16.7	100.	100.	.648
490	.463	16.7	100.	100.	.691
491	.550	16.7	100.	100.	.744
492	.444	16.7	100.	100.	.885
493	.365	16.7	100.	100.	.627
494	.504	16.7	100.	100.	.707
495	.623	16.7	100.	100.	.818
496	.367	16.7	100.	100.	.723
497	.546	16.7	100.	100.	.703
498	.403	16.7	100.	100.	.816
499	.642	16.7	100.	100.	.981
500	.477	16.7	100.	100.	.680

APPENDIX B-5

PRINT-OUTS OF AQUIFER.VAR FILES FOR MONTE-CARLO MODELS OF STEADY-STATE CONDITIONS

SOIL PCOCs: MODELED FROM WESTERN SOURCE (GROUNDWATER MOUND AREA) TO MC102

FILE: MC102.INP/OUT

AQUIFER SPECIFIC

SIMULATION RUN FOR ALL PCOCs

Longitudinal dispersivity	m	18.3
Transverse dispersivity	m	6.10
Vertical dispersivity	m	1.02
Well distance from site	m	193.
Angle off center	degree	0.000E+00

RUN NO.	DIAM cm	THETAS	RHOB g/cc	BAQFR m	DKS m/yr	SS	TEMP C	PH	FOC	Z1 (m)	HSOURC m	VEL m/yr	RETARD
1	.999E-01	.343	1.52	6.02	372.	.859E-02	20.9	8.52	.252E-02	2.27	6.02	9.33	.485E+05
2	.937E-01	.394	1.53	5.35	493.	.432E-02	19.9	8.01	.274E-02	1.75	5.35	5.40	.189E+05
3	.248E-01	.284	1.35	5.63	366.	.598E-02	23.5	8.55	.375E-02	.952	5.63	7.72	.651E+05
4	.347E-01	.541	1.43	5.58	380.	.710E-02	19.5	8.17	.404E-02	2.93	5.58	4.99	.491E+05
5	.573E-02	.395	1.71	5.83	460.	.802E-02	23.8	8.49	.388E-02	3.50	5.83	9.33	.783E+05
6	.708E-01	.508	1.43	4.83	452.	.799E-02	18.4	7.38	.249E-02	1.05	4.83	7.12	.216E+05
7	.615E-02	.309	1.67	5.39	487.	.549E-02	23.0	7.94	.684E-02	2.51	5.39	8.65	.190E+06
8	.158	.446	1.59	5.27	428.	.837E-02	17.4	8.09	.252E-02	1.13	5.27	8.04	.416E+04
9	.641E-01	.261	1.44	5.90	399.	.998E-02	20.1	6.23	.340E-02	3.82	5.90	15.2	.598E+05
10	.114	.382	1.74	5.56	482.	.741E-02	17.5	8.81	.510E-02	.466	5.56	9.35	.425E+05
11	.700E-02	.451	1.59	6.07	388.	.919E-02	22.1	7.90	.358E-02	5.35	6.07	7.91	.645E+05
12	.123E-01	.312	1.73	4.59	465.	.767E-02	21.9	7.77	.302E-02	4.21	4.59	11.4	.664E+05
13	.668E-01	.436	1.55	5.97	467.	.593E-02	19.3	7.94	.611E-02	1.01	5.97	6.36	.969E+05
14	.292E-01	.504	1.58	5.51	527.	.909E-02	19.8	7.48	.156E-02	1.91	5.51	9.51	.221E+05
15	.928E-02	.395	1.75	5.77	354.	.977E-02	18.2	7.23	.644E-02	3.73	5.77	8.75	.134E+06
16	.183	.444	1.38	5.11	481.	.926E-02	18.2	7.45	.644E-02	1.90	5.11	10.0	.302E+05
17	.179	.341	1.30	5.81	442.	.864E-02	16.0	8.24	.135E-02	3.80	5.81	11.2	.214E+05
18	.181	.375	1.40	5.33	426.	.749E-02	22.5	6.07	.195E-02	.302	5.33	8.51	.236E+05
19	.802E-01	.444	1.75	4.67	350.	.882E-02	16.2	7.16	.196E-02	2.47	4.67	6.94	.505E+04
20	.196E-01	.426	1.53	5.11	395.	.752E-02	23.9	8.56	.502E-02	2.58	5.11	6.98	.269E+05
21	.452E-01	.504	1.27	5.80	510.	.458E-02	24.5	6.20	.386E-02	.701	5.80	4.64	.498E+05
22	.189	.430	1.42	5.05	371.	.570E-02	24.0	7.26	.564E-02	4.41	5.05	4.92	.518E+05
23	.925E-01	.429	1.54	4.93	366.	.157E-02	18.2	7.57	.183E-02	3.55	4.93	1.34	.555E+04
24	.835E-01	.504	1.69	4.93	419.	.768E-02	20.1	6.36	.292E-02	.150	4.93	6.39	.228E+05
25	.153	.369	1.27	5.95	449.	.519E-02	18.6	8.17	.242E-02	4.20	5.95	6.32	.213E+05
26	.168	.512	1.48	6.01	520.	.311E-02	19.6	7.47	.742E-02	2.74	6.01	3.15	.135E+05
27	.136	.541	1.32	5.58	410.	.688E-02	18.8	6.28	.498E-02	3.32	5.58	5.22	.493E+05
28	.452E-01	.474	1.68	5.08	450.	.253E-02	21.5	6.14	.448E-02	4.67	5.08	2.40	.509E+05
29	.540E-01	.507	1.35	5.30	353.	.808E-02	23.7	8.56	.487E-02	1.84	5.30	5.62	.334E+05
30	.197	.402	1.50	4.72	487.	.687E-02	24.8	6.34	.700E-02	4.47	4.72	8.33	.173E+05
31	.132	.294	1.28	5.04	526.	.871E-02	23.3	6.03	.467E-02	.846E-01	5.04	15.6	.267E+05
32	.190	.303	1.67	5.36	500.	.538E-02	21.0	7.52	.488E-02	2.41	5.36	8.88	.992E+05
33	.113	.260	1.34	5.57	442.	.601E-02	24.4	7.69	.515E-02	2.55	5.57	10.2	.769E+05
34	.993E-01	.535	1.35	5.10	475.	.403E-02	16.4	7.04	.359E-02	4.45	5.10	3.58	.288E+05
35	.138	.274	1.45	5.51	471.	.405E-02	19.1	8.26	.232E-02	5.27	5.51	6.97	.245E+05
36	.139	.358	1.68	5.32	350.	.642E-02	25.0	8.67	.462E-02	.782	5.32	6.28	.888E+05
37	.238E-01	.384	1.46	5.95	385.	.677E-02	21.8	6.30	.152E-02	2.28	5.95	6.80	.273E+05
38	.752E-01	.348	1.28	4.98	485.	.977E-02	17.5	8.85	.137E-02	2.69	4.98	13.6	.114E+05
39	.710E-01	.410	1.42	4.83	352.	.344E-02	21.7	8.61	.233E-02	2.34	4.83	2.96	.440E+05
40	.161	.264	1.39	4.82	393.	.809E-02	20.1	8.76	.636E-02	.172	4.82	12.0	.813E+05
41	.150E-01	.341	1.62	5.83	387.	.671E-02	17.3	7.83	.374E-02	.212	5.83	7.62	.733E+04
42	.914E-01	.514	1.32	5.95	380.	.480E-02	23.6	8.02	.105E-02	3.47	5.95	3.55	.513E+04
43	.784E-01	.287	1.39	5.24	394.	.338E-02	24.7	7.37	.146E-02	4.95	5.24	4.64	.344E+05
44	.527E-02	.305	1.32	5.76	353.	.602E-02	24.8	7.42	.232E-02	1.58	5.76	6.97	.165E+05
45	.176E-01	.506	1.58	5.57	419.	.986E-02	21.1	7.60	.258E-02	3.22	5.57	8.18	.186E+04

47	.982E-01	.312	1.67	4.91	504.	.841E-02	16.5	7.19	.134E-02	4.13	4.91	13.6	.366E+04
48	.144E-01	.337	1.40	5.06	532.	.963E-02	21.2	8.61	.425E-02	.666	5.06	15.2	.933E+05
49	.199	.261	1.68	5.57	484.	.347E-02	24.7	7.16	.560E-02	3.27	5.57	6.45	.760E+05
50	.145	.388	1.25	5.37	369.	.591E-02	22.3	6.69	.162E-02	2.05	5.37	5.63	.106E+05
51	.568E-01	.342	1.35	4.92	435.	.688E-02	21.1	8.48	.270E-02	.881	4.92	8.75	.402E+05
52	.142	.397	1.27	5.97	384.	.810E-02	21.9	8.52	.330E-02	2.68	5.97	7.84	.491E+05
53	.238E-01	.410	1.50	6.05	436.	.881E-02	23.3	8.21	.752E-02	1.97	6.05	9.36	.103E+06
54	.605E-01	.301	1.29	6.04	405.	.583E-02	21.0	7.11	.353E-02	1.40	6.04	7.84	.174E+05
55	.136E-01	.544	1.56	5.04	377.	.534E-02	22.0	6.57	.297E-02	4.29	5.04	3.70	.583E+04
56	.143	.499	1.51	5.89	443.	.856E-02	19.4	8.85	.373E-02	2.58	5.89	7.60	.449E+05
57	.610E-01	.366	1.54	5.67	404.	.780E-02	16.6	6.32	.747E-02	.793	5.67	8.61	.544E+05
58	.624E-01	.437	1.74	5.39	386.	.704E-02	19.1	6.39	.401E-02	2.55	5.39	6.22	.561E+05
59	.155	.406	1.65	4.91	362.	.951E-02	21.5	6.99	.622E-02	.200	4.91	8.47	.227E+05
60	.103	.479	1.43	5.03	524.	.513E-02	22.2	6.17	.611E-02	3.71	5.03	5.62	.278E+04
61	.773E-01	.435	1.71	5.25	515.	.631E-02	22.6	7.89	.261E-02	1.97	5.25	7.47	.307E+05
62	.276E-01	.453	1.51	6.06	519.	.901E-02	18.9	8.70	.372E-02	5.46	6.06	10.3	.308E+05
63	.346E-01	.319	1.38	5.88	478.	.877E-02	21.5	7.38	.192E-02	1.95	5.88	13.1	.298E+05
64	.183	.500	1.44	5.49	463.	.533E-02	17.7	6.02	.511E-02	4.93	5.49	4.93	.338E+05
65	.153	.393	1.54	5.17	364.	.832E-02	23.1	7.08	.553E-02	5.00	5.17	7.71	.763E+05
66	.145	.420	1.39	5.14	513.	.791E-02	21.8	6.11	.337E-02	2.97	5.14	9.66	.188E+05
67	.148	.279	1.76	5.96	433.	.909E-02	19.1	8.26	.525E-02	5.79	5.96	14.1	.254E+05
68	.946E-02	.483	1.75	5.08	391.	.886E-02	18.6	7.74	.565E-02	3.11	5.08	7.18	.286E+05
69	.156	.351	1.51	5.80	407.	.669E-02	19.7	8.33	.183E-02	3.03	5.80	7.76	.111E+05
70	.129	.300	1.66	5.28	474.	.496E-02	16.6	8.52	.646E-02	1.92	5.28	7.83	.123E+06
71	.185E-01	.549	1.47	5.06	458.	.624E-02	18.1	6.14	.467E-02	2.97	5.06	5.20	.112E+05
72	.181	.321	1.47	5.92	457.	.901E-02	22.4	6.06	.306E-02	4.54	5.92	12.8	.465E+05
73	.189	.290	1.74	5.68	418.	.897E-02	16.4	7.06	.576E-02	.144	5.68	12.9	.117E+06
74	.477E-01	.454	1.51	5.84	500.	.625E-02	17.8	7.41	.483E-02	4.44	5.84	6.89	.581E+05
75	.165	.441	1.55	5.23	365.	.729E-02	21.3	8.24	.202E-02	1.68	5.23	6.03	.514E+04
76	.371E-01	.402	1.38	5.59	531.	.473E-02	18.6	8.40	.712E-02	2.92	5.59	6.25	.924E+04
77	.901E-01	.524	1.55	5.94	498.	.962E-02	16.3	8.16	.688E-02	2.47	5.94	9.15	.109E+06
78	.146	.397	1.50	5.65	516.	.779E-02	22.2	7.42	.611E-02	5.42	5.65	10.1	.927E+05
79	.541E-01	.424	1.73	5.80	431.	.940E-02	24.8	8.87	.512E-02	4.20	5.80	9.54	.378E+05
80	.166	.378	1.71	6.06	479.	.729E-02	17.5	8.78	.666E-02	.572	6.06	9.23	.159E+06
81	.134	.490	1.43	5.21	467.	.658E-02	23.7	7.83	.155E-02	5.03	5.21	6.27	.370E+04
82	.127	.300	1.27	5.81	416.	.876E-02	19.6	7.94	.273E-02	5.00	5.81	12.1	.467E+05
83	.868E-01	.554	1.29	6.07	536.	.967E-02	17.1	6.75	.552E-02	5.33	6.07	9.35	.613E+05
84	.924E-01	.528	1.70	4.59	396.	.656E-02	22.8	8.23	.535E-02	2.36	4.59	4.92	.346E+04
85	.212E-01	.352	1.53	4.63	377.	.319E-02	22.6	8.36	.571E-02	4.01	4.63	3.41	.894E+05
86	.892E-02	.411	1.45	4.76	468.	.564E-02	22.8	6.96	.496E-02	.775E-01	4.76	6.41	.455E+05
87	.100	.382	1.56	4.77	467.	.754E-02	18.7	6.23	.179E-02	.482	4.77	9.22	.546E+04
88	.136	.360	1.68	5.73	475.	.465E-02	18.4	8.65	.179E-02	2.27	5.73	6.13	.138E+04
89	.515E-01	.472	1.40	5.55	518.	.613E-02	17.4	7.01	.428E-02	4.62	5.55	6.72	.225E+05
90	.123	.263	1.66	6.04	385.	.639E-02	24.7	7.41	.641E-02	.525	6.04	9.38	.359E+05
91	.160	.549	1.65	5.17	519.	.802E-02	20.9	8.39	.419E-02	3.51	5.17	7.59	.687E+05
92	.114	.268	1.69	5.56	363.	.547E-02	24.9	6.06	.195E-02	1.88	5.56	7.41	.493E+05
93	.124	.540	1.52	4.80	515.	.918E-02	19.1	6.85	.581E-02	.608	4.80	8.75	.671E+05
94	.135	.465	1.35	6.06	358.	.676E-02	20.9	6.45	.420E-02	2.48	6.06	5.19	.289E+05
95	.161	.474	1.31	5.06	461.	.758E-02	22.0	6.19	.484E-02	3.58	5.06	7.36	.337E+05
96	.358E-01	.305	1.45	5.91	509.	.534E-02	21.4	7.80	.449E-02	.869	5.91	8.91	.109E+06
97	.105	.354	1.27	5.27	474.	.774E-02	22.4	8.40	.397E-02	4.94	5.27	10.4	.291E+04
98	.639E-01	.429	1.49	5.39	423.	.584E-02	24.5	8.08	.394E-02	.655	5.39	5.76	.652E+05
99	.110	.377	1.29	5.10	505.	.539E-02	23.1	8.87	.293E-02	4.51	5.10	7.22	.427E+04
100	.177	.393	1.27	6.09	498.	.739E-02	16.7	8.25	.579E-02	1.64	6.09	9.36	.761E+05
101	.238E-02	.340	1.27	4.74	491.	.637E-02	19.9	7.25	.325E-02	3.47	4.74	9.21	.318E+05
102	.150	.396	1.45	5.07	508.	.528E-02	18.3	6.75	.670E-02	.469	5.07	6.77	.974E+04
103	.190	.377	1.36	4.66	409.	.121E-02	17.1	8.71	.711E-02	2.16	4.66	1.31	.388E+05
104	.205E-02	.497	1.31	5.72	501.	.959E-02	23.1	6.32	.261E-02	1.85	5.72	9.68	.242E+05
105	.128	.555	1.54	6.05	353.	.555E-02	24.0	7.31	.594E-02	1.72	6.05	3.52	.785E+05
106	.196E-01	.533	1.66	6.01	433.	.978E-02	16.9	8.34	.623E-02	.632	6.01	7.94	.711E+05
107	.181	.272	1.74	5.42	349.	.774E-02	18.6	7.83	.628E-02	3.44	5.42	9.92	.173E+06
108	.791E-01	.446	1.66	6.09	463.	.969E-02	24.3	7.85	.535E-02	2.55	6.09	10.0	.751E+05
109	.513E-01	.426	1.64	5.27	361.	.845E-02	17.5	6.88	.174E-02	2.34	5.27	7.16	.130E+05
110	.183	.503	1.30	5.91	380.	.523E-02	18.7	6.11	.568E-02	5.70	5.91	3.94	.803E+05
111	.165	.365	1.60	4.86	424.	.862E-02	18.2	7.19	.235E-02	3.40	4.86	10.0	.391E+05

