

# **VOLCANO CODE – A MODULE FOR SIMULATION OF MAGMATIC SCENARIO MODEL DESCRIPTION AND USER GUIDE**

## **ITERATIVE PERFORMANCE ASSESSMENT PHASE 2**

*Prepared for*

**Nuclear Regulatory Commission  
Contract NRC-02-88-005**

*Prepared by*

**Center for Nuclear Waste Regulatory Analyses  
San Antonio, Texas**

**October 1993**

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Simulation of Magmatic  
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## **ABSTRACT**

This user guide describes the VOLCANO code, its structures, the associated simulation model, and instructions for its use. The VOLCANO code has been used for the Iterative Performance Assessment (IPA) to simulate the magma scenarios in the Yucca Mountain region around the potential repository. Assuming that a magma event has occurred randomly in the simulation region, the code assesses the consequences of the volcanic events in terms of the release of radioactivity.

The VOLCANO code can be run in two modes. It can be run either under the Total-System Performance Assessment (TPA) program or in a stand-alone mode. In the TPA mode, VOLCANO code reads input files that specify the occurrence time of a magma event and parameters about the dike and cone. In the stand-alone mode, the VOLCANO code determines the occurrence time of a magma event randomly within the next 10,000 yr.

The simulation model is based on the geometric approach of modeling magma scenarios. In this approach, Monte Carlo sampling is used to generate a volcanic event randomly in a rectangular region surrounding the repository horizon. The code then estimates the area extent that a basaltic dike or a volcano cone intercepts the repository. From the intercept area, the number of waste containers damaged and the amount of radionuclide release are calculated using the repository initial inventory.

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## FOREWORD

In accordance with the provisions of the Nuclear Waste Policy Act of 1982, the U.S. Nuclear Regulatory Commission (NRC) has the responsibility of evaluating and granting a license for the first and subsequent, if any, geological repositories for high-level nuclear waste (HLW). This act was amended in 1987 to designate one site in the unsaturated region of tuffaceous rocks of Yucca Mountain in southern Nevada for detailed characterization. The Center for Nuclear Waste Regulatory Analyses (CNWRA) at Southwest Research Institute (SwRI) is a Federally Funded Research and Development Center (FFRDC) created to support the NRC in its mission of evaluating and licensing the proposed HLW repository. To meet its licensing function, the NRC will review the application submitted by the U.S. Department of Energy (DOE). One critical section of the license application will deal with the assessment of the future performance of the repository system, which has to meet certain minimum standards established by regulations.

In order to develop capabilities to review the Performance Assessment (PA) in the DOE license application, the NRC and CNWRA are engaged in developing and applying PA methods and models to existing data. Later, at the time of license application review, these methods may be used to conduct independent PA, if the NRC elects to do so. Because of the large space and time scales involved in estimating repository performance, mathematical models encoded as computer codes are the chosen tools for PA. The repository system consists of designed (or engineered) barriers embedded in the natural geological setting. Estimating performance of the total system requires that the behavior of these components be projected under possible future conditions. This effort is obviously a complex task that requires a variety of calculations. The development of the VOLCANO code described in this report is a part of the TPA computer code that performs these calculations.



## ACKNOWLEDGMENTS

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# 1 INTRODUCTION

## 1.1 REGULATORY AND TECHNICAL BACKGROUND

A very specific regulatory purpose for the conduct of Performance Assessment (PA) is to determine if the geological repository system satisfies the regulatory standards. This determination is done by comparing the estimated values of the regulatory performance measures with the minimum values of the same measures specified in the regulations. Thus, the PA models must be designed to estimate the performance measures. In addition to the regulatory function, PA will also be used to design [by the U.S. Department of Energy (DOE)] and judge the adequacy of [by the U.S. Nuclear Regulatory Commission (NRC)] the site characterization program. To meet these varied objectives, the Total-System Performance Assessment (TPA) code has been developed to provide computational algorithms for estimating values of various performance measures [See Sagar and Janetzke (1993) for the description of the TPA code]. To estimate the performance measures, the TPA code contains a set of Consequence Modules (CM) that are largely independent computational units. The VOLCANO code, which is a CM of the TPA code, is used to evaluate consequences due to magmatic events in the vicinity of Yucca Mountain.

The primary regulations applicable to the high-level waste (HLW) geological repository were promulgated by the NRC in 10 CFR Part 60 — Disposal of High-Level Radioactive wastes in Geologic Repositories. Two sections of 10 CFR Part 60 pertain specifically to post-closure performance. These sections include Part 60.112 — Overall System Performance Objective for the Geologic Repository after Permanent Closure; and Part 60.113 — Performance of Particular Barriers after Permanent Closure. Part 60.112 makes reference to satisfying the generally applicable environmental standards for radioactivity established by the Environmental Protection Agency (EPA). These environmental standards referred in Part 60.112 were promulgated by the EPA in 40 CFR Part 191 in 1985. However, on litigation, certain provisions of these standards were remanded by a federal court. Proposed revisions of 40 CFR Part 191 were under review in early 1993. In late 1992, the U.S. Congress enacted a new law known as the Energy Policy Act according to which the EPA will develop standards applicable specifically to Yucca Mountain that may be different from those in 40 CFR Part 191. However, for the development of the VOLCANO code, the 1985 EPA standards are followed. The VOLCANO code will be modified, as necessary, at the appropriate time to account for any changes in the EPA rule.

Three different performance measures are used in Part 191. These measures are: (i) release of radioactivity over the entire accessible environment boundary (integrated over areal space) cumulated over a 10,000-yr period (integrated over time) after closure must not exceed specific limits at specified levels (Part 191.13 — Containment Requirements), where the preferred method of representing this performance measure is through a Complementary Cumulative (Probability) Distribution Function (CCDF); (ii) dose to humans in the first 1,000 yr after repository closure must not exceed specified limit (Part 191.15 — Individual Protection Requirements), this requirement has no probability attached to it; and (iii) concentration of alpha-, beta-, and gamma-emitting radionuclides must not exceed specified limits (Part 191.16 — Groundwater Protection Requirements), there is no probability attached to this requirement. While the first performance measure is to consider all future credible scenarios, the other two apply only to undisturbed performance.

In addition, three other performance measures are used in 10 CFR Part 60.113 to define performance of individual barriers (in contrast to the total system). These performance measures are: (i) life of the waste package must exceed specified limits [Part 60.113(a)(ii)(A) — Substantially Complete

Containment Requirement]; (ii) release from engineered barriers must be less than specified limits [Part 60.113(a)(1)(ii)(B) — Groundwater Release Requirement]; and (iii) Groundwater Travel Time (GWTT) must be greater than specified limits [Part 60.113(a)(2) — Groundwater Travel Time Requirement].

In all, there are six distinct performance measures. In general, a TPA code must allow for estimation of the three measures related to 40 CFR Part 191 and preferably, but not necessarily, for the other three related to 10 CFR Part 60.113. Figure 1-1 depicts the six performance measures and lists the steps for their assessment. The steps for the assessment of the six performance measures include model conceptualization of process, assembly of data suitable for input to the mathematical models, consequence analysis, sensitivity uncertainty analysis, and regulatory compliance assessment.

## **1.2 TPA BACKGROUND**

To estimate the performance measures, the TPA code contains a set of CM that are computationally independent units, with their execution controlled by an Executive Module (Exec) (Sagar and Janetzke, 1993). The Exec acts as the manager and assures that CM are executed in the desired sequence and that appropriate values of the common parameters are passed to CM. The Exec of the TPA directs data flow between different subprocesses and controls their execution. Figure 1-2 shows schematically the organization of Version 2.0 of the TPA code. The shaded parts of Figure 1-2 represent the Exec. A data flow diagram indicating intermodule communication interfaces is shown in Figure 1-3. This figure also shows all CM of the TPA, including the VOLCANO module.

## **1.3 PURPOSE OF SOFTWARE**

The objective of the VOLCANO software is to provide computational algorithms for estimating consequences due to magmatic events in the TPA simulations. The code simulates a limited set of magma scenarios in the Yucca Mountain region around the potential repository and assesses the consequences of volcanic events on the radioactive wastes stored in the repository. Specifically, the VOLCANO simulation will determine the number of waste packages failed by the magmatic events and the amount of radionuclide releases to air during volcanic eruptive events and also the amount for aqueous release. The results from the VOLCANO simulations are then used by other TPA CM to calculate aqueous and gaseous radionuclide source terms, human individual or population dose, and the total amount of radioactivity release to air.

## **1.4 REPORT CONTENT**

A brief description of the conceptual and mathematical models embodied in the VOLCANO software is presented in Chapter 2. It also describes the assumptions made and limitations of the model. Features of the software are described in Chapter 3, which includes a detailed description of the software capabilities, and code structure. Chapter 4 contains the input instructions for the VOLCANO code, whereas Chapter 5 describes the outputs. The verification and validation status is discussed in Chapter 6. Chapter 7 gives the references. A sample problem is included in Appendix A, and Appendix B lists a collection of error messages.

### Figure 1.1. Regulatory performance measures

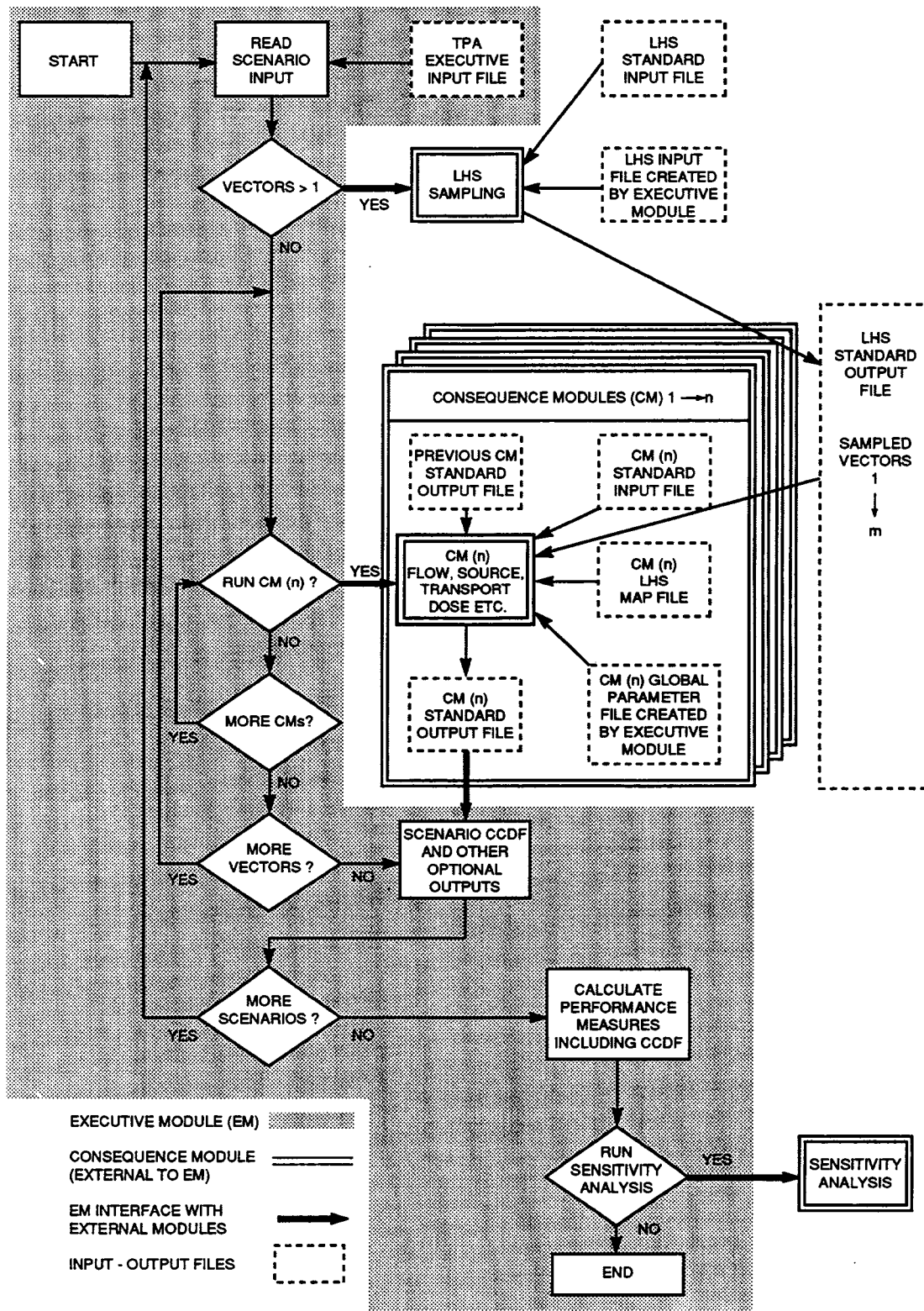
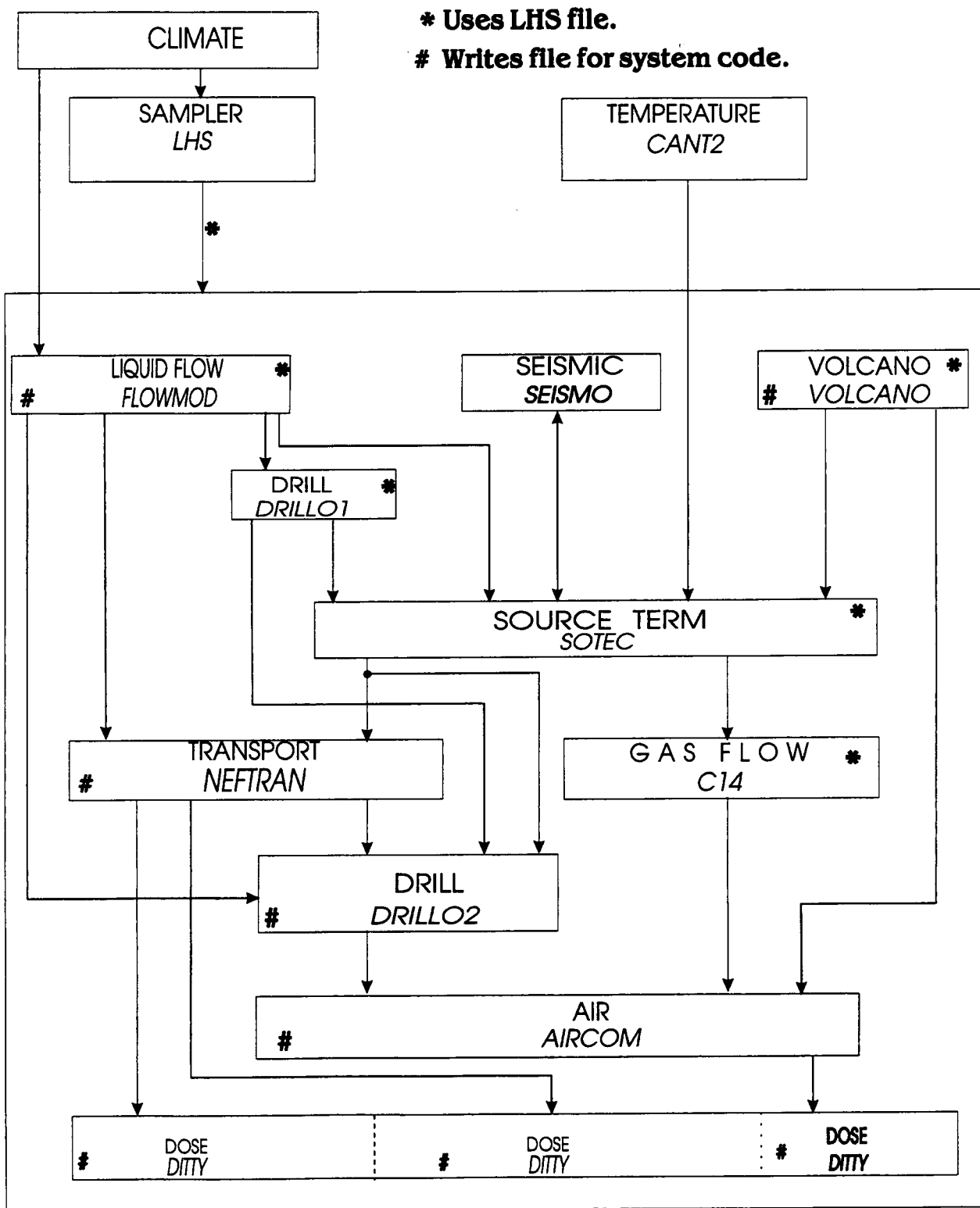


