NUREG/CR-1963
Vol. 1

System Analysis of Shallow Land Burial

Code Manual

Manuscript Completed: January 1981
Date Published: March 1981

Prepared by
D. Lester, D. Buckley, S. Donelson, V. Dura, M. Hecht, W. Horton,
T. Nakai, T. Pasternak, L. Robertson, R. Stula, J. Stoddard

Science Applications, Inc.
P.O. Box 2351
La Jolla, CA 92038

Prepared for
Division of Waste Management
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555
NRC FIN No. B6428-9

ABSTRACT

This is volume one of a three volume set describing the System Model for Shallow Land Burial. It is intended as a code manual containing sufficient information for a new user to operate the code.

This manual gives a brief summary of the code technical content, procedures for use, input/output formats, sample problems and examples of input data. The heart of the manual is a catalog of scenarios from which the user may choose.

TABLE OF CONTENTS

LIST OF TABLES

SUMMARY

This volume is one of a three volume set describing the System Model for Shallow Land Burial. It is intended as a code manual containing sufficient information for a new user to operate the code. The manual is written with the assumption that the user has an operational version of the code available. If the code is to be installed on the user's system, then information in Volumes 2 and 3 along with a listing of the dose factor and nuclide property data is needed.

This manual gives a brief summary of the code technical content, procedures for use, input/output formats, sample problems and examples of input data. The heart of the manual is a catalog of scenarios from which the user may choose. These scenarios include descrete events and chronic releases and are keyed to the inventory and release fraction data base.

1. INTRODUCTION TO VOLUME 1

This document is Volume 1 of a three volume report on the Systems Analysis of Shallow Land Burial Project. This volume is intended as a user manual for analyzing problems using the BURYIT code. BURYIT is the computer implementation of the Systems Model. Volume 2 contains highly detailed technical information on the development and implementation of the model. Volume 3 is an appendix which contains backup information.

Volume 1 is designed so that it contains all information necessary to run the code without modification. This manual is prepared with the assumption that the user has a running version of the code on a system accessible by him. If the user needs to first install the code, then information from Volumes 2 and 3 will also be needed. BURYIT is written in standard FORTRAN IV. CDC7600 or DEC10 versions are available. The CDC version is listed in Volume 3. The complete data base is given in Volume 3.

1.1 BACKGROUND

The Systems Model was developed for use as a comparative tool. It is meant to compare various operational and siting alternatives by calculations population dose resulting from various scenarios. A scenario is the description of an initiating event or continuing condition which results in release of nuclides to the environment.

The code described in this manual will carry out one-dimensional nuclide transport calculations and population dose assessment for water and air pathways. An integrated population dose commitment (50 year) or maximum individual commitment can be calculated.

Release fraction, nuclide inventory and dose factor data bases were developed to support the Systems Model code. These are based on current information available and are necessarily generalized and simplified. Where specific radionuclide mixes are known by the analyst or where release fractions are explicitly known it is recommended that the data base be modified to allow

assessment of the specific case. Detailed information in Volumes 2 and 3 can be used to make such modifications.

1.2 HOW TO USE THIS MANUAL

This manual is organized in a progression of general to specific information. Section 2 is a brief technical overview to familiarize the user with the manner in which the code performs the calculations. It is a summary of the more-detaled discussion in Volume 2. Section 3 provides the user with step-by-step procedures for conversational and batch mode processing. Section 4 provides detailed information on how to prepare input. Section 5 explains how to interpret output. Sample problems in Section 6 allow the user to check a newly operating system and practice using the code. Section 7 offers a selection of data which can be used to supplement user information.

It is suggested that the user first review this entire manual and go to Volumes 2 and 3 where further clarification seems necessary. Then sample problems should be run to ensure that proper operation of the code is verified and understood. Once this is done then the user can analyze problems of interest by preparing appropriate input.

The heart of the analysis is the choice of nuclide release scenario. A catalog of the available scenarios is provided in Section 4.8. This catalog, in the form of a table, gives scenario description and data requirements for running a particular scenario. The user first chooses the desired scenario and then gathers and formulates appropriate input according to the table in Secton 4.8.

2. TECHNICAL OVERVIEW

The Systems Model is designed from existing models and codes so that it is composed of previous established methodologies. The Systems Model is not intended to be a risk model in the sense that all possibilities are considered and the most rigorous calculation made. The SLB Model is rather directed toward making comparisons of situations to weigh alternatives. A set of scenarios is being provided with the SLB Model. These have been developed from detailed event-tree type analysis and are considered to be a reasonably complete list of major initating events which have been condensed from a larger list. The SLB Model is programmed so that additional scenarios can be analyzed by supplying an inventory, release fraction and a pathways calling sequence.

Detailed assumptions involved in the individual transport and dose submodels are discussed in the appropriate parts of Volume 2. Assumptions stated here are major overall system assumptions.

The SLB Systems Model is composed of a series of pathways subprograms which view the environment as a system including a seepage column with waste at the surface or at a subsurface location. This seepage column communicates with a saturated aquifer which then connects with surface water bodies. In addition, the land surface communicates with the atmosphere. The key assumptions are:

- Waste in trenches is homogeneous in nuclide distribution and package type distribution.

- The seepage column is a vertical column with properties and events uniform horizontally.

- The effect of discharge to the aquifer on the soil solumn is coupled.

- Daughter products are not calculated from initial inventory but decay is applied to nuclides in all paths. Daughter products are considered in dose transmittal factors.

- The aquifer is a one-dimensional "pipe" direct to a surface body or well of concern.

- The effect of loss of nuclides from the soil surface is not coupled to the seepage subprogram.

- The atmospheric path is one-dimensional sector-averaged and direct to the population of concern.

- Air and water cocnentrations are carried through food chain and exposure paths as viewed by standard dose assessment procedures.

The analysis begins with a scenario as an initiating event and carries the source term through appropriate paths or series of paths to obtain air and water concentrations which are converted to dose commitments(50 yr)using standard dose assessment methods. Both integrated population dose and dose to a maximum individual can be calculated.

2.1 EXECUTIVE PROGRAM EXEC

The executive program integrates the transport and dose calculation subprograms. The executive program draws from a number of data bases:

- Dose factor and nuclide data prepared by PREDOS from the master data base (internal data base).

- Weather data (input by user).

- Geologic data (input by user).

- Scenario source term (internal data base).

- Scenario calling sequence (internal data base).

- Demographic data (input by user).
- Miscellaneous options switches (input by user).
- Miscellaneous other input data.

Prior to running the executive program, all the necessary data is supplied by an input deck (for batch mode) or on a system disc file (interactive mode).

A diagram of the executive program is shown in Figure 2-1, in an interactive terminal mode. After typing a title banner on the terminal, the executive program calls subprogram INPUT which interrogates the user for key information defining the run (i.e., program parameters and input file names). A data checking routine then applies predetermined criteria to test for completeness and consistency of the input. The executive program then runs the nuclide transport and dose (DOSET) subprograms according to the pathways sequence read from the release scenario file. After each pathway is completed subprogram OUTPUT is called to write dose results to the output file. The executive program then cycles for an additional case if appropriate.

2.2 SUBPROGRAMS

2.2.1 AQUIFR

The "AQUIFER" subprogram is used to assess nuclide transport in the saturated zone. The one-dimensional simulation of transport includes effects of sorption of nuclides on the soil, axial dispersion, and nuclide decay. The result is a time-dependent output as curies discharged per unit time to a body of water.

The input to AQUIFR is a series of band releases defined by initial release, time of duration, and inventory released. The executive program takes discharge output from the seepage column subprogram UNSAT and forms a series of bands which roughly simulate the time-dependent output from UNSAT. AQUIFER is called and run for each band and the results are superimposed to give the resultant time dependent discharge function to a water body. The DOSE subprogram then converts the discharge rates to dose commitments from water sources.

2.2.2 ATMOS

The function of the ATMOS subprogram is to calculate the atmospheric dispersion of radionuclides released to the atmosphere as a result of chronic effluents or accidental events. The principal inputs to ATMOS are (1) the quantity of radionuclides released and (2) the weather data. The principal output of ATMOS is the resulting spatial air and ground concentrations of the released radionculides.

Input interfaces with ATMOS are with the wind erosion subprogram (EROSIO) and the executive program (EXEC). The output of ATMOS is used by the dose code DOSET. Input from EXEC results in an event-scenario-specific quantity of radionuclides released to the atmosphere and definition of the weather data. Weather data results from user-selected standard weather packages available in the system model data base or from input developed by the user. Input from EROSIO is radionuclides released to atmosphere and definition of the weather data. Weather data results from user-selected standard weather packages available in the system model data base or from input developed by the user. Input from EROSIO is radionuclides released to the atmosphere. Output from ATMOS is input to DOSET as spatial-dependent air and ground concentration of the various radionculides.

2.2.3 DIRECT

The function of the DIRECT subprogram is to calculate the external gamma dose resulting from direct exposure to undispersed waste. The principal inputs to DIRECT are (1) source geometry, (2) distance between source and receiver, (3) shielding characteristics, (4) source radionuclide characteristics, and (5) exposure time. The principal output of DIRECT is the resulting whole body dose.

The only interface with DIRECT is the executive program (EXEC) input. Input from EXEC results in an event-scenario-specific characterization of source geometry, shielding, radionuclides, and distance to receiver.

2.2.4 DOSET

The function of the DOSET subprogram is to calculate population doses resulting from radionuclides released to the environment. The principal inputs to DOSET are (1) radionuclide time-integrated plume air concentrations, (2) radionuclide depositions, (3) the quantity of radionuclides released to the source of water, and (4) usage data such as population, age distribution, and land utilization.

Input interfaces with DOSET are the atmospheric dispersion subprogram (ATMOS) and the aquifer transport subprogram (AQUIFR). The output of DOSET is used by the OUTPUT subprogram. Input from ATMOS and AQUIFR is used to calculate population doses for the situation described by the INPUT subprogram.

2.2.5 EROSIO

The function of the EROSIO program is to calculate the quantity of radionuclides dispersed to the atmosphere as a result of wind erosion. The principal inputs to EROSIO are (1) soil surface characterization, (2) radionuclide content in the soil, and (3) annual average weather data. The principal output of EROSIO is the amount and type of radioactivity released to the atmosphere.

Input interface with EROSIO is the executive program (EXEC).

Output is used by the atmospheric transport model (ATMOS). Input from EXEC results in the soil and soil surface characterization, radionuclide identification, and weather data. These data may be selected from standard packages or as input developed by the user. Input from UNSAT is radionuclide content in the near-surface soil resulting from rain and evapotranspiration cycles. Output of EROSIO used by ATMOS is the radionuclide release to the atmsoohere.

2.2.6 INPUT

The function of the INPUT subprogram is to fill the common blocks with the data required to solve the release scenario selected by the user. The user will be asked questions concerning the geology of the site, number of people in each quadrant, wet and dry cycle times, initial inventory of nuclides, etc. The only interface with INPUT is the executive program (EXEC).

2.2.7 OUTPUT

The function of the OUPUT subprogram is to print the results for the release scenario and timer as specified by the user. The only interface with OUTPUT is the executive program (EXEC).

2.2.8 PREDOS

The function of the PREDOS subprogram is to handle preliminary data as soon as a release scenario has been defined and to generate data arrays used by other subprograms. The principal inputs to PREDOS are (1) radionuclide data used for dose calculations and (2) release scenario data.

Input interfaces with PREDOS are the radionuclide data file (NUCDAT.FIL) and scenario data from the INPUT subprogram. The output of PREDOS is block data arrays used by other subprograms.

2.2.9 UNSAT

The UNSAT subprogram simulates transport of nuclides in the unsaturated soil zone. Based on an available nuclide inventory placed at some location in the soil column a distribution with time is calculated. The concentration of nuclides at the soil surface (due to evapotranspiration pumping) and discharge to an aquifer at the bottom of the column are assessed as a function of time.

UNSAT surface concentration output is used by EROSIO to determine wind erosion input for atmospheric transport. Discharge rates to an aquifer is used by the executive program to process input for AQUIFR.

Input to UNSAT comes from user input data which is processed by the executive program for use by UNSAT.

2.3 PROGRAM STATISTICS

The amount of core and running time required by the Systems Model is a function of the machine used. Below is a table comparing the DEC-10 in La Jolla and the CDC-7600 at Brookhaven National Laboratories, which compares the running times of the sample problems and the required core.

	DEC-10	CDC

Core	155 K-(decimal)	TBD
Time to run	6.5 sec	TBD
Sample Problem #1		
Time to run	6.2 sec	TBD
Sample Problem #2		
Time to run	108.8 sec	TBD
Sample Problem #3		
Time to run	304.5 sec	TBD
Sample Problem #4		

Sample Problem #1 - Scenario #23 - consists of direct waste contact, Atmospheric Transport

Sample Problem #2 - Scenario #10 - consists of direct waste contact, Dose calculation

Sample Problem #3 - Scenario #94 - consists of atmospheric transport, unsaturated zone water transport, wind erosion, and aquifer transport

Sample Problem #4 - Same as sample problem #3 with some of geology data and aquifer data modified so as to allow nuclides pass through.

3. GENERAL PROCEDURE

The shallow land burial model was developed primarily as an interactive model but does have the capability of batch operation. The problem with batch operation is the inconvenience for the user to supply the needed input, which could result in errors if not placed in the proper order.

3.1 CONVERSATIONAL MODE

When the conversational mode is used (refer to Section 4.1 - Program Switches), the user will be requested to provide the scenario number. Depending on the scenario requirements a series of questions will be asked. A typical terminal session is shown in Table 3.1-1. Before one starts executing this model, they should check the table provided in Section 4.8 for necessary input files needed by a particular scenario. The following files are necessary for any scenario:

1. Input - Tape 14
2. Scenario - Tape 7
3. Inventory - Tape 12
4. Titles - Tape 13
5. Nucnames - Tape 2
6. Nucdata - Tape 1

3.2 BATCH MODE

When the batch mode is used (refer to Section 4.1 Program Switches), the user will be expected to provide the information which normally is provided in the conversational mode. This information is to be appended to TAPE14 (INPUT FILE), and will be discussed in Section 4.1. The files required for batch are the same as required for the conversational mode.

Table 3.1-1. A Typical Terminal Session in the Conversational Mode. The Underlined Data is User Supplied.

```
LGO.

  WHAT SCENARIO ARE YOU RUNNING?

10

  WHAT IS THE EXPOSURE TIME? (HRS)

.5

  WHAT IS THE VOLUME OF THE BOX OR PACKAGE INVOLVED IN THIS
  SCENARIO?

1.

  WHAT IS THE VELOCITY OF THE WIND AT THE ACCIDENT? (M/SEC)

1.

  WHAT IS THE DIAMETER IN METERS OF THE DUST CLOUD RELEASED
  IN THIS SCENARIO?

10.

  SCENARIO:  10 COMPLETED

  DO YOU WISH TO RUN ANOTHER SCENARIO?
NO

  GOOD BYE FROM SHALLOW LAND

STOP

END OF EXECUTION
CPU TIME:  6.17  ELAPSED TIME:  1:27.00
```

4. INPUT

4.1 PROGRAM SWITCHES

TAPE14 contains the switches which will indicate whether or not it is a batch job, conversational job, how much output to print, and whether or not maximum indiviudal dose calculations are desired. The first card contains the following variables: format (2I1,12A5)

Variable	Format	Options/Meanings
INTER	I1	0 = interactive job
		1 = batch job
IPRNT	I1	0 = summary output
		1 = same as 0 + calling statements printed out
		2 = same as 1 + detailed output from UNSAT.
ITITLE	12A5	The job title will be printed on the ouput.

Second Card format: I1

Variable	Format	Options/Meanings
MAXI	I1	0 = no maximum individual dose calculation
		1 = maximum individual dose calculation included.

Third Card format: I3 Scenario Number

If the user is submitting a batch job, then more input is necessary which would be a function of the scenario requested. The following is a breakdown of cards necessary for a specific path. The path required may be determined by looking up the scenario in Table 4.1-1.

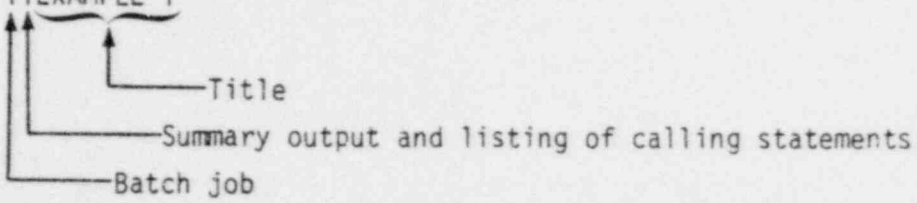
Table 4.1-1. Scenario Pathways.

SCEN-ARIO	PATHS	SCEN-ARIO	PATHS	SCEN-ARIO	PATHS	SCEN-ARIO	PATHS	SCEN-ARIO	PATHS	SCEN-ARIO	PATHS
1 3	4	52 951		103 3		154 3	24 9514	205 3	4	256 3	4
2 3	4	53 2		104 2		155 3	24 9514	206 3	24	257 3	4
3 3	4	54 3		105 3	951	156 3	24 9514	207 3	24	258 3	4
4 3	4	55 2		106 3		157 3	24 9514	208 3	24	259 3	4
5 3	4	56 2		107 3		158 3		209 3	24	260 3	4
6 3	4	57 2	91	108 951		159 3		210 3	24 951	261 3	4
7 3	4	58 2	91	109 2		160 3		211 3	24 951	262 3	24
8 3	4	59 2	91	110 3		161 3		212 3	24 951	263 3	24
9 3	4	60 2	91	111 2		162 24		213 3	24 951	264 3	24
10 3	4	61 3	2	112 3	951	163 24		214 3	24	265 3	24
11 3	4	62 3	2	113 3	2 951	164 24		215 3	24	266 3	24
12 3	4	63 3	2	114 3	2 951	165 24		216 3	24	267 3	24 951
13 3	4	64 3	2	115 3		166 24		217 3	24	268 3	24 951
14 3	4	65 3	2	116 951		167 24		218 3	24	269 3	24 951
15 3	3	66 3	2 951	117 91		168 24		219 3	24	270 3	24 951
16 3	2	67 3	2 951	118 3	4	169 24		220 3	24	271 3	24
17 3	2	68 3	2 951	119 4		170 24		221 3	2	272 3	24
18 3	2	69 3	2 951	120 951		171 24		222 3	4	273 3	24
19 3	2 951	70 3	2 951	121 91		172 24		223 3	4	274 3	24
20 3	2 951	71 3	2 951	122 3	4	173 24		224 3	4	275 3	24
21 3	2 951	72 3	2 951	123 4		174 24		225 3	4	276 3	24
22 3	2 951	73 3	2 951	124 4		175 24		226 3		277 3	24
23 3	2	74 3	2 951	125 4		176 24		227 3		278 3	24
24 3	2	75 3	2 951	126 951		177 24		228 3		279 3	4 951
25 3	2	76 3	2 951	127 3		178 3	4	229 3		280 3	4 951
26 3	2	77 3	2 951	128 3		179 3	4	230 24		281 3	4 951
27 3	2	78 3	2 951	129 3		180 3	4	231 24		282 3	4 951
28 3	2	79 3	2 951	130 3		181 3	4	232 24		283 24	
29 3	2	80 3	2 951	131 3		182 3	4	233 24		284 24	
30 3	2	81 3		132 3		183 3	4	234 3		285 24	
31 3	4	82 3		133 3		184 3	4	235 3		286 24	
32 3	4	83 3		134 24		185 3	4	236 3		287 951	
33 3	4	84 3		135 24		186 3	4	237 3		288 951	
34 3	4	85 3	2 951	136 24		187 3	4	238 24		289 951	
35 3		86 3	2 951	137 24		188 3	4	239 24		290 951	
36 3		87 3	2 951	138 24 951		189 3	4	240 24		291 3	24
37 3		88 3	2 951	139 24 951		190 3	4	241 24		292 3	24
38 3		89 3	4	140 24 951		191 3	4	242 3	4	293 3	24
39 2		90 3	4	141 24 951		192 3	4	243 3	4	294 3	24
40 2		91 3	4	142 3	24	193 3	4	244 3	4	295 3	4
41 2		92 3	4	143 3	24	194 3	4	245 3	4	296 3	4
42 2		93 3	4	144 3	24	195 3	4	246 3	4	297 3	4
43 3	951	94 3	4	145 3	24	196 3	4	247 3	4	298 3	4
44 3		95 3	4	146 3	24 9514	197 3	4	248 3	4	299 3	4
45 3		96 3	4	147 3	24 9514	198 3	4	249 3	4	300 3	4
46 3		97 3		148 3	24 9514	199 3	4	250 3	4	301 3	4
47 3		98 3	951	149 3	24 9514	200 3	4	251 3	4	302 3	4
48 3		99 951		150 3	24 9514	201 3	4	252 3	4		
49 951		100 3	2	151 3	24 9514	202 3	4	253 3	4		
50 951		101 3	4	152 3	24 9514	203 3	4	254 3	4		
51 951		102 4		153 3	24 9514	204 3	4	255 3	4		

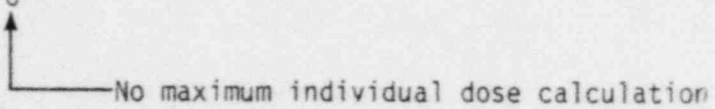
Card Sequence No.	Applications
	Path 3 - 4
4	Exposure time (hours) - CUMT - (Format E12.4)
5	Volume of package (m^3) - VOL - (Format E12.4)
6	Wind velocity (m/sec) - UD, Dust cloud diameter (meters) DI- (Format 2E12.4) (back to card 3 for next scenario)
	Paths 3-2, 3, 2
4	Exposure time (hrs) - CUMT - (Format E12.4)
5	Volume of package (m^3) - VOL - (Format E12.4) (back to card 3 for next scenario)
	Paths 3-2-951, 2-951, 3-951, 3-91, 2-91
4	Exposure time (hours) - CUMT - (Format E12.4)
5	Volume of Package (m^3) - VOL - (Format E12.4)
6	Time spent in soil column, UNSAT - (years) - (Format E12.4) (back to card 3 for next scenario)
	Paths 951,9
4	Time spent in soil column, UNSAT (years) - (Format E12.4) (back to card 3 for next scenario)
	Path 4
4	Exposure (hours) - CUMT - (Format E12.4)
5	Wind velocity (m/sec)-UD, Dust cloud diameter (meters) DI-(Format 2E12.4) (back to card 3 for next scenario)

Example 1 - Input for Scenario 66

Card 1: 11EXAMPLE 1



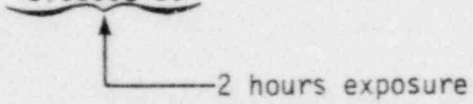
Card 2: 0



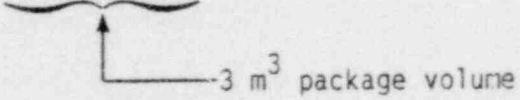
Card 3: b* 66

Go to Table 4.1-1, Scenario 66 has paths 3, 2, 951 therefore 6 cards are used.

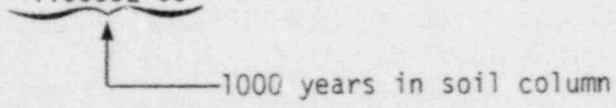
Card 4: +2.0000E+00



Card 5: +3.0000E+00



Card 6: +1.0000E+03



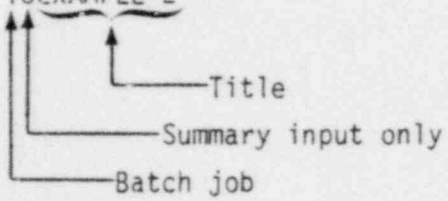
Inventory WS-2 will be used. The user must also supply appropriate data bases (see Table 4.8-1 and explanation).

---

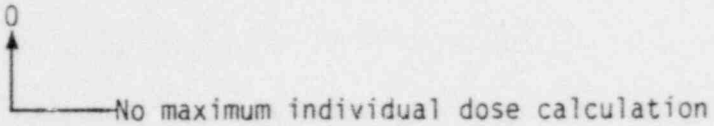
* "b" means blank

Example 2 - Input for Scenario 52

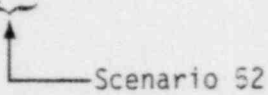
Card 1: 1OEXAMPLE 2



Card 2: 0

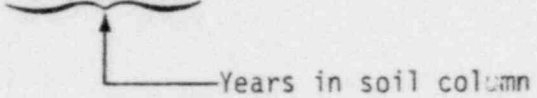


Card 3: b 52



Go to Table 4.1-1, Scenario 52 has paths 951 therefore use 4 cards.

Card 4: +2.0000E+03



Inventory WS-5 will be used. The user must also supply appropriate data bases (see Table 4.8-1 and explanation).

4.2 AQUIFER DATA

The aquifer data is read from tape 11 in an unformatted read statement. The variables are expected in the following order:

XZ - Length of aquifer (miles)
EI - Axial dispersion coefficient (cm^2/min)
YZ - Dispersion of nuclides (feet/day)
FLOWR - Water flow rate (liters/year)
RNWV - Inverse equilibrium constant

The RNWV array expects that for each nuclide in the scenario there will be an entry in the array in the same order. This means that if a user wishes to run, he must be sure to run with the same source terms. Otherwise, a new file should be created for every different source term scenario.

4.3 GEOLOGY AND RAINFALL DATA

The geology data is read from TAPE10 and is probably the most involved input file for the user to furnish. The variables are read in the following order with the accompanying formats.

(A) JK,ND,IN - Format 313
JK = Number of soil layers
ND = Number of entries in the hydraulic conductivity array and the potential array - (maximum is 52)
IN = Layer from which nuclides migrate

(B) DELW - Format E11.5
DELW - Water content increment. Start at 0 and increment by DELW until ND entries have been made.

(C) RAIN,DRY,TIMWET,TIMDRY - Format 4E11.5
Rain = Rainfall over wet period (ft/hr)
Dry = Evapotranspiration during dry period (ft/hr)
(This should be entered as a negative number)

TIMWET = Rain cycle time (hours)

TIMDRY = Total time for rain and dry time cycle (hours)

(D) DD - Format 7E11.5

DD = Soil layer boundaries starting with 0. There should be JK + 1 entries.

(E) P = Potential array. There should be ND entries. Start with most negative point and increase with one point above 0.

(F) E - Format 7E11.5

E = Hydraulic conductivity array. There should be ND entries.

(G) W - Format 7E11.5

W = Initial water content for each layer. There should be JK + 1 entries.

(H) HDRY,HWET,WATL,WATH - format 4E11.5

HDRY = Lowest possible pressure with water content allowed

HWET = Highest possible pressure with water content allowed

WATL = Lowest possible water content allowed

WATH = Highest possible water content allowed

(I) LYR - Format I3

LYR = From the previous layer mentioned, incremented by one, down to layer LYR will have the characteristics mentioned in J and K below (The first time through will start with layer one then increment to layer LYR)

(J) XD - Format 7E11.5

XD = Retardation factor array (ml/gm) one entry per nuclide and must be in the same order as entered in the source term used. This is a function of scenario requested

(K) CONCOF,DNSTY - Format 2E11.5

CONCOF = Conductivity factor array (ml/gm) one entry per layer

DNSTY = Density of soil layer (gm/cc) one entry per layer Repeat sequence I,J,K until all layers are entered

(L) SOLFAC - Format 7E11.5

SOLFAC = Nuclide solubility (gm/cc) one entry per nuclide and (like the XD entries) must be in the same order as entered in the source term used.

A couple of important notes should be mentioned concerning the geology data. The running time of UNSAT will increase with the number of nuclides (maximum 45), the number of layers (maximum 60) and the number of wet/dry time cycles used. The maximum number of wet/dry cycles is set at 150. This means that if a user wishes to use short wet/dry cycles, then the total number of years UNSAT will be allowed to run will be decreased. (If the user wishes to run more than 150 wet/dry cycles, then increase the dimension of V in subroutine UNSAT to 4 times the number of wet/dry cycles and change the IFCHECK three cards after statement 172 accordingly).

4.4 SOIL EROSION DATA

The erosion data is read from TAPE8 which is an unformatted file. The variables expected on this file are read in the following order:

NU Number of wind speeds that will be used in array U.

PAG84 Percentage of soil in the top layer of the burial site that is greater than .84 mm diameter (minimum = 1., maximum = 30.)

KLSP Knollslope in percent. (minimum = 0., maximum = 10.) CK1 and CK2 are used in conjunction with KLSP. IF KLSP is greater than 0 and CK1 equals 1, then will calculate potential soil loss as a percentage of that on level ground. If KLSP equals zero and CK2 equals zero or if KLSP is greater than 0. and CK1, CK2 are both equal to zero, then

the soil loss (due to knollsclope) is set at a minimum of 100 percent.

CK1 Refer to KLSP above for its use.

CK2 If CK2 equals zero, then the top of knoll data is used. If CK2 equals one, then the data used is the portion of slope where drag velocity and wind velocity are the same as that on tope of the knoll.

RDGHT Ridge height in meters. If RDGHT is greater than zero, and RDGSP is greater than zero, and RDGRGH equals zero, then RDGRGH will be calculated. If RDGRGH is greater than zero, then no value for RDGHT is necessary, enter RDGHT = 0.

RDGSP Ridge spacing in meters. If RDGRGH is greater than zero, then RDGSP may be set to 0.

RDGRGH The ridge roughness in meters. If RDGHT and RDGSP are greater than zero, and RDGRGH is equal to zero, then RDGRGH will be calculated. (minimum = 0., maximum = 10.)

CK3 Variable used in subroutine KPRIME. If RDGRGH, RDGHT, and RDGSP all equal zero, and CK3 equals 1., then the value calculated for E2 in subroutine COMPUT will not be reduced.

CK4 Variable used in subroutine KPRIME. If RDGRGH, RDGHT, RDGSP, and CK3 all equal zero, and CK4 equals one, then the value for E2 in subroutine COMPUT will be reduced by a factor os 2. (If the above variables are zero and CK4 is also zero then E2 will not be reduced in value)

MAT Mean annual temperature in degrees centigrade. (minimum = 11.)

ANGL Field angle in degrees. ($0.^{o}$ = North, 90^{o} = East)

HTBR Barrier height in meters

FW Field width in meters. If FW equals zero, or FW is greater than 5000. feet, then FW will be set to 5000. feet.

FL Field length in meters.

R Equivalent vegetative cover in thousands of equivalent pounds per acre. Refer to CK5, CK6, CK8, CK9, Ck11, and CK13 for limits on R.

CK4 If this parameter is greater than zero, then will calculate the amount of vegetative cover for flat anchored small grain stubble.

CK6 Used in conjunction with CK5. If CK5 equals zero, then do not need a value for CK6. If CK5 equals one, then use the following criteria:

CK6 = 1 Flat (Limits for R = 0. - 14.3)
CK6 = 0 Standing (Limits for R = 0.-28.)

CK8 If this parameter is greater than zero, then will calculate the amount of vegetative cover for live or dead small grain crops in seedling and stooling stage.

CK9 Used in conjunction with CK8. If CK8 equals zero, then do not need a value for CK9. If CK8 equals one, then use the following criteria:

CK9 = 1 Seeds in furrow (Limits for R = 0 - 11.75)
CK9 = 0 Seeds on smooth ground (Limits for R = 0 - 14.)

CK11 If this parameter is greater than zero, then will calculate amount of vegetative cover for flat grain sorghum stubble of average stalk thickness.

CK13 If this parameter is greater than zero, then will calculate amount of vegetative cover for standing flat grain (length of HT) sorghum stubble of average stalk thickness.

HT Height of standing grain in meters and is used only when CK13 is equal to one. (minimum = 0., maximum = 20.)

SAIR The percent of soil suspended.

U Array of wind speeds in meters/sec. Read in ten values even if NU is less than ten.

ANGWND Direction from which the wind is blowing in degrees. ($0.^{o}$ = North, $90.^{o}$ = East.

If CK8 is greater than zero and CK5 is greater than zero, then the calculation due to CK8 will overwrite the results obtained by CK5. (CK11 overwrites CK8, and CK13 overwrites CK11) No combination of vegetative cover is allowed.

4.5 WIND DATA

The wind data is read from TAPE9 and is expected in the following order and format.

(A) NS,KS,NSS - Format 3I5
NS - Number of stability classes with which to operate (maximum = 10)
KS - If KS is equal to zero, then operate with all stability classes. If KS is greater than zero, then will operate with stability class KS.
NSS - Number of stability categories read in. (maximum = 7)

(B) F(NS,NSS) = format 7F5.2
F - Array of wind frequencies which is read in such that all stability classes (NS) for the first stability category are read in before reading the second category and so on.

(C) SH,SQ - unformatted
SH - Release or stack height in meters.
SQ - Stack energy release rate in calories/second.

(D) NU - format I5

NU - The number of wind speeds that will be used in array U. If TAPE5 (Soil Erosion data) is in use, then this card is not necessary.

(E) U - Format 7F5.2

U - Array of wind speeds in meters/sec. Will read in NU values. If TAPE8 (Soil Erosion data) is in use, then this entry is not necessary.

4.6 AGRICULTURE AND POPULATION DATA

The population and agriculture data is read from TAPE15 and is expected in the following order and format

(A) NR - Format I5

NR - Number of radial increments (maximum = 20)

(B) RM - format 8F10.0

RM - Distance from the source to the center of the radial increments in meters.

(C) Beef, cows, (FAGE(I),I = 1.3), FVA,NCPY,PRODUC - format 2F7.2, 4F4.2,I5,F9.2

BEEF - Number of beef cattle per square kilometer for all radial increments.

COWS - Number of milk cows per square kilometer for all radial increments.

FAGE - Age group fraction breakdown by child, teen and adult and in that order (for all radial increments)

FVA - The fraction of the total area involved that available to plant leafy vegetables.

NCPY - Number of crops per year.

PRODUC - Food crop production in Kg/year per square kilometer.

(D) IPOP - 7I10

IPOP - Population in each radial increment

4.7 SHINE EXPOSURE DATA

The shine exposure data is read from TAPE20 and is expected in the following order and format

(A) IST,RANGE,NSH,MATRL - format I1,E12.4,I2,5I1

IST - Direct source type as specified below

1 = point source

2 = line source

3 = volume source

RANGE - Distance from source in meters from the direct source

NSH - Number of shielding materials around container. Maximum number is 5. (minimum = 0)

MATRL - Array of shielding material ID numbers from the following materials

1 = aluminum

2 = iron

3 = lead

4 = ordinary concrete

5 = water

(B) THK - format 6E12.4

THK - Array of shielding thicknesses in meters in the same order as specified by MATRL.

4.8 DATA REQUIREMENTS SUMMARY

The data files required for any scenario is shown in Table 4.8-1. The "1" signifies that file is required and a "0" signifies that the file is not required.

Table 4.8-1. Required Files for Scenario Input.

SCENARIO NUMBER	SCENARIO DESCRIPTION	INVENTORY	Aquifer	Geology	Erosion	Atmospheric	Agriculture	Direct
1	A ruptured drum with liquid substance causes spill to contaminate the vehicle or the overpack interior.	WS-2	0	0	0	0	1	1
2	A ruptured drum with liquid substance causes spill to contaminate the vehicle or the overpack interior.	WS-3	0	0	0	0	1	1
3	A ruptured drum with liquid substance causes spill to contaminate the vehicle or the overpack interior.	WS-4	0	0	0	0	1	1
4	A ruptured drum with liquid substance causes spill to contaminate the vehicle or the overpack interior.	WS-5	0	0	0	0	1	1
5	A ruptured drum with volatile substance causes release to contaminate the vehicle or the overpack interior.	WS-2	0	0	0	0	1	1
6	A ruptured drum with volatile substance causes release to contaminate the vehicle or the overpack interior.	WS-3	0	0	0	0	1	1
7	A ruptured drum with volatile substance causes release to contaminate the vehicle or the overpack interior.	WS-4	0	0	0	0	1	1
8	A ruptured drum, carton or box containing solids causes releases to contaminate the vehicle or the overpack inter	WS-2	0	0	0	0	1	1
9	A ruptured drum, carton or box containing solids causes releases to contaminate the vehicle or the overpack inter	WS-3	0	0	0	0	1	1
10	A ruptured drum, carton or box containing solids causes releases to contaminate the vehicle or the overpack inter	WS-4	0	0	0	0	1	1
11	A ruptured drum, carton or box containing solids causes releases to contaminate the vehicle or the overpack inter	WS-5	0	0	0	0	1	1
12	Worker is injured by contaminated sharp object protruding from ruptured drum, carton or box during receiving inspection.	WS-2	0	0	0	0	1	1
13	Worker is injured by contaminated sharp object protruding from ruptured drum, carton or box during receiving inspection.	WS-3	0	0	0	0	1	1
14	Worker is injured by contaminated sharp object protruding from ruptured drum, carton or box during receiving inspection.	WS-4	0	0	0	0	1	1
15	Fire erupts in the transport vehicle or in the overpack containing combustible cardons or loose bandles during receiving inspection. Fire is allowed to burn out.	WS-2	0	0	0	1	1	1

Table 4.8-1. Required Files for Scenario Input. (Continued)

SCENARIO NUMBER	SCENARIO DESCRIPTION	INVENTORY	Aquifer	Geology	Erosion	Atmospheric	Agriculture	Direct
16	Fire erupts in the transport vehicle or in the overpack containing combustible carbons or loose bundles during receiving inspection. Fire is allowed to burn out.	WS-3	0	0	0	1	1	1
17	Fire erupts in the transport vehicle or in the overpack containing combustible carbons or loose bundles during receiving inspection. Fire is allowed to burn out.	WS-4	0	0	0	1	1	1
18	Fire erupts in the transport vehicle or in the overpack containing combustible carbons or loose bundles during receiving inspection. Fire is allowed to burn out.	WS-5	0	0	0	1	1	1
19	Fire erupts in the transport vehicle or in the overpack containing combustible cartons, boxes or loose bundles during receiving inspection. Fire is quenched with water.	WS-2	1	1	1	1	1	1
20	Fire erupts in the transport vehicle or in the overpack containing combustible cartons, boxes or loose bundles during receiving inspection. Fire is quenched with water.	WS-3	1	1	1	1	1	1
21	Fire erupts in the transport vehicle or in the overpack containing combustible cartons, boxes or loose bundles during receiving inspection. Fire is quenched with water.	WS-4	1	1	1	1	1	1
22	Fire erupts in the transport vehicle or in the overpack containing combustible cartons, boxes or loose bundles during receiving inspection. Fire is quenched with water.	WS-5	1	1	1	1	1	1
23	Explosion in the transport vehicle or in the overpack containing drums or boxes with volatile substances or liquid containers.	WS-2	0	0	0	1	1	1
24	Explosion in the transport vehicle or in the overpack containing drums or boxes with volatile substances or liquid containers.	WS-3	0	0	0	1	1	1
25	Explosion in the transport vehicle or in the overpack containing drums or boxes with volatile substances or liquid containers.	WS-4	0	0	0	1	1	1
26	Explosion in the transport vehicle or in the overpack containing drums or boxes with volatile substances or liquid containers.	WS-5	0	0	0	1	1	1
27	Explosion in the transport vehicle or in the overpack containing drums, boxes or cartons filled with solids or loose bundles.	WS-2	0	0	0	1	1	1
28	Explosion in the transport vehicle or in the overpack containing drums, boxes or cartons filled with solids or loose bundles.	WS-3	0	0	0	1	1	1

Table 4.8-1. Required Files for Scenario Input. (Continued)

SCENARIO NUMBER	SCENARIO DESCRIPTION	INVENTORY	Aquifer	Geology	Erosion	Atmospheric	Agriculture	Direct
29	Explosion in the transport vehicle or in the overpack containing drums,boxes or cartons filled with solids or loose bundles.	WS-4	0	0	0	1	1	1
30	Explosion in the transport vehicle or in the overpack containing drums,boxes or cartons filled with solids or loose bundles.	WS-5	0	0	0	1	1	1
31	Irradiated/contaminated usable items are removed from wastes.	WS-2	0	0	0	0	1	1
32	Irradiated/contaminated usable items are removed from wastes.	WS-3	0	0	0	0	1	1
33	Irradiated/contaminated usable items are removed from wastes.	WS-4	0	0	0	0	1	1
34	Irradiated/contaminated usable items are removed from wastes.	WS-5	0	0	0	0	1	1
35	Chronic direct radiation to workers engaged in the pre-entry inspectionof drums, boxes, cartons and loose bundles.	WS-2	0	0	0	0	0	1
36	Chronic direct radiation to workers engaged in the pre-entry inspectionof drums, boxes, cartons and loose bundles.	WS-3	0	0	0	0	0	1
37	Chronic direct radiation to workers engaged in the pre-entry inspectionof drums, boxes, cartons and loose bundles.	WS-4	0	0	0	0	0	1
38	Chronic direct radiation to workers engaged in the pre-entry inspectionof drums, boxes, cartons and loose bundles.	WS-5	0	0	0	0	0	1
39	Chronic escape to atmosphere of radionuclides during the pre-entry inspection of drums, boxes, carbons and loose bundles.	WS-2	0	0	0	1	1	0
40	Chronic escape to atmosphere of radionuclides during the pre-entry inspection of drums, boxes, carbons and loose bundles.	WS-3	0	0	0	1	1	0
41	Chronic escape to atmosphere of radionuclides during the pre-entry inspection of drums, boxes, carbons and loose bundles.	WS-4	0	0	0	1	1	0
42	Chronic escape to atmosphere of radionuclides during the pre-entry inspection of drums, boxes, carbons and loose bundles.	WS-5	0	0	0	1	1	0
43	Liner containing highly activated LWR components is accidently ruptureddurin transfer into the burial trench. Wastes are spilled from the liner.	WS-1	1	1	1	1	1	1
44	Chronic direct radiation to workers engaged in removing the liner,containing highly activated LWR components from shielded cask and manipulatingit into the burial trench.	WS-1	0	0	0	0	0	1

Table 4.8-1. Required Files for Scenario Input. (Continued)

SCENARIO NUMBER	SCENARIO DESCRIPTION	INVENTORY	Aquifer	Geology	Erosion	Atmospheric	Agriculture	Direct
45	Drum with liquid waste containers is ruptured during transfer from the transportation overpack to burial trench. Liquid is spilled into overpack.	WS-2	0	0	0	0	0	1
46	Drum with liquid waste containers is ruptured during transfer from the transportation overpack to burial trench. Liquid is spilled into overpack.	WS-3	0	0	0	0	0	1
47	Drum with liquid waste containers is ruptured during transfer from the transportation overpack to burial trench. Liquid is spilled into overpack.	WS-4	0	0	0	0	0	1
48	Drum with liquid waste containers is ruptured during transfer from the transportation overpack to burial trench. Liquid is spilled into overpack.	WS-5	0	0	0	0	0	1
49	Drum with liquid waste containers is ruptured during transfer from the transportation overpack to burial trench. Liquid is spilled into trench.	WS-2	1	1	1	1	1	0
50	Drum with liquid waste containers is ruptured during transfer from the transportation overpack to burial trench. Liquid is spilled into trench.	WS-3	1	1	1	1	1	0
51	Drum with liquid waste containers is ruptured during transfer from the transportation overpack to burial trench. Liquid is spilled into trench.	WS-4	1	1	1	1	1	0
52	Drum with liquid waste containers is ruptured during transfer from the transportation overpack to burial trench. Liquid is spilled into trench.	WS-5	1	1	1	1	1	0
53	Drum containing volatile substance is ruptured during transfer from the transportation overpack to burial trench. Volatile substance escapes to atmosphere.	WS-2	0	0	0	1	1	0
54	Drum containing volatile substance is ruptured during transfer from the transportation overpack to burial trench. Volatile substance escapes to atmosphere.	WS-3	0	0	0	1	1	0
55	Drum containing volatile substance is ruptured during transfer from the transportation overpack to burial trench. Volatile substance escapes to atmosphere.	WS-4	0	0	0	1	1	0
56	Drum containing volatile substance is ruptured during transfer from the transportation overpack to burial trench. Volatile substance escapes to atmosphere.	WS-5	0	0	0	1	1	0

Table 4.8-1. Required Files for Scenario Input. (Continued)

SCENARIO NUMBER	SCENARIO DESCRIPTION	INVENTORY	Aquifer	Geology	Erosion	Atmospheric	Agriculture	Direct
57	Drums, carbon or box containing solid substance is ruptured during transfer from the transportation overpack to burial trench.	WS-2	1	1	0	1	1	0
58	Drums, carbon or box containing solid substance is ruptured during transfer from the transportation overpack to burial trench.	WS-3	1	1	0	1	1	0
59	Drums, carbon or box containing solid substance is ruptured during transfer from the transportation overpack to burial trench.	WS-4	1	1	0	1	1	0
60	Drums, carbon or box containing solid substance is ruptured during transfer from the transportation overpack to burial trench.	WS-5	1	1	0	1	1	0
61	Fire erupts in the transportation overpack or in the trench containing combustible carbons, boxes or loose bundles. Fire is allowed to burn out.	WS-2	0	0	0	1	1	1
62	Fire erupts in the transportation overpack or in the trench containing combustible carbons, boxes or loose bundles. Fire is allowed to burn out.	WS-3	0	0	0	1	1	1
63	Fire erupts in the transportation overpack or in the trench containing combustible carbons, boxes or loose bundles. Fire is allowed to burn out.	WS-4	0	0	0	1	1	1
64	Fire erupts in the transportation overpack or in the trench containing combustible carbons, boxes or loose bundles. Fire is allowed to burn out.	WS-5	0	0	0	1	1	1
65	Fire erupts in the transportation overpack or in the trench containing combustible carbons, boxes or loose bundles. Fire is allowed to burn out.	WS-6	0	0	0	1	1	1
66	Fire erupts in the transportation overpack or in the trench containing combustible carbons, boxes or loose bundles. Fire is quenched with water.	WS-2	1	1	1	1	1	1
67	Fire erupts in the transportation overpack or in the trench containing combustible carbons, boxes or loose bundles. Fire is quenched with water.	WS-3	1	1	1	1	1	1
68	Fire erupts in the transportation overpack or in the trench containing combustible carbons, boxes or loose bundles. Fire is quenched with water.	WS-4	1	1	1	1	1	1
69	Fire erupts in the transportation overpack or in the trench containing combustible carbons, boxes or loose bundles. Fire is quenched with water.	WS-5	1	1	1	1	1	1
70	Fire erupts in the transportation overpack or in the trench containing combustible carbons, boxes or loose bundles. Fire is quenched with water.	WS-6	1	1	1	1	1	1
71	Explosion in the transportation overpacker in the trench containing drums or boxes with volatile substances or liquid containers.	WS-2	1	1	1	1	1	1

Table 4 1. Required Files for Scenario Input. (Continued)