113	.171	.268	1.61	5.86	488.	.522E-02	20.2	7.12	.574E-02	4.81	5.86	9.48	.257E+05
114	.153	.491	1.53	4.67	489.	.121E-02	20.6	6.02	.484E-02	4.05	4.67	1.20	.361E+05
115	.564E-01	.373	1.72	4.92	355.	.956E-02	21.5	7.86	.111E-02	4.37	4.92	9.10	.125E+05
116	.160	.442	1.69	5.56	505.	.295E-02	20.6	6.49	.740E-02	2.74	5.56	3.37	.434E+05
117	.299E-01	.295	1.70	5.71	482.	.996E-02	24.3	8.01	.117E-02	1.90	5.71	16.3	.326E+05
118	.189	.419	1.44	4.93	515.	.917E-02	22.8	8.53	.415E-02	.237	4.93	11.3	.526E+05
119	.161	.511	1.56	5.55	499.	.324E-02	21.8	8.80	.415E-02	3.14	5.55	3.17	.383E+05
120	.130	.533	1.56	5.23	428.	.931E-02	19.0	7.98	.594E-02	4.03	5.23	7.47	.609E+05
121	.108	.562	1.74	4.67	384.	.156E-02	20.6	7.91	.706E-02	3.43	4.67	1.06	.102E+06
122	.650E-01	.487	1.63	5.57	373.	.690E-02	16.8	6.35	.735E-02	5.31	5.57	5.29	.911E+05
123	.859E-01	.271	1.47	5.35	504.	.721E-02	23.7	8.07	.501E-02	3.94	5.35	13.4	.123E+06
124	.134E-01	.535	1.39	6.08	449.	.415E-02	18.0	6.39	.641E-02	3.86	6.08	3.48	.498E+05
125	.232E-01	.293	1.59	5.44	445.	.541E-02	16.3	8.96	.392E-02	3.84	5.44	8.22	.809E+05
126	.421E-01	.372	1.44	6.02	483.	.710E-02	18.1	7.51	.139E-02	4.57	6.02	9.21	.113E+05
127	.681E-01	.370	1.63	5.79	448.	.346E-02	20.3	8.00	.156E-02	1.82	5.79	4.19	.269E+04
128	.155	.276	1.57	5.01	525.	.360E-02	20.2	8.44	.457E-02	3.93	5.01	6.86	.561E+05
129	.194	.264	1.34	5.11	462.	.857E-02	23.9	6.88	.510E-02	3.07	5.11	15.0	.142E+06
130	.128	.564	1.51	5.33	444.	.787E-02	20.0	6.48	.105E-02	3.88	5.33	6.20	.921E+04
131	.159	.481	1.57	5.93	378.	.263E-02	24.8	8.37	.567E-02	2.64	5.93	2.07	.987E+05
132	.123	.301	1.45	5.55	376.	.692E-02	22.0	8.48	.450E-02	4.77	5.55	8.65	.846E+05
133	.108	.425	1.52	5.78	474.	.752E-02	16.5	7.27	.236E-02	5.48	5.78	8.38	.107E+05
134	.162	.341	1.44	5.52	462.	.826E-02	17.5	6.63	.587E-02	2.49	5.52	11.2	.148E+05
135	.866E-01	.423	1.51	5.59	431.	.988E-02	18.8	6.29	.710E-02	1.84	5.59	10.1	.102E+06
136	.187	.545	1.44	4.60	496.	.831E-02	16.6	8.93	.633E-02	4.27	4.60	7.57	.915E+05
137	.155	.333	1.33	5.99	495.	.853E-02	23.6	6.60	.712E-02	2.34	5.99	12.7	.901E+05
138	.779E-01	.458	1.25	5.97	450.	.694E-02	22.6	8.25	.732E-02	1.37	5.97	6.82	.489E+05
139	.151	.558	1.37	4.84	396.	.693E-02	22.6	8.77	.415E-02	2.95	4.84	4.92	.136E+04
140	.160	.483	1.32	5.93	511.	.582E-02	20.9	6.62	.151E-02	5.46	5.93	6.16	.124E+05
141	.128	.362	1.71	5.94	365.	.549E-02	17.9	8.72	.578E-02	1.52	5.94	5.54	.922E+04
142	.195	.423	1.31	5.47	438.	.717E-02	18.1	8.87	.705E-02	4.56	5.47	7.43	.803E+05
143	.145	.522	1.74	4.76	462.	.940E-02	22.3	6.78	.633E-02	2.98	4.76	8.33	.590E+05
144	.253E-01	.320	1.56	4.63	471.	.303E-02	22.5	6.71	.233E-02	.155	4.63	4.46	.506E+05
145	.117	.529	1.40	6.04	529.	.857E-02	23.2	6.50	.746E-02	4.98	6.04	8.56	.538E+05
146	.157	.507	1.49	5.26	490.	.464E-02	18.8	7.23	.724E-02	4.41	5.26	4.49	.827E+05
147	.109E-01	.326	1.68	5.74	445.	.838E-02	24.5	8.27	.524E-02	2.45	5.74	11.4	.103E+06
148	.695E-01	.494	1.62	5.41	506.	.670E-02	24.2	8.70	.112E-02	.270	5.41	6.86	.126E+04
149	.159	.507	1.27	6.05	357.	.397E-02	23.7	6.19	.440E-02	4.85	6.05	2.80	.551E+05
150	.307E-01	.439	1.68	5.45	355.	.811E-02	16.4	7.37	.678E-02	4.82	5.45	6.55	.500E+05
151	.533E-01	.284	1.54	5.69	479.	.447E-02	23.2	6.72	.623E-02	3.32	5.69	7.54	.142E+06
152	.169	.471	1.60	5.00	350.	.818E-02	24.1	6.32	.451E-02	3.98	5.00	6.07	.790E+05
153	.107	.283	1.69	5.75	490.	.910E-02	18.7	6.47	.280E-02	5.34	5.75	15.8	.822E+05
154	.183	.482	1.60	4.59	507.	.191E-02	17.6	8.59	.461E-02	1.58	4.59	2.01	.605E+05
155	.143E-01	.312	1.65	5.28	370.	.819E-02	19.2	8.24	.399E-02	1.46	5.28	9.69	.371E+04
156	.687E-02	.403	1.72	6.02	374.	.854E-02	16.3	7.86	.296E-02	.421	6.02	7.92	.223E+05
157	.154	.516	1.28	4.96	455.	.849E-02	18.2	8.49	.515E-02	.687	4.96	7.48	.408E+05
158	.571E-01	.424	1.41	5.42	364.	.761E-02	24.3	8.03	.165E-02	3.76	5.42	6.54	.283E+04
159	.285E-01	.470	1.26	4.91	510.	.649E-02	24.0	6.45	.539E-02	2.72	4.91	7.04	.190E+05
160	.268E-02	.422	1.65	4.65	517.	.634E-02	18.0	7.57	.269E-02	4.04	4.65	7.75	.267E+05
161	.486E-01	.431	1.43	5.02	474.	.642E-02	19.1	7.55	.252E-02	.687	5.02	7.07	.235E+05
162	.775E-01	.297	1.76	5.26	461.	.751E-02	18.2	7.79	.262E-02	.522	5.26	11.6	.673E+05
163	.197	.368	1.33	5.96	361.	.352E-02	19.6	7.41	.347E-02	1.02	5.96	3.46	.180E+05
164	.228E-02	.472	1.57	4.96	358.	.305E-02	22.3	8.76	.112E-02	2.30	4.96	2.31	.120E+05
165	.676E-02	.343	1.33	5.59	490.	.958E-02	17.9	6.73	.370E-02	2.17	5.59	13.7	.158E+05
166	.397E-02	.373	1.33	5.81	423.	.905E-02	17.3	6.16	.563E-02	3.79	5.81	10.3	.306E+05
167	.269E-01	.420	1.35	4.82	459.	.790E-02	16.6	6.21	.288E-02	3.35	4.82	8.65	.363E+05
168	.118	.501	1.38	5.23	488.	.313E-02	18.1	6.42	.691E-02	.826E-01	5.23	3.04	.104E+06
169	.505E-01	.496	1.48	5.97	418.	.536E-02	22.5	8.57	.207E-02	4.40	5.97	4.52	.108E+05
170	.191	.501	1.39	4.62	395.	.538E-02	18.6	8.97	.116E-02	.827	4.62	4.25	.899E+04
171	.174	.367	1.62	5.37	489.	.513E-02	20.0	7.09	.588E-02	2.87	5.37	6.84	.674E+05
172	.111E-01	.556	1.44	5.76	430.	.590E-02	20.4	6.45	.184E-02	1.99	5.76	4.56	.145E+05
173	.289E-01	.471	1.66	5.66	456.	.661E-02	25.0	7.51	.182E-02	5.33	5.66	6.41	.956E+04
174	.995E-01	.556	1.61	4.66	427.	.804E-02	22.9	6.61	.621E-02	3.21	4.66	6.18	.339E+05
175	.132	.531	1.42	4.74	397.	.599E-02	16.6	7.18	.674E-02	1.22	4.74	4.48	.222E+05
176	.761E-01	.500	1.63	5.47	520.	.579E-02	18.4	8.64	.446E-02	.407	5.47	6.03	.424E+05
177	.130	.303	1.49	5.78	431.	.651E-02	21.0	7.30	.350E-02	2.81	5.78	9.27	.731E+05

178	.728E-01	.563	1.26	4.86	383.	.691E-02	21.8	7.51	.659E-02	4.02	4.86	4.70	.785E+05
179	.529E-02	.309	1.56	4.61	497.	.409E-02	23.7	7.42	.226E-02	4.34	4.61	6.59	.850E+04
180	.813E-01	.435	1.29	5.74	410.	.637E-02	23.0	8.87	.342E-02	.196	5.74	6.00	.169E+05
181	.103	.382	1.74	5.34	420.	.800E-02	22.5	8.22	.735E-02	4.28	5.34	8.80	.681E+05
182	.145	.445	1.58	5.71	482.	.488E-02	17.2	6.04	.218E-02	.171	5.71	5.29	.347E+05
183	.998E-01	.379	1.30	5.10	535.	.642E-02	17.8	7.15	.372E-02	2.12	5.10	9.07	.420E+04
184	.121	.334	1.41	4.75	512.	.558E-02	21.4	6.86	.213E-02	3.62	4.75	8.55	.220E+05
185	.166	.326	1.60	5.96	395.	.524E-02	22.1	8.20	.495E-02	4.08	5.96	6.33	.918E+05
186	.702E-01	.438	1.60	5.77	413.	.898E-02	20.2	7.40	.190E-02	2.71	5.77	8.47	.287E+04
187	.134E-01	.361	1.67	4.63	379.	.625E-02	20.7	8.88	.218E-02	1.53	4.63	6.57	.875E+04
188	.153	.538	1.72	5.58	474.	.738E-02	21.4	8.31	.264E-02	3.58	5.58	6.50	.104E+05
189	.520E-02	.413	1.25	5.28	420.	.763E-02	19.9	8.10	.580E-02	2.77	5.28	7.77	.636E+05
190	.130	.566	1.52	4.88	522.	.966E-02	19.7	6.46	.329E-02	3.49	4.88	8.91	.205E+04
191	.150	.543	1.28	5.40	395.	.514E-02	16.7	6.93	.242E-02	.131	5.40	3.74	.300E+05
192	.104	.536	1.65	5.75	374.	.413E-02	17.3	8.21	.497E-02	2.63	5.75	2.88	.620E+05
193	.120	.508	1.54	4.88	477.	.652E-02	23.2	8.13	.515E-02	2.47	4.88	6.12	.183E+05
194	.173	.471	1.60	4.62	473.	.818E-02	17.5	6.76	.174E-02	4.30	4.62	8.21	.142E+05
195	.894E-01	.385	1.76	4.83	520.	.781E-02	18.3	6.11	.231E-02	3.49	4.83	10.5	.546E+05
196	.663E-01	.301	1.75	5.23	427.	.306E-02	18.2	7.27	.575E-02	1.32	5.23	4.34	.135E+06
197	.145	.346	1.44	5.36	402.	.973E-02	22.1	8.30	.518E-02	.208	5.36	11.3	.156E+05
198	.344E-01	.301	1.45	5.14	501.	.823E-02	20.7	7.32	.479E-02	3.84	5.14	13.7	.549E+05
199	.160	.459	1.76	4.85	496.	.627E-02	16.5	7.57	.472E-02	1.26	4.85	6.77	.337E+05
200	.194	.457	1.58	5.50	519.	.589E-02	20.8	7.73	.286E-02	2.17	5.50	6.69	.954E+04
201	.180	.469	1.72	4.81	508.	.905E-02	16.8	7.96	.190E-02	1.24	4.81	9.92	.341E+05
202	.174	.276	1.28	5.48	441.	.884E-02	16.6	8.62	.537E-02	2.03	5.48	14.1	.129E+06
203	.440E-01	.263	1.75	5.26	352.	.317E-02	23.9	6.30	.445E-02	3.50	5.26	4.25	.887E+05
204	.541E-02	.355	1.52	5.61	387.	.686E-02	22.5	7.79	.629E-02	2.20	5.61	7.49	.209E+05
205	.102	.264	1.69	5.95	365.	.356E-02	23.3	6.24	.275E-02	5.32	5.95	4.92	.629E+05
206	.630E-01	.331	1.48	5.11	501.	.565E-02	16.1	7.00	.555E-02	4.67	5.11	8.56	.537E+05
207	.163	.379	1.46	5.07	393.	.676E-02	21.3	6.48	.198E-02	1.15	5.07	6.99	.401E+05
208	.514E-01	.335	1.59	5.25	484.	.358E-02	20.9	7.98	.624E-02	1.27	5.25	5.16	.590E+05
209	.176	.304	1.58	5.70	489.	.837E-02	22.9	6.96	.115E-02	1.53	5.70	13.5	.232E+05
210	.196	.429	1.51	4.69	413.	.444E-02	17.2	8.66	.387E-02	1.90	4.69	4.28	.200E+05
211	.226E-01	.310	1.37	5.15	365.	.820E-02	17.8	6.61	.117E-02	2.12	5.15	9.67	.231E+05
212	.738E-01	.403	1.56	5.76	510.	.732E-02	16.4	8.33	.148E-02	4.38	5.76	9.27	864.
213	.996E-01	.354	1.47	4.69	372.	.797E-02	20.3	6.82	.349E-02	3.78	4.69	8.36	.203E+05
214	.105	.444	1.55	5.20	384.	.904E-02	17.5	6.94	.101E-02	4.59	5.20	7.81	.114E+05
215	.134E-01	.378	1.49	4.84	504.	.402E-02	24.9	6.48	.191E-02	4.38	4.84	5.35	.190E+05
216	.162	.471	1.45	4.98	372.	.913E-02	24.1	6.75	.314E-02	4.41	4.98	7.20	.303E+05
217	.169	.270	1.55	5.86	454.	.455E-02	16.1	6.47	.295E-02	2.11	5.86	7.66	.309E+05
218	.189	.307	1.41	5.05	484.	.887E-02	20.0	7.81	.479E-02	4.92	5.05	14.0	.900E+04
219	.159	.328	1.32	5.02	379.	.328E-02	20.8	6.19	.279E-02	4.10	5.02	3.79	.259E+04
220	.174	.323	1.51	4.94	466.	.724E-02	22.5	7.95	.254E-02	.205	4.94	10.5	.556E+05
221	.777E-01	.442	1.72	4.89	449.	.866E-02	21.5	6.59	.342E-02	1.56	4.89	8.80	.704E+05
222	.140	.415	1.32	4.91	416.	.457E-02	22.4	8.80	.433E-02	.298	4.91	4.57	.681E+05
223	.183	.496	1.35	4.73	451.	.247E-02	22.8	7.99	.724E-02	3.96	4.73	2.25	.923E+04
224	.614E-01	.284	1.30	5.67	398.	.725E-02	17.6	8.30	.118E-02	1.58	5.67	10.2	.279E+05
225	.776E-01	.276	1.75	4.97	422.	.950E-02	21.4	7.77	.180E-02	2.46	4.97	14.5	.201E+05
226	.159	.473	1.39	5.21	471.	.501E-02	16.0	8.08	.346E-02	5.07	5.21	4.99	.493E+04
227	.197	.569	1.61	5.99	430.	.611E-02	16.3	6.48	.329E-02	2.76	5.99	4.61	.496E+04
228	.991E-01	.371	1.53	4.72	513.	.812E-02	20.0	7.98	.421E-02	3.59	4.72	11.2	.676E+05
229	.110	.529	1.59	5.95	515.	.905E-02	18.5	7.55	.692E-02	4.57	5.95	8.80	.930E+05
230	.783E-01	.453	1.64	5.63	456.	.290E-02	17.0	7.66	.694E-02	1.34	5.63	2.92	.115E+06
231	.130E-01	.443	1.75	5.22	459.	.621E-02	19.3	7.41	.223E-02	.235	5.22	6.43	.451E+05
232	.102	.460	1.52	6.04	372.	.744E-02	19.9	6.56	.299E-02	5.86	6.04	6.01	.295E+04
233	.185E-01	.295	1.75	4.74	447.	.855E-02	22.0	7.24	.522E-02	4.30	4.74	12.9	.743E+04
234	.151	.351	1.54	5.08	535.	.659E-02	23.4	6.06	.637E-02	.723	5.08	10.0	.226E+05
235	.213E-02	.454	1.70	5.62	461.	.622E-02	23.5	7.17	.526E-02	4.86	5.62	6.32	.212E+05
236	.132	.285	1.38	5.10	476.	.934E-02	18.9	7.32	.658E-02	3.20	5.10	15.6	.133E+06
237	.194	.282	1.39	5.52	415.	.898E-02	17.8	8.10	.549E-02	2.20	5.52	13.2	.420E+05
238	.272E-01	.484	1.67	4.92	421.	.774E-02	19.7	7.62	.737E-02	.569	4.92	6.74	.118E+06
239	.160	.351	1.53	5.71	513.	.330E-02	24.6	7.86	.265E-02	3.72	5.71	4.83	.528E+05
240	.161E-01	.362	1.30	4.84	443.	.607E-02	18.6	8.17	.242E-02	1.14	4.84	7.43	.404E+05
241	.997E-02	.510	1.36	6.04	487.	.268E-02	24.3	8.62	.474E-02	.502	6.04	2.56	.596E+05
242	.119	.278	1.61	6.00	502.	.734E-02	22.9	7.25	.722E-02	2.85	6.00	13.3	.126E+05
243	.994E-01	.512	1.59	6.04	499.	.844E-02	23.5	6.63	.682E-02	5.12	6.04	8.23	.883E+05