Figure 1-2. Organization of the TPA computer code



**Figure 1-3. TPA system flow diagram**

## **2 MODEL DESCRIPTION**

### **2.1 OVERVIEW**

Two approaches have previously been used to model the volcanism consequences related to damage of repository and release of waste. The first method, known as the geometric approach, involves the calculation of the area in the repository affected by magmatic events. In the second approach, the likely amount of waste entrainment is estimated by considering the proportion of shallow crustal xenoliths identified near the repository site and other cinder cones in the Great Basin. The geometric approach was adapted to develop the magmatic scenarios model and the VOLCANO code for the IPA, Phase 2.

In the geometric approach followed in VOLCANO, Monte Carlo sampling is used to generate a volcanic event randomly in a rectangular region surrounding the repository horizon. The code then estimates the area extent that a basaltic dike or a volcano cone intercepts the repository. From the intercept area, the number of waste containers damaged and the amount of radionuclide release are calculated using the initial inventory in the repository.

### **2.2 THE VOLCANO CONCEPTUAL MODEL**

#### **2.2.1 Magma Scenarios**

Magmatic scenarios are important for PA because some repository material will be ejected onto the earth's surface if any magma penetrates the repository during a volcanic eruption (Valentine et al., 1992). Even in the absence of actual eruption of waste, subsurface magmatic effects can also affect the repository performance. In the case of intrusive events that occur within the repository block, dikes or sills below or in the repository horizon could affect the repository by producing hydrothermal processes or altering hydrology. Hydrothermal processes could cause rapid corrosion of waste packages and accelerate transport of radionuclides to the accessible environment by either liquid- or vapor-phase transport. The hydrologic properties of the dike itself may produce important changes in the long-term flow of groundwater.

Field evidence shows occurrences of magmatic activity in the vicinity of Yucca Mountain extending back several millions of years. Within a radius of 30 km of the repository, 29 post-caldera basaltic vents can be identified in the Yucca Mountain region (Crowe, 1992). The dated age of these basaltic vents varies from approximately 9 Ma (million years ago) for the Paiute Mesa basalts to approximately 0.13 Ma for the Lathrop Wells cinder cone. The repository site is located within the area of most recent volcanism (AMRV), which included all vents less than 2.8 Ma in the region (Smith et al., 1990). The AMRV consists of a polygonal area extending from Lathrop Wells cone north to the Sleeping Butte center and east to the Buckboard Mesa. In another study, Crowe et al. (1992) have identified a different area of recent volcanic activity, the Crater Flat Volcanic Zone (CFVZ). This zone consists of an area extending NNW from the Amargosa center to the Sleeping Buttes center. In this model, the CFVZ trends near, but not through, the site of the repository. For a more detailed description, see Connor et al. (1993).

### 2.2.2 Volcanic Consequence Studies

The effects of volcanism on performance of the potential Yucca Mountain radioactive waste repository were studied by Valentine et al. (1992). They adopted the implicit assumption of the geometric model that the amount of waste entrained is directly proportional to the size of the dike. Valentine et al. (1992) then estimated the amount of waste entrained from the total volume of erupted lithics and the volume of repository intercepted by the dike.

Sheridan (1992) used Monte Carlo simulation to estimate the probability of future volcanic dikes in the vicinity of Yucca Mountain. His model incorporates the geometric approach and addresses only the spatial probability of the various volcanic scenarios. In this model, the volcanic field defining the area in which dikes can occur is approximated by an elliptical outline. The centers of the dikes are distributed according to a bivariate Gaussian distribution centered in the middle of the volcanic field. The geometric parameters of dikes are specified by a mean value and a standard deviation. After each dike is located, the length and orientation are chosen from the Gaussian distributions specified by the mean and standard deviation. Because the location of dike centers and the dike geometry are generated independently, it is possible to have a dike field oriented in a different direction away from the orientation of the elongated volcanic field. This study sets upper bounds on the probability of intersection of dikes with the repository. Using this technique, Sheridan (1992) estimated that the worst case probability of a volcanic dike intersection with the repository in the next 10,000 yr is between 0.001 and 0.01.

Using a Monte Carlo Simulation approach, Margulies et al. (1992) estimated the area extent that a basaltic or volcanic cone intercepts the repository given the occurrence of magmatic activity in the region near the repository. The magmatic events modeled were represented by planar geometrical figures. Cones were represented as disks, and dikes were represented as rectangles. The repository area and borders were represented realistically in the simulations. Based only on geometry, Margulies et al. (1992) outlined the procedure to obtain the conservative estimates of the upper bound for radionuclide release by assuming that any radioactive waste intercepted by the magma would result in release of radionuclides to the accessible environment. However, Margulies et al. (1992) did not attempt to evaluate the compliance of the proposed repository with the EPA standard.

The volcanic release probability at Yucca Mountain region during the life time of the potential repository has been studied by Crowe et al. (1982, 1983, 1992). The volcanic release probability was examined in these studies as the product of three factors: (i) the probability that a volcanic event will affect the repository site; (ii) the temporal probability of a volcanic event; and (iii) the probable amount of release of radionuclides due to a volcanic event.

Connor et al. (1993) have discussed several models for estimating the probability of magmatic events at Yucca Mountain. Probability models for future disruptive events at the Yucca Mountain site rely on the volcanic history of the region to estimate the expected recurrence rate of volcanism in the area (Crowe et al., 1982, 1992; Ho, 1992; Margulies et al., 1992). These models implicitly assume that previous volcanic events occurred according to a homogeneous Poisson distribution. The estimated probability for the formation of new volcanic centers in the repository region varies from approximately  $1.0 \times 10^{-5}$  (Crowe et al. 1982) to  $1.0 \times 10^{-3}$  (Ho, 1992). Margulies et al. (1992) derived the recurrence rate from the number of vents within the AMRV, the area of AMRV, and the time interval during which the vents have been active. They obtained the probability of a magmatic event at Yucca Mountain in the next 10,000 yr to be about  $1.7 \times 10^{-5}$ . However, Crowe et al. (1982) and Margulies et al. (1992) have



obtained lower estimates because they included too few events in their studies. By assuming an increasing recurrence rate in the NE-trending zones through the AMRV, Ho et al. (1991) have obtained a much higher recurrence rate. In their work, Connor et al. (1993) proposed a nonhomogeneous spatial model for the occurrence of magmatic events. Connor et al. (1993) used the near-neighbor method to obtain a more accurate assessment of volcanic recurrence probability at the proposed repository site than the other possible assessments through the application of homogeneous Poisson models. Because this work became known after VOLCANO was developed, the homogeneous Poisson model was used in IPA Phase 2.

Margulies et al. (1992) assumed that the number of magmatic events at the repository may be described by a homogeneous Poisson distribution. Therefore, the probability  $P(n, t)$  of  $n$  magmatic events occurring within the repository perimeter, over a time period of  $t$ , is given by

$$P(n, t) = \frac{[\mu(t)]^n e^{-\mu(t)}}{n!} \quad (2-1)$$

where  $\mu(t)$  is the expected number of magmatic events in the time period  $[0, t]$ . The expected number of events  $\mu(t)$  in a region with an area  $A$  is defined as

$$\mu(t) = r A t \quad (2-2)$$

where  $r$  is defined as the observed rate of occurrence of magmatism per unit area per unit time for the region of interest during the time period of interest.

## 2.3 SIMULATION CONFIGURATION

In the Monte Carlo simulation, a rectangular region surrounding the repository horizon is considered. As shown in the simulation configuration of the repository (Figure 2-1), the repository is represented by a total of 17 rectangles. To obtain the simulation configuration of the repository, the outline of the perimeter of the proposed Yucca mountain repository has been traced from actual drawings. The rectangles are further grouped into seven zones according to the radionuclide initial inventory. The input file VOLCANO.IN specifies the coordinates of the nodes that define the corners of the panel. It also contains a table that specifies the node number, the zone number, and the number of waste containers for each panel. As illustrated in Figure 2-1, the zone number of each panel is shown inside the panel, and the panel number is shown outside the panel.

The origin of the simulation system is defined at the upper right corner of the 17th panel (shown as the asterisk). The dimension of the simulation system is chosen to ensure the inclusion of any magma activity that could have intercepted the repository. Currently the  $x$  dimension is chosen from  $-6,000$  to  $6,000$  m, and the  $y$  dimension is chosen from  $-7,500$  to  $4,500$  m. Because the maximum length of a dike is typically  $4,000$  m, this simulation system is sufficiently large. Typically for a homogeneous distribution of magmatic events, only a few percent of the events in the simulation will intercept the repository.

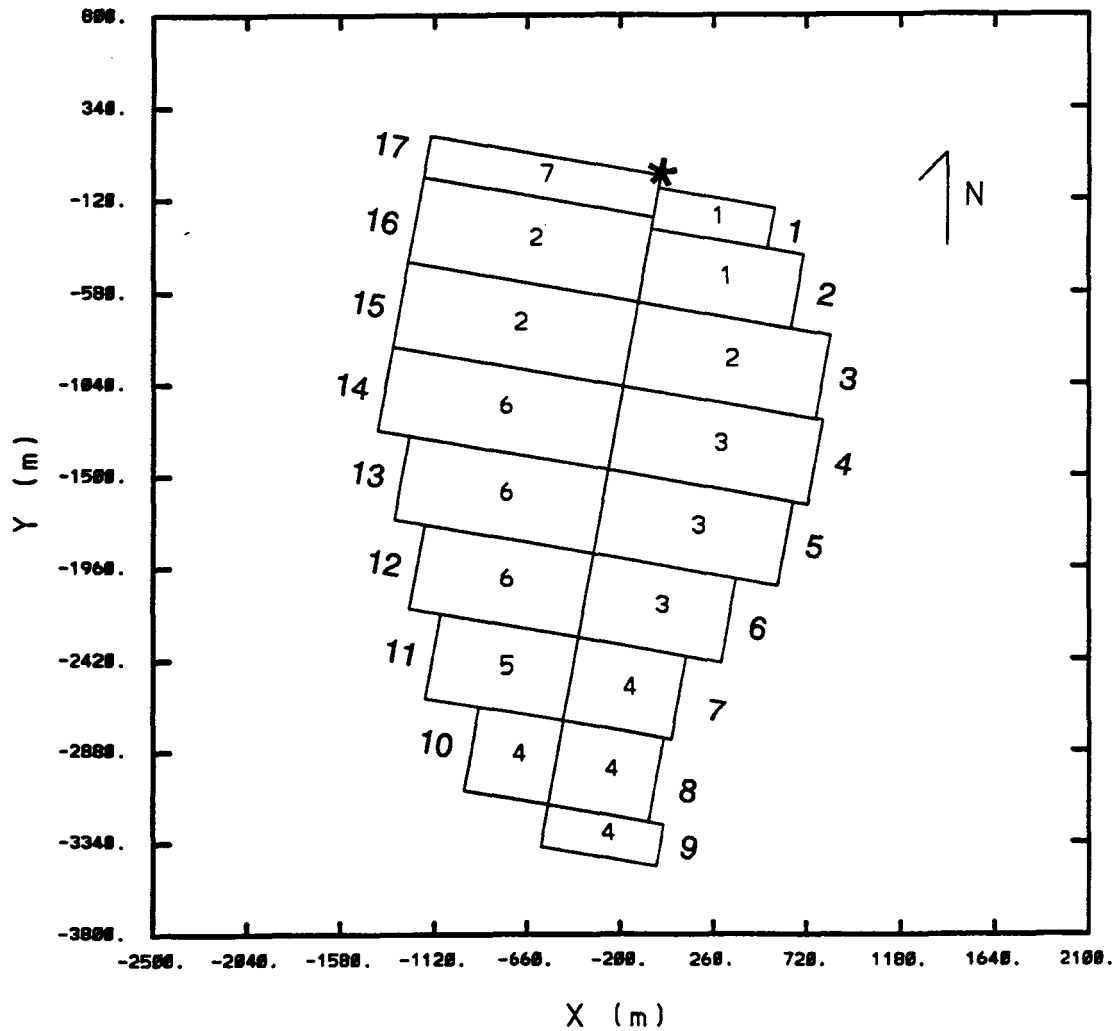


Figure 2-1. Configuration of the repository in the simulation

## 2.4 MATHEMATICAL MODEL

The simulation generates a volcanic event randomly in the simulated region. The volcanic event occurrence time is chosen randomly within the specified time period. The simulation chooses an intrusive magma event (with only a dike) with a probability ten times that of an extrusive event (with a feeder dike and a cone). Cones are represented as circular disks, whereas dikes are represented as rectangles. The dimensions of cones and dikes are selected by a random sampling procedure. The Monte Carlo simulation procedure for estimating the occurrence and consequences of a magmatic event is as follows:

- Locate the center of a dike event or an extrusive event by random sampling
- Determine geometry parameters (e.g., length, width, radius, and orientation) by random sampling

- Calculate the overlapped area in each repository zone and convert the area to number of waste containers if a dike or a cone intercepts the repository
- Calculate and output the radioactive release amount in this trial

In the procedure of determining geometry parameters, parameters are chosen randomly from a range of values based on the available data. The available data suggest that the length of the rectangular dike ranges between 1,000 and 4,000 m and the dike width ranges between 1 and 10 m. Therefore, the area of the rectangular dike varies between 1,000 and 40,000 m<sup>2</sup>. The area of the rectangular dike is chosen at random in the code as given by the following expression:

$$A = a^{(1-\mu)} b^{\mu} \quad (2-3)$$

where  $a$  is the minimum area,  $b$  is the maximum area, and  $\mu$  is a random number chosen uniformly between 0 and 1. The area  $A$  varies from the minimum area  $a$  when  $\mu = 0$  to the maximum area  $b$  when  $\mu = 1$ . Both  $a$  and  $b$  are input parameters.