SCENARIO NUMBER	SCENARIO DESCRIPTION	INVENTORY	Aquifer	Geology	Erosion	Atmospheric	Agriculture	Direct
72	Explosion in the transportation overpachor in the trench containing drums or boxes with volatile substances or liquid containers.	WS-3	1	.	1	1	1	1
73	Explosion in the transportation overpachor in the trench containing drums or boxes with volatile substances or liquid containers.	WS-4	1	1	1	1	1	1
74	Explosion in the transportation overpachor in the trench containing drums or boxes with volatile substances or liquid containers.	WS-5	1	1	1	1	1	1
75	Explosion in the transportation overpachor in the trench containing drums or boxes with volatile substances or liquid containers.	WS-6	1	1	1	1	1	1
76	Explosion in the transportation overpack or in the trench containing drums, boxes, carbons filled with solids or loose bundles.	WS-2	1	1	1	1	1	1
77	Explosion in the transportation overpack or in the trench containing drums, boxes, carbons filled with solids or loose bundles.	WS-3	1	1	1	1	1	1
78	Explosion in the transportation overpack or in the trench containing drums, boxes, carbons filled with solids or loose bundles.	WS-4	1	1	1	1	1	1
79	Explosion in the transportation overpack or in the trench containing drums, boxes, carbons filled with solids or loose bundles.	WS-5	1	1	1	1	1	1
80	Explosion in the transportation overpack or in the trench containing drums, boxes, carbons filled with solids or loose bundles.	WS-6	1	1	1	1	1	1
81	Chronic direct radiation to workers engaged in unloading of drums, boxes, cartons and loose bundles from the transportation overpacks.	WS-2	0	0	0	0	0	1
82	Chronic direct radiation to workers engaged in unloading of drums, boxes, cartons and loose bundles from the transportation overpacks.	WS-3	0	0	0	0	0	1
83	Chronic direct radiation to workers engaged in unloading of drums, boxes, cartons and loose bundles from the transportation overpacks.	WS-4	0	0	0	0	0	1
84	Chronic direct radiation to workers engaged in unloading of drums, boxes, cartons and loose bundles from the transportation overpacks.	WS-5	0	0	0	0	0	1
85	Chronic escape to atmosphere of radionuclides during unloading ofdrums, boxes, cartons and loose bundles from the transportation overpacks.	WS-2	1	1	1	1	1	1
86	Chronic escape to atmosphere of radionuclides during unloading ofdrums, boxes, cartons and loose bundles from the transportation overpacks.	WS-3	1	1	1	1	1	1

Table 4.8-1. Required Files for Scenario Input. (Continued)

SCENARIO NUMBER	SCENARIO DESCRIPTION	INVENTORY	Aquifer	Geology	Erosion	Atmospheric	Agriculture	Direct
87	Chronic escape to atmosphere of radionuclides during unloading ofdrums, boxes, cartons and loose bundles from the transportation overpacks.	WS-4	1	1	1	1	1	1
88	Chronic escape to atmosphere of radionuclides during unloading ofdrums, boxes, cartons and loose bundles from the transportation overpacks.	WS-5	1	1	1	1	1	1
89	The transportation overpacks and/or vehicle inadequately decontaminated prior to release.	WS-2	0	0	0	0	1	1
90	The transportation overpacks and/or vehicle inadequately decontaminated prior to release.	WS-3	0	0	0	0	1	1
91	The transportation overpacks and/or vehicle inadequately decontaminated prior to release.	WS-4	0	0	0	0	1	1
92	The transportation overpacks and/or vehicle inadequately decontaminated prior to release.	WS-5	0	0	0	0	1	1
93	Irradiated/contaminated usable items are removed from wastes during handling.	WS-2	0	0	0	0	1	1
94	Irradiated/contaminated usable items are removed from wastes during handling.	WS-3	0	0	0	0	1	1
95	Irradiated/contaminated usable items are removed from wastes during handling.	WS-4	0	0	0	0	1	1
96	Irradiated/contaminated usable items are removed from wastes during handling.	WS-5	0	0	0	0	1	1
97	Fire erupts in the uncovered trench containing burnable cartons, boxes or loose bundles. Fire is allowed to burn out.	WS-6	0	0	0	1	1	0
98	Fire erupts in the uncovered trench containing burnable cartons, boxes or loose bundles.	WS-6	1	1	1	1	1	0
99	Uncovered trench is flooded from rainfall.	WS-6	1	1	1	1	1	0
100	High velocity wind causes lifting and dispersal of those radionuclides from the uncovered trench which are attached to dust, light powders, loose papers or boards, etc. The materials lifted from the trench are dispersed over the site.	WS-6	0	0	0	1	1	1
101	Irradiated/contaminated usable items are removed from wastes.	WS-6	0	0	0	0	1	1
102	Animals (rats, rabbits, etc.) intrude into uncovered wastes, become contaminated, and carry radionuclides outside of the trench.	WS-6	0	0	0	0	1	0
103	Chronic direct radiation to workers engaged in the activities in the vicinity of uncovered wastes.	WS-6	0	0	0	0	0	1
104	Chronic escape to atmosphere of radionuclides from the uncovered wastes.	WS-6	0	0	0	1	1	0
105	Liner containing highly activated LWR components is accidently ruptured during burial or backfill operation. Wastes are spilled from the liner.	WS-1	1	1	1	1	1	1

Table 4.8-1. Required Files for Scenario Input. (Continued)

SCENARIO NUMBER	SCENARIO DESCRIPTION	INVENTORY	Aquifer	Geology	Erosion	Atmospheric	Agriculture	Direct
106	Chronic direct radiation to workers engaged in burying the liner, containing highly activated LWR components.	WS-1	0	0	0	0	0	1
107	Uncovered trench is flooded from rainfall.	WS-6	0	0	0	0	0	1
108	Drum with liquid waste containers is ruptured during burial or backfill operation. Liquid is spilled into trench.	WS-6	1	1	1	1	1	0
109	Drum containing volatile substance is ruptured during burial or backfill operation. Volatile substance escapes to atmosphere.	WS-6	0	0	0	1	1	0
110	Drum, carbon or box containing solid wastes is ruptured during burial and backfill operation.	WS-6	0	0	0	1	1	0
111	Fire erupts in the trench containing burnable carbons, boxes or loose bundles during burial and backfill operations. Fire is allowed to burn out.	WS-6	0	0	0	1	1	0
112	Fire erupts in the trench containing burnable carbons, boxes or loose bundles during burial and backfill operations. Fire is quenched with water.	WS-6	1	1	1	1	1	0
113	Explosion in the trench containing drums or boxes with volatile substances or liquid containers during backfill operations.	WS-6	1	1	1	1	1	1
114	Explosion in the trench containing drums, boxes, cartons or loosebundles (in solid state) during burial and backfill operations.	WS-6	1	1	1	1	1	1
115	Chronic direct radiation to workers engaged in burial and backfill operations.	WS-6	0	0	0	0	0	1
116	Erosion or washing out of backfill inadequate backfill depth.	WS-6	1	1	1	1	1	0
117	Intrusion of surface water, water seepage to water table throug buried wastes.	WS-6	1	1	0	0	1	0
118	Intrusion by scavengers (site worker/outside person). Removal of contaminated items.	WS-6	0	0	0	0	1	1
119	Intrusion by animals (rats, rabbits, etc.) animals become contaminated.	WS-6	0	0	0	0	1	0
120	Erosion or washing out of backfill. Inadequate backfill depth.	WS-6	1	1	1	1	1	0
121	Intrusion of surface water. Water seepage to water table through buried wastes.	WS-6	1	1	0	0	1	0
122	Intrusion by scavengers digging for artifacts. removal of contaminated items.	WS-6	0	0	0	0	1	1
123	Farming of the burial site for crops. facts. remov	WS-6	0	0	0	0	1	0
124	Use of the burial site as a pasture for domestic animals.	WS-6	0	0	0	0	1	0
125	Intrusion by animals. Animals become contaminated	WS-6	0	0	0	0	1	0
126	Long-term flooding of the burial site.	WS-6	1	1	1	1	1	0
127	Uncovering of the buried waste by earthquake.	WS-6	0	0	0	0	0	1

Table 4.8-1. Required Files for Scenario Input. (Continued)

SCENARIO NUMBER	SCENARIO DESCRIPTION	INVENTORY	Aquifer	Geology	Erosion	Atmospheric	Agriculture	Direct
128	Highly activated LWR components are mishandled during packaging into a shielded cask, causing workers exposure.	WS-1	0	0	0	0	0	1
129	Chronic direct radiation to workers engaged in packaging highly ativated LWR components into shielded casks.	WS-1	0	0	0	0	0	1
130	Liquid waste containers are ruptured during packaging, liquid is spilled.	WS-2	0	0	0	0	0	1
131	Liquid waste containers are ruptured during packaging, liquid is spilled.	WS-3	0	0	0	0	0	1
132	Liquid waste containers are ruptured during packaging, liquid is spilled.	WS-4	0	0	0	0	0	1
133	Liquid waste containers are ruptured during packaging, liquid is spilled.	WS-5	0	0	0	0	0	1
134	Container with volatile substance is ruptured during packaging. Volatile substance escapes to atmosphere.	WS-2	0	0	0	1	1	0
135	Container with volatile substance is ruptured during packaging. Volatile substance escapes to atmosphere.	WS-3	0	0	0	1	1	0
136	Container with volatile substance is ruptured during packaging. Volatile substance escapes to atmosphere.	WS-4	0	0	0	1	1	0
137	Container with volatile substance is ruptured during packaging. Volatile substance escapes to atmosphere.	WS-5	0	0	0	1	1	0
138	Solid wastes are spilled and dispersed during packing.	WS-2	1	1	1	1	1	0
139	Solid wastes are spilled and dispersed during packing.	WS-3	1	1	1	1	1	0
140	Solid wastes are spilled and dispersed during packing.	WS-4	1	1	1	1	1	0
141	Solid wastes are spilled and dispersed during packing.	WS-5	1	1	1	1	1	0
142	Fire erupts during packaging of combustible wastes. Fire is allowed to burn out.	WS-2	0	0	0	1	1	1
143	Fire erupts during packaging of combustible wastes. Fire is allowed to burn out.	WS-3	0	0	0	1	1	1
144	Fire erupts during packaging of combustible wastes. Fire is allowed to burn out.	WS-4	0	0	0	1	1	1
145	Fire erupts during packaging of combustible wastes. Fire is allowed to burn out.	WS-5	0	0	0	1	1	1
146	Fire erupts during packaging of combustible wastes. Fire is quenched with water.	WS-2	1	1	1	1	1	1
147	Fire erupts during packaging of combustible wastes. Fire is quenched with water.	WS-3	1	1	1	1	1	1

Table 4.8-1. Required Files for Scenario Input. (Continued)

SCENARIO NUMBER	SCENARIO DESCRIPTION	INVENTORY	Aquifer	Geology	Erosion	Atmospheric	Agriculture	Direct
148	Fire erupts during packaging of combustible wastes. Fire is quenched with water.	WS-4	1	1	1	1	1	1
149	Fire erupts during packaging of combustible wastes. Fire is quenched with water.	WS-5	1	1	1	1	1	1
150	Explosion during packaging of volatile substances or liquid.	WS-2	1	1	1	1	1	1
151	Explosion during packaging of volatile substances or liquid.	WS-3	1	1	1	1	1	1
152	Explosion during packaging of volatile substances or liquid.	WS-4	1	1	1	1	1	1
153	Explosion during packaging of volatile substances or liquid.	WS-5	1	1	1	1	1	1
154	Explosion during packaging of solid wastes.	WS-2	1	1	1	1	1	1
155	Explosion during packaging of solid wastes.	WS-3	1	1	1	1	1	1
156	Explosion during packaging of solid wastes.	WS-4	1	1	1	1	1	1
157	Explosion during packaging of solid wastes.	WS-5	1	1	1	1	1	1
158	Chronic direct radiation to workers engaged in packaging or wastes or processing.	WS-2	0	0	0	0	0	1
159	Chronic direct radiation to workers engaged in packaging or wastes or processing.	WS-3	0	0	0	0	0	1
160	Chronic direct radiation to workers engaged in packaging or wastes or processing.	WS-4	0	0	0	0	0	1
161	Chronic direct radiation to workers engaged in packaging or wastes or processing.	WS-5	0	0	0	0	0	1
162	Chronic discharge to atmosphere of radionuclides from facility off-gas stack during packaging/ processing of wastes.	WS-2	0	0	0	1	1	0
163	Chronic discharge to atmosphere of radionuclides from facility off-gas stack during packaging/ processing of wastes.	WS-3	0	0	0	1	1	0
164	Chronic discharge to atmosphere of radionuclides from facility off-gas stack during packaging/ processing of wastes.	WS-4	0	0	0	1	1	0
165	Chronic discharge to atmosphere of radionuclides from facility off-gas stack during packaging/ processing of wastes.	WS-5	0	0	0	1	1	0
166	Chronic discharge to atmosphere of radionuclides during incineration of wastes.	WS-2	0	0	0	1	1	0
167	Chronic discharge to atmosphere of radionuclides during incineration of wastes.	WS-3	0	0	0	1	1	0
168	Chronic discharge to atmosphere of radionuclides during incineration of wastes.	WS-4	0	0	0	1	1	0
169	Chronic discharge to atmosphere of radionuclides during incineration of wastes.	WS-5	0	0	0	1	1	0

Table 4.8-1. Required Files for Scenario Input. (Continued)

SCENARIO NUMBER	SCENARIO DESCRIPTION	INVENTORY	Aquifer	Geology	Erosion	Atmospheric	Agriculture	Direct
170	Discharge of radionuclides through off-gas stack with failed filters during packaging/processing of wastes.	WS-2	0	0	0	1	1	0
171	Discharge of radionuclides through off-gas stack with failed filters during packaging/processing of wastes.	WS-3	0	0	0	1	1	0
172	Discharge of radionuclides through off-gas stack with failed filters during packaging/processing of wastes.	WS-4	0	0	0	1	1	0
173	Discharge of radionuclides through off-gas stack with failed filters during packaging/processing of wastes.	WS-5	0	0	0	1	1	0
174	Discharge of radionuclides through off-gas system with failed filters during waste incineration.	WS-2	0	0	0	1	1	0
175	Discharge of radionuclides through off-gas system with failed filters during waste incineration.	WS-3	0	0	0	1	1	0
176	Discharge of radionuclides through off-gas system with failed filters during waste incineration.	WS-4	0	0	0	1	1	0
177	Discharge of radionuclides through off-gas system with failed filters during waste incineration.	WS-5	0	0	0	1	1	0
178	The package containing wastes inadequately decontaminated prior to release to shipment.	WS-2	0	0	0	0	1	1
179	The package containing wastes inadequately decontaminated prior to release to shipment.	WS-3	0	0	0	0	1	1
180	The package containing wastes inadequately decontaminated prior to release to shipment.	WS-4	0	0	0	0	1	1
181	The package containing wastes inadequately decontaminated prior to release to shipment.	WS-5	0	0	0	0	1	1
182	Irradiated/contaminated usable items are removed from wastes during packaging or processing.	WS-2	0	0	0	0	1	1
183	Irradiated/contaminated usable items are removed from wastes during packaging or processing.	WS-3	0	0	0	0	1	1
184	Irradiated/contaminated usable items are removed from wastes during packaging or processing.	WS-4	0	0	0	0	1	1
185	Irradiated/contaminated usable items are removed from wastes during packaging or processing.	WS-5	0	0	0	0	1	1
186	Worker is injured by contaminated sharp object during packaging or processing.	WS-2	0	0	0	0	1	1
187	Worker is injured by contaminated sharp object during packaging or processing.	WS-3	0	0	0	0	1	1
188	Worker is injured by contaminated sharp object during packaging or processing.	WS-4	0	0	0	0	1	1
189	Worker is injured by contaminated sharp object during packaging or processing.	WS-5	0	0	0	0	1	1
190	A ruptured container with liquid substance causes spill to contaminate the storage or handling area.	WS-2	0	0	0	0	1	1

Table 4.8-1. Required Files for Scenario Input. (Continued)

SCENARIO NUMBER	SCENARIO DESCRIPTION	INVENTORY	Aquifer	Geology	Erosion	Atmospheric	Agriculture	Direct
191	A ruptured container with liquid substance causes spill to contaminate the storage or handling area.	WS-3	0	0	0	0	1	1
192	A ruptured container with liquid substance causes spill to contaminate the storage or handling area.	WS-4	0	0	0	0	1	1
193	A ruptured container with liquid substance causes spill to contaminate the storage or handling area.	WS-5	0	0	0	0	1	1
194	A ruptured container with volatile substance causes release to contaminate the handling or storage area.	WS-2	0	0	0	0	1	1
195	A ruptured container with volatile substance causes release to contaminate the handling or storage area.	WS-3	0	0	0	0	1	1
196	A ruptured container with volatile substance causes release to contaminate the handling or storage area.	WS-4	0	0	0	0	1	1
197	A ruptured container with volatile substance causes release to contaminate the handling or storage area.	WS-5	0	0	0	0	1	1
198	A ruptured drum, carton or box containing solids causes release to contaminate the handling or storage area.	WS-2	0	0	0	0	1	1
199	A ruptured drum, carton or box containing solids causes release to contaminate the handling or storage area.	WS-3	0	0	0	0	1	1
200	A ruptured drum, carton or box containing solids causes release to contaminate the handling or storage area.	WS-4	0	0	0	0	1	1
201	A ruptured drum, carton or box containing solids causes release to contaminate the handling or storage area.	WS-5	0	0	0	0	1	1
202	Worker is injured by contaminated sharp object protruding from ruptured drum, carton or box during interim handling or storage area.	WS-2	0	0	0	0	1	1
203	Worker is injured by contaminated sharp object protruding from ruptured drum, carton or box during interim handling or storage area.	WS-3	0	0	0	0	1	1
204	Worker is injured by contaminated sharp object protruding from ruptured drum, carton or box during interim handling or storage area.	WS-4	0	0	0	0	1	1
205	Worker is injured by contaminated sharp object protruding from ruptured drum, carton or box during interim handling or storage area.	WS-5	0	0	0	0	1	1
206	Fire erupts in the handling or storage area containing combustible cartons, boxes or loose bundles. Fire is allowed to burn out.	WS-2	0	0	0	1	1	1

Table 4.8-1. Required Files for Scenario Input. (Continued)

SCENARIO NUMBER	SCENARIO DESCRIPTION	INVENTORY	Aquifer	Geology	Erosion	Atmospheric	Agriculture	Direct
207	Fire erupts in the handling or storage area containing combustible cartons, boxes or loose bundles. Fire is allowed to burn out.	WG-3	0	0	0	1	1	1
208	Fire erupts in the handling or storage area containing combustible cartons, boxes or loose bundles. Fire is allowed to burn out.	WG-4	0	0	0	1	1	1
209	Fire erupts in the handling or storage area containing combustible cartons, boxes or loose bundles. Fire is allowed to burn out.	WG-5	0	0	0	1	1	1
210	Fire erupts in the handling or storage area containing combustible cartons, boxes or loose bundles. Fire is quenched with water.	WG-2	1	1	1	1	1	1
211	Fire erupts in the handling or storage area containing combustible cartons, boxes or loose bundles. Fire is quenched with water.	WG-3	1	1	1	1	1	1
212	Fire erupts in the handling or storage area containing combustible cartons, boxes or loose bundles. Fire is quenched with water.	WG-4	1	1	1	1	1	1
213	Fire erupts in the handling or storage area containing combustible cartons, boxes or loose bundles. Fire is quenched with water.	WG-5	1	1	1	1	1	1
214	Explosion in the handling or storage area containing drums or boxes with volatile substances or liquid containers.	WS-2	0	0	0	1	1	1
215	Explosion in the handling or storage area containing drums or boxes with volatile substances or liquid containers.	WS-3	0	0	0	1	1	1
216	Explosion in the handling or storage area containing drums or boxes with volatile substances or liquid containers.	WS-4	0	0	0	1	1	1
217	Explosion in the handling or storage area containing drums or boxes with volatile substances or liquid containers.	WS-5	0	0	0	1	1	1
218	Explosion in the handling or storage area containing drums, boxes or cartons filled with solids or loose bundles.	WS-2	0	0	0	1	1	1
219	Explosion in the handling or storage area containing drums, boxes or cartons filled with solids or loose bundles.	WS-3	0	0	0	1	1	1
220	Explosion in the handling or storage area containing drums, boxes or cartons filled with solids or loose bundles.	WS-4	0	0	0	1	1	1
221	Explosion in the handling or storage area containing drums, boxes or cartons filled with solids or loose bundles.	WS-5	0	0	0	1	1	1

Table 4.8-1. Required Files for Scenario Input. (Continued)

SCENARIO NUMBER	SCENARIO DESCRIPTION	INVENTORY	Aquifer	Geology	Erosion	Atmospheric	Agriculture	Direct
222	Irradiated/contaminated usable items are removed from wastes.	WS-2	0	0	0	0	1	1
223	Irradiated/contaminated usable items are removed from wastes.	WS-3	0	0	0	0	1	1
224	Irradiated/contaminated usable items are removed from wastes.	WS-4	0	0	0	0	1	1
225	Irradiated/contaminated usable items are removed from wastes.	WS-5	0	0	0	0	1	1
226	Chronic direct radiation to workers engaged in the handling and storage of drums, boxes, cartons and loose bundles.	WS-2	0	0	0	0	0	1
227	Chronic direct radiation to workers engaged in the handling and storage of drums, boxes, cartons and loose bundles.	WS-3	0	0	0	0	0	1
228	Chronic direct radiation to workers engaged in the handling and storage of drums, boxes, cartons and loose bundles.	WS-4	0	0	0	0	0	1
229	Chronic direct radiation to workers engaged in the handling and storage of drums, boxes, cartons and loose bundles.	WS-5	0	0	0	0	0	1
230	Chronic escape to atmosphere of radionuclides during the handling and storage of drums, boxes, cartons and loose bundles.	WS-2	0	0	0	1	1	0
231	Chronic escape to atmosphere of radionuclides during the handling and storage of drums, boxes, cartons and loose bundles.	WS-3	0	0	0	1	1	0
232	Chronic escape to atmosphere of radionuclides during the handling and storage of drums, boxes, cartons and loose bundles.	WS-4	0	0	0	1	1	0
233	Chronic escape to atmosphere of radionuclides during the handling and storage of drums, boxes, cartons and loose bundles.	WS-5	0	0	0	1	1	0
234	Chronic direct radiation to workers engaged in the loading of drums, boxes, cartons and loose bundles on transport vehicles.	WS-2	0	0	0	0	0	1
235	Chronic direct radiation to workers engaged in the loading of drums, boxes, cartons and loose bundles on transport vehicles.	WS-3	0	0	0	0	0	1
236	Chronic direct radiation to workers engaged in the loading of drums, boxes, cartons and loose bundles on transport vehicles.	WS-4	0	0	0	0	0	1
237	Chronic direct radiation to workers engaged in the loading of drums, boxes, cartons and loose bundles on transport vehicles.	WS-4	0	0	0	0	0	1

Table 4.8-1. Required Files for Scenario Input. (Continued)

SCENARIO NUMBER	SCENARIO DESCRIPTION	INVENTORY	Aquifer	Geology	Erosion	Atmospheric	Agriculture	Direct
238	Chronic escape to atmosphere of radionuclides during the inspection prior to loading on transport vehicle of drums, boxes, cartons and loose bundles.	WB-2	0	0	0	1	1	0
239	Chronic escape to atmosphere of radionuclides during the inspection prior to loading on transport vehicle of drums, boxes, cartons and loose bundles.	WB-3	0	0	0	1	1	0
240	Chronic escape to atmosphere of radionuclides during the inspection prior to loading on transport vehicle of drums, boxes, cartons and loose bundles.	WB-4	0	0	0	1	1	0
241	Chronic escape to atmosphere of radionuclides during the inspection prior to loading on transport vehicle of drums, boxes, cartons and loose bundles.	WB-5	0	0	0	1	1	0
242	Irradiated/contaminated usable items are removed from waste during loading on transport vehicle.	WB-2	0	0	0	0	1	1
243	Irradiated/contaminated usable items are removed from waste during loading on transport vehicle.	WB-3	0	0	0	0	1	1
244	Irradiated/contaminated usable items are removed from waste during loading on transport vehicle.	WB-4	0	0	0	0	1	1
245	Irradiated/contaminated usable items are removed from waste during loading on transport vehicle.	WB-5	0	0	0	0	1	1
246	A ruptured drum with liquid substance causes spill to contaminate the vehicle or the overpack interior.	WB-2	0	0	0	0	1	1
247	A ruptured drum with liquid substance causes spill to contaminate the vehicle or the overpack interior.	WB-3	0	0	0	0	1	1
248	A ruptured drum with liquid substance causes spill to contaminate the vehicle or the overpack interior.	WB-4	0	0	0	0	1	1
249	A ruptured drum with liquid substance causes spill to contaminate the vehicle or the overpack interior.	WB-5	0	0	0	0	1	1
250	A ruptured drum with volatile substance causes release to contaminate the vehicle or the overpack interior.	WB-2	0	0	0	0	1	1
251	A ruptured drum with volatile substance causes release to contaminate the vehicle or the overpack interior.	WB-3	0	0	0	0	1	1
252	A ruptured drum with volatile substance causes release to contaminate the vehicle or the overpack interior.	WB-4	0	0	0	0	1	1

Table 4.8-1. Required Files for Scenario Input. (Continued)

SCENARIO NUMBER	SCENARIO DESCRIPTION	INVENTORY	Aquifer	Geology	Erosion	Atmospheric	Agricultural	Direct
253	A ruptured drum with volatile substance causes release to contaminate the vehicle or the overpack interior.	WS-1	0	0	0	0	1	1
254	A ruptured drum, carton or box containing solids causes release to contaminate the vehicle or overpack interior.	WS-2	0	0	0	0	1	1
255	A ruptured drum, carton or box containing solids causes release to contaminate the vehicle or overpack interior.	WS-3	0	0	0	0	1	1
256	A ruptured drum, carton or box containing solids causes release to contaminate the vehicle or overpack interior.	WS-4	0	0	0	0	1	1
257	A ruptured drum, carton or box containing solids causes release to contaminate the vehicle or overpack interior.	WS-5	0	0	0	0	1	1
258	Worker is injured by contaminated sharp object protruding from ruptured drum, carton or box during receiving inspection.	WS-2	0	0	0	0	1	1
259	Worker is injured by contaminated sharp object protruding from ruptured drum, carton or box during receiving inspection.	WS-3	0	0	0	0	1	1
260	Worker is injured by contaminated sharp object protruding from ruptured drum, carton or box during receiving inspection.	WS-4	0	0	0	0	1	1
261	Worker is injured by contaminated sharp object protruding from ruptured drum, carton or box during receiving inspection.	WS-5	0	0	0	0	1	1
262	Fire erupts in the transport vehicle or in the overpack containing combustible cartons, boxes or loose bundles along transportation route. Fire is allowed to burn out.	WS-2	0	0	0	1	1	1
263	Fire erupts in the transport vehicle or in the overpack containing combustible cartons, boxes or loose bundles along transportation route. Fire is allowed to burn out.	WS-3	0	0	0	1	1	1
264	Fire erupts in the transport vehicle or in the overpack containing combustible cartons, boxes or loose bundles along transportation route. Fire is allowed to burn out.	WS-3	0	0	0	1	1	1
265	Fire erupts in the transport vehicle or in the overpack containing combustible cartons, boxes or loose bundles along transportation route. Fire is allowed to burn out.	WS-4	0	0	0	1	1	1

Table 4.8-1. Required Files for Scenario Input. (Continued)

SCENARIO NUMBER	SCENARIO DESCRIPTION	INVENTORY	Aquifer	Geology	Erosion	Atmospheric	Agriculture	Direct
266	Fire erupts in the transport vehicle or in the overpack containing combustible cartons, boxes or loose bundles along transportation route. Fire is allowed to burn out.	WS-5	0	0	0	1	1	1
267	Fire erupts in the transport vehicle or in the overpack containing combustible cartons, boxes or loose bundles along transportation route. Fire is quenched with water.	WS-2	1	1	1	1	1	1
268	Fire erupts in the transport vehicle or in the overpack containing combustible cartons, boxes or loose bundles along transportation route. Fire is quenched with water.	WS-3	1	1	1	1	1	1
269	Fire erupts in the transport vehicle or in the overpack containing combustible cartons, boxes or loose bundles along transportation route. Fire is quenched with water.	WS-4	1	1	1	1	1	1
270	Fire erupts in the transport vehicle or in the overpack containing combustible cartons, boxes or loose bundles along transportation route. Fire is quenched with water.	WS-5	1	1	1	1	1	1
271	Explosion in the transport vehicle or in the overpack containing drums or boxes with volatile substances or liquid containers.	WS-2	0	0	0	1	1	1
272	Explosion in the transport vehicle or in the overpack containing drums or boxes with volatile substances or liquid containers.	WS-3	0	0	0	1	1	1
273	Explosion in the transport vehicle or in the overpack containing drums or boxes with volatile substances or liquid containers.	WS-4	0	0	0	1	1	1
274	Explosion in the transport vehicle or in the overpack containing drums or boxes with volatile substances or liquid containers.	WS-5	0	0	0	1	1	1
275	Explosion in the transport vehicle or in the overpack containing drums, boxes or cartons filled with solids or loose bundles.	WS-2	0	0	0	1	1	1
276	Explosion in the transport vehicle or in the overpack containing drums, boxes or cartons filled with solids or loose bundles.	WS-3	0	0	0	1	1	1
277	Explosion in the transport vehicle or in the overpack containing drums, boxes or cartons filled with solids or loose bundles.	WS-4	0	0	0	1	1	1
278	Explosion in the transport vehicle or in the overpack containing drums, boxes or cartons filled with solids or loose bundles.	WS-5	0	0	0	1	1	1

Table 4.8-1. Required Files for Scenario Input. (Continued)

SCENARIO NUMBER	SCENARIO DESCRIPTION	INVENTORY	Aquifer	Geology	Erosion	Atmospheric	Agriculture	Direct
279	A transport vehicle is abandoned or destroyed during transit. Liquid substance is spilled from damaged containers onto the roadway.	WS-2	1	1	1	1	1	1
280	A transport vehicle is abandoned or destroyed during transit. Liquid substance is spilled from damaged containers onto the roadway.	WS-3	1	1	1	1	1	1
281	A transport vehicle is abandoned or destroyed during transit. Liquid substance is spilled from damaged containers onto the roadway.	WS-4	1	1	1	1	1	1
282	A transport vehicle is abandoned or destroyed during transit. Liquid substance is spilled from damaged containers onto the roadway.	WS-5	1	1	1	1	1	1
283	A transport vehicle is damaged or destroyed during transit. Volatile substance is spilled from damaged containers onto the roadway.	WS-2	0	0	0	1	1	0
284	A transport vehicle is damaged or destroyed during transit. Volatile substance is spilled from damaged containers onto the roadway.	WS-3	0	0	0	1	1	0
285	A transport vehicle is damaged or destroyed during transit. Volatile substance is spilled from damaged containers onto the roadway.	WS-4	0	0	0	1	1	0
286	A transport vehicle is damaged or destroyed during transit. Volatile substance is spilled from damaged containers onto the roadway.	WS-5	0	0	0	1	1	0
287	A transport vehicle is damaged or destroyed during transit. Solid or liquid wastes spilled on the roadway are flooded by rainfall.	WS-2	1	1	1	1	1	0
288	A transport vehicle is damaged or destroyed during transit. Solid or liquid wastes spilled on the roadway are flooded by rainfall.	WS-3	1	1	1	1	1	0
289	A transport vehicle is damaged or destroyed during transit. Solid or liquid wastes spilled on the roadway are flooded by rainfall.	WS-4	1	1	1	1	1	0
290	A transport vehicle is damaged or destroyed during transit. Solid or liquid wastes spilled on the roadway are flooded by rainfall.	WS-5	1	1	1	1	1	0
291	A transport vehicle is damaged or destroyed during transit. Solid waste is spilled on the roadway. High velocity wind causes lifting and dispersal of those radionuclides which are attached to dust, light powders, loose papers or boards, etc. The materials are dispersed over the roadway and neighboring countryside.	WS-2	0	0	0	1	1	1

Table 4.8-1. Required Files for Scenario Input. (Continued)

SCENARIO NUMBER	SCENARIO DESCRIPTION	INVENTORY	Aquifer	Geology	Erosion	Atmospheric	Agriculture	Direct
292	A transport vehicle is damaged or destroyed during transit. Solid waste is spilled on the roadway. High velocity wind causes lifting and dispersal of those radionuclides which are attached to dust, light powders, loose papers or boards, etc. The materials are dispersed over the roadway and neighboring countryside.	WS-3	0	0	0	1	1	1
293	A transport vehicle is damaged or destroyed during transit. Solid waste is spilled on the roadway. High velocity wind causes lifting and dispersal of those radionuclides which are attached to dust, light powders, loose papers or boards, etc. The materials are dispersed over the roadway and neighboring countryside.	WS-4	0	0	0	1	1	1
294	A transport vehicle is damaged or destroyed during transit. Solid waste is spilled on the roadway. High velocity wind causes lifting and dispersal of those radionuclides which are attached to dust, light powders, loose papers or boards, etc. The materials are dispersed over the roadway and neighboring countryside.	WS-5	0	0	0	1	1	1
295	Irradiated/contaminated items are removed from waste scattered as a result of transport vehicle damage or destruction.	WS-2	0	0	0	0	1	1
296	Irradiated/contaminated items are removed from waste scattered as a result of transport vehicle damage or destruction.	WS-3	0	0	0	0	1	1
297	Irradiated/contaminated items are removed from waste scattered as a result of transport vehicle damage or destruction.	WS-4	0	0	0	0	1	1
298	Irradiated/contaminated items are removed from waste scattered as a result of transport vehicle damage or destruction.	WS-5	0	0	0	0	1	1
299	A worker is injured by contaminated sharp object protruding from ruptured waste container during post-accident cleanup of the roadway.	WS-2	0	0	0	0	1	1
300	A worker is injured by contaminated sharp object protruding from ruptured waste container during post-accident cleanup of the roadway.	WS-3	0	0	0	0	1	1
301	A worker is injured by contaminated sharp object protruding from ruptured waste container during post-accident cleanup of the roadway.	WS-4	0	0	0	0	1	1
302	A worker is injured by contaminated sharp object protruding from ruptured waste container during post-accident cleanup of the roadway.	WS-5	0	0	0	0	1	1

5. OUTPUT

In Section 4.1, it was mentioned that there are three different output possibilities for an interactive job and two different output options for a batch job. The following sections will explain the difference between the normal and expanded outputs.

5.1 NORMAL VERSION

This is the minimum amount of output a user can expect. Examples of this type of output are shown in the first three sample problems in Section 6. The input is echoed back for the user to be kept as part of the permanent listing. The dose for each path is broken down so that the user might see which path contributed the most dose. A total dose for all paths is the final output page. It must be kept in mind that even though the user might be looking at a two minute scenario, the dose calculations are for all time. Therefore, a long half-life will dominate the dose calculations.

5.2 EXPANDED VERSION

When the user specifies an expanded output (IPRNT-2 on TAPE 14), an output listing will be obtained as in sample problem No. 4 of Section 6. This type of output shows the nuclide movement up and down through the soil column, as well as how the aquifer treats the nuclides it receives and erosion treats the nuclides it receives. When a nuclide exits the aquifer, it must be remembered that a delta time of thousands of years may have elapsed.

A user would not normally use this output option because of the potentially large amount of output. But, this is a good way to check an UNSAT scenario in which a user might suspect a problem.

6. SAMPLE PROBLEMS

SAMPLE CASE 1 12/3/80

SCENARIO NUMBER : 23

Explosion in the transport vehicle or in the overpack containing drums or boxes with volatile substances or liquid containers.

INVENTORY : WS-2

PATH NUMBER	PATH	RELEASE FRACTION
1	3000	0.1E+01
	3 WASTE CONTACT (SHINE)	
2	2000	0.1E-02
	2 ATMOSPHERIC TRANSPORT	

PATH NUMBER 1
3 WASTE CONTACT (SHINE)

NUCLIDE	AMOUNT CI/M**3
CR51	1.820E-01
CO58	1.820E-01
FE55	1.820E-01
ZN65	9.100E-03
ZR95	9.100E-03
RU106	9.100E-03
SB124	9.100E-03
SB125	9.100E-03
EU152	1.820E-05
EU154	1.820E-04
EU155	1.820E-04
SR90	1.820E-03
CS137	3.770E-01
MN54	9.100E-02
CS134	2.080E-01
H3	2.210E-02
C14	1.040E-03
NI59	2.600E-04
TC99	2.600E-04
I129	1.300E-05
CS135	1.300E-05
NP237	1.300E-05
PU238	1.690E-05
PU239	1.820E-05
PU240	2.600E-05
PU241	7.020E-03
PU242	7.280E-03
AM241	1.690E-04
AM242	5.200E-05
AM243	1.300E-05
CM242	1.170E-04
CM243	1.300E-05
CM244	7.800E-05

EXPOSURE TIME IS 0.5000E+00HOURS

VOLUME OF PACKAGE IS 0.9000E+02 CUBIC METERS

DOSE OUTPUT (PERSON-REM)
FOR PATH 1
SAMPLE CASE 1 12/3/80

CUMULATIVE POPULATION DOSE	0.00E+00
DIRECT EXPOSURE DOSE	1.42E-04

TOTAL POPULATION DOSE BREAKDOWN BY RADIONUCLIDE, DISTANCE CELL, DOSE PATHWAY, BODY ORGAN AND POPULATION AGE GROUP.

RADIONUCLIDE

CR51	0.00E+00	CO58	0.00E+00
FE55	0.00E+00	ZN65	0.00E+00
ZR95	0.00E+00	RU106	0.00E+00
SB124	0.00E+00	SB125	0.00E+00
EU152	0.00E+00	EU154	0.00E+00
EU155	0.00E+00	SR90	0.00E+00
CS137	0.00E+00	MN54	0.00E+00
CS134	0.00E+00	H3	0.00E+00
C14	0.00E+00	NI59	0.00E+00
TC99	0.00E+00	I129	0.00E+00
CS135	0.00E+00	NP237	0.00E+00
PU238	0.00E+00	PU239	0.00E+00
PU240	0.00E+00	PU241	0.00E+00
PU242	0.00E+00	AM241	0.00E+00
AM242	0.00E+00	AM243	0.00E+00
CM242	0.00E+00	CM243	0.00E+00
CM244	0.00E+00		

DISTANCE(M)

0	0.00E+00

PATH

CLOUD SHINE	0.00E+00	GROUND SHINE	0.00E+00
DIRECT INHALATION	0.00E+00	RESUS. INHALATION	0.00E+00
WATER INGESTION	0.00E+00	LEAFY VEG INGESTION	0.00E+00
ROOT INGESTION	0.00E+00	MILK INGESTION	0.00E+00
BEEF INGESTION	0.00E+00		

ORGAN

WHOLE BODY	0.00E+00	BONE	0.00E+00
LIVER	0.00E+00	KIDNEY	0.00E+00
GONAD	0.00E+00	LUNG	0.00E+00
G.I.TRACT	0.00E+00	THYROID	0.00E+00
SKIN	0.00E+00		

AGE GROUP

CHILD	0.00E+00	TEEN	0.00E+00
ADULT	0.00E+00		

PATH NUMBER: 2
2 ATMOSPHERIC TRANSPORT

NUCLIDE	AMOUNT CI/M**3
CR51	1.820E-04
CO58	1.820E-04
FE59	1.820E-04
ZN65	9.100E-06
ZR95	9.100E-06
RU106	9.100E-06
SB124	9.100E-06
SB125	9.100E-06
EU152	1.820E-08
EU154	1.820E-07
EU155	1.820E-07
SR90	1.820E-06
CS137	3.770E-04
MN54	9.100E-05
CS134	2.080E-04
H3	2.210E-05
C14	1.040E-06
NI59	2.600E-07
TC99	2.600E-07
I129	1.300E-08
CS135	1.300E-08
NP237	1.300E-08
PU238	1.690E-08
PU239	1.820E-08
PU240	2.600E-08
PU241	7.020E-06
PU242	7.280E-06
AM241	1.690E-07
AM242	5.200E-08
AM243	1.300E-08
CM242	1.170E-07
CM243	1.300E-08
CM244	7.800E-08

EXPOSURE TIME IS 0.5000E+00HOURS

DOSE OUTPUT (PERSON-REM)
FOR PATH 2
SAMPLE CASE 1 12/3/80

CUMULATIVE POPULATION DOSE 5.91E+00
DIRECT EXPOSURE DOSE 0.00E+00

TOTAL POPULATION DOSE BREAKDOWN BY RADIONUCLIDE, DISTANCE CELL, DOSE PATHWAY, BODY ORGAN AND POPULATION AGE GROUP.

RADIONUCLIDE			
CR51	1.79E-04	CO58	1.29E-02
FE55	5.92E-04	ZN65	1.21E-03
ZR95	2.96E-04	RU106	3.00E-05
SB124	7.47E-04	SB125	1.05E-03
EU152	2.30E-07	EU154	6.58E-05
EU155	3.67E-06	SR90	1.68E-02
CS137	1.97E-01	MN54	1.07E-02
CS134	2.38E-01	H3	1.34E-05
C14	4.84E-06	NI59	3.28E-06
TC99	1.85E-07	I129	2.52E-05
CS135	6.56E-06	NP237	3.44E-02
PU238	2.61E-04	PU239	9.12E-04
PU240	6.79E-04	PU241	2.05E-03
PU242	5.37E+00	AM241	2.70E-03
AM242	1.29E-09	AM243	3.19E-04
CM242	9.68E-04	CM243	2.86E-03
CM244	1.34E-02		

DISTANCE(M)			
1600.	1.20E-01	3200.	1.33E+00
4800.	1.99E+00	6400.	7.18E-01
8000.	1.95E-01	10000.	4.35E-01
12000.	5.20E-01		

PATH			
CLOUD SHINE	2.23E-05	GROUND SHINE	8.87E-02
DIRECT INHALATION	2.44E-02	RESUS. INHALATION	5.40E+00
WATER INGESTION	0.00E+00	LEAFY VEG INGESTION	3.06E-01
ROOT INGESTION	2.08E-06	MILK INGESTION	7.37E-02
BEEF INGESTION	1.82E-02		

ORGAN			
WHOLE BODY	5.91E+00	BONE	2.14E+02
LIVER	3.01E+01	KIDNEY	2.29E+01
GONAD	8.94E-02	LUNG	1.58E+01
G.I.TRACT	1.93E-01	THYROID	9.41E-02
SKIN	1.09E-01		

AGE GROUP			
CHILD	1.26E+00	TEEN	9.57E-01
ADULT	3.69E+00		

DOSE OUTPUT (PERSON-REM)
FOR ALL PATHS
SAMPLE CASE 1 12/3/80

CUMULATIVE POPULATION DOSE	5.91E+00
DIRECT EXPOSURE DOSE	1.42E-04

TOTAL POPULATION DOSE BREAKDOWN BY RADIONUCLIDE, DISTANCE CELL, DOSE PATHWAY, BODY ORGAN AND POPULATION AGE GROUP.

RADIONUCLIDE			
CR51	1.79E-04	CO58	1.29E-02
FE55	5.92E-04	ZN65	1.21E-03
ZR95	2.96E-04	RU106	3.00E-05
SB124	7.47E-04	SB125	1.05E-03
EU152	2.30E-07	EU154	6.58E-05
EU155	3.67E-06	SR90	1.68E-02
CS137	1.97E-01	MN54	1.07E-02
CS134	2.38E-01	H3	1.34E-05
C14	4.84E-06	NI59	3.28E-06
TC99	1.85E-07	I129	2.52E-05
CS135	6.56E-06	NP237	3.44E-02
PU238	2.61E-04	PU239	9.12E-04
PU240	6.79E-04	PU241	2.05E-03
PU242	5.37E+00	AM241	2.70E-03
AM242	1.29E-09	AM243	3.19E-04
CM242	9.68E-04	CM243	2.86E-03
CM244	1.34E-02		

DISTANCE(M)			
1600.	1.20E-01	3200.	1.33E+00
4800.	1.99E+00	6400.	7.18E-01
8000.	7.95E-01	10000.	4.35E-01
12000.	5.20E-01		

PATH			
CLOUD SHINE	2.23E-05	GROUND SHINE	8.87E-02
DIRECT INHALATION	2.44E-02	RESUS. INHALATION	5.40E+00
WATER INGESTION	0.00E+00	LEAFY VEG INGESTION	3.06E-01
ROOT INGESTION	2.08E-06	MILK INGESTION	7.37E-02
BEEF INGESTION	1.82E-02		

ORGAN			
WHOLE BODY	5.91E+00	BONE	2.14E+02
LIVER	3.01E+01	KIDNEY	2.29E+01
GONAD	8.94E-02	LUNG	1.58E+01
G.I.TRACT	1.93E-01	THYROID	9.41E-02
SKIN	1.09E-01		

AGE GROUP			
CHILD	1.26E+00	TEEN	9.57E-01
ADULT	3.69E+00		

SAMPLE CASE 2 12/3/80

SCENARIO NUMBER : 10

A ruptured drum, carton or box containing solids causes releases to contaminate the vehicle or the overpack inter

INVENTORY : WS-4

PATH NUMBER	PATH	RELEASE FRACTION
1	3000	0.1E+01
	3 WASTE CONTACT (SHINE)	
2	4000	0.1E+00
	4 DOSE CALCULATION	

PATH NUMBER: 1
3 WASTE CONTACT (SHINE)

NUCLIDE	AMOUNT CI/M**3
CR51	4.480E+00
CO58	4.480E+00
FE55	4.480E+00
ZN65	2.240E-01
ZR95	2.240E-01
RU106	2.240E-01
SB124	2.240E-01
SB125	2.240E-01
EU152	4.480E-04
EU154	4.480E-03
EU155	4.480E-03
SR90	4.480E-02
CS137	9.280E+00
MN54	2.240E+00
CS134	5.120E+00
H3	5.440E-01
C14	2.560E-02
NI59	6.400E-03
TC99	6.400E-03
I129	3.200E-04
CS135	3.200E-04
NP237	3.200E-04
PU238	4.160E-04
PU239	4.480E-04
PU240	6.400E-04
PU241	1.728E-01
PU242	1.792E-01
AM241	4.160E-03
AM242	1.280E-03
AM243	3.200E-04
CM242	2.880E-03
CM243	3.200E-04
CM244	1.920E-03

EXPOSURE TIME IS 0.5000E+00HOURS

VOLUME OF PACKAGE IS 0.1000E+01 CUBIC METERS

DOSE OUTPUT (PERSON-REM)
FOR PATH 1
SAMPLE CASE 2 12/3/80

CUMULATIVE POPULATION DOSE 0.00E+00
DIRECT EXPOSURE DOSE 5.41E-03

TOTAL POPULATION DOSE BREAKDOWN BY RADIONUCLIDE, DISTANCE CELL, DOSE PATHWAY, BODY ORGAN AND POPULATION AGE GROUP.