244	.135	.428	1.44	5.38	545.	[illegible]	18.3	5.12	[illegible]	4.4	[illegible]	[illegible]	[illegible]
245	.150	.289	1.48	4.97	495.	.706E-02	20.8	6.68	.587E-02	.453	4.97	12.1	.246E+05
246	.610E-01	.442	1.38	5.27	515.	.895E-02	23.6	7.65	.285E-02	.341	5.27	10.4	.143E+05
247	.244E-01	.392	1.26	5.63	448.	.288E-02	18.4	7.10	.578E-02	1.22	5.63	3.29	.218E+05
248	.123	.426	1.74	5.07	534.	.745E-02	16.0	7.70	.222E-02	3.44	5.07	9.35	.296E+04
249	.150	.334	1.54	5.48	512.	.860E-02	24.4	8.96	.758E-02	4.55	5.48	13.2	.207E+05
250	.184	.551	1.54	5.29	502.	.779E-02	23.2	8.39	.220E-02	1.21	5.29	7.10	.190E+05
251	.102	.322	1.56	5.06	418.	.513E-02	20.3	6.44	.707E-02	4.31	5.06	6.65	.342E+05
252	.174	.472	1.49	5.75	477.	.996E-02	21.4	8.60	.498E-02	3.28	5.75	10.1	.140E+05
253	.109	.482	1.54	5.24	407.	.692E-02	17.7	7.59	.354E-02	2.13	5.24	5.85	935.
254	.130	.446	1.67	5.93	448.	.515E-02	23.2	6.84	.405E-02	1.85	5.93	5.18	.499E+05
255	.820E-01	.339	1.60	5.95	448.	.660E-02	17.0	6.23	.403E-02	5.69	5.95	8.74	.645E+05
256	.337E-01	.366	1.72	6.02	510.	.269E-02	18.2	6.56	.458E-02	3.29	6.02	3.74	.108E+06
257	.193	.344	1.62	5.24	459.	.786E-02	19.6	7.07	.674E-02	4.44	5.24	10.5	.459E+05
258	.160	.278	1.75	5.51	487.	.761E-02	22.8	8.98	.132E-02	.738	5.51	13.3	.834E+04
259	.251E-01	.487	1.41	5.09	349.	.541E-02	22.3	8.44	.591E-02	2.14	5.09	3.87	.395E+05
260	.107	.356	1.69	5.69	400.	.921E-02	16.7	7.29	.247E-02	4.36	5.69	10.3	.525E+04
261	.390E-01	.436	1.69	5.44	453.	.730E-02	17.7	7.85	.479E-02	1.03	5.44	7.57	.301E+05
262	.483E-02	.267	1.28	5.30	444.	.875E-02	19.4	8.64	.520E-02	3.50	5.30	14.5	.356E+05
263	.161	.541	1.73	5.21	487.	.596E-02	17.9	6.37	.136E-02	.838	5.21	5.37	.373E+04
264	.624E-01	.285	1.30	4.86	448.	.493E-02	23.4	6.87	.249E-02	3.36	4.86	7.74	.322E+05
265	.539E-01	.273	1.55	5.64	427.	.223E-02	21.3	6.18	.694E-02	2.28	5.64	3.49	.116E+06
266	.192	.433	1.75	4.80	449.	.852E-02	19.7	6.35	.227E-02	.319	4.80	8.85	.485E+05
267	.129	.284	1.51	5.55	394.	.764E-02	16.8	8.45	.619E-02	5.10	5.55	10.6	.171E+06
268	.182	.277	1.52	4.91	390.	.790E-02	16.8	6.47	.168E-02	3.77	4.91	11.2	.345E+05
269	.372E-01	.461	1.58	5.08	418.	.957E-02	21.0	7.87	.353E-02	.874	5.08	8.67	.610E+05
270	.993E-01	.466	1.43	5.97	391.	.951E-02	18.5	7.99	.545E-02	2.19	5.97	7.99	.473E+04
271	.889E-02	.482	1.26	4.91	406.	.990E-02	24.3	7.37	.322E-02	4.20	4.91	8.33	.460E+05
272	.545E-01	.431	1.50	5.86	375.	.906E-02	21.0	7.18	.639E-02	.121	5.86	7.89	.116E+05
273	.294E-01	.449	1.68	5.10	514.	.725E-02	18.7	6.43	.135E-02	3.41	5.10	8.29	.311E+04
274	.116	.460	1.48	5.56	474.	.397E-02	21.4	8.30	.301E-02	1.49	5.56	4.10	.556E+04
275	.338E-01	.292	1.68	4.92	529.	.556E-02	21.3	6.06	.242E-02	.480	4.92	10.1	.389E+05
276	.966E-01	.518	1.63	5.19	377.	.815E-02	17.9	8.25	.547E-02	5.14	5.19	5.93	496.
277	.923E-01	.488	1.31	5.02	458.	.564E-02	22.9	8.80	.421E-02	4.17	5.02	5.28	.248E+05
278	.140	.472	1.59	4.62	495.	.567E-02	20.8	8.37	.694E-02	4.56	4.62	5.94	.858E+05
279	.186	.429	1.26	4.70	422.	.494E-02	16.5	7.92	.467E-02	.507	4.70	4.86	.262E+05
280	.177	.462	1.66	4.70	385.	.534E-02	19.3	6.20	.269E-02	2.15	4.70	4.45	.426E+05
281	.939E-01	.516	1.42	5.05	534.	.747E-02	22.0	6.35	.192E-02	3.75	5.05	7.73	.205E+05
282	.187	.499	1.56	5.46	426.	.444E-02	16.8	7.83	.274E-02	1.84	5.46	3.79	.151E+05
283	.614E-02	.550	1.40	5.16	367.	.974E-02	18.0	8.41	.304E-02	1.03	5.16	6.51	.407E+05
284	.103	.442	1.63	5.11	485.	.221E-02	20.2	6.12	.666E-02	.850	5.11	2.43	.741E+05
285	.167	.550	1.30	5.37	374.	.637E-02	23.3	8.84	.532E-02	1.58	5.37	4.34	.515E+05
286	.559E-01	.501	1.67	6.02	447.	.679E-02	25.0	8.90	.236E-02	1.20	6.02	6.06	.300E+05
287	.498E-01	.318	1.37	4.89	500.	.708E-02	16.5	7.61	.442E-02	4.33	4.89	11.1	.490E+05
288	.274E-01	.363	1.69	5.29	452.	.782E-02	24.0	8.72	.541E-02	3.51	5.29	9.72	.661E+05
289	.143	.287	1.67	5.96	367.	.672E-02	16.9	6.59	.424E-02	3.94	5.96	8.58	.274E+05
290	.143	.512	1.59	5.34	388.	.465E-02	21.9	8.68	.550E-02	5.20	5.34	3.53	.501E+05
291	.117	.324	1.51	5.90	347.	.858E-02	17.5	6.56	.572E-02	5.54	5.90	9.18	.135E+06
292	.860E-01	.518	1.56	4.90	533.	.485E-02	25.0	6.49	.182E-02	2.81	4.90	5.00	.299E+05
293	.194	.384	1.37	5.85	377.	.578E-02	20.1	6.23	.261E-02	.795	5.85	5.68	.361E+05
294	.677E-01	.293	1.43	4.73	459.	.146E-02	20.4	8.86	.505E-02	.630	4.73	2.29	.903E+05
295	.112	.367	1.36	4.63	362.	.636E-02	17.4	6.04	.500E-02	2.67	4.63	6.27	.408E+05
296	.668E-01	.358	1.46	5.98	418.	.749E-02	24.3	8.69	.563E-02	1.37	5.98	8.76	.378E+04
297	.277E-01	.512	1.44	4.67	470.	.829E-02	22.3	7.25	.595E-02	.202	4.67	7.61	.530E+05
298	.772E-02	.334	1.44	5.57	479.	.725E-02	22.0	6.22	.741E-02	2.59	5.57	10.4	.108E+06
299	.330E-01	.424	1.60	5.35	432.	.645E-02	24.4	6.65	.721E-02	1.01	5.35	6.58	.129E+06
300	.493E-01	.367	1.59	5.28	385.	.502E-02	20.3	6.42	.711E-02	3.26	5.28	5.28	.145E+06
301	.886E-01	.481	1.63	5.38	420.	.891E-02	21.2	8.03	.722E-02	.910	5.38	7.78	.803E+05
302	.177	.474	1.52	4.76	504.	.689E-02	17.2	7.31	.360E-02	.596	4.76	7.32	.367E+05
303	.347E-01	.422	1.27	5.89	431.	.763E-02	16.1	6.07	.168E-02	1.11	5.89	7.79	.189E+05
304	.135	.335	1.34	5.28	388.	.863E-02	17.1	6.38	.296E-02	2.73	5.28	9.99	.104E+05
305	.159	.469	1.35	4.79	467.	.776E-02	17.7	6.33	.503E-02	2.12	4.79	7.72	.160E+05
306	.158	.525	1.56	5.55	518.	.911E-02	20.0	6.46	.415E-02	3.75	5.55	8.98	.663E+05
307	.526E-01	.484	1.52	5.38	441.	.344E-02	20.4	6.66	.291E-02	1.58	5.38	3.13	.442E+05
308	.157	.449	1.34	4.61	478.	.359E-02	18.5	7.68	.681E-02	2.11	4.61	3.82	.111E+06
309	.163E-01	.417	1.36	5.25	497.	.481E-02	22.7	8.24	.173E-02	4.37	5.25	5.74	.149E+05

310	.627E-01	.342	1.60	5.15	431.	.801E-02	17.9	7.17	.446E-02	2.47	5.15	6.37	.132E+05
311	.176	.496	1.51	5.13	361.	.396E-02	23.5	8.76	.592E-02	4.73	5.13	2.88	.774E+04
312	.169	.513	1.34	5.50	408.	.848E-02	24.7	7.93	.482E-02	3.18	5.50	6.74	.144E+05
313	.154E-01	.557	1.35	5.84	437.	.495E-02	19.5	8.64	.731E-02	2.07	5.84	3.88	.931E+05
314	.131E-01	.452	1.57	4.76	392.	.860E-02	22.3	6.64	.136E-02	3.44	4.76	7.46	.127E+05
315	.333E-01	.459	1.34	6.03	468.	.304E-02	23.2	7.72	.679E-02	5.50	6.03	3.11	.101E+06
316	.101	.436	1.55	5.95	367.	.633E-02	23.9	6.31	.112E-02	3.76	5.95	5.33	.174E+05
317	.117	.563	1.25	4.70	480.	.831E-02	21.0	8.54	.141E-02	.420	4.70	7.08	.242E+04
318	.141	.351	1.44	5.02	510.	.751E-02	22.9	8.67	.630E-02	2.83	5.02	10.9	.585E+05
319	.921E-01	.292	1.32	4.59	511.	.393E-02	23.7	8.04	.437E-02	.798	4.59	6.88	.452E+05
320	.416E-01	.501	1.75	5.66	455.	.934E-02	19.5	6.36	.554E-02	4.25	5.66	8.48	580.
321	.274E-01	.381	1.65	4.91	528.	.400E-02	23.8	6.31	.718E-02	3.09	4.91	5.54	.400E+05
322	.111	.486	1.75	6.10	447.	.437E-02	21.5	8.16	.109E-02	3.62	6.10	4.02	.975E+04
323	.925E-01	.268	1.50	4.62	465.	.641E-02	21.5	8.94	.411E-02	4.22	4.62	11.1	.889E+05
324	.672E-01	.489	1.52	4.72	530.	.929E-02	22.8	7.92	.676E-02	4.34	4.72	10.1	.634E+05
325	.145	.303	1.26	6.06	468.	.151E-02	16.9	6.01	.581E-02	.616	6.06	2.33	.841E+05
326	.377E-01	.447	1.59	6.03	433.	.427E-02	18.0	7.09	.215E-02	5.03	6.03	4.13	.379E+05
327	.113	.538	1.63	4.82	503.	.922E-02	16.6	7.83	.502E-02	.330	4.82	8.63	.621E+05
328	.553E-01	.506	1.66	5.41	461.	.707E-02	20.5	7.97	.688E-02	3.84	5.41	6.44	.106E+06
329	.182	.344	1.71	5.86	479.	.788E-02	24.5	6.16	.651E-02	4.97	5.86	11.0	.159E+06
330	.334E-01	.503	1.59	4.76	447.	.545E-02	19.7	7.69	.665E-02	1.19	4.76	4.83	.582E+05
331	.155	.478	1.53	5.97	373.	.972E-02	21.8	7.88	.429E-02	3.46	5.97	7.58	.724E+05
332	.121	.408	1.52	5.86	433.	.806E-02	19.5	7.78	.423E-02	3.25	5.86	8.55	.146E+04
333	.653E-01	.337	1.31	5.37	514.	.870E-02	18.1	6.48	.759E-02	2.07	5.37	13.2	.872E+05
334	.672E-01	.417	1.49	5.29	481.	.464E-02	16.3	8.03	.752E-02	.616	5.29	5.36	.902E+05
335	.125E-01	.514	1.43	5.15	369.	.957E-02	23.2	6.45	.317E-02	4.01	5.15	6.86	.467E+05
336	.169E-01	.420	1.42	5.06	457.	.973E-02	18.6	7.08	.218E-02	2.99	5.06	10.6	.316E+05
337	.538E-01	.555	1.65	4.89	384.	.592E-02	19.7	7.24	.563E-02	3.69	4.89	4.10	.636E+05
338	.107	.403	1.27	5.22	464.	.969E-02	23.0	6.92	.368E-02	4.48	5.22	11.2	.271E+05
339	.102	.475	1.72	5.01	478.	.874E-02	18.1	6.39	.567E-02	4.45	5.01	8.79	.955E+05
340	.172E-02	.426	1.68	5.22	479.	.512E-02	19.3	7.32	.567E-02	1.80	5.22	5.75	.267E+05
341	.185	.452	1.55	5.21	464.	.680E-02	21.7	6.39	.703E-02	2.51	5.21	6.99	.673E+05
342	.161	.533	1.65	5.56	366.	.320E-02	18.6	8.96	.683E-02	.221	5.56	2.20	.642E+05
343	.160E-01	.488	1.74	5.58	535.	.279E-02	16.1	7.41	.561E-02	2.88	5.58	3.07	.415E+05
344	.168	.384	1.41	5.30	363.	.668E-02	19.0	8.43	.510E-02	2.86	5.30	6.32	.656E+05
345	.862E-01	.375	1.57	5.82	464.	.491E-02	23.9	6.10	.566E-02	4.62	5.82	6.08	.867E+05
346	.308E-01	.269	1.69	5.15	441.	.864E-02	19.2	8.40	.161E-02	4.92	5.15	14.2	607.
347	.147	.559	1.47	5.28	364.	.424E-02	24.0	6.34	.686E-02	1.91	5.28	2.76	.904E+05
348	.334E-01	.570	1.63	4.66	522.	.968E-02	21.2	8.62	.234E-02	2.65	4.66	8.86	.575E+04
349	.185	.291	1.37	5.96	483.	.621E-02	24.5	8.64	.656E-02	2.02	5.96	10.3	.170E+06
350	.458E-01	.463	1.58	5.87	482.	.386E-02	20.6	6.85	.535E-02	2.15	5.87	4.02	.263E+05
351	.112E-01	.569	1.63	5.17	467.	.653E-02	23.5	8.55	.275E-02	1.68	5.17	5.36	.388E+05
352	.128	.421	1.41	6.02	493.	.657E-02	21.4	6.65	.566E-02	4.94	6.02	7.68	.372E+05
353	.775E-01	.305	1.75	4.59	446.	.628E-02	17.8	8.24	.130E-02	.452	4.59	9.17	.131E+04
354	.106E-01	.432	1.71	4.69	488.	.533E-02	20.7	8.56	.563E-02	4.41	4.69	6.02	.833E+04
355	.176	.336	1.54	5.64	373.	.425E-02	24.2	6.91	.662E-02	1.79	5.64	4.72	.162E+06
356	.400E-01	.292	1.29	4.67	400.	.789E-02	23.4	8.73	.193E-02	4.13	4.67	10.8	.214E+05
357	.360E-01	.570	1.74	6.01	435.	.891E-02	18.1	7.16	.167E-02	1.48	6.01	6.80	.247E+05
358	.271E-01	.405	1.40	4.67	519.	.738E-02	25.0	7.07	.487E-02	.638	4.67	9.48	.206E+05
359	.147	.534	1.56	4.65	356.	.747E-02	20.3	7.88	.125E-02	2.18	4.65	4.98	581.
360	.135	.305	1.33	5.67	484.	.494E-02	21.7	8.92	.207E-02	1.91	5.67	7.82	.154E+05
361	.426E-01	.310	1.27	5.78	497.	.352E-02	24.1	8.02	.531E-02	4.40	5.78	5.63	.302E+05
362	.301E-01	.447	1.49	5.26	502.	.319E-02	19.9	6.83	.178E-02	3.39	5.26	3.58	.120E+05
363	.186	.279	1.40	5.84	494.	.879E-02	23.6	6.52	.257E-02	3.47	5.84	15.6	.318E+05
364	.126	.375	1.47	4.67	435.	.971E-02	17.9	6.20	.745E-02	.810	4.67	11.3	.927E+05
365	.164	.269	1.51	5.59	502.	.215E-02	19.0	7.27	.600E-02	4.84	5.59	4.01	.272E+05
366	.603E-02	.538	1.45	4.72	455.	.581E-02	18.5	6.16	.120E-02	4.18	4.72	4.91	.825E+04
367	.175	.274	1.58	5.96	377.	.863E-02	22.4	8.26	.473E-02	5.22	5.96	11.9	.612E+05
368	.172	.374	1.59	4.65	528.	.876E-02	19.6	7.22	.464E-02	1.99	4.65	12.4	.655E+05
369	.732E-01	.287	1.44	4.96	524.	.702E-02	24.8	7.18	.688E-02	2.87	4.96	12.8	.573E+05
370	.156	.500	1.69	5.12	500.	.624E-02	23.3	7.49	.684E-02	4.13	5.12	6.25	.677E+05
371	.185	.314	1.57	4.88	448.	.887E-02	17.6	7.66	.148E-02	3.73	4.88	12.7	.394E+05
372	.285E-01	.428	1.49	5.06	491.	.313E-02	19.2	8.19	.491E-02	2.45	5.06	3.58	.574E+04
373	.179E-01	.319	1.39	4.99	502.	.734E-02	23.5	6.00	.174E-02	.415	4.99	11.5	.193E+05
374	.534E-01	.297	1.69	4.80	484.	.840E-02	17.9	7.92	.695E-02	2.24	4.80	13.7	.193E+06
375	.149E-01	.286	1.47	5.90	426.	.987E-02	17.6	6.27	.183E-02	.512	5.90	14.7	.181E+05