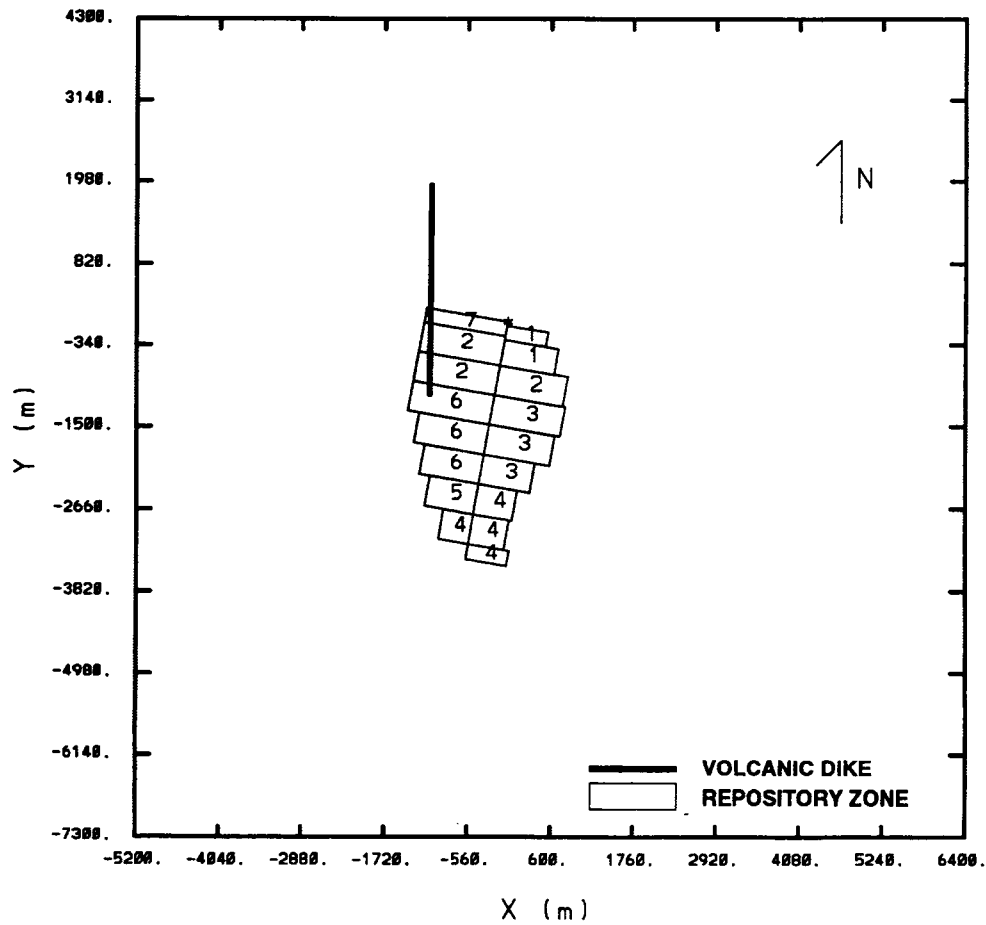
After the dike area is chosen, the length is sampled from a uniform distribution with end points  $\max\{c, A/f\}$  and  $\min\{A/e, d\}$ . The corresponding width of the rectangular dike  $W$  is then determined from the area  $A$  and length  $L$  as  $W=A/L$ . Here, the parameters  $c$  and  $d$  define the minimum and maximum length, respectively, whereas the parameters  $e$  and  $f$  define the minimum and maximum width, respectively. The values of these parameters are defined by the users in the input file (see Section 4.1).

This randomly generated rectangular dike has an angle of orientation that is sampled from a specified uniform distribution. Typically, the input parameters for the angles are chosen to be 75° and 90° counterclockwise from the horizontal axis, corresponding to the orientation of dikes in the direction ranging from north-south to 15° to the east. However, this distribution of dike orientation is based on a postulate by Smith et al. (1990) and Ho et al. (1991) that there is a NE-trending structure control on vent distribution within the AMRV. Crowe et al. (1992) have delineated a different zone, the CFVZ, that extends NNW from the Amargosa center to the Sleeping Buttes center.

To simulate the formation of volcanic cones through extrusion events, circular areas are used to represent cones. Since we are interested in the volcanic effect on the subsurface repository, these circular areas more properly represent the stem-like conduit of magma feeding the volcanic eruption, which may intersect the repository. The cone radius then corresponds approximately to the radius of the approximately vertical, nearly circular magma conduit. The radius of volcanic cones is chosen uniformly at random between two input parameters, the minimum and maximum cone radii. Currently the simulation uses 25 and 100 m for the minimum and maximum radii, respectively. However, the realistic values of cone radius remains to be determined from geological data.

An example of the simulation showing an intrusive event is given in Figure 2-2. In this example, a volcanic dike represented by a rectangle intercepts zone 2, 6, and 7 of the repository. Figure 2-3 illustrates an extrusive event affecting the repository. The volcanic cone located in the center of the dike is represented by a solid circle.

The simulation program calculates the area of intersection between the dike and the repository by strictly geometrical computations. For an extrusive event, it also calculates the area of intersection



**Figure 2-2. Example of an intrusive volcanic event from the VOLCANO simulation**

between the cone and the repository. The predicted area of interception from the simulations is used to estimate the number of waste containers damaged, assuming a uniform distribution of waste containers within each repository zone. For extrusive events, upper bound and conservative estimates of radionuclide release into the atmosphere are calculated by assuming that the radioactive material damaged by the dike has been transported to the cone and released to air. The amount of radionuclides released to the air is considered to be zero for intrusive events.

The simulation estimates the amount of release  $Q_k$  of radionuclide  $k$  to the atmosphere for the extrusive event by summing over the radioactive inventory of each radionuclide at the time of event,

$$Q_k = \sum_{j=1}^n N_j I_{jk}(t) \quad (2-4)$$

where  $N_j$  is the number of the damaged waste containers in zone  $j$ , and  $I_{jk}$  is the inventory of  $k$ th radionuclide in each container at time  $t$  in zone  $j$ . The simulation output  $Q_k$  has the unit of Curie. Using the input of initial inventory,  $I_k(0)$ , and the half-life  $t_k$  of each radionuclide,  $I_k(t)$ , is calculated as

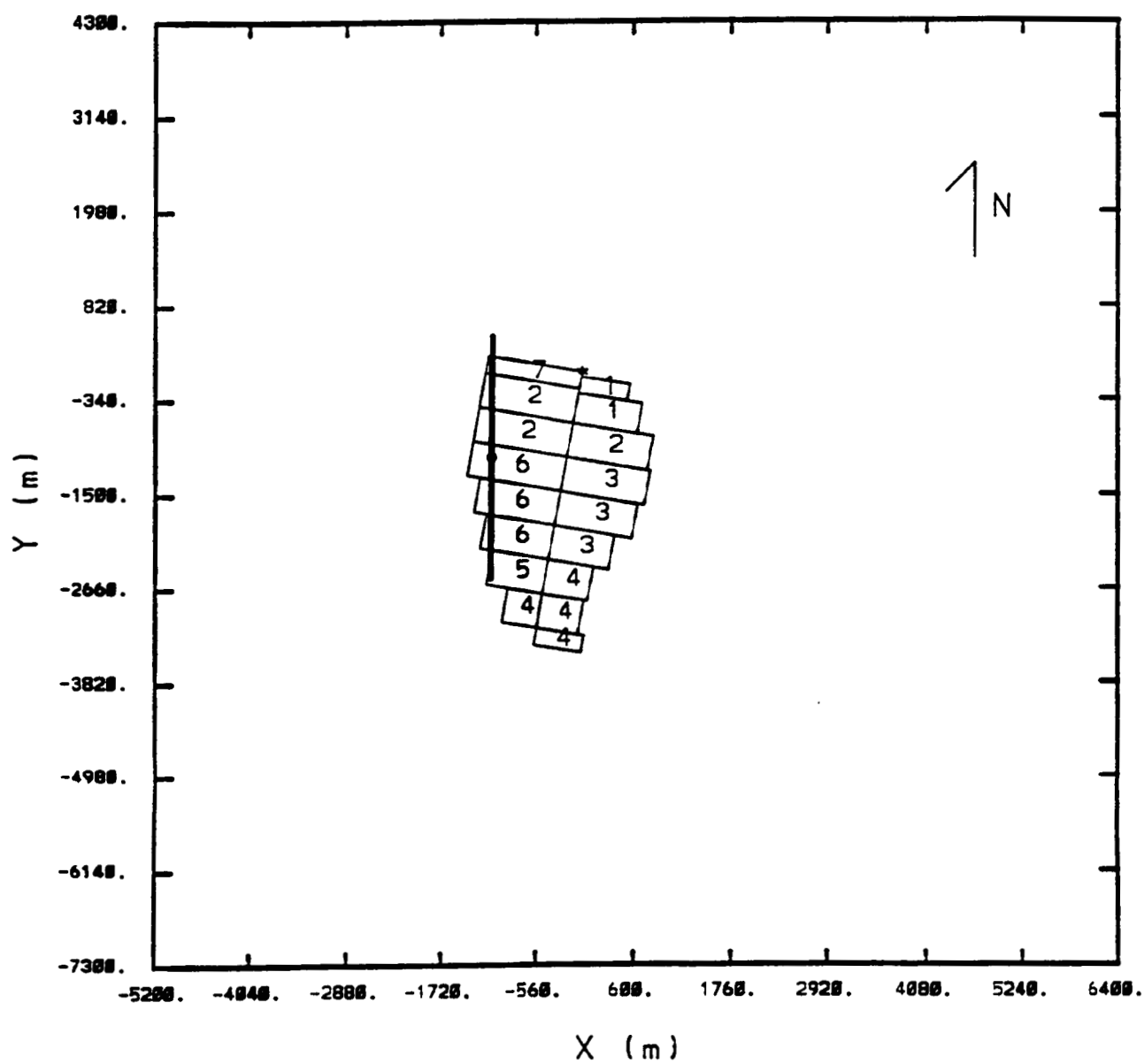


Figure 2-3. Example of an extrusive volcanic event from the VOLCANO simulation

$$I_k(t) = I_k(0) \exp ( - 0.693t/t_k) \quad (2-5)$$

The amount of radioactive release for each radionuclide is used as input by the AIRCOM program, which, in turn, prepares input for the DITTY (Dose in Ten Thousand Years) module (see Figure 1-3). In addition, the number of damaged waste containers predicted by the VOLCANO simulation is used by the SOurce TErm Code (SOTEC) program to determine the decay and release of waste in air (in the form of  $^{14}\text{CO}_2$ ) and water.

## 2.5 ASSUMPTIONS AND LIMITATIONS

Several assumptions are explicitly used in developing the VOLCANO code. These assumptions, which have been mentioned in previous sections, are: (i) the probability of a magmatic event is homogeneous in the simulation region and constant in time; (ii) the probability of an intrusive event is ten times that of an extrusive event; (iii) the volcanic dikes tend to be oriented in the north-east direction; (iv) an intrusive event will have one dike; (v) an extrusive event will involve a cone and a dike; and (vi) waste containers in the repository zone are damaged only when a dike or a cone intersects the repository zone.

To be conservative, we have assumed that all radioactive waste affected by the dike will be released into air through the cinder cone for extrusive events. For intrusive events, only the number of waste containers damaged by subsurface magmatic effects is calculated. Therefore, for the intrusive events, the amount of radionuclides released to air is considered to be zero.

In addition, several assumptions are implied in applying the geometric approach to estimate the amount of waste entrained in an ascending dike. Some of these assumptions are discussed in Valentine et al. (1992), whereas others are not. The Monte Carlo simulation model of basaltic igneous activity is based on these assumptions: (i) any magma that intrudes the repository will have a low volatile content; (ii) the repository itself will have no effect on magma flow or eruption dynamics; (iii) magmatic events are of relatively short duration; and (iv) groundwater, possibly derived from a perched water table, will not interact with magma.

The most serious limitation of the VOLCANO code is related to the assumption of the homogeneous distribution of magma events. Because the VOLCANO code is based on the homogeneous Poisson model for the occurrence of a magmatic event, the probability of a magmatic event is uniform in the simulation region. The vent distribution in the Yucca Mountain area indicates cluster of vents, implying a nonuniform distribution of magmatic activity (Connor et al., 1993). Connor et al. (1993) calculated nonhomogeneous recurrence probability maps in the Yucca Mountain region by using near-neighbor methods. A large probability gradient in the east-west direction extends across the area of the proposed repository because of the close proximity of this site to the Crater Flat volcanoes.

The current version of VOLCANO does not consider magmatic activity related to geological faults. Physically, the probability of magma activity should be related to two geological faults in the repository area: (i) the Ghost Dance fault passing through the repository; and (ii) the Solitario Canyon fault at the west of the repository.

From geologic evidence and theory, the probability of magmatism is unlikely to be constant in time in the vicinity of Yucca Mountain (Trapp and Justus, 1992). Important geological information, such as the temporal variation in the rate of magmatism, remains to be incorporated into the geometric approach of simulating magmatic events in the repository site. In addition, the simulation model has not included the possibility of multiple eruptions. There is evidence of multiple eruptions (polycyclic activity) at most of the Quaternary cinder cones in the Yucca Mountain area; however, the probability of two or more events is presumably very small<sup>1</sup>.

The VOLCANO code provides information only about the number of waste containers damaged and the amount of radioactivity released during magmatic events. The information is used by other CM to evaluate the damages. It should be pointed out that the geometric approach may give a low estimate of radioactive releases because of the effects of magma fragmentation and depressurization at the repository horizon. As far as we are aware, the modeling results of VOLCANO have not been used to evaluate the consequences due to the interaction between intruding magma and a perched water table around the repository. However, this evaluation is outside the scope of the VOLCANO code.

---

<sup>1</sup>

Private conversation with C.B. Connor.