RADIONUCLIDE

CR51	0.00E+00	CO58	0.00E+00
FE55	0.00E+00	ZN65	0.00E+00
ZR95	0.00E+00	RU106	0.00E+00
SB124	0.00E+00	SB125	0.00E+00
EU152	0.00E+00	EU154	0.00E+00
EU155	0.00E+00	SR90	0.00E+00
CS137	0.00E+00	MN54	0.00E+00
CS134	0.00E+00	H3	0.00E+00
C14	0.00E+00	NI59	0.00E+00
TC99	0.00E+00	I129	0.00E+00
CS135	0.00E+00	NP237	0.00E+00
PU238	0.00E+00	PU239	0.00E+00
PU240	0.00E+00	PU241	0.00E+00
PU242	0.00E+00	AM241	0.00E+00
AM242	0.00E+00	AM243	0.00E+00
CM242	0.00E+00	CM243	0.00E+00
CM244	0.00E+00		

DISTANCE(M)

1600.	0.00E+00	3200.	0.00E+00
4800.	0.00E+00	6400.	0.00E+00
8000.	0.00E+00	10000.	0.00E+00
12000.	0.00E+00		

PATH

CLOUD SHINE	0.00E+00	GROUND SHINE	0.00E+00
DIRECT INHALATION	0.00E+00	RESUS. INHALATION	0.00E+00
WATER INGESTION	0.00E+00	LEAFY VEG INGESTION	0.00E+00
ROOT INGESTION	0.00E+00	MILK INGESTION	0.00E+00
BEEF INGESTION	0.00E+00		

ORGAN

WHOLE BODY	0.00E+00	BONE	0.00E+00
LIVER	0.00E+00	KIDNEY	0.00E+00
GONAD	0.00E+00	LUNG	0.00E+00
G.I.TRACT	0.00E+00	THYROID	0.00E+00
SKIN	0.00E+00		

ACE GROUP

CHILD	0.00E+00	TEEN	0.00E+00
ADULT	0.00E+00		

PATH NUMBER: 2
4 DOSE CALCULATION

NUCLIDE	AMOUNT CI/M**3
CR51	4.480E-01
CO58	4.480E-01
FE55	4.480E-01
ZN65	2.240E-02
ZR95	2.240E-02
RU106	2.240E-02
SB124	2.240E-02
SB125	2.240E-02
EU152	4.480E-05
EU154	4.480E-04
EU155	4.480E-04
SR90	4.480E-03
CS137	9.280E-01
MN54	2.240E-01
CS134	5.120E-01
H3	5.440E-02
C1[illegible]	2.560E-03
NI59	6.400E-04
TC99	6.400E-04
I129	3.200E-05
CS135	3.200E-05
NP237	3.200E-05
PU238	4.160E-04
PU239	4.480E-05
PU240	6.400E-05
PU241	1.728E-02
PU242	1.792E-02
AM241	4.160E-04
AM242	1.280E-04
AM243	3.200E-05
CM242	2.880E-04
CM243	3.200E-05
CM244	1.920E-04

EXPOSURE TIME IS 0.5000E+00HOURS

DOSE OUTPUT (PERSON-REM)
FOR PATH 2
SAMPLE CASE 2 12/3/80

CUMULATIVE POPULATION DOSE 3.17E+00
DIRECT EXPOSURE DOSE 0.00E+00

TOTAL POPULATION DOSE BREAKDOWN BY RADIONUCLIDE, DISTANCE CELL, DOSE PATHWAY, BODY ORGAN AND POPULATION AGE GROUP.

RADIONUCLIDE

CR51	4.27E-05	CO58	1.12E-03
FE55	6.24E-04	ZN65	3.57E-04
ZR95	2.01E-04	RU106	6.87E-03
SB124	1.76E-04	SB125	1.12E-04
EU152	5.50E-06	EU154	7.69E-05
EU155	1.08E-05	SR90	7.61E-03
CS137	1.33E-01	MN54	7.99E-04
CS134	1.23E-01	H3	1.81E-05
C14	3.09E-06	NI59	1.21E-06
TC99	2.27E-08	I129	3.85E-07
CS135	5.44E-07	NP237	4.56E-03
PU238	6.97E-03	PU239	7.13E-03
PU240	1.01E-02	PU241	4.95E-02
PU242	2.74E+00	AM241	5.88E-02
AM242	3.43E-09	AM243	4.42E-03
CM242	8.04E-04	CM243	3.24E-03
CM244	1.52E-02		

DISTANCE(M)

1600.	3.17E+00	3200.	0.00E+00
4800.	0.00E+00	6400.	0.00E+00
8000.	0.00E+00	10000.	0.00E+00
12000.	0.00E+00		

PATH

CLOUD SHINE	2.09E-03	GROUND SHINE	0.00E+00
DIRECT INHALATION	3.17E+00	RESUS. INHALATION	0.00E+00
WATER INGESTION	0.00E+00	LEAFY VEG INGESTION	0.00E+00
ROOT INGESTION	0.00E+00	MILK INGESTION	0.00E+00
BEEF INGESTION	0.00E+00		

ORGAN

WHOLE BODY	3.17E+00	BONE	1.14E+02
LIVER	1.61E+01	KIDNEY	1.24E+01
GONAD	5.63E-03	LUNG	8.59E+00
G.I.TRACT	3.17E-02	THYROID	2.80E-03
SKIN	4.37E-03		

AGE GROUP

CHILD	6.79E-01	TEEN	5.22E-01
ADULT	1.97E+00		

DOSE OUTPUT (PERSON-REM)
FOR ALL PATHS
SAMPLE CASE 2 12/3/80

CUMULATIVE POPULATION DOSE 3.17E+00
DIRECT EXPOSURE DOSE 5.41E-03

TOTAL POPULATION DOSE BREAKDOWN BY RADIONUCLIDE, DISTANCE CELL, DOSE PATHWAY, BODY ORGAN AND POPULATION AGE GROUP.

RADIONUCLIDE

CR51	4.27E-05	CO58	1.12E-03
FE55	6.24E-04	ZN65	3.57E-04
ZR95	2.01E-04	RU106	6.87E-05
SB124	1.76E-04	SB125	1.12E-04
EU152	5.50E-06	EU154	7.69E-05
EU155	1.08E-05	SR90	7.61E-03
CS137	1.33E-01	MN54	7.99E-04
CS134	1.23E-01	H3	1.81E-05
C14	3.09E-06	NI59	1.21E-06
TC99	2.27E-08	I129	3.85E-07
CS135	5.44E-07	NP237	4.56E-03
PU238	5.97E-03	PU239	7.13E-03
PU240	1.01E-02	PU241	4.95E-02
PU242	2.74E+00	AM241	5.88E-02
AM242	3.43E-09	AM243	4.42E-03
CM242	8.04E-04	CM243	3.24E-03
CM244	1.52E-02		

DISTANCE(M)

1600.	3.17E+00	3200.	0.00E+00
4800.	0.00E+00	6400.	0.00E+00
8000.	0.00E+00	10000.	0.00E+00
12000.	0.00E+00		

PATH

CLOUD SHINE	2.09E-03	GROUND SHINE	0.00E+00
DIRECT INHALATION	3.17E+00	RESUS. INHALATION	0.00E+00
WATER INGESTION	0.00E+00	LEAFY VEG INGESTION	0.00E+00
ROOT INGESTION	0.00E+00	MILK INGESTION	0.00E+00
BEEF INGESTION	0.00E+00		

ORGAN

WHOLE BODY	3.17E+00	BONE	1.14E+02
LIVER	1.61E+01	KIDNEY	1.24E+01
GONAD	5.63E-03	LUNG	8.59E+00
G.I.TRACT	3.17E-02	THYROID	2.80E-03
SKIN	4.37E-03		

AGE GROUP

CHILD	6.79E-01	TEEN	5.22E-01
ADULT	1.97E+00		

SAMPLE CASE 3 12/3/80

SCENARIO NUMBER : 94

Fire erupts in the uncovered trench containing burnable cardons, boxes or loose bundles.

INVENTORY : WS-6

PATH NUMBER	PATH	RELEASE FRACTION
1	2000	0.2E-01
	2 ATMOSPHERIC TRANSPOR"	
2	9510	0.1E+00
	9 UNSATURATED ZONE WATER TRANSPORT	
	5 WIND EROSION	
	1 AQUIFER TRANSPORT	

PATH NUMBER: 1
2 ATMOSPHERIC TRANSPORT

NUCLIDE	AMOUNT CI/M**3
H3	2.400E-03
C14	7.600E-05
S35	1.720E-05
CR51	8.600E-03
MN54	5.000E-03
FE55	8.600E-03
CO58	8.600E-03
CO60	2.600E-02
NI59	2.600E-04
NI63	4.800E-02
ZN65	4.000E-04
SR90	9.600E-05
NB94	2.800E-06
ZR95	4.000E-04
TC99	6.400E-07
RU106	4.000E-04
SB124	1.000E-04
SB125	1.000E-04
I125	3.000E-05
I129	1.280E-07
CS134	9.600E-03
CS135	6.400E-07
CS137	1.720E-02
CE144	4.000E-04
EU152	9.600E-07
EU154	9.600E-06
EU155	9.600E-06
RA226	2.300E-06
TH230	1.420E-06
TH232	1.680E-07
U235	6.400E-07
U238	1.420E-05
NP237	9.200E-10
PU238	6.400E-06
PU239	8.600E-07
PU240	1.340E-06
PU241	3.300E-04
PU242	4.800E-09
AM241	6.000E-07
AM242	3.200E-08
AM243	4.200E-08
CM242	5.000E-05
CM243	1.200E-08
CM244	3.800E-06

EXPOSURE TIME IS 0.5000E+00HOURS

VOLUME OF PACKAGE IS 0.2000E+01 CUBIC METERS

DOSE OUTPUT (PERSON-REM)
FOR PATH 1
SAMPLE CASE 3 12/3/80

CUMULATIVE POPULATION DOSE 1.03E+02
DIRECT EXPOSURE DOSE 0.00E+00

TOTAL POPULATION DOSE BREAKDOWN BY RADIONUCLIDE, DISTANCE CELL, DOSE PATHWAY, BODY ORGAN AND POPULATION AGE GROUP.

RADIONUCLIDE

H3	3.23E-05	C14	7.80E-06
S35	0.00E+00	CR51	1.88E-04
MN54	1.30E-02	FE55	6.22E-04
CO58	1.36E-02	CO60	3.73E-01
NI59	7.28E-05	NI63	3.23E-02
ZN65	1.19E-03	SR90	1.97E-02
NB94	0.00E+00	ZR95	2.89E-04
TC99	1.01E-08	RU106	2.93E-05
SB124	1.82E-04	SB125	2.57E-04
I125	2.50E-06	I129	5.50E-06
CS134	2.44E-01	CS135	7.18E-06
CS137	2.00E-01	CE144	6.02E-05
EU152	2.70E-07	EU154	7.71E-05
EU155	4.30E-06	RA226	5.71E-02
TH230	8.93E-03	TH232	8.17E+01
U235	1.50E-01	U238	1.97E+01
NP237	5.42E-05	PU238	2.20E-03
PU239	9.5[illegible]E-04	PU240	7.78E-04
PU241	2.1[illegible]E-03	PU242	7.87E-05
AM241	2.1[illegible]E-04	AM242	1.77E-11
AM243	2.2[illegible]E-05	CM242	9.19E-03
CM243	5.8[illegible]E-05	CM244	1.45E-02

DISTANCE(M)

1600.	1.[illegible]E-01	3200.	2.34E+01
4800.	3.60E+01	6400.	1.26E+01
8000.	1.40E+01	10000.	7.35E+00
12000.	9.02E+00		

PATH

CLOUD SHINE	7.91E-05	GROUND SHINE	4.49E-01
DIRECT INHALATION	3.70E-03	RESUS. INHALATION	1.02E+02
WATER INGESTION	0.00E+00	LEAFY VEG INGESTION	4.09E-01
ROOT INGESTION	2.79E-06	MILK INGESTION	8.00E-02
BEEF INGESTION	3.55E-02		

ORGAN

WHOLE BODY	1.03E+02	BONE	2.14E+03
LIVER	1.01E+02	KIDNEY	5.58E+02
GONAD	3.78E-01	LUNG	2.21E+03
G.I.TRACT	1.81E+00	THYROID	3.99E-01
SKIN	5.32E-01		

AGE GROUP

CHILD	2.24E+01	TEEN	1.70E+01
ADULT	6.32E+01		

PATH NUMBER: 2
9 UNSATURATED ZONE WATER TRANSPORT

5 WIND EROSION

1 AQUIFER TRANSPORT

NUCLIDE	AMOUNT CI/M**3
H3	1.200E-02
C14	3.800E-04
S35	8.600E-05
CR51	4.300E-02
MN54	2.500E-02
FE55	4.300E-02
CO58	4.300E-02
CO60	1.300E-01
NI59	1.300E-03
NI63	2.400E-01
ZN65	2.000E-03
SR90	4.800E-04
NB94	1.400E-05
ZR95	2.000E-03
TC99	3.200E-06
RU106	2.000E-03
SB124	5.000E-04
SB125	5.000E-04
I125	1.500E-04
I129	6.400E-07
CS134	4.800E-02
CS135	3.200E-06
CS137	8.600E-02
CE144	2.000E-03
EU152	4.800E-05
EU154	4.800E-05
EU155	4.800E-05
RA226	1.150E-05
TH230	7.100E-06
TH232	8.400E-07
U235	3.200E-06
U238	7.100E-05
NP237	4.600E-09
PU238	3.200E-05
PU239	4.300E-06
PU240	6.700E-06
PU241	1.650E-03
PU242	2.400E-08
AM241	3.000E-06
AM242	1.600E-07
AM243	2.100E-07
CM242	2.500E-04
CM243	6.800E-08
CM244	1.900E-05

WILL RUN PROBLEM THROUGH UNSAT FOR 0.1752E+05 HOURS

EXPOSURE TIME IS 0.1752E+05HOURS

EXPOSURE TIME IS 0.1752E+05HOURS

DOSE OUTPUT (PERSON-REM)
FOR PATH 2
SAMPLE CASE 3 12/3/80

CUMULATIVE POPULATION DOSE 0.00E+00
DIRECT EXPOSURE DOSE 0.00E+00

TOTAL POPULATION DOSE BREAKDOWN BY RADIONUCLIDE, DISTANCE CELL, DOSE PATHWAY, BODY ORGAN AND POPULATION AGE GROUP.

RADIONUCLIDE

H3	0.00E+00	C14	0.00E+00
S35	0.00E+00	CR51	0.00E+00
MN54	0.00E+00	FE55	0.00E+00
CO58	0.00E+00	CO60	0.00E+00
NI59	0.00E+00	NI63	0.00E+00
ZN65	0.00E+00	SR90	0.00E+00
NB94	0.00E+00	ZR95	0.00E+00
TC99	0.00E+00	RU106	0.00E+00
SB124	0.00E+00	SB125	0.00E+00
I125	0.00E+00	I129	0.00E+00
CS134	0.00E+00	CS135	0.00E+00
CS137	0.00E+00	CE144	0.00E+00
EU152	0.00E+00	EU154	0.00E+00
EU155	0.00E+00	RA226	0.00E+00
TH230	0.00E+00	TH232	0.00E+00
U235	0.00E+00	U238	0.00E+00
NP237	0.00E+00	PU238	0.00E+00
PU239	0.00E+00	PU240	0.00E+00
PU241	0.00E+00	PU242	0.00E+00
AM241	0.00E+00	AM242	0.00E+00
AM243	0.00E+00	CM242	0.00E+00
CM243	0.00E+00	CM244	0.00E+00

DISTANCE(M)

1600.	0.00E+00	3200.	0.00E+00
4800.	0.00E+00	6400.	0.00E+00
8000.	0.00E+00	10000.	0.00E+00
12000.	0.00E+00		

PATH

CLOUD SHINE	0.00E+00	GROUND SHINE	0.00E+00
DIRECT INHALATION	0.00E+00	RESUS. INHALATION	0.00E+00
WATER INGESTION	0.00E+00	LEAFY VEG INGESTION	0.00E+00
ROOT INGESTION	0.00E+00	MILK INGESTION	0.00E+00
BEEF INGESTION	0.00E+00		

ORGAN

WHOLE BODY	0.00E+00	BONE	0.00E+00
LIVER	0.00E+00	KIDNEY	0.00E+00
GONAD	0.00E+00	LUNG	0.00E+00
G.I.TRACT	0.00E+00	THYROID	0.00E+00
SKIN	0.00E+00		

AGE GROUP

CHILD	0.00E+00	TEEN	0.00E+00
ADULT	0.00E+00		

DOSE OUTPUT (PERSON-REM)
FOR ALL PATHS
SAMPLE CASE 3 12/3/80

CUMULATIVE POPULATION DOSE 1.03E+02
DIRECT EXPOSURE DOSE 0.00E+00

TOTAL POPULATION DOSE BREAKDOWN BY RADIONUCLIDE, DISTANCE CELL, DOSE PATHWAY, BODY ORGAN AND POPULATION AGE GROUP.

RADIONUCLIDE

H3	3.23E-05	C14	7.85E-06
S35	0.00E+00	CR51	1.88E-04
MN54	1.30E-02	FE55	6.22E-04
CO58	1.35E-02	CO60	3.73E-01
NI59	7.28E-05	NI63	3.23E-02
ZN65	1.19E-03	SR90	1.97E-02
NB94	0.00E+00	ZR95	2.89E-04
TC99	1.01E-00	RU106	2.93E-05
SB124	1.82E-04	SB125	2.57E-04
I125	2.50E-06	I129	5.50E-06
CS134	2.44E-01	CS135	7.18E-06
CS137	2.00E-01	CE144	6.02E-05
EU152	2.70E-07	EU154	7.71E-05
EU155	4.30E-06	RA226	5.71E-02
TH230	8.93E-03	TH232	8.17E+01
U235	1.50E-01	U238	1.97E+01
NP237	5.42E-05	PU238	2.20E-03
PU239	9.57E-04	PU240	7.78E-04
PU241	2.14E-03	PU242	7.87E-05
AM241	2.13E-04	AM242	1.77E-11
AM243	2.29E-05	CM242	9.19E-03
CM243	5.87E-05	CM244	1.45E-02

DISTANCE(M)

1600.	1.83E-01	3200.	2.34E+01
4800.	3.60E+01	6400.	1.26E+01
8000.	1.40E+01	10000.	7.35E+00
12000.	9.02E+00		

PATH

CLOUD SHINE	7.91E-05	GROUND SHINE	4.49E-01
DIRECT INHALATION	3.70E-03	RESUS. INHALATION	1.02E+02
WATER INGESTION	0.00E+00	LEAFY VEG INGESTION	4.09E-01
ROOT INGESTION	2.79E-06	MILK INGESTION	8.00E-02
BEEF INGESTION	3.55E-02		

ORGAN

WHOLE BODY	1.03E+02	BONE	2.14E+03
LIVER	1.01E+02	KIDNEY	5.58E+02
GONAD	3.78E-01	LUNG	2.21E+03
G.I.TRACT	1.01E+00	THYROID	3.99E-01
SKIN	5.32E-01		

AGE GROUP

CHILD	2.24E+01	TEEN	1.70E+01
ADULT	6.32E+01		

SAMPLE CASE 4 12/3/80

SCENARIO NUMBER : 98

Fire accurs in the uncovered trench containing burnable carbons, boxes or loose bundles.

INVENTORY : WS-6

PATH NUMBER	PATH	RELEASE FRACTION
1	2000	0.2E-01
	2 ATMOSPHERIC TRANSPORT	
2	9510	0.1E+00
	9 UNSATURATED ZONE WATER TRANSPORT	
	5 WIND EROSION	
	1 AQUIFER TRANSPORT	

PATH NUMBER: 1
2 ATMOSPHERIC TRANSPORT

NUCLIDE	AMOUNT Ci/M**3
H3	2.400E-03
C14	7.600E-05
S35	1.720E-05
CR51	8.600E-03
MN54	5.000E-03
FE55	8.600E-03
CO58	8.600E-03
CO60	2.600E-02
NI59	2.600E-04
NI63	4.800E-02
ZN65	4.000E-04
SR90	9.600E-05
NB94	2.800E-06
ZR95	4.000E-04
TC99	6.400E-07
RU106	4.000E-04
SB124	1.000E-04
SB125	1.000E-04
I125	3.000E-05
I129	1.280E-07
CS134	9.600E-03
CS135	6.400E-07
CS137	1.720E-02
CE144	4.000E-04
EU152	9.600E-07
EU154	9.600E-06
EU155	9.600E-06
RA226	2.300E-06
TH[illegible]	1.420E-06
[illegible]232	1.680E-07
U235	6.400E-07
U238	1.420E-05
NP237	9.200E-10
PU238	6.400E-06
PU239	8.600E-07
PU240	1.340E-06
PU241	3.300E-04
PU242	4.800E-09
AM241	6.000E-07
AM242	3.200E-08
AM243	4.200E-08
CM242	5.000E-05
CM243	1.200E-08
CM244	3.800E-06

EXPOSURE TIME IS 0.5000E+00HOURS

VOLUME OF PACKAGE IS 0.2000E+01 CUBIC METERS

DOSE OUTPUT (PERSON-REM)
FOR PATH 1
SAMPLE CASE 4 12/3/80

CUMULATIVE POPULATION DOSE 1.03E+02
DIRECT EXPOSURE DOSE 0.00E+00

TOTAL POPULATION DOSE BREAKDOWN BY RADIONUCLIDE, DISTANCE CELL, DOSE PATHWAY, BODY ORGAN AND POPULATION AGE GROUP.

RADIONUCLIDE

H3	3.23E-05	C14	7.85E-06
S35	0.00E+00	CR51	1.88E-04
MN54	1.30E-02	FE55	6.22E-04
CO58	1.36E-02	CO60	3.73E-01
NI59	7.28E-05	NI63	3.23E-02
ZN65	1.19E-03	SR90	1.97E-02
NB94	0.00E+00	ZR95	2.89E-04
TC99	1.01E-08	RU106	2.93E-05
SB124	1.82E-04	SB125	2.37E-04
I125	2.49E-06	I129	5.50E-06
CS134	2.44E-01	CS135	7.17E-06
CS137	2.00E-01	CE144	6.02E-05
EU152	2.70E-07	EU154	7.71E-05
EU155	4.30E-06	RA226	5.71E-02
TH230	8.93E-03	TH232	8.17E+01
U235	1.50E-01	U238	1.97E+01
NP237	5.42E-05	PU238	2.20E-03
PU239	9.57E-04	PU240	7.78E-04
PU241	2.14E-03	PU242	7.87E-05
AM241	2.13E-04	AM242	1.77E-11
AM243	2.29E-05	CM242	9.19E-03
CM243	5.87E-05	CM244	1.45E-02

DISTANCE(M)

1600.	1.58E-01	3200.	2.34E+01
4800.	3.60E+01	6400.	1.26E+01
8000.	1.40E+01	10000.	7.35E+00
12000.	9.02E+00		

PATH

CLOUD SHINE	7.91E-03	GROUND SHINE	4.49E-01
DIRECT INHALATION	3.70E-03	RESUS. INHALATION	1.02E+02
WATER INGESTION	9.00E+00	LEAFY VEG INGESTION	4.09E-01
ROOT INGESTION	2.79E-06	MILK INGESTION	8.00E-02
BEEF INGESTION	3.55E-02		

ORGAN

WHOLE BODY	1.03E+02	BONE	2.14E+03
LIVER	1.01E+02	KIDNEY	5.58E+02
GONAD	3.78E-01	LUNG	2.21E+03
G.I.TRACT	1.81E+00	THYROID	3.98E-01
SKIN	5.32E-01		

AGE GROUP

CHILD	2.24E+01	TEEN	1.70E+01
ADULT	6.32E+01		

PATH NUMBER: 2
9 UNSATURATED ZONE WATER TRANSPORT

5 WIND EROSION

1 AQUIFER TRANSPORT

NUCLIDE	AMOUNT CI/M**3
H3	1.200E-02
C14	3.800E-04
S35	8.600E-05
CR51	4.300E-02
MN54	2.500E-02
FE55	4.300E-02
CO58	4.300E-02
CO60	1.300E-01
NI59	1.300E-05
NI63	2.400E-01
ZN65	2.000E-03
SR90	4.800E-04
NB94	1.400E-05
ZR95	2.000E-03
TC99	3.200E-06
RU106	2.000E-03
SB124	5.000E-04
SB125	5.000E-04
I125	1.500E-04
I129	6.400E-07
CS134	4.800E-02
CS135	3.200E-06
CS137	8.600E-02
CE144	2.000E-03
EU152	4.800E-06
EU154	4.800E-05
EU155	4.800E-05
RA226	1.150E-05
TH230	7.100E-06
TH232	8.400E-07
U235	3.200E-06
U238	7.100E-05
NP237	4.600E-09
PU238	3.200E-05
PU239	4.300E-06
PU240	6.700E-06
PU241	1.650E-03
PU242	2.400E-08
AM241	3.600E-06
AM242	1.600E-07
AM243	2.100E-07
CM242	2.500E-04
CM243	6.000E-08
CM244	1.900E-05

WILL RUN PROBLEM THROUGH UNSAT FOR 0.1752E+05 HOURS

HYDRO OUTPUT

K	IER	ND	IN NUMNUC	
10	15	52	4	44

WATER	POTENTIAL	CONDUCTIVITY	DIFFUSIVITY
0.0000E+00	-1.0000E+06	4.3640E-07	8.1170E-02
2.0000E-03	-8.1400E+05	6.3650E-07	1.9844E-01
4.0000E-03	-6.6000E+05	9.1140E-07	3.3880E-01
6.0000E-03	-5.3500E+05	1.3180E-06	5.0355E-01
8.0000E-03	-4.3400E+05	1.9050E-06	6.9595E-01
1.0000E-02	-3.5200E+05	2.7540E-06	9.2170E-01
1.2000E-02	-2.8400E+05	3.9790E-06	1.1924E+00
1.4000E-02	-2.3100E+05	5.7490E-06	1.4971E+00
1.6000E-02	-1.8700E+05	1.3180E-06	1.8550E+00
1.8000E-02	-1.5200E+05	1.2020E-05	1.9757E+00
2.0000E-02	-1.2300E+05	1.7370E-05	2.4795E+00
2.2000E-02	-1.0000E+05	2.5110E-05	3.0570E+00
2.4000E-02	-8.1000E+04	3.6300E-05	3.7467E+00
2.6000E-02	-6.6000E+04	5.2490E-05	4.5341E+00
2.8000E-02	-5.3000E+04	7.5820E-05	5.5197E+00
3.0000E-02	-4.3000E+04	1.0960E-04	6.6157E+00
3.2000E-02	-3.5000E+04	1.5870E-04	7.8853E+00
3.4000E-02	-2.8000E+04	2.2910E-04	9.4090E+00
3.6000E-02	-2.3000E+04	3.3100E-04	1.1144E+01
3.8000E-02	-1.8600E+04	4.7820E-04	1.3248E+01
4.0000E-02	-1.5030E+04	6.9160E-04	1.5717E+01
4.2000E-02	-1.1580E+04	9.9970E-04	1.9166E+01
4.4000E-02	-8.9180E+03	2.8880E-03	2.6854E+01
4.6000E-02	-6.8600E+03	3.0190E-03	3.3043E+01
4.8000E-02	-5.2900E+03	4.3640E-03	3.9929E+01
5.0000E-02	-4.0740E+03	6.3650E-03	4.7596E+01

WATER	POTENTIAL	CONDUCTIVITY	DIFFUSIVITY
5.2000E-02	-3.1380E+03	9.1140E-03	5.6127E+01
5.4000E-02	-2.4170E+03	1.3780E-02	6.6062E+01
5.6000E-02	-1.8620E+03	1.9050E-02	7.6635E+01
5.8000E-02	-1.4340E+03	2.7530E-02	8.8418E+01
6.0000E-02	-1.1040E+03	3.9800E-02	1.0155E+02
6.2000E-02	-8.5100E+02	5.7490E-02	1.1610E+02
6.4000E-02	-6.5500E+02	8.3130E-02	1.3239E+02
6.6000E-02	-5.0500E+02	1.2020E-01	1.5042E+02
6.8000E-02	-3.8900E+02	1.7370E-01	1.7057E+02
7.0000E-02	-3.0000E+02	2.5090E-01	1.9290E+02
7.2000E-02	-1.7600E+02	3.6280E-01	2.1789E+02
7.4000E-02	-1.0300E+02	5.2410E-01	2.7613E+02
7.6000E-02	-6.8600E+01	7.5820E-01	3.0029E+02
7.8000E-02	-3.5600E+01	1.0960E+00	3.3569E+02
8.0000E-02	-2.0900E+01	1.5840E+00	3.5898E+02
8.2000E-02	-1.2200E+01	2.2910E+00	3.7891E+02
8.4000E-02	-7.2000E+00	3.3090E+00	3.9546E+02
8.6000E-02	-4.2000E+00	4.7870E+00	4.0982E+02
8.8000E-02	-2.5000E+00	6.9160E+00	4.2004E+02
9.0000E-02	-1.5000E+00	6.5010E+00	4.2654E+02
9.2000E-02	-9.0000E-01	7.0150E+00	4.3075E+02
9.4000E-02	-5.0000E-01	7.3010E+00	4.3375E+02
9.6000E-02	-3.0000E-01	8.0140E+00	4.3536E+02
9.8000E-02	-1.0000E-01	8.5100E+00	4.3706E+02
1.0000E-01	0.0000E+00	9.0000E+00	4.3796E+02
1.0200E-01	1.0000E+00	9.0000E+00	4.4696E+02

TIME END	SOIL FLUX	ET FLUX
7.2000E+03	5.0000E-03	
8.4000E+03	-1.0000E-05	
1.5600E+04	5.0000E-03	
1.6800E+04	-1.0000E-05	
1.7520E+04	5.0000E-03	
1.7520E+04	-1.0000E-05	
0.0000E+00	0.0000E+00	

DETT	CONQ	TT	CUMT
1.8000E+02	3.1217E-01	1.0000E+00	1.7520E+04

BqRY	BWET	WATL	WATH	DELW
-6.0000E+05	0.0000E+00	4.0000E-03	1.0000E-01	2.0000E-03

THESE ARE THE FLUXES IN EACH LAYER IN ORDER									
0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.0000E+00									

TIME IS 0.1000E+03

DD (FT)	WTSOLD GM	VOLWAT ML	RNCLD CI	RAW CI	RAS CI	W	B	H	Q
0.0000E+00	1.2536E+04	3.6114E+02	0.0000E+00	0.0000E+00	0.0000E+00	5.1014E-02	6.3050E-03	-3.4576E+03	5.0000E-01
5.0000E-01	1.5036E+05	4.3337E+03	0.0000E+00	0.0000E+00	0.0000E+00	5.1014E-02	1.2610E-03	-3.4575E+03	-4.6655E+02
6.0000E+00	6.3904E+05	1.8409E+04	0.0000E+00	0.0000E+00	0.0000E+00	5.0987E-02	1.2610E-03	-3.4736E+03	3.7037E-01
2.6000E+01	1.0024E+06	2.8823E+04	9.3603E-02	2.0550E-02	7.3053E-02	5.0894E-02	1.2610E-03	-3.5305E+03	3.5828E-01
4.5000E+01	1.8545E+06	5.3230E+04	2.3664E-02	6.8750E-03	1.6789E-02	5.0805E-02	1.2610E-03	-3.5845E+03	3.4041E-01
1.0000E+02	2.6063E+06	7.4488E+04	7.7410E-03	4.5030E-03	3.2380E-03	5.0586E-02	1.2610E-03	-3.7175E+03	3.1061E-01
1.5000E+02	2.5061E+06	7.1364E+04	2.3387E-03	1.8890E-03	4.4965E-04	5.0404E-02	1.2610E-03	-3.8285E+03	2.8012E-01
2.0000E+02	2.7567E+06	7.8237E+04	5.7215E-04	5.0342E-04	6.8728E-05	5.0234E-02	1.2610E-03	-3.9316E+03	2.5994E-01
2.6000E+02	2.5719E+06	7.4393E+04	1.6856E-05	3.7813E-06	1.3074E-05	5.0041E-02	1.8915E-03	-4.0492E+03	3.0882E-01
3.0500E+02	2.2937E+06	6.3675E+04	3.8300E-06	8.1905E-07	3.0110E-06	4.9970E-02	6.3050E-03	-4.0924E+03	3.9403E-01
3.5000E+02	1.1468E+06	6.3713E+04	6.7350E-07	2.3907E-07	4.3443E-07	1.0000E-01	6.3050E-03	-4.0740E+03	3.7237E-01

THE TIME IS 7.2000E+03 HOURS, WHICH IS 0 YEAR(S), 10 MONTH(S), AND 0 DAY(S) FROM THE BEGINNING.

DELT IS 3.8750E+02 AND DETT IS 1.0000E+02

NORMAL RAIN

SOIL FLUX	CUM RAIN AND FLOOD	WATER IN COLUMN	CUM EVAPO-TRANS	CUM WATER OFF BOTTOM	BALANCE % OF CUMS
4.9998E-03	3.6000E+01	1.6498E+01	0.0000E+00	3.5865E+01	-9.1624E-04

DD (FT)	WTSOLD CM	VOLWAT ML	RNCLD CI	RAW CI	RAS CI	W	B	H	Q
0.0000E+00	1.2530E+04	5.6111E+02	0.0000E+00	0.0000E+00	0.0000E+00	5.1010E-02	9.1140E-03	-3.6003E+03	1.9375E+00
5.0000E-01	1.5036E+05	4.3336E+03	0.0000E+00	0.0000E+00	0.0000E+00	5.1013E-02	1.8228E-03	-3.6001E+03	-3.1462E+01
6.0000E+00	6.3904E+05	1.8418E+04	0.0000E+00	0.0000E+00	0.0000E+00	5.6[illegible]72E-02	1.8228E-03	-3.6997E+03	1.2318E+00
2.6000E+01	1.0024E+06	2.8837E+04	3.0593E-02	4.6559E-03	2.5937E-02	5.9918E-02	1.8228E-03	-3.64[illegible]5E+03	1.2308E+00
4.6000E+01	1.8545E+06	5.3270E+04	6.7367E-02	1.1377E-02	5.5990E-02	5.0843E-02	1.8228E-03	-3.67[illegible]0E+03	1.2305E+00
1.0000E+02	2.6063E+06	7.4370E+04	8.9405E-02	1.6362E-02	7.3062E-02	5.0642E-02	1.8228E-03	-3.7734E+03	1.2300E+00
1.5000E+02	2.5061E+06	7.1439E+04	9.2163E-02	1.7944E-02	7.4218E-02	5.0456E-02	1.8228E-03	-3.8604E+03	1.2291E+00
2.0000E+02	2.7567E+06	7.8293E+04	8.1128E-02	1.6517E-02	6.4611E-02	5.0271E-02	1.8228E-03	-3.9473E+03	1.2283E+00
2.6000E+02	2.5719E+06	7.4403E+04	6.2480E-02	1.3312E-02	4.9168E-02	5.0048E-02	2.0397E-03	-4.0516E+03	1.3004E+00
3.0500E+02	2.2937E+06	6.3624E+04	4.5993E-02	9.6254E-03	3.6368E-02	4.9930E-02	9.4891E-02	-4.1166E+03	2.7143E+01
3.5000E+02	1.1468E+06	6.3713E+04	1.8317E-02	6.3908E-03	1.1927E-02	1.0000E-01	9.4891E-02	-4.0740E+03	1.9328E+00

NUCLIDE NAME	HALF LIFE	DECAY FACTOR	ORIGINAL AMOUNT	REMAINING ON SURFACE	ENTERED COL-NG DEC	AMOUNT IN COLUMN	AMOUNT OFF BOTTOM	SOLUBILITY	KD BASALT
H3	1.0821E+03	9.5730E-01	1.2000E-02	0.0000E+00	1.2000E-02	6.0000E+00	0.0000E+00	2.6000E+04	1.0000E-11
C14	5.0171E+07	9.9991E-01	3.8000E-04	0.0000E+00	3.8000E-04	3.5724E-04	4.6756E-06	2.2000E+09	1.0000E-01
S35	2.1079E+03	1.0644E-01	8.6000E-05	0.0000E+00	8.6000E-05	8.7893E-06	9.1849E-07	9.1000E-01	1.0000E-01
CR51	6.6492E+02	8.2366E-04	4.3000E-02	0.0000E+00	4.3000E-02	2.9153E-05	1.3165E-03	5.3000E+09	1.0000E-01
MN54	7.7137E+03	5.4218E-01	2.5000E-02	0.0000E+00	2.5000E-02	1.1157E-02	7.6541E-04	6.6000E+07	1.0000E-01
FE55	2.3621E+04	8.1881E-01	4.3000E-02	0.0000E+00	4.3000E-02	3.[illegible]21E-02	2.9014E-04	3.5000E-01	1.5000E-01
CO58	1.7101E+03	6.3266E-02	4.3000E-02	0.0000E+00	4.3000E-02	2.23[illegible]E-03	1.3165E-03	4.8000E+04	1.0000E-01
CO60	4.5990E+04	9.0242E-01	1.3000E-01	0.0000E+00	1.3000E-01	1.0640[illegible]-01	2.7495E-03	1.7000E-01	1.0000E-01
NI59	7.8100E+08	9.9999E-01	1.3000E-03	0.0000E+00	1.3000E-03	1.1069E-0[illegible]	3.6285E-05	1.1000E-01	1.0000E-01
NI63	8.0620E+05	9.9416E-01	2.4000E-01	0.0000E+00	2.4000E-01	2.0540E-01	6.[illegible]-07	8.2000E-01	1.0000E-01
ZR65	5.8372E+03	4.4532E-01	2.0000E-03	0.0000E+00	2.0000E-03	7.3312E-04	6.1233E-[illegible]	7.0000E+07	1.0000E-01
SR90	2.4982E+05	9.8128E-01	4.8000E-04	0.0000E+00	4.8000E-04	4.7101E-04	8.0708E-12	2.1000E-01	2.0000E+00
NB94	3.0353E-01	0.0000E+00	1.4000E-05	0.0000E+00	1.4000E-05	0.0000E+00	3.9876E-07	1.6000E-01	1.0000E-01
ZR95	1.5727E+03	4.9663E-02	2.0000E-03	0.0000E+00	2.0000E-03	8.1759E-05	6.1233E-05	1.8000E+08	1.0000E-01
TC99	1.8565E+09	1.0000E+00	3.2000E-06	0.0000E+00	3.2000E-06	3.1761E-06	5.7284E-09	1.4000E-01	1.0000E-01
RU106	8.8494E+03	5.6649E-01	2.0000E-03	0.0000E+00	2.0020E-03	1.1718E-03	5.6780E-07	1.9000E+08	3.0000E-01
SB124	1.4434E+03	3.8122E-02	5.0000E-04	0.0000E+00	5.0000E-04	1.9861E-05	1.2109E-14	5.1000E+04	3.0000E+00
SB125	2.4283E+04	8.2328E-01	5.0000E-04	0.0000E+00	5.0000E-04	4.1164E-04	8.6900E-13	3.0000E-01	3.0000E+00
I125	1.4385E+03	3.7534E-02	1.5000E-04	0.0000E+00	1.5000E-04	5.5772E-06	3.1982E-07	7.6000E+06	1.0000E-01
I129	1.4916E+11	1.0000E+00	6.4000E-07	0.0000E+00	6.4000E-07	6.3523E-07	1.1457E-09	7.2000E-02	1.0000E-01
CS134	1.7961E+04	7.6881E-01	4.8000E-02	0.0000E+00	4.8000E-02	3.6707E-02	7.1336E-05	1.9000E-01	2.0000E-01
CS135	2.6394E+10	1.0000E+00	3.2000E-06	0.0000E+00	3.2000E-06	3.1822E-06	4.9438E-09	1.7000E-03	2.0000E-01
CS137	2.6280E+05	9.8219E-01	8.6000E-02	0.0000E+00	8.6000E-02	8.4148E-02	9.7636E-03	1.3000E-01	2.0000E-01
CE144	6.8133E+03	5.0004E-01	2.0000E-03	0.0000E+00	2.0000E-03	9.4028E-04	2.4609E-05	1.8000E+06	1.0000E-01
EU152	1.1742E+05	9.6958E-01	4.8000E-06	0.0000E+00	4.8000E-06	4.6108E-06	7.8094E-17	6.5000E-03	1.2000E-01
EU154	7.4487E+04	9.3857E-01	4.8000E-05	0.0000E+00	4.8000E-05	4.5052E-05	6.2422E-16	1.0000E-02	1.2000E-01
EU155	4.3362E+04	8.9682E-01	4.8000E-03	0.0000E+00	4.8000E-03	4.3047E-03	7.0094E-16	1.8000E-02	1.2000E-01
RA226	1.4853E+07	9.9966E-01	1.1500E-03	0.0000E+00	1.1500E-03	1.1496E-03	1.0405E-10	5.6000E-01	5.0000E-01
TH230	7.8100E+08	9.9999E-01	7.1000E-06	0.0000E+00	7.1000E-06	7.1000E-06	1.0368E-16	2.3000E-02	1.2000E-01
TH232	1.2364E+14	1.0000E+00	8.4000E-07	7.3905E-07	1.0895E-07	1.0895E-07	1.1235E-20	1.2000E-07	1.2000E-01
U235	6.2209E+12	1.0000E+00	3.2000E-06	0.0000E+00	3.2000E-06	3.2000E-06	1.0420E-17	2.4000E-06	2.0000E+00
U238	3.9428E+13	1.0000E+00	7.1000E-03	6.9761E-03	1.2387E-06	1.2387E-06	3.0245E-19	3.8000E-07	2.0000E+00
NP237	1.8737E+10	1.0000E+00	4.6000E-09	0.0000E+00	4.6000E-09	4.6000E-09	4.1811E-15	8.6000E-04	7.0000E-01
PU238	7.5412E+05	9.9376E-01	3.2000E-05	0.0000E+00	3.2000E-05	3.1736E-05	2.2000E-08	6.3000E-04	2.0000E-01
PU239	2.1006E+08	9.9998E-01	4.3000E-06	0.0000E+00	4.3000E-06	4.2989E-06	4.3496E-10	2.2000E-06	2.0000E-01
PU240	5.7816E+07	9.9992E-01	6.7000E-06	0.0000E+00	6.7000E-06	6.6937E-06	6.2643E-09	8.3000E-06	2.0000E-01
PU241	1.1563E+05	9.5999E-01	1.6500E-03	0.0000E+00	1.6500E-03	1.5808E-03	1.1243E-06	4.1000E-03	2.0000E-01
PU242	4.7801E+09	1.0000E+00	3.4000E-08	0.0000E+00	2.4000E-08	2.3996E-08	1.8258E-12	1.4000E-07	2.0000E-01
AM241	3.7942E+06	9.9876E-01	3.0000E-06	0.0000E+00	3.0000E-06	2.9963E-06	4.1215E-13	4.1000E-05	7.0000E-01

AM242	1.6018E+01	0.0000E+00	1.6000E-07	0.0000E+00	1.6000E-07	0.0000E+00	5.0697E-14	1.2000E-04	7.0000E-01
AM243	6.9698E+07	9.9993E-01	2.1000E-07	0.0000E+00	2.1000E-07	2.0999E-07	1.9088E-13	7.1000E-02	7.0000E-01
CM242	3.9166E+03	2.9949E-01	2.5000E-04	0.0000E+00	2.5000E-04	7.4873E-05	2.2723E-10	4.0000E-02	7.0000E-01
CM243	2.6280E+05	9.8219E-01	6.0000E-08	0.0000E+00	6.0000E-08	5.8931E-08	5.453eE-14	6.2000E-04	7.0000E-01
CM244	1.5646E+05	9.7827E-01	1.9000E-05	0.0000E+00	1.9000E-05	1.8435E-05	5.0425E-12	9.7000E-04	7.0000E-01

DD (FT)	H3 MCI/CM	C14 MCI/CM	S35 MCI/CM	CR51 MCI/CM	MN54 MCI/CM	FE55 MCI/CM	CO58 MCI/CM	CO60 MCI/CM	NI59 MCI/CM	NI63 MCI/CM
2.6000E+01	0.0000E+00	5.0114E-06	1.5544E-07	4.6712E-07	1.7877E-04	2.1908E-03	3.5846E-05	3.5168E-03	2.2076E-05	4.4441E-03
4.6000E+01	0.0000E+00	1.0348E-05	3.0115E-07	9.6454E-07	3.6913E-04	2.9850E-03	7.4015E-05	5.8204E-03	4.2769E-05	8.3967E-03
1.0000E+02	0.0000E+00	1.4908E-05	4.0894E-07	1.3896E-06	5.3182E-04	2.8541E-03	1.0664E-04	6.8364E-03	5.8077E-05	1.1146E-02
1.5000E+02	0.0000E+00	2.2005E-05	5.7138E-07	2.0512E-06	7.8580E-04	2.8124E-03	1.5740E-04	8.3552E-03	8.1147E-05	1.5255E-02
2.0000E+02	0.0000E+00	2.2329E-05	5.5099E-07	2.0813E-06	7.9653E-04	1.9153E-03	1.5972E-04	7.1177E-03	7.8252E-05	1.4436E-02
2.6000E+02	0.0000E+00	2.1940E-05	5.1678E-07	2.0451E-06	7.8268E-04	1.2766E-03	1.5694E-04	5.9599E-03	7.3992E-05	1.3511E-02
3.0500E+02	0.0000E+00	3.7772E-05	8.2635E-07	1.9322E-06	7.3946E-04	8.1330E-04	2.4827E-04	4.8304E-03	6.6310E-05	1.1834E-02
3.5000E+02	0.0000E+00	2.6855E-05	4.3609E-07	1.6124E-06	6.1705E-04	5.2987E-04	1.2373E-04	3.6894E-03	5.3952E-05	9.5413E-03

DD (FT)	ZN65 MCI/CM	SR90 MCI/CM	NB94 MCI/CM	ZR95 MCI/CM	TC99 MCI/CM	RU106 MCI/CM	SB124 MCI/CM	SB125 MCI/CM	I125 MCI/CM	I129 MCI/CM
2.6000E+01	1.1747E-05	3.6345E-04	0.0000E+00	1.3109E-06	5.4341E-08	2.3988E-04	1.5716E-03	3.4264E-04	7.4255E-08	1.0868E-08
4.6000E+01	2.4255E-05	4.4575E-05	0.0000E+00	3.7050E-06	1.0528E-07	1.9326E-04	1.3718E-06	2.8147E-05	1.5333E-07	2.1056E-08
1.0000E+02	3.4945E-05	3.8186E-06	0.0000E+00	3.8972E-06	1.4296E-07	1.0840E-04	8.3247E-08	1.6149E-06	2.2090E-07	2.8592E-08
1.5000E+02	5.1581E-05	3.3619E-07	0.0000E+00	5.7524E-06	1.9975E-07	6.2246E-05	5.1702E-09	9.5226E-08	3.2606E-07	3.9950E-08
2.0000E+02	5.2339E-05	2.0409E-08	0.0000E+00	5.8379E-06	1.9262E-07	2.4360E-05	2.2056E-10	3.8712E-09	3.3085E-07	3.8524E-08
2.6000E+02	5.1429E-05	1.2235E-09	0.0000E+00	5.7354E-06	1.8066E-07	9.4832E-06	9.2637E-12	1.5348E-10	3.2510E-07	3.6132E-08
3.0500E+02	4.8589E-05	4.9119E-11	0.0000E+00	5.4187E-06	3.7929E-07	3.4524E-06	3.6276E-13	5.8398E-12	7.4733E-07	7.5839E-08
3.5000E+02	4.0546E-05	2.3553E-11	0.0000E+00	4.5218E-06	8.5177E-08	1.4855E-06	2.0592E-14	3.1913E-13	1.7804E-07	1.7035E-08

DD (FT)	CS134 MCI/CM	CS135 MCI/CM	CS137 MCI/CM	CE144 MCI/CM	EU152 MCI/CM	EU154 MCI/CM	EU155 MCI/CM	RA226 MCI/CM	TH230 MCI/CM	TH232 MCI/CM
2.6000E+01	4.9253E-03	4.1789E-07	1.2983E-02	1.3190E-05	1.4368E-07	1.5743E-06	1.3414E-06	4.5554E-06	2.2128E-07	5.3814E-08
4.6000E+01	4.9363E-03	4.2351E-07	1.2074E-02	2.7236E-05	2.4085E-07	2.5465E-06	2.2486E-06	2.1447E-06	3.7087E-07	1.4177E-08
1.0000E+02	3.4068E-03	3.0224E-07	7.9598E-03	3.9239E-05	2.8283E-07	2.8942E-06	2.6406E-06	7.0574E-07	4.3552E-07	4.2452E-09
1.5000E+02	2.5488E-03	2.2303E-07	5.4583E-03	5.7319E-05	3.4179E-07	3.3933E-06	3.1902E-06	2.3873E-07	5.2617E-07	1.7210E-09
2.0000E+02	1.2924E-03	1.1489E-07	2.6083E-03	5.8771E-05	2.8487E-07	2.7319E-06	2.6596E-06	5.5691E-08	4.3866E-07	5.8488E-10
2.6000E+02	6.4541E-04	5.7434E-08	1.2331E-03	5.7748E-05	2.3150E-07	2.1807E-06	2.1613E-06	1.2793E-08	3.5647E-07	2.2622E-10
3.0500E+02	3.0734E-04	2.7558E-08	5.5751E-04	5.4419E-05	4.0044E-07	3.6026E-06	3.7386E-06	2.7651E-09	6.1662E-07	1.4087E-10
3.5000E+02	1.6310E-04	1.4702E-08	2.8519E-04	5.4891E-05	1.0012E-06	8.7116E-11	9.3471E-11	7.7332E-10	1.5416E-06	1.6703E-10

THE TIME IS 8.4000E+03 HOURS, WHICH IS 0 YEAR(S), 11 MONTH(S), AND 20 DAY(S) FROM THE BEGINNING.