376	.415E-01	.469	1.74	4.63	469.	.220E-02	16.7	8.76	.709E-02	.305E-01	4.63	2.20	.405E+05
377	.527E-01	.464	1.76	5.99	524.	.919E-02	24.0	8.61	.147E-02	5.38	5.99	10.4	.213E+05
378	.124	.284	1.51	4.71	478.	.988E-02	23.5	8.34	.439E-02	3.39	4.71	16.7	.915E+04
379	.867E-01	.346	1.31	4.99	471.	.778E-02	18.7	8.66	.192E-02	4.61	4.99	10.6	.361E+05
380	.462E-01	.265	1.36	4.90	500.	.896E-02	16.1	6.61	.414E-02	3.62	4.90	16.9	.126E+04
381	.163	.517	1.43	5.89	409.	.591E-02	20.8	8.83	.560E-02	4.53	5.89	4.69	.608E+05
382	.134	.400	1.25	5.19	496.	.920E-02	18.1	8.27	.137E-02	4.75	5.19	11.4	.968E+04
383	.195	.468	1.46	5.14	384.	.967E-02	18.5	6.25	.165E-02	2.12	5.14	7.93	.149E+05
384	.200E-01	.307	1.44	5.18	452.	.624E-02	23.1	7.29	.127E-02	5.11	5.18	9.18	.162E+05
385	.195	.360	1.47	4.71	477.	.652E-02	18.0	7.40	.464E-02	3.96	4.71	8.65	.956E+05
386	.565E-01	.311	1.59	4.88	392.	.433E-02	21.3	6.78	.419E-02	1.62	4.88	5.46	.808E+05
387	.802E-01	.282	1.72	5.64	505.	.356E-02	21.4	6.00	.648E-02	2.61	5.64	6.38	.158E+06
388	.137	.333	1.71	4.59	398.	.897E-02	24.7	8.40	.416E-02	.139	4.59	10.7	.527E+05
389	.147	.567	1.62	5.47	432.	.812E-02	16.5	6.85	.449E-02	2.24	5.47	6.19	.182E+05
390	.138	.544	1.46	5.18	484.	.800E-02	18.0	6.90	.490E-02	1.26	5.18	7.12	.685E+05
391	.918E-01	.483	1.55	4.77	454.	.625E-02	18.6	7.83	.500E-02	2.77	4.77	5.87	.117E+05
392	.170E-01	.272	1.32	5.74	511.	.780E-02	17.3	7.22	.474E-02	2.42	5.74	14.7	.143E+05
393	.161	.433	1.48	4.95	444.	.163E-02	23.5	6.27	.225E-02	.569	4.95	1.67	.624E+04
394	.118	.457	1.60	6.05	473.	.721E-02	21.2	6.45	.239E-02	.653	6.05	7.45	.356E+05
395	.169	.527	1.73	4.74	526.	.166E-02	23.5	8.20	.669E-02	2.87	4.74	1.66	.821E+04
396	.181	.491	1.36	4.67	350.	.982E-02	24.7	6.41	.693E-02	1.72	4.67	7.00	.430E+05
397	.194	.498	1.46	5.48	534.	.694E-02	21.2	6.58	.426E-02	.293	5.48	7.44	.561E+04
398	.545E-01	.384	1.44	5.01	407.	.664E-02	18.0	8.52	.277E-02	1.15	5.01	7.04	.476E+05
399	.141	.518	1.44	5.43	448.	.637E-02	24.6	7.57	.503E-02	.464	5.43	5.51	.624E+05
400	.106	.302	1.73	5.72	486.	.650E-02	21.9	8.76	.603E-02	4.41	5.72	10.5	.721E+05
401	.122	.406	1.46	5.23	433.	.724E-02	23.2	8.03	.160E-02	3.60	5.23	7.73	.151E+05
402	.851E-01	.455	1.61	5.56	376.	.407E-02	18.9	8.13	.440E-02	.669	5.56	3.36	.478E+04
403	.509E-01	.383	1.38	5.70	510.	.996E-02	24.2	7.62	.397E-02	2.14	5.70	13.2	.687E+04
404	.531E-01	.549	1.55	5.05	454.	.948E-02	16.9	8.91	.532E-02	3.65	5.05	7.85	.308E+05
405	.195	.408	1.68	5.21	523.	.555E-02	16.5	6.50	.254E-02	3.71	5.21	7.11	.130E+04
406	.109E-01	.501	1.41	5.02	518.	.305E-02	20.3	7.25	.257E-02	.508	5.02	3.16	.210E+05
407	.184	.496	1.75	5.67	473.	.851E-02	24.7	8.71	.125E-02	1.97	5.67	8.11	.214E+05
408	.298E-01	.547	1.50	5.74	462.	.812E-02	18.2	7.95	.393E-02	2.89	5.74	6.85	.555E+05
409	.673E-01	.287	1.53	4.83	357.	.997E-02	24.6	8.13	.163E-02	4.21	4.83	12.4	.140E+04
410	.169	.271	1.31	5.06	462.	.285E-02	24.3	7.68	.155E-02	3.52	5.06	4.84	.241E+05
411	.228E-01	.418	1.33	5.00	388.	.704E-02	17.8	7.94	.190E-02	.661	5.00	6.53	.109E+05
412	.100E+00	.473	1.32	4.73	375.	.964E-02	18.5	8.18	.728E-02	4.70	4.73	7.63	.783E+05
413	.104	.553	1.50	4.59	461.	.837E-02	19.1	8.28	.568E-02	4.51	4.59	6.97	.824E+05
414	.104	.536	1.50	4.88	392.	.698E-02	17.8	8.61	.648E-02	.756	4.88	5.10	.370E+05
415	.487E-01	.275	1.60	5.78	459.	.654E-02	19.0	7.44	.331E-02	.148	5.78	10.9	.349E+05
416	.957E-01	.261	1.37	5.61	457.	.952E-02	24.8	7.46	.103E-02	4.46	5.61	16.7	.274E+05
417	.191	.527	1.38	6.03	373.	.965E-02	19.2	6.22	.417E-02	.649	6.03	6.84	.198E+05
418	.170	.401	1.66	5.62	492.	.752E-02	18.7	6.87	.489E-02	3.07	5.62	9.22	.793E+05
419	.145	.389	1.27	4.76	507.	.984E-02	21.3	8.42	.399E-02	4.11	4.76	12.8	.495E+05
420	.540E-01	.383	1.74	5.85	466.	.989E-02	18.6	7.21	.589E-02	3.70	5.85	12.0	.128E+06
421	.114E-01	.449	1.51	6.04	530.	.647E-02	17.3	7.93	.329E-02	3.59	6.04	7.63	.325E+05
422	.130	.435	1.59	5.81	406.	.645E-02	21.4	6.39	.103E-02	2.24	5.81	6.02	.147E+05
423	.148E-01	.501	1.26	5.58	496.	.961E-02	24.6	6.21	.336E-02	5.31	5.58	9.52	.199E+04
424	.995E-01	.321	1.42	5.75	516.	.349E-02	16.0	8.88	.242E-02	.790	5.75	5.60	.107E+05
425	.885E-01	.299	1.33	5.65	399.	.391E-02	24.5	6.91	.607E-02	4.18	5.65	5.22	.480E+05
426	.121	.473	1.70	5.80	428.	.783E-02	21.9	8.62	.106E-02	2.34	5.80	7.09	.176E+04
427	.186	.278	1.62	5.10	525.	.849E-02	19.8	6.72	.459E-02	4.50	5.10	16.0	.134E+06
428	.114E-01	.424	1.58	5.37	499.	.656E-02	16.2	8.76	.569E-02	1.05	5.37	7.73	.866E+05
429	.939E-01	.347	1.65	4.70	460.	.927E-02	16.6	7.03	.699E-02	2.85	4.70	12.3	.805E+05
430	.148E-01	.416	1.65	5.40	396.	.973E-02	22.3	7.00	.300E-02	5.31	5.40	9.27	.497E+05
431	.199	.289	1.41	5.01	534.	.152E-02	24.9	7.39	.627E-02	1.07	5.01	2.80	.578E+05
432	.198	.384	1.68	5.52	444.	.992E-02	17.7	8.72	.514E-02	5.39	5.52	11.5	.443E+05
433	.201E-01	.450	1.75	5.65	502.	.756E-02	23.2	8.08	.103E-02	1.07	5.65	8.44	.517E+04
434	.242E-01	.499	1.68	5.74	509.	.966E-02	21.9	7.93	.393E-02	4.88	5.74	9.87	.598E+05
435	.306E-01	.411	1.38	5.71	398.	.737E-02	22.4	6.93	.208E-02	1.64	5.71	7.14	.345E+05
436	.538E-01	.333	1.39	5.81	410.	.713E-02	23.4	7.35	.396E-02	.571	5.81	8.80	.456E+05
437	.164	.430	1.50	5.47	535.	.927E-02	21.7	6.72	.587E-02	2.41	5.47	11.6	.724E+05
438	.491E-01	.290	1.64	5.09	454.	.441E-02	19.3	7.84	.739E-02	2.16	5.09	6.89	.145E+06
439	.280E-01	.401	1.30	5.51	481.	.947E-02	16.3	7.73	.726E-02	.822	5.51	11.4	.715E+05
440	.149	.560	1.68	5.55	412.	.548E-02	23.7	6.26	.118E-02	.456	5.55	4.03	.299E+04
441	.966E-01	.339	1.40	4.84	413.	.738E-02	20.4	7.25	.425E-02	4.64	4.84	9.00	.362E+04

442	.121	.431	1.32	6.03	478.	.693E-02	20.3	7.18	.369E-02	3.34	6.03	7.30	.753E+05
443	.170	.327	1.41	6.09	527.	.230E-02	16.2	7.72	.277E-02	5.92	6.09	3.70	.462E+05
444	.163E-01	.286	1.47	5.10	372.	.467E-02	22.9	7.44	.126E-02	4.96	5.10	6.06	.128E+05
445	.449E-01	.568	1.47	4.63	510.	.553E-02	21.7	7.05	.594E-02	2.03	4.63	4.97	.311E+05
446	.532E-02	.556	1.57	5.93	469.	.449E-02	18.5	8.24	.469E-02	4.68	5.93	3.79	.365E+05
447	.301E-01	.367	1.75	5.64	375.	.540E-02	22.1	8.25	.557E-02	5.11	5.64	5.52	.840E+04
448	.226E-01	.472	1.46	5.30	388.	.418E-02	17.4	6.12	.230E-02	.752	5.30	3.44	.186E+05
449	.922E-01	.540	1.55	5.26	447.	.662E-02	20.6	8.14	.129E-02	3.90	5.26	5.48	.305E+04
450	.649E-01	.373	1.54	4.90	436.	.349E-02	20.9	6.30	.664E-02	4.76	4.90	4.07	.182E+05
451	.322E-01	.479	1.32	6.01	528.	.256E-02	22.9	8.52	.742E-02	4.03	6.01	2.82	.150E+05
452	.193	.549	1.43	4.96	456.	.863E-02	16.3	8.54	.161E-02	4.96	4.96	7.17	.921E+04
453	.297E-01	.310	1.27	4.90	382.	.628E-02	22.0	6.10	.247E-02	4.76	4.90	7.73	.867E+04
454	.185	.340	1.71	5.87	442.	.181E-02	23.2	7.12	.348E-02	5.08	5.87	2.36	.407E+05
455	.186	.477	1.37	5.64	477.	.808E-02	19.7	6.03	.541E-02	4.91	5.64	8.08	.355E+05
456	.321E-01	.338	1.32	5.59	493.	.241E-02	20.2	6.56	.259E-02	4.15	5.59	3.52	.543E+05
457	.124	.357	1.68	5.50	495.	.157E-02	23.7	8.42	.389E-02	2.60	5.50	2.18	.241E+05
458	.149	.416	1.68	5.13	363.	.289E-02	22.0	8.58	.706E-02	2.03	5.13	2.52	.122E+06
459	.103E-01	.400	1.75	5.58	374.	.237E-02	23.1	6.24	.219E-02	4.93	5.58	2.22	.673E+04
460	.968E-02	.451	1.66	5.65	401.	.720E-02	18.8	6.13	.115E-02	1.29	5.65	6.39	.133E+05
461	.853E-02	.307	1.39	5.67	422.	.835E-02	17.3	8.11	.471E-02	2.59	5.67	11.5	.262E+05
462	.175	.286	1.63	5.72	419.	.638E-02	24.1	6.51	.661E-02	.457	5.72	9.35	.338E+05
463	.122	.268	1.26	5.67	370.	.445E-02	17.7	6.15	.749E-02	3.57	5.67	6.14	.476E+05
464	.190	.507	1.51	4.86	461.	.862E-02	18.7	7.77	.109E-02	.222	4.86	7.82	.129E+05
465	.147	.546	1.63	5.67	420.	.783E-02	19.9	7.42	.667E-02	3.44	5.67	6.02	.953E+05
466	.176	.432	1.55	5.64	499.	.620E-02	23.8	8.36	.186E-02	5.54	5.64	7.17	.294E+05
467	.215E-01	.497	1.70	5.23	425.	.908E-02	25.0	8.94	.218E-02	2.65	5.23	7.77	.342E+05
468	.146	.321	1.62	5.94	460.	.306E-02	18.9	8.34	.721E-02	1.43	5.94	4.38	.483E+05
469	.147	.384	1.61	5.95	471.	.168E-02	20.8	6.83	.448E-02	.309	5.95	2.07	.750E+05
470	.177	.565	1.26	5.42	531.	.591E-02	18.5	6.19	.510E-02	5.10	5.42	5.55	.327E+05
471	.197	.507	1.73	5.00	516.	.828E-02	17.0	6.13	.691E-02	2.39	5.00	8.43	.123E+06
472	.578E-01	.408	1.76	5.29	480.	.429E-02	22.0	7.90	.356E-02	1.25	5.29	5.05	.403E+05
473	.123	.565	1.76	6.01	429.	.908E-02	17.3	8.19	.391E-02	4.16	6.01	6.90	.438E+05
474	.270E-01	.397	1.62	4.86	533.	.632E-02	23.9	7.39	.646E-02	1.72	4.86	8.47	.327E+05
475	.159E-01	.567	1.39	5.24	394.	.987E-02	20.7	6.66	.427E-02	4.37	5.24	6.86	.243E+04
476	.192	.464	1.65	5.39	432.	.850E-02	16.5	8.66	.667E-02	4.92	5.39	7.93	.117E+06
477	.130	.354	1.67	5.62	380.	.724E-02	22.0	7.60	.204E-02	2.05	5.62	7.77	.459E+05
478	.140	.279	1.46	5.49	502.	.867E-02	23.6	6.71	.366E-02	1.33	5.49	15.6	.455E+05
479	.676E-02	.480	1.28	5.54	477.	.443E-02	22.6	8.40	.247E-02	5.31	5.54	4.40	.192E+05
480	.101	.466	1.55	5.55	456.	.949E-02	21.8	8.26	.167E-02	4.41	5.55	9.28	.297E+05
481	.584E-01	.431	1.73	5.34	458.	.587E-02	17.4	6.38	.128E-02	3.37	5.34	6.23	.160E+05
482	.181	.443	1.51	5.34	510.	.731E-02	17.3	8.74	.535E-02	2.56	5.34	8.42	.671E+05
483	.147	.481	1.58	5.21	360.	.501E-02	19.5	7.67	.686E-02	2.86	5.21	3.74	.232E+05
484	.292E-01	.442	1.38	5.06	533.	.921E-02	18.2	8.50	.285E-02	3.22	5.06	11.1	.310E+05
485	.106	.306	1.55	5.85	528.	.624E-02	23.5	8.98	.265E-02	3.16	5.85	10.8	.727E+04
486	.146	.324	1.69	5.23	484.	.936E-02	19.8	8.42	.174E-02	3.83	5.23	14.0	.275E+05
487	.114	.501	1.60	5.32	507.	.529E-02	21.3	7.62	.258E-02	.862	5.32	5.34	.426E+05
488	.734E-01	.398	1.45	6.01	492.	.957E-02	22.8	8.64	.295E-02	5.83	6.01	11.8	.431E+05
489	.952E-01	.358	1.52	5.64	507.	.774E-02	22.3	6.92	.491E-02	1.23	5.64	11.0	.648E+05
490	.191	.404	1.36	5.73	414.	.889E-02	24.2	7.41	.165E-02	3.62	5.73	9.11	.540E+04
491	.754E-01	.559	1.39	4.90	454.	.865E-02	23.7	8.48	.588E-02	1.83	4.90	7.03	.136E+05
492	.165	.374	1.60	4.96	532.	.715E-02	18.7	8.08	.568E-02	4.14	4.96	10.2	.104E+06
493	.330E-01	.438	1.28	4.97	526.	.858E-02	18.1	8.74	.333E-02	1.71	4.97	10.3	.136E+05
494	.102	.291	1.64	5.15	404.	.831E-02	21.7	8.92	.416E-02	2.50	5.15	11.5	.921E+05
495	.558E-01	.294	1.29	6.06	453.	.868E-02	23.6	6.35	.406E-02	5.85	6.06	13.4	.839E+05
496	.178	.374	1.59	5.08	442.	.136E-02	19.4	7.03	.253E-02	.536	5.08	1.61	.239E+05
497	.542E-01	.406	1.59	4.81	465.	.307E-02	21.4	6.17	.138E-02	4.71	4.81	3.51	.104E+04
498	.104	.356	1.43	5.14	463.	.731E-02	16.9	6.72	.306E-02	2.88	5.14	9.51	.535E+05
499	.459E-01	.331	1.49	5.29	426.	.657E-02	23.6	8.17	.205E-02	3.03	5.29	8.45	.311E+04
500	.165E-01	.345	1.33	5.89	481.	.509E-02	20.1	8.90	.266E-02	4.58	5.89	7.10	.273E+05

SOIL PCOCs: MODELED FROM WOOD PROCESS AREA TO THE ELIZABETH RIVER

FILE: MCER.INP/OUT

AQUIFER SPECIFIC

SIMULATION RUN FOR ALL PCOCs

Longitudinal dispersivity	m	24.4
Transverse dispersivity	m	8.13
Vertical dispersivity	m	1.37
Well distance from site	m	244.
Angle off center	degree	0.000E+00

RUN NO.	DIAM cm	THETAS	RHOB g/cc	BAQFR m	DKS m/yr	SS	TEMP C	PH	FOC	Z1 (m)	HSOURC m	VEL m/yr	RETARD
1	.191	.528	1.69	4.87	.325E+04	.657E-02	17.9	6.58	.365E-02	3.37	4.87	40.4	.503E+05
2	.937E-01	.394	1.53	5.35	.296E+04	.623E-02	19.9	8.01	.274E-02	1.75	5.35	46.7	.189E+05
3	.110	.520	1.43	5.55	.317E+04	.668E-02	18.5	7.97	.581E-02	.118	5.55	40.7	.464E+05
4	.178	.432	1.25	6.05	.374E+04	.671E-02	17.8	7.22	.235E-02	3.36	6.05	58.2	.110E+05
5	.125	.408	1.53	5.95	.240E+04	.612E-02	21.1	6.64	.222E-02	2.09	5.95	36.0	.219E+05
6	.190	.567	1.73	5.70	.274E+04	.655E-02	18.2	6.17	.717E-02	5.69	5.70	31.6	.388E+05
7	.794E-01	.399	1.29	5.82	.375E+04	.661E-02	19.7	7.48	.346E-02	4.60	5.82	62.1	.265E+05
8	.138E-02	.563	1.61	5.85	.212E+04	.669E-02	24.7	7.26	.698E-02	3.18	5.85	25.2	.282E+05
9	.112	.359	1.26	5.16	.325E+04	.618E-02	20.2	6.17	.117E-02	.409	5.16	56.1	.981E+04
10	.167	.337	1.72	5.86	.338E+04	.661E-02	23.0	6.36	.675E-02	5.35	5.86	66.2	.413E+05
11	.573E-02	.395	1.71	5.83	.231E+04	.660E-02	23.8	8.49	.388E-02	3.50	5.83	38.5	.783E+05
12	.767E-01	.394	1.39	5.48	.311E+04	.606E-02	23.1	8.54	.392E-02	2.12	5.48	47.8	.716E+05
13	.149	.465	1.32	5.36	.335E+04	.641E-02	18.3	8.14	.635E-02	4.19	5.36	46.1	.600E+05
14	.615E-02	.309	1.67	5.39	.283E+04	.634E-02	23.0	7.94	.684E-02	2.51	5.39	58.2	.190E+06
15	.171	.388	1.28	6.00	.318E+04	.602E-02	19.9	7.06	.224E-02	3.51	6.00	49.4	.190E+05
16	.177	.378	1.29	4.77	.287E+04	.637E-02	18.5	7.92	.198E-02	1.87	4.77	48.4	.305E+05
17	.114	.382	1.74	5.56	.275E+04	.654E-02	17.5	8.81	.510E-02	.466	5.56	47.0	.425E+05
18	.911E-01	.405	1.42	4.83	.270E+04	.627E-02	23.9	6.81	.700E-02	1.57	4.83	41.8	.117E+06
19	.103	.403	1.42	5.33	.296E+04	.641E-02	21.3	6.91	.522E-02	4.51	5.33	47.0	.714E+05
20	.158	.453	1.43	5.46	.279E+04	.679E-02	18.8	6.08	.541E-02	.449	5.46	41.8	.492E+05
21	.420E-01	.462	1.59	5.03	.330E+04	.596E-02	24.6	7.48	.640E-02	3.50	5.03	42.7	.916E+05
22	.177	.355	1.65	5.03	.331E+04	.648E-02	17.5	8.39	.679E-02	4.14	5.03	60.4	.564E+05
23	.191	.264	1.27	5.27	.353E+04	.622E-02	17.0	8.40	.253E-02	4.51	5.27	83.1	.641E+05
24	.108	.346	1.68	4.97	.312E+04	.675E-02	22.3	8.96	.707E-02	1.37	4.97	60.8	.104E+06
25	.874E-01	.358	1.74	4.75	.320E+04	.621E-02	17.3	6.93	.757E-02	3.18	4.75	55.6	.393E+05
26	.668E-01	.436	1.55	5.97	.245E+04	.639E-02	19.3	7.94	.611E-02	1.01	5.97	35.9	.969E+05
27	.292E-01	.504	1.58	5.51	.361E+04	.671E-02	19.8	7.48	.156E-02	1.91	5.51	48.1	.221E+05
28	.816E-01	.464	1.30	6.06	.276E+04	.630E-02	16.4	8.59	.541E-02	1.01	6.06	37.5	.306E+05
29	.124	.320	1.61	5.13	.265E+04	.621E-02	16.5	7.39	.740E-02	2.19	5.13	51.3	.147E+06
30	.107	.335	1.46	5.26	.353E+04	.672E-02	23.4	6.56	.656E-02	3.88	5.26	70.8	.332E+05
31	.120	.312	1.48	5.80	.295E+04	.637E-02	18.9	8.83	.260E-02	3.87	5.80	60.3	.333E+05
32	.183	.444	1.38	5.11	.271E+04	.672E-02	18.2	7.45	.644E-02	1.90	5.11	41.1	.302E+05
33	.179	.341	1.30	5.81	.198E+04	.666E-02	16.0	8.24	.135E-02	3.80	5.81	38.7	.214E+05
34	.122	.472	1.57	4.94	.342E+04	.607E-02	17.2	6.56	.628E-02	1.20	4.94	43.9	.101E+04
35	.742E-01	.385	1.40	6.01	.309E+04	.648E-02	17.4	7.04	.351E-02	1.82	6.01	51.9	.326E+05
36	.173	.342	1.63	5.78	.268E+04	.611E-02	19.4	9.00	.684E-02	2.44	5.78	47.8	.112E+06
37	.381E-01	.324	1.41	5.80	.249E+04	.599E-02	16.4	8.85	.210E-02	2.27	5.80	45.9	.255E+05
38	.312E-01	.553	1.43	4.83	.356E+04	.626E-02	24.8	6.01	.661E-02	2.01	4.83	40.3	.363E+05
39	.749E-01	.402	1.65	5.76	.274E+04	.679E-02	19.4	7.87	.738E-02	4.70	5.76	46.3	.598E+05
40	.452E-01	.504	1.27	5.80	.328E+04	.625E-02	24.5	6.20	.386E-02	.701	5.80	40.7	.498E+05
41	.147	.395	1.69	5.52	.367E+04	.633E-02	17.3	8.83	.522E-02	4.46	5.52	58.8	510.
42	.148	.418	1.72	5.65	.360E+04	.613E-02	24.6	6.42	.626E-02	3.92	5.65	52.8	.929E+05
43	.150	.360	1.42	5.75	.335E+04	.622E-02	21.4	6.10	.383E-02	.833	5.75	57.9	.636E+05
44	.163	.330	1.46	5.43	.287E+04	.671E-02	16.9	8.75	.649E-02	.900E-01	5.43	58.5	.465E+05
45	.144	.511	1.59	5.68	.261E+04	.639E-02	20.4	8.40	.254E-02	4.41	5.68	32.6	.360E+05