### 3 VOLCANO SOFTWARE DESCRIPTION

This chapter describes the capabilities of the VOLCANO code, its structures, and usage. The VOLCANO code was developed by a group of SwRI staff extending the work of Margulies et al. (1992). The VOLCANO code has been used for the Iterative Performance Assessment (IPA) to simulate the magma scenarios in the Yucca Mountain region around the proposed repository. Assuming that a magma event has occurred randomly in the simulation region, the code assesses the consequences of the volcanic events on the radioactive wastes stored in the repository.

#### 3.1 SOFTWARE CAPABILITIES AND SALIENT FEATURES

The VOLCANO simulation code is based on the geometric approach of modeling magma scenarios. In this approach, Monte Carlo sampling is used to generate a volcanic event randomly in a rectangular region surrounding the repository horizon. The code then estimates the area extent that a basaltic dike or a volcano cone intercepts the repository. From the intercept area, the amount of radionuclide release is calculated using the repository initial inventory.

The main program of the VOLCANO code reads input files, defines the simulation system configuration, and calls subroutines to locate magmatic activity, to compute damages to the repository, and to output the results. Figure 3-1 shows the flowchart of the code.

The VOLCANO code can be run in two modes. It can be run under the TPA program, which determines the parameters of a magma event. In this case, the VOLCANO code reads three input files, which specify the occurrence time of a magma event and parameters about the dike and cone. Alternatively, VOLCANO can be run in a stand-alone mode. In this mode, the code determines the occurrence time of an magma event randomly within the next 10,000 yr.

During the procedure of the Monte Carlo simulations, the VOLCANO program uses random numbers to decide

- the location of the sampled volcano
- the nature of the volcanic event (dike or cone)
- the dimensions of the dike or cone
- the area of the repository intercepted by the dike or the cone

From the interception area of the repository, the program calculates the numbers of nuclear waste canisters damaged by magma activity in the zones and outputs the numbers to VOLSOT.DAT file. This file is used for computing the source term in the TPA code. When the event has a cone, the program calculates the radioactive release to the air for each nuclide, and then outputs the results to a file VOLAIR.DAT.



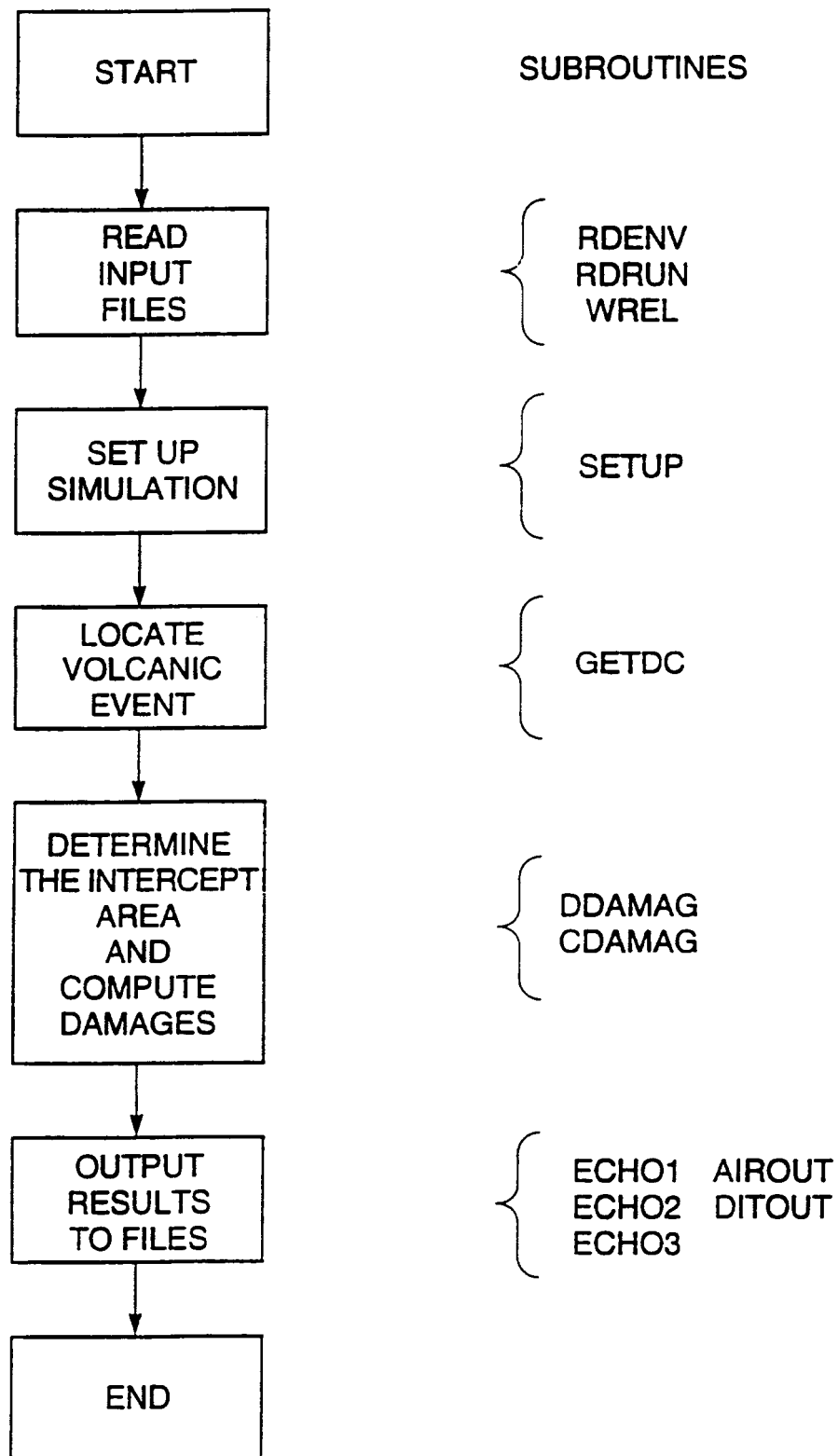


Figure 3-1. Flowchart of the VOLCANO Code

## **3.2 SOFTWARE LIMITATIONS**

The Phase 2 version of the VOLCANO code has two limitations — the locations of magmatic events are sampled according to a homogeneous probability distribution, and the code has not included magmatic events related to geological faults. Both limitations are discussed in Section 2.5.

The current simulation model estimates the volcanic consequences based on the assumption that one magmatic event will occur within the simulation region in the next 10,000 yr. Therefore, the simulation results should be normalized by the magmatic scenario probability, which depends on the size of the simulation region, the simulation duration, and the average probability of volcanic activity. Note that the magmatic scenario probability is not an input parameter of the VOLCANO code; instead it is used to derive a key input parameter in the TPA code, the disruptive event scenario probability (see Sagar and Janetzke, 1993). It is essential to update the value of the magma scenario probability in the TPA input when changing the input parameters of VOLCANO specifying the simulation configuration. Although this feature may not be considered as a limitation, it can sometimes cause confusion in running the code.

## **3.3 HARDWARE REQUIREMENTS AND INSTALLATION PROCEDURES**

The VOLCANO simulation code is run on a VAX 8700 at SwRI and on a CRAY Y-MP at Idaho National Engineering Laboratory (INEL). A precompiler program is used to ensure that the VAX version of the FORTRAN program is consistent with the CRAY compiler. The code is in single precision.

In this section, the execution procedures of running the VOLCANO code are described. As mentioned before, VOLCANO code can be run either in the stand-alone mode or in the TPA mode. The stand-alone mode is often run by programmers and scientists for code development or verifying the volcano simulation model. The following are the procedures for running the VOLCANO code.

1. Check the input files. The parameters in the input files VOLCANO.IN, TEST15.NUC, LHSFIL, and MAPFIL usually do not require modification. There is only one caution about changing the simulation system coordinates in VOLCANO.IN. If the user changes the *x* and *y* coordinates of the simulation system, the user must also change the magma scenario probability because the magma scenario probability depends on the dimensions of the simulation system.
2. The VOLCANO module automatically selects one of the two processing modes via the INQUIRE statement. The statement queries the system for the presence of the file TPA\_VOL.VGD. If the file is present in the current working directory, the TPA executive mode is selected; otherwise, the stand-alone mode is selected.
3. To run the VOLCANO code as a part of the TPA code, ensure that TPA\_VOL.VGD, LHSFIL, and MAPFIL are in the local directories. The code automatically verifies the existence of these files. If the file names of LHSFIL and MAPFIL specified in TPA\_VOL.VGD do not agree with the files available, the program will be aborted with error messages.

4. The TPA executive mode makes use of the TPA\_VOL.VGD file as a means of receiving global data parameters from the TPA executive. In this mode, VOLCANO also reads its sampled parameters from the LHS output file LHSFIL. This file name is provided in the global data file on line 2 (see Description about TPA\_VOL.VGD). The LHS sampled data file contains all the sampled variables for all vectors for all modules in the TPA system. The VOLCANO module requires additional information to identify the proper data specifically assigned to it. This locator information is contained in the VOLCANO map file (name on line 3) and the number of parameter vectors to be executed on line 4.
5. To run the VOLCANO code in the stand-alone mode, ensure that TPA\_VOL.VGD is not in the local directory. The code looks for the file TPA\_VOL.VGD to determine if the code should be run in either TPA mode or in the stand-alone mode.

### **3.4 USER SUPPORT**

For technical assistance contact:

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210/522-3805

### **3.5 VOLCANO CODE STRUCTURE**

The VOLCANO code contains five major portions: (i) reading input files; (ii) setup of the simulation system; (iii) Monte Carlo simulations of volcanic events; (iv) calculations of damage to the repository; and (v) output of the simulation results. Table 3-1 lists the subroutines called in the VOLCANO main program.

### **3.6 INSTRUCTION FOR CODE MAINTENANCE**

Hints for code maintenance are provided in the following sections.

**Table 3-1. List of subroutines in the VOLCANO main program**

<b>Subroutine</b>	<b>Purpose</b>
RDENV	Read volcano model parameters and data defining the repository configuration
RDRUN	Read input parameters and random number vectors for the TPA mode
SETUP	Compute the area for each zone and check the consistency of input parameters
WREL	Read TPA mode input file and calculate the amount of radioactivity for each container
GETDC	Locate a dike or a cone event, and determine its dimensions
DDAMAG	Determine the intercept area of a dike with the repository
CDAMAG	Determine the intercept area of a cone with the repository
AIROUT	Write the results of radioactivity release to air to the output file VOLAIR.DAT
DITOUT	Write the results of the damaged area to the output file VOLSOT.DAT
ECHO1	Write the summary of VOLCANO input parameters to the output file VOLCANO.OUT
ECHO2	Write the sampling results about volcanic events to the output files VOLCANO.OUT and VOLCANO.HST
ECHO3	Write the calculation results about damages to the repository containers to the output files VOLCANO.OUT and VOLCANO.HST

### **3.6.1 Source Code**

The source code of VOLCANO is VOLCANO.PRE, which resides in the SwRI CTC VAX 8700 computer. Users need to convert VOLCANO.PRE into VOLCANO.FOR, which is in the standard Fortran 77 code compatible for both CRAY and VAX. To convert VOLCANO.PRE, users need to have a copy of PREFOR.EXE code in the VAX local directory. A description of the FORTRAN preprocessor program preFOR can be found in Sagar and Janetzke (1993). Running PREFOR.EXE will prompt the user to supply the input file name and output file name. An example of the job sequence is shown below:

Example of Running PREFOR.EXE (User's input is shown in lower case)

```
$RUN PREFOR
PREFOR.2.0 26 October 1990 RON JANETZKE
CONVERT A PREFOR FILE TO A FORTRAN COMPILE FILE
ENTER THE UPDATE/PREFOR SOURCE FILE NAMEPATH NAMES UP TO 64
CHARACTERS ARE ALLOWED >>
volcano.pre
ENTER OUTPUT (COMPILE) FILE NAME
PATH NAME UP TO 64 CHARACTERS ARE ALLOWED >>
volcano
THE REQUESTED COMPILE NAME ALREADY EXISTS
FILE = VOLCANO.FOR

DO YOU WANT TO DELETE IT?
Y

1 DECKS PROCESSED
13 INSERT DECKS PROCESSED
2145 EXECUTABLE LINES IN THE COMPILE FILE
1465 COMMENT LINES IN THE COMPILE FILE
3610 TOTAL LINES IN THE COMPILE FILE
FORTRAN STOP
```

### 3.6.2 Compilation and Link

The FORTRAN file VOLCANO.FOR created by PREFOR can be compiled and linked in either VAX or CRAY using their standard commands.

```
Command for compilation
$ FORTRAN VOLCANO
Command for linking
$ LINK VOLCANO
```

### 3.6.3 Common Block Variables

In order to maintain the VOLCANO code properly, users need to know the functions of some key variables in the common blocks. Most of these variables are used in the input and output files. The important variables of the VOLCANO code are contained in the common blocks: RUNPAR, ENVPAR, PANELS, and RESULTS. These common blocks are briefly described in the following.

- RUNPAR common block: This block contains variable specifying the volcano time, and vectors of random numbers.
- ENVPAR common block: This block includes variables about the volcano parameters.
- PANELS common block: This block contains variables specifying the number of zones in the repository, the coordinates of panels, and the number of containers in each zone.

- **RESULTS common block:** This block contains output variables about the total area damaged, the ratio of damaged area to the total area, and the amount of radioactivity release. It also contains input variables about the number of waste containers for each zone.

The VOLCANO code also has a few other common blocks that contain variables about the radioactive elements, their half-life time, and other related information. These common blocks include CNUCL1, CNUCL4, CNUCL5, and CNUCL6. They are used to compute the amount of radioactive release. In addition to these common blocks, the VOLCANO code has a set of parameters that define the dimensions of arrays in the common blocks. These parameters are self-explanatory in the code.

## 4 INSTRUCTIONS FOR DATA INPUT

The data input for VOLCANO depends on whether the code is run in the stand-alone mode or in the TPA as a CM. In total the VOLCANO code has five input files. For the stand-alone mode, only two files VOLCANO.IN and TEST15.NUC are used. For the TPA mode, the code uses three additional input files: TPA\_VOL.VGD, LHSFIL, and MAPFIL. Note that LHSFIL and MAPFIL are actually the character variables that contain the file names. The file names of LHSFIL and MAPFIL are specified in the input file TPA\_VOL.VGD. Table 4-1 lists the VOLCANO input files and their basic properties. In the following sections, we describe these input files.

**Table 4-1. List of VOLCANO input files**

File Name	Unit No.	Stand-Alone Mode	TPA Mode	Description
VOLCANO.IN	10	YES	YES	Volcano parameters
TEST15.NUC	9	YES	NO	Nuclide radioactivity data
TPA_VOL.VGD	11	NO	YES	TPA mode file name specification
LHSFIL*	10	NO	YES	Random number vectors
MAPFIL*	10	NO	YES	Variable name for LHSFIL

\* LHSFIL and MAPFIL are character variables that contain the file name. The LHSFIL and MAPFIL file names are provided in the TPA\_VOL.VGD file by the TPA executive.