DELT IS 6.4583E+01 AND DETT IS 1.6667E+01

DRY PERIOD

SOIL FLUX	CUM RAIN AND FLOOD	WATER IN COLUMN	CUM EVAPO-TRANS	CUM WATER OFF BOTTOM	BALANCE % OF CUMS
-1.0000E-05	3.6000E+01	1.6261E+01	-1.2000E-02	3.6090E+01	-8.3184E-04

DD (FT)	WTSOLD CM	VOLNAT ML	RNCLD CI	RAW CI	RAS CI	W	B	E	C
0.0000E+00	1.2539E+04	2.8144E+02	7.7118E-04	1.1958E-04	6.5160E-04	3.9756E-02	3.8537E-03	-4.4263E+03	-5.4583E-04
5.0000E-01	1.5036E+03	4.1984E+03	5.8272E-04	9.7787E-05	4.8494E-04	4.9421E-02	1.2618E-03	-4.4258E+03	-1.4535E-01
6.0000E+00	6.3904E+05	1.7846E+04	5.9434E-03	9.7719E-04	4.9662E-03	4.9431E-02	1.2618E-03	-4.4202E+03	-8.2000E-02
2.6000E+01	1.6024E+06	2.8013E+04	3.1642E-02	4.8468E-03	2.6796E-02	4.9464E-02	1.2618E-03	-4.4001E+03	-8.2080E-02
4.6000E+01	1.8545E+06	5.1859E+04	6.5708E-02	1.0970E-02	5.4738E-02	4.9497E-02	1.2618E-03	-4.3799E+03	-8.2081E-02
1.0000E+02	2.6063E+06	7.3015E+04	8.7797E-02	1.5882E-02	7.1915E-02	4.9576E-02	1.2618E-03	-4.3255E+03	-8.2082E-02
1.5000E+02	2.5061E+06	7.0324E+04	8.7637E-02	1.6889E-02	7.0748E-02	4.9569E-02	1.2618E-03	-4.2751E+03	-8.2082E-02
2.0000E+02	2.7567E+06	7.7486E+04	8.1324E-02	1.6484E-02	6.4840E-02	4.9752E-02	1.2618E-03	-4.2347E+03	-8.2083E-02
2.6000E+02	2.5719E+06	7.4111E+04	8.3340E-02	1.7799E-02	6.5541E-02	4.9852E-02	1.8915E-03	-4.1642E+03	-1.0260E-01
3.0500E+02	2.2937E+06	6.3619E+04	2.3953E-03	4.4461E-04	1.9507E-03	4.9926E-02	9.4840E-02	-4.1190E+03	-3.1401E+00
3.5000E+02	1.1468E+06	6.3713E+04	2.2450E-02	7.8262E-03	1.4624E-02	1.0000E-01	9.4840E-02	-4.0740E+03	-6.3969E-04

NUCLIDE NAME	HALF LIFE	DECAY FACTOR	ORIGINAL AMOUNT	REMAINING ON SURFACE	ENTERED COL-NO DEC	AMOUNT IN COLUMN	AMOUNT OFF BOTTOM	SOLUBILITY	KD BASALT
H3	1.0821E+05	9.4801E-01	1.2000E-02	0.0000E+00	1.2000E-02	0.0000E+00	0.0000E+00	2.6000E+04	1.0000E-11
C14	5.0171E+07	9.9988E-01	3.8000E-04	0.0000E+00	3.8000E-04	3.5254E-04	0.0000E+00	2.2000E+09	1.0000E-01
S35	2.1079E+03	6.4586E-02	8.6000E-05	0.0000E+00	8.6000E-05	5.2181E-06	0.0000E+00	9.1000E-01	1.0000E-01
CR51	6.6492E+02	1.6837E-04	4.3000E-02	0.0000E+00	4.3000E-02	5.7760E-06	0.0000E+00	5.3000E+09	1.0000E-01
MN54	7.7137E+03	4.7283E-01	2.5000E-02	0.0000E+00	2.5000E-02	9.4304E-03	0.0000E+00	6.6000E+07	1.0000E-01
FE55	2.3621E+04	7.8302E-01	4.3000E-02	0.0000E+00	4.3000E-02	3.2507E-02	0.0000E+00	3.5000E-01	1.5000E-01
CO58	1.7101E+03	3.4893E-02	4.3000E-02	0.0000E+00	4.3000E-02	1.1696E-03	0.0000E+00	4.8000E+04	1.0000E-01
CO60	4.5998E+04	8.8194E-01	1.3000E-01	0.0000E+00	1.3000E-01	1.0188E-01	0.0000E+00	1.7000E-01	1.0000E-01
NI59	7.6100E+08	9.9999E-01	1.3000E-03	0.0000E+00	1.3000E-03	1.0765E-03	0.0000E+00	1.1000E-01	1.0000E-01
NI63	8.8.20E+05	9.9286E-01	2.4000E-01	0.0000E+00	2.4000E-01	1.9974E-01	0.0000E+00	8.2000E-01	1.0000E-01
ZN65	5.8372E+03	3.7163E-01	2.0000E-03	0.0000E+00	2.0000E-03	5.9299E-04	0.0000E+00	7.0000E+07	1.0000E-01
SR90	2.4982E+05	9.7714E-01	4.8000E-04	0.0000E+00	4.8000E-04	4.6703E-04	0.0000E+00	2.1000E-01	2.0000E+00
NB94	3.0353E-01	0.0000E+00	1.4000E-05	0.0000E+00	1.4000E-05	0.0000E+00	0.0000E+00	1.6000E-01	1.6000E-01
ZR95	1.5727E+03	2.5383E-02	2.0000E-03	0.0000E+00	2.0000E-03	4.8499E-05	0.0000E+00	1.8000E+08	1.0000E-01
TC99	1.8565E+09	1.0000E+00	3.2000E-06	0.0000E+00	3.2000E-06	3.1697E-06	0.0000E+00	1.4000E-01	1.0000E-01
RU106	8.8494E+03	5.2054E-01	2.0000E-03	0.0000E+00	2.0000E-03	1.0397E-03	0.0000E+00	1.9000E+08	3.0000E-01
SB124	1.4454E+03	1.8366E-02	5.0000E-04	0.0000E+00	5.0000E-04	9.1828E-06	0.0000E+00	5.1000E+04	3.0000E+00
SB125	2.4283E+04	7.8826E-01	5.0000E-04	0.0000E+00	5.0000E-04	3.9413E-04	0.0000E+00	3.0000E-01	3.0000E+00
I125	1.4385E+03	1.8019E-02	1.5000E-04	0.0000E+00	1.5000E-04	2.6711E-06	0.0000E+00	7.6000E+06	1.0000E-01
I129	1.4916E+11	1.0000E+00	6.4000E-07	0.0000E+00	6.4000E-07	6.3394E-07	0.0000E+00	7.2000E-02	1.0000E-01
CS134	1.7961E+04	7.2493E-01	4.8000E-02	0.0000E+00	4.8000E-02	3.4358E-02	0.0000E+00	1.9000E-01	2.0000E-01
CS135	2.6394E+10	1.0000E+00	3.2000E-06	0.0000E+00	3.2000E-06	3.1771E-06	0.0000E+00	1.7000E-03	2.0000E-01
CS137	2.6280E+05	9.7825E-01	8.6000E-02	0.0000E+00	8.6000E-02	8.3709E-02	0.0000E+00	1.3000E-01	2.0000E-01
CE144	6.8133E+03	4.2627E-01	2.0000E-03	0.0000E+00	2.0000E-03	7.9474E-04	0.0000E+00	1.8000E+06	1.0000E-01
EU152	1.1742E+05	9.5199E-01	4.8000E-06	0.0000E+00	4.8000E-06	4.5695E-06	0.0000E+00	6.5000E-03	1.2000E-01
EU154	7.4487E+04	9.2537E-01	4.8000E-05	0.0000E+00	4.8000E-05	4.4418E-05	0.0000E+00	1.8000E-02	1.2000E-01
EU155	4.3362E+04	8.7525E-01	4.8000E-05	0.0000E+00	4.8000E-05	4.2012E-05	0.0000E+00	1.8000E-02	1.2000E-01
RA226	1.4053E+07	9.9959E-01	1.1300E-05	0.0000E+00	1.1300E-05	1.1495E-05	0.0000E+00	5.6000E-01	5.0000E-01
TH230	7.0100E+08	9.9999E-01	7.1000E-06	0.0000E+00	7.1000E-06	7.0999E-06	0.0000E+00	2.3000E-02	1.2000E-01
TH232	1.2364E+14	1.0000E+00	8.4000E-07	6.2584E-07	2.1496E-07	2.1496E-07	0.0000E+00	1.2000E-01	1.2000E-01
U235	6.2200E+12	1.0000E+00	3.2000E-06	0.0000E+00	3.2000E-06	3.2000E-06	0.0000E+00	2.4000E-06	2.0000E+00
U238	3.9420E+13	1.0000E+00	7.1000E-05	6.5641E-05	5.3594E-06	5.3594E-06	0.0000E+00	3.8000E-07	2.0000E+00
NP237	1.8737E+10	1.0000E+00	4.6000E-09	0.0000E+00	4.6000E-09	4.6000E-09	0.0000E+00	8.0000E-04	7.0000E-01
PU238	7.5412E+05	9.9237E-01	3.2000E-05	0.0000E+00	3.2000E-05	3.1667E-05	0.0000E+00	6.3000E-04	2.0000E-01
PU239	2.1006E+08	9.9997E-01	4.3000E-06	0.0000E+00	4.3000E-06	4.2984E-06	0.0000E+00	2.2000E-06	2.0000E-01
PU240	5.7816E+07	9.9990E-01	6.7000E-06	0.0000E+00	6.7000E-06	6.6910E-06	0.0000E+00	3.3000E-06	2.0000E-01
PU241	1.1563E+05	9.5126E-01	1.6500E-03	0.0000E+00	1.6500E-03	1.5653E-03	0.0000E+00	4.1000E-03	2.0000E-01
PU242	4.7801E+09	1.0000E+00	2.4000E-08	0.0000E+00	2.4000E-08	2.3994E-08	0.0000E+00	1.4000E-07	2.0000E-01
AM241	3.7942E+06	9.9848E-01	3.0000E-06	0.0000E+00	3.0000E-06	2.9954E-06	0.0000E+00	4.1000E-05	7.0000E-01

AM242	1.6018E+01	0.0000E+00	1.6000E-07	0.0000E+00	1.6000E-07	0.0000E+00	0.0000E+00	1.2000E-04	7.0000E-01
AM243	6.9698E+07	9.9992E-01	2.1000E-07	0.0000E+00	2.1000E-07	2.0998E-07	0.0000E+00	7.1000E-02	7.0000E-01
CM242	3.9166E+03	2.2874E-01	2.5000E-04	0.0000E+00	2.5000E-04	5.7184E-05	0.0000E+00	4.0000E-02	7.0000E-01
CM243	2.6280E+05	9.7825E-01	6.0000E-08	0.0000E+00	6.0000E-08	5.8695E-08	0.0000E+00	6.2000E-04	7.0000E-01
CM244	1.5646E+05	9.6375E-01	1.9000E-05	0.0000E+00	1.9000E-05	1.8311E-05	0.0000E+00	9.7000E-04	7.0000E-01

DD (FT)	H3 MCI/CM	C14 MCI/CM	S35 MCI/CM	CR51 MCI/CM	MN54 MCI/CM	FE55 MCI/CM	CO58 MCI/CM	CO60 MCI/CM	NI59 MCI/CM	NI63 MCI/CM
0.0000E+00	0.0000E+00	2.4201E-05	4.4913E-07	4.6115E-07	7.5291E-04	4.1147E-03	9.3376E-05	1.5921E-02	1.0525E-04	2.1057E-02
5.0000E-01	0.0000E+00	1.0800E-06	1.9966E-08	2.0579E-08	3.3599E-05	2.9314E-04	4.1670E-06	7.0170E-04	4.6788E-06	9.3475E-04
6.0000E+00	0.0000E+00	2.4221E-06	4.4622E-08	4.6152E-08	7.5353E-05	6.8757E-04	9.3452E-06	1.5557E-03	1.0457E-05	2.0863E-03
2.6000E+01	0.0000E+00	6.5676E-06	1.1958E-07	1.2514E-07	2.0432E-04	2.2401E-03	2.5340E-05	4.0560E-03	2.8021E-05	5.5636E-03
4.6000E+01	0.0000E+00	1.1030E-05	1.9190E-07	2.1017E-07	3.4315E-04	2.8204E-03	4.2557E-05	5.8016E-03	4.4970E-05	8.7730E-03
1.0000E+02	0.0000E+00	1.5510E-05	2.5557E-07	2.9554E-07	4.8253E-04	2.7010E-03	5.9843E-05	6.7564E-03	5.7892E-05	1.1443E-02
1.5000E+02	0.0000E+00	2.1695E-05	3.3929E-07	4.1344E-07	6.7502E-04	3.5884E-03	8.3716E-05	7.8969E-03	7.7526E-05	1.4899E-02
2.0000E+02	0.0000E+00	2.3578E-05	3.4847E-07	4.4603E-07	7.2823E-04	1.8198E-03	9.0315E-05	7.0948E-03	8.1316E-05	1.4936E-02
2.6000E+02	0.0000E+00	3.7432E-05	5.1457E-07	5.9358E-07	9.6913E-04	1.5858E-03	1.2019E-04	7.8293E-03	1.0248E-04	1.8454E-02
3.0500E+02	0.0000E+00	1.2586E-05	1.6969E-07	1.4929E-08	2.4374E-05	9.3324E-05	3.0229E-06	1.6878E-04	2.5461E-06	4.5647E-04
3.5000E+02	0.0000E+00	2.4527E-05	3.1620E-07	3.9653E-07	6.4741E-04	6.5570E-04	8.0291E-05	4.6213E-03	6.6050E-05	1.1741E-02

DD (FT)	SR90 MCI/CM	NB94 MCI/CM	ZR95 MCI/CM	TC99 MCI/CM	RU106 MCI/CM	SB124 MCI/CM	SB125 MCI/CM	I125 MCI/CM	I129 MCI/CM
0.0000E+00	4.7344E-05	7.1556E-07	0.0000E+00	3.2334E-06	2.5907E-07	7.9721E-05	4.3695E-09	1.9809E-07	1.7216E-07	5.1814E-08
5.0000E-01	2.1128E-06	8.3577E-07	0.0000E+00	1.4429E-07	1.1517E-08	1.2529E-05	8.0634E-09	3.4939E-07	7.6827E-09	2.3034E-09
6.0000E+00	4.7382E-06	1.1748E-06	0.0000E+00	3.2361E-07	2.5739E-08	3.9045E-05	1.6599E-07	7.1925E-06	1.7230E-08	5.1479E-09
2.6000E+01	1.2848E-05	3.5536E-04	0.0000E+00	8.7748E-07	6.8976E-08	2.0709E-04	7.4792E-06	3.2407E-04	4.6719E-08	1.3795E-08
4.6000E+01	2.1577E-05	4.3951E-05	0.0000E+00	1.4737E-06	1.1070E-07	1.6601E-04	6.5655E-07	2.6773E-05	7.8461E-08	2.2139E-08
1.0000E+02	3.0342E-05	3.7041E-06	0.0000E+00	2.0723E-06	1.4740E-07	9.4014E-05	4.0005E-08	1.5425E-06	1.1031E-07	2.9481E-08
1.5000E+02	4.2446E-05	3.3479E-07	0.0000E+00	2.8989E-06	1.9525E-07	5.3550E-05	2.4970E-09	9.1438E-08	1.5391E-07	3.9869E-08
2.0000E+02	4.5791E-05	2.0647E-08	0.0000E+00	3.1274E-06	1.9255E-07	2.1488E-05	1.0814E-10	3.7767E-09	1.6014E-07	3.8510E-08
2.6000E+02	6.0940E-05	1.2898E-09	0.0000E+00	4.1620E-06	2.1727E-07	9.5890E-06	4.5849E-12	1.5323E-10	1.9543E-07	4.3455E-08
3.0500E+02	1.5327E-06	1.2597E-11	0.0000E+00	1.0468E-07	3.0591E-07	1.2391E-06	2.3793E-13	7.7346E-12	2.8477E-07	6.1182E-08
3.5000E+02	4.0709E-05	3.5187E-11	0.0000E+00	2.7803E-06	1.0399E-07	1.7756E-06	1.4416E-14	4.5176E-13	1.0270E-07	2.0799E-08

DD (FT)	CS134 MCI/CM	CS135 MCI/CM	CS137 MCI/CM	CE144 MCI/CM	EU152 MCI/CM	EU154 MCI/CM	EU155 MCI/CM	RA226 MCI/CM	TH230 MCI/CM	TH232 MCI/CM
0.0000E+00	4.6696E-03	4.2045E-07	1.2947E-02	5.4557E-05	4.5966E-07	4.9846E-06	4.2261E-06	4.4862E-07	7.1419E-07	3.5146E-07
5.0000E-01	4.6337E-04	4.1729E-08	1.2853E-03	5.4346E-06	2.5268E-08	2.7360E-07	2.3231E-07	1.2327E-07	3.9260E-08	1.9680E-08
6.0000E+00	1.1868E-03	1.0691E-07	3.2815E-03	5.4601E-06	5.7885E-08	6.1710E-07	5.2483E-07	5.3473E-07	8.8696E-08	4.5029E-08
2.6000E+01	4.6149E-03	4.1606E-07	1.2690E-02	1.4805E-05	1.6581E-07	1.7827E-06	1.5244E-06	4.3630E-06	2.5762E-07	1.3232E-07
4.6000E+01	4.5024E-03	4.0996E-07	1.1580E-02	2.4865E-05	2.4283E-07	2.5402E-06	2.2326E-06	2.0816E-06	3.7738E-07	1.2672E-08
1.0000E+02	3.2102E-03	2.9524E-07	7.7193E-03	3.4964E-05	2.8273E-07	2.8682E-06	2.5994E-06	6.9180E-07	4.3929E-07	3.9705E-09
1.5000E+02	2.3097E-03	2.1440E-07	5.2174E-03	4.8908E-05	3.2746E-07	3.2284E-06	3.0107E-06	2.3387E-07	5.0880E-07	1.6080E-09
2.0000E+02	1.1985E-03	1.1222E-07	2.5522E-03	5.3152E-05	2.6987E-07	2.5914E-06	2.4812E-06	5.5428E-08	4.1932E-07	5.6101E-10
2.6000E+02	7.3889E-04	6.9841E-08	1.4760E-03	8.4383E-05	1.3811E-07	1.2959E-06	1.2698E-06	1.3508E-08	2.1459E-07	1.4419E-10
3.0500E+02	6.4649E-05	6.1297E-09	1.2644E-04	2.8372E-05	4.9081E-07	4.4332E-06	4.3125E-06	1.9237E-09	7.6259E-07	2.3778E-10
3.5000E+02	2.0859E-04	1.9876E-08	3.9434E-04	5.5291E-05	1.2586E-11	1.0993E-10	1.1572E-10	1.0930E-09	1.9556E-11	2.9295E-13

THE TIME IS 1.5600E+04 HOURS, WHICH IS 1 YEAR(S), 9 MONTH(S), AND 15 DAY(S) FROM THE BEGINNING.

DELT IS 3.8750E+02 AND DFIT IS 1.0000E+02

NORMAL RAIN

SOIL FLUX	CUM RAIN AND FLOOD	WATER IN COLUMN	CUM EVAPO-TRANS	CUM WATER OFF BOTTOM	BALANCE % OF CUMS
4.9998E-03	7.2000E+01	1.6495E+01	-1.2000E-02	7.1856E+01	-6.9809E-04

DD (FT)	WTSOLD CM	VOLWAT ML	RNCLD CI	RAW CI	RAS CI	W	B	H	Q
0.0000E+00	1.2530E+04	3.6105E+02	2.7058E-04	4.7309E-05	2.2927E-04	5.1002E-02	9.1145E-03	-3.6055E+03	1.9375E+00
5.0000E-01	1.5036E+05	4.3326E+03	1.3447E-04	2.3138E-05	1.1133E-04	5.1001E-02	1.8228E-03	-3.6053E+03	1.1012E+01
6.0900E+00	6.3904E+05	1.8406E+04	5.8707E-04	7.3896E-05	4.3318E-04	5.0981E-02	1.8228E-03	-3.6149E+03	1.2312E+00
2.6000E+01	1.0024E+06	2.8830E+04	3.4517E-03	4.1025E-04	3.0414E-03	5.0907E-02	1.8228E-03	-3.6498E+03	1.2313E+00
4.6600E+01	1.8545E+06	5.3258E+04	9.5564E-03	1.3120E-03	8.2444E-03	5.0832E-02	1.8228E-03	-3.6846E+03	1.2314E+00
1.0000E+02	2.6063E+06	7.4553E+04	1.9450E-02	2.8320E-03	1.6618E-02	5.0631E-02	1.8228E-03	-3.7788E+03	1.2317E+00
1.5000E+02	2.5061E+06	7.1422E+04	3.0272E-02	4.6895E-03	2.5582E-02	5.0444E-02	1.8228E-03	-3.8660E+03	1.2320E+00
2.0000E+02	2.7567E+06	7.8274E+04	3.9452E-02	6.5681E-03	3.2884E-02	5.0258E-02	1.8228E-03	-3.9532E+03	1.2323E+00
2.6000E+02	2.5719E+06	7.4383E+04	4.5279E-02	8.2404E-03	3.7038E-02	5.0034E-02	2.1719E-03	-4.0579E+03	1.3507E+00
3.0300E+02	2.2937E+06	6.3624E+04	5.1365E-02	9.6221E-03	4.1743E-02	4.9930E-02	4.4891E-02	-4.1165E+03	2.4529E+01
3.5000E+02	1.1468E+06	6.3713E+04	2.6146E-02	8.4199E-03	1.7726E-02	1.0000E-01	9.4891E-02	-4.0740E+03	1.9393E+00

NUCLIDE NAME	HALF LIFE	DECAY FACTOR	ORIGINAL AMOUNT	REMAINING ON SURFACE	ENTERED COL-NO DEC	AMOUNT IN COLUMN	AMOUNT OFF BOTTOM	SOLUBILITY	KD BASALT
H3	1.0821E+03	9.0715E-01	1.2000E-02	0.0000E+00	1.2000E-02	0.0000E+00	0.0000E+00	2.6000E+04	1.0000E-11
C14	5.0171E+07	9.9979E-01	3.8000E-04	0.0000E+00	3.8000E-04	2.1153E-04	1.8253E-05	2.2000E+09	1.0000E-01
L35	2.1079E+03	6.7216E-03	8.6000E-05	0.0000E+00	8.6000E-05	3.3672E-07	2.3361E-06	9.1000E-01	1.0000E-01
CR51	6.6492E+02	0.0000E+00	4.3000E-02	0.0000E+00	4.3000E-02	0.0000E+00	1.1627E-03	5.3000E+09	1.0000E-01
MN54	7.7137E+03	2.5487E-01	2.5000E-02	0.0000E+00	2.5000E-02	1.6393E-03	6.7597E-04	6.6000E+07	1.0000E-01
FE55	2.3621E+04	6.3993E-01	4.3000E-02	0.0000E+00	4.3000E-02	1.8458E-02	1.1361E-03	3.5000E-01	1.5000E-01
CO58	1.7101E+03	2.0992E-03	4.3000E-02	0.0000E+00	4.3000E-02	2.3223E-05	1.1627E-03	4.8000E+04	1.0000E-01
CO60	4.5990E+04	7.9511E-01	1.3000E-01	0.0000E+00	1.3000E-01	3.5808E-02	4.1984E-04	1.7000E-01	1.0000E-01
NI59	7.0100E+08	9.9998E-01	1.3000E-03	0.0000E+00	1.3000E-03	3.6737E-04	3.7312E-05	1.1000E-01	1.0000E-01
NI63	8.8620E+05	9.8701E-01	2.4000E-01	0.0000E+00	2.4000E-01	6.9188E-02	7.6276E-03	8.2000E-01	1.0000E-01
ZN65	5.8372E+03	1.6424E-01	2.0000E-03	0.0000E+00	2.0000E-03	8.4508E-05	5.4077E-05	7.0000E+07	1.0000E-01
SR90	2.4982E+05	9.5867E-01	4.8000E-04	0.0000E+00	4.8000E-04	4.6016E-04	3.2882E-10	2.1000E-01	2.0000E+00
NB94	3.0353E-01	0.0000E+00	1.4000E-05	0.0000E+00	1.4000E-05	0.0000E+00	4.9183E-07	1.6000E-01	1.0000E-01
ZR93	1.5727E+03	1.2252E-03	2.0000E-03	0.0000E+00	2.0000E-03	6.3042E-07	5.4077E-05	1.4000E+08	1.0000E-01
TC99	1.8565E+09	9.9999E-01	3.2000E-06	0.0000E+00	3.2000E-06	2.8564E-06	2.9584E-08	1.4000E-01	1.0000E-01
RU106	8.8494E+03	3.0375E-01	2.0000E-03	0.0000E+00	2.0000E-03	5.8934E-04	7.6244E-06	1.9000E+08	3.0000E-01
SB124	1.4454E+03	6.7878E-04	5.0000E-04	0.0000E+00	5.0000E-04	3.3939E-07	7.6430E-13	5.1000E+04	3.0000E+00
SB125	2.4283E+04	6.4776E-01	5.0000E-04	0.0000E+00	5.0000E-04	3.2388E-04	6.3810E-13	3.0000E-01	3.0000E+00
I125	1.4385E+03	6.5560E-04	1.5000E-04	0.0000E+00	1.5000E-04	8.6838E-08	7.6600E+06	1.4410E-06	1.0000E-01
I129	1.4916E+11	1.0000E+00	6.4000E-07	0.0000E+00	6.4000E-07	5.7128E-07	5.9168E-09	7.2000E-02	1.0000E-01
CS134	1.7961E+04	5.3594E-01	4.8000E-02	0.0000E+00	4.8000E-02	2.3384E-02	6.5434E-04	1.9000E-01	2.0000E-01
CS135	2.6394E+10	1.0000E+00	3.2000E-06	0.0000E+00	3.2000E-06	2.7971E-06	4.4053E-08	1.7000E-03	2.0000E-01
CS137	2.6280E+05	9.6067E-01	8.6000E-02	0.0000E+00	8.6000E-02	7.3545E-02	1.8954E-03	1.3000E-01	2.0000E-01
CE144	6.8133E+03	2.1275E-01	2.0000E-03	0.0000E+00	2.0000E-03	2.3691E-04	5.3962E-05	1.8000E+06	1.0000E-01
EU152	1.1742E+05	9.1411E-01	4.8000E-06	0.0000E+00	4.8000E-06	4.3877E-06	7.3493E-16	6.5000E-03	1.2000E-01
EU154	7.4487E+04	8.6800E-01	4.8000E-05	0.0000E+00	4.8000E-05	4.1664E-05	7.0392E-13	1.0000E-02	1.2000E-01
EU155	4.3562E+04	7.8414E-01	4.8000E-05	0.0000E+00	4.8000E-05	3.7638E-05	7.3493E-15	1.8000E-02	1.2000E-01
RA226	1.4053E+07	9.9925E-01	1.1500E-05	0.0000E+00	1.1500E-05	1.1471E-05	3.1078E-09	5.6000E-01	5.0000E-01
TH229	7.0100E+08	9.9998E-01	7.1000E-06	0.0000E+00	7.1000E-06	7.0999E-06	1.0071E-15	2.3000E-02	1.2000E-01
TH232	1.2364E+14	1.0000E+00	8.4000E-07	0.0000E+00	8.4000E-07	4.3909E-07	4.3909E-07	1.2000E-07	1.2000E-01
U235	6.2200E+12	1.0000E+00	3.2000E-06	0.0000E+00	3.2000E-06	3.2000E-06	4.5929E-15	2.4030E-06	2.0000E+00
U238	3.9420E+13	1.0000E+00	7.1000E-05	0.0000E+00	8.8568E-06	8.8568E-06	1.1923E-15	3.8000E-07	2.0000E+00
NP237	1.8737E+10	1.0000E+00	4.6000E-09	0.0000E+00	4.6000E-09	4.5990E-09	1.6751E-13	8.0000E-04	2.0000E-01
PU238	7.5412E+05	9.8611E-01	3.2000E-05	0.0000E+00	3.2000E-05	2.8732E-05	3.6155E-07	6.3000E-04	2.0000E-01
PU239	2.1006E+08	9.9995E-01	4.3000E-06	0.0000E+00	4.3000E-06	4.1198E-06	2.9289E-08	2.2000E-06	2.0000E-01
PU240	5.7816E+07	9.9982E-01	6.7000E-06	0.0000E+00	6.7000E-06	6.2428E-06	6.3821E-08	8.3000E-06	2.0000E-01
PU241	1.1563E+05	9.1284E-01	1.6500E-03	0.0000E+00	1.6500E-03	1.3718E-03	1.8611E-05	4.1600E-03	2.0000E-01
PU242	4.7501E+09	1.0000E+00	2.4000E-08	0.0000E+00	2.4000E-08	2.3115E-08	1.4898E-10	1.4000E-07	2.0000E-01
AM241	3.7942E+06	9.9722E-01	5.0000E-06	0.0000E+00	5.0000E-06	2.9914E-06	4.8080E-11	4.1000E-05	7.0000E-01

AM242	1.6018E+01	0.0000E+00	1.6000E-07	0.0000E+00	1.6000E-07	0.0000E+00	3.5600E-12	1.2000E-04	7.0000E-01	
AM243	6.9698E+07	9.9985E-01	2.1000E-07	0.0000E+00	2.1000E-07	2.8992E-07	7.6471E-12	7.1000E-02	7.0000E-01	
CM242	3.9166E+03	6.7726E-02	2.5000E-04	0.0000E+00	2.5000E-04	1.6928E-05	9.1037E-09	4.0000E-02	7.0000E-01	
CM243	2.6280E+05	9.6067E-01	6.8000E-08	0.0000E+00	6.8000E-08	5.7628E-08	2.1849E-12	6.2000E-04	7.0000E-01	
CM244	1.3646E+05	9.3483E-01	1.9000E-05	0.0000E+00	1.9000E-05	1.7760E-05	3.9398E-10	9.7000E-04	7.0000E-01	

DD (FT)	B3 MCI/GM	C14 MCI/G**	S35 MCI/GM	CR51 MCI/GM	MN54 MCI/GM	FE55 MCI/GM	CO58 MCI/GM	CO60 MCI/GM	NI59 MCI/GM	NI63 MCI/GM
0.0000E+00	0.0000E+00	6.326?E-06	1.2227E-08	0.0000E+00	1.0611E-04	1.5383E-03	1.5031E-06	3.7445E-03	2.7497E-05	5.4677E-03
5.0000E-01	0.0000E+00	2.6?50E-07	5.0925E-10	0.0000E+00	4.4193E-06	6.0846E-05	6.2606E-08	1.5393E-04	1.1453E-06	2.2773E-04
6.0000E+00	0.0000E+00	1.?642E-07	2.0909E-10	0.0000E+00	1.8183E-06	4.5512E-05	2.5759E-08	6.3725E-05	4.7021E-07	9.3423E-05
2.6000E+01	0.0000E+00	2.2489E-07	4.3041E-10	0.0000E+00	3.7717E-06	1.5381E-04	5.3431E-08	1.2891E-04	9.6794E-07	1.9176E-04
4.6000E+01	0.0000E+00	4.6373E-07	8.6930E-10	0.0000E+00	7.7775E-06	3.0471E-04	1.1018E-07	2.4789E-04	1.9550E-06	3.8421E-04
1.0000E+02	0.0000E+00	1.0304E-06	1.9153E-09	0.0000E+00	1.7616E-05	5.3365E-04	2.4956E-07	5.1188E-04	4.3074E-06	8.3768E-04
1.5000E+02	0.0000E+00	2.6868E-06	4.7653E-09	0.0000E+00	4.5863E-05	9.8042E-04	6.3838E-07	1.1933E-03	1.0717E-05	2.0625E-03
2.0000E+02	0.0000E+00	4.8163E-06	8.3067E-09	0.0000E+00	8.0736E-05	1.2519E-03	1.1437E-06	1.9498E-03	1.8677E-05	3.5574E-03
2.6000E+02	0.0000E+00	8.4073E-06	1.4058E-08	0.0000E+00	1.3944E-04	1.5237E-03	1.9753E-06	3.0673E-03	3.1356E-05	5.9108E-03
3.0500E+02	0.0000E+00	4.6335E-05	7.2659E-08	0.0000E+00	2.3160E-04	1.7548E-03	3.2810E-06	4.[illegible]09E-03	5.0715E-05	9.4669E-03
3.5000E+02	0.0000E+00	4.5726E-05	7.0044E-08	0.0000E+00	2.3618E-04	1.6215E-03	3.6291E-06	4.9[illegible]6E-03	5.5480E-05	1.0314E-02

DD (FT)	ZN65 MCI/GM	SR90 MCI/GM	NB94 MCI/GM	ZR95 MCI/GM	TC99 MCI/GM	RU106 MCI/GM	SB124 MCI/GM	SB125 MCI/GM	I125 MCI/GM	I129 MCI/GM
0.0000E+00	5.4699E-06	1.6159E-06	0.0000E+00	4.0805E-08	6.7686E-08	4.3192E-05	4.1646E-10	4.0123E-07	1.6376E-09	1.3537E-08
5.0000E-01	2.2702E-07	5.7359E-07	0.0000E+00	1.6995E-09	2.8191E-09	1.9368E-06	2.3413E-10	2.2557E-07	6.8206E-11	5.6382E-10
6.0000E+00	9.3735E-08	9.0659E-06	0.0000E+00	6.9925E-10	1.1574E-09	5.3333E-06	5.2202E-09	5.0291E-06	2.8063E-11	2.3149E-10
2.6000E+01	1.9443E-07	2.7481E-04	0.0000E+00	1.4505E-09	2.3827E-09	3.0292E-05	2.3540E-07	2.2678E-04	5.8211E-11	4.7653E-10
4.6000E+01	4.0094E-07	6.9652E-05	0.0000E+00	2.9910E-09	4.8122E-09	4.3478E-05	4.1189E-08	3.8509E-05	1.2003E-10	9.6246E-10
1.0000E+02	9.0814E-07	1.1897E-03	0.0000E+00	6.7746E-09	1.0603E-08	4.6351E-05	4.8453E-09	4.4013E-06	2.7187E-10	2.1205E-09
1.5000E+02	2.3231E-06	2.0170E-06	0.0000E+00	1.7330E-08	2.6371E-08	4.9003E-05	5.6515E-10	4.9935E-07	6.9519E-10	5.2742E-09
2.0000E+02	4.1620E-06	2.2934E-07	0.0000E+00	3.1048E-08	4.5826E-08	3.5968E-05	4.4185E-11	3.8006E-08	1.2415E-09	9.1652E-09
2.6000E+02	7.1881E-06	2.3192E-08	0.0000E+00	5.3623E-08	7.6211E-08	2.4925E-05	3.3336E-12	2.7938E-09	2.1238E-09	1.5242E-08
3.0500E+02	1.1939E-05	1.4783E-09	0.0000E+00	8.9867E-08	7.9844E-07	1.6006E-05	2.3308E-13	1.9033E-10	2.4534E-08	1.5969E-07
3.5000E+02	1.3206E-05	9.3746E-10	0.0000E+00	9.8517E-08	4.3989E-07	1.0331E-05	2.3142E-14	1.8438E-11	1.4047E-08	8.7978E-06

DD (FT)	CS134 MCI/GM	CS135 MCI/GM	CS137 MCI/GM	CE144 MCI/GM	EU152 MCI/GM	EU154 MCI/GM	EU155 MCI/GM	RA226 MCI/GM	TH230 MCI/GM	TH232 MCI/GM
0.0000E+00	2.2669E-03	2.6617E-07	8.0455E-03	7.0856E-06	1.5097E-07	1.5988E-06	1.2951E-06	6.0507E-07	2.4429E-07	1.2069E-07
5.0000E-01	8.9657E-05	1.0527E-08	3.1818E-04	2.9512E-07	6.1196E-09	6.4806E-08	5.2495E-08	9.9023E-09	9.8927E-09	4.8927E-09
6.0000E+00	1.1789E-04	1.3846E-08	4.1757E-04	1.2142E-07	3.1489E-09	3.3383E-08	2.7012E-08	2.1540E-07	5.0953E-09	2.5306E-09
2.6000E+01	5.0200E-04	5.9000E-08	1.7704E-03	3.3187E-07	8.3273E-09	8.7736E-08	7.1432E-08	1.8092E-06	1.3473E-08	6.6965E-08
4.6000E+01	8.6606E-04	1.0223E-07	2.9681E-03	5.1937E-07	1.7236E-08	1.7942E-07	1.4785E-07	1.6916E-06	2.7890E-08	3.7043E-0[illegible]
1.0000E+02	1.2030E-03	1.4270E-07	3.9924E-03	1.1764E-06	3.4862E-08	3.5740E-07	2.9905E-07	1.1065E-06	5.6411E-08	2.6136E-08
1.5000E+02	1.7240E-03	2.0547E-07	5.5458E-03	3.0092E-06	7.6809E-08	7.7561E-07	6.5887E-07	7.2180E-07	1.2429E-07	2.4955E-08
2.0000E+02	1.6755E-03	2.0061E-07	5.2288E-03	5.3942E-06	1.1653E-07	1.1598E-06	9.9964E-07	3.1579E-07	1.6857E-07	1.8901E-08
2.6000E+02	1.5635E-03	1.8806E-07	4.7334E-03	9.4160E-06	1.6571E-07	1.6284E-06	1.4214E-06	1.3269E-07	2.6813E-07	1.5039E-08
3.0500E+02	1.3693E-03	1.6542E-07	4.0275E-03	5.1894E-05	1.3918E-06	1.2991E-05	5.1534E-08	2.2521E-06	2.8678E-08	
3.5000E+02	1.0818E-03	1.3101E-07	3.1295E-03	5.1212E-05	9.9893E-11	9.0851E-10	8.5689E-10	2.3088E-08	1.6164E-10	8.2245E-13

THE TIME IS 1.6800E+04 HOURS, WHICH IS 1 YEAR(S), 11 MONTH(S), AND 5 DAY(S) FROM THE BEGINNING.