46	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
47	.168	.512	1.48	6.01	.347E+04	.610E-02	19.6	7.47	.742E-02	2.74	6.01	41.3	.135E+05
48	.191	.336	1.67	5.35	.372E+04	.604E-02	24.0	7.54	.572E-02	.326	5.35	66.9	.152E+06
49	.196	.428	1.40	6.03	.209E+04	.616E-02	17.4	6.06	.700E-02	4.04	6.03	30.1	.104E+05
50	.193	.344	1.66	5.39	.265E+04	.618E-02	17.7	7.47	.621E-02	4.86	5.39	47.7	.863E+05
51	.637E-03	.540	1.43	5.08	.356E+04	.668E-02	17.9	6.83	.547E-02	.833	5.08	44.0	.464E+04
52	.512E-01	.505	1.40	5.14	.240E+04	.657E-02	18.7	7.76	.708E-02	1.67	5.14	31.3	.102E+05
53	.151	.369	1.38	5.68	.305E+04	.619E-02	17.5	7.57	.330E-02	3.35	5.68	51.1	.352E+05
54	.799E-02	.477	1.25	5.98	.326E+04	.626E-02	23.9	8.94	.527E-02	1.50	5.98	42.7	.730E+05
55	.132	.556	1.71	5.44	.280E+04	.628E-02	20.1	7.05	.655E-02	4.25	5.44	31.7	.103E+06
56	.719E-01	.262	1.31	4.70	.307E+04	.649E-02	22.8	6.66	.684E-02	2.48	4.70	75.8	.379E+05
57	.119	.270	1.70	4.80	.372E+04	.677E-02	22.0	6.47	.670E-02	4.51	4.80	93.4	.187E+06
58	.157	.353	1.37	4.93	.374E+04	.616E-02	21.5	7.52	.133E-02	1.18	4.93	65.2	.708E+04
59	.197	.402	1.50	4.72	.284E+04	.648E-02	24.3	6.34	.700E-02	4.47	4.72	45.9	.173E+05
60	.132	.294	1.28	5.04	.360E+04	.667E-02	23.3	6.03	.467E-02	.846E-01	5.04	81.5	.267E+05
61	.102	.543	1.56	5.62	.378E+04	.659E-02	18.5	7.67	.515E-02	3.97	5.62	45.8	.791E+05
62	.190	.303	1.67	5.36	.308E+04	.633E-02	21.0	7.52	.488E-02	2.41	5.36	64.5	.992E+05
63	.993E-01	.535	1.35	5.10	.261E+04	.620E-02	16.4	7.04	.359E-02	4.45	5.10	30.2	.288E+05
64	.138	.274	1.45	5.51	.253E+04	.620E-02	19.1	8.26	.232E-02	5.27	5.51	57.3	.245E+05
65	.752E-01	.348	1.28	4.98	.279E+04	.678E-02	17.5	8.85	.137E-02	2.69	4.98	54.4	.114E+05
66	.126	.416	1.49	5.88	.331E+04	.659E-02	24.8	7.61	.356E-02	5.51	5.88	52.4	.678E+05
67	.794E-02	.265	1.53	5.37	.307E+04	.601E-02	24.9	7.70	.142E-02	4.24	5.37	69.5	.387E+05
68	.120	.277	1.27	5.96	.366E+04	.601E-02	20.3	8.54	.143E-02	2.27	5.96	79.5	.705E+04
69	.163	.269	1.26	5.72	.246E+04	.598E-02	22.3	6.52	.276E-02	.612	5.72	54.7	.341E+05
70	.625E-01	.372	1.39	5.84	.224E+04	.652E-02	18.1	8.11	.229E-02	5.75	5.84	39.3	.181E+05
71	.612E-01	.321	1.63	6.04	.366E+04	.594E-02	18.9	7.36	.417E-02	5.22	6.04	67.7	.460E+05
72	.130	.472	1.68	5.27	.337E+04	.641E-02	18.3	6.08	.313E-02	4.91	5.27	45.7	.568E+05
73	.186	.286	1.59	5.72	.351E+04	.617E-02	16.5	7.75	.749E-02	3.01	5.72	75.8	.106E+05
74	.790E-01	.439	1.39	6.05	.353E+04	.621E-02	20.9	7.22	.348E-02	3.21	6.05	50.0	.152E+04
75	.130E-01	.440	1.40	6.05	.360E+04	.648E-02	22.5	7.93	.262E-02	1.93	6.05	52.9	.286E+04
76	.990E-01	.414	1.41	6.07	.257E+04	.667E-02	21.5	8.58	.105E-02	1.47	6.07	41.4	.127E+04
77	.204E-01	.536	1.69	5.32	.253E+04	.614E-02	21.0	8.99	.611E-02	2.77	5.32	29.0	.920E+05
78	.809E-01	.321	1.63	4.96	.374E+04	.624E-02	20.0	7.48	.750E-02	2.38	4.96	72.8	.645E+05
79	.114	.451	1.75	5.34	.297E+04	.658E-02	22.7	8.29	.720E-02	5.16	5.34	43.2	.128E+06
80	.675E-01	.266	1.70	5.62	.360E+04	.626E-02	23.5	8.05	.675E-02	.439	5.62	84.7	.103E+06
81	.734E-01	.295	1.28	5.45	.349E+04	.671E-02	22.8	6.88	.636E-02	.800	5.45	79.4	.218E+05
82	.230E-01	.400	1.38	5.64	.262E+04	.657E-02	17.0	8.49	.142E-02	1.19	5.64	43.1	.227E+05
83	.982E-01	.312	1.67	4.91	.316E+04	.664E-02	16.5	7.19	.134E-02	4.13	4.91	67.3	.366E+04
84	.144E-01	.337	1.40	5.06	.370E+04	.676E-02	21.2	8.61	.425E-02	.666	5.06	74.2	.933E+05
85	.105	.271	1.25	4.95	.354E+04	.593E-02	19.4	7.42	.548E-02	.449	4.95	77.5	.108E+06
86	.146E-01	.360	1.70	5.31	.276E+04	.593E-02	23.3	7.31	.148E-02	5.26	5.31	45.4	.246E+05
87	.377E-01	.481	1.74	4.94	.266E+04	.639E-02	16.5	7.45	.442E-02	2.62	4.94	35.3	.568E+05
88	.188	.448	1.53	6.00	.259E+04	.661E-02	16.0	7.81	.462E-02	3.12	6.00	38.2	.343E+05
89	.199	.261	1.68	5.57	.278E+04	.614E-02	24.7	7.16	.560E-02	3.27	5.57	65.5	.760E+05
90	.960E-02	.275	1.37	5.96	.363E+04	.662E-02	19.5	8.44	.758E-02	1.93	5.96	87.4	.967E+05
91	.124	.471	1.46	5.71	.288E+04	.636E-02	23.7	8.28	.453E-02	1.99	5.71	38.9	.503E+05
92	.126	.326	1.44	5.84	.356E+04	.630E-02	19.1	6.23	.397E-02	.193E-01	5.84	68.8	.205E+05
93	.142	.437	1.48	5.72	.266E+04	.618E-02	24.5	6.83	.203E-02	2.74	5.72	37.6	.986E+04
94	.898E-01	.382	1.35	5.76	.251E+04	.655E-02	22.2	8.01	.278E-02	3.69	5.76	43.0	.339E+05
95	.148	.354	1.66	5.38	.235E+04	.605E-02	19.7	6.20	.297E-02	2.88	5.38	40.1	.472E+05
96	.978E-02	.457	1.53	4.98	.277E+04	.610E-02	23.7	7.05	.196E-02	.117	4.98	36.9	.327E+05
97	.191	.316	1.51	5.93	.254E+04	.672E-02	23.1	6.90	.118E-02	4.14	5.93	54.0	.393E+04
98	.534E-01	.459	1.65	5.67	.307E+04	.669E-02	21.7	8.45	.517E-02	3.84	5.67	44.8	.105E+05
99	.111	.364	1.73	5.16	.377E+04	.602E-02	16.8	6.84	.539E-02	4.12	5.16	62.3	.124E+06
100	.107	.548	1.45	5.76	.300E+04	.605E-02	22.5	6.69	.693E-02	1.24	5.76	33.2	.876E+05
101	.829E-02	.273	1.51	5.38	.273E+04	.647E-02	22.0	6.28	.523E-02	2.77	5.38	64.6	.481E+05
102	.994E-01	.530	1.36	5.55	.310E+04	.612E-02	17.9	8.39	.603E-02	3.67	5.55	35.9	.835E+05
103	.198	.429	1.27	5.99	.364E+04	.594E-02	22.3	8.89	.586E-02	.899	5.99	50.4	.927E+05
104	.192	.517	1.74	5.95	.308E+04	.639E-02	17.2	7.74	.465E-02	4.49	5.95	38.1	.336E+05
105	.143	.499	1.51	5.89	.200E+04	.665E-02	19.4	8.85	.373E-02	2.58	5.89	26.6	.449E+05
106	.177	.557	1.37	5.47	.243E+04	.642E-02	17.1	7.72	.691E-02	1.86	5.47	28.0	.682E+05
107	.339E-01	.405	1.62	5.38	.312E+04	.627E-02	19.6	6.92	.319E-02	4.26	5.38	48.4	.244E+05
108	.103	.479	1.43	5.03	.355E+04	.631E-02	22.2	6.17	.611E-02	3.71	5.03	46.8	.278E+04
109	.773E-01	.435	1.71	5.25	.337E+04	.643E-02	22.6	7.89	.261E-02	1.97	5.25	49.8	.307E+05
110	.197	.279	1.69	5.45	.288E+04	.657E-02	24.0	6.89	.385E-02	2.48	5.45	68.0	.558E+05
111	.276E-01	.453	1.51	6.06	.345E+04	.670E-02	18.9	8.70	.372E-02	5.46	6.06	51.1	.308E+05

112	.241E-01	.335	1.29	5.23	.290E+04	.601E-02	24.2	7.90	.423E-02	5.04	5.23	32.8	546.	
113	.948E-01	.308	1.48	4.71	.273E+04	.612E-02	18.7	6.52	.543E-02	1.06	4.71	54.3	.926E+05	
114	.472E-01	.315	1.65	5.51	.278E+04	.601E-02	19.9	6.51	.546E-02	1.00	5.51	53.0	.101E+06	
115	.107	.556	1.70	4.81	.334E+04	.592E-02	24.4	8.45	.370E-02	1.15	4.81	35.6	.394E+05	
116	.346E-01	.319	1.38	5.88	.266E+04	.668E-02	21.5	7.38	.192E-02	1.95	5.88	55.8	.298E+05	
117	.199	.369	1.25	4.72	.240E+04	.670E-02	22.3	7.14	.288E-02	.856	4.72	43.6	.134E+04	
118	.125	.320	1.62	5.96	.280E+04	.619E-02	16.4	6.70	.687E-02	.353	5.96	54.1	.182E+05	
119	.395E-01	.440	1.34	5.31	.336E+04	.641E-02	20.6	8.80	.502E-02	4.20	5.31	49.0	.315E+04	
120	.117	.346	1.58	5.92	.276E+04	.674E-02	18.5	6.79	.261E-02	.363	5.92	53.8	.380E+05	
121	.555E-01	.435	1.48	5.60	.351E+04	.632E-02	16.8	8.05	.452E-02	5.55	5.60	51.0	.680E+05	
122	.151	.341	1.34	5.99	.344E+04	.642E-02	18.1	6.75	.164E-02	.899	5.99	64.3	.191E+05	
123	.196	.362	1.36	4.67	.289E+04	.638E-02	16.7	8.51	.733E-02	3.91	4.67	51.0	.827E+05	
124	.165E-01	.418	1.51	5.42	.240E+04	.612E-02	24.9	8.50	.679E-02	1.46	5.42	35.1	909.	
125	.183	.500	1.44	5.49	.237E+04	.633E-02	17.7	6.02	.511E-02	4.93	5.49	30.0	.338E+05	
126	.107	.297	1.30	5.93	.299E+04	.616E-02	16.2	7.73	.758E-02	5.32	5.93	62.0	.164E+05	
127	.192	.509	1.61	5.63	.230E+04	.617E-02	20.6	8.07	.627E-02	3.51	5.63	27.9	.219E+05	
128	.108	.347	1.61	5.16	.322E+04	.647E-02	20.5	7.17	.732E-02	3.93	5.16	60.1	.141E+06	
129	.126E-01	.369	1.39	4.88	.345E+04	.633E-02	19.2	7.30	.642E-02	4.64	4.88	59.2	.942E+05	
130	.489E-01	.332	1.32	5.19	.287E+04	.624E-02	17.6	7.23	.510E-02	4.32	5.19	54.0	.571E+05	
131	.144	.525	1.59	4.88	.338E+04	.599E-02	22.1	8.08	.458E-02	1.55	4.88	38.5	.609E+05	
132	.141	.393	1.70	4.92	.302E+04	.620E-02	17.3	6.42	.558E-02	3.96	4.92	47.6	.105E+06	
133	.544E-01	.448	1.26	4.88	.298E+04	.638E-02	17.8	8.39	.497E-02	1.90	4.88	42.5	.768E+05	
134	.156	.505	1.57	6.06	.272E+04	.608E-02	18.6	6.94	.461E-02	2.95	6.06	32.7	.299E+05	
135	.377E-01	.474	1.40	5.82	.231E+04	.613E-02	16.5	8.02	.189E-02	5.21	5.82	29.9	.147E+05	
136	.130	.517	1.59	5.65	.239E+04	.616E-02	21.7	8.09	.158E-02	4.97	5.65	28.4	.259E+05	
137	.145	.420	1.39	5.14	.333E+04	.659E-02	21.8	6.11	.337E-02	2.97	5.14	52.3	.188E+05	
138	.152	.469	1.41	5.12	.322E+04	.645E-02	18.7	6.97	.643E-02	3.20	5.12	44.2	.734E+05	
139	.160	.451	1.72	5.69	.343E+04	.672E-02	24.2	6.35	.169E-02	5.64	5.69	51.2	.156E+05	
140	.188	.369	1.54	5.07	.344E+04	.661E-02	18.0	7.77	.593E-02	.816	5.07	61.6	.295E+04	
141	.188	.318	1.29	5.46	.230E+04	.617E-02	21.6	7.87	.410E-02	2.68	5.46	44.8	.345E+05	
142	.671E-01	.421	1.51	5.82	.355E+04	.637E-02	22.3	6.19	.294E-02	5.05	5.82	53.7	.551E+04	
143	.377E-01	.452	1.45	5.18	.293E+04	.593E-02	19.4	7.51	.550E-02	1.91	5.18	38.5	.852E+05	
144	.124	.275	1.55	5.91	.235E+04	.659E-02	23.6	8.16	.532E-02	2.41	5.91	56.3	.986E+05	
145	.144	.485	1.36	5.84	.291E+04	.677E-02	22.0	6.46	.557E-02	5.00	5.84	40.6	.353E-04	
146	.128	.288	1.37	5.23	.243E+04	.601E-02	19.8	7.10	.343E-02	.603	5.23	50.6	.799E+05	
147	.178	.353	1.64	5.11	.242E+04	.637E-02	18.2	8.86	.516E-02	.538	5.11	43.6	.100E+06	
148	.129	.300	1.66	5.28	.258E+04	.629E-02	16.6	8.52	.646E-02	1.92	5.28	54.1	.123E+06	
149	.823E-01	.494	1.48	5.03	.223E+04	.677E-02	21.1	8.99	.582E-02	2.71	5.03	30.6	.341E+05	
150	.127	.396	1.30	4.87	.337E+04	.604E-02	18.2	8.75	.270E-02	4.68	4.87	51.5	.463E+05	
151	.577E-01	.265	1.26	5.21	.312E+04	.656E-02	17.4	6.09	.339E-02	1.15	5.21	77.3	.476E+05	
152	.181	.321	1.47	5.92	.227E+04	.670E-02	22.4	6.06	.306E-02	4.54	5.92	47.3	.465E+05	
153	.642E-01	.413	1.56	4.91	.348E+04	.625E-02	19.5	6.52	.382E-02	1.56	4.91	52.8	.708E+05	
154	.153E-01	.523	1.48	6.03	.317E+04	.602E-02	19.0	6.58	.211E-02	4.62	6.03	36.5	.166E+05	
155	.126	.505	1.44	5.52	.227E+04	.636E-02	21.1	8.79	.254E-02	2.79	5.52	28.6	.353E+05	
156	.477E-01	.454	1.51	5.84	.310E+04	.642E-02	17.8	7.41	.483E-02	4.44	5.84	43.8	.581E+05	
157	.104	.370	1.44	5.20	.277E+04	.603E-02	21.9	8.37	.120E-02	2.09	5.20	45.1	.900E+04	
158	.826E-01	.427	1.72	5.23	.220E+04	.666E-02	23.9	8.21	.625E-02	2.86	5.23	34.3	.126E+06	
159	.781E-01	.555	1.43	6.10	.232E+04	.605E-02	21.5	8.36	.222E-02	3.61	6.10	25.3	.122E+05	
160	.371E-01	.402	1.38	5.59	.369E+04	.627E-02	18.6	8.40	.712E-02	2.92	5.59	57.5	.924E+04	
161	.727E-01	.370	1.43	4.68	.246E+04	.667E-02	17.4	8.59	.279E-02	4.45	4.68	44.3	.435E+05	
162	.447E-01	.332	1.72	5.42	.372E+04	.603E-02	20.1	6.44	.253E-02	2.82	5.42	67.5	.267E+05	
163	.172	.511	1.37	4.88	.284E+04	.640E-02	19.4	8.42	.128E-02	2.33	4.88	35.6	.841E+04	
164	.867E-01	.490	1.70	5.48	.340E+04	.669E-02	17.7	6.68	.551E-02	2.46	5.48	46.4	.430E+05	
165	.901E-01	.524	1.55	5.94	.305E+04	.676E-02	16.3	8.16	.688E-02	2.47	5.94	39.3	.109E+06	
166	.118	.281	1.26	4.67	.288E+04	.590E-02	22.7	7.20	.239E-02	1.19	4.67	60.5	.198E+05	
167	.146	.328	1.64	6.09	.264E+04	.604E-02	22.6	7.26	.319E-02	.101	6.09	48.6	.324E+05	
168	.146	.397	1.50	5.65	.340E+04	.658E-02	22.2	7.42	.611E-02	5.42	5.65	56.4	.927E+05	
169	.166	.378	1.71	6.06	.268E+04	.653E-02	17.5	8.78	.666E-02	.572	6.06	46.3	.159E+06	
170	.780E-01	.459	1.42	4.87	.348E+04	.603E-02	21.6	8.69	.109E-02	.863	4.87	45.7	.573E+04	
171	.246E-01	.495	1.47	5.33	.343E+04	.669E-02	16.8	6.09	.351E-02	1.37	5.33	46.4	.137E+05	
172	.134	.490	1.43	5.21	.246E+04	.645E-02	23.7	7.83	.155E-02	5.03	5.21	32.4	.370E+04	
173	.583E-01	.532	1.51	4.59	.288E+04	.674E-02	18.4	6.37	.271E-02	3.48	4.59	36.5	.106E+05	
174	.898E-01	.512	1.50	5.20	.345E+04	.608E-02	17.8	8.31	.220E-02	2.82	5.20	40.9	.320E+05	
175	.852E-01	.556	1.29	4.57	.308E+04	.613E-02	23.2	7.33	.285E-02	.627	4.57	33.9	.906E+04	
176	.868E-01	.554	1.29	6.07	.377E+04	.677E-02	17.1	6.75	.552E-02	5.33	6.07	46.1	.613E+05	
177	.187	.507	1.28	4.66	.315E+04	.660E-02	22.7	6.84	.263E-02	2.16	4.66	41.1	.243E+05	