### 4.1 DESCRIPTION OF VOLCANO.IN

The input file VOLCANO.IN contains simulation parameters and the repository geometry. A sample of VOLCANO.IN is shown. For the purpose of description, line numbers are added in the left column in the following example. The actual input file should not have line numbers. All numbers in the file need only be separated by spaces.

# EXAMPLE OF VOLCANO.IN

```

Line number      input data
1  Parameter values (all dimensions to follow are in meter)
2  39912669      seed for RAN1 if not TPA mode
3   -6000 6000   system X coordinates
4   -7500 4500   system y coordinate
5   1000 40000   min area, max area
6   1000 4000    min length, max length
7    1    10     min width, max width
8  75    90      min angle, max angle in degrees (cannot cross 0)
9    1          1=pick radius for cone formation, 2=pick area
10 25    100     min radius, max radius
11      Coordinates of nodes used to build panel rectangles
12      43=number of nodes
13          I          X          Y
14          1          0.0          0.0
15          2          -36.8         -208.9
16          3          -46.6         -264.1
17          4          -111.1        -630.4
18          5          -185.2       -1050.6
19          6          -259.3       -1470.8
20          7          -333.4       -1891.1
21          8          -407.5       -2311.3
22          9          -481.6       -2731.5
23         10          -555.7       -3151.8
24         11          -592.4       -3359.8
25         12         -1137.9         200.6
26         13         -1174.8          -8.3
27         14         -1249.1        -429.7
28         15         -1323.2        -849.9
29         16         -1397.3       -1270.2
30         17         -1243.3       -1297.3
31         18         -1317.4       -1717.6
32         19         -1168.8       -1743.8
33         20         -1242.9       -2164.0
34         21         -1091.6       -2190.7
35         22         -1165.7       -2610.9
36         23          -901.0       -2657.6
37         24          -975.1       -3077.8
38         25          -10.9         -61.8
39         26          563.6        -163.1
40         27          527.9        -365.5
41         28          707.4        -397.1
42         29          642.9        -763.3
43         30          837.7        -797.7
44         31          763.6       -1217.9
45         32          801.4       -1224.6
46         33          727.3       -1644.8
47         34          651.7       -1631.5
48         35          577.6       -2051.7

```



49	36	372.3	-2015.5
50	37	298.2	-2435.7
51	38	125.3	-2405.3
52	39	51.2	-2825.5
53	40	13.3	-2818.8
54	41	-60.8	-3239.1
55	42	14.9	-3252.4
56	43	-21.8	-3460.4
57	Node/Panel connectivity table		
58	17	7	= number of panels, number of zones
59	I	C1	C2 C3 C4 Zone NcansZ
60	1	25	3 27 26 1 710
61	2	3	4 29 28 1 1625
62	3	4	5 31 30 2 1800
63	4	5	6 33 32 3 1875
64	5	6	7 35 34 3 1725
65	6	7	8 37 36 3 1275
66	7	8	9 39 38 4 975
67	8	9	10 41 40 4 900
68	9	10	11 43 42 4 1050
69	10	23	24 10 9 4 750
70	11	21	22 9 8 5 1275
71	12	19	20 8 7 6 1575
72	13	17	18 7 6 6 1875
73	14	15	16 6 5 6 2175
74	15	14	15 5 4 2 2175
75	16	13	14 4 2 2 2175
76	17	12	13 2 1 7 1073

#### Explanation of VOLCANO.IN File

- Line 1: Comment line to remind the users that all input variables are in meters.
- Line 2: A seed number for random number generation. It should be a large integer. It is only used for the stand-alone mode. Since the location of the sampled volcanic event depends on the seed number, the seed number should be changed whenever a different location is desired.
- Line 3: The left and right coordinates of the simulation system.
- Line 4: The lower and upper coordinates of the simulation system.
- Line 5: Minimum and maximum area of the volcano dike.
- Line 6: Minimum and maximum length of the dike.
- Line 7: Minimum and maximum width of the dike.

- Line 8: Minimum and maximum angle of the dike in degrees measured counterclockwise from the east. Thus north is at 90°.
- Line 9: Parameter for choosing the sampling method. A value of 1 means to choose radius randomly within the range for the cone. A value of 2 means to choose area randomly within the range and then to calculate the radius. This parameter is used only for choosing the radius of the cone.
- Line 10: Minimum and maximum radius of the cone.
- Line 12: Number of nodes specifying the repository.
- Lines 14-56: Specifying the x and y coordinates of 43 nodes.
- Line 58: Number of panels and number of zones in the repository.
- Lines 60-76: A table specifying the configuration of 17 rectangular panels. The first number in each line is the panel number, the next four numbers are indices that specify the coordinate of a corner. The index is used to find the coordinate according to the table given in lines 14-56. The sixth number is the index for the zone. The seventh number gives the number of waste containers in the panel.

## 4.2 DESCRIPTION OF TEST15.NUC

TEST15.NUC is used only during the stand-alone mode to input nuclide data, including radionuclide inventory and properties. The file is used for testing and is not expected to be modified. Note that TPA\_VOL.VGD is used in the case of TPA mode for supplying the nuclide data. TEST15.NUC is read in the subroutine RDELEM. The file has two portions; the first portion contains data about radioactive elements and their properties, and the second portion contains isotope data. The first line of TEST15.NUC indicates the number of elements in the inventory. For each element, the file then specifies the element name, the number of chains in which it appears, solubility in the unit of gram moles per liter, and retardation coefficient. For each chain in the element, TEST15.NUC specifies the locations in the chains of all elements. After the data about radioactive elements, TEST15.NUC contains data about isotopes. For each chain, it gives the atomic weight, the name, number of parents, half-life in years, and curies. The structure of TEST15.NUC is explained in detail in the SOTEC manual (Sagar et al., 1992). The listing of TEST15.NUC is given below:

### List of TEST15.NUC

```

18
CM      2 .24E-3    100.0
1 1
2 1
PU      4 .01E-0    100.0
1 2
3 2
4 1
5 1

```

U	6	0.95E-0	2.0	
1 3				
1 4				
2 4				
3 3				
4 2				
5 2				
AM	2	.24E-3	200.0	
2 2				
3 1				
NP	1	.237E-0	50.0	
2 3				
TH	2	2.3E-07	100.0	
2 5				
5 3				
RA	1	6.8E-5	30.0	
5 4				
PB	1	1000.	20.0	
5 5				
CS	2	1000.	200.0	
6 1				
7 1				
I	1	1000.		
8 1				
SN	1	1.26E-07	10.0	
9 1				
TC	1	1000.	1.0	
10 1				
ZR	1	9.4E-09	3.0	
11 1				
SR	1	0.072E-0	5.0	
12 1				
NI	1	0.59E-0	2.0	
13 1				
C	1	1000.	1.0	
14 1				
SE	1	7.9E-08	1.0	
15 1				
NB	1	1000.	20.0	
16 1				
16 4	5 3 2 5 1 1 1 1 1 1 1 1 1 1			
	246.0	CM246	5.50E03	0.0655
	242.0	PU242	3.79E05	3.61
	238.0	U238	4.51E09	0.666
	234.0	U234	2.47E05	0.0
	245.0	CM245	9.30E03	0.3066
	241.0	AM241	4.58E02	3.55
	237.0	NP237	2.14E06	0.662
	233.0	U233	1.62E05	6.01E-5
	229.0	TH229	7.34E03	3.17E-7
	243.0	AM243	7.95E03	35.9

239.0	PU239	2.44E04	657
235.0	U235	7.10E08	0.0361
240.0	PU240	6.58E03	11.07
236.0	U236	2.39E07	0.0538
238.0	PU238	8.60E01	4890.0
234.0	U234	2.47E05	2.5
230.0	TH230	8.00E04	2.79E-4
226.0	RA226	1.60E03	7.75E-7
210.0	PB210	2.23E01	9.79E-8
137.0	CS137	3.00E01	17.24E4
135.0	CS135	3.00E06	0.7245
129.0	I129	1.59E07	0.06615
126.0	SN126	1.00E05	1.63
99.0	TC99	2.15E05	27.5
93.0	ZR93	9.50E05	4.05
90.0	SR90	2.90E01	12.01E4
59.0	NI59	8.00E04	10.82
14.0	C14	5.73E03	3.26
79.0	SE79	6.49E04	0.859
94.0	NB94	2.03E04	2.69

### 4.3 DESCRIPTION OF TPA\_VOL.VGD

For the TPA mode, the input data about radioactivity inventory are stored in TPA\_VOL.VGD. Because TPA\_VOL.VGD is created by the executives of the TPA program, users should not modify it. An example of TPA\_VOL.VGD is given in the following. Note that the second and third lines indicate the file names for LHSFIL and MAPFIL. In sequence, the VOLCANO code reads TPA\_VOL.VGD for the following information:

- Title of the file
- LHS data file name for LHSFIL
- VOLCANO map file name for MAPFIL
- Number of random numbers in the vector of LHSFIL
- Simulation stop time
- Volcano code processing flag; flag = 1 for the normal run
- Value for the variable kmthm: total repository inventory in 1,000 metric tons
- Number of zones in the repository
- Number of containers in each zone
- Number of chains

- Number of nuclides
- Number of elements
- Number of location index for each chain
- Variable names for each nuclide
- Atomic mass
- Location indices
- Curies for each chain
- Half-life year

EXAMPLE of TPA\_VOL.VGD

TITLE: TPA temporary file for VOLCANO global parameters.

lhs0000.out

volmap.dat

```

      8
10080.0
      1
      70.0
      7
2335      6150      4875      3675      1275      5625      1073
12
21
15
      3      3      2      2      4      1      1
      1
      1      1      1      1
'CM246 ', 'PU242 ', 'U238 ', 'CM245 ', 'AM241 ',
'NP237 ', 'AM243 ', 'PU239 ', 'PU240 ', 'U236 ',
'U234 ', 'TH230 ', 'RA226 ', 'PB210 ', 'CS135 ',
'I129 ', 'TC99 ', 'NI59 ', 'C14 ', 'SE79 ',
'NB94 ',
246.0 242.0 238.0 245.0 241.0 237.0 243.0
239.0 240.0
236.0 234.0 230.0 226.0 210.0 135.0 129.0
99.0 59.0
14.0 79.0 94.0
1 2 3 1 4 5 4 2
2 3 3 6 7 8 9 10 11
12 13 14 15
0 1 1 2 1 2 0 1
0 1 0 1 2 3 0 0 1 0
0 0 0

```

```

0      0      0      0      0      0      0      0      0
0 0      0      0      0      0      0      0      0      0

0      0      0
0.0    1.0    1.0      0.0      1.0      1.0      0.0    1.0      0.0
1.0    0.0    1.0      1.0      1.0      0.0      0.0    0.0      0.0
0.0    0.0    0.0
0.0    0.0    0.0      0.0      0.0      0.0      0.0    0.0
0.0    0.0    0.0      0.0      0.0      0.0      0.0    0.0
0.0    0.0      0.0      0.0
0.258E-01    0.160E+01    0.318E+00    0.126E+00    0.164E+04
0.288E+00    0.155E+02    0.308E+03    0.508E+03
0.240E+00    0.189E+01    0.129E-03    0.367E-06    0.471E-07
0.350E+00    0.295E-01    0.123E+02    0.356E+01
0.154E+01    0.381E+00    0.793E+00
0.473E+04    0.379E+06    0.447E+10    0.850E+04    0.432E+03
0.214E+07    0.738E+04    0.241E+05    0.654E+04
0.234E+08    0.245E+06    0.770E+05    0.160E+04    0.223E+02
0.230E+07    0.157E+08    0.213E+06    0.800E+05
0.573E+04    0.650E+05    0.203E+05

```

#### 4.4 DESCRIPTION OF LHSFIL

The TPA executive mode makes use of the TPA\_VOL.VGD file as a means of receiving global data parameters from the TPA executive. In this mode, VOLCANO also reads its sampled parameters from the LHS output file LHSFIL. As mentioned previously, LHSFIL is the variable that contains the file name for the vector of random number. The file name is specified in the second line of TPA\_VOL.VGD file. In the previous example of TPA\_VOL.VGD, the file name is lhs0000.out. LHSFIL file is created by the TPA program. For more information about the LHS file, see Section 2.4.1 of the TPA Computer Code (Sagar and Janetzke, 1993).

The LHS sampled data file contains all the sampled variables for all vectors for all modules in the TPA system. Thus, the VOLCANO module requires additional information to identify the proper data specifically assigned to it. This locator information is contained in the VOLCANO map file (name on line 3) and the vector number on line 4.

The LHS data file is a long file containing vectors of random numbers used by the TPA modules including VOLCANO code. Therefore, no example is given here. Users of VOLCANO code should not modify it. More information about LHSFIL can be found in the TPA documentation.

#### 4.5 DESCRIPTION OF MAPFIL

Similar to LHSFIL, MAPFIL is a variable name containing the file name of the VOLCANO MAP file, which is specified in the third line of TPA\_VOL.VGD. The contents of the LHS map file depend on the organization of the LHS input file. It does not change from vector to vector for a given LHS output file. A more detailed description of the LHS map file is given in Section 3.2 of the TPA Computer Code (Sagar and Janetzke, 1993). The VOLCANO code reads the MAPFIL file in sequence for the following information:

- Title of the file
- Column headings
- Variable name, index of the vector of random numbers corresponding to the variable, and number count

An example of MAPFIL file is shown below.

Example of MAPFIL file

VOLCANO MAP FILE		
VAR	INDEX	COUNT
time	344	1
u1	345	1
u2	346	1
u3	347	1
u4	348	1
u5	349	1
u6	350	1
u7	351	1
u8	352	1

## 5 DESCRIPTION OF OUTPUTS

The VOLCANO simulations produce two important results for PAs: (i) the number of waste containers damaged; and (ii) the amount of radionuclides released to the air during magmatic extrusive events. From the interception area of the repository, the program calculates the number of nuclear waste canisters damaged by magma activity and outputs the results to VOLSOT.DAT file. This file is used for computing the source term in the TPA CM SOTEC (Sagar and Janetzke, 1993). For extrusive magmatic events, the program calculates the release of radioactivity to air for each radionuclide. The amount of radionuclides released to the air is considered to be zero for intrusive magmatic events. The results of the radionuclide release calculations are output to a file VOLAIR.DAT, which is then used in AIRCOM to calculate human dose and in the TPA Exec to calculate the total release (Sagar and Janetzke, 1993).

In addition, the VOLCANO code produces two output files, VOLCANO.OUT and VOLCANO.HST, that serve mainly for diagnosis and verification. VOLCANO.OUT is used for detailed diagnostics of the simulations in a single run, and VOLCANO.HST is used for summarizing the simulation results when VOLCANO is run for a series of times during the TPA mode. These two files are then read by the post-analysis programs to generate plots of volcanic dike locations, including some plots shown in this report.