DELT IS 6.4583E+01 AND DETT IS 1.6667E+01

DRY PERIOD

SOIL FLUX	CUM RAIN AND FLOOD	WATER IN COLUMN	CUM EVAPO-TRANS	CUM WATER OFF BOTTOM	BALANCE % OF CUMS
-1.0000E-05	7.2000E+01	1.6261E+01	-2.4000E-02	7.2078E+01	-5.7316E-04

DD (FT)	WTSOLD CM	VOLWAT ML	RNCLD CI	RAW CI	RAS CI	W	B	H	Q
0.0000E+00	1.2530E+04	2.8132E+02	4.6261E-04	6.4738E-05	3.9787E-04	3.9739E-02	3.0485E-03	-4.4263E+03	-6.4583E-04
5.0000E-01	1.5036E+05	4.1984E+03	1.9338E-04	2.8342E-05	1.6504E-04	4.9421E-02	1.2610E-03	-4.4258E+03	-1.3923E-01
6.0000E+00	6.3904E+05	1.7846E+04	9.1125E-04	1.2677E-04	7.8447E-04	4.9430E-02	1.2610E-03	-4.4283E+03	-8.2087E-02
2.6000E+01	1.0024E+06	2.8013E+04	3.7966E-03	4.5533E-04	3.3413E-03	4.9464E-02	1.2610E-03	-4.4081E+03	-8.2086E-02
4.6000E+01	1.8545E+06	5.1859E+04	9.8822E-03	1.3462E-03	8.5360E-03	4.9497E-02	1.2610E-03	-4.3799E+03	-8.2086E-02
1.0000E+02	2.6063E+06	7.3015E+04	2.0013E-02	2.9042E-03	1.7169E-02	4.9586E-02	1.2610E-03	-4.3255E+03	-8.2086E-02
1.5000E+02	2.5861E+06	7.0324E+04	3.0193E-02	4.6736E-03	2.5520E-02	4.9669E-02	1.2610E-03	-4.2751E+03	-8.2086E-02
2.0000E+02	2.7567E+06	7.7486E+04	4.2915E-02	7.2672E-03	3.5647E-02	4.9752E-02	1.2610E-03	-4.2247E+03	-8.2086E-02
2.6000E+02	2.5719E+06	7.4111E+04	7.3186E-02	1.3653E-02	5.9533E-02	4.9852E-02	1.8915E-03	-4.1642E+03	-1.0261E-01
3.0500E+02	2.2937E+06	6.2619E+04	3.9861E-03	5.9250E-04	3.3936E-03	4.9926E-02	9.4840E-02	-4.1190E+03	-3.1401E+00
3.5000E+02	1.1468E+06	6.3713E+04	2.7129E-02	8.6971E-03	1.8432E-02	1.0000E-01	9.4840E-02	-4.0740E+03	-6.3969E-04

NUCLIDE NAME	HALF LIFE	DECAY FACTOR	ORIGINAL AMOUNT	REMAINING ON SURFACE	ENTERED COLUMN DEC	AMOUNT IN COLUMN	AMOUNT OFF BOTTOM	SOLUBILITY	KD BASALT
H3	1.0821E+05	8.9835E-01	1.2000E-02	0.0000E+00	1.2000E-02	0.0000E+00	0.0000E+00	2.6000E+04	1.0000E-11
C14	5.0171E+07	9.9977E-01	3.8000E-04	0.0000E+00	3.8000E-04	2.0234E-04	0.0000E+00	2.2000E+09	1.0000E-01
S35	2.1079E+03	4.0736E-03	8.6000E-05	0.0000E+00	8.6000E-05	1.9552E-07	0.0000E+00	9.1000E-01	1.0000E-01
CR51	6.6492E+02	0.0000E+00	4.3000E-02	0.0000E+00	4.3000E-02	0.0000E+00	0.0000E+00	5.3000E+09	1.0000E-01
MN54	7.7137E+03	2.2228E-01	2.5000E-02	0.0000E+00	2.5000E-02	1.3198E-03	0.0000E+00	6.6000E+07	1.0000E-01
FE55	2.3621E+04	6.1196E-01	4.3000E-02	0.0000E+00	4.3000E-02	1.7071E-03	0.0000E+00	3.5000E-01	1.0000E-01
CO58	1.7101E+03	1.1323E-03	4.3000E-02	0.0000E+00	4.3000E-02	1.1564E-05	0.0000E+00	4.8000E+04	1.0000E-01
CO60	4.5990E+04	7.7707E-01	1.3000E-01	0.0000E+00	1.3000E-01	3.2302E-02	0.0000E+00	1.7000E-01	1.0000E-01
NI59	7.0100E+08	9.9998E-01	1.3000E-03	0.0000E+00	1.3000E-03	3.4081E-04	0.0000E+00	1.1000E-01	1.0000E-01
NI63	8.0620E+05	9.8571E-01	2.4000E-01	0.0000E+00	2.4000E-01	6.4010E-02	0.0000E+00	8.2000E-01	1.0000E-01
ZN65	5.8372E+03	1.3707E-01	2.0000E-03	0.0000E+00	2.0000E-03	6.5110E-05	0.0000E+00	7.0000E+07	1.0000E-01
SR90	2.4902E+05	9.5463E-01	4.8000E-04	0.0000E+00	4.8000E-04	4.5823E-04	0.0000E+00	2.1000E-01	2.0000E+00
NB94	3.0353E-01	0.0000E+00	1.4000E-05	0.0000E+00	1.4000E-05	0.0000E+00	0.0000E+00	1.6000E-01	1.0000E-01
ZR95	1.5727E+03	6.2620E-04	2.0000E-03	0.0000E+00	2.0000E-03	2.9746E-07	0.0000E+00	1.0000E+08	1.0000E-01
TC99	1.8565E+09	9.9999E-01	3.2000E-06	0.0000E+00	3.2000E-06	2.8267E-06	0.0000E+00	1.4000E-01	1.0000E-01
RU106	8.8494E+03	2.6959E-01	2.0000E-03	0.0000E+00	2.0000E-03	5.2109E-04	0.0000E+00	1.9000E+08	3.0000E-01
SB124	1.4454E+03	3.2701E-04	5.0000E-04	0.0000E+00	5.0000E-04	1.6350E-07	0.0000E+00	5.1000E+04	3.0000E+00
SB125	2.4283E+04	6.2020E-01	5.0000E-04	0.0000E+00	5.0000E-04	3.1016E-04	0.0000E+00	3.0000E-01	3.0000E+00
I125	1.4385E+03	3.1474E-04	1.5000E-04	0.0000E+00	1.5000E-04	4.1237E-08	0.0000E+00	7.6000E+06	1.0000E-01
I129	1.4916E+11	1.0000E+00	6.4000E-07	0.0000E+00	6.4000E-07	5.6535E-07	0.0000E+00	7.2000E-02	1.0000E-01
CS134	1.7961E+04	5.2421E-01	4.8000E-02	0.0000E+00	4.8000E-02	2.1741E-02	0.0000E+00	1.9600E-01	2.0000E-01
CS135	2.6394E+10	1.0000E+00	3.2000E-06	0.0000E+00	3.2000E-06	2.7575E-06	0.0000E+00	1.7000E-03	2.0000E-01
CS137	2.6280E+05	9.5682E-01	8.6000E-02	0.0000E+00	8.6000E-02	7.2383E-02	0.0000E+00	1.3000E-01	2.0000E-01
CE144	6.8135E+03	1.8232E-01	2.0000E-03	0.0000E+00	2.0000E-03	1.9410E-04	0.0000E+00	1.8000E+06	1.0000E-01
EU152	1.1742E+05	9.8593E-01	4.8000E-06	0.0000E+00	4.8000E-06	4.3485E-06	0.0000E+00	6.5000E-03	1.2000E-01
EU154	7.4487E+04	8.5579E-01	4.8000E-05	0.0000E+00	4.8000E-05	4.1078E-05	0.0000E+00	1.8000E-02	1.2000E-01
EU155	4.3362E+04	7.6528E-01	4.8000E-05	0.0000E+00	4.8000E-05	3.6733E-05	0.0000E+00	1.8000E-02	1.2000E-01
RA226	1.4033E+07	9.9127E-01	1.1500E-05	0.0000E+00	1.1500E-05	1.1467E-05	0.0000E+00	5.6000E-01	5.0000E-01
TH230	7.0100E+08	9.9998E-01	7.1000E-06	0.0000E+00	7.1000E-06	7.0999E-06	0.0000E+00	2.3000E-02	1.2000E-01
TH232	1.2364E+14	1.0000E+00	8.4000E-07	0.0000E+00	8.4000E-07	8.3633E-07	0.0000E+00	1.2000E-07	1.2000E-01
U235	6.2200E+12	1.0000E+00	3.2000E-06	0.0000E+00	3.2000E-06	3.2000E-06	0.0000E+00	2.4000E-06	2.0000E+00
U238	3.9420E+13	1.0000E+00	7.1000E-05	5.9250E-05	1.1720E-05	1.1720E-05	0.0000E+00	3.8000E-07	2.0000E+00
NP237	1.8737E+10	1.0000E+00	4.6000E-09	0.0000E+00	4.6000E-09	4.5988E-09	0.0000E+00	8.0000E-04	7.0000E-01
PU238	7.5412E+05	9.8474E-01	3.2000E-05	0.0000E+00	3.2000E-05	2.8368E-05	0.0000E+00	6.3000E-04	2.0000E-01
PU239	2.1006E+08	9.9994E-01	4.3000E-06	0.0000E+00	4.3000E-06	4.0924E-06	0.0000E+00	2.2000E-06	2.0000E-01
PU240	5.7816E+07	9.9980E-01	6.7000E-06	0.0000E+00	6.7000E-06	6.1840E-06	0.0000E+00	8.3000E-06	2.0000E-01
PU241	1.1563E+05	9.0455E-01	1.6500E-03	0.0000E+00	1.6500E-03	1.3440E-03	0.0000E+00	4.1000E-03	2.0000E-01
PU242	4.7801E+09	1.0000E+00	2.4000E-08	0.0000E+00	2.4000E-08	2.2975E-08	0.0000E+00	1.4000E-07	2.0000E-01
AM241	3.7942E+06	9.9695E-01	3.0000E-06	0.0000E+00	3.0000E-06	2.9905E-06	0.0000E+00	4.1000E-05	7.0000E-01

AM242	1.6018E+01	0.0000E+00	1.6000E-07	0.0000E+00	1.6000E-07	0.0000E+00	0.0000E+00	1.2000E-04	7.0000E-01	
AM243	6.9698E+07	9.9983E-01	2.1000E-07	0.0000E+00	2.1000E-07	2.0991E-07	0.0000E+00	7.1000E-02	7.0000E-01	
CM242	3.9166E+03	5.1736E-02	2.5000E-04	0.0000E+00	2.5000E-04	1.2928E-05	0.0000E+00	4.0000E-02	7.0000E-01	
CM243	2.6289E+05	9.5682E-01	6.0000E-08	0.0000E+00	6.0000E-08	5.7394E-08	0.0000E+00	6.2000E-04	7.0000E-01	
CM245	1.3646E+05	9.2854E-01	1.9000E-05	0.0000E+00	1.9000E-05	1.7640E-05	0.0000E+00	9.7000E-04	7.0000E-01	

DD (FT)	H3 MCI/GM	C14 MCI/GM	S35 MCI/GM	CR51 MCI/GM	MN54 MCI/GM	FE55 MCI/GM	CO58 MCI/GM	CO60 MCI/GM	NI59 MCI/GM	NI63 MCI/GM
0.0000E+00	0.0000E+00	1.1144E-05	1.3030E-08	0.0000E+00	1.6300E-04	2.4685E-03	1.4282E-06	6.4898E-03	4.8351E-05	9.5954E-03
5.0000E-01	0.0000E+00	2.0046E-07	2.3376E-10	0.0000E+00	2.9320E-06	8.3492E-05	2.5691E-08	1.1430E-04	8.6741E-07	1.7197E-04
6.0000E+00	0.0000E+00	1.7364E-07	2.0099E-10	0.0000E+00	2.5397E-06	8.1727E-05	2.2253E-08	9.6636E-05	7.4581E-07	1.4745E-04
2.6000E+01	0.0000E+00	3.0561E-07	3.5006E-10	0.0000E+00	4.4700E-06	1.7965E-04	3.9166E-08	1.6429E-04	1.2998E-06	2.5578E-04
4.6000E+01	0.0000E+00	5.6833E-07	6.3915E-10	0.0000E+00	8.3117E-06	3.1719E-04	7.2827E-08	2.8734E-04	2.3714E-06	4.6369E-04
1.0000E+02	0.0000E+00	1.2377E-06	1.3566E-09	0.0000E+00	1.8074E-05	5.4223E-04	1.5836E-07	5.7363E-04	5.0273E-06	9.7357E-04
1.5000E+02	0.0000E+00	3.0018E-06	3.1943E-09	0.0000E+00	4.3069E-05	9.5662E-04	3.7737E-07	1.2494E-03	1.1662E-05	2.2356E-03
2.0000E+02	0.0000E+00	7.2474E-06	7.3393E-09	0.0000E+00	9.8272E-05	1.2868E-03	7.7344E-07	2.2974E-03	2.3129E-05	4.3804E-03
2.6000E+02	0.0000E+00	3.1106E-05	2.9980E-08	0.0000E+00	2.2441E-04	2.3437E-03	1.9663E-06	3.2769E-03	5.7042E-05	1.0683E-02
3.0500E+02	0.0000E+00	1.3150E-05	1.2562E-08	0.0000E+00	9.5137E-06	1.6850E-04	5.7073E-08	1.4995E-04	1.6453E-06	3.0741E-04
3.5000E+02	0.0000E+00	4.6264E-05	4.2954E-08	0.0000E+00	2.2837E-04	1.6687E-03	2.3010E-06	5.0541E-03	5.7023E-05	1.0609E-02

DD (FT)	ZN65 MCI/GM	SR90 MCI/GM	NB94 MCI/GM	ZR95 MCI/GM	TC99 MCI/GM	RU106 MCI/GM	SB124 MCI/GM	SB125 MCI/GM	I128 MCI/GM	I129 MCI/GM
0.0000E+00	8.0419E-06	3.9587E-06	0.0006E+00	3.6735E-08	1.1982E-07	6.8047E-05	5.1034E-10	9.7716E-07	1.3848E-09	2.3804E-08
5.0000E-01	1.4464E-07	2.3283E-06	0.0000E+00	6.6081E-10	2.1353E-09	5.5690E-06	4.5222E-10	8.6585E-07	2.4911E-11	4.2704E-10
6.0000E+00	1.2529E-07	1.7633E-05	0.0000E+00	5.7240E-10	1.8339E-09	8.9876E-06	4.9492E-09	9.4759E-06	2.1578E-11	3.6718E-10
2.6000E+01	2.2052E-07	2.6953E-04	0.0000E+00	1.0074E-09	3.1974E-09	2.8243E-05	1.1217E-07	2.1474E-04	3.7977E-11	6.3949E-10
4.6000E+01	4.1004E-07	6.8741E-05	0.0000E+00	1.8732E-09	5.8374E-09	3.8639E-05	1.9722E-08	3.6644E-05	7.0616E-11	1.1675E-09
1.0000E+02	8.9761E-07	1.1783E-05	0.0000E+00	4.0733E-09	1.2378E-08	4.1096E-05	2.3264E-09	4.1999E-06	1.5363E-10	2.4757E-09
1.5000E+02	2.1247E-06	2.0009E-06	0.0000E+00	9.7067E-09	2.8891E-08	4.3366E-05	2.7103E-10	4.7757E-07	3.6930E-10	5.7783E-09
2.0000E+02	4.3547E-06	2.2944E-07	0.0000E+00	1.9894E-08	6.2835E-08	3.1818E-05	2.1435E-11	3.6656E-08	8.4022E-10	1.2567E-08
2.6000E+02	1.1071E-05	2.5265E-08	0.0000E+00	5.0577E-08	2.5376E-07	2.8222E-05	1.6194E-12	2.6986E-09	3.6748E-09	5.0753E-08
3.0500E+02	3.2134E-07	3.2234E-10	0.0000E+00	1.4680E-09	5.4999E-07	4.8478E-06	1.2882E-13	2.0909E-10	8.0815E-09	1.1000E-07
3.5000E+02	1.1266E-05	1.1694E-09	0.0000E+00	5.1470E-08	4.5898E-07	1.0383E-05	1.3478E-14	2.1464E-11	7.0101E-09	9.1797E-08

DD (FT)	CS134 MCI/GM	CS135 MCI/GM	CS137 MCI/GM	CE144 MCI/GM	EU152 MCI/GM	EU154 MCI/GM	EU155 MCI/GM	RA226 MCI/GM	TH230 MCI/GM	TH232 MCI/GM
0.0000E+00	3.5862E-03	4.4668E-07	1.3421E-02	1.0690E-05	2.5333E-07	2.6873E-06	2.1569E-06	1.1913E-06	4.1689E-07	5.4808E-07
5.0000E-01	1.7986E-04	2.2409E-08	6.7202E-04	1.9229E-07	6.1811E-09	6.4967E-08	5.2214E-08	1.6940E-07	1.0092E-08	2.4242E-08
6.0000E+00	2.1198E-04	2.6427E-08	7.8879E-04	1.6656E-07	5.4848E-09	5.7429E-08	4.6333E-08	8.9553E-09	4.7938E-08	
2.6000E+01	5.3197E-04	6.6389E-08	1.9658E-03	2.9316E-07	1.0725E-08	1.1173E-07	9.0602E-08	1.7973E-06	1.7512E-08	1.3462E-07
4.6000E+01	8.4344E-04	1.0566E-07	3.0405E-03	5.4518E-07	1.9663E-08	2.0274E-07	1.6610E-07	1.6645E-06	3.2105E-08	3.5225E-08
1.0000E+02	1.1584E-03	1.4579E-07	4.0495E-03	1.1873E-06	3.8399E-08	3.9038E-07	3.2437E-07	1.0932E-06	6.2693E-08	2.5760E-08
1.5000E+02	1.6072E-03	2.032 E-07	5.4505E-03	2.8794E-06	7.8658E-08	7.8858E-07	6.6446E-07	7.0847E-07	1.2843E-07	2.4005E-08
2.0000E+02	1.6125E-03	2.0463E-07	5.2997E-03	6.9521E-06	1.1434E-07	1.1309E-06	9.6506E-07	3.1299E-07	1.8668E-07	1.8118E-08
2.6000E+02	2.1253E-03	2.7154E-07	6.7262E-03	2.9839E-05	9.6524E-08	9.4398E-07	8.1538E-07	1.4726E-07	4.5768E-07	9.0311E-09
3.0500E+02	2.3806E-04	3.0465E-08	7.4486E-04	1.2614E-05	1.4453E-06	1.3453E-05	1.2209E-05	2.9887E-08	2.3598E-06	3.4826E-08
3.5000E+02	1.1337E-03	1.4546E-07	3.4069E-03	4.4187E-05	1.0689E-10	9.6916E-10	9.0294E-10	2.7029E-08	1.7452E-10	1.0092E-12

THE TIME IS 1.7520E+04 HOURS, WHICH IS 2 YEAR(S), 0 MONTH(S), AND 0 DAY(S) FROM THE BEGINNING.

DELT IS 3.6750E+01 AND DETT IS 1.0000E+01

NORMAL RAIN

SOIL FLUX	CUM RAIN AND FLOOD	WATER IN COLUMN	CUM EVAPO-TRANS	CUM WATER OFF BOTTOM	BALANCE % OF CUMS
4.9998E-03	7.5609E+01	1.6496E+01	-2.4000E-02	7.5443E+01	-5.7960E-04

DD (FT)	WTSOLD CM	VOLWAT ML	RNCLD CI	RAW CI	RAS CI	W	B	H	Q
0.0000E+00	1.2530E+04	3.5106E+02	5.5916E-04	9.4267E-05	4.6498E-04	5.1003E-02	9.1140E-03	-3.6043E+03	1.9375E-01
5.0000E-01	1.5036E+05	4.3328E+03	2.3198E-06	2.5415E-07	2.0657E-06	5.1004E-02	1.8228E-03	-3.6041E+03	-8.1648E-02
6.0000E+00	6.3904E+05	1.8407E+04	2.3139E-04	2.8971E-05	2.0242E-04	5.0984E-02	1.8228E-03	-3.6137E+03	1.2311E-01
2.6000E+01	1.0024E+06	2.8832E+04	1.7349E-03	1.7628E-04	1.5586E-03	5.0909E-02	1.8228E-03	-3.6485E+03	1.2311E-01
4.6000E+01	1.8545E+06	5.3261E+04	6.0534E-03	7.9904E-04	5.2544E-03	5.0835E-02	1.8228E-03	-3.6834E+03	1.2311E-01
1.0000E+02	2.6063E+06	7.4557E+04	1.3990E-02	1.9736E-03	1.2617E-02	5.0633E-02	1.8228E-03	-3.7775E+03	1.2312E-01
1.5000E+02	2.5061E+06	7.1426E+04	1.9517E-02	2.8680E-03	1.6649E-02	5.0447E-02	1.8228E-03	-3.8647E+03	1.2312E-01
2.0000E+02	2.7567E+06	7.8278E+04	2.6507E-02	4.1294E-03	2.2378E-02	5.0261E-02	1.8228E-03	-3.9518E+03	1.2313E-01
2.6000E+02	2.5719E+06	7.4388E+04	1.5794E-02	2.5118E-03	1.3282E-02	5.0038E-02	2.1394E-03	-4.0564E+03	1.3383E-01
3.0500E+02	2.2937E+06	6.5624E+04	2.2033E-02	3.5208E-03	1.8512E-02	4.9930E-02	9.4891E-02	-4.1166E+03	2.5143E+00
3.5000E+02	1.1468E+06	6.3713E+04	1.1892E-02	3.9278E-03	8.5643E-03	1.0000E-01	9.4891E-02	-4.0740E+03	1.9379E-01

NUCLIDE NAME	HALF LIFE	DECAY FACTOR	ORIGINAL AMOUNT	REMAINING ON SURFACE	ENTERED COL-NO DEC	AMOUNT IN COLUMN	AMOUNT OFF BOTTOM	SOLUBILITY	KD BASALT
H3	1.0821E+05	8.9407E-01	1.2000E-02	0.0000E+00	1.2000E-02	0.0000E+00	0.0000E+00	2.6080E+04	1.0000E-11
C14	5.9171E+07	9.9976E-01	3.8000E-04	0.0000E+00	3.8000E-04	9.9726E-05	4.9508E-06	2.2000E+09	1.0000E-01
S35	2.1079E+03	3.1876E-03	8.6000E-05	0.0000E+00	8.6000E-05	7.6777E-08	1.1699E-06	9.1000E-01	1.0000E-01
CR51	6.6492E+02	0.0000E+00	4.3000E-02	0.0000E+00	4.3000E-02	0.0000E+00	2.2636E-04	5.3000E+09	1.0000E-01
MN54	7.7137E+03	2.0787E-01	2.5000E-02	0.0000E+00	2.5000E-02	3.8793E-04	1.3160E-04	6.6000E+07	1.0000E-01
FE55	2.3621E+04	5.9871E-01	4.3000E-02	0.0000E+00	4.3000E-02	9.7798E-03	5.9089E-04	2.5000E-01	1.5000E-01
CO58	1.7101E+03	8.3690E-04	4.3000E-02	0.0000E+00	4.3000E-02	2.6864E-06	2.2636E-04	4.8000E+04	1.0000E-01
CO60	4.5990E+04	7.6838E-01	1.3000E-01	0.0000E+00	1.3000E-01	1.1187E-02	9.3731E-04	1.7000E-01	1.0000E-01
NI59	7.0100E+08	9.9998E-01	1.3000E-03	0.0000E+00	1.3000E-03	1.1007E-04	7.5596E-06	1.1000E-01	1.0000E-01
NI63	8.0628E+05	9.8508E-01	2.4000E-01	0.0000E+00	2.4000E-01	2.6939E-02	1.4452E-03	8.2000E-01	1.0000E-01
ZN65	5.8372E+03	1.2545E-01	2.0000E-03	0.0000E+00	2.0000E-03	1.8730E-05	1.0526E-05	7.0000E+07	1.0000E-01
SR90	2.4982E+05	9.5265E-01	4.8000E-04	0.0000E+00	4.8000E-04	4.5726E-04	9.4857E-10	2.1000E-01	2.0000E+00
NB94	3.0353E-01	0.0000E+00	1.4000E-05	0.0000E+00	1.4000E-05	0.0000E+00	8.1411E-08	1.6000E-01	1.0000E-01
ZR95	1.5727E+03	4.5077E-04	2.0000E-03	0.0000E+00	2.0000E-03	6.7298E-08	1.0528E-05	1.8000E+08	1.0000E-01
TC99	1.8565E+09	9.9999E-01	3.2000E-06	0.0000E+00	3.2000E-06	2.3443E-06	3.2210E-08	1.4000E-01	1.0000E-01
RU106	8.8494E+03	2.5430E-01	2.0000E-03	0.0000E+00	2.0000E-03	4.5410E-04	1.1340E-05	1.9000E+08	3.0000E-01
SB124	1.4454E+03	2.2868E-04	5.0000E-04	0.0000E+00	5.0000E-04	1.1434E-07	4.5346E-12	5.1000E+04	3.0000E+00
SB125	2.4283E+04	6.0714E-01	5.0000E-04	0.0000E+00	5.0000E-04	3.0357E-04	3.9512E-12	3.0000E-01	3.0000E+00
I125	1.4385E+03	2.1973E-04	1.5000E-04	0.0000E+00	1.5000E-04	2.3733E-08	1.5191E-06	7.6000E+06	1.0000E-01
I129	1.4916E+11	1.0000E+00	6.4000E-07	0.0000E+00	6.4000E-07	4.6886E-07	6.4420E-09	7.2000E-02	1.0000E-01
CS134	7.7961E+04	5.0934E-01	4.8000E-02	0.0000E+00	4.8000E-02	1.6294E-02	5.9676E-04	1.9000E-01	2.0000E-01
CS135	2.6394E+10	1.0000E+00	3.2000E-06	0.0000E+00	3.2000E-06	2.1353E-06	3.9897E-08	1.7000E-03	2.0000E-01
CS137	2.6280E+03	9.5494E-01	8.6000E-02	0.0000E+00	8.6000E-02	5.6827E-02	1.0474E-03	1.3000E-01	2.0000E-01
CE144	6.8133E+03	1.6890E-01	2.0000E-03	0.0000E+00	2.0000E-03	8.8674E-05	2.6057E-05	1.8000E+06	1.0000E-01
EU152	1.1742E+05	9.0195E-01	4.8000E-06	0.0000E+00	4.8000E-06	4.3294E-06	1.4348E-13	6.5000E-03	1.2000E-01
EU154	7.4487E+04	8.4987E-01	4.8000E-05	0.0000E+00	4.8000E-05	4.0794E-05	1.3998E-14	1.0000E-02	1.2000E-01
EU155	4.3362E+04	7.5621E-01	4.8000E-05	0.0000E+00	4.8000E-05	3.6298E-05	1.4348E-14	1.8000E-02	1.2000E-01
RA226	1.4853E+07	9.9914E-01	1.1500E-05	0.0000E+00	1.1500E-05	1.1377E-05	8.2438E-09	5.6000E-01	5.0000E-01
TH230	7.0108E+08	9.9998E-01	7.1000E-06	0.0000E+00	7.1000E-06	7.0999E-06	2.1222E-15	2.3000E-02	1.2000E-01
TH232	1.2364E+14	1.0000E+00	8.4000E-07	1.7585E-07	6.6415E-07	6.6415E-07	2.8422E-17	1.2000E-01	1.2000E-01
U235	6.2200E+12	1.0000E+00	3.2000E-06	0.0000E+00	3.2000E-06	3.2000E-06	4.2541E-14	2.4000E-06	2.0000E+00
U238	3.9420E+13	1.0000E+00	7.1000E-05	5.6835E-05	1.4175E-05	1.4175E-05	1.9185E-14	3.8000E-07	2.0000E+00
NP237	1.8737E+10	1.0000E+00	4.6000E-09	0.0000E+00	4.6000E-09	4.5939E-09	5.7816E-13	8.0000E-04	7.0000E-01
PU238	7.5412E+05	9.8406E-01	3.2000E-05	0.0000E+00	3.2000E-05	2.2836E-05	3.7454E-07	6.3000E-04	2.0000E-01
PU239	2.1006E+08	9.9994E-01	4.3000E-06	0.0000E+00	4.3000E-06	3.5354E-06	4.6612E-08	3.2000E-06	2.0000E-01
PU240	5.7816E+07	9.9979E-01	6.7000E-06	0.0000E+00	6.7000E-06	5.1194E-06	7.3506E-08	8.3000E-06	2.0000E-01
PU241	1.1563E+05	9.0051E-01	1.6500E-03	0.0000E+00	1.6500E-03	1.0782E-03	1.9302E-05	4.1000E-03	2.0000E-01
PU242	4.7801E+09	1.0000E+00	2.4000E-08	0.0000E+00	2.4000E-08	2.0045E-08	2.1667E-10	1.4000E-07	2.0000E-01
AM241	3.7942E+06	9.9681E-01	3.0000E-06	0.0000E+00	3.0000E-06	2.9881E-06	2.1196E-10	4.1000E-05	7.0000E-01

AM242	1.6018E+01	6.0000E+00	1.6000E-07	0.0000E+00	1.6006E-07	0.0000E+00	1.4195E-11	1.2000E-0\	7.0000E-01	
AM243	6.9698E+07	9.9983E-01	2.1006E-07	0.0000E+00	2.1000E-07	2.0964E-07	2.6394E-11	7.1000E `	` 0000E-01	
CM242	3.9166E+03	4.5329E-02	2.5000E-04	0.0000E+00	2.5000E-04	1.1318E-05	3.1422E-08	4.0000E-.	7.0000E-01	
CM243	2.6200E+05	9.5494E-01	6.0000E-08	0.0000E+00	6.0000E-08	5.7209E-08	7.5413E-12	6.2000E-04	7.0000E-01	
CM244	1.5646E+05	9.2548E-01	1.9000E-05	0.0000E+00	1.9000E-05	1.7567E-05	1.6030E-09	9.7000E-04	7.0000E-01	

DD (FT)	H3 MCI/GM	C14 MCI/GM	S35 MCI/GM	CR51 MCI/GM	MN54 MCI/GM	FE55 MCI/GM	CO58 MCI/GM	CO60 MCI/GM	NI59 MCI/GM	NI63 MCI/GM
0.0000E+00	0.0000E+00	1.2371E-03	1.1316E-08	0.0000E+00	1.6922E-04	2.9099E-03	1.1719E-06	7.0300E-03	5.3662E-05	1.06 2E-02
5.0000E-01	0.0000E+00	6.6080E-11	6.0299E-14	0.0000E+00	9.0389E-10	3.1040E-07	6.2594E-12	3.7258E-08	3.8594E-10	5.6643E-08
6.0000E+00	0.0000E+00	1.3757E-08	1.4287E-11	0.0000E+00	2.1554E-07	1.5290E-05	1.4926E-09	8.6998E-06	6.7749E-08	1.3390E-05
2.6000E+01	0.0000E+00	6.6356E-08	5.9775E-11	0.0000E+00	9.0766E-07	5.8362E-05	6.2855E-09	2.5865E-05	2.8346E-07	5.5886E-05
4.6000E+01	0.0000E+00	2.2796E-07	2.0221E-10	0.0000E+00	3.1189E-06	1.6741E-04	2.1592E-08	1.1765E-04	9.5881E-07	1.8793E-04
1.0000E+02	0.0000E+00	5.9744E-07	5.1769E-10	0.0000E+00	8.1628E-06	3.4194E-04	5.6527E-08	2.8367E-04	2.4527E-06	4.7653E-04
1.5000E+02	0.0000E+00	1.2700E-06	1.0728E-09	0.0000E+00	1.7161E-05	5.7311E-04	1.1884E-07	5.5126E-04	5.0359E-06	9.6976E-04
2.0000E+02	0.0000E+00	2.6485E-06	2.1504E-39	0.0000E+00	3.2424E-05	7.9266E-04	2.2454E-07	9.5144E-04	9.2567E-06	1.7645E-03
2.6000E+02	0.0000E+00	2.1168E-06	1.6789E-09	0.0000E+00	2.1746E-05	5.4176E-04	1.5059E-07	6.0875E-04	6.1200E-06	1.1684E-03
3.0500E+02	0.0000E+00	2.0887E-05	1.5917E-08	0.0000E+00	4.3083E-05	8.9584E-04	2.9835E-07	1.1539E-03	1.1966E-05	2.2577E-03
3.5000E+02	0.0000E+00	2.6294E-05	1.9810E-08	0.0000E+00	5.0866E-05	9.6318E-04	3.5225E-07	1.3392E-03	1.4056E-05	2.6472E-03

DD (FT)	ZN63 MCI/GM	SR90 MCI/GM	NB94 MCI/GM	ZR95 MCI/GM	TC99 MCI/GM	RU106 MCI/GM	SB124 MCI/GM	SB125 MCI/GM	I125 MCI/GM	I129 MCI/GM
0.0000E+00	8.1702E-06	9.0223E-06	0.0000E+00	2.9357E-08	1.3209E-07	9.4565E-05	8.5117E-10	2.2814E-06	1.0733E-09	2.6419E-08
5.0000E-01	4.3641E-11	1.4728E-06	0.0000E+00	1.3681E-13	7.0386E-13	2.8506E-07	2.3311E-10	6.2481E-07	5.7328E-15	1.4077E-13
6.0000E+00	1.0407E-08	1.5234E-05	0.0000E+00	3.7392E-11	1.6577E-10	3.5664E-06	3.1386E-09	8.4123E-06	1.3670E-12	3.3354E-11
2.6000E+01	4.3823E-08	2.3862E-04	0.0000E+00	1.5746E-10	6.9774E-10	1.4301E-05	7.2286E-08	1.9373E-04	5.7566E-12	1.3955E-10
4.6000E+01	1.5054E-07	7.9466E-05	0.0000E+00	5.4091E-10	2.3602E-09	2.8009E-05	1.6341E-08	4.2764E-05	1.9775E-11	4.7203E-10
1.0000E+02	3.9411E-07	1.5235E-05	0.0000E+00	1.4161E-09	6.0385E-09	3.4687E-05	2.1400E-09	5.4573E-06	5.1788E-11	1.2077E-09
1.5000E+02	8.2857E-07	2.7770E-06	0.0000E+00	2.9772E-09	1.2445E-08	3.7098E-05	2.6872E-10	6.6796E-07	1.0947E-10	2.4891E-09
2.0000E+02	1.5655E-06	3.8749E-07	0.0000E+00	5.6250E-09	2.4119E-08	3.0536E-05	2.5362E-11	6.1639E-08	2.2119E-10	4.8239E-09
2.6000E+02	1.8499E-06	4.8970E-08	0.0000E+00	3.7726E-09	1.8484E-08	1.7236E-05	2.2487E-12	5.3512E-09	1.7573E-10	3.6968E-09
3.0500E+02	2.0801E-06	4.1957E-09	0.0000E+00	7.4742E-09	6.3350E-07	1.8230E-05	3.2806E-13	7.6866E-10	6.4193E-09	1.2670E-07
3.5000E+02	2.4559E-06	3.2403E-09	0.0000E+00	8.8244E-09	5.6035E-07	1.5318E-05	5.3843E-14	1.2456E-10	8.8070E-09	1.1207E-07

DD (FT)	CS134 MCI/GM	CS135 MCI/GM	CS137 MCI/GM	CE144 MCI/GM	EU152 MCI/GM	EU154 MCI/GM	EU155 MCI/GM	RA226 MCI/GM	TH230 MCI/GM	TH232 MCI/GM
0.0000E+00	4.5462E-03	5.8283E-07	1.7470E-02	1.1000E-05	2.9211E-07	3.0660E-06	2.4491E-06	2.8445E-06	4.7904E-07	7.8017E-07
5.0000E-01	2.4377E-06	3.1258E-10	9.3536E-06	5.8756E-11	6.7199E-12	7.0451E-11	5.6340E-11	2.8517E-08	1.1020E-11	2.6472E-11
6.0000E+00	5.8091E-05	7.4529E-09	2.2213E-04	1.4011E-08	7.1576E-10	7.4792E-09	6.0010E-09	2.7374E-07	1.1738E-09	5.8236E-09
2.6000E+01	2.1754E-04	2.7934E-08	8.2722E-04	5.9002E-08	2.8580E-09	2.9760E-08	2.3961E-08	1.1942E-06	4.6869E-09	9.1895E-08
4.6000E+01	5.2721E-04	6.7900E-08	1.9659E-03	2.0270E-07	9.0509E-09	9.3445E-08	7.5883E-08	1.8311E-06	1.4843E-08	6.8064E-08
1.0000E+02	8.5948E-04	1.1115E-07	3.1190E-03	5.3122E-07	2.1250E-08	2.1663E-07	1.7816E-07	1.1576E-06	3.4849E-08	4.2438E-08
1.5000E+02	1.1751E-03	1.5259E-07	4.1504E-03	1.1293E-06	4.0087E-08	4.0360E-07	3.3609E-07	7.8304E-07	6.5746E-08	2.8786E-08
2.0000E+02	1.2780E-03	1.6662E-07	4.3971E-03	2.3549E-06	6.0630E-08	6.0346E-07	5.0833E-07	4.0188E-07	9.9430E-08	2.0279E-08
2.6000E+02	8.1477E-04	1.0660E-07	2.7403E-03	1.8822E-06	3.4078E-08	3.3770E-07	2.8577E-07	1.6044E-07	5.5886E-08	8.5779E-09
3.0500E+02	1.1179E-03	1.4658E-07	3.7044E-03	1.8573E-05	1.6469E-06	1.5404E-05	1.3805E-05	1.1241E-07	2.7008E-06	6.7243E-08
3.5000E+02	1.0899E-03	1.4306E-07	3.5863E-03	2.3379E-05	2.2341E-10	2.0537E-09	1.8772E-09	7.2194E-08	3.6637E-10	4.9067E-12

EROSION OUTPUT

WE HAVE 15 BLOCKS OF TIME (HOURS)

0.1000E+03 0.1071E+05 0.1521E+05 0.1599E+05 0.1632E+05 0.1665E+05
0.1683E+05 0.1688E+05 0.1698E+05 0.1708E+05 0.1718E+05 0.1728E+05
0.1738E+05 0.1743E+05 0.1748E+05

H3	0.00E+00	TOTAL DOSE FROM HYDRO	0.00E+00
C14	7.54E-04	TOTAL DOSE FROM HYDRO	1.04E-07
S35	1.19E-05	TOTAL DOSE FROM HYDRO	1.64E-09
CR51	9.42E-06	TOTAL DOSE FROM HYDRO	1.30E-09
MN54	2.24E-02	TOTAL DOSE FROM HYDRO	3.09E-06
FE55	1.52E-01	TOTAL DOSE FROM HYDRO	2.10E-05
CO58	2.39E-03	TOTAL DOSE FROM HYDRO	3.30E-07
CO60	4.92E-01	TOTAL DOSE FROM HYDRO	6.79E-05
NI59	3.28E-03	TOTAL DOSE FROM HYDRO	4.53E-07
NI63	6.56E-01	TOTAL DOSE FROM HYDRO	9.05E-05
ZN65	1.39E-03	TOTAL DOSE FROM HYDRO	1.91E-07
SR90	4.45E-05	TOTAL DOSE FROM HYDRO	6.14E-09
NB94	0.00E+00	TOTAL DOSE FROM HYDRO	0.00E+00
ZR95	8.16E-05	TOTAL DOSE FROM HYDRO	1.13E-08
TC99	8.07E-06	TOTAL DOSE FROM HYDRO	1.11E-09
RU106	3.62E-03	TOTAL DOSE FROM HYDRO	4.98E-07
SB124	2.16E-07	TOTAL DOSE FROM HYDRO	2.98E-11
SB125	1.23E-05	TOTAL DOSE FROM HYDRO	1.70E-09
I125	4.27E-06	TOTAL DOSE FROM HYDRO	5.90E-10
I129	1.61E-06	TOTAL DOSE FROM HYDRO	2.23E-10
CS134	1.91E-01	TOTAL DOSE FROM HYDRO	2.64E-05
CS135	1.76E-05	TOTAL DOSE FROM HYDRO	2.43E-09
CS137	5.41E-01	TOTAL DOSE FROM HYDRO	7.47E-05
CE144	1.61E-03	TOTAL DOSE FROM HYDRO	2.23E-07
EU152	1.56E-05	TOTAL DOSE FROM HYDRO	2.15E-09
EU154	1.69E-04	TOTAL DOSE FROM HYDRO	2.33E-08
EU155	1.43E-04	TOTAL DOSE FROM HYDRO	1.97E-08
RA226	2.40E-05	TOTAL DOSE FROM HYDRO	3.31E-09
TH230	2.43E-05	TOTAL DOSE FROM HYDRO	3.35E-09
TH232	1.20E-05	TOTAL DOSE FROM HYDRO	1.65E-09
U235	3.40E-07	TOTAL DOSE FROM HYDRO	4.69E-11
U238	3.60E-07	TOTAL DOSE FROM HYDRO	4.97E-11
NP237	5.20E-09	TOTAL DOSE FROM HYDRO	7.18E-13
PU238	2.52E-04	TOTAL DOSE FROM HYDRO	3.48E-08
PU239	6.82E-05	TOTAL DOSE FROM HYDRO	9.42E-09
PU240	6.88E-05	TOTAL DOSE FROM HYDRO	9.50E-09
PU241	1.24E-02	TOTAL DOSE FROM HYDRO	1.72E-06
PU242	4.23E-07	TOTAL DOSE FROM HYDRO	5.84E-11
AM241	4.12E-06	TOTAL DOSE FROM HYDRO	5.68E-10
AM242	0.00E+00	TOTAL DOSE FROM HYDRO	0.00E+00
AM243	2.37E-07	TOTAL DOSE FROM HYDRO	3.28E-11
CM242	5.78E-05	TOTAL DOSE FROM HYDRO	7.98E-09
CM243	6.62E-08	TOTAL DOSE FROM HYDRO	9.14E-12
CM244	2.38E-05	TOTAL DOSE FROM HYDRO	3.28E-09
H3	0.00E+00	TOTAL DOSE FROM HYDRO	0.00E+00
C14	7.21E-04	TOTAL DOSE FROM HYDRO	2.35E-07
S35	4.45E-06	TOTAL DOSE FROM HYDRO	1.45E-09
CR51	6.35E-07	TOTAL DOSE FROM HYDRO	2.07E-10
MN54	1.64E-02	TOTAL DOSE FROM HYDRO	5.32E-06
FE55	1.69E-01	TOTAL DOSE FROM HYDRO	5.49E-05
CO58	7.32E-04	TOTAL DOSE FROM HYDRO	2.38E-07
CO60	4.49E-01	TOTAL DOSE FROM HYDRO	1.46E-04
NI59	3.14E-03	TOTAL DOSE FROM HYDRO	1.02E-06
NI63	6.25E-01	TOTAL DOSE FROM HYDRO	2.03E-04
ZN65	9.31E-04	TOTAL DOSE FROM HYDRO	3.03E-07
SR90	1.10E-04	TOTAL DOSE FROM HYDRO	3.57E-08
NB94	0.00E+00	TOTAL DOSE FROM HYDRO	0.00E+00
ZR95	2.28E-05	TOTAL DOSE FROM HYDRO	7.42E-09
TC99	7.72E-06	TOTAL DOSE FROM HYDRO	2.51E-09

RU106	4.70E-03	TOTAL	DOSE	FROM HYDRO	1.53E-06
SB124	1.32E-07	TOTAL	DOSE	FROM HYDRO	4.28E-11
SB125	2.86E-05	TOTAL	DOSE	FROM HYDRO	9.36E-09
I125	1.07E-06	TOTAL	DOSE	FROM HYDRO	3.50E-10
I129	1.54E-06	TOTAL	DOSE	FROM HYDRO	5.02E-10
CS134	2.38E-01	TOTAL	DOSE	FROM HYDRO	7.74E-05
CS135	2.47E-05	TOTAL	DOSE	FROM HYDRO	8.04E-09
CS137	7.53E-01	TOTAL	DOSE	FROM HYDRO	2.45E-04
CE144	1.14E-03	TOTAL	DOSE	FROM HYDRO	3.70E-07
EU152	1.64E-05	TOTAL	DOSE	FROM HYDRO	5.35E-09
EU154	1.76E-04	TOTAL	DOSE	FROM HYDRO	5.73E-08
EU155	1.46E-04	TOTAL	DOSE	FROM HYDRO	4.74E-08
RA226	4.70E-05	TOTAL	DOSE	FROM HYDRO	1.53E-08
TH230	2.61E-05	TOTAL	DOSE	FROM HYDRO	8.49E-09
TH232	1.29E-05	TOTAL	DOSE	FROM HYDRO	4.19E-09
U235	8.46E-07	TOTAL	DOSE	FROM HYDRO	2.75E-10
U238	9.11E-07	TOTAL	DOSE	FROM HYDRO	2.97E-10
NP237	1.11E-08	TOTAL	DOSE	FROM HYDRO	3.61E-12
PU238	3.52E-04	TOTAL	DOSE	FROM HYDRO	1.15E-07
PU239	9.56E-05	TOTAL	DOSE	FROM HYDRO	3.11E-08
PU240	9.65E-05	TOTAL	DOSE	FROM HYDRO	3.14E-08
PU241	1.71E-02	TOTAL	DOSE	FROM HYDRO	5.58E-06
PU242	5.93E-07	TOTAL	DOSE	FROM HYDRO	1.93E-10
AM241	8.77E-06	TOTAL	DOSE	FROM HYDRO	2.85E-09
AM242	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
AM243	5.06E-07	TOTAL	DOSE	FROM HYDRO	1.65E-10
CM242	7.07E-05	TOTAL	DOSE	FROM HYDRO	2.30E-08
CM243	1.40E-07	TOTAL	DOSE	FROM HYDRO	4.56E-11
CM244	4.99E-05	TOTAL	DOSE	FROM HYDRO	1.62E-08
H3	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
C14	5.71E-05	TOTAL	DOSE	FROM HYDRO	1.08E-07
S35	1.22E-07	TOTAL	DOSE	FROM HYDRO	2.31E-10
CR51	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
MN54	9.83E-04	TOTAL	DOSE	FROM HYDRO	1.86E-06
FE55	1.53E-02	TOTAL	DOSE	FROM HYDRO	2.90E-05
CO58	1.54E-05	TOTAL	DOSE	FROM HYDRO	2.91E-08
CO60	3.40E-02	TOTAL	DOSE	FROM HYDRO	6.44E-05
NI59	2.48E-04	TOTAL	DOSE	FROM HYDRO	4.71E-07
NI63	4.94E-02	TOTAL	DOSE	FROM HYDRO	9.36E-05
ZN65	5.11E-05	TOTAL	DOSE	FROM HYDRO	9.68E-08
SR90	2.13E-03	TOTAL	DOSE	FROM HYDRO	4.03E-06
NB94	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
ZR95	4.22E-07	TOTAL	DOSE	FROM HYDRO	8.00E-10
TC99	6.11E-07	TOTAL	DOSE	FROM HYDRO	1.16E-09
RU106	4.91E-04	TOTAL	DOSE	FROM HYDRO	9.30E-07
SB124	5.77E-09	TOTAL	DOSE	FROM HYDRO	1.09E-11
SB125	5.34E-06	TOTAL	DOSE	FROM HYDRO	1.01E-08
I125	1.72E-08	TOTAL	DOSE	FROM HYDRO	3.26E-11
I129	1.22E-07	TOTAL	DOSE	FROM HYDRO	2.32E-10
CS134	2.39E-02	TOTAL	DOSE	FROM HYDRO	4.53E-05
CS135	2.79E-06	TOTAL	DOSE	FROM HYDRO	5.28E-09
CS137	8.43E-02	TOTAL	DOSE	FROM HYDRO	1.60E-04
CE144	6.59E-05	TOTAL	DOSE	FROM HYDRO	1.25E-07
EU152	1.42E-06	TOTAL	DOSE	FROM HYDRO	2.70E-09
EU154	1.51E-05	TOTAL	DOSE	FROM HYDRO	2.86E-08
EU155	1.22E-05	TOTAL	DOSE	FROM HYDRO	2.32E-08
RA226	7.28E-06	TOTAL	DOSE	FROM HYDRO	1.38E-08
TH230	2.30E-06	TOTAL	DOSE	FROM HYDRO	4.35E-09
TH232	1.14E-06	TOTAL	DOSE	FROM HYDRO	2.15E-09
U235	1.65E-07	TOTAL	DOSE	FROM HYDRO	3.13E-10
U238	1.79E-07	TOTAL	DOSE	FROM HYDRO	3.40E-10
NP237	1.86E-09	TOTAL	DOSE	FROM HYDRO	3.53E-12
PU238	3.97E-05	TOTAL	DOSE	FROM HYDRO	7.52E-08
PU239	1.08E-05	TOTAL	DOSE	FROM HYDRO	2.05E-08
PU240	1.09E-05	TOTAL	DOSE	FROM HYDRO	2.06E-08
PU241	1.90E-03	TOTAL	DOSE	FROM HYDRO	3.60E-06

PU242	6.70E-08	TOTAL	DOSE	FROM HYDRO	1.27E-10
AM241	1.47E-06	TOTAL	DOSE	FROM HYDRO	2.79E-09
AM242	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
AM243	8.50E-08	TOTAL	DOSE	FROM HYDRO	1.61E-10
CM242	6.96E-06	TOTAL	DOSE	FROM HYDRO	1.32E-08
CM243	2.33E-08	TOTAL	DOSE	FROM HYDRO	4.42E-11
CM244	8.28E-06	TOTAL	DOSE	FROM HYDRO	1.57E-08
H3	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
C14	6.87E-06	TOTAL	DOSE	FROM HYDRO	3.02E-08
S35	1.00E-08	TOTAL	DOSE	FROM HYDRO	4.40E-11
CR51	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
MN54	1.07E-04	TOTAL	DOSE	FROM HYDRO	4.69E-07
FE55	2.41E-03	TOTAL	DOSE	FROM HYDRO	1.06E-05
CO58	1.15E-06	TOTAL	DOSE	FROM HYDRO	5.07E-09
CO60	4.01E-03	TOTAL	DOSE	FROM HYDRO	1.76E-05
NI59	2.98E-05	TOTAL	DOSE	FROM HYDRO	1.31E-07
NI63	5.93E-03	TOTAL	DOSE	FROM HYDRO	2.60E-05
ZN65	3.36E-06	TOTAL	DOSE	FROM HYDRO	2.36E-08
SR90	8.71E-06	TOTAL	DOSE	FROM HYDRO	3.83E-08
NB94	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
ZR95	3.04E-08	TOTAL	DOSE	FROM HYDRO	1.34E-10
TC99	7.34E-08	TOTAL	DOSE	FROM HYDRO	3.23E-10
RU106	1.17E-04	TOTAL	DOSE	FROM HYDRO	5.12E-07
SB124	1.58E-09	TOTAL	DOSE	FROM HYDRO	6.96E-12
SB125	2.20E-06	TOTAL	DOSE	FROM HYDRO	9.69E-09
I125	1.18E-09	TOTAL	DOSE	FROM HYDRO	5.18E-12
I129	1.47E-08	TOTAL	DOSE	FROM HYDRO	6.45E-11
CS134	4.61E-03	TOTAL	DOSE	FROM HYDRO	2.03E-05
CS135	5.59E-07	TOTAL	DOSE	FROM HYDRO	2.46E-09
CS137	1.69E-02	TOTAL	DOSE	FROM HYDRO	7.40E-05
CE144	7.05E-06	TOTAL	DOSE	FROM HYDRO	3.10E-08
EU152	1.93E-07	TOTAL	DOSE	FROM HYDRO	8.50E-10
EU154	2.04E-06	TOTAL	DOSE	FROM HYDRO	8.97E-09
EU155	1.65E-06	TOTAL	DOSE	FROM HYDRO	7.23E-09
RA226	2.31E-06	TOTAL	DOSE	FROM HYDRO	1.01E-08
TH230	3.15E-07	TOTAL	DOSE	FROM HYDRO	1.38E-09
TH232	1.94E-07	TOTAL	DOSE	FROM HYDRO	8.54E-10
U235	6.79E-08	TOTAL	DOSE	FROM HYDRO	2.98E-10
U238	7.49E-08	TOTAL	DOSE	FROM HYDRO	3.29E-10
NP237	6.51E-10	TOTAL	DOSE	FROM HYDRO	2.86E-12
PU238	7.94E-06	TOTAL	DOSE	FROM HYDRO	3.49E-08
PU239	2.16E-06	TOTAL	DOSE	FROM HYDRO	9.49E-09
PU240	2.18E-06	TOTAL	DOSE	FROM HYDRO	9.58E-09
PU241	3.78E-04	TOTAL	DOSE	FROM HYDRO	1.66E-06
PU242	1.34E-08	TOTAL	DOSE	FROM HYDRO	5.89E-11
AM241	5.14E-07	TOTAL	DOSE	FROM HYDRO	2.26E-09
AM242	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
AM243	2.97E-08	TOTAL	DOSE	FROM HYDRO	1.30E-10
CM242	2.07E-06	TOTAL	DOSE	FROM HYDRO	9.11E-09
CM243	8.14E-09	TOTAL	DOSE	FROM HYDRO	3.57E-11
CM244	2.88E-06	TOTAL	DOSE	FROM HYDRO	1.27E-08
H3	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
C14	3.30E-05	TOTAL	DOSE	FROM HYDRO	1.45E-07
S35	4.34E-08	TOTAL	DOSE	FROM HYDRO	1.91E-10
CR51	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
MN54	4.99E-04	TOTAL	DOSE	FROM HYDRO	2.19E-06
FE55	7.47E-03	TOTAL	DOSE	FROM HYDRO	3.28E-05
CO58	4.89E-06	TOTAL	DOSE	FROM HYDRO	2.15E-08
CO60	1.91E-02	TOTAL	DOSE	FROM HYDRO	8.41E-05
NI59	1.43E-04	TOTAL	DOSE	FROM HYDRO	6.30E-07
NI63	2.85E-02	TOTAL	DOSE	FROM HYDRO	1.25E-04
ZN65	2.49E-05	TOTAL	DOSE	FROM HYDRO	1.09E-07
SR90	1.38E-05	TOTAL	DOSE	FROM HYDRO	6.07E-08
NB94	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
ZR95	1.27E-07	TOTAL	DOSE	FROM HYDRO	5.60E-10
TC99	3.53E-07	TOTAL	DOSE	FROM HYDRO	1.55E-09