179	.342E-01	.529	1.67	4.96	.281E+04	.621E-02	17.0	7.01	.573E-02	3.41	4.96	33.0	.455E+05
180	.792E-01	.332	1.41	5.67	.315E+04	.622E-02	16.4	7.72	.204E-02	5.19	5.67	59.0	.474E+05
181	.130	.495	1.38	5.92	.292E+04	.654E-02	23.1	8.89	.588E-02	.192	5.92	38.6	.803E+05
182	.170	.508	1.69	4.83	.364E+04	.624E-02	21.0	8.97	.474E-02	.235	4.83	44.7	.832E+05
183	.942E-01	.348	1.26	4.96	.344E+04	.606E-02	24.3	6.28	.694E-02	.685	4.96	59.9	.653E+05
184	.906E-01	.345	1.38	4.87	.288E+04	.637E-02	23.1	6.47	.403E-02	3.83	4.87	53.1	.232E+05
185	.100	.382	1.56	4.77	.246E+04	.655E-02	18.7	6.23	.179E-02	.482	4.77	42.2	.546E+04
186	.172	.458	1.66	4.90	.368E+04	.616E-02	21.6	6.72	.260E-02	.156	4.90	49.5	.172E+05
187	.136	.360	1.68	5.73	.260E+04	.626E-02	18.4	8.65	.179E-02	2.27	5.73	45.2	.138E+04
188	.144	.310	1.65	5.87	.236E+04	.674E-02	18.7	8.70	.668E-02	2.86	5.87	51.3	.217E+05
189	.515E-01	.472	1.40	5.55	.344E+04	.641E-02	17.4	7.01	.428E-02	4.62	5.55	46.6	.225E+05
190	.160	.549	1.65	5.17	.345E+04	.660E-02	20.9	8.39	.419E-02	3.51	5.17	41.5	.687E+05
191	.509E-01	.288	1.29	5.43	.308E+04	.654E-02	22.2	6.80	.166E-02	2.31	5.43	69.9	.350E+05
192	.999E-01	.367	1.26	5.56	.237E+04	.596E-02	19.6	6.42	.205E-02	4.86	5.56	38.5	.104E+05
193	.137	.528	1.36	4.69	.273E+04	.629E-02	18.8	6.34	.394E-02	4.19	4.69	32.6	.463E+05
194	.351E-01	.420	1.37	5.01	.331E+04	.598E-02	23.2	6.79	.417E-02	1.08	5.01	47.1	.316E+05
195	.127	.374	1.67	4.60	.278E+04	.621E-02	21.1	7.51	.265E-02	1.07	4.60	46.2	.458E+05
196	.466E-01	.355	1.71	5.94	.253E+04	.663E-02	20.9	6.19	.606E-02	5.13	5.94	47.3	.240E+05
197	.151	.474	1.53	5.89	.287E+04	.597E-02	18.3	6.96	.286E-02	5.88	5.89	36.2	.329E+04
198	.857E-01	.330	1.72	5.29	.258E+04	.625E-02	17.5	6.39	.545E-02	1.25	5.29	48.8	.145E+06
199	.348E-01	.398	1.47	5.64	.327E+04	.605E-02	19.1	6.51	.576E-02	.370	5.64	49.6	.116E+06
200	.127	.440	1.46	4.75	.368E+04	.668E-02	19.6	7.84	.372E-02	2.18	4.75	55.8	.298E+05
201	.131	.273	1.37	5.13	.354E+04	.614E-02	23.2	7.62	.436E-02	4.28	5.13	79.6	.841E+05
202	.124	.540	1.52	4.80	.337E+04	.672E-02	19.1	6.85	.581E-02	.608	4.80	41.9	.671E+05
203	.111	.302	1.62	6.10	.371E+04	.608E-02	21.3	7.08	.398E-02	4.99	6.10	74.6	.980E+05
204	.156	.311	1.30	5.39	.365E+04	.616E-02	19.8	7.95	.239E-02	.330E-01	5.39	72.5	.214E+05
205	.161	.474	1.31	5.06	.233E+04	.656E-02	22.0	6.19	.484E-02	3.58	5.06	32.2	.337E+05
206	.131	.542	1.27	6.09	.319E+04	.641E-02	22.2	7.44	.164E-02	.197	6.09	37.7	.182E+05
207	.358E-01	.305	1.45	5.91	.327E+04	.633E-02	21.4	7.80	.449E-02	.869	5.91	67.8	.109E+06
208	.105	.354	1.27	5.27	.259E+04	.657E-02	22.4	8.40	.397E-02	4.94	5.27	48.0	.291E+04
209	.110	.377	1.29	5.10	.319E+04	.633E-02	23.1	8.87	.293E-02	4.51	5.10	53.5	.427E+04
210	.381E-01	.506	1.30	4.69	.281E+04	.628E-02	17.2	8.45	.271E-02	2.23	4.69	34.9	.169E+05
211	.177	.393	1.27	6.09	.305E+04	.654E-02	16.7	8.25	.579E-02	1.64	6.09	50.6	.761E+05
212	.114	.540	1.52	5.03	.286E+04	.596E-02	20.6	7.76	.307E-02	3.92	5.03	31.6	.691E+04
213	.849E-01	.348	1.62	5.30	.283E+04	.675E-02	24.2	8.84	.658E-02	1.57	5.30	54.9	.597E+05
214	.127	.326	1.62	5.43	.256E+04	.599E-02	24.2	8.22	.636E-02	2.44	5.43	47.0	.141E+06
215	.238E-02	.340	1.27	4.74	.291E+04	.643E-02	19.9	7.25	.325E-02	3.47	4.74	55.2	.318E+05
216	.858E-01	.394	1.41	5.70	.243E+04	.610E-02	25.0	7.55	.685E-02	1.04	5.70	37.6	.382E+05
217	.558E-01	.484	1.57	5.84	.304E+04	.636E-02	16.6	8.66	.406E-02	2.10	5.84	39.9	.677E+05
218	.135	.415	1.71	5.32	.377E+04	.598E-02	19.9	7.91	.572E-02	2.26	5.32	54.3	.775E+05
219	.150	.396	1.45	5.07	.325E+04	.632E-02	18.3	6.75	.670E-02	.469	5.07	51.9	.974E+04
220	.152E-01	.566	1.70	5.50	.248E+04	.664E-02	24.1	7.14	.504E-02	.145	5.50	29.1	.372E+05
221	.114E-01	.354	1.65	4.89	.249E+04	.654E-02	20.0	8.38	.410E-02	3.27	4.89	46.1	.743E+05
222	.942E-01	.426	1.29	5.36	.354E+04	.639E-02	16.3	7.38	.460E-02	2.59	5.36	53.0	.370E+05
223	.567E-01	.434	1.56	5.58	.352E+04	.676E-02	17.6	7.63	.574E-02	2.19	5.58	54.7	.534E+05
224	.205E-02	.497	1.31	5.72	.311E+04	.676E-02	23.1	6.32	.261E-02	1.85	5.72	42.4	.242E+05
225	.609E-01	.511	1.66	5.62	.343E+04	.608E-02	16.9	8.30	.407E-02	.396	5.62	40.8	.393E+05
226	.909E-01	.514	1.69	4.84	.272E+04	.658E-02	19.9	6.44	.710E-02	.797	4.84	34.8	.117E+05
227	.711E-01	.508	1.56	4.93	.344E+04	.642E-02	21.6	8.28	.665E-02	.606	4.93	43.5	.108E+06
228	.172	.353	1.66	4.63	.303E+04	.666E-02	23.8	8.78	.623E-02	3.31	4.63	57.3	.154E+06
229	.157E-01	.499	1.50	5.15	.326E+04	.649E-02	20.7	8.73	.283E-02	.539	5.15	42.4	.221E+04
230	.672E-01	.510	1.27	5.14	.341E+04	.592E-02	18.6	6.32	.146E-02	.108	5.14	39.5	.412E+04
231	.125	.264	1.59	5.10	.259E+04	.635E-02	20.3	7.55	.541E-02	2.83	5.10	62.2	.153E+06
232	.280E-01	.452	1.69	5.88	.307E+04	.608E-02	24.3	8.80	.400E-02	4.25	5.88	41.3	.679E+05
233	.256E-01	.354	1.32	5.33	.331E+04	.605E-02	19.5	6.24	.298E-02	5.30	5.33	56.5	.317E+05
234	.693E-02	.451	1.32	6.06	.331E+04	.628E-02	16.8	7.35	.527E-02	.977	6.06	46.2	.773E+05
235	.791E-01	.446	1.66	6.09	.237E+04	.677E-02	24.3	7.85	.535E-02	2.55	6.09	36.0	.751E+05
236	.113	.471	1.40	5.15	.252E+04	.628E-02	16.9	8.95	.673E-02	.444	5.15	33.6	.129E+05
237	.609E-01	.284	1.26	4.63	.317E+04	.622E-02	17.8	7.69	.687E-02	3.65	4.63	69.5	.943E+05
238	.173	.419	1.41	5.62	.291E+04	.678E-02	20.2	6.86	.330E-02	1.84	5.62	47.1	505.
239	.234E-02	.399	1.49	6.05	.200E+04	.670E-02	20.1	6.56	.628E-02	.165	6.05	33.6	.460E+05
240	.101	.530	1.28	5.67	.272E+04	.634E-02	20.0	7.01	.206E-02	3.16	5.67	32.5	.191E+05
241	.206E-01	.428	1.69	5.51	.252E+04	.614E-02	17.7	6.26	.200E-02	.774	5.51	36.2	.295E+05
242	.847E-01	.275	1.27	5.97	.235E+04	.634E-02	21.9	7.91	.241E-02	.831	5.97	54.2	.519E+05
243	.283E-01	.387	1.45	4.65	.356E+04	.648E-02	20.0	7.15	.550E-02	2.39	4.65	59.6	.808E+04

244	.31	[illegible]	[illegible]	1.64	4.98	[illegible]	[illegible]	18.[illegible]	7.[illegible]	[illegible]	4.46	4.[illegible]	72.3	.148E+05
245	.457E-01	.491	1.60	4.99	.341E+04	.676E-02	18.9	6.34	.172E-02	4.52	4.99	47.0	.226E+05
246	.181	.405	1.72	5.27	.322E+04	.641E-02	19.7	7.68	.187E-02	3.72	5.27	51.1	.357E+05
247	.171	.268	1.61	5.86	.285E+04	.632E-02	20.2	7.12	.574E-02	4.31	5.86	67.0	.257E+05
248	.549E-01	.539	1.32	4.80	.337E+04	.666E-02	18.9	7.01	.659E-02	2.63	4.80	41.6	.751E+05
249	.154	.299	1.28	4.59	.293E+04	.632E-02	18.5	6.26	.115E-02	4.41	4.59	62.0	.176E+05
250	.136	.463	1.32	5.33	.336E+04	.641E-02	19.8	8.17	.506E-02	4.54	5.33	46.5	.741E+05
251	.153	.491	1.53	4.67	.287E+04	.591E-02	20.6	6.02	.484E-02	4.05	4.67	34.6	.361E+05
252	.275E-01	.358	1.60	5.40	.280E+04	.638E-02	19.5	6.51	.244E-02	1.47	5.40	49.7	.247E+05
253	.160	.442	1.69	5.56	.319E+04	.609E-02	20.6	6.49	.740E-02	2.74	5.56	43.9	.434E+05
254	.299E-01	.295	1.70	5.71	.273E+04	.680E-02	24.3	8.01	.117E-02	1.90	5.71	63.0	.326E+05
255	.105	.530	1.64	5.76	.375E+04	.679E-02	18.1	7.67	.428E-02	3.14	5.76	48.1	.402E+04
256	.190	.450	1.60	5.85	.249E+04	.670E-02	19.7	6.94	.120E-02	.806	5.85	37.0	.687E+04
257	.954E-01	.358	1.45	5.44	.372E+04	.593E-02	23.1	8.15	.460E-02	4.68	5.44	61.6	.522E+05
258	.374E-01	.314	1.33	4.78	.373E+04	.655E-02	21.6	8.20	.630E-02	.553	4.78	77.7	.231E+05
259	.189	.419	1.44	4.93	.339E+04	.672E-02	22.8	8.53	.415E-02	.237	4.93	54.2	.526E+05
260	.161	.511	1.56	5.55	.307E+04	.612E-02	21.8	8.80	.415E-02	3.14	5.55	36.7	.383E+05
261	.107	.296	1.66	4.74	.299E+04	.618E-02	21.1	6.76	.601E-02	2.41	4.74	62.2	.183E+06
262	.122	.544	1.38	5.63	.373E+04	.656E-02	23.7	8.77	.678E-02	.993	5.63	45.0	.107E+05
263	.233E-01	.300	1.37	5.93	.275E+04	.599E-02	22.5	8.10	.363E-02	3.42	5.93	55.0	.724E+05
264	.545E-01	.523	1.34	4.79	.328E+04	.672E-02	22.2	6.47	.177E-02	1.94	4.79	42.1	.191E+05
265	.878E-01	.415	1.71	5.57	.307E+04	.671E-02	19.1	8.64	.386E-02	3.96	5.57	49.6	.751E+05
266	.126	.354	1.70	5.35	.290E+04	.620E-02	18.2	7.03	.282E-02	5.01	5.35	50.7	.156E+05
267	.385E-01	.288	1.64	4.77	.260E+04	.646E-02	23.1	7.20	.320E-02	1.21	4.77	58.4	.433E+05
268	.129	.471	1.63	5.44	.216E+04	.668E-02	16.9	8.65	.697E-02	1.95	5.44	30.7	.369E+05
269	.144	.318	1.67	4.91	.253E+04	.679E-02	19.8	7.44	.301E-02	1.73	4.91	54.1	.172E+05
270	.200E-01	.374	1.34	6.01	.306E+04	.604E-02	16.7	6.86	.621E-02	.615	6.01	49.5	418.
271	.859E-01	.271	1.47	5.35	.316E+04	.652E-02	23.7	8.07	.501E-02	3.94	5.35	76.2	.123E+06
272	.592E-02	.443	1.39	5.40	.339E+04	.671E-02	21.6	6.90	.692E-02	4.77	5.40	51.3	.793E+05
273	.886E-01	.419	1.63	5.37	.261E+04	.613E-02	23.5	6.34	.335E-02	.614	5.37	38.2	.671E+04
274	.182	.518	1.59	5.06	.307E+04	.618E-02	17.2	6.88	.359E-02	3.48	5.06	36.6	.180E+04
275	.134E-01	.535	1.39	6.08	.210E+04	.621E-02	18.0	6.39	.641E-02	3.86	6.08	24.4	.498E+05
276	.130	.373	1.53	5.18	.284E+04	.654E-02	20.2	8.21	.459E-02	3.99	5.18	49.8	.265E+05
277	.368E-01	.357	1.63	5.80	.281E+04	.612E-02	18.8	7.27	.158E-02	2.61	5.80	48.1	.204E+05
278	.115	.299	1.73	4.69	.365E+04	.639E-02	22.6	8.59	.572E-02	2.44	4.69	78.1	.109E+06
279	.421E-01	.372	1.44	6.02	.277E+04	.651E-02	18.1	7.51	.139E-02	4.57	6.02	48.4	.113E+05
280	.115	.414	1.58	4.88	.278E+04	.590E-02	20.8	7.14	.642E-02	3.27	4.88	39.7	.369E+05
281	.123E-01	.293	1.40	5.94	.321E+04	.669E-02	16.2	8.97	.160E-02	1.20	5.94	73.3	.268E+05
282	.364E-02	.483	1.74	4.81	.286E+04	.607E-02	22.7	8.28	.294E-02	2.89	4.81	36.0	.119E+05
283	.187	.549	1.30	5.15	.314E+04	.624E-02	19.6	7.32	.597E-02	1.06	5.15	35.7	.732E+05
284	.161	.321	1.76	6.06	.328E+04	.663E-02	18.9	8.44	.682E-02	5.57	6.06	67.8	.149E+05
285	.111	.431	1.61	6.05	.352E+04	.623E-02	23.6	7.30	.260E-02	.846	6.05	51.0	.519E+05
286	.155	.276	1.57	5.01	.358E+04	.615E-02	20.2	8.44	.457E-02	3.93	5.01	79.7	.561E+05
287	.194	.264	1.34	5.11	.236E+04	.666E-02	23.9	6.88	.510E-02	3.07	5.11	59.5	.142E+06
288	.954E-01	.263	1.68	4.97	.288E+04	.612E-02	18.6	7.22	.161E-02	1.69	4.97	66.9	.212E+05
289	.141E-02	.467	1.53	5.56	.294E+04	.618E-02	20.0	7.91	.271E-02	5.39	5.56	39.0	.267E+05
290	.158	.310	1.27	5.95	.322E+04	.648E-02	16.8	6.87	.514E-02	3.08	5.95	67.4	.112E+06
291	.365E-01	.357	1.56	5.13	.376E+04	.664E-02	17.6	6.18	.544E-02	3.49	5.13	70.0	.387E+05
292	.233E-01	.428	1.54	5.82	.328E+04	.592E-02	16.7	8.69	.637E-02	1.11	5.82	45.4	.893E+05
293	.180	.295	1.49	4.85	.293E+04	.604E-02	16.8	6.41	.429E-02	1.52	4.85	60.1	.800E+05
294	.110E-01	.541	1.70	5.67	.371E+04	.623E-02	21.5	7.59	.273E-02	4.82	5.67	42.8	.813E+04
295	.138E-01	.499	1.63	5.98	.272E+04	.667E-02	23.9	6.90	.663E-02	5.65	5.98	36.4	.106E+06
296	.479E-01	.307	1.37	5.96	.377E+04	.665E-02	23.8	8.59	.170E-02	1.68	5.96	81.7	.245E+04
297	.118	.543	1.44	6.04	.303E+04	.664E-02	18.1	8.43	.236E-02	.713	6.04	37.1	.262E+05
298	.176	.377	1.32	5.96	.347E+04	.616E-02	20.1	6.87	.533E-02	.661	5.96	56.7	.309E+05
299	.636E-02	.287	1.72	4.69	.351E+04	.632E-02	21.2	6.37	.209E-02	3.95	4.69	77.2	.499E+05
300	.499E-01	.514	1.36	4.83	.362E+04	.623E-02	16.7	7.57	.372E-02	1.17	4.83	43.8	.723E+04
301	.366E-01	.457	1.30	5.88	.255E+04	.645E-02	24.9	8.05	.450E-02	1.98	5.88	36.1	.136E+05
302	.101	.536	1.58	5.96	.205E+04	.646E-02	16.9	7.04	.112E-02	3.65	5.96	24.7	.177E+05
303	.104	.551	1.39	5.18	.351E+04	.603E-02	18.2	6.27	.606E-02	4.65	5.18	38.4	.789E+05
304	.734E-01	.521	1.56	5.97	.310E+04	.635E-02	18.3	7.34	.458E-02	3.81	5.97	37.8	.164E+05
305	.195	.487	1.61	5.41	.341E+04	.645E-02	21.0	6.50	.119E-02	1.82	5.41	45.1	.178E+05
306	.609E-01	.501	1.59	5.06	.324E+04	.614E-02	16.1	6.06	.362E-02	.699	5.06	39.7	.303E+05
307	.193	.375	1.56	5.48	.251E+04	.645E-02	24.3	6.95	.368E-02	1.78	5.48	43.1	.270E+05
308	.108	.425	1.52	5.78	.259E+04	.655E-02	16.5	7.27	.236E-02	5.48	5.78	39.9	.107E+05
309	.197	.308	1.67	5.66	.294E+04	.637E-02	24.5	7.79	.438E-02	4.35	5.66	60.9	.197E+05