Table 5-1 lists the output files and their usages. The output files are described in detail in the following sections.

### 5.1 DESCRIPTION OF VOLCANO.OUT

VOLCANO.OUT contains the summary and diagnostic information of the simulation. The file is intended for scientists and programmers to verify the volcano model and calculations. Because VOLCANO.OUT is long and tedious, no example is given here. However, a complete listing of VOLCANO.OUT for a sample problem is given in Appendix A. VOLCANO.OUT contains complete descriptions of the results and should be easy to understand. It provides the following information in sequence:

- Recap of the input parameters
- Recap of area and waste containers in each zone
- Recap of occurrence time of the magma event and random numbers used
- Coordinates of the dike and cone, length, width and angle of dike, and radius of cone
- The area of the magma activity in each zone
- The fraction of area intercepted by the magma activity in each zone
- The number of waste containers disrupted by the magma activity
- The amount of radionuclide activity released from each zone



**Table 5-1. List of VOLCANO output files**

<b>File Name</b>	<b>Unit No.</b>	<b>Stand-Alone Mode</b>	<b>TPA Mode</b>	<b>Description</b>
VOLCANO.OUT	20	Yes	Yes	Diagnostics of simulations
VOLCANO.HST	22	Yes	Yes	Summary of volcano simulation results
VOLAIR.DAT	21	Yes	Yes	Radioactivity release results
VOLSOT.DAT	21	Yes	Yes	Results of repository damages

## **5.2 DESCRIPTION OF VOLCANO.HST**

VOLCANO.HST is used for diagnosing the simulation results during the TPA mode. During the TPA mode, the VOLCANO code is run repetitively. VOLCANO.HST keeps track of the sampled volcanic activity for each run. It saves information about:

- the index of LHS vector of random number in the TPA run
- time of the simulated volcanic event and the simulation stop time
- the event type, 1 for the dike event and 2 for the cone event
- the coordinates of the dike or cone sampled
- the length and width of the dike
- the radius of the cone and the angle of the dike

Also, for each zone, information is saved about:

- the area intercepted by the dike
- the fraction of area hit
- the number of containers damaged

- the inventory per container
- the amount of release

A partial list of a VOLCANO.HST file follows. Note that the area hit and the amount of release are often zero because the chance of a volcanic event occurring in the repository is very small.

#### Example of VOLCANO.HST

```

          9 lhs vector number
          2565.819          10080.000 time of event, simulation stop
time
  2 event type (1=dikey, 2=cone)
    -4283.780          549.859 (x,y) coords of dike/cone
      3167.043          2.356 length and width of dike
        61.359          85.158 radius of cone, angle of dike
zone#      areaHit      areaFrac      NcansHit      inven/can
release
  1          0.00      0.00000000          0          2060.9221
  0.0000
  2          0.00      0.00000000          0          2060.9221
  0.0000
  3          0.00      0.00000000          0          2060.9221
  0.0000
  4          0.00      0.00000000          0          2060.9221
  0.0000
  5          0.00      0.00000000          0          2060.9221
  0.0000
  6          0.00      0.00000000          0          2060.9221
  0.0000
  7          0.00      0.00000000          0          2060.9221
  0.0000
TOTALS          0.00      0.00000000          0
0.000000

```

### 5.3 DESCRIPTION OF VOLSOT.DAT

VOLSOT.DAT is an output file to be used as input to the source term in the TPA CM SOTEC. The file is short, containing the time of the volcanic event in years, the number of zones, and the ratio of the area damaged by magma activity to the total area for each zone. An example is shown below.

#### Example of VOLSOT.DAT

```

CELL AREA RATIOS FROM VOLCANO TO SOTEC
0.459E+04          TIME (in years)
  7          NUMBER OF CELLS (zones)
  1 0.00000000
  2 0.0044500
  3 0.00000000
  4 0.00000000

```

```

5 0.0000000
6 0.0008806
7 0.0063031

```

## 5.4 DESCRIPTION OF VOLAIR.DAT

VOLAIR.DAT is the output file that summarizes the simulation results about radioactivity release to the atmosphere. The file is used as input to the radioactivity release assessment module AIRCOM in the TPA program. The file format is specified by the TPA program. The first two lines of the file indicate the tile and the number of radioactive element. For each element, there are seven lines. The contents of these seven lines are as follows:

- 1st line: The name of the radioactive element.
- 2nd line: The number of lines to be followed for this element.
- 3rd line: Initial time, and initial amount of radioactivity release. The values are always 0.0 and 0.0.
- 4th line: The time of volcanic event minus 1 and 0.0 for the amount of radioactivity release.
- 5th line: The time of volcanic event in years, and the amount of radioactivity release.
- 6th line: The time of volcanic event plus 1 yr, and 0.0 for the amount of radioactivity release.
- 7th line: The stop time of the simulation and 0.0 for the amount of radioactivity release.

A partial list of VOLAIR.DAT is given below.

### Example of VOLAIR.DAT

```

ACTIVITY RELEASE DATA FROM VOLCANO
21
CM246
5
    0.0      0.0
    0.0      0.0
    0.0      0.0
    0.0      0.0
10080.0      0.0
PU242
5
    0.0      0.0
    0.0      0.0
    0.0      0.0
    0.0      0.0
10080.0      0.0
U238
5

```

	0.0	0.0
	0.0	0.0
	0.0	0.0
	0.0	0.0
10080.0	0.0	0.0
CM245		
5		
	0.0	0.0
	0.0	0.0
	0.0	0.0
	0.0	0.0
10080.0	0.0	0.0
AM241		
5		
	0.0	0.0
	0.0	0.0
	0.0	0.0
	0.0	0.0
10080.0	0.0	0.0
NP237		
5		
	0.0	0.0
	0.0	0.0
	0.0	0.0
	0.0	0.0
10080.0	0.0	0.0

## 6 VERIFICATION, BENCHMARKING, AND VALIDATION STATUS

The VOLCANO module is able to run in stand-alone mode or as part of the TPA system. This dual capability permits the output from both modes to be compared using the *diff* utility to ensure common results. The debugger was used to check the global data values after the global data file was read in the VOLCANO code. The stand-alone version of VOLCANO is considered the benchmark version.

The validation of VOLCANO code depends critically on the generation of random number vectors. In the TPA mode, these random number vectors are generated by the TPA Exec and passed to the VOLCANO code through the input files. Since the generation of random number vectors has been validated separately during the development of the TPA Exec, the Monte Carlo sampling of magmatic events in the simulations can be easily verified. The location of magmatic events had been checked to distribute uniformly as required by the simulation model. Computation of the radionuclide releases to air was based on subroutines taken from SOTEC code (Sagar et al., 1992). These VOLCANO subroutines have been verified by SOTEC authors.

The VOLCANO code was developed on the VAX/VMS system. All changes to VOLCANO, while integrating it with the TPA system, were also kept online using the version extension feature. Additional information is provided in the change request forms, a hard copy of which has been maintained since November 13, 1992.

The VOLCANO code, as a CM of the TPA code, is managed under procedures set out in CNWRA Technical Operating Procedure (TOP)-018. The production of this user's manual is one of the requirements of TOP-018. The VOLCANO user's manual will likely be updated during IPA Phase 3.

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**APPENDIX A:**  
**SAMPLE PROBLEMS**



## A.1 OVERVIEW

The input and output files of two sample problems from running VOLCANO are presented in this microfilm. One sample problem is taken from the TPA mode, and the other is taken from the stand-alone mode. Before running VOLCANO under the stand-alone mode, it is necessary that TPA\_VOL.VGD not be present in the local directory. Presented first are the input and output files of Sample Problem 1 for the TPA mode in sections A.2 through A.9. The input and output files of Sample Problem 2 for the stand-alone mode are shown in Sections A.10 through A.15.

## A.2 LISTING OF VOLCANO.IN

### Sample Problem 1: Input file for TPA mode

Parameter values (all dimensions to follow are in meters)

89912665	seed for RAN1 if not TPA mode
-6000 6000	system X coordinates
-7500 4500	system y coordinate
1000 40000	min area, max area
1000 4000	min length, max length
1 10	min width, max width
75 90	min angle, max angle in degrees (cannot cross 0)
1	1=pick radius for cone formation, 2=pick area
25 100	min radius, max radius

Coordinates of nodes used to build panel rectangles

43 = number of nodes

I	X	Y
1	0.0	0.0
2	-36.8	-208.9
3	-46.6	-264.1
4	-111.1	-630.4
5	-185.2	-1050.6
6	-259.3	-1470.8
7	-333.4	-1891.1
8	-407.5	-2311.3
9	-481.6	-2731.5
10	-555.7	-3151.8
11	-592.4	-3359.8
12	-1137.9	200.6
13	-1174.8	-8.3
14	-1249.1	-429.7
15	-1323.2	-849.9
16	-1397.3	-1270.2
17	-1243.3	-1297.3
18	-1317.4	-1717.6
19	-1168.8	-1743.8
20	-1242.9	-2164.0
21	-1091.6	-2190.7
22	-1165.7	-2610.9
23	-901.0	-2657.6
24	-975.1	-3077.8

25	-10.9	-61.8
26	563.6	-163.1
27	527.9	-365.5
28	707.4	-397.1
29	642.9	-763.3
30	837.7	-797.7
31	763.6	-1217.9
32	801.4	-1224.6
33	727.3	-1644.8
34	651.7	-1631.5
35	577.6	-2051.7
36	372.3	-2015.5
37	298.2	-2435.7
38	125.3	-2405.3
39	51.2	-2825.5
40	13.3	-2818.8
41	-60.8	-3239.1
42	14.9	-3252.4
43	-21.8	-3460.4

Node/Panel connectivity table

17 7 = number of panels, number of zones

I	C1	C2	C3	C4	Zone	NcansZ
1	25	3	27	26	1	710
2	3	4	29	28	1	1625
3	4	5	31	30	2	1800
4	5	6	33	32	3	1875
5	6	7	35	34	3	1725
6	7	8	37	36	3	1275
7	8	9	39	38	4	975
8	9	10	41	40	4	900
9	10	11	43	42	4	1050
10	23	24	10	9	4	750
11	21	22	9	8	5	1275
12	19	20	8	7	6	1575
13	17	18	7	6	6	1875
14	15	16	6	5	6	2175
15	14	15	5	4	2	2175
16	13	14	4	2	2	2175
17	12	13	2	1	7	1073

### A.3 LISTING OF TPA\_VOL.VGD

#### Sample Problem 1: Input file for TPA mode

TITLE: TPA temporary file for VOLCANO global parameters.

lhsoooo.out

volmap.dat

9

10080.0

1

70.0

7	12	21	15	3	3	2	2	4	1	1
2335	6150	4875	3675	1275	5625	1073				
1										
1	1	1	1	1						
'CM246'	'PU242'	'U238'	'CM245'	'AM241'						
'NP237'	'AM243'	'PU239'	'PU240'	'U236'						
'U234'	'TH230'	'RA226'	'PB210'	'CS135'						
'I129'	'TC99'	'NI59'	'C14'	'SE79'						
'NB94'										
246.0	242.0	238.0	245.0	241.0	237.0	243.0				
239.0	240.0									
236.0	234.0	230.0	226.0	210.0	135.0	129.0				
99.0	59.0									
14.0	79.0	94.0								
1	2	3	1	4	5	4				
2	2									
3	3	6	7	8	9	10				
11	12									
13	14	15								
0	1	2	0	1	2	0				
1	0									
1	0	1	2	3	0	0				
0	0									
0	0	0	0	0	0	0				
0	0	0	0	0	0	0				
0	0	0	0	0	0	0				
0	0	0	0	0	0	0				
0.0	1.0	1.0	0.0	1.0	1.0	0.0				
1.0	0.0									
1.0	0.0	1.0	1.0	1.0	0.0	0.0				
0.0	0.0	0.0	0.0	0.0	0.0	0.0				
0.0	0.0	0.0	0.0	0.0	0.0	0.0				
0.0	0.0	0.0	0.0	0.0	0.0	0.0				
0.0	0.0	0.0	0.0	0.0	0.0	0.0				
0.0	0.0	0.0	0.0	0.0	0.0	0.0				
0.0	0.0	0.0	0.0	0.0	0.0	0.0				
0.0	0.0	0.0	0.0	0.0	0.0	0.0				
0.258E-01	0.160E+01	0.318E+00	0.126E+00	0.164E+04						
0.288E+00	0.155E+02	0.308E+03	0.508E+03							
0.240E+00	0.189E+01	0.129E-03	0.367E-06	0.471E-07						
0.350E+00	0.295E-01	0.123E+02	0.356E+01							
0.154E+01	0.381E+00	0.793E+00								
0.473E+04	0.379E+06	0.447E+10	0.850E+04	0.432E+03						
0.214E+07	0.738E+04	0.241E+05	0.654E+04							

0.234E+08	0.245E+06	0.770E+05	0.160E+04	0.223E+02
0.230E+07	0.157E+08	0.213E+06	0.800E+05	
0.573E+04	0.650E+05	0.203E+05		

#### A.4 LISTING OF VOLMAP.DAT

Sample Problem 1: Input file MAPFIL for TPA mode

VOLCANO MAP FILE		
VAR	INDEX	COUNT
time	344	1
u1	345	1
u2	346	1
u3	347	1
u4	348	1
u5	349	1
u6	350	1
u7	351	1
u8	352	1

#### A.5 LISTING OF LHSOOOO.OUT

Sample Problem 1: Input file LHSFIL for TPA mode

	1	445		
0.0000000E+00	0.4117914E-15	0.1079873E-14	0.4317780E-15	
0.6948061E-15				
0.1367714E-14	0.9700000E-15	0.9700000E-15	0.9700000E-15	
0.9700000E-15				
0.9700000E-15	0.1400000E-03	0.2700000E-04	0.4100000E-04	
0.4600000E-04				
0.4600000E-04	0.4600000E-04	0.4600000E-04	0.4600000E-04	
0.4600000E-04				
0.4600000E-04	0.7851527E+02	0.8750129E+02	0.8542743E+02	
0.2519474E+02				
0.9487418E+02	0.1000000E+02	0.1000000E+02	0.1000000E+02	
0.1000000E+02				
0.1000000E+02	0.6904408E-19	0.5385071E-14	0.2905478E-18	
0.5021839E-15				
0.1071653E-15	0.2013413E-14	0.5519280E-17	0.2350892E-15	
0.7071300E-14				
0.7128042E-15	0.3502290E-16	0.1470295E-14	0.1222044E-15	
0.4125664E-15				
0.7720767E-01	0.4282004E+00	0.2263115E+00	0.3749822E+00	
0.2883477E+00				
0.3018759E+00	0.2781849E+00	0.4100000E-04	0.4600000E-04	
0.4600000E-04				
0.1300000E-04	0.4600000E-04	0.1300000E-04	0.4600000E-04	
0.1603219E+01				