RU106	2.23E-04	TOTAL	DOSE	FROM	HYDRO	9.79E-07
SB124	2.13E-09	TOTAL	DOSE	FROM	HYDRO	9.34E-12
SB125	3.45E-06	TOTAL	DOSE	FROM	HYDRO	1.52E-08
I125	4.87E-09	TOTAL	DOSE	FROM	HYDRO	2.14E-11
I129	7.06E-08	TOTAL	DOSE	FROM	HYDRO	3.10E-10
CS134	1.12E-02	TOTAL	DOSE	FROM	HYDRO	4.90E-05
CS135	1.37E-06	TOTAL	DOSE	FROM	HYDRO	6.02E-09
CS137	4.13E-02	TOTAL	DOSE	FROM	HYDRO	1.81E-04
CE144	3.28E-05	TOTAL	DOSE	FROM	HYDRO	1.44E-07
EU152	7.62E-07	TOTAL	DOSE	FROM	HYDRO	3.35E-09
EU154	8.03E-06	TOTAL	DOSE	FROM	HYDRO	3.53E-08
EU155	6.46E-06	TOTAL	DOSE	FROM	HYDRO	2.84E-08
RA226	3.96E-06	TOTAL	DOSE	FROM	HYDRO	1.74E-08
TH230	1.24E-06	TOTAL	DOSE	FROM	HYDRO	5.45E-09
TH232	1.23E-06	TOTAL	DOSE	FROM	HYDRO	5.41E-09
U235	1.08E-07	TOTAL	DOSE	FROM	HYDRO	4.73E-10
U238	1.41E-07	TOTAL	DOSE	FROM	HYDRO	6.20E-10
NP237	1.07E-09	TOTAL	DOSE	FROM	HYDRO	4.71E-12
PU238	1.94E-05	TOTAL	DOSE	FROM	HYDRO	8.53E-08
PU239	5.26E-06	TOTAL	DOSE	FROM	HYDRO	2.31E-08
PU240	5.33E-06	TOTAL	DOSE	FROM	HYDRO	2.34E-08
PU241	9.24E-04	TOTAL	DOSE	FROM	HYDRO	4.06E-06
PU242	3.26E-08	TOTAL	DOSE	FROM	HYDRO	1.43E-10
AM241	8.47E-07	TOTAL	DOSE	FROM	HYDRO	3.72E-09
AM242	0.00E+00	TOTAL	DOSE	FROM	HYDRO	0.00E+00
AM243	4.89E-08	TOTAL	DOSE	FROM	HYDRO	2.15E-10
CM242	3.21E-06	TOTAL	DOSE	FROM	HYDRO	1.41E-08
CM243	1.34E-08	TOTAL	DOSE	FROM	HYDRO	5.88E-11
CM244	4.74E-06	TOTAL	DOSE	FROM	HYDRO	2.08E-08
H3	0.00E+00	TOTAL	DOSE	FROM	HYDRO	0.00E+00
C14	2.51E-05	TOTAL	DOSE	FROM	HYDRO	2.13E-07
S35	3.04E-08	TOTAL	DOSE	FROM	HYDRO	2.57E-10
CR51	0.00E+00	TOTAL	DOSE	FROM	HYDRO	0.00E+00
MN54	3.71E-04	TOTAL	DOSE	FROM	HYDRO	3.14E-06
FE55	5.83E-03	TOTAL	DOSE	FROM	HYDRO	4.93E-05
CO58	3.36E-06	TOTAL	DOSE	FROM	HYDRO	2.84E-08
CO60	1.45E-02	TOTAL	DOSE	FROM	HYDRO	1.23E-04
NI59	1.09E-04	TOTAL	DOSE	FROM	HYDRO	9.23E-07
NI63	2.16E-02	TOTAL	DOSE	FROM	HYDRO	1.83E-04
ZN65	1.83E-05	TOTAL	DOSE	FROM	HYDRO	1.55E-07
SR90	1.05E-05	TOTAL	DOSE	FROM	HYDRO	8.86E-08
NB94	0.00E+00	TOTAL	DOSE	FROM	HYDRO	0.00E+00
ZR95	8.66E-08	TOTAL	DOSE	FROM	HYDRO	7.34E-10
TC99	2.68E-07	TOTAL	DOSE	FROM	HYDRO	2.27E-09
RU106	1.71E-04	TOTAL	DOSE	FROM	HYDRO	1.45E-06
SB124	1.42E-09	TOTAL	DOSE	FROM	HYDRO	1.20E-11
SB125	2.60E-06	TOTAL	DOSE	FROM	HYDRO	2.20E-08
I125	3.28E-09	TOTAL	DOSE	FROM	HYDRO	2.78E-11
I129	5.36E-08	TOTAL	DOSE	FROM	HYDRO	4.54E-10
CS134	8.72E-03	TOTAL	DOSE	FROM	HYDRO	7.38E-05
CS135	1.08E-06	TOTAL	DOSE	FROM	HYDRO	9.16E-09
CS137	3.25E-02	TOTAL	DOSE	FROM	HYDRO	2.75E-04
CE144	2.43E-05	TOTAL	DOSE	FROM	HYDRO	2.06E-07
EU152	5.89E-07	TOTAL	DOSE	FROM	HYDRO	4.99E-09
EU154	6.20E-06	TOTAL	DOSE	FROM	HYDRO	5.25E-08
EU155	4.98E-06	TOTAL	DOSE	FROM	HYDRO	4.22E-08
RA226	3.05E-06	TOTAL	DOSE	FROM	HYDRO	2.58E-08
TH230	9.61E-07	TOTAL	DOSE	FROM	HYDRO	8.14E-09
TH232	1.17E-06	TOTAL	DOSE	FROM	HYDRO	9.94E-09
U235	8.16E-08	TOTAL	DOSE	FROM	HYDRO	6.91E-10
U238	1.20E-07	TOTAL	DOSE	FROM	HYDRO	1.02E-09
NP237	8.19E-10	TOTAL	DOSE	FROM	HYDRO	6.94E-12
PU238	1.53E-05	TOTAL	DOSE	FROM	HYDRO	1.30E-07
PU239	4.14E-06	TOTAL	DOSE	FROM	HYDRO	3.50E-08
PU240	4.19E-06	TOTAL	DOSE	FROM	HYDRO	3.55E-08
PU241	7.27E-04	TOTAL	DOSE	FROM	HYDRO	6.16E-06

PU242	2.56E-08	TOTAL	DOSE	FROM HYDRO	2.17E-10
AM241	6.46E-07	TOTAL	DOSE	FROM HYDRO	5.47E-09
AM242	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
AM243	3.74E-08	TOTAL	DOSE	FROM HYDRO	3.17E-10
CM242	2.34E-06	TOTAL	DOSE	FROM HYDRO	1.98E-08
CM243	1.02E-08	TOTAL	DOSE	FROM HYDRO	8.66E-11
CM244	3.61E-06	TOTAL	DOSE	FROM HYDRO	3.06E-08
H3	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
C14	9.24E-06	TOTAL	DOSE	FROM HYDRO	2.41E-07
S35	1.05E-08	TOTAL	DOSE	FROM HYDRO	2.74E-10
CR51	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
MN54	1.34E-04	TOTAL	DOSE	FROM HYDRO	3.49E-06
FE55	2.28E-03	TOTAL	DOSE	FROM HYDRO	5.95E-05
CO58	1.14E-06	TOTAL	DOSE	FROM HYDRO	2.98E-08
CO60	5.31E-03	TOTAL	DOSE	FROM HYDRO	1.38E-04
NI59	4.01E-05	TOTAL	DOSE	FROM HYDRO	1.04E-06
NI63	7.95E-03	TOTAL	DOSE	FROM HYDRO	2.07E-04
ZN65	6.60E-06	TOTAL	DOSE	FROM HYDRO	1.72E-07
SR90	4.81E-06	TOTAL	DOSE	FROM HYDRO	1.25E-07
NB94	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
ZR95	2.94E-08	TOTAL	DOSE	FROM HYDRO	7.64E-10
TC99	9.87E-08	TOTAL	DOSE	FROM HYDRO	2.57E-09
RU106	7.22E-05	TOTAL	DOSE	FROM HYDRO	1.88E-06
SB124	6.00E-10	TOTAL	DOSE	FROM HYDRO	1.56E-11
SB125	1.19E-06	TOTAL	DOSE	FROM HYDRO	3.11E-08
I125	1.10E-09	TOTAL	DOSE	FROM HYDRO	2.87E-11
I129	1.97E-08	TOTAL	DOSE	FROM HYDRO	5.14E-10
CS134	3.56E-03	TOTAL	DOSE	FROM HYDRO	9.26E-05
CS135	4.44E-07	TOTAL	DOSE	FROM HYDRO	1.16E-08
CS137	1.33E-02	TOTAL	DOSE	FROM HYDRO	3.47E-04
CE144	8.79E-06	TOTAL	DOSE	FROM HYDRO	2.29E-07
EU152	2.24E-07	TOTAL	DOSE	FROM HYDRO	5.82E-09
EU154	2.35E-06	TOTAL	DOSE	FROM HYDRO	6.12E-08
EU155	1.89E-06	TOTAL	DOSE	FROM HYDRO	4.91E-08
RA226	1.35E-06	TOTAL	DOSE	FROM HYDRO	3.51E-08
TH230	3.65E-07	TOTAL	DOSE	FROM HYDRO	9.51E-09
TH232	5.17E-07	TOTAL	DOSE	FROM HYDRO	1.35E-08
U235	3.75E-08	TOTAL	DOSE	FROM HYDRO	9.77E-10
U238	6.07E-08	TOTAL	DOSE	FROM HYDRO	1.58E-09
NP237	3.68E-10	TOTAL	DOSE	FROM HYDRO	9.57E-12
PU238	6.28E-06	TOTAL	DOSE	FROM HYDRO	1.63E-07
PU239	1.69E-06	TOTAL	DOSE	FROM HYDRO	4.41E-08
PU240	1.72E-06	TOTAL	DOSE	FROM HYDRO	4.48E-08
PU241	2.98E-04	TOTAL	DOSE	FROM HYDRO	7.76E-06
PU242	1.05E-08	TOTAL	DOSE	FROM HYDRO	2.73E-10
AM241	2.90E-07	TOTAL	DOSE	FROM HYDRO	7.55E-09
AM242	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
AM243	1.68E-08	TOTAL	DOSE	FROM HYDRO	4.37E-10
CM242	1.02E-06	TOTAL	DOSE	FROM HYDRO	2.65E-08
CM243	4.59E-09	TOTAL	DOSE	FROM HYDRO	1.19E-10
CM244	1.62E-06	TOTAL	DOSE	FROM HYDRO	4.22E-08
H3	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
C14	1.67E-05	TOTAL	DOSE	FROM HYDRO	2.45E-07
S35	1.87E-08	TOTAL	DOSE	FROM HYDRO	2.75E-10
CR51	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
MN54	2.42E-04	TOTAL	DOSE	FROM HYDRO	3.54E-06
FE55	4.21E-03	TOTAL	DOSE	FROM HYDRO	6.17E-05
CO58	2.03E-06	TOTAL	DOSE	FROM HYDRO	2.98E-08
CO60	9.60E-03	TOTAL	DOSE	FROM HYDRO	1.41E-04
NI59	7.26E-05	TOTAL	DOSE	FROM HYDRO	1.06E-06
NI63	1.44E-02	TOTAL	DOSE	FROM HYDRO	2.11E-04
ZN65	1.19E-05	TOTAL	DOSE	FROM HYDRO	1.74E-07
SR90	9.74E-06	TOTAL	DOSE	FROM HYDRO	1.43E-07
NB94	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
ZR95	5.21E-08	TOTAL	DOSE	FROM HYDRO	7.63E-10
TC99	1.79E-07	TOTAL	DOSE	FROM HYDRO	2.62E-09

RU106	1.38E-04	TOTAL	DOSE	FROM HYDRO	2.02E-06
SB124	1.19E-09	TOTAL	DOSE	FROM HYDRO	1.75E-11
SB125	2.43E-06	TOTAL	DOSE	FROM HYDRO	3.53E-08
I125	1.95E-09	TOTAL	DOSE	FROM HYDRO	2.86E-11
I129	3.57E-08	TOTAL	DOSE	FROM HYDRO	5.23E-10
CS134	6.66E-03	TOTAL	DOSE	FROM HYDRO	9.75E-05
CS135	8.34E-07	TOTAL	DOSE	FROM HYDRO	1.22E-08
CS137	2.50E-02	TOTAL	DOSE	FROM HYDRO	3.67E-04
CE144	1.58E-05	TOTAL	DOSE	FROM HYDRO	2.32E-07
EU152	4.08E-07	TOTAL	DOSE	FROM HYDRO	5.97E-09
EU154	4.29E-06	TOTAL	DOSE	FROM HYDRO	6.28E-08
EU155	3.44E-06	TOTAL	DOSE	FROM HYDRO	5.04E-08
RA226	2.65E-06	TOTAL	DOSE	FROM HYDRO	3.88E-08
TH230	6.67E-07	TOTAL	DOSE	FROM HYDRO	9.76E-09
TH232	9.61E-07	TOTAL	DOSE	FROM HYDRO	1.41E-08
U235	7.60E-08	TOTAL	DOSE	FROM HYDRO	1.11E-09
U238	1.26E-07	TOTAL	DOSE	FROM HYDRO	1.85E-09
NP237	7.29E-10	TOTAL	DOSE	FROM HYDRO	1.07E-11
PU238	1.18E-05	TOTAL	DOSE	FROM HYDRO	1.72E-07
PU239	3.18E-06	TOTAL	DOSE	FROM HYDRO	4.65E-08
PU240	3.23E-06	TOTAL	DOSE	FROM HYDRO	4.73E-08
PU241	5.59E-04	TOTAL	DOSE	FROM HYDRO	8.18E-06
PU242	1.97E-08	TOTAL	DOSE	FROM HYDRO	2.88E-10
AM241	5.75E-07	TOTAL	DOSE	FROM HYDRO	8.43E-09
AM242	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
AM243	3.33E-08	TOTAL	DOSE	FROM HYDRO	4.88E-10
CM242	2.00E-06	TOTAL	DOSE	FROM HYDRO	2.93E-08
CM243	9.10E-09	TOTAL	DOSE	FROM HYDRO	1.33E-10
CM244	3.21E-06	TOTAL	DOSE	FROM HYDRO	4.71E-08
H3	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
C14	1.68E-05	TOTAL	DOSE	FROM HYDRO	2.47E-07
S35	1.83E-08	TOTAL	DOSE	FROM HYDRO	2.68E-10
CR51	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
MN54	2.42E-04	TOTAL	DOSE	FROM HYDRO	3.54E-06
FE55	4.28E-03	TOTAL	DOSE	FROM HYDRO	6.28E-05
CO58	1.97E-06	TOTAL	DOSE	FROM HYDRO	2.89E-08
CO60	9.65E-03	TOTAL	DOSE	FROM HYDRO	1.41E-04
NI59	7.31E-05	TOTAL	DOSE	FROM HYDRO	1.07E-06
NI63	1.45E-02	TOTAL	DOSE	FROM HYDRO	2.12E-04
ZN65	1.18E-05	TOTAL	DOSE	FROM HYDRO	1.73E-07
SR90	1.09E-05	TOTAL	DOSE	FROM HYDRO	1.60E-07
NB94	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
ZR95	5.04E-08	TOTAL	DOSE	FROM HYDRO	7.38E-10
TC99	1.80E-07	TOTAL	DOSE	FROM HYDRO	2.63E-09
RU106	1.44E-04	TOTAL	DOSE	FROM HYDRO	2.12E-06
SB124	1.29E-09	TOTAL	DOSE	FROM HYDRO	1.89E-11
SB125	2.73E-06	TOTAL	DOSE	FROM HYDRO	4.00E-08
I125	1.88E-09	TOTAL	DOSE	FROM HYDRO	2.76E-11
I129	3.60E-08	TOTAL	DOSE	FROM HYDRO	5.27E-10
CS134	6.86E-03	TOTAL	DOSE	FROM HYDRO	1.00E-04
CS135	8.61E-07	TOTAL	DOSE	FROM HYDRO	1.26E-08
CS137	2.59E-02	TOTAL	DOSE	FROM HYDRO	3.79E-04
CE144	1.58E-05	TOTAL	DOSE	FROM HYDRO	2.31E-07
EU152	4.12E-07	TOTAL	DOSE	FROM HYDRO	6.04E-09
EU154	4.34E-06	TOTAL	DOSE	FROM HYDRO	6.35E-08
EU155	3.48E-06	TOTAL	DOSE	FROM HYDRO	5.09E-08
RA226	2.86E-06	TOTAL	DOSE	FROM HYDRO	4.19E-08
TH230	6.74E-07	TOTAL	DOSE	FROM HYDRO	9.88E-09
TH232	9.80E-07	TOTAL	DOSE	FROM HYDRO	1.44E-08
U235	8.53E-08	TOTAL	DOSE	FROM HYDRO	1.25E-09
U238	1.44E-07	TOTAL	DOSE	FROM HYDRO	2.12E-09
NP237	7.98E-10	TOTAL	DOSE	FROM HYDRO	1.17E-11
PU238	1.22E-05	TOTAL	DOSE	FROM HYDRO	1.78E-07
PU239	3.28E-06	TOTAL	DOSE	FROM HYDRO	4.80E-08
PU240	3.33E-06	TOTAL	DOSE	FROM HYDRO	4.88E-08
PU241	5.77E-04	TOTAL	DOSE	FROM HYDRO	8.45E-06

PU242	2.03E-08	TOTAL	DOSE	FROM HYDRO	2.98E-10
AM241	6.29E-07	TOTAL	DOSE	FROM HYDRO	9.22E-09
AM242	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
AM243	3.64E-08	TOTAL	DOSE	FROM HYDRO	5.33E-10
CM242	2.16E-06	TOTAL	DOSE	FROM HYDRO	3.16E-08
CM243	9.95E-09	TOTAL	DOSE	FROM HYDRO	1.46E-10
CM244	3.51E-06	TOTAL	DOSE	FROM HYDRO	5.14E-08
H3	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
C14	1.69E-05	TOTAL	DOSE	FROM HYDRO	2.47E-07
S35	1.78E-08	TOTAL	DOSE	FROM HYDRO	2.60E-10
CR51	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
MN54	2.40E-04	TOTAL	DOSE	FROM HYDRO	3.51E-06
FE55	4.31E-03	TOTAL	DOSE	FROM HYDRO	6.32E-05
CO58	1.90E-06	TOTAL	DOSE	FROM HYDRO	2.78E-08
CO60	9.66E-03	TOTAL	DOSE	FROM HYDRO	1.41E-04
NI59	7.32E-05	TOTAL	DOSE	FROM HYDRO	1.07E-06
NI63	1.45E-02	TOTAL	DOSE	FROM HYDRO	2.13E-04
ZN65	1.17E-05	TOTAL	DOSE	FROM HYDRO	1.72E-07
SR90	1.20E-05	TOTAL	DOSE	FROM HYDRO	1.76E-07
NB94	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
ZR95	4.83E-08	TOTAL	DOSE	FROM HYDRO	7.08E-10
TC99	1.80E-07	TOTAL	DOSE	FROM HYDRO	2.64E-09
RU106	1.49E-04	TOTAL	DOSE	FROM HYDRO	2.17E-06
SB124	1.36E-09	TOTAL	DOSE	FROM HYDRO	2.00E-11
SB125	3.02E-06	TOTAL	DOSE	FROM HYDRO	4.42E-08
I125	1.80E-09	TOTAL	DOSE	FROM HYDRO	2.63E-11
I129	3.61E-08	TOTAL	DOSE	FROM HYDRO	5.28E-10
CS134	6.96E-03	TOTAL	DOSE	FROM HYDRO	1.02E-04
CS135	8.77E-07	TOTAL	DOSE	FROM HYDRO	1.29E-08
CS137	2.63E-02	TOTAL	DOSE	FROM HYDRO	3.86E-04
CE144	1.57E-05	TOTAL	DOSE	FROM HYDRO	2.30E-07
EU152	4.14E-07	TOTAL	DOSE	FROM HYDRO	6.07E-09
EU154	4.35E-06	TOTAL	DOSE	FROM HYDRO	6.38E-08
EU155	3.49E-06	TOTAL	DOSE	FROM HYDRO	5.11E-08
RA226	3.03E-06	TOTAL	DOSE	FROM HYDRO	4.43E-08
TH230	6.78E-07	TOTAL	DOSE	FROM HYDRO	9.93E-09
TH232	9.88E-07	TOTAL	DOSE	FROM HYDRO	1.45E-08
U235	9.41E-08	TOTAL	DOSE	FROM HYDRO	1.38E-09
U238	1.62E-07	TOTAL	DOSE	FROM HYDRO	2.37E-09
NP237	8.56E-10	TOTAL	DOSE	FROM HYDRO	1.25E-11
PU238	1.24E-05	TOTAL	DOSE	FROM HYDRO	1.81E-07
PU239	3.34E-06	TOTAL	DOSE	FROM HYDRO	4.89E-08
PU240	3.39E-06	TOTAL	DOSE	FROM HYDRO	4.97E-08
PU241	5.87E-04	TOTAL	DOSE	FROM HYDRO	8.60E-06
PU242	2.07E-08	TOTAL	DOSE	FROM HYDRO	3.03E-10
AM241	6.75E-07	TOTAL	DOSE	FROM HYDRO	9.89E-09
AM242	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
AM243	3.91E-08	TOTAL	DOSE	FROM HYDRO	5.72E-10
CM242	2.27E-06	TOTAL	DOSE	FROM HYDRO	3.33E-08
CM243	1.07E-08	TOTAL	DOSE	FROM HYDRO	1.56E-10
CM244	3.77E-06	TOTAL	DOSE	FROM HYDRO	5.52E-08
H3	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
C14	1.69E-05	TOTAL	DOSE	FROM HYDRO	2.47E-07
S35	1.72E-08	TOTAL	DOSE	FROM HYDRO	2.52E-10
CR51	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
MN54	2.38E-04	TOTAL	DOSE	FROM HYDRO	3.49E-06
FE55	4.32E-03	TOTAL	DOSE	FROM HYDRO	6.33E-05
CO58	1.83E-06	TOTAL	DOSE	FROM HYDRO	2.67E-08
CO60	9.65E-03	TOTAL	DOSE	FROM HYDRO	1.41E-04
NI59	7.33E-05	TOTAL	DOSE	FROM HYDRO	1.07E-06
NI63	1.45E-02	TOTAL	DOSE	FROM HYDRO	2.13E-04
ZN65	1.16E-05	TOTAL	DOSE	FROM HYDRO	1.70E-07
SR90	1.31E-05	TOTAL	DOSE	FROM HYDRO	1.92E-07
NB94	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
ZR95	4.63E-08	TOTAL	DOSE	FROM HYDRO	6.78E-10
TC99	1.80E-07	TOTAL	DOSE	FROM HYDRO	2.64E-09

RU106	1.51E-04	TOTAL DOSE FROM HYDRO	2.21E-06
SB124	1.42E-09	TOTAL DOSE FROM HYDRO	2.09E-11
SB125	3.30E-06	TOTAL DOSE FROM HYDRO	4.83E-08
I125	1.71E-09	TOTAL DOSE FROM HYDRO	2.51E-11
I129	3.61E-08	TOTAL DOSE FROM HYDRO	5.29E-10
CS134	7.01E-03	TOTAL DOSE FROM HYDRO	1.03E-04
CS135	8.87E-07	TOTAL DOSE FROM HYDRO	1.30E-08
CS137	2.66E-02	TOTAL DOSE FROM HYDRO	3.90E-04
CE144	1.55E-05	TOTAL DOSE FROM HYDRO	2.27E-07
EU152	4.15E-07	TOTAL DOSE FROM HYDRO	6.08E-09
EU154	4.36E-06	TOTAL DOSE FROM HYDRO	6.38E-08
EU155	3.49E-06	TOTAL DOSE FROM HYDRO	5.11E-08
RA226	3.16E-06	TOTAL DOSE FROM HYDRO	4.63E-08
TH230	6.79E-07	TOTAL DOSE FROM HYDRO	9.95E-09
TH232	9.92E-07	TOTAL DOSE FROM HYDRO	1.45E-08
U235	1.02E-07	TOTAL DOSE FROM HYDRO	1.50E-09
U238	1.78E-07	TOTAL DOSE FROM HYDRO	2.61E-09
NP237	9.06E-10	TOTAL DOSE FROM HYDRO	1.33E-11
PU238	1.25E-05	TOTAL DOSE FROM HYDRO	1.83E-07
PU239	3.38E-06	TOTAL DOSE FROM HYDRO	4.94E-08
PU240	3.43E-06	TOTAL DOSE FROM HYDRO	5.03E-08
PU241	5.93E-04	TOTAL DOSE FROM HYDRO	8.69E-06
PU242	2.09E-08	TOTAL DOSE FROM HYDRO	3.06E-10
AM241	7.15E-07	TOTAL DOSE FROM HYDRO	1.05E-08
AM242	0.00E+00	TOTAL DOSE FROM HYDRO	0.00E+00
AM243	4.13E-08	TOTAL DOSE FROM HYDRO	6.06E-10
CM242	2.36E-06	TOTAL DOSE FROM HYDRO	3.46E-08
CM243	1.13E-08	TOTAL DOSE FROM HYDRO	1.65E-10
CM244	3.98E-06	TOTAL DOSE FROM HYDRO	5.84E-08
H3	0.00E+00	TOTAL DOSE FROM HYDRO	0.00E+00
C14	1.69E-05	TOTAL DOSE FROM HYDRO	2.48E-07
S35	1.67E-08	TOTAL DOSE FROM HYDRO	2.44E-10
CR51	0.00E+00	TOTAL DOSE FROM HYDRO	0.00E+00
MN54	2.36E-04	TOTAL DOSE FROM HYDRO	3.46E-06
FE55	4.32E-03	TOTAL DOSE FROM HYDRO	6.33E-05
CO58	1.75E-06	TOTAL DOSE FROM HYDRO	2.57E-08
CO60	9.64E-03	TOTAL DOSE FROM HYDRO	1.41E-04
NI59	7.33E-05	TOTAL DOSE FROM HYDRO	1.07E-06
NI63	1.45E-02	TOTAL DOSE FROM HYDRO	2.13E-04
ZN65	1.15E-05	TOTAL DOSE FROM HYDRO	1.68E-07
SR90	1.41E-05	TOTAL DOSE FROM HYDRO	2.06E-07
NB94	0.00E+00	TOTAL DOSE FROM HYDRO	0.00E+00
ZR95	4.43E-08	TOTAL DOSE FROM HYDRO	6.49E-10
TC99	1.80E-07	TOTAL DOSE FROM HYDRO	2.64E-09
RU106	1.52E-04	TOTAL DOSE FROM HYDRO	2.23E-06
SB124	1.47E-09	TOTAL DOSE FROM HYDRO	2.15E-11
SB125	3.55E-06	TOTAL DOSE FROM HYDRO	5.21E-08
I125	1.63E-09	TOTAL DOSE FROM HYDRO	2.39E-11
I129	3.61E-08	TOTAL DOSE FROM HYDRO	5.29E-10
CS134	7.02E-03	TOTAL DOSE FROM HYDRO	1.03E-04
CS135	8.92E-07	TOTAL DOSE FROM HYDRO	1.31E-08
CS137	2.68E-02	TOTAL DOSE FROM HYDRO	3.92E-04
CE144	1.54E-05	TOTAL DOSE FROM HYDRO	2.25E-07
EU152	4.15E-07	TOTAL DOSE FROM HYDRO	6.08E-09
EU154	4.36E-06	TOTAL DOSE FROM HYDRO	6.38E-08
EU155	3.49E-06	TOTAL DOSE FROM HYDRO	5.11E-08
RA226	3.27E-06	TOTAL DOSE FROM HYDRO	4.78E-08
TH230	6.80E-07	TOTAL DOSE FROM HYDRO	9.95E-09
TH232	9.93E-07	TOTAL DOSE FROM HYDRO	1.45E-08
U235	1.10E-07	TOTAL DOSE FROM HYDRO	1.61E-09
U238	1.93E-07	TOTAL DOSE FROM HYDRO	2.82E-09
NP237	9.47E-10	TOTAL DOSE FROM HYDRO	1.39E-11
PU238	1.26E-05	TOTAL DOSE FROM HYDRO	1.84E-07
PU239	3.40E-06	TOTAL DOSE FROM HYDRO	4.97E-08
PU240	3.45E-06	TOTAL DOSE FROM HYDRO	5.06E-08
PU241	5.96E-04	TOTAL DOSE FROM HYDRO	8.74E-06

PU242	2.10E-08	TOTAL	DOSE	FROM	HYDRO	3.08E-10
AM241	7.47E-07	TOTAL	DOSE	FROM	HYDRO	1.99E-08
AM242	0.00E+00	TOTAL	DOSE	FROM	HYDRO	0.00E+00
AM243	4.32E-08	TOTAL	DOSE	FROM	HYDRO	6.33E-10
CM242	2.43E-06	TOTAL	DOSE	FROM	HYDRO	3.55E-08
CM243	1.18E-08	TOTAL	DOSE	FROM	HYDRO	1.73E-10
CM244	4.16E-06	TOTAL	DOSE	FROM	HYDRO	6.10E-08
H3	0.00E+00	TOTAL	DOSE	FROM	HYDRO	0.00E+00
C14	8.45E-06	TOTAL	DOSE	FROM	HYDRO	2.48E-07
S35	8.12E-09	TOTAL	DOSE	FROM	HYDRO	2.38E-10
CR51	0.00E+00	TOTAL	DOSE	FROM	HYDRO	0.00E+00
MN54	1.17E-04	TOTAL	DOSE	FROM	HYDRO	3.43E-06
FE55	2.16E-03	TOTAL	DOSE	FROM	HYDRO	6.32E-05
CO58	8.51E-07	TOTAL	DOSE	FROM	HYDRO	2.49E-08
CO60	4.81E-03	TOTAL	DOSE	FROM	HYDRO	1.41E-04
NI59	3.67E-05	TOTAL	DOSE	FROM	HYDRO	1.07E-06
NI63	7.27E-03	TOTAL	DOSE	FROM	HYDRO	2.13E-04
ZN65	5.68E-06	TOTAL	DOSE	FROM	HYDRO	1.66E-07
SR90	7.37E-06	TOTAL	DOSE	FROM	HYDRO	2.16E-07
NB94	0.00E+00	TOTAL	DOSE	FROM	HYDRO	0.00E+00
ZR95	2.14E-08	TOTAL	DOSE	FROM	HYDRO	6.28E-10
TC99	9.03E-08	TOTAL	DOSE	FROM	HYDRO	2.64E-09
RU106	7.62E-05	TOTAL	DOSE	FROM	HYDRO	2.23E-06
SB124	7.46E-10	TOTAL	DOSE	FROM	HYDRO	2.18E-11
SB125	1.87E-06	TOTAL	DOSE	FROM	HYDRO	5.47E-08
I125	7.88E-10	TOTAL	DOSE	FROM	HYDRO	2.31E-11
I129	1.81E-08	TOTAL	DOSE	FROM	HYDRO	5.29E-10
CS134	3.51E-03	TOTAL	DOSE	FROM	HYDRO	1.03E-04
CS135	4.47E-07	TOTAL	DOSE	FROM	HYDRO	1.31E-08
CS137	1.34E-02	TOTAL	DOSE	FROM	HYDRO	3.93E-04
CE144	7.63E-06	TOTAL	DOSE	FROM	HYDRO	2.24E-07
EU152	2.07E-07	TOTAL	DOSE	FROM	HYDRO	6.08E-09
EU154	2.18E-06	TOTAL	DOSE	FROM	HYDRO	6.38E-08
EU155	1.74E-06	TOTAL	DOSE	FROM	HYDRO	5.10E-08
RA226	1.67E-06	TOTAL	DOSE	FROM	HYDRO	4.88E-08
TH230	3.40E-07	TOTAL	DOSE	FROM	HYDRO	9.96E-09
TH232	4.97E-07	TOTAL	DOSE	FROM	HYDRO	1.46E-08
U235	5.77E-08	TOTAL	DOSE	FROM	HYDRO	1.69E-09
U238	1.02E-07	TOTAL	DOSE	FROM	HYDRO	2.98E-09
NP237	4.86E-10	TOTAL	DOSE	FROM	HYDRO	1.42E-11
PU238	6.32E-06	TOTAL	DOSE	FROM	HYDRO	1.85E-07
PU239	1.70E-06	TOTAL	DOSE	FROM	HYDRO	4.99E-08
PU240	1.73E-06	TOTAL	DOSE	FROM	HYDRO	5.07E-08
PU241	2.99E-04	TOTAL	DOSE	FROM	HYDRO	8.76E-06
PU242	1.05E-08	TOTAL	DOSE	FROM	HYDRO	3.09E-10
AM241	3.84E-07	TOTAL	DOSE	FROM	HYDRO	1.12E-08
AM242	0.00E+00	TOTAL	DOSE	FROM	HYDRO	0.00E+00
AM243	2.22E-08	TOTAL	DOSE	FROM	HYDRO	6.50E-10
CM242	1.23E-06	TOTAL	DOSE	FROM	HYDRO	3.60E-08
CM243	6.06E-09	TOTAL	DOSE	FROM	HYDRO	1.78E-10
CM244	2.14E-06	TOTAL	DOSE	FROM	HYDRO	6.26E-08
H3	0.00E+00	TOTAL	DOSE	FROM	HYDRO	0.00E+00
C14	8.45E-06	TOTAL	DOSE	FROM	HYDRO	2.48E-07
S35	7.99E-09	TOTAL	DOSE	FROM	HYDRO	2.34E-10
CR51	0.00E+00	TOTAL	DOSE	FROM	HYDRO	0.00E+00
MN54	1.17E-04	TOTAL	DOSE	FROM	HYDRO	3.42E-06
FE55	2.15E-03	TOTAL	DOSE	FROM	HYDRO	6.31E-05
CO58	8.34E-07	TOTAL	DOSE	FROM	HYDRO	2.44E-08
CO60	4.81E-03	TOTAL	DOSE	FROM	HYDRO	1.41E-04
NI59	3.67E-05	TOTAL	DOSE	FROM	HYDRO	1.07E-06
NI63	7.27E-03	TOTAL	DOSE	FROM	HYDRO	2.13E-04
ZN65	5.65E-06	TOTAL	DOSE	FROM	HYDRO	1.65E-07
SR90	7.54E-06	TOTAL	DOSE	FROM	HYDRO	2.21E-07
NB94	0.00E+00	TOTAL	DOSE	FROM	HYDRO	0.00E+00
ZR95	2.10E-08	TOTAL	DOSE	FROM	HYDRO	6.15E-10
TC99	9.03E-08	TOTAL	DOSE	FROM	HYDRO	2.64E-09

RU106	7.62E-05	TOTAL	DOSE	FROM HYDRO	2.23E-06
SB124	7.46E-10	TOTAL	DOSE	FROM HYDRO	2.18E-11
SB125	1.91E-06	TOTAL	DOSE	FROM HYDRO	5.60E-08
I125	7.70E-10	TOTAL	DOSE	FROM HYDRO	2.25E-11
I129	1.81E-08	TOTAL	DOSE	FROM HYDRO	5.29E-10
CS134	3.51E-03	TOTAL	DOSE	FROM HYDRO	1.03E-04
CS135	4.48E-07	TOTAL	DOSE	FROM HYDRO	1.31E-08
CS137	1.34E-02	TOTAL	DOSE	FROM HYDRO	3.93E-04
CE144	7.59E-06	TOTAL	DOSE	FROM HYDRO	2.22E-07
EU152	2.07E-07	TOTAL	DOSE	FROM HYDRO	6.08E-09
EU154	2.18E-06	TOTAL	DOSE	FROM HYDRO	6.38E-08
EU155	1.74E-06	TOTAL	DOSE	FROM HYDRO	5.10E-08
RA226	1.68E-06	TOTAL	DOSE	FROM HYDRO	4.92E-08
TH230	3.40E-07	TOTAL	DOSE	FROM HYDRO	9.96E-09
TH232	4.97E-07	TOTAL	DOSE	FROM HYDRO	1.46E-08
U235	5.90E-08	TOTAL	DOSE	FROM HYDRO	1.73E-09
U238	1.04E-07	TOTAL	DOSE	FROM HYDRO	3.05E-09
NP237	4.92E-10	TOTAL	DOSE	FROM HYDRO	1.44E-11
PU238	6.32E-06	TOTAL	DOSE	FROM HYDRO	1.85E-07
PU239	1.70E-06	TOTAL	DOSE	FROM HYDRO	4.99E-08
PU240	1.73E-06	TOTAL	DOSE	FROM HYDRO	5.07E-08
PU241	2.99E-04	TOTAL	DOSE	FROM HYDRO	8.76E-06
PU242	1.06E-08	TOTAL	DOSE	FROM HYDRO	3.09E-10
AM241	3.88E-07	TOTAL	DOSE	FROM HYDRO	1.14E-08
AM242	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
AM243	2.25E-08	TOTAL	DOSE	FROM HYDRO	6.58E-10
CM242	1.23E-06	TOTAL	DOSE	FROM HYDRO	3.62E-08
CM243	6.13E-09	TOTAL	DOSE	FROM HYDRO	1.80E-10
CM244	2.16E-06	TOTAL	DOSE	FROM HYDRO	6.34E-08
H3	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
C14	6.55E-06	TOTAL	DOSE	FROM HYDRO	2.48E-07
S35	6.09E-09	TOTAL	DOSE	FROM HYDRO	2.30E-10
CR51	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
MN54	9.00E-05	TOTAL	DOSE	FROM HYDRO	3.40E-06
FE55	1.67E-03	TOTAL	DOSE	FROM HYDRO	6.30E-05
CO58	6.33E-07	TOTAL	DOSE	FROM HYDRO	2.39E-08
CO60	3.73E-03	TOTAL	DOSE	FROM HYDRO	1.41E-04
NI59	2.84E-05	TOTAL	DOSE	FROM HYDRO	1.07E-06
NI63	5.64E-03	TOTAL	DOSE	FROM HYDRO	2.13E-04
ZN65	4.35E-06	TOTAL	DOSE	FROM HYDRO	1.65E-07
SR90	5.98E-06	TOTAL	DOSE	FROM HYDRO	2.26E-07
NB94	0.00E+00	TOTAL	DOSE	FROM HYDRO	0.00E+00
ZR95	1.59E-08	TOTAL	DOSE	FROM HYDRO	6.01E-10
TC99	7.00E-08	TOTAL	DOSE	FROM HYDRO	2.64E-09
RU106	5.90E-05	TOTAL	DOSE	FROM HYDRO	2.23E-06
SB124	5.79E-10	TOTAL	DOSE	FROM HYDRO	2.19E-11
SB125	1.52E-06	TOTAL	DOSE	FROM HYDRO	5.74E-08
I125	5.82E-10	TOTAL	DOSE	FROM HYDRO	2.20E-11
I129	1.40E-08	TOTAL	DOSE	FROM HYDRO	5.29E-10
CS134	2.71E-03	TOTAL	DOSE	FROM HYDRO	1.03E-04
CS135	3.47E-07	TOTAL	DOSE	FROM HYDRO	1.31E-08
CS137	1.04E-02	TOTAL	DOSE	FROM HYDRO	3.94E-04
CE144	5.85E-06	TOTAL	DOSE	FROM HYDRO	2.21E-07
EU152	1.61E-07	TOTAL	DOSE	FROM HYDRO	6.07E-09
EU154	1.69E-06	TOTAL	DOSE	FROM HYDRO	6.38E-08
EU155	1.35E-06	TOTAL	DOSE	FROM HYDRO	5.10E-08
RA226	1.31E-06	TOTAL	DOSE	FROM HYDRO	4.96E-08
TH230	2.63E-07	TOTAL	DOSE	FROM HYDRO	9.96E-09
TH232	3.85E-07	TOTAL	DOSE	FROM HYDRO	1.46E-08
U235	4.68E-08	TOTAL	DOSE	FROM HYDRO	1.77E-09
U238	8.28E-08	TOTAL	DOSE	FROM HYDRO	3.13E-09
NP237	3.86E-10	TOTAL	DOSE	FROM HYDRO	1.46E-11
PU238	4.90E-06	TOTAL	DOSE	FROM HYDRO	1.85E-07
PU239	1.32E-06	TOTAL	DOSE	FROM HYDRO	5.00E-08
PU240	1.34E-06	TOTAL	DOSE	FROM HYDRO	5.08E-08
PU241	2.32E-04	TOTAL	DOSE	FROM HYDRO	8.77E-06

PU242	8.19E-09	TOTAL DOSE FROM HYDRO	3.10E-10
AM241	3.05E-07	TOTAL DOSE FROM HYDRO	1.15E-08
AM242	0.00E+00	TOTAL DOSE FROM HYDRO	0.00E+00
AM243	1.76E-08	TOTAL DOSE FROM HYDRO	6.66E-10
CM242	9.60E-07	TOTAL DOSE FROM HYDRO	3.63E-08
CM243	4.81E-09	TOTAL DOSE FROM HYDRO	1.82E-10
CM244	1.70E-06	TOTAL DOSE FROM HYDRO	6.41E-08

AQUIFER OUTPUT

WE HAVE 5 BLOCKS OF TIME (HOURS)

0.1000E+03	0.1593E+05	0.1718E+05	0.1733E+05	0.1743E+05				
H3	1.994E+02	TOTAL DOSE FROM UNSAT	2.738E+02	TZ=	1.142E-02	TI=	1.921E+00	
C14	5.956E+00	TOTAL DOSE FROM UNSAT	7.953E+00	TZ=	1.142E-02	TI=	1.921E+00	
S35	0.000E+00	TOTAL DOSE FROM UNSAT	1.701E+00	TZ=	1.142E-02	TI=	1.921E+00	
CR51	0.000E+00	TOTAL DOSE FROM UNSAT	1.500E+03	TZ=	1.142E-02	TI=	1.921E+00	
MN54	0.000E+00	TOTAL DOSE FROM UNSAT	8.722E+02	TZ=	1.142E-02	TI=	1.921E+00	
FE55	0.000E+00	TOTAL DOSE FROM UNSAT	6.762E+02	TZ=	1.142E-02	TI=	1.921E+00	
CO58	0.000E+00	TOTAL DOSE FROM UNSAT	1.500E+03	TZ=	1.142E-02	TI=	1.921E+00	
CO60	9.000E+00	TOTAL DOSE FROM UNSAT	4.035E+03	TZ=	1.142E-02	TI=	1.921E+00	
NI59	3.371E+01	TOTAL DOSE FROM UNSAT	4.390E+01	TZ=	1.142E-02	TI=	1.921E+00	
NI63	4.333E+00	TOTAL DOSE FROM UNSAT	8.007E+03	TZ=	1.142E-02	TI=	1.921E+00	
ZN65	0.000E+00	TOTAL DOSE FROM UNSAT	6.977E+01	TZ=	1.142E-02	TI=	1.921E+00	
SR90	3.883E-05	TOTAL DOSE FROM UNSAT	8.772E-05	TZ=	1.142E-02	TI=	1.921E+00	
NB94	0.000E+00	TOTAL DOSE FROM UNSAT	4.728E-01	TZ=	1.142E-02	TI=	1.921E+00	
ZR95	0.000E+00	TOTAL DOSE FROM UNSAT	6.977E+01	TZ=	1.142E-02	TI=	1.921E+00	
TC99	1.276E-02	TOTAL DOSE FROM UNSAT	1.642E-02	TZ=	1.142E-02	TI=	1.921E+00	
RU106	0.000E+00	TOTAL DOSE FROM UNSAT	2.830E+00	TZ=	1.142E-02	TI=	1.921E+00	
SB124	1.801E-14	TOTAL DOSE FROM UNSAT	1.963E-07	TZ=	1.142E-02	TI=	1.921E+00	
SB125	4.182E-08	TOTAL DOSE FROM UNSAT	1.592E-07	TZ=	1.142E-02	TI=	1.921E+00	
I125	4.790E-04	TOTAL DOSE FROM UNSAT	8.568E-01	TZ=	1.142E-02	TI=	1.921E+00	
I129	2.554E-03	TOTAL DOSE FROM UNSAT	3.283E-03	TZ=	1.142E-02	TI=	1.921E+00	
CS134	1.892E-31	TOTAL DOSE FROM UNSAT	2.833E+02	TZ=	1.142E-02	TI=	1.921E+00	
CS135	1.494E-02	TOTAL DOSE FROM UNSAT	1.922E-02	TZ=	1.142E-02	TI=	1.921E+00	
CS137	1.924E+00	TOTAL DOSE FROM UNSAT	4.508E+02	TZ=	1.142E-02	TI=	1.921E+00	
CE144	0.000E+00	TOTAL DOSE FROM UNSAT	4.786E+01	TZ=	1.142E-02	TI=	1.921E+00	
EU152	0.000E+00	TOTAL DOSE FROM UNSAT	3.234E-10	TZ=	1.142E-02	TI=	1.921E+00	
EU154	0.000E+00	TOTAL DOSE FROM UNSAT	3.040E-09	TZ=	1.142E-02	TI=	1.921E+00	
EU155	0.000E+00	TOTAL DOSE FROM UNSAT	3.234E-09	TZ=	1.142E-02	TI=	1.921E+00	
RA226	5.676E-04	TOTAL DOSE FROM UNSAT	9.380E-04	TZ=	1.142E-02	TI=	1.921E+00	
TH230	3.381E-10	TOTAL DOSE FROM UNSAT	4.784E-10	TZ=	1.142E-02	TI=	1.921E+00	
TH232	8.633E-13	TOTAL DOSE FROM UNSAT	1.108E-12	TZ=	1.142E-02	TI=	1.921E+00	
U235	6.849E-10	TOTAL DOSE FROM UNSAT	8.743E-10	TZ=	1.142E-02	TI=	1.921E+00	
U238	1.284E-10	TOTAL DOSE FROM UNSAT	1.640E-10	TZ=	1.142E-02	TI=	1.921E+00	
NP237	3.731E-08	TOTAL DOSE FROM UNSAT	4.699E-08	TZ=	1.142E-02	TI=	1.921E+00	
PU238	1.533E-09	TOTAL DOSE FROM UNSAT	1.966E-01	TZ=	1.142E-02	TI=	1.921E+00	
PU239	6.144E-03	TOTAL DOSE FROM UNSAT	8.456E-03	TZ=	1.142E-02	TI=	1.921E+00	
PU240	1.329E-02	TOTAL DOSE FROM UNSAT	2.170E-02	TZ=	1.142E-02	TI=	1.921E+00	
PU241	0.000E+00	TOTAL DOSE FROM UNSAT	7.023E+00	TZ=	1.142E-02	TI=	1.921E+00	
PU242	3.200E-05	TOTAL DOSE FROM UNSAT	4.139E-05	TZ=	1.142E-02	TI=	1.921E+00	
AM241	2.541E-06	TOTAL DOSE FROM UNSAT	1.124E-05	TZ=	1.142E-02	TI=	1.921E+00	
AM242	0.000E+00	TOTAL DOSE FROM UNSAT	9.012E-07	TZ=	1.142E-02	TI=	1.921E+00	
AM243	1.591E-06	TOTAL DOSE FROM UNSAT	2.145E-06	TZ=	1.142E-02	TI=	1.921E+00	
CM242	0.000E+00	TOTAL DOSE FROM UNSAT	2.554E-03	TZ=	1.142E-02	TI=	1.921E+00	
CM243	6.433E-15	TOTAL DOSE FROM UNSAT	8.138E-07	TZ=	1.142E-02	TI=	1.921E+00	
CM244	4.535E-18	TOTAL DOSE FROM UNSAT	9.783E-05	TZ=	1.142E-02	TI=	1.921E+00	