310	.951E-01	.400	1.61	4.87	.330E+04	.659E-02	22.7	6.04	.555E-02	3.20	4.87	34.4	.138E+05
311	.162	.341	1.44	5.52	.235E+04	.662E-02	17.5	6.63	.587E-02	2.49	5.52	45.5	.148E+05
312	.231E-02	.536	1.48	6.08	.321E+04	.637E-02	23.5	6.64	.209E-02	4.31	6.08	38.2	768.
313	.831E-01	.517	1.59	5.70	.203E+04	.660E-02	21.9	6.38	.674E-02	.591	5.70	25.9	.948E+05
314	.147	.294	1.61	5.16	.298E+04	.603E-02	20.8	7.09	.593E-02	.449	5.16	61.1	.799E+05
315	.187	.545	1.44	4.60	.301E+04	.663E-02	16.6	8.93	.633E-02	4.27	4.60	36.6	.915E+05
316	.159	.427	1.74	4.64	.261E+04	.679E-02	23.9	7.78	.582E-02	2.81	4.64	41.5	.126E+06
317	.174	.512	1.60	5.97	.249E+04	.593E-02	20.2	6.12	.340E-02	3.10	5.97	28.8	.323E+05
318	.171	.269	1.61	5.51	.293E+04	.598E-02	17.8	8.75	.181E-02	2.38	5.51	65.0	.173E+05
319	.110	.485	1.27	4.91	.281E+04	.593E-02	17.5	6.94	.548E-02	2.33	4.91	34.3	.778E+05
320	.155	.333	1.33	5.99	.299E+04	.665E-02	23.6	6.60	.712E-02	2.34	5.99	59.7	.901E+05
321	.190	.304	1.68	4.77	.329E+04	.592E-02	23.5	8.15	.727E-02	3.31	4.77	64.1	.519E+05
322	.409E-01	.299	1.42	4.60	.365E+04	.679E-02	21.4	7.75	.489E-02	2.79	4.60	82.9	.672E+05
323	.749E-02	.407	1.58	6.02	.342E+04	.620E-02	23.9	7.18	.208E-02	2.66	6.02	52.1	.401E+04
324	.779E-01	.458	1.25	5.97	.213E+04	.649E-02	22.6	8.25	.732E-02	1.37	5.97	30.2	.489E+05
325	.442E-01	.513	1.66	5.46	.243E+04	.603E-02	21.8	7.84	.107E-02	1.98	5.46	28.6	.854E+04
326	.308E-01	.294	1.58	5.63	.266E+04	.650E-02	24.9	8.97	.189E-02	3.37	5.63	58.9	.206E+05
327	.167	.310	1.58	5.28	.310E+04	.594E-02	20.8	8.55	.262E-02	1.46	5.28	59.2	.149E+05
328	.160	.483	1.32	5.93	.330E+04	.638E-02	20.9	6.62	.151E-02	5.46	5.93	43.6	.124E+05
329	.625E-01	.531	1.65	6.00	.220E+04	.641E-02	23.3	8.51	.700E-02	5.93	6.00	26.6	.108E+06
330	.783E-01	.368	1.27	4.73	.354E+04	.614E-02	19.5	7.06	.198E-02	3.68	4.73	59.0	.644E+04
331	.836E-01	.405	1.52	4.62	.336E+04	.623E-02	20.2	8.27	.132E-02	.608	4.62	51.8	.231E+05
332	.262E-01	.327	1.30	5.32	.291E+04	.613E-02	22.3	6.29	.463E-02	.571	5.32	54.4	126.
333	.144	.522	1.70	5.32	.354E+04	.607E-02	23.7	8.23	.128E-02	.207	5.32	41.2	.203E+05
334	.165	.296	1.66	5.77	.267E+04	.642E-02	21.4	8.73	.566E-02	1.54	5.77	58.0	.423E+05
335	.149	.265	1.63	5.89	.338E+04	.611E-02	21.1	8.51	.186E-02	.980	5.89	77.7	.388E+05
336	.223E-01	.413	1.42	6.07	.314E+04	.633E-02	17.1	6.91	.315E-02	1.63	6.07	48.1	.352E+05
337	.510E-01	.301	1.61	5.67	.273E+04	.655E-02	21.7	6.75	.332E-02	4.95	5.67	59.3	.350E+05
338	.160	.495	1.36	5.56	.324E+04	.627E-02	22.9	8.16	.543E-02	.703	5.56	41.0	.823E+05
339	.121	.333	1.58	4.90	.261E+04	.604E-02	21.3	7.89	.188E-02	3.37	4.90	47.2	.323E+05
340	.174	.474	1.29	4.86	.257E+04	.639E-02	20.0	6.89	.329E-02	.813E-01	4.86	34.7	49.0
341	.158	.561	1.74	5.84	.353E+04	.619E-02	18.6	6.63	.599E-02	.617	5.84	38.9	.678E+05
342	.117	.529	1.40	6.04	.364E+04	.666E-02	23.2	6.50	.746E-02	4.98	6.04	45.7	.538E+05
343	.175	.293	1.44	5.95	.239E+04	.600E-02	22.5	8.90	.410E-02	3.29	5.95	48.9	.618E+04
344	.122	.319	1.75	5.13	.344E+04	.631E-02	16.4	6.97	.278E-02	1.97	5.13	68.0	.278E+05
345	.471E-01	.481	1.74	5.72	.348E+04	.651E-02	18.6	7.33	.647E-02	3.29	5.72	47.1	.256E+05
346	.124	.450	1.35	5.08	.277E+04	.650E-02	22.8	7.97	.614E-02	1.45	5.08	40.0	.662E+05
347	.157	.507	1.49	5.26	.290E+04	.626E-02	18.8	7.23	.724E-02	4.41	5.26	35.8	.827E+05
348	.182	.342	1.58	4.94	.232E+04	.662E-02	17.9	7.19	.171E-02	1.84	4.94	45.0	.251E+05
349	.173	.458	1.74	5.93	.281E+04	.627E-02	24.7	7.71	.739E-02	5.62	5.93	38.5	.120E+06
350	.189	.407	1.52	5.93	.220E+04	.643E-02	18.4	8.05	.444E-02	5.04	5.93	34.7	.601E+05
351	.143	.374	1.62	5.75	.326E+04	.606E-02	18.9	8.47	.595E-02	.475	5.75	52.9	.764E+05
352	.790E-01	.541	1.61	6.05	.213E+04	.646E-02	24.0	6.18	.280E-02	4.52	6.05	25.4	.225E+05
353	.150	.524	1.46	4.68	.264E+04	.625E-02	24.5	7.70	.655E-02	3.76	4.68	31.5	.506E+05
354	.409E-02	.464	1.34	5.91	.227E+04	.598E-02	23.3	7.28	.257E-02	4.93	5.91	29.2	200.
355	.298E-01	.284	1.52	5.34	.353E+04	.678E-02	24.8	8.76	.729E-02	2.17	5.34	84.4	.117E+06
356	.129E-02	.442	1.42	5.27	.269E+04	.618E-02	24.6	7.74	.740E-02	3.09	5.27	37.6	.124E+06
357	.575E-01	.300	1.66	5.08	.288E+04	.658E-02	16.6	6.23	.637E-02	4.90	5.08	63.2	.126E+06
358	.317E-01	.392	1.60	4.60	.275E+04	.616E-02	22.8	6.77	.197E-02	1.55	4.60	43.1	.721E+04
359	.862E-01	.372	1.28	4.71	.371E+04	.598E-02	19.6	8.10	.464E-02	3.10	4.71	59.5	.258E+05
360	.109E-01	.326	1.68	5.74	.204E+04	.664E-02	24.5	8.27	.524E-02	2.45	5.74	41.5	.103E+06
361	.695E-01	.494	1.62	5.41	.321E+04	.647E-02	24.2	8.70	.112E-02	.270	5.41	42.0	.126E+04
362	.127	.551	1.68	5.65	.240E+04	.673E-02	19.6	8.16	.168E-02	1.92	5.65	29.3	.563E+04
363	.131	.359	1.30	5.64	.231E+04	.631E-02	18.4	7.74	.171E-02	.683	5.64	40.6	.259E+05
364	.575E-01	.288	1.56	5.10	.365E+04	.592E-02	16.0	8.64	.295E-02	2.82	5.10	75.0	.225E+04
365	.339E-01	.359	1.49	5.53	.255E+04	.614E-02	17.7	8.73	.133E-02	5.14	5.53	43.6	.285E+05
366	.176	.482	1.71	4.65	.245E+04	.672E-02	18.2	8.75	.392E-02	2.84	4.65	34.3	.762E+05
367	.199	.511	1.40	5.65	.305E+04	.626E-02	20.1	6.02	.188E-02	4.63	5.65	37.4	.200E+05
368	.843E-01	.342	1.55	5.24	.349E+04	.647E-02	18.5	8.24	.612E-02	2.06	5.24	65.9	.986E+05
369	.116	.473	1.36	5.56	.333E+04	.657E-02	16.7	8.81	.480E-02	.349E-01	5.56	46.3	.116E+05
370	.535E-01	.270	1.41	5.90	.350E+04	.592E-02	22.6	7.96	.175E-02	3.04	5.90	76.6	.218E+05
371	.122	.467	1.59	5.57	.320E+04	.657E-02	17.4	7.91	.470E-02	3.51	5.57	45.1	.190E+04
372	.533E-01	.284	1.54	5.69	.268E+04	.624E-02	23.2	6.72	.623E-02	3.32	5.69	59.0	.142E+06
373	.199	.397	1.34	4.59	.361E+04	.675E-02	17.5	7.77	.279E-02	1.34	4.59	61.4	.935E+04
374	.588E-01	.360	1.65	5.06	.263E+04	.596E-02	17.1	7.45	.439E-02	3.65	5.06	43.6	.348E+05
375	.993E-01	.418	1.37	5.23	.377E+04	.635E-02	21.8	6.57	.689E-02	4.14	5.23	57.3	.322E+04

376	.107	.283	1.69	5.75	.290E+04	.671E-02	18.7	6.47	.280E-02	5.34	5.75	68.7	.822E+05
377	.183	.482	1.60	4.59	.322E+04	.598E-02	17.6	8.59	.461E-02	1.58	4.59	40.0	.605E+05
378	.386E-01	.448	1.35	5.96	.270E+04	.664E-02	24.0	7.21	.305E-02	4.65	5.96	40.0	.394E+05
379	.714E-01	.395	1.40	5.64	.248E+04	.623E-02	20.2	6.38	.722E-02	1.88	5.64	39.1	.115E+06
380	.946E-01	.522	1.66	5.26	.253E+04	.650E-02	23.0	6.26	.584E-02	.563	5.26	31.5	.934E+05
381	.265E-01	.386	1.62	5.24	.287E+04	.638E-02	19.7	8.76	.104E-02	1.29	5.24	47.5	.184E+05
382	.186	.294	1.37	4.61	.374E+04	.648E-02	19.3	7.18	.644E-02	2.51	4.61	82.5	.135E+06
383	.133	.502	1.68	5.72	.354E+04	.670E-02	22.6	6.80	.347E-02	.214	5.72	47.3	.511E+05
384	.513E-01	.533	1.73	5.85	.273E+04	.671E-02	19.0	7.65	.345E-02	5.78	5.85	34.4	946.
385	.509E-01	.463	1.73	4.58	.375E+04	.643E-02	22.9	8.57	.306E-02	1.29	4.58	52.1	.217E+05
386	.288E-01	.323	1.61	5.56	.239E+04	.654E-02	25.0	8.71	.553E-02	5.11	5.56	48.4	.432E+05
387	.164	.306	1.62	6.03	.211E+04	.679E-02	18.3	6.07	.420E-02	1.59	6.03	46.8	.803E+05
388	.523E-01	.516	1.69	5.60	.360E+04	.630E-02	22.0	8.32	.242E-02	5.01	5.60	43.9	.209E+05
389	.160	.311	1.74	5.75	.196E+04	.680E-02	19.6	7.65	.536E-02	3.90	5.75	42.8	.155E+06
390	.964E-01	.567	1.69	5.44	.284E+04	.603E-02	22.8	7.80	.752E-02	3.69	5.44	30.2	.624E+05
391	.285E-01	.470	1.26	4.91	.328E+04	.645E-02	24.0	6.45	.539E-02	2.72	4.91	45.0	.190E+05
392	.268E-02	.422	1.65	4.65	.340E+04	.643E-02	18.0	7.57	.269E-02	4.04	4.65	51.9	.267E+05
393	.174	.387	1.27	4.84	.278E+04	.670E-02	22.8	7.66	.525E-02	3.77	4.84	48.1	.945E+05
394	.151	.424	1.74	5.81	.214E+04	.663E-02	24.2	8.58	.100E-02	3.59	5.31	33.5	.402E+04
395	.724E-01	.279	1.28	4.66	.333E+04	.620E-02	16.6	6.51	.578E-02	1.30	4.66	74.2	.818E+05
396	.486E-01	.431	1.43	5.02	.259E+04	.644E-02	19.1	7.55	.252E-02	.687	5.02	38.7	.235E+05
397	.274E-01	.318	1.69	5.73	.274E+04	.668E-02	19.6	7.09	.258E-02	3.92	5.73	57.6	.219E+05
398	.186	.559	1.37	4.67	.258E+04	.660E-02	16.6	6.95	.370E-02	1.16	4.67	30.4	.380E+04
399	.775E-01	.297	1.76	5.26	.233E+04	.655E-02	18.2	7.79	.262E-02	.522	5.26	51.4	.673E+05
400	.676E-02	.343	1.33	5.59	.290E+04	.676E-02	17.9	6.73	.370E-02	2.17	5.59	57.2	.158E+05
401	.144	.438	1.67	5.28	.343E+04	.632E-02	22.0	8.02	.658E-02	1.24	5.28	49.5	.784E+05
402	.547E-01	.559	1.29	5.28	.281E+04	.638E-02	21.7	7.08	.512E-02	2.72	5.28	32.0	.127E+04
403	.178	.391	1.47	5.63	.376E+04	.663E-02	22.4	7.98	.101E-02	.303	5.63	63.9	.188E+05
404	.118	.501	1.38	5.23	.285E+04	.610E-02	18.1	6.42	.691E-02	.826E-01	5.23	34.7	.104E+06
405	.866E-01	.299	1.74	5.39	.312E+04	.660E-02	23.3	7.79	.510E-02	4.95	5.39	68.8	.636E+05
406	.892E-01	.290	1.70	4.81	.305E+04	.659E-02	16.4	7.62	.211E-02	.937	4.81	69.3	.133E+05
407	.150	.373	1.29	5.90	.374E+04	.627E-02	23.8	8.15	.365E-02	2.54	5.90	63.0	.644E+05
408	.837E-01	.358	1.31	5.48	.263E+04	.676E-02	19.7	7.77	.210E-02	3.31	5.48	49.6	.332E+05
409	.669E-01	.356	1.34	5.36	.287E+04	.599E-02	24.0	6.78	.325E-02	.883E-03	5.36	48.2	.427E+05
410	.437E-01	.507	1.58	5.87	.354E+04	.605E-02	20.8	6.81	.598E-02	3.20	5.87	42.2	.666E+05
411	.116E-01	.333	1.73	5.44	.360E+04	.646E-02	16.1	8.91	.145E-02	3.73	5.44	69.9	.230E+05
412	.903E-01	.456	1.76	4.93	.366E+04	.610E-02	18.9	8.93	.320E-02	3.09	4.93	49.0	.186E+04
413	.969E-01	.403	1.29	5.18	.339E+04	.627E-02	19.4	6.49	.414E-02	.146	5.18	52.7	.483E+04
414	.106E-01	.342	1.61	5.62	.370E+04	.612E-02	17.4	7.94	.533E-02	4.46	5.62	66.2	.825E+05
415	.723E-01	.427	1.67	5.90	.332E+04	.635E-02	18.8	7.67	.652E-02	.397	5.90	49.3	.221E+05
416	.174	.367	1.62	5.37	.288E+04	.631E-02	20.0	7.09	.588E-02	2.87	5.37	49.5	.674E+05
417	.289E-01	.471	1.66	5.66	.224E+04	.646E-02	25.0	7.51	.182E-02	5.33	5.66	30.8	.956E+04
418	.922E-01	.391	1.74	4.80	.302E+04	.603E-02	19.8	6.77	.238E-02	3.73	4.80	46.6	.217E+05
419	.102	.351	1.54	5.30	.370E+04	.669E-02	23.4	6.40	.310E-02	1.12	5.30	70.5	.195E+05
420	.114	.285	1.54	5.97	.204E+04	.642E-02	20.3	6.13	.278E-02	1.89	5.97	45.9	.693E+05
421	.371E-01	.560	1.33	5.21	.281E+04	.627E-02	24.3	8.42	.151E-02	3.49	5.21	31.4	.927E+04
422	.123	.320	1.34	5.91	.218E+04	.634E-02	24.5	7.77	.347E-02	2.89	5.91	43.2	.200E+05
423	.183	.402	1.60	5.79	.276E+04	.627E-02	20.8	6.52	.225E-02	2.90	5.79	43.0	.713E+04
424	.761E-01	.500	1.63	5.47	.346E+04	.637E-02	18.4	8.64	.446E-02	.407	5.47	44.2	.424E+05
425	.261E-01	.332	1.68	6.05	.322E+04	.593E-02	21.0	7.73	.220E-02	3.35	6.05	57.5	.253E+05
426	.890E-01	.291	1.39	5.59	.365E+04	.611E-02	18.9	8.63	.623E-02	3.93	5.59	76.7	.125E+06
427	.102	.440	1.68	4.95	.302E+04	.679E-02	19.3	6.32	.487E-02	2.59	4.95	46.6	.278E+05
428	.949E-01	.425	1.50	4.98	.311E+04	.629E-02	20.3	8.56	.259E-02	.585	4.98	46.0	.117E+05
429	.113	.424	1.33	4.83	.351E+04	.594E-02	23.5	6.07	.342E-02	4.43	4.83	49.2	.473E+05
430	.984E-01	.494	1.50	5.46	.299E+04	.627E-02	23.2	7.88	.127E-02	2.77	5.46	37.9	.117E+04
431	.169	.288	1.27	5.00	.325E+04	.595E-02	19.4	7.46	.111E-02	2.10	5.00	67.0	.139E+05
432	.151	.409	1.32	4.85	.342E+04	.669E-02	16.5	8.79	.624E-02	3.33	4.85	55.9	.469E+05
433	.332E-01	.480	1.26	5.32	.337E+04	.648E-02	21.3	6.90	.192E-02	1.33	5.32	45.5	.607E+04
434	.529E-02	.309	1.56	4.61	.303E+04	.620E-02	23.7	7.42	.226E-02	4.34	4.61	60.9	.850E+04
435	.166	.512	1.40	4.75	.293E+04	.662E-02	24.1	6.12	.304E-02	1.21	4.75	37.9	.187E+05
436	.365E-02	.402	1.46	5.53	.376E+04	.623E-02	21.3	6.15	.157E-02	2.19	5.53	58.4	.221E+05
437	.153	.555	1.62	6.02	.355E+04	.597E-02	16.2	8.68	.540E-02	4.04	6.02	38.1	.286E+05
438	.145	.445	1.58	5.71	.274E+04	.628E-02	17.2	6.04	.218E-02	.171	5.71	38.7	.347E+05
439	.998E-01	.379	1.30	5.10	.377E+04	.644E-02	17.8	7.15	.372E-02	2.12	5.10	64.1	.420E+04
440	.101E-01	.489	1.48	5.75	.242E+04	.607E-02	16.0	7.54	.398E-02	2.11	5.75	30.0	.559E+05
441	.160	.441	1.29	5.06	.258E+04	.596E-02	19.8	7.59	.261E-02	4.96	5.06	34.8	.382E+05