0.1958874E+01	0.2217607E+01	0.3001033E+01	0.1996644E+01
0.3500573E+01			
0.2347029E+01	0.4527764E+01	0.4490940E+01	0.4222242E+01
0.3642471E+01			
0.5282910E+01	0.3540314E+01	0.4300340E+01	0.2600000E-02
0.2600000E-02			
0.2600000E-02	0.2600000E-02	0.2600000E-02	0.2600000E-02
0.2600000E-02			
0.2076318E+02	0.9597783E-03	0.6896393E-01	0.3365563E+00
0.5530642E+00			
0.1973783E+01	0.1478558E+01	0.7723369E+01	0.2118993E+01
0.9354415E+00			
0.1147036E+00	0.6802272E-02	0.2016920E+00	0.4112994E-01
0.3907600E+00			
0.1230926E+00	0.3160231E-03	0.3834204E-02	0.5952745E-03
0.0000000E+00			
0.2935873E-03	0.6822447E-03	0.1471007E-03	0.8610426E-01
0.5944489E+01			
0.1311599E+01	0.2610728E+02	0.4049637E+01	0.4550491E-01
0.9283822E+01			
0.1156219E-01	0.1352185E-02	0.6810959E-03	0.1189878E-01
0.5815663E-03			
0.8860707E-03	0.2475948E-02	0.1959209E+00	0.1649165E+01
0.5498423E-01			
0.6881540E+00	0.3824780E+00	0.1315296E+00	0.1066301E+01
0.1963184E+01			
0.7345126E+01	0.5394581E+01	0.1856094E+00	0.3223378E+01
0.2596344E+01			
0.1469430E+01	0.2118087E-02	0.1195880E-01	0.1231739E+00
0.4459665E-02			
0.5020721E-02	0.2866796E-01	0.3106785E-01	0.9356662E+00
0.1283342E+00			
0.6889531E+01	0.3000281E+00	0.4761200E+02	0.2285179E+01
0.1041608E+03			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.2713922E-05	0.0000000E+00
0.0000000E+00			
0.1313786E-02	0.0000000E+00	0.8435598E-02	0.0000000E+00
0.9219418E-02			
0.3100911E-01	0.9356282E-01	0.1327148E-02	0.1161690E-02
0.1469526E-02			
0.1013640E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.4888818E-02
0.1366557E-02			
0.1971645E-01	0.6320526E-03	0.4235195E-03	0.1184091E+00
0.2033624E-01			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			

0.0000000E+00	0.0000000E+00	0.1340000E-01	0.9700000E-01
0.4900000E-01			
0.3400000E-01	0.3900000E-01	0.3500000E-01	0.3900000E-01
0.4800000E-03			
0.3400000E-02	0.1700000E-02	0.1200000E-02	0.1400000E-02
0.1300000E-02			
0.1400000E-02	0.8000000E-02	0.3400000E-02	0.8900000E+00
0.4500000E-01			
0.7100000E+00	0.2800000E-01	0.7100000E+00	0.2499538E+06
0.1188815E+03			
-0.1157885E+01	-0.3263571E+01	0.1025213E+03	0.1438610E-01
0.1246839E+04			
0.1170618E+04	0.3344116E-04	0.1000000E-06	0.1000000E-04
0.1786000E-01			
0.3700000E+02	0.5256000E-07	0.3942000E-06	0.3200000E+02
0.4730000E+03			
0.3000000E+01	0.1000000E-02	0.6100000E-03	0.7200000E-03
0.4890000E-03			
0.2480000E-04	0.6200000E-05	0.1166049E-04	0.9117393E-04
0.6170709E-04			
0.2618712E-04	0.5952915E-04	0.4178900E-03	0.7786378E-03
0.4213297E+00			
0.6330990E+00	0.3697236E+00	0.6348953E+00	0.2818966E+00
0.7032701E+00			
0.6716376E+00	0.1131554E+00	0.1585896E+00	0.1897860E+00
0.8458931E-01			
0.9688271E-01	0.1194563E+00	0.1561375E+00	0.5579867E-02
0.1752624E-02			
0.3305086E-03	0.8588089E-04	0.7769019E+00	0.3713881E+00
0.5706901E+00			
0.5971389E+00	0.1019276E+01	0.5237277E+00	0.8716685E+00
0.1945478E+02			
0.6972927E+01	0.1153543E+01	0.2106328E+02	0.1468857E+01
0.1113334E+02			
0.2110952E+02	0.4201268E+01	0.2332558E+02	0.1000000E+01
0.1008795E+01			
0.1888378E+01	0.1000000E+01	0.1214613E+01	0.1000000E+01
0.1230000E+01			
0.1390000E+01	0.1190000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.3132039E-04	0.2593078E-06	0.3525188E-01	0.2642299E-09
0.7544683E-06			
0.1119553E-06	0.5478298E-04	0.1000000E+01	0.1000000E+01
0.1000000E+01			

0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.5000000E-08	0.4000000E-08	0.8000000E-01	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.2143572E+00	0.1057989E+00	0.2606782E+00
0.6935888E-01			
0.1942201E+00	0.3297352E+00	0.2431903E+00	0.1105406E+04
0.6887466E+00			
0.5344279E+00	0.4721080E+00	0.9920776E+00	0.7842897E+00
0.1201108E+00			
0.8591437E+00	0.2050697E+00	0.1816951E+02	0.5774124E-01
0.6839701E+00			
0.2241072E-01	0.4870618E+00	0.4980722E+00	0.9028096E+00
0.6394535E-02			
0.5899717E+00	0.7341797E+00	0.7406059E-01	0.9064541E+00
0.2572773E+00			
0.2818283E+00	0.1753781E+00	0.3525643E-01	0.7373473E+00
0.4345213E+00			
0.7777543E+00	0.8519584E+00	0.8383459E+00	0.5160172E+00
0.5203509E+00			
0.8302978E+00	0.7670929E+00	0.4507597E+00	0.8022128E+00
0.1329674E+00			
0.8060964E+00	0.5456172E+00	0.4934646E+00	0.6107769E+00
0.8075598E+04			
0.2571307E+04	0.5023351E+04	0.7968173E+04	0.9237880E+04
0.7954092E+04			
0.4354298E+04	0.2870678E+04	0.1210817E+04	0.1486112E+04
0.3101228E+04			
0.3352846E+04	0.5300055E+04	0.2797622E+04	0.2257374E+04
0.1524679E+03			
0.1384736E+04	0.7485012E+04	0.9150047E+04	0.2005892E+04
0.1756054E+04			
0.5898590E+04	0.8103269E+03	0.2992121E+04	0.8598697E+04
0.9197895E+04			
0.2110745E+04	0.7325852E+04	0.6664531E+04	0.1327670E+04
0.5881220E-01			
0.8206028E+00	0.9970568E+00	0.2803908E+00	0.6273269E+00
0.8581422E-04			
0.8338228E+00	0.4986803E+00	0.3512237E+00	0.4571678E+00
0.2172727E-01			
0.9682104E+00	0.8495411E+00	0.4285577E+00	0.9614586E+00
0.7609262E+00			
0.5100811E+00	0.9897444E+00	0.3125235E+00	0.4867750E+00
0.9862338E+00			

0.7453962E+00	0.4193711E+00	0.8557483E+00	0.4056851E-01
0.3746604E+00			
0.3274939E+00	0.3952423E+00	0.9200144E+00	0.5655264E+00
0.8234857E-02			
2	445		
0.0000000E+00	0.1367643E-14	0.1100514E-14	0.2600059E-15
0.5205254E-15			
0.8806360E-15	0.9700000E-15	0.9700000E-15	0.9700000E-15
0.9700000E-15			
0.9700000E-15	0.1400000E-03	0.2700000E-04	0.4100000E-04
0.4600000E-04			
0.4600000E-04	0.4600000E-04	0.4600000E-04	0.4600000E-04
0.4600000E-04			
0.4600000E-04	0.2153677E+02	0.9895314E+02	0.9753923E+02
0.4280688E+02			
0.3701936E+02	0.1000000E+02	0.1000000E+02	0.1000000E+02
0.1000000E+02			
0.1000000E+02	0.9060785E-18	0.8094566E-14	0.6045877E-20
0.2840964E-15			
0.1518044E-16	0.1025303E-15	0.2880582E-16	0.3048418E-15
0.1549712E-14			
0.7612975E-15	0.1694925E-15	0.1161964E-14	0.1648880E-15
0.8223407E-15			
0.6377853E-01	0.3881674E+00	0.2662144E+00	0.2815749E+00
0.2464416E+00			
0.3151895E+00	0.2107452E+00	0.4100000E-04	0.4600000E-04
0.4600000E-04			
0.1300000E-04	0.4600000E-04	0.1300000E-04	0.4600000E-04
0.1425705E+01			
0.3927925E+01	0.1702272E+01	0.2280217E+01	0.2387080E+01
0.2780500E+01			
0.2013530E+01	0.5156471E+01	0.5129284E+01	0.3721150E+01
0.4419934E+01			
0.4412173E+01	0.4663790E+01	0.4585734E+01	0.2600000E-02
0.2600000E-02			
0.2600000E-02	0.2600000E-02	0.2600000E-02	0.2600000E-02
0.2600000E-02			
0.1856525E+02	0.1084863E-03	0.5753208E+00	0.1683070E+02
0.1603127E+02			
0.1005234E+02	0.8363153E+00	0.9192401E+00	0.1521991E+01
0.5095153E+00			
0.5188390E-01	0.1911213E-01	0.2750242E+00	0.1941201E+00
0.1279076E+00			
0.1168359E-01	0.9225219E-04	0.4091615E-02	0.2398322E-03
0.0000000E+00			
0.7121433E-02	0.1769131E-01	0.3706344E-02	0.2099472E+01
0.2302490E+00			
0.2930847E+01	0.2528428E+01	0.2821810E+00	0.6305946E-01
0.6205832E+00			
0.5300580E-02	0.3295737E-01	0.2157642E-01	0.4692463E-01
0.2864974E-02			



0.1439230E-02	0.2792990E-03	0.1690839E+00	0.5563505E-01
0.6546977E+00			
0.5473756E-01	0.3232827E-01	0.3134131E-01	0.1390588E+00
0.2866303E+01			
0.5220146E+00	0.1519998E+00	0.1782956E+01	0.2377814E+01
0.8203219E+00			
0.5140112E+00	0.2158025E-01	0.8078678E-01	0.3164265E-01
0.1475234E-01			
0.2772907E-02	0.1172592E-01	0.1399197E-01	0.3574011E+00
0.1628068E+01			
0.1984684E+03	0.4095750E+00	0.7109992E+02	0.6276480E+00
0.4167936E+01			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.1303949E-04	0.0000000E+00
0.0000000E+00			
0.1008074E-02	0.0000000E+00	0.2747097E-01	0.0000000E+00
0.2393160E-02			
0.1906678E-01	0.8038758E-02	0.1640864E-01	0.5398697E-02
0.7813897E-01			
0.6423992E-02	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.5831272E-03
0.4934069E-03			
0.1577657E-02	0.1133129E-02	0.2925921E-02	0.3702294E-02
0.2630189E-02			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.1340000E-01	0.9700000E-01
0.4900000E-01			
0.3400000E-01	0.3900000E-01	0.3500000E-01	0.3900000E-01
0.4800000E-03			
0.3400000E-02	0.1700000E-02	0.1200000E-02	0.1400000E-02
0.1300000E-02			
0.1400000E-02	0.8000000E-02	0.3400000E-02	0.8900000E+00
0.4500000E-01			
0.7100000E+00	0.2800000E-01	0.7100000E+00	0.1288625E+06
0.1007418E+03			
-0.1025607E+01	-0.3140540E+01	0.1255163E+03	0.1906949E-01
0.1435048E+04			
0.1270682E+04	0.7836384E-03	0.1000000E-06	0.1000000E-04
0.1786000E-01			
0.3700000E+02	0.5256000E-07	0.3942000E-06	0.3200000E+02
0.4730000E+03			
0.3000000E+01	0.1000000E-02	0.6100000E-03	0.7200000E-03
0.4890000E-03			
0.2480000E-04	0.6200000E-05	0.6063398E-04	0.8192583E-03
0.1147606E-04			
0.1074992E-03	0.8303826E-04	0.5894084E-04	0.3991181E-04
0.5548423E-01			

0.9816600E+00	0.1953007E+00	0.9028192E+00	0.4858548E+00
0.6370116E+00			
0.8843437E+00	0.9743409E-01	0.8132451E-01	0.9904870E-01
0.9266817E-01			
0.1174170E+00	0.8364854E-01	0.8131238E-01	0.4579129E-02
0.5253316E-02			
0.4890226E-03	0.2634790E-03	0.8347319E+00	0.6792946E+00
0.9934321E+00			
0.1801400E+00	0.2822119E+00	0.9829333E+00	0.4773697E+00
0.4132679E+01			
0.9279933E+01	0.1178660E+01	0.5432225E+02	0.1298847E+01
0.2216044E+02			
0.4874006E+02	0.2011512E+01	0.3826464E+01	0.1000000E+01
0.1009713E+01			
0.4411341E+01	0.1000000E+01	0.1263525E+01	0.1000000E+01
0.1230000E+01			
0.1390000E+01	0.1190000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.3604870E-04	0.4742495E-03	0.1199872E-02	0.7840088E-05
0.1134368E+01			
0.1584533E-06	0.1332863E-04	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.5000000E-08	0.4000000E-08	0.8000000E-01	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.3200435E+00	0.3161722E+00	0.1872220E+00
0.3329052E+00			
0.2288639E+00	0.2690488E+00	0.1030330E+00	0.9665181E+04
0.7422914E+00			
0.8486035E+00	0.1448488E+00	0.5984501E+00	0.5694432E+00
0.3168380E+00			
0.2172171E+00	0.3744664E+00	0.1762727E+02	0.2726959E-01
0.6222688E+00			
0.7515565E+00	0.6388490E+00	0.3939500E+00	0.6085940E+00
0.2058362E+00			
0.4065480E+00	0.9027306E-01	0.6186878E+00	0.5314342E+00
0.1516049E+00			