H3	INITIAL TIME=	-9.586868E-01	TIME WIDTH=	1.299600E+00	DOSE OUT OF AQUIFER=	6.974392E+01	INTEGRATED DOSE=	9.063920E+01
C14	INITIAL TIME=	3.352774E+02	TIME WIDTH=	1.299599E+00	DOSE OUT OF AQUIFER=	1.982740E+00	INTEGRATED DOSE=	2.576766E+00
S35	INITIAL TIME=	3.352774E+02	TIME WIDTH=	1.299599E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00
CR51	INITIAL TIME=	1.110533E+02	TIME WIDTH=	1.299600E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00
MN54	INITIAL TIME=	1.110725E+02	TIME WIDTH=	1.299600E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00
FE55	INITIAL TIME=	1.679565E+03	TIME WIDTH=	1.299606E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00
CO58	INITIAL TIME=	1.119452E+03	TIME WIDTH=	1.299606E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00
CO60	INITIAL TIME=	1.119452E+03	TIME WIDTH=	1.299606E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00
NI59	INITIAL TIME=	1.119452E+03	TIME WIDTH=	1.299606E+00	DOSE OUT OF AQUIFER=	1.107949E+01	INTEGRATED DOSE=	1.439098E+01
NI63	INITIAL TIME=	1.119452E+03	TIME WIDTH=	1.299606E+00	DOSE OUT OF AQUIFER=	4.411681E-01	INTEGRATED DOSE=	5.733448E-01
ZN65	INITIAL TIME=	1.119452E+03	TIME WIDTH=	1.299606E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00
SR90	INITIAL TIME=	2.144834E+01	TIME WIDTH=	1.299600E+00	DOSE OUT OF AQUIFER=	1.337006E-05	INTEGRATED DOSE=	1.737572E-05
NB94	INITIAL TIME=	1.119452E+03	TIME WIDTH=	1.299606E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00
ZR95	INITIAL TIME=	1.119452E+03	TIME WIDTH=	1.299606E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00
TC99	INITIAL TIME=	1.616229E-01	TIME WIDTH=	1.299600E+00	DOSE OUT OF AQUIFER=	4.214606E-33	INTEGRATED DOSE=	5.477391E-33
RU106	INITIAL TIME=	3.352774E+02	TIME WIDTH=	1.299599E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00
SB124	INITIAL TIME=	2.401609E+00	TIME WIDTH=	1.299600E+00	DOSE OUT OF AQUIFER=	9.933641E-15	INTEGRATED DOSE=	1.290976E-14

SB125	INITIAL TIME=	2.481600E+00	TIME WIDTH=	1.299600E+00	DOSE OUT OF AQUIFER=	1.721541E-08	INTEGRATED DOSE=	2.237314E-08
I125	INITIAL TIME=	1.614315E-01	TIME WIDTH=	1.299600E+00	DOSE OUT OF AQUIFER=	4.749987E-04	INTEGRATED DOSE=	6.173983E-04
I129	INITIAL TIME=	1.614315E-01	TIME WIDTH=	1.299600E+00	DOSE OUT OF AQUIFER=	8.455426E-04	INTEGRATED DOSE=	1.098867E-03
CS134	INITIAL TIME=	2.231653E+02	TIME WIDTH=	1.299601E+00	DOSE OUT OF AQUIFER=	8.295139E-32	INTEGRATED DOSE=	1.066340E-31
CS135	INITIAL TIME=	2.231653E+02	TIME WIDTH=	1.299601E+00	DOSE OUT OF AQUIFER=	4.936753E-03	INTEGRATED DOSE=	6.413807E-03
CS137	INITIAL TIME=	2.231653E+02	TIME WIDTH=	1.299601E+00	DOSE OUT OF AQUIFER=	6.484789E-01	INTEGRATED DOSE=	8.427635E-01
CE144	INITIAL TIME=	3.352774E+02	TIME WIDTH=	1.299599E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00
EU152	INITIAL TIME=	1.120612E+04	TIME WIDTH=	1.299561E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00
EU154	INITIAL TIME=	1.120612E+04	TIME WIDTH=	1.299561E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00
EU155	INITIAL TIME=	1.120612E+04	TIME WIDTH=	1.299561E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00
RA226	INITIAL TIME=	5.590821E+02	TIME WIDTH=	1.299599E+00	DOSE OUT OF AQUIFER=	1.866258E-04	INTEGRATED DOSE=	2.425386E-04
TH230	INITIAL TIME=	1.120612E+04	TIME WIDTH=	1.299561E+00	DOSE OUT OF AQUIFER=	1.121811E-10	INTEGRATED DOSE=	1.457861E-10
TH232	INITIAL TIME=	1.120612E+04	TIME WIDTH=	1.299561E+00	DOSE OUT OF AQUIFER=	2.863830E-13	INTEGRATED DOSE=	3.721721E-13
U235	INITIAL TIME=	3.522001E+00	TIME WIDTH=	1.299600E+00	DOSE OUT OF AQUIFER=	2.298125E-10	INTEGRATED DOSE=	2.986643E-10
U238	INITIAL TIME=	3.522001E+00	TIME WIDTH=	1.299600E+00	DOSE OUT OF AQUIFER=	4.309566E-11	INTEGRATED DOSE=	5.600704E-11
NP237	INITIAL TIME=	7.832302E+02	TIME WIDTH=	1.299599E+00	DOSE OUT OF AQUIFER=	1.286264E-08	INTEGRATED DOSE=	1.671627E-08
PU238	INITIAL TIME=	2.240193E+03	TIME WIDTH=	1.299591E+00	DOSE OUT OF AQUIFER=	5.074119E-10	INTEGRATED DOSE=	6.594280E-10
PU239	INITIAL TIME=	2.240193E+03	TIME WIDTH=	1.299591E+00	DOSE OUT OF AQUIFER=	2.019625E-03	INTEGRATED DOSE=	2.624687E-03
PU240	INITIAL TIME=	2.240193E+03	TIME WIDTH=	1.299591E+00	DOSE OUT OF AQUIFER=	4.369056E-03	INTEGRATED DOSE=	5.677986E-03
PU241	INITIAL TIME=	2.240193E+03	TIME WIDTH=	1.299591E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00
PU242	INITIAL TIME=	2.240193E+03	TIME WIDTH=	1.299591E+00	DOSE OUT OF AQUIFER=	1.051748E-03	INTEGRATED DOSE=	1.366842E-03
AM241	INITIAL TIME=	7.832302E+02	TIME WIDTH=	1.299599E+00	DOSE OUT OF AQUIFER=	8.771496E-07	INTEGRATED DOSE=	1.139904E-06
AM242	INITIAL TIME=	7.832302E+02	TIME WIDTH=	1.299599E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00
AM243	INITIAL TIME=	7.832302E+02	TIME WIDTH=	1.299599E+00	DOSE OUT OF AQUIFER=	5.485630E-07	INTEGRATED DOSE=	7.129118E-07
CM242	INITIAL TIME=	7.832302E+02	TIME WIDTH=	1.299599E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00
CM243	INITIAL TIME=	7.832302E+02	TIME WIDTH=	1.299599E+00	DOSE OUT OF AQUIFER=	2.261449E-15	INTEGRATED DOSE=	2.938976E-15
CM244	INITIAL TIME=	7.832302E+02	TIME WIDTH=	1.299599E+00	DOSE OUT OF AQUIFER=	1.615345E-18	INTEGRATED DOSE=	2.099300E-18
H3	INITIAL TIME=	3.489132E-01	TIME WIDTH=	1.299600E+00	DOSE OUT OF AQUIFER=	1.296800E+02	INTEGRATED DOSE=	1.685321E+02
C14	INITIAL TIME=	3.365770E+02	TIME WIDTH=	1.299599E+00	DOSE OUT OF AQUIFER=	3.973202E+00	INTEGRATED DOSE=	5.163569E+00
S35	INITIAL TIME=	3.365770E+02	TIME WIDTH=	1.299599E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00
CR51	INITIAL TIME=	1.123529E+02	TIME WIDTH=	1.299600E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00
MN54	INITIAL TIME=	1.123721E+03	TIME WIDTH=	1.299600E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00
FE55	INITIAL TIME=	1.680065E+03	TIME WIDTH=	1.299606E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00
CO57	INITIAL TIME=	1.120752E+03	TIME WIDTH=	1.299606E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00
CO60	INITIAL TIME=	1.120752E+03	TIME WIDTH=	1.299606E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00
NI59	INITIAL TIME=	1.120752E+03	TIME WIDTH=	1.299606E+00	DOSE OUT OF AQUIFER=	2.262830E+01	INTEGRATED DOSE=	2.948853E+01
NI63	INITIAL TIME=	1.120752E+03	TIME WIDTH=	1.299606E+00	DOSE OUT OF AQUIFER=	8.922788E-01	INTEGRATED DOSE=	1.159611E+00
ZN65	INITIAL TIME=	1.120752E+03	TIME WIDTH=	1.299606E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00
SR90	INITIAL TIME=	2.274794E+01	TIME WIDTH=	1.299600E+00	DOSE OUT OF AQUIFER=	2.545755E-05	INTEGRATED DOSE=	3.308464E-05
NB94	INITIAL TIME=	1.120752E+03	TIME WIDTH=	1.299606E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00
ZR95	INITIAL TIME=	1.120752E+03	TIME WIDTH=	1.299606E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00
TC99	INITIAL TIME=	1.461223E+00	TIME WIDTH=	1.299600E+00	DOSE OUT OF AQUIFER=	8.543968E-03	INTEGRATED DOSE=	1.110374E-02
RU106	INITIAL TIME=	3.365770E+02	TIME WIDTH=	1.299599E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00
SB124	INITIAL TIME=	3.701200E+00	TIME WIDTH=	1.299600E+00	DOSE OUT OF AQUIFER=	8.100341E-17	INTEGRATED DOSE=	1.052720E-16
SB125	INITIAL TIME=	3.701200E+00	TIME WIDTH=	1.299600E+00	DOSE OUT OF AQUIFER=	2.308029E-08	INTEGRATED DOSE=	3.000123E-08
I125	INITIAL TIME=	1.461032E+00	TIME WIDTH=	1.299600E+00	DOSE OUT OF AQUIFER=	3.985143E-06	INTEGRATED DOSE=	5.179092E-06
I129	INITIAL TIME=	1.461032E+00	TIME WIDTH=	1.299600E+00	DOSE OUT OF AQUIFER=	1.708809E-03	INTEGRATED DOSE=	2.220766E-03
CS134	INITIAL TIME=	2.244649E+02	TIME WIDTH=	1.299601E+00	DOSE OUT OF AQUIFER=	1.071513E-31	INTEGRATED DOSE=	1.392539E-31
CS135	INITIAL TIME=	2.244649E+02	TIME WIDTH=	1.299601E+00	DOSE OUT OF AQUIFER=	1.000283E-02	INTEGRATED DOSE=	1.299968E-02
CS137	INITIAL TIME=	2.244649E+02	TIME WIDTH=	1.299601E+00	DOSE OUT OF AQUIFER=	1.275086E+00	INTEGRATED DOSE=	1.657103E+00
CE144	INITIAL TIME=	3.365770E+02	TIME WIDTH=	1.299599E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00
EU152	INITIAL TIME=	1.120742E+04	TIME WIDTH=	1.299561E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00
EU154	INITIAL TIME=	1.120742E+04	TIME WIDTH=	1.299561E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00
EU155	INITIAL TIME=	1.120742E+04	TIME WIDTH=	1.299561E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00
RA226	INITIAL TIME=	5.603817E+02	TIME WIDTH=	1.299599E+00	DOSE OUT OF AQUIFER=	3.809556E-04	INTEGRATED DOSE=	4.950894E-04
TH230	INITIAL TIME=	1.120742E+04	TIME WIDTH=	1.299561E+00	DOSE OUT OF AQUIFER=	2.259685E-10	INTEGRATED DOSE=	2.936597E-10
TH232	INITIAL TIME=	1.120742E+04	TIME WIDTH=	1.299561E+00	DOSE OUT OF AQUIFER=	5.768731E-13	INTEGRATED DOSE=	7.496816E-13
U235	INITIAL TIME=	4.821601E+00	TIME WIDTH=	1.299600E+00	DOSE OUT OF AQUIFER=	4.550390E-10	INTEGRATED DOSE=	5.913687E-10
U238	INITIAL TIME=	4.821601E+00	TIME WIDTH=	1.299600E+00	DOSE OUT OF AQUIFER=	8.533126E-11	INTEGRATED DOSE=	1.108964E-10
NP237	INITIAL TIME=	7.845298E+02	TIME WIDTH=	1.299599E+00	DOSE OUT OF AQUIFER=	2.445182E-08	INTEGRATED DOSE=	3.177756E-08
PU238	INITIAL TIME=	2.241492E+03	TIME WIDTH=	1.299591E+00	DOSE OUT OF AQUIFER=	1.025566E-09	INTEGRATED DOSE=	1.332817E-09
PU239	INITIAL TIME=	2.241492E+03	TIME WIDTH=	1.299591E+00	DOSE OUT OF AQUIFER=	4.126782E-03	INTEGRATED DOSE=	5.360529E-03
PU240	INITIAL TIME=	2.241492E+03	TIME WIDTH=	1.299591E+00	DOSE OUT OF AQUIFER=	8.922358E-03	INTEGRATED DOSE=	1.159529E-02
PU241	INITIAL TIME=	2.241492E+03	TIME WIDTH=	1.299591E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00
PU242	INITIAL TIME=	2.241492E+03	TIME WIDTH=	1.299591E+00	DOSE OUT OF AQUIFER=	2.148115E-03	INTEGRATED DOSE=	2.791671E-03
AM241	INITIAL TIME=	7.845298E+02	TIME WIDTH=	1.299599E+00	DOSE OUT OF AQUIFER=	1.663937E-06	INTEGRATED DOSE=	2.162451E-06

AM242	INITIAL TIME=	7.845298E+02	TIME WIDTH=	1.299599E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00					
AM243	INITIAL TIME=	7.845298E+02	TIME WIDTH=	1.299599E+00	DOSE OUT OF AQUIFER=	1.042698E-06	INTEGRATED DOSE=	1.353089E-06					
CM242	INITIAL TIME=	7.845298E+02	TIME WIDTH=	1.299599E+00	DOSE OUT OF AQUIFER=	0.000000E+00	INTEGRATED DOSE=	0.000000E+00					
CM243	INITIAL TIME=	7.845298E+02	TIME WIDTH=	1.299599E+00	DOSE OUT OF AQUIFER=	4.171865E-15	INTEGRATED DOSE=	5.421751E-15					
CM244	INITIAL TIME=	7.845298E+02	TIME WIDTH=	1.299599E+00	DOSE OUT OF AQUIFER=	2.919763E-13	INTEGRATED DOSE=	3.794520E-13					
C14	0.000E+00	TOTAL DOSE FROM	UNSAT	1.603E+01	TZ=	1.933E+00	TI=	2.854E-02					
S35	0.000E+00	TOTAL DOSE FROM	UNSAT	3.708E+00	TZ=	1.933E+00	TI=	2.854E-02					
CR51	0.000E+00	TOTAL DOSE FROM	UNSAT	1.256E+03	TZ=	1.933E+00	TI=	2.854E-02					
MN54	0.000E+00	TOTAL DOSE FROM	UNSAT	7.500E+02	TZ=	1.933E+00	TI=	2.854E-02					
FE55	0.000E+00	TOTAL DOSE FROM	UNSAT	1.733E+03	TZ=	1.933E+00	TI=	2.854E-02					
CO58	0.000E+00	TOTAL DOSE FROM	UNSAT	1.25eE+03	TZ=	1.933E+00	TI=	2. 54E-02					
CO60	0.000E+00	TOTAL DOSE FROM	UNSAT	4.820E+03	TZ=	1.933E+00	TI=	2.854E-02					
NI59	0.000E+00	TOTAL DOSE FROM	UNSAT	4.101E+01	TZ=	1.933E+00	TI=	2.854E-02					
NI63	0.000E+00	TOTAL DOSE FROM	UNSAT	7.776E+03	TZ=	1.933E+00	TI=	2.854E-02					
ZN65	0.000E+00	TOTAL DOSE FROM	UNSAT	5.840E+01	TZ=	1.933E+00	TI=	2.854E-02					
SR90	0.000E+00	TOTAL DOSE FROM	UNSAT	9.386E-04	TZ=	1.933E+00	TI=	2.854E-02					
NB94	0.000E+00	TOTAL DOSE FROM	UNSAT	4.417E-01	TZ=	1.933E+00	TI=	2.854E-02					
ZR95	0.000E+00	TOTAL DOSE FROM	UNSAT	5.040E+01	TZ=	1.933E+00	TI=	2.854E-02					
TC99	0.000E+00	TOTAL DOSE FROM	UNSAT	6.403E-02	TZ=	1.933E+00	TI=	2.854E-02					
RU106	0.000E+00	TOTAL DOSE FROM	UNSAT	1.758E+01	TZ=	1.933E+00	TI=	2.854E-02					
SB124	0.000E+00	TOTAL DOSE FROM	UNSAT	3.561E-06	TZ=	1.933E+00	TI=	2.854E-02					
SB125	0.000E+00	TOTAL DOSE FROM	UNSAT	2.871E-06	TZ=	1.933E+00	TI=	2.854E-02					
I125	0.000E+00	TOTAL DOSE FROM	UNSAT	3.075E+00	TZ=	1.933E+00	TI=	2.854E-02					
I129	0.000E+00	TOTAL DOSE FROM	UNSAT	1.281E-02	TZ=	1.933E+00	TI=	2.854E-02					
CS134	0.000E+00	TOTAL DOSE FROM	UNSAT	1.237E+03	TZ=	1.933E+00	TI=	2.854E-02					
CS135	0.000E+00	TOTAL DOSE FROM	UNSAT	8.300E-02	TZ=	1.933E+00	TI=	2.854E-02					
CS137	0.000E+00	TOTAL DOSE FROM	UNSAT	2.118E+03	TZ=	1.933E+00	TI=	2.854E-02					
CE144	0.000E+00	TOTAL DOSE FROM	UNSAT	8.435E+01	TZ=	1.933E+00	TI=	2.854E-02					
EU152	0.000E+00	TOTAL DOSE FROM	UNSAT	1.981E-09	TZ=	1.933E+00	TI=	2.854E-02					
EU154	0.000E+00	TOTAL DOSE FROM	UNSAT	1.914E-08	TZ=	1.933E+00	TI=	2.854E-02					
EU155	0.000E+00	TOTAL DOSE FROM	UNSAT	1.981E-08	TZ=	1.933E+00	TI=	2.854E-02					
RA226	0.000E+00	TOTAL DOSE FROM	UNSAT	9.348E-03	TZ=	1.933E+00	TI=	2.854E-02					
TH230	0.000E+00	TOTAL DOSE FROM	UNSAT	2.931E-09	TZ=	1.933E+00	TI=	2.854E-02					
TH232	0.000E+00	TOTAL DOSE FROM	UNSAT	2.455E-11	TZ=	1.933E+00	TI=	2.854E-02					
U235	0.000E+00	TOTAL DOSE FROM	UNSAT	2.596E-08	TZ=	1.933E+00	TI=	2.854E-02					
U238	0.000E+00	TOTAL DOSE FROM	UNSAT	9.280E-09	TZ=	1.933E+00	TI=	2.854E-02					
NP237	0.000E+00	TOTAL DOSE FROM	UNSAT	5.709E-07	TZ=	1.933E+00	TI=	2.854E-02					
PU238	0.000E+00	TOTAL DOSE FROM	UNSAT	7.265E-01	TZ=	1.933E+00	TI=	2.854E-02					
PU239	0.000E+00	TOTAL DOSE FROM	UNSAT	6.790E-02	TZ=	1.933E+00	TI=	2.854E-02					
PU240	0.000E+00	TOTAL DOSE FROM	UNSAT	1.351E-01	TZ=	1.933E+00	TI=	2.854E-02					
PU241	0.000E+00	TOTAL DOSE FROM	UNSAT	3.742E+01	TZ=	1.933E+00	TI=	2.854E-02					
PU242	0.000E+00	TOTAL DOSE FROM	UNSAT	3.536E-04	TZ=	1.9	TI=	2.854E-02					
AM241	0.000E+00	TOTAL DOSE FROM	UNSAT	1.657E-04	TZ=		TI=	2.854E-02					
AM242	0.000E+00	TOTAL DOSE FROM	UNSAT	1.306E-07		.93E+00	TI=	2.854E-02					
AM243	0.000E+00	TOTAL DOSE FROM	UNSAT	2.606E		..933E+00	TI=	2.854E-02					
CM242	0.000E+00	TOTAL DOSE FROM	UNSAT	3.10		1.933E+00	TI=	2.854E-02					
CM243	0.000E+00	TOTAL DOSE FROM	UNSAT	06	TZ=	1.933E+00	TI=	2.854E-02					
CM244	0.000E+00	TOTAL DOSE FROM	UNSAT	.e9E-03	TZ=	1.933E+00	TI=	2.854E-02					
C14	0.000E+00	TOTAL DOSE FR	,	1.399E+01	TZ=	1.961E+00	TI=	1.712E-02					
S35	0.000E+00	TOTAL DOSE	AT	3.272E+00	TZ=	1.961E+00	TI=	1.712E-02					
CR51	0.000E+00	TOTAL DOS	UNSAT	8.961E+02	TZ=	1.961E+00	TI=	1.712E-02					
Mn54	0.000E+00	TOTAL D	FROM UNSAT	5.210E+02	TZ=	1.961E+00	TI=	1.712E-02					
FE55	0.000E+00	TOTAL	SE FROM UNSAT	1.611E+03	TZ=	1.961E+00	TI=	1.712E-02					
CO58	0.000E+00	TOTAL	SE FROM UNSAT	8.961E+02	TZ=	1.961E+00	TI=	1.712E-02					
CO60	0.000E+00	TOTAL	OSE FROM UNSAT	3.564E+03	TZ=	1.961E+00	TI=	1.712E-02					
NI59	0.000E+00	TOTAL	OSE FROM UNSAT	2.958E+01	TZ=	1.961E+00	TI=	1.712E-02					
NI63	0.000E+00	TOTAL	OSE FROM UNSAT	5.629E+03	TZ=	1.961E+00	TI=	1.712E-02					
ZN65	0.000E+00	TOTAL	OSE FROM UNSAT	4.168E+01	TZ=	1.961E+00	TI=	1.712E-02					
SR90	0.000E+00	TOTAL	OSE FROM UNSAT	1.370E-03	TZ=	1.961E+00	TI=	1.712E-02					
NB94	0.000E+00	TOTAL	OSE FROM UNSAT	3.185E-01	TZ=	1.961E+00	TI=	1.712E-02					
ZR95	0.000E+00	TOTAL	OSE FROM UNSAT	4.168E+01	TZ=	1.961E+00	TI=	1.712E-02					
TC99	0.000E+00	TOTAL	OSE FROM UNSAT	6.452E-02	TZ=	1.961E+00	TI=	1.712E-02					
RU106	0.000E+00	TOTAL	OSE FROM UNSAT	2.098E+01	TZ=	1.961E+00	TI=	1.712E-02					
SB124	0.000E+00	TOTAL	OSE FROM UNSAT	5.546E-06	TZ=	1.961E+00	TI=	1.712E-02					
SB125	0.000E+00	TOTAL	OSE FROM UNSAT	4.784E-06	TZ=	1.961E+00	TI=	1.712E-02					
I125	0.000E+00	TOTAL	OSE FROM UNSAT	3.262E+00	TZ=	1.961E+00	TI=	1.712E-02					

I129	0.000E+00	TOTAL DOSE FROM UNSAT	1.370E-02	TZ=	1.961E+00	TI=	1.712E-02	
CS134	0.000E+00	TOTAL DOSE FROM UNSAT	1.922E+03	TZ=	1.961E+00	TI=	1.712E-02	
CS135	0.000E+00	TOTAL DOSE FROM UNSAT	8.851E-02	TZ=	1.961E+00	TI=	1.712E-02	
CS137	0.000E+00	TOTAL DOSE FROM UNSAT	2.292E+03	TZ=	1.961E+00	TI=	1.712E-02	
CE144	0.000E+00	TOTAL DOSE FROM UNSAT	7.365E+01	TZ=	1.961E+00	TI=	1.712E-02	
EU152	0.000E+00	TOTAL DOSE FROM UNSAT	2.464E-09	TZ=	1.961E+00	TI=	1.712E-02	
EU154	0.000E+00	TOTAL DOSE FROM UNSAT	2.392E-08	TZ=	1.961E+00	TI=	1.712E-02	
EU155	0.000E+00	TOTAL DOSE FROM UNSAT	2.464E-08	TZ=	1.961E+00	TI=	1.712E-02	
RA226	0.000E+00	TOTAL DOSE FROM UNSAT	1.276E-02	TZ=	1.961E+00	TI=	1.712E-02	
TH230	0.000E+00	TOTAL DOSE FROM UNSAT	3.644E-09	TZ=	1.961E+00	TI=	1.712E-02	
TH232	0.000E+00	TOTAL DOSE FROM UNSAT	3.838E-11	TZ=	1.961E+00	TI=	1.712E-02	
U235	0.000E+00	TOTAL DOSE FROM UNSAT	4.718E-08	TZ=	1.961E+00	TI=	1.712E-02	
U238	0.000E+00	TOTAL DOSE FROM UNSAT	1.883E-08	TZ=	1.961E+00	TI=	1.712E-02	
NP237	0.000E+00	TOTAL DOSE FROM UNSAT	8.284E-07	TZ=	1.961E+00	TI=	1.712E-02	
PU238	0.000E+00	TOTAL DOSE FROM UNSAT	8.038E-01	TZ=	1.961E+00	TI=	1.712E-02	
PU239	0.000E+00	TOTAL DOSE FROM UNSAT	8.084E-02	TZ=	1.961E+00	TI=	1.712E-02	
PU240	0.000E+00	TOTAL DOSE FROM UNSAT	1.534E-01	TZ=	1.961E+00	TI=	1.712E-02	
PU241	0.000E+00	TOTAL DOSE FROM UNSAT	4.137E+01	TZ=	1.961E+00	TI=	1.712E-02	
PU242	0.000E+00	TOTAL DOSE FROM UNSAT	4.260E-04	TZ=	1.961E+00	TI=	1.712E-02	
AM241	0.000E+00	TOTAL DOSE FROM UNSAT	2.858E-04	TZ=	1.961E+00	TI=	1.712E-02	
AM242	0.000E+00	TOTAL DOSE FROM UNSAT	1.962E-05	TZ=	1.961E+00	TI=	1.712E-02	
AM243	0.000E+00	TOTAL DOSE FROM UNSAT	3.782E-05	TZ=	1.961E+00	TI=	1.712E-02	
CM242	0.000E+00	TOTAL DOSE FROM UNSAT	4.502E-02	TZ=	1.961E+00	TI=	1.712E-02	
CM243	0.000E+00	TOTAL DOSE FROM UNSAT	1.080E-05	TZ=	1.961E+00	TI=	1.712E-02	
CM244	0.000E+00	TOTAL DOSE FROM UNSAT	2.204E-03	TZ=	1.961E+00	TI=	1.712E-02	
C14	0.000E+00	TOTAL DOSE FROM UNSAT	1.287E+01	TZ=	1.978E+00	TI=	1.142E-02	
S35	0.000E+00	TOTAL DOSE FROM UNSAT	3.024E+00	TZ=	1.978E+00	TI=	1.142E-02	
CR51	0.000E+00	TOTAL DOSE FROM UNSAT	7.265E+02	TZ=	1.978E+00	TI=	1.142E-02	
MN54	0.000E+00	TOTAL DOSE FROM UNSAT	4.224E+02	TZ=	1.978E+00	TI=	1.142E-02	
FE55	0.000E+00	TOTAL DOSE FROM UNSAT	1.529E+03	TZ=	1.978E+00	TI=	1.142E-02	
CO58	0.000E+00	TOTAL DOSE FROM UNSAT	7.265E+02	TZ=	1.978E+00	TI=	1.142E-02	
CO60	0.000E+00	TOTAL DOSE FROM UNSAT	2.939E+03	TZ=	1.978E+00	TI=	1.142E-02	
NI59	0.000E+00	TOTAL DOSE FROM UNSAT	2.410E+01	TZ=	1.978E+00	TI=	1.142E-02	
NI63	0.000E+00	TOTAL DOSE FROM UNSAT	4.595E+03	TZ=	1.978E+00	TI=	1.142E-02	
ZN65	0.000E+00	TOTAL DOSE FROM UNSAT	3.479E+01	TZ=	1.978E+00	TI=	1.142E-02	
SR90	0.000E+00	TOTAL DOSE FROM UNSAT	1.701E-03	TZ=	1.978E+00	TI=	1.142E-02	
NB94	0.000E+00	TOTAL DOSE FROM UNSAT	2.595E-01	TZ=	1.978E+00	TI=	1.142E-02	
ZR95	0.000E+00	TOTAL DOSE FROM UNSAT	3.379E+01	TZ=	1.978E+00	TI=	1.142E-02	
TC99	0.000E+00	TOTAL DOSE FROM UNSAT	7.058E-02	TZ=	1.978E+00	TI=	1.142E-02	
RU106	0.000E+00	TOTAL DOSE FROM UNSAT	2.324E+01	TZ=	1.978E+00	TI=	1.142E-02	
SB124	0.000E+00	TOTAL DOSE FROM UNSAT	7.282E-06	TZ=	1.978E+00	TI=	1.142E-02	
SB125	0.000E+00	TOTAL DOSE FROM UNSAT	6.371E-06	TZ=	1.978E+00	TI=	1.142E-02	
I125	0.000E+00	TOTAL DOSE FROM UNSAT	3.345E+00	TZ=	1.978E+00	TI=	1.142E-02	
I129	0.000E+00	TOTAL DOSE FROM UNSAT	1.412E-02	TZ=	1.978E+00	TI=	1.142E-02	
CS134	0.000E+00	TOTAL DOSE FROM UNSAT	1.365E+03	TZ=	1.978E+00	TI=	1.142E-02	
CS135	0.000E+00	TOTAL DOSE FROM UNSAT	9.136E-02	TZ=	1.978E+00	TI=	1.142E-02	
CS137	0.000E+00	TOTAL DOSE FROM UNSAT	2.380E+03	TZ=	1.978E+00	TI=	1.142E-02	
CE144	0.000E+00	TOTAL DOSE FROM UNSAT	6.774E+01	TZ=	1.978E+00	TI=	1.142E-02	
EU152	0.000E+00	TOTAL DOSE FROM UNSAT	2.774E-09	TZ=	1.978E+00	TI=	1.142E-02	
EU154	0.000E+00	TOTAL DOSE FROM UNSAT	2.699E-08	TZ=	1.978E+00	TI=	1.142E-02	
EU155	0.000E+00	TOTAL DOSE FROM UNSAT	2.771E-08	TZ=	1.978E+00	TI=	1.142E-02	
RA226	0.000E+00	TOTAL DOSE FROM UNSAT	1.519E-02	TZ=	1.978E+00	TI=	1.142E-02	
TH230	0.000E+00	TOTAL DOSE FROM UNSAT	4.103E-09	TZ=	1.978E+00	TI=	1.142E-02	
TH232	0.000E+00	TOTAL DOSE FROM UNSAT	4.033E-11	TZ=	1.978E+00	TI=	1.142E-02	
U235	0.000E+00	TOTAL DOSE FROM UNSAT	5.483E-08	TZ=	1.978E+00	TI=	1.142E-02	
U238	0.000E+00	TOTAL DOSE FROM UNSAT	2.735E-08	TZ=	1.978E+00	TI=	1.142E-02	
NP237	0.000E+00	TOTAL DOSE FROM UNSAT	1.018E-06	TZ=	1.978E+00	TI=	1.142E-02	
PU238	0.000E+00	TOTAL DOSE FROM UNSAT	8.419E-01	TZ=	1.978E+00	TI=	1.142E-02	
PU239	0.000E+00	TOTAL DOSE FROM UNSAT	8.766E-02	TZ=	1.978E+00	TI=	1.142E-02	
PU240	0.000E+00	TOTAL DOSE FROM UNSAT	1.628E-01	TZ=	1.978E+00	TI=	1.142E-02	
PU241	0.000E+00	TOTAL DOSE FROM UNSAT	4.338E+01	TZ=	1.978E+00	TI=	1.142E-02	
PU242	0.000E+00	TOTAL DOSE FROM UNSAT	4.645E-04	TZ=	1.978E+00	TI=	1.142E-02	
AM241	0.000E+00	TOTAL DOSE FROM UNSAT	3.614E-04	TZ=	1.978E+00	TI=	1.142E-02	
AM242	0.000E+00	TOTAL DOSE FROM UNSAT	2.452E-05	TZ=	1.978E+00	TI=	1.142E-02	
AM243	0.000E+00	TOTAL DOSE FROM UNSAT	4.647E-05	TZ=	1.978E+00	TI=	1.142E-02	
CM242	0.000E+00	TOTAL DOSE FROM UNSAT	5.532E-02	TZ=	1.978E+00	TI=	1.142E-02	

CM243	0.000E+00	TOTAL DOSE FROM UNSAT	1.328E-05	TZ=	1.978E+00	TI=	1.142E-02	
CM244	0.000E+00	TOTAL DOSE FROM UNSAT	2.761E-03	TZ=	1.978E+00	TI=	1.142E-02	
C14	0.000E+00	TOTAL DOSE FROM UNSAT	1.197E+01	TZ=	1.990E+00	TI=	1.013E-02	
S35	0.000E+00	TOTAL DOSE FROM UNSAT	2.822E+00	TZ=	1.990E+00	TI=	1.013E-02	
CR51	0.000E+00	TOTAL DOSE FROM UNSAT	6.100E+02	TZ=	1.990E+00	TI=	1.013E-02	
MN54	0.000E+00	TOTAL DOSE FROM UNSAT	3.546E+02	TZ=	1.990E+00	TI=	1.013E-02	
FE55	0.000E+00	TOTAL DOSE FROM UNSAT	1.442E+03	TZ=	1.990E+00	TI=	1.013E-02	
CO58	0.000E+00	TOTAL DOSE FROM UNSAT	6.100E+02	TZ=	1.990E+00	TI=	1.013E-02	
CO60	0.000E+00	TOTAL DOSE FROM UNSAT	2.500E+03	TZ=	1.990E+00	TI=	1.013E-02	
NI59	0.000E+00	TOTAL DOSE FROM UNSAT	2.031E+01	TZ=	1.990E+00	TI=	1.013E-02	
NI63	0.000E+00	TOTAL DOSE FROM UNSAT	3.678E+03	TZ=	1.990E+00	TI=	1.013E-02	
ZN65	0.000E+00	TOTAL DOSE FROM UNSAT	2.837E+01	TZ=	1.990E+00	TI=	1.013E-02	
SR90	0.000E+00	TOTAL DOSE FROM UNSAT	1.972E-03	TZ=	1.990E+00	TI=	1.013E-02	
NB94	0.000E+00	TOTAL DOSE FROM UNSAT	2.187E-01	TZ=	1.990E+00	TI=	1.013E-02	
ZR95	0.000E+00	TOTAL DOSE FROM UNSAT	2.837E+01	TZ=	1.990E+00	TI=	1.013E-02	
TC99	0.000E+00	TOTAL DOSE FROM UNSAT	7.172E-02	TZ=	1.990E+00	TI=	1.013E-02	
RU106	0.000E+00	TOTAL DOSE FROM UNSAT	2.480E+01	TZ=	1.990E+00	TI=	1.013E-02	
SB124	0.000E+00	TOTAL DOSE FROM UNSAT	8.851E-06	TZ=	1.990E+00	TI=	1.013E-02	
SB125	0.000E+00	TOTAL DOSE FROM UNSAT	7.695E-06	TZ=	1.990E+00	TI=	1.013E-02	
I125	0.000E+00	TOTAL DOSE FROM UNSAT	3.389E+00	TZ=	1.990E+00	TI=	1.013E-02	
I129	0.000E+00	TOTAL DOSE FROM UNSAT	1.434E-02	TZ=	1.990E+00	TI=	1.013E-02	
CS134	0.000E+00	TOTAL DOSE FROM UNSAT	1.376E+03	TZ=	1.990E+00	TI=	1.013E-02	
CS135	0.000E+00	TOTAL DOSE FROM UNSAT	9.202E-02	TZ=	1.990E+00	TI=	1.013E-02	
CS137	0.000E+00	TOTAL DOSE FROM UNSAT	2.468E+03	TZ=	1.990E+00	TI=	1.013E-02	
CE144	0.000E+00	TOTAL DOSE FROM UNSAT	6.299E+01	TZ=	1.990E+00	TI=	1.013E-02	
EU152	0.000E+00	TOTAL DOSE FROM UNSAT	3.017E-09	TZ=	1.990E+00	TI=	1.013E-02	
EU154	0.000E+00	TOTAL DOSE FROM UNSAT	2.941E-08	TZ=	1.990E+00	TI=	1.013E-02	
EU155	0.000E+00	TOTAL DOSE FROM UNSAT	3.017E-08	TZ=	1.990E+00	TI=	1.013E-02	
RA226	0.000E+00	TOTAL DOSE FROM UNSAT	1.715E-02	TZ=	1.990E+00	TI=	1.013E-02	
TH230	0.000E+00	TOTAL DOSE FROM UNSAT	4.463E-09	TZ=	1.990E+00	TI=	1.013E-02	
TH232	0.000E+00	TOTAL DOSE FROM UNSAT	5.676E-11	TZ=	1.990E+00	TI=	1.013E-02	
U235	0.000E+00	TOTAL DOSE FROM UNSAT	8.128E-08	TZ=	1.990E+00	TI=	1.013E-02	
U238	0.000E+00	TOTAL DOSE FROM UNSAT	3.567E-08	TZ=	1.990E+00	TI=	1.013E-02	
NP237	0.000E+00	TOTAL DOSE FROM UNSAT	1.178E-06	TZ=	1.990E+00	TI=	1.013E-02	
PU238	0.000E+00	TOTAL DOSE FROM UNSAT	8.572E-01	TZ=	1.990E+00	TI=	1.013E-02	
PU239	0.000E+00	TOTAL DOSE FROM UNSAT	9.138E-02	TZ=	1.990E+00	TI=	1.013E-02	
PU240	0.000E+00	TOTAL DOSE FROM UNSAT	1.672E-01	TZ=	1.990E+00	TI=	1.013E-02	
PU241	0.000E+00	TOTAL DOSE FROM UNSAT	4.417E+01	TZ=	1.990E+00	TI=	1.013E-02	
PU242	0.000E+00	TOTAL DOSE FROM UNSAT	4.862E-04	TZ=	1.990E+00	TI=	1.013E-02	
AM241	0.000E+00	TOTAL DOSE FROM UNSAT	4.262E-04	TZ=	1.990E+00	TI=	1.013E-02	
AM242	0.000E+00	TOTAL DOSE FROM UNSAT	2.869E-05	TZ=	1.990E+00	TI=	1.013E-02	
AM243	0.000E+00	TOTAL DOSE FROM UNSAT	5.377E-05	TZ=	1.990E+00	TI=	1.013E-02	
CM242	0.000E+00	TOTAL DOSE FROM UNSAT	6.401E-02	TZ=	1.990E+00	TI=	1.013E-02	
CM243	0.000E+00	TOTAL DOSE FROM UNSAT	1.536E-05	TZ=	1.990E+00	TI=	1.013E-02	
CM244	0.000E+00	TOTAL DOSE FROM UNSAT	3.237E-03	TZ=	1.990E+00	TI=	1.013E-02	

DOSE OUTPUT (PERSON-REM)
FOR PATH 2
SAMPLE CASE 4 12/3/80

CUMULATIVE POPULATION DOSE 5.92E+04
DIRECT EXPOSURE DOSE 0.00E+00

TOTAL POPULATION DOSE BREAKDOWN BY RADIONUCLIDE, DISTANCE CELL, DOSE PATHWAY, BODY ORGAN AND POPULATION AGE GROUP.

RADIONUCLIDE

H3	9.44E-03	C14	2.88E-03
S35	0.00E+00	CR51	1.46E-06
MN54	5.26E-01	FE55	1.05E-01
CO58	2.91E-02	CO60	6.74E+01
NI59	4.33E-02	NI63	3.92E+00
ZN65	3.49E-02	SR90	1.21E-01
NB94	0.00E+00	ZR95	4.60E-04
TC99	1.55E-06	RU106	2.73E-03
SB124	3.41E-06	SB125	4.46E-04
I125	2.71E-06	I129	6.78E-04
CS134	4.86E+01	CS135	2.25E-03
CS137	6.40E+01	CE144	3.21E-03
EU152	6.50E-05	EU154	1.39E-02
EU155	6.71E-04	RA226	7.06E+00
TH230	1.48E+00	TH232	5.90E+04
U235	1.17E+00	U238	7.42E+00
NP237	4.12E-05	PU238	1.40E+00
PU239	9.75E-01	PU240	5.77E-01
PU241	1.32E+00	PU242	7.78E-02
AM241	2.82E-02	AM242	9.00E+00
AM243	2.22E-03	CM242	1.03E-01
CM243	4.03E-03	CM244	1.13E+00

DISTANCE(M)

1600.	1.98E+01	3200.	9.99E+03
4800.	1.88E+04	6400.	7.39E+03
8000.	9.51E+03	10000.	5.62E+03
12000.	7.69E+03		

PATH

CLOUD SHINE	4.67E-02	GROUND SHINE	7.92E+01
DIRECT INHALATION	3.93E+00	RESUS. INHALATION	5.90E+04
WATER INGESTION	1.92E-01	LEAFY VEG INGESTION	8.71E+01
ROOT INGESTION	5.86E-04	MILK INGESTION	1.97E+01
BEEF INGESTION	4.08E+00		

ORGAN

WHOLE BODY	5.92E+04	BONE	1.30E+06
LIVER	7.24E+04	KIDNEY	3.54E+05
GONAD	6.73E+01	LUNG	4.93E+05
G.I.TRACT	1.24E+02	THYROID	7.10E+01
SKIN	9.43E+01		

AGE GROUP

CHILD	1.06E+04	TEEN	9.87E+03
ADULT	3.87E+04		

DOSE OUTPUT (PERSON-REM)
FOR ALL PATHS
SAMPLE CASE 4 12/3/80

CUMULATIVE POPULATION DOSE 5.93E+04
DIRECT EXPOSURE DOSE 0.00E+00

TOTAL POPULATION DOSE BREAKDOWN BY RADIONUCLIDE, DISTANCE CELL, DOSE PATHWAY, BODY ORGAN AND POPULATION AGE GROUP.

RADIONUCLIDE

H3	9.48E-03	C14	2.89E-03
S35	0.00E+00	CR51	1.89E-04
MN54	5.39E-01	FE55	1.06E-01
CO58	4.27E-02	CO60	6.78E+01
NI59	4.33E-02	NI63	3.95E+00
ZN65	3.61E-02	SR90	1.41E-01
NB94	0.00E+00	ZR95	7.50E-04
TC99	1.56E-06	RU106	2.76E-03
SB124	1.86E-04	SB125	7.03E-04
I125	5.20E-06	I129	6.84E-04
CS134	4.88E+01	CS135	2.25E-03
CS137	6.42E+01	CE144	3.27E-03
EU152	6.52E-05	EU154	1.39E-02
EU155	6.75E-04	RA226	7.11E+00
TH230	1.49E+00	TH232	5.91E+04
U235	1.32E+00	U238	2.71E+01
NP237	4.18E-03	PU238	1.40E+00
PU239	9.76E-01	PU240	5.78E-01
PU241	1.32E+00	PU242	7.78E-02
AM241	2.84E-02	AM242	1.77E-11
AM243	2.25E-03	CM242	1.13E-01
CM243	4.09E-03	CM244	1.14E+00

DISTANCE(M)

1600.	1.99E+01	3200.	1.00E+04
4800.	1.88E+04	6400.	7.60E+03
8000.	6.52E+03	10000.	5.62E+03
12000.	7.70E+03		

PATH

CLOUD SHINE	4.68E-02	GROUND SHINE	7.97E+01
DIRECT INHALATION	3.94E+00	RESUS. INHALATION	5.91E+04
WATER INGESTION	1.92E-01	LEAFY VEG INGESTION	8.73E+01
ROOT INGESTION	5.89E-04	MILK INGESTION	1.98E+01
BEEF INGESTION	4.11E+00		

ORGAN

WHOLE BODY	5.93E+04	BONE	1.31E+06
LIVER	7.25E+04	KIDNEY	3.54E+05
GONAD	6.77E+01	LUNG	4.95E+05
G.I.TRACT	1.26E+02	THYROID	7.14E+01
SKIN	9.49E+01		

AGE GROUP

CHILD	1.06E+04	TEEN	9.88E+03
ADULT	3.88E+04		

7. INPUT FILES

This section contains sample input files. The format and use of the user inputs was discussed in Section 4. Samples are for a Site Number 1 (Arid Site). Other sample data is given in Section 7 and 8 of Volume 2.