443	.158	.414	1.64	5.10	.306E+04	.651E-02	16.3	8.43	.680E-02	1.20	5.10	48.0	.322E+05
444	.943E-01	.466	1.72	5.05	.248E+04	.630E-02	22.6	6.82	.414E-02	4.31	5.05	33.6	.798E+05
445	.993E-01	.508	1.32	5.85	.228E+04	.639E-02	19.8	8.03	.381E-02	.558	5.85	28.7	.530E+05
446	.535E-01	.334	1.31	4.81	.370E+04	.640E-02	22.7	6.84	.128E-02	1.68	4.81	70.9	.202E+05
447	.169	.319	1.32	5.28	.328E+04	.624E-02	19.4	8.73	.639E-02	3.74	5.28	64.1	.141E+06
448	.107	.265	1.68	4.87	.321E+04	.627E-02	20.2	6.78	.148E-02	.562E-01	4.87	76.0	.122E+05
449	.180	.544	1.39	6.06	.297E+04	.621E-02	20.0	6.54	.507E-02	2.72	6.06	33.9	.443E+05
450	.726E-01	.559	1.36	6.07	.279E+04	.677E-02	17.0	8.27	.664E-02	4.34	6.07	33.9	.460E+05
451	.133	.392	1.59	5.45	.326E+04	.662E-02	19.5	7.42	.134E-02	.133	5.45	55.0	.174E+05
452	.631E-01	.338	1.31	4.59	.359E+04	.640E-02	19.8	6.81	.460E-02	4.06	4.59	67.9	.119E+05
453	.997E-01	.381	1.68	4.83	.372E+04	.641E-02	16.9	8.20	.270E-02	4.19	4.83	62.6	.244E+05
454	.180	.455	1.36	4.96	.354E+04	.645E-02	23.7	7.78	.409E-02	4.54	4.96	50.2	.534E+05
455	.106	.270	1.42	4.90	.366E+04	.665E-02	18.3	8.34	.419E-02	.575	4.90	90.2	.642E+05
456	.902E-01	.388	1.64	5.79	.307E+04	.624E-02	19.0	8.06	.498E-02	5.73	5.79	49.3	.189E+05
457	.153	.538	1.72	5.58	.258E+04	.654E-02	21.4	8.31	.264E-02	3.58	5.58	31.3	.104E+05
458	.346E-02	.280	1.44	6.07	.212E+04	.641E-02	22.0	6.14	.479E-02	4.11	6.07	48.5	.772E+05
459	.129	.476	1.34	5.66	.281E+04	.598E-02	23.6	7.81	.117E-02	4.24	5.66	35.4	.872E+04
460	.364E-01	.321	1.27	5.06	.311E+04	.639E-02	18.3	6.85	.580E-02	4.40	5.06	61.9	.105E+06
461	.153E-01	.550	1.34	4.59	.270E+04	.647E-02	17.7	8.94	.619E-02	4.34	4.59	31.8	.360E+05
462	.135	.563	1.28	5.14	.333E+04	.629E-02	17.0	6.39	.469E-02	4.34	5.14	37.2	.391E+05
463	.234E-01	.404	1.29	4.58	.352E+04	.651E-02	22.1	6.11	.444E-02	3.66	4.58	56.7	.520E+05
464	.137	.308	1.51	5.10	.331E+04	.634E-02	18.0	6.09	.634E-02	1.27	5.10	68.0	.268E+05
465	.851E-01	.393	1.75	4.79	.362E+04	.667E-02	18.8	8.13	.640E-02	2.25	4.79	61.4	.995E+05
466	.152E-01	.508	1.67	5.77	.333E+04	.679E-02	16.7	8.10	.472E-02	3.86	5.77	44.6	.152E+05
467	.130	.566	1.52	4.88	.351E+04	.677E-02	19.7	6.46	.329E-02	3.49	4.88	42.0	.205E+04
468	.105	.292	1.45	5.22	.374E+04	.632E-02	23.3	8.55	.408E-02	1.55	5.22	81.1	.282E+05
469	.158	.318	1.28	5.67	.222E+04	.678E-02	20.3	8.75	.642E-02	3.47	5.67	47.4	.555E+05
470	.170	.293	1.50	5.19	.307E+04	.623E-02	24.4	7.54	.701E-02	.789E-03	5.19	65.2	.189E+06
471	.354E-02	.474	1.74	6.05	.192E+04	.671E-02	21.9	8.97	.590E-02	.491	6.05	27.2	.197E+04
472	.102	.526	1.59	6.08	.310E+04	.628E-02	20.3	8.42	.445E-02	.492	6.08	37.0	.836E+04
473	.148	.522	1.45	5.80	.236E+04	.606E-02	20.0	7.12	.140E-02	4.82	5.80	27.4	.171E+05
474	.105	.302	1.35	4.82	.270E+04	.652E-02	19.7	6.26	.303E-02	1.81	4.82	58.2	.659E+05
475	.120	.508	1.54	4.88	.264E+04	.645E-02	23.2	8.13	.515E-02	2.47	4.88	33.5	.183E+05
476	.154	.424	1.70	5.04	.338E+04	.663E-02	22.4	6.91	.261E-02	4.29	5.04	52.8	.445E+05
477	.354E-01	.360	1.72	5.67	.337E+04	.592E-02	24.9	6.55	.165E-02	.864E-01	5.67	55.4	.246E+05
478	.173	.471	1.60	4.62	.256E+04	.662E-02	17.5	6.76	.174E-02	4.30	4.62	36.0	.142E+05
479	.811E-02	.511	1.49	5.56	.339E+04	.669E-02	16.2	7.03	.207E-02	4.73	5.56	44.4	.156E+05
480	.121	.568	1.51	4.92	.314E+04	.667E-02	19.6	6.75	.406E-02	2.98	4.92	36.9	.399E+05
481	.508E-01	.390	1.56	4.70	.301E+04	.672E-02	17.7	7.83	.117E-02	1.83	4.70	51.8	.214E+05
482	.894E-01	.385	1.76	4.83	.348E+04	.658E-02	18.3	6.11	.231E-02	3.49	4.83	59.3	.546E+05
483	.279E-01	.281	1.31	5.25	.366E+04	.611E-02	17.6	6.95	.367E-02	2.53	5.25	79.7	.613E+05
484	.298E-01	.461	1.66	5.72	.282E+04	.592E-02	24.2	7.05	.673E-02	3.01	5.72	36.2	.116E+06
485	.344E-01	.301	1.45	5.14	.310E+04	.662E-02	20.7	7.32	.479E-02	3.84	5.14	68.2	.549E+05
486	.546E-01	.369	1.72	5.31	.325E+04	.611E-02	23.5	7.02	.538E-02	1.71	5.31	53.7	.107E+06
487	.160	.459	1.76	4.85	.300E+04	.642E-02	16.5	7.57	.472E-02	1.26	4.85	42.0	.337E+05
488	.312E-01	.385	1.67	4.88	.250E+04	.668E-02	20.3	8.47	.472E-02	4.15	4.88	43.4	.242E+05
489	.162	.458	1.60	6.05	.327E+04	.593E-02	20.6	6.64	.628E-02	1.87	6.05	42.3	.314E+05
490	.180	.273	1.44	4.76	.361E+04	.639E-02	21.9	7.64	.521E-02	4.21	4.76	84.3	.115E+05
491	.341E-01	.540	1.70	5.33	.282E+04	.678E-02	17.8	8.00	.430E-02	4.83	5.33	35.4	.401E+05
492	.839E-01	.371	1.54	6.09	.225E+04	.626E-02	20.2	7.07	.376E-02	3.64	6.09	38.0	.347E+05
493	.194	.457	1.58	5.50	.345E+04	.638E-02	20.8	7.73	.286E-02	2.17	5.50	48.2	.954E+04
494	.451E-01	.403	1.64	5.62	.291E+04	.657E-02	17.9	8.01	.501E-02	5.38	5.62	47.3	.183E+05
495	.191E-01	.471	1.72	4.98	.287E+04	.648E-02	20.1	7.32	.152E-02	.524	4.98	39.5	.210E+05
496	.180	.469	1.72	4.81	.325E+04	.670E-02	16.8	7.96	.190E-02	1.24	4.81	46.5	.341E+05
497	.131	.521	1.57	5.71	.292E+04	.646E-02	18.0	6.60	.216E-02	4.03	5.71	36.3	.687E+04
498	.140	.438	1.76	5.75	.255E+04	.635E-02	18.9	6.78	.387E-02	3.75	5.75	36.9	.390E+05
499	.123	.420	1.51	5.26	.225E+04	.653E-02	17.9	8.17	.196E-02	2.04	5.26	35.0	.172E+05
500	.178	.388	1.25	5.25	.339E+04	.627E-02	24.0	6.93	.573E-02	5.00	5.25	54.9	.607E+05

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ATLANTIC WOOD INDUSTRIES, INC.
PORTSMOUTH, VA
OCTOBER 8, 1991

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BARE GROUND

LAYER 1

VERTICAL PERCOLATION LAYER		
THICKNESS	=	36.00 INCHES
EVAPORATION COEFFICIENT	=	3.100 MM/DAY**0.5
POROSITY	=	0.3665 VOL/VOL
FIELD CAPACITY	=	0.1903 VOL/VOL
WILTING POINT	=	0.0920 VOL/VOL
EFFECTIVE HYDRAULIC CONDUCTIVITY	=	0.02750000 INCHES/HR

GENERAL SIMULATION DATA

SCS RUNOFF CURVE NUMBER	=	88.12
TOTAL AREA OF COVER	=	427230. SQ. FT
EVAPORATIVE ZONE DEPTH	=	4.00 INCHES
EFFECTIVE EVAPORATION COEFFICIENT	=	3.100 MM/DAY**0.5
UPPER LIMIT VEG. STORAGE	=	1.4660 INCHES
INITIAL VEG. STORAGE	=	0.5646 INCHES

CLIMATOLOGIC DATA FOR NORFOLK VIRGINIA

MONTHLY MEAN TEMPERATURES, DEGREES FAHRENHEIT

JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
39.99	41.50	47.77	57.13	67.08	74.94
78.61	77.10	70.83	61.47	51.52	43.66

MONTHLY MEANS SOLAR RADIATION, LANGLEYS PER DAY

JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
73.21	155.53	281.98	418.69	529.02	583.41
567.29	484.97	358.52	221.81	111.48	57.09

LEAF AREA INDEX TABLE

DATE	LAI
1	0.00
78	0.00
103	0.00
129	0.00
154	0.00
180	0.00
205	0.00
230	0.00
256	0.00
281	0.00
307	0.00
332	0.00
366	0.00

BARE GROUND

WINTER COVER FACTOR = 0.00

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AVERAGE MONTHLY TOTALS FOR 74 THROUGH 78

	JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
PRECIPITATION (INCHES)	4.02	2.52	5.02	2.72	3.98	3.64
	6.26	3.58	3.38	2.98	2.99	3.33
RUNOFF (INCHES)	0.802	0.291	1.485	0.730	0.760	0.964
	2.467	1.194	0.904	0.555	0.724	0.503
EVAPOTRANSPIRATION	0.733	1.119	1.971	1.748	2.497	2.336
(INCHES)	2.896	2.113	1.913	1.520	1.028	0.637
PERCOLATION FROM BASE	2.4788	1.4475	1.4561	0.7274	0.6270	0.5461
OF COVER (INCHES)	0.6386	0.5769	0.4708	0.6013	0.8996	1.9941
DRAINAGE FROM BASE OF	0.000	0.000	0.000	0.000	0.000	0.000
COVER (INCHES)	0.000	0.000	0.000	0.000	0.000	0.000

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AVERAGE ANNUAL TOTALS FOR 74 THROUGH 78

	(INCHES)	(CU. FT.)	PERCENT
PRECIPITATION	44.44	1582175.	100.00
RUNOFF	11.379	405110.	25.60
EVAPOTRANSPIRATION	20.512	730294.	46.16
PERCOLATION FROM BASE OF COVER	12.4642	443758.	28.05
DRAINAGE FROM BASE OF COVER	0.000	0.	0.00

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PEAK DAILY VALUES FOR 74 THROUGH 78

	(INCHES)	(CU. FT.)
PRECIPITATION	3.81	135645.5
RUNOFF	2.921	104007.8
PERCOLATION FROM BASE OF COVER	0.1884	6707.4
DRAINAGE FROM BASE OF COVER	0.000	0.0
HEAD ON BASE OF COVER	0.0	
SNOW WATER	0.00	0.0

MAXIMUM VEG. SOIL WATER (VOL/VOL) 0.3396

MINIMUM VEG. SOIL WATER (VOL/VOL) 0.0812

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ATLANTIC WOOD INDUSTRIES, INC.
PORTSMOUTH, VA
OCTOBER 8, 1991

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BARE GROUND

LAYER 1

VERTICAL PERCOLATION LAYER		
THICKNESS	=	36.00 INCHES
EVAPORATION COEFFICIENT	=	3.100 MM/DAY**0.5
POROSITY	=	0.2907 VOL/VOL
FIELD CAPACITY	=	0.1415 VOL/VOL
WILTING POINT	=	0.0500 VOL/VOL
EFFECTIVE HYDRAULIC CONDUCTIVITY	=	0.27000001 INCHES/HR

GENERAL SIMULATION DATA

SCS RUNOFF CURVE NUMBER	=	80.34
TOTAL AREA OF COVER	=	427230. SQ. FT
EVAPORATIVE ZONE DEPTH	=	4.00 INCHES
EFFECTIVE EVAPORATION COEFFICIENT	=	3.100 MM/DAY**0.5
UPPER LIMIT VEG. STORAGE	=	1.1628 INCHES
INITIAL VEG. STORAGE	=	0.3830 INCHES

CLIMATOLOGIC DATA FOR NORFOLK VIRGINIA

MONTHLY MEAN TEMPERATURES, DEGREES FAHRENHEIT

JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
39.99	41.50	47.77	57.13	67.08	74.94
78.61	77.10	70.83	61.47	51.52	43.66

MONTHLY MEANS SOLAR RADIATION, LANGLEYS PER DAY

JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
73.21	155.53	281.98	418.69	529.02	583.41
567.29	484.97	358.52	221.81	111.48	57.09

LEAF AREA INDEX TABLE

DATE	LAI
1	0.00
78	0.00
103	0.00
129	0.00
154	0.00
180	0.00
205	0.00
230	0.00
256	0.00
281	0.00
307	0.00
332	0.00
366	0.00

BARE GROUND

WINTER COVER FACTOR = 0.00

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AVERAGE MONTHLY TOTALS FOR 74 THROUGH 78

	JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
PRECIPITATION (INCHES)	4.02	2.52	5.02	2.72	3.98	3.64
	6.26	3.58	3.38	2.98	2.99	3.33
RUNOFF (INCHES)	0.047	0.001	0.137	0.096	0.053	0.117
	0.630	0.269	0.062	0.028	0.197	0.000
EVAPOTRANSPIRATION	0.751	1.093	1.973	1.633	2.431	2.154
(INCHES)	2.821	1.986	1.885	1.405	0.907	0.653
PERCOLATION FROM BASE	3.4290	1.4695	2.9001	1.1185	1.4968	1.4490
OF COVER (INCHES)	2.6564	1.4741	1.4041	1.4077	1.6481	2.6413
DRAINAGE FROM BASE OF	0.000	0.000	0.000	0.000	0.000	0.000
COVER (INCHES)	0.000	0.000	0.000	0.000	0.000	0.000

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