7.1 USER INPUT DATA

INPUT.DAT (Tape 14)

AQUA.DAT (Tape 11)

GEOLGY.DAT (Tape 10)

EROSIO.DAT (Tape 8)

ATMOS.DAT (Tape 9)

DOSE.DAT (Tape 15)

DIRECT.DAT (Tape 20)

These are listed on the following pages with a file extension SI1 meaning "SITE No. 1"

Tape 14

```
00  SAMPLE CASE NUMBER 3 12/5/00 SITE 1
0
   6
   2.4000E+01
   2.0000E+00
   2.5000E+00   2.0000E+00
```

Tape 11

```
 41000...001,1.8E-4,9.E+13
1.,9.79E-4,9.79E-4,2.933E-3,2.9325E-3,1.9603E-4,2.94E-4
2.94E-4,2.94E-4,2.94E-4,2.94E-4,2.94E-4,1.4492E-2,2.94E-4,2.94E-4
.22727,9.79E-4,8.93E-2,8.93E-2,.2273,.2273,1.468E-3
1.468E-3,1.468E-3,9.79E-4,2.94E-5,2.94E-5,2.94E-5,5.88E-4
2.94E-5,2.94E-5,6.85E-2,6.85E-2,4.2E-4,1.47E-4,1.47E-4
1.47E-4,1.47E-4,1.47E-4,4.2E-4,4.2E-4,4.2E-4,4.2E-4,4.2E-4,4.2E-4
```

```
10 52  4
.20000E-02
.50000E-03-.10000E-02 .12000E+03 .72000E+03
.60000E+00 .50000E+00 .60000E+01 .26000E+02 .46000E+02 .10000E+03 .15000E+03
.20000E+03 .26000E+03 .30500E+03 .35000E+03
-.10000E+07-.81400E+06-.66000E+06-.53500E+06-.43400E+06-.35200E+06-.28400E+06
-.23100E+06-.18700E+06-.15200E+06-.12300E+06-.10000E+06-.81000E+05-.66000E+05
-.53900E+05-.43000E+05-.35000E+05-.28000E+05-.23000E+05-.18600E+05-.15000E+05
-.11500E+05-.89180E+04-.68680E+04-.52900E+04-.40740E+04-.31380E+04-.24170E+04
-.18620E+04-.14340E+04-.11040E+04-.85100E+03-.65500E+03-.50500E+03-.38900E+03
-.30000E+03-.17600E+03-.10300E+03-.60600E+02-.35600E+02-.20900E+02-.12200E+02
-.72000E+01-.42000E+01-.25000E+01-.15000E+01-.90000E+00-.50000E+00-.30000E+00
-.10000E+000.          .10000E+010.       0.       0.       0.
.43640E-06 .63050E-06 .91140E-06 .13180E-05 .19050E-05 .27540E-05 .39790E-05
.57490E-05 .13180E-05 .12620E-04 .17370E-04 .25110E-04 .36300E-04 .52490E-04
.75820E-04 .10960E-03 .15870E-03 .22910E-03 .33100E-03 .47820E-03 .69160E-03
.99975E-03 .28880E-02 .30190E-02 .43640E-02 .63050E-02 .91140E-02 .13180E-01
.19050E-01 .27530E-01 .39800E-01 .57490E-01 .83130E-01 .12020E+00 .17370E+00
.25090E+00 .36280E+00 .52410E+00 .75820E+00 .10950E+01 .15810E+01 .22910E+01
.33090E+01 .47870E+01 .60160E+01 .65010E+01 .70150E+01 .75010E+01 .80140E+01
.85160E+01 .90000E+01 .90000E+010.       0.       0.       0.
.50000E-01 .50000E-01 .50000E-01 .50000E-01 .50000E-01 .50000E-01 .50000E-01
.50000E-01 .50000E-01 .50000E-01 .50000E-01 .50000E-01 .50000E-01 .50000E-01
-.60000E+060.          .40000E-02 .10000E+00
 8
.10000E-10 .10000E+03 .10000E+03 .10000E+02 .10000E+02 .15000E+03 .10000E+03
.10000E+03 .10000E+03 .10000E+03 .10000E+03 .20000E+01 .10000E+03 .10000E+03
.10000E+03 .30000E+03 .30000E+01 .30000E+01 .10000E+00 .10000E+09 .20000E+02
.20000E+02 .20000E+02 .10000E+03 .12000E+04 .12000E+04 .12000E+04 .50000E+02
.12000E+04 .12000E+04 .20000E+01 .20000E+01 .70000E+02 .20000E+03 .20000E+03
.20000E+03 .20000E+03 .20000E+03 .70000E+02 .70000E+02 .70000E+02 .70000E+02
.70000E+02 .70000E+02
.20000E+03 .17700E+01
 9
.10000E-10 .10000E+03 .10000E+03 .10000E+02 .10000E+02 .15000E+03 .10000E+03
.10000E+03 .10000E+03 .10000E+03 .10000E+03 .20000E+01 .10000E+03 .10000E+03
.10000E+03 .30000E+03 .30000E+01 .30000E+01 .10000E+00 .10000E+09 .20000E+02
.20000E+02 .20000E+02 .10000E+03 .12000E+04 .12000E+04 .12000E+04 .50000E+02
.12000E+04 .12000E+04 .20000E+01 .20000E+01 .70000E+02 .20000E+03 .20000E+03
.20000E+03 .20000E+03 .20000E+03 .70000E+02 .70000E+02 .70000E+02 .70000E+02
.70000E+02 .70000E+02
.30000E+00 .17300E+01
11
.10000E-10 .30000E+03 .30000E+03 .10000E+03 .10000E+03 .15000E+04 .10000E+04
.10000E+04 .10000E+04 .10000E+04 .10000E+04 .20000E+02 .10000E+04 .10000E+04
.10000E+01 .30000E+03 .30000E+01 .30000E+01 .10000E+01 .10000E+01 .20000E+03
.20000E+03 .20000E+03 .30000E+03 .10000E+05 .10000E+05 .10000E+05 .50000E+03
.10000E+05 .10000E+05 .40000E+01 .40000E+01 .70000E+03 .20000E+04 .20000E+04
.20000E+04 .20000E+04 .20000E+04 .70000E+03 .70000E+03 .70000E+03 .70000E+03
.70000E+03 .70000E+03
.10000E+01 .18900E+01
.26000E+05 .32000E+10 .91000E+03 .53000E+05 .66000E+03 .35000E+04 .43000E+05
.17000E+04 .11000E+09 .52000E+02 .70000E+03 .21000E+03 .16000E+04 .18000E+09
.14000E+03 .19000E+09 .51000E+05 .30000E+04 .76000E+07 .72000E-01 .19000E+04
.17000E-02 .13000E+03 .18000E+07 .65000E-02 .10000E-01 .12000E-01 .56000E+03
.23000E-01 .12000E-06 .23000E-05 .30000E-06 .69000E-03 .63000E-03 .22000E-05
.83000E-05 .41000E-02 .14000E-06 .41000E-04 .12000E-03 .71000E-01 .49000E-01
.62000E-03 .97000E-03
```

Tape 8

```
6 5. 14. 1. 0. .0 .0 .1 0. 1. 11. 59. 0.  363.76 487.68
.001 1. 0. 0. 0. 0. 0. .03 70. .67 2.46 4.47
 6.93 9.61 12.0 0.0 0.3 0.0 0.0 50.0
```

```
   7     9     6
.017  .917  .0171  .0487  .0277  .0393  .0254
.0361  .0361  .0362  .0294  .0304  .0503  .0351
.021  .021  .0211  .0226  .0429  .0597  .0382
.0135  .0136  .0136  .0194  .0602  .0506  .0205
.0071  .0071  .0071  .0117  .0327  .0182  .0019
.0052  .0052  .0053  .0093  .0167  .0035  .0002
0.00 0.00
   1
7.00
```

```
 7
    1600.       3200.       4800.       6400.       8000.      10000.      12000.
50.00  10.00  .25  .15  .60  .10    2   100.06
       0          3000        9000        5000        6000        6000        10000
```

3 5.0000E+01 11
1.5875E-03

7.2 NUCLIDE INVENTORY DATA BASE

WS-1 Co-60 high sensitivity source (LWR waste)

WS-2 LWR Operational/D&D Waste

WS-3 LWR D&D Waste

WS-4 LWR Operational Waste High Concentration

WS-5 Institutional Waste

WS-6 Average Trench Inventory

Listings of these files are given on the following pages.

```
WS-1    1
 3000.00
CO60   1.00E+00
WS-2   33
     1.30
CR51   1.40E-01
CO58   1.40E-01
FE55   1.40E-01
ZN65   7.00E-03
ZR95   7.00E-03
RU106  7.00E-03
SB124  7.00E-03
SB125  7.00E-03
EU152  1.40E-05
EU154  1.40E-04
EU155  1.40E-04
SR90   1.40E-03
CS137  2.90E-01
MN54   7.00E-02
CS134  1.60E-01
H3     1.70E-02
C14    8.00E-04
NI59   2.00E-04
TC99   2.00E-04
I129   1.00E-05
CS135  1.00E-05
NP237  1.00E-05
PU238  1.30E-05
PU239  1.40E-05
PU240  2.00E-05
PU241  5.40E-03
PU242  5.60E-03
AM241  1.30E-04
AM242  4.00E-05
AM243  1.00E-05
CM242  9.00E-05
CM243  1.00E-05
CM244  6.00E-05
WS-3    6
     3.80
FE55   3.60E-02
CO60   3.27E-01
NI63   6.33E-01
NI59   3.40E-03
C14    3.00E-04
NB94   4.00E-05
WS-4   33
    32.00
CR51   1.40E-01
CO58   1.40E-01
FE55   1.40E-01
ZN65   7.00E-03
ZR95   7.00E-03
RU106  7.00E-03
SB124  7.00E-03
SB125  7.00E-03
EU152  1.40E-05
EU154  1.40E-04
EU155  1.40E-04
SR90   1.40E-03
CS137  2.90E-01
MN54   7.00E-02
CS134  1.60E-01
H3     1.70E-02
C14    8.00E-04
NI59   2.00E-04
```

```
TC99   2.00E-04
I129   1.00E-05
CS135  1.00E-05
NP237  1.00E-05
PU238  1.30E-05
PU239  1.40E-05
PU240  2.90E-05
PU241  5.40E-03
PU242  5.60E-03
AM241  1.30E-04
AM242  4.90E-05
AM243  1.00E-05
CM242  9.00E-05
CM243  1.00E-05
CM244  6.00E-05
WS-5    4
       .13
H3     9.50E-01
C14    3.00E-02
S35    7.00E-03
I125   1.30E-02
WS-6   44
H3     1.20E-01
C14    3.60E-03
S35    8.60E-04
CR51   4.30E-01
MN54   2.50E-01
FE55   4.30E-01
CO58   4.30E-01
CO60   1.30E+00
NI59   1.30E-02
NI63   2.40E+00
ZN65   2.00E-02
SR90   4.80E-03
NB94   1.40E-04
ZR95   2.00E-02
TC99   3.20E-05
RU106  2.00E-02
SB124  5.00E-03
SB125  5.00E-03
I125   1.50E-03
I129   6.40E-06
CS134  4.80E-01
CS135  3.20E-05
CS137  8.60E-01
CE144  2.00E-02
EU152  4.80E-05
EU154  4.80E-04
EU155  4.80E-04
RA226  1.15E-04
TH230  7.10E-05
TH232  8.40E-06
U235   3.20E-05
U238   7.10E-04
NP237  4.60E-08
PU238  3.20E-04
PU239  4.30E-05
PU240  6.70E-05
PU241  1.65E-02
PU242  2.40E-07
AM241  3.00E-05
AM242  1.60E-06
AM243  2.10E-06
CM242  2.50E-03
CM243  6.00E-07
CM244  1.90E-04
```

7.3 SCENARIO DATA BASE

This section gives listings of the scenario data base files. Two files are given. TITLE.DAT is a listing of scenario descriptions as they are stored in the data base. SCENE.DAT is a listing of inventory, subprogram calling sequence and release fractions. As formatted, a calling sequence (such as "951" is followed by the applicable release fraction). For example, the 19th line reads:

3	=	number of paths
19	=	scenario number
A-6	=	scenario description
WS-2	=	waste inventory
3	=	calling sequence (call "DIRECT")
1.0E+00	=	release fraction first path
2	=	calling sequence (call "ATMOS")
2.0E-02	=	release fraction for second path
951*	=	calling sequence (call UNSAT, EROSIO, ATMOS*, AQUIFER)
1.0E-01	=	release fraction for third path

A- 1 22 A ruptured drum with liquid substance causes spill to contaminate the vehicle or the overpack interior.
A- 2 22 A ruptured drum with volatile substance causes release to contaminate the vehicle or the overpack interior.
A- 3 23 A ruptured drum, carton or box containing solids causes releases to contaminate the vehicle or the overpack interior.
A- 4 26 Worker is injured by contaminated sharp object protruding from ruptured drum, carton or box during receiving inspection.
A- 5 34 Fire erupts in the transport vehicle or in the overpack containing combustible cartons or loose bundles during receiving inspection. Fire is allowed to burn out.
A- 6 34 Fire erupts in the transport vehicle or in the overpack containing combustible cartons, boxes or loose bundles during receiving inspection.Fire is quenched with water.
A- 7 27 Explosion in the transport vehicle or in the overpack containing drums or boxes with volatile substances or liquid containers.
A- 8 26 Explosion in the transport vehicle or in the overpack containing drums,boxes or cartons filled with solids or loose bundles.
A- 9 13 Irradiated/contaminated usable items are removed from wastes.
A-10 23 Chronic direct radiation to workers engaged in the pre-entry inspectionof drums, boxes, cartons and loose bundles.
A-11 26 Chronic escape to atmosphere of radionuclides during the pre-entry inspection of drums, boxes, cartons and loose bundles.
B- 1 30 Liner containing highly activated LWR components is accidently rupturedduring transfer into the burial trench. Wastes are spilled from the liner.
B- 2 35 Chronic direct radiation to workers engaged in removing the liner,containing highly activated LWR components from shielded cask and manipulatingit into the burial trench.
B- 3 32 Drum with liquid waste containers is ruptured during transfer from the transportation overpack to burial trench. Liquid is spilled into overpack.
B- 4 30 Drum with liquid waste containers is ruptured during transfer from the transportation overpack to burial trench. Liquid is spilled into trench.
B- 5 33 Drum containing volatile substance is ruptured during transfer from the transportation overpack to burial trench. Volatile substance escapes to atmosphere.
B- 6 26 Drums, carton or box containing solid substance is ruptured during transfer from the transportation overpack to burial trench.
B- 7 29 Fire erupts in the transportation overpack or in the trench containing combustible cartons, boxes or loose bundles. Fire is allowed to burn out.
B- 8 30 Fire erupts in the transportation overpack or in the trench containing combustible cartons, boxes or loose bundles. Fire is quenched with water.
B- 9 27 Explosion in the transportation overpacker in the trench containing drums or boxes with volatile substances or liquid containers.
B-10 26 Explosion in the transportation overpack or in the trench containing drums, boxes, cartons filled with solids or loose bundles.
B-11 29 Chronic direct radiation to workers engaged in unloading of drums,boxes, cartons and loose bundles from the transportation overpacks.
B-12 29 Chronic escape to atmosphere of radionuclides during unloading ofdrums, boxes, cartons and loose bundles from the transportation overpacks.
B-13 19 The transportation overpacks and/or vehicle inadequately decontaminated prior to release.
B-14 16 Irradiated/contaminated usable items are removed from wastes during handling.
C- 1 25 Fire erupts in the uncovered trench containing burnable cartons, boxes or loose bundles. Fire is allowed to burn out.
C- 2 19 Fire erupts in the uncovered trench containing burnable cartons, boxes or loose bundles.
C- 3 10 Uncovered trench is flooded from rainfall.
C- 4 48 High velocity wind causes lifting and dispersal of those radionuclides from the uncovered trench which are attached to dust, light powders,loose papers or boards, etc. The materials lifted from the trench are dispersed over the site.
C- 5 13 Irradiated/contaminated usable items are removed from wastes.
C- 6 28 Animals (rats, rabbits, etc.) intrude into uncovered wastes, become contaminated, and carry radionuclides outside of the trench.
C- 7 20 Chronic direct radiation to workers engaged in the activities in the vicinity of uncovered wastes.
C- 8 16 Chronic escape to atmosphere of radionuclides from the uncovered wastes.
D- 1 30 Liner containing highly activated LWR components is accidently ruptured during burial or backfill operation. Wastes are spilled from the liner.
D- 2 23 Chronic direct radiation to workers engaged in burying the liner,containing highly activated LWR components.
D- 3 25 Drum with liquid waste containers is ruptured during burial or backfill operation. Liquid is spilled into overpack.
D- 4 24 Drum with liquid waste containers is ruptured during burial or backfill operation. Liquid is spilled into trench.
D- 5 27 Drum containing volatile substance is ruptured during burial or backfill operation. Volatile substance escapes to atmosphere.
D- 6 20 Drum, carton or box containing solid wastes is ruptured during burial and backfill operation.
D- 7 30 Fire erupts in the trench containing burnable cartons, boxes or loose bundles during burial and backfill operations. Fire is allowed to burn out.
D- 8 30 Fire erupts in the trench containing burnable cartons, boxes or loose bundles during burial and backfill operations. Fi

re is quenched with water.
D- 9 26 Explosion in the trench containing drums or boxes with volatile substances or liquid containers during backfill operatio
ns.
D-10 27 Explosion in the trench containing drums, boxes, cartons or loosebundles (in solid state) during burial and backfill oper
ations.
D-11 17 Chronic direct radiation to workers engaged in burial and backfill operations.
E- 1 13 Erosion or washing out of backfill inadequate backfill depth.
E- 2 16 Intrusion of surface water, water seepage to water table through buried wastes.
E- 3 18 Intrusion by scavengers (site worker/outside personel). Removal of contaminated items.
E- 4 15 Intrusion by animals (rats, rabbits, etc.) animals become contaminated.
F- 1 13 Erosion or washing out of backfill. Inadequate backfill depth.
F- 2 17 Intrusion of surface water. Water seepage to water table through buried wastes.
F- 3 16 Intrusion by scavengers digging for artifacts. removal of contaminated items.
F- 4 8 Farming of the burial site for crops.
F- 5 12 Use of the burial site as a pasture for domestic animals.
F- 6 10 Intrusion by animals. Animals become contaminated.
F- 7 10 Long-term flooding of the burial site.
F- 8 10 Uncovering of the buried waste by earthquake.
P- 1 24 Highly activated LWR components are mishandled during packaging into a shielded cask, causing workers exposure.
P- 3 23 Chronic direct radiation to workers engaged in packaging highly ativated LWR components into shielded casks.
P- 3 16 Liquid waste containers are ruptured during packaging. Liquid is spilled.
P- 4 23 Container with volatile substance is ruptured during packaging. Volatile substance escapes to atmosphere.
P- 5 12 Solid wastes are spilled and dispersed during packing.
P- 6 18 Fire erupts during packaging of combustible wastes. Fire is allowed to burn out.
P- 7 18 Fire erupts during packaging of combustible wastes. Fire is quenched with water.
P- 8 12 Explosion during packaging of volatile substances or liquid.
P- 9 10 Explosion during packaging of solid wastes.
P-10 17 Chronic direct radiation to workers engaged in packaging or wastes or processing.
P-11 25 Chronic discharge to atmosphere of radionuclides from facility off-gas stack during packaging/ processing of wastes.

P-12 16 Chronic discharge to atmosphere of radionuclides during incineration of wastes.
P-13 22 Discharge of radionuclides through off-gas stack with failed filters during packaging/processing of wastes.
P-14 20 Discharge of radionuclides through off-gas system with failed filters during waste incineration.
P-15 19 The package containing wastes inadequately decontaminated prior to release to shipment.
P-16 19 Irradiated/contaminated usable items are removed from wastes during packaging or processing.
P-17 17 Worker is injured by contaminated sharp object during packaging or processing.
S- 1 20 A ruptured container with liquid substance causes spill to contaminate the storage or handling area.
S- 2 23 A ruptured container with volatile substance causes release to contaminate the handling or storage area.
S- 3 27 A ruptured drum, carton or box containing solids causes release to contaminate the handling or storage area.
S- 4 28 Worker is injured by contaminated sharp object protruding from ruptured drum, carton or box during interim handling
or storage area.
S- 5 28 Fire erupts in the handling or storage area containing combustible cartons, boxes or loose bundles. Fire is allow
d to burn out.
S- 6 28 Fire erupts in the handling or storage area containing combustible cartons, boxes or loose bundles. Fire is quench
ed with water.
S- 7 25 Explosion in the handling or storage area containing drums or boxes with volatile substances or liquid containers.

S- 8 25 Explosion in the handling or storage area containing drums, boxes or cartons filled with solids or loose bundles.

S- 9 13 Irradiated/contaminated usable items are removed from wastes.
S-10 23 Chronic direct radiation to workers engaged in the handling and storage of drums, boxes, cartons and loose bundles.
S-11 26 Chronic escape to atmosphere of radionuclides during the handling and storage of drums, boxes, cartons and loose bundle
s.
T- 1 26 Chronic direct radiation to workers engaged in the loading of drums, boxes, cartons and loose bundles on transport veh
icles.
T- 2 33 Chronic escape to atmosphere of radionuclides during the inspection prior to loading on transport vehicle of dru
ms, boxes, cartons and loose bundles.
T- 3 20 Irradiated/contaminated usable items are removed from waste during loading on transport vehicle.
T- 4 22 A ruptured drum with liquid substance causes spill to contaminate the vehicle or the overpack interior.
T- 5 22 A ruptured drum with volatile substance causes release to contaminate the vehicle or the overpack interior.
T- 6 24 A ruptured drum, carton or box containing solids causes release to contaminate the vehicle or overpack interior.
T- 7 26 Worker is injured by contaminated sharp object protruding from ruptured drum, carton or box during receiving inspect
ion.
T- 8 35 Fire erupts in the transport vehicle or in the overpack containing combustible cartons, boxes or loose bundles along tran
sportation route. Fire is allowed to burn out.
T- 9 35 Fire erupts in the transport vehicle or in the overpack containing combustible cartons, boxes or loose bundles along tran

sportation route. Fire is quenched with water.

T-10 27 Explosion in the transport vehicle or in the overpack containing drums or boxes with volatile substances or liquid con
tainers.

T-11 26 Explosion in the transport vehicle or in the overpack containing drums, boxes or cartons filled with solids or loose bu
ndles.

T-12 28 A transport vehicle is abandoned or destroyed during transit. Liquid substance is spilled from damaged containers onto
the roadway.

T-13 28 A transport vehicle is damaged or destroyed during transit. Volatile substance is spilled from damaged containers onto
the roadway.

T-14 27 A tr[illegible]t vehicle is damaged or destroyed during transit. Solid or liquid wastes spilled on the roadway are flooded by r
[illegible]nfall.

T-15 65 A [illegible] vehicle is damaged or destroyed during transit. Solid waste is spilled on the roadway. High velocity wind cause
s lifting [illegible]rsal of those radionuclides which are attached to dust, light powders, loose papers or boards, etc. The materi
als are dis[illegible] over the roadway and [illegible] neighboring countryside.

T-16 25 Irr[illegible]d/contaminated items are removed from waste scattered as a result of transport vehicle damage or destruction.

T-17 28 A wo[illegible]er is injured by contaminated sharp object protruding from ruptured waste container during post-accident cleanup of
the roadway

```
2  1A- 1WS-2 3     1.0E+00 4     1.0E-02
2  2A- 1WS-3 3     1.0E+00 4     1.0E-02
2  3A- 1WS-4 3     1.0E+00 4     1.0E-02
2  4A- 1WS-5 3     1.0E+00 4     1.0E-02
2  5A- 2WS-2 3     1.0E+00 4     1.0E-02
2  6A- 2WS-3 3     1.0E+00 4     1.0E-03
2  7A- 2WS-4 3     1.0E+00 4     1.0E-03
2  8A- 3WS-2 3     1.0E+00 4     1.0E-01
2  9A- 3WS-3 3     1.0E+00 4     1.0E-01
2 10A- 3WS-4 3     1.0E+00 4     1.0E-01
2 11A- 3WS-5 3     1.0E+00 4     1.0E-01
2 12A- 4WS-2 3     1.0E+00 4     1.0E-03
3 13A- 4WS-3 3     1.0E+00 4     1.0E-03
2 14A- 4WS-4 3     1.0E+00 4     1.0E-03
2 15A- 5WS-2 3     1.0E+00 2     2.0E-02
2 16A- 5WS-3 3     1.0E+00 2     2.0E-02
2 17A- 5WS-4 3     1.0E+00 2     2.0E-02
2 18A- 5WS-5 3     1.0E+00 2     2.0E-02
3 19A- 6WS-2 3     1.0E+00 2     2.0E-02 951   1.0E-01
3 20A- 6WS-3 3     1.0E-06 2     2.0E-02 951   1.0E-01
3 21A- 6WS-4 3     1.0E-06 2     2.0E-02 951   1.0E-01
3 22A- 6WS-5 3     1.0E-06 2     2.0E-02 951   1.0E-01
2 23A- 7WS-2 3     1.0E+00 2     1.0E-03
2 24A- 7WS-3 3     1.0E+00 2     1.0E-03
2 25A- 7WS-4 3     1.0E+00 2     1.0E-03
2 26A- 7WS-5 3     1.0E+00 2     1.0E-03
2 27A- 8WS-2 3     1.0E+00 2     1.0E-03
2 28A- 8WS-3 3     1.0E+00 2     1.0E-03
2 29A- 8WS-4 3     1.0E+00 2     1.0E-03
2 30A- 8WS-5 3     1.0E+00 2     1.0E-03
2 31A- 9WS-2 3     1.0E+00 4     1.0E-02
2 32A- 9WS-3 3     1.0E+00 4     1.0E-02
2 33A- 9WS-4 3     1.0E+00 4     1.0E-02
2 34A- 9WS-5 3     1.0E+00 4     1.0E-02
1 35A-10WS-2 3     1.0E+00
1 36A-10WS-3 3     1.0E+00
1 37A-10WS-4 3     1.0E+00
1 38A-10WS-5 3     1.0E+00
1 39A-11WS-2 2     1.0E-05
1 40A-11WS-3 2     1.0E-05
1 41A-11WS-4 2     1.0E-05
1 42A-11WS-5 2     1.0E-05
2 43B- 1WS-1 3     1.0E+00 951   1.0E-01
1 44B- 2WS-1 3     1.0E-06
1 45B- 3WS-2 3     1.0E+00
1 46B- 3WS-3 3     1.0E+00
1 47B- 3WS-4 3     1.0E+00
1 48B- 3WS-5 3     1.0E+00
1 49B- 4WS-2 951   1.0E-01
1 50B- 4WS-3 951   1.0E-01
1 51B- 4WS-4 951   1.0E-01
1 52B- 4WS-5 951   1.0E-01
1 53B- 5WS-2 2     1.0E+00
1 54B- 5WS-3 2     1.0E+00
1 55B- 5WS-4 2     1.0E+00
1 56B- 5WS-5 2     1.0E+00
2 57B- 6WS-2 2     1.0E-03 91    1.0E-04
2 58B- 6WS-3 2     1.0E-03 91    1.0E-04
2 59B- 6WS-4 2     1.0E-03 91    1.0E-04
2 60B- 6WS-5 2     1.0E-03 91    1.0E-04
2 61B- 7WS-2 3     1.0E+00 2     2.0E-02
2 62B- 7WS-3 3     1.0E+00 2     2.0E-02
2 63B- 7WS-4 3     1.0E+00 2     2.0E-02
2 64B- 7WS-5 3     1.0E+00 2     2.0E-02
2 65B- 7WS-6 3     1.0E+00 2     2.0E-02
3 66B- 8WS-2 3     1.0E+00 2     2.0E-02 951   1.0E-01
```

```
3 67B- 8WS-3 3     1.0E+00 2     2.0E-02 951  1.0E-01
3 68B- 8WS-4 3     1.0E+00 2     2.0E-02 951  1.0E-01
3 69B- 8WS-5 3     1.0E+00 2     2.0E-02 951  1.0E-01
3 70B- 8WS-6 3     1.0E+00 2     2.0E-02 951  1.0E-01
3 71B- 9WS-2 3     1.0E+00 2     2.0E-02 951  1.0E-01
3 72B- 9WS-3 3     1.0E+00 2     1.0E-03 951  1.0E-01
3 73B- 9WS-4 3     1.0E+00 2     1.0E-03 951  1.0E-01
3 74B- 9WS-5 3     1.0E+00 2     1.0E-03 951  1.0E-01
3 75B- 9WS-6 3     1.0E+00 2     1.0E-03 951  1.0E-01
3 76B-10WS-2 3     1.0E+00 2     1.0E-03 951  1.0E-01
3 77B-10WS-3 3     1.0E+00 2     1.0E-03 951  1.0E-01
3 78B-10WS-4 3     1.0E+00 2     1.0E-03 951  1.0E-01
3 79B-10WS-5 3     1.0E+00 2     1.0E-03 951  1.0E-01
3 80B-10WS-6 3     1.0E+00 2     1.0E-03 951  1.0E-01
1 81B-11WS-2 3     1.0E+00
1 82B-11WS-3 3     1.0E+00
1 83B-11WS-4 3     1.0E+00
1 84B-11WS-5 3     1.0E+00
3 85B-12WS-2 3     1.0E+00 2     1.0E-03 951  1.0E-01
3 86B-12WS-3 3     1.0E+00 2     1.0E-03 951  1.0E-01
3 87B-12WS-4 3     1.0E+00 2     1.0E-03 951  1.0E-01
3 88B-12WS-5 3     1.0E+00 2     1.0E-03 951  1.0E-01
2 89B-13WS-2 3     1.0E+00 4     1.0E-02
2 90B-13WS-3 3     1.0E+00 4     1.0E-02
2 91B-13WS-4 3     1.0E+00 4     1.0E-02
2 92B-13WS-5 3     1.0E+00 4     1.0E-02
2 93B-14WS-2 3     1.0E+00 4     1.0E-02
2 94B-14WS-3 3     1.0E+00 4     1.0E-02
2 95B-14WS-4 3     1.0E+00 4     1.0E-02
2 96B-14WS-5 3     1.0E+00 4     1.0E-02
1 97C- 1WS-6 2     2.0E-02
2 98C- 2WS-6 2     2.0E-02 951  1.0E-01
1 99C- 3WS-6 951   1.0E-01
2100C- 4WS-6 3     1.0E+00 2     2.0E-03
2101C- 5WS-6 3     1.0E+00 4     1.0E-02
1102C- 6WS-6 4     1.0E-04
1103C- 7WS-6 3     1.0E+00
1104C- 8WS-6 2     1.0E-05
2105D- 1WS-1 3     1.0E+00 951  1.0E-01
1106D- 2WS-1 3     1.0E-06
1107C- 3WS-6 3     1.0E+00
1108D- 4WS-6 951   1.0E-01
1109D- 5WS-6 2     1.0E+00
1110D- 6WS-6 2     1.0E-03
1111D- 7WS-6 2     2.0E-02
2112D- 8WS-6 2     2.0E-02 951  1.0E-01
3113D- 9WS-6 3     1.0E+00 2     1.0E-03 951  1.0E-01
3114D-10WS-6 3     1.0E+00 2     1.0E-03 951  1.0E-01
1115D-11WS-6 3     1.0E+00
1116E- 1WS-6 951   3.0E-03
1117E- 2WS-6 91    1.0E-01
2118E- 3WS-6 3     1.0E+00 4     1.0E-02
1119E- 4WS-6 4     1.0E-04
1120F- 1WS-6 951   3.0E-03
1121F- 2WS-6 91    1.0E-01
2122F- 3WS-6 3     1.0E+00 4     1.0E-02
1123F- 4WS-6 4     3.0E-03
1124F- 5WS-6 4     3.0E-03
1125F- 6WS-6 4     1.0E-04
1126F- 7WS-6 951   1.0E-01
1127F- 8WS-6 3     1.0E+00
1128F- 1WS-1 3     1.0E+00
1129F- 2WS-1 3     1.0E+00
1130F- 3WS-2 3     1.0E+00
1131F- 3WS-3 3     1.0E+00
1132F- 3WS-4 3     1.0E+00
```

```
1133P- 3WS-5 3     1.0E+00
1134P- 4WS-2 24    1.0E+00
1135P- 4WS-3 24    1.0E+00
1136P- 4WS-4 24    1.0E+00
1137P- 4WS-5 24    1.0E+00
2138P- 5WS-2 24    1.0E-03 951  1.0E-01
2139P- 5WS-3 24    1.0E-03 951  1.0E-01
2140P- 5WS-4 24    1.0E-03 951  1.0E-01
2141P- 5WS-5 24    1.0E-03 951  1.0E-01
2142P- 6WS-2 3     1.0E+00 24   2.0E-02
2143P- 6WS-3 3     1.0E+00 24   2.0E-02
2144P- 6WS-4 3     1.0E+00 24   2.0E-02
2145P- 6WS-5 3     1.0E+00 24   2.0E-02
3146P- 7WS-2 3     1.0E+00 24   2.0E-02 9514 1.0E-01
3147P- 7WS-3 3     1.0E+00 24   2.0E-02 9514 1.0E-01
3148P- 7WS-4 3     1.0E+00 24   2.0E-02 9514 1.0E-01
3149P- 7WS-5 3     1.0E+00 24   2.0E-02 9514 1.0E-01
3150P- 8WS-2 3     1.0E+00 24   1.0E-03 9514 1.0E-01
3151P- 8WS-3 3     1.0E+00 24   1.0E-03 9514 1.0E-01
3152P- 8WS-4 3     1.0E+00 24   1.0E-03 9514 1.0E-01
3153P- 8WS-5 3     1.0E+00 24   1.0E-03 9514 1.0E-01
3154P- 9WS-2 3     1.0E+00 24   1.0E-03 9514 1.0E-01
3155P- 9WS-3 3     1.0E+00 24   1.0E-03 9514 1.0E-01
3156P- 9WS-4 3     1.0E+00 24   1.0E-03 9514 1.0E-01
3157P- 9WS-5 3     1.0E+00 24   1.0E-03 9514 1.0E-01
1158P-10WS-2 3     1.0E+00
1159P-10WS-3 3     1.0E+00
1160P-10WS-4 3     1.0E+00
1161P-10WS-5 3     1.0E+00
1162P-11WS-2 24    1.0E-03
1163P-11WS-3 24    1.0E-03
1164P-11WS-4 24    1.0E-03
1165P-11WS-5 24    1.0E-03
1166P-12WS-2 24    1.0E-06
1167P-12WS-3 24    1.0E-06
1168P-12WS-4 24    1.0E-06
1169P-12WS-5 24    1.0E-06
1170P-13WS-2 24    1.0E-06
1171P-13WS-3 24    1.0E-06
1172P-13WS-4 24    1.0E-06
1173P-13WS-5 24    1.0E-06
1174P-14WS-2 24    1.0E-03
1175P-14WS-3 24    1.0E-03
1176P-14WS-4 24    1.0E-03
1177P-14WS-5 24    1.0E-03
2178P-15WS-2 3     1.0E+00 4    1.0E-02
2179P-15WS-3 3     1.0E+00 4    1.0E-02
2180P-15WS-4 3     1.0E+00 4    1.0E-02
2181P-15WS-5 3     1.0E+00 4    1.0E-02
2182P-16WS-2 3     1.0E+00 4    1.0E-02
2183P-16WS-3 3     1.0E+00 4    1.0E-02
2184P-16WS-4 3     1.0E+00 4    1.0E-02
2185P-16WS-5 3     1.0E+00 4    1.0E-02
2186P-17WS-2 3     1.0E+00 4    1.0E-03
2187P-17WS-3 3     1.0E+00 4    1.0E-03
2188P-17WS-4 3     1.0E+00 4    1.0E-03
2189P-17WS-5 3     1.0E+00 4    1.0E-03
2190S- 1WS-2 3     1.0E+00 4    1.0E-02
2191S- 1WS-3 3     1.0E+00 4    1.0E-02
2192S- 1WS-4 3     1.0E+00 4    1.0E-02
2193S- 1WS-5 3     1.0E+00 4    1.0E-02
2194S- 2WS-2 3     1.0E+00 4    1.0E-03
2195S- 2WS-3 3     1.0E+00 4    1.0E-03
2196S- 2WS-4 3     1.0E+00 4    1.0E-03
2197S- 2WS-5 3     1.0E+00 4    1.0E-03
2198S- 3WS-2 3     1.0E+00 4    1.0E-01
```

2199S- 3WS-3	3	1.0E+00	4	1.0E-01		
2200S- 3WS-4	3	1.0E+00	4	1.0E-01		
2201S- 3WS-5	3	1.0E+00	4	1.0E-01		
2202S- 4WS-2	3	1.0E+00	4	1.0E-03		
2203S- 4WS-3	3	1.0E+00	4	1.0E-03		
2204S- 4WS-4	3	1.0E+00	4	1.0E-03		
2205S- 4WS-5	3	1.0E+00	4	1.0E-03		
2206S- 5WS-2	3	1.0E+00	24	2.0E-02		
2207S- 5WS-3	3	1.0E+00	24	2.0E-02		
2208S- 5WS-4	3	1.0E+00	24	2.0E-02		
2209S- 5WS-5	3	1.0E+00	24	2.0E-02		
3210S- 6WS-2	3	1.0E+00	24	2.0E-02	951	1.0E-01
3211S- 6WS-3	3	1.0E+00	24	2.0E-02	951	1.0E-01
3212S- 6WS-4	3	1.0E+00	24	2.0E-02	951	1.0E-01
3213S- 6WS-5	3	1.0E+00	24	2.0E-02	951	1.0E-01
2214S- 7WS-2	3	1.0E+00	24	1.0E-03		
2215S- 7WS-3	3	1.0E+00	24	1.0E-03		
2216S- 7WS-4	3	1.0E+00	24	1.0E-03		
2217S- 7WS-5	3	1.0E+00	24	1.0E-03		
2218S- 8WS-2	3	1.0E+00	24	1.0E-03		
2219S- 8WS-3	3	1.0E+00	24	1.0E-03		
2220S- 8WS-4	3	1.0E+00	24	1.0E-03		
2221S- 8WS-5	3	1.0E+00	24	1.0E-03		
2222S- 9WS-2	3	1.0E+00	4	1.0E-02		
2223S- 9WS-3	3	1.0E+00	4	1.0E-02		
2224S- 9WS-4	3	1.0E+00	4	1.0E-02		
2225S- 9WS-5	3	1.0E+00	4	1.0E-02		
1226S-10WS-2	3	1.0E+00				
1227S-10WS-3	3	1.0E+00				
1228S-10WS-4	3	1.0E+00				
1229S-10WS-5	3	1.0E+00				
1230S-11WS-2	24	1.0E-09				
1231S-11WS-3	24	1.0E-09				
1232S-11WS-4	24	1.0E-09				
1233S-11WS-5	24	1.0E-09				
1234T- 1WS-2	3	1.0E+00				
1235T- 1WS-3	3	1.0E+00				
1236T- 1WS-4	3	1.0E+00				
1237T- 1WS-5	3	1.0E+00				
1238T- 2WS-2	24	1.0E+00				
1239T- 2WS-3	24	1.0E+00				
1240T- 2WS-4	24	1.0E+00				
1241T- 2WS-5	24	1.0E+00				
2242T- 3WS-2	3	1.0E+00	4	1.0E-02		
2243T- 3WS-3	3	1.0E+00	4	1.0E-02		
2244T- 3WS-4	3	1.0E+00	4	1.0E-02		
2245T- 3WS-5	3	1.0E+00	4	1.0E-02		
2246T- 4WS-2	3	1.0E+00	4	1.0E-02		
2247T- 4WS-3	3	1.0E+00	4	1.0E-02		
2248T- 4WS-4	3	1.0E+00	4	1.0E-02		
2249T- 4WS-5	3	1.0E+00	4	1.0E-02		
2250T- 5WS-2	3	1.0E+00	4	1.0E-03		
2251T- 5WS-3	3	1.0E+00	4	1.0E-03		
2252T- 5WS-4	3	1.0E+00	4	1.0E-03		
2253T- 5WS-5	3	1.0E+00	4	1.0E-03		
2254T- 6WS-2	3	1.0E+00	4	1.0E-01		
2255T- 6WS-3	3	1.0E+00	4	1.0E-01		
2256T- 6WS-4	3	1.0E+00	4	1.0E-01		
2257T- 6WS-5	3	1.0E+00	4	1.0E-01		
2258T- 7WS-2	3	1.0E+00	4	1.0E-03		
2259T- 7WS-3	3	1.0E+00	4	1.0E-03		
2260T- 7WS-4	3	1.0E+00	4	1.0E-03		
2261T- 7WS-5	3	1.0E+00	4	1.0E-03		
2262T- 8WS-2	3	1.0E+00	24	2.0E-02		
2263T- 8WS-3	3	1.0E+00	24	2.0E-02		
2264T- 8WS-3	3	1.0E+00	24	2.0E-02		

```
2265T- 8WS-4 3     1.0E+00 24    2.0E-02
2266T- 8WS-5 3     1.0E+00 24    2.0E-02
3267T- 9WS-2 3     1.0E-01 24    2.0E-02 951   1.0E-01
3268T- 9WS-3 3     1.0E-01 24    2.0E-02 951   1.0E-01
3269T- 9WS-4 3     1.0E-01 24    2.0E-02 951   1.0E-01
3270T- 9WS-5 3     1.0E-01 24    2.0E-02 951   1.0E-01
2271T-10WS-2 3     1.0E+00 24    1.0E-03
2272T-10WS-3 3     1.0E+00 24    1.0E-03
2273T-10WS-4 3     1.0E+00 24    1.0E-03
2274T-10WS-5 3     1.0E+00 24    1.0E-03
2275T-11WS-2 3     1.0E+00 24    1.0E-03
2276T-11WS-3 3     1.0E+00 24    1.0E-03
2277T-11WS-4 3     1.0E+00 24    1.0E-03
2278T-11WS-5 3     1.0E+00 24    1.0E-03
3279T-12WS-2 3     1.0E+00 4     1.0E-02 951   1.0E-01
3280T-12WS-3 3     1.0E+00 4     1.0E-02 951   1.0E-01
3281T-12WS-4 3     1.0E+00 4     1.0E-02 951   1.0E-01
3282T-12WS-5 3     1.0E+00 4     1.0E-02 951   1.0E-01
1283T-13WS-2 24    1.0E-03
1284T-13WS-3 24    1.0E-03
1285T-13WS-4 24    1.0E-03
1286T-13WS-5 24    1.0E-03
1287T-14WS-2 951   1.0E-01
1288T-14WS-3 951   1.0E-01
1289T-14WS-4 951   1.0E-01
1290T-14WS-5 951   1.0E-01
2291T-15WS-2 3     1.0E+00 24    1.0E-05
2292T-15WS-3 3     1.0E+00 24    1.0E-05
2293T-15WS-4 3     1.0E+00 24    1.0E-05
2294T-15WS-5 3     1.0E+00 24    1.0E-05
2295T-16WS-2 3     1.0E+00 4     1.0E-02
2296T-16WS-3 3     1.0E+00 4     1.0E-02
2297T-16WS-4 3     1.0E+00 4     1.0E-02
2298T-16WS-5 3     1.0E+00 4     1.0E-02
2299T-17WS-2 3     1.0E+00 4     1.0E-03
2300T-17WS-3 3     1.0E+00 4     1.0E-03
2301T-17WS-4 3     1.0E+00 4     1.0E-03
2302T-17WS-5 3     1.0E+00 4     1.0E-03
```

NRC FORM 335 (7 77) U.S. NUCLEAR REGULATORY COMMISSION

BIBLIOGRAPHIC DATA SHEET

1. REPORT NUMBER (Assigned by DDC)
NUREG/CR-1963, Vol 1
SAI01380-652LJ

4. TITLE AND SUBTITLE (Add Volume No., if appropriate)
System Analysis of Shallow Land Burial
Volume 1: Code Manual

2. (Leave blank)

3. RECIPIENT'S ACCESSION NO

7. AUTHOR(S)
D. Lester, D. Buckley, S. Donelson, V. Dura, et. al.

5. DATE REPORT COMPLETED
MONTH January YEAR 1981

9. PERFORMING ORGANIZATION NAME AND MAILING ADDRESS (Include Zip Code)
Science Applications, Inc.
P.O. Box 2351
La Jolla, CA 92038

DATE REPORT ISSUED
MONTH March YEAR 1981

6. (Leave blank)

8. (Leave blank)

12. SPONSORING ORGANIZATION NAME AND MAILING ADDRESS (Include Zip Code)
U.S. Nuclear Regulatory Commission
Office of nuclear Material Safety and Safeguards
Division of Waste Management
Washington, DC 20555

10. PROJECT/TASK/WORK UNIT NO

11. CONTRACT NO
FIN No. B6428-9

13. TYPE OF REPORT
Technical Report

PERIOD COVERED (Inclusive dates)
9/26/79 - 1/23/81

15. SUPPLEMENTARY NOTES

14. (Leave blank)

16. ABSTRACT (200 words or less)

A systems model for shallow land burial of low-level waste was assembled from existing models available in the nuclear industry. The model covers waste packaging, transportation, burial, and post burial activities. Subprograms were developed for unsaturated zone seepage, aquifer transport, wind erosion, and atmospheric transport. Release via available pathways are converted to population dose commitments using standard regulatory guide and ICRP Techniques. The system model starts with an initiating event selected from a list of scenarios from an event Tree Analysis Pathway Sequence, inventory, and release fraction for each scenario are available within a standard data base. The executive program which executes the system model calls subroutine in proper sequence and provides for the analysis of several hundred accident and scenario possiblilites.

17. KEY WORDS AND DOCUMENT ANALYSIS

17a. DESCRIPTORS

17b. IDENTIFIERS/OPEN-ENDED TERMS

18. AVAILABILITY STATEMENT
Unlimited

19. SECURITY CLASS (This report)
Unclassified

21. NO. OF PAGES

20. SECURITY CLASS (This page)
Unclassified

22. PRICE
$

NRC FORM 335 (7 77)