0.5117481E+00	0.5782407E+00	0.4293930E+00	0.2543738E+00
0.4989027E+00			
0.5478415E+00	0.9681613E-01	0.4587382E+00	0.1603513E+00
0.4624224E+00			
0.7542640E+00	0.4677631E+00	0.3509253E+00	0.4397261E+00
0.7203205E+00			
0.1604168E+00	0.2077319E+00	0.3712127E+00	0.6860611E-01
0.8882971E+04			
0.6122282E+04	0.7706904E+04	0.3327384E+04	0.5430819E+04
0.6231417E+04			
0.8812270E+04	0.5232371E+04	0.9573432E+03	0.5476948E+04
0.4609314E+04			
0.1268381E+04	0.6252756E+04	0.6346267E+04	0.7247208E+04
0.7007984E+04			
0.9616294E+04	0.3603088E+04	0.5356931E+04	0.5154634E+03
0.8188693E+04			
0.5454642E+04	0.8085876E+04	0.3622199E+03	0.1893689E+04
0.6796659E+04			
0.6229652E+04	0.4931175E+04	0.1792813E+04	0.1732402E+04
0.8296998E+00			
0.8832263E+00	0.4451012E+00	0.1455199E+00	0.2390814E+00
0.9311392E+00			
0.4769939E-01	0.9147700E+00	0.8362417E+00	0.8565253E+00
0.4109981E+00			
0.5443108E+00	0.7600894E+00	0.5893991E+00	0.1600900E+00
0.3740253E-01			
0.3729636E+00	0.1948694E-01	0.1925317E+00	0.9591205E+00
0.2805151E+00			
0.1276612E+00	0.6770680E+00	0.6440960E+00	0.9341184E+00
0.2697542E+00			
0.9922757E+00	0.7346592E+00	0.8347465E+00	0.2083001E+00
0.5539740E-02			
3	445		
0.0000000E+00	0.1188294E-15	0.1440639E-14	0.4075603E-15
0.4596125E-14			
0.1174002E-14	0.9700000E-15	0.9700000E-15	0.9700000E-15
0.9700000E-15			
0.9700000E-15	0.1400000E-03	0.2700000E-04	0.4100000E-04
0.4600000E-04			
0.4600000E-04	0.4600000E-04	0.4600000E-04	0.4600000E-04
0.4600000E-04			
0.4600000E-04	0.8567817E+02	0.8132230E+02	0.5225978E+02
0.6329199E+02			
0.6500179E+02	0.1000000E+02	0.1000000E+02	0.1000000E+02
0.1000000E+02			
0.1000000E+02	0.2727243E-16	0.1044871E-13	0.2091213E-19
0.4147663E-15			
0.4461945E-17	0.2878549E-15	0.1935918E-16	0.2787311E-15
0.1140840E-14			
0.3392309E-15	0.9274678E-16	0.1280231E-14	0.2068571E-15
0.6209567E-15			

0.1480217E+00	0.5552854E+00	0.2921823E+00	0.2678027E+00
0.1860067E+00			
0.2600676E+00	0.2443425E+00	0.4100000E-04	0.4600000E-04
0.4600000E-04			
0.1300000E-04	0.4600000E-04	0.1300000E-04	0.4600000E-04
0.1678893E+01			
0.2722408E+01	0.2925630E+01	0.2802519E+01	0.2219837E+01
0.2717231E+01			
0.2097019E+01	0.4999621E+01	0.4707989E+01	0.4976009E+01
0.4725554E+01			
0.4547325E+01	0.3919506E+01	0.3695472E+01	0.2600000E-02
0.2600000E-02			
0.2600000E-02	0.2600000E-02	0.2600000E-02	0.2600000E-02
0.2600000E-02			
0.1707431E+02	0.2850535E-03	0.8012749E-01	0.1006991E+01
0.8913263E+00			
0.1622507E+00	0.2622174E+00	0.2968489E+00	0.9178798E+00
0.3663691E+00			
0.3432180E+00	0.4512005E-01	0.1222485E+01	0.2326273E-01
0.2995106E-01			
0.3300003E+00	0.5287787E-04	0.3479321E-01	0.2529458E-02
0.0000000E+00			
0.5400107E-02	0.1214021E-01	0.5359998E-03	0.4512621E+00
0.1215533E+01			
0.8952489E+00	0.9497621E+00	0.2639502E+01	0.2943205E-01
0.5513297E+01			
0.8327611E-02	0.4885219E-02	0.5320373E-02	0.1600760E-02
0.7630190E-03			
0.4351321E-02	0.3964757E-03	0.8910464E-02	0.2965756E+01
0.2666336E+00			
0.3675234E+00	0.1438086E-01	0.1260610E+00	0.1423742E-01
0.6082098E+01			
0.3107398E+01	0.6178693E+00	0.1117277E+02	0.6009947E+00
0.2000264E+02			
0.1022465E+01	0.2988434E-01	0.1100074E+00	0.5292905E-01
0.2531676E-01			
0.5359550E-01	0.8181952E-02	0.1268206E+00	0.6389915E-01
0.7863860E-01			
0.3731252E+01	0.2280506E+01	0.1760612E+02	0.7038621E+01
0.1720489E+02			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.3314728E-04	0.0000000E+00
0.0000000E+00			
0.2208822E-03	0.0000000E+00	0.2004157E-02	0.0000000E+00
0.3830195E-02			
0.2631552E-01	0.2258582E-02	0.3370597E-02	0.4548024E-01
0.6270533E-02			
0.7231245E-01	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			

0.0000000E+00	0.0000000E+00	0.0000000E+00	0.3789156E-03
0.9202674E-03			
0.3513228E-02	0.2245810E-01	0.2643989E-01	0.2224367E-02
0.4208061E-02			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.1340000E-01	0.9700000E-01
0.4900000E-01			
0.3400000E-01	0.3900000E-01	0.3500000E-01	0.3900000E-01
0.4800000E-03			
0.3400000E-02	0.1700000E-02	0.1200000E-02	0.1400000E-02
0.1300000E-02			
0.1400000E-02	0.8000000E-02	0.3400000E-02	0.8900000E+00
0.4500000E-01			
0.7100000E+00	0.2800000E-01	0.7100000E+00	0.1052089E+06
0.1240857E+03			
-0.1521925E+01	-0.3043752E+01	0.2826504E+03	0.6072628E-02
0.1096693E+04			
0.1475993E+04	0.2531896E-03	0.1000000E-06	0.1000000E-04
0.1786000E-01			
0.3700000E+02	0.5256000E-07	0.3942000E-06	0.3200000E+02
0.4730000E+03			
0.3000000E+01	0.1000000E-02	0.6100000E-03	0.7200000E-03
0.4890000E-03			
0.2480000E-04	0.6200000E-05	0.5499835E-03	0.6251354E-03
0.1423123E-04			
0.6888971E-04	0.2969278E-03	0.1911473E-03	0.4867621E-03
0.9917151E+00			
0.4409982E+00	0.7533233E+00	0.2236430E+00	0.5588387E+00
0.5799902E+00			
0.5109845E+00	0.1075499E+00	0.1660973E+00	0.1878348E+00
0.1338135E+00			
0.1514825E+00	0.1086989E+00	0.1647533E+00	0.4110997E-02
0.4015901E-02			
0.1976555E-03	0.2067793E-03	0.8627873E+00	0.1039829E+01
0.4165500E+00			
0.6820461E+00	0.8773142E+00	0.1358741E+00	0.3445727E+00
0.1128382E+02			
0.6542118E+01	0.1145773E+01	0.7499790E+01	0.1311265E+01
0.9095681E+01			
0.1191662E+02	0.9500621E+01	0.1540348E+02	0.1000000E+01
0.1008375E+01			
0.2842929E+01	0.1000000E+01	0.1258507E+01	0.1000000E+01
0.1230000E+01			
0.1390000E+01	0.1190000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			

0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.4576550E-06	0.9485788E-04	0.1260661E-01	0.2567419E-06
0.1713906E-05			
0.6213797E-07	0.1969644E-04	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.5000000E-08	0.4000000E-08	0.8000000E-01	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.1891608E+00	0.2247299E-01	0.3902567E+00
0.3055215E+00			
0.1661884E+00	0.3604901E+00	0.3749921E+00	0.9486505E+03
0.8134929E+00			
0.9270301E+00	0.4442778E+00	0.3210277E+00	0.1330616E+00
0.2156466E+00			
0.5037011E+00	0.4375189E+00	0.1091268E+02	0.4813548E-01
0.5530516E+00			
0.1946751E+00	0.6560506E+00	0.2534947E+00	0.1054886E+00
0.5128463E+00			
0.2700526E+00	0.2981755E+00	0.9843927E+00	0.4717875E+00
0.7773284E+00			
0.7093009E-01	0.4821155E+00	0.6107367E+00	0.5079304E-01
0.5517817E+00			
0.4899075E+00	0.7738660E+00	0.3013797E-01	0.3947939E+00
0.1739582E-01			
0.2950243E+00	0.4091338E+00	0.8720708E+00	0.5434936E+00
0.4494751E+00			
0.6913252E+00	0.1302267E+00	0.7580512E+00	0.9959931E+00
0.4410692E+03			
0.7596632E+04	0.1851244E+04	0.7117391E+04	0.6258032E+04
0.5421026E+04			
0.5706233E+04	0.5716058E+03	0.2830310E+04	0.1166099E+03
0.7783436E+04			
0.7736728E+04	0.2589078E+04	0.1262546E+04	0.1153831E+04
0.3611770E+04			
0.6446409E+04	0.2362949E+04	0.4923576E+04	0.7199774E+04
0.4522725E+04			
0.2365965E+04	0.1467067E+04	0.9833499E+04	0.7927513E+04
0.8539814E+04			
0.6901196E+03	0.6717601E+04	0.6451588E+04	0.8337557E+04
0.4612290E+00			
0.3607500E+00	0.6618303E+00	0.6032151E+00	0.1942447E+00
0.5057903E+00			

0.4935985E+00	0.3403690E-01	0.2168368E+00	0.4264996E+00
0.1548584E+00			
0.4362134E+00	0.2600184E+00	0.3998264E+00	0.3152013E+00
0.8267841E+00			
0.2820045E+00	0.5699461E+00	0.6239906E+00	0.2564867E+00
0.1385132E+00			
0.2027084E+00	0.1131458E+00	0.2645392E+00	0.7704277E+00
0.4854621E+00			
0.7720499E+00	0.2709901E+00	0.3589183E+00	0.4021772E+00
0.9593648E-02			
	4	445	
0.0000000E+00	0.2107630E-15	0.2376001E-14	0.1545896E-15
0.6421924E-15			
0.9741129E-15	0.9700000E-15	0.9700000E-15	0.9700000E-15
0.9700000E-15			
0.9700000E-15	0.1400000E-03	0.2700000E-04	0.4100000E-04
0.4600000E-04			
0.4600000E-04	0.4600000E-04	0.4600000E-04	0.4600000E-04
0.4600000E-04			
0.4600000E-04	0.3179739E+02	0.5106856E+02	0.3705766E+02
0.9253772E+02			
0.6995489E+02	0.1000000E+02	0.1000000E+02	0.1000000E+02
0.1000000E+02			
0.1000000E+02	0.2987590E-18	0.4864678E-14	0.8248442E-18
0.9342922E-16			
0.1561742E-16	0.4404133E-15	0.7089652E-17	0.1009647E-15
0.1424395E-14			
0.2143899E-15	0.2050810E-15	0.5702406E-15	0.1452257E-15
0.1169094E-14			
0.1532271E+00	0.3729805E+00	0.3244770E+00	0.3982557E+00
0.2568678E+00			
0.3002266E+00	0.2703287E+00	0.4100000E-04	0.4600000E-04
0.4600000E-04			
0.1300000E-04	0.4600000E-04	0.1300000E-04	0.4600000E-04
0.2198148E+01			
0.3471534E+01	0.2509383E+01	0.2621236E+01	0.1522954E+01
0.3793598E+01			
0.2201066E+01	0.4086774E+01	0.3205497E+01	0.3347993E+01
0.4332025E+01			
0.4274331E+01	0.4154195E+01	0.4511395E+01	0.2600000E-02
0.2600000E-02			
0.2600000E-02	0.2600000E-02	0.2600000E-02	0.2600000E-02
0.2600000E-02			
0.1553985E+02	0.1623237E-02	0.8769875E+00	0.1276197E+02
0.6965372E+01			
0.4719128E+00	0.8621555E+01	0.3037299E+00	0.1082265E+01
0.2906509E+00			
0.2578948E-01	0.2129755E+00	0.4418311E-01	0.1665304E-01
0.2145215E-01			
0.8601630E-02	0.1160863E-03	0.4227684E-01	0.5317110E-02
0.0000000E+00			

0.1130595E-02	0.4046456E-03	0.3319012E-03	0.1977637E+00
0.2642803E+00			
0.9469174E+01	0.6239170E+01	0.3262633E+01	0.1512066E+00
0.7450995E+00			
0.7118459E-03	0.1414471E-01	0.2992530E-03	0.1437927E-01
0.2111248E-02			
0.1188683E-02	0.1187813E-02	0.1331803E-01	0.3343477E+00
0.2284865E-01			
0.1059080E+01	0.1549263E+00	0.3527747E+00	0.2668804E-01
0.3517827E+01			
0.1669736E+01	0.1644949E+01	0.1068500E+01	0.4054285E+01
0.3261442E+02			
0.1912949E+00	0.6001522E-01	0.4362152E+00	0.9156437E-01
0.8130160E-01			
0.1658682E+00	0.4358286E-01	0.4013059E-02	0.2488213E+00
0.7422919E-01			
0.7004226E+01	0.1269740E+01	0.1141929E+03	0.1342282E+02
0.2119151E+02			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.2141382E-04	0.0000000E+00
0.0000000E+00			
0.8200293E-04	0.0000000E+00	0.4893380E-02	0.0000000E+00
0.3610471E-01			
0.8983878E-01	0.1815498E-01	0.4506402E-01	0.6777806E-01
0.4489371E-01			
0.1857355E-02	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.3991311E-02
0.7044079E-03			
0.8490850E-02	0.1358833E-02	0.2895232E-01	0.1905684E-02
0.2195642E-02			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.1340000E-01	0.9700000E-01
0.4900000E-01			
0.3400000E-01	0.3900000E-01	0.3500000E-01	0.3900000E-01
0.4800000E-03			
0.3400000E-02	0.1700000E-02	0.1200000E-02	0.1400000E-02
0.1300000E-02			
0.1400000E-02	0.8000000E-02	0.3400000E-02	0.8900000E+00
0.4500000E-01			
0.7100000E+00	0.2800000E-01	0.7100000E+00	0.2697966E+06
0.1253422E+03			
-0.1807876E+01	-0.3167093E+01	0.1788835E+03	0.1492110E-02
0.1284660E+04			
0.1363762E+04	0.4033983E-04	0.1000000E-06	0.1000000E-04
0.1786000E-01			
0.3700000E+02	0.5256000E-07	0.3942000E-06	0.3200000E+02
0.4730000E+03			



0.3000000E+01	0.1000000E-02	0.6100000E-03	0.7200000E-03
0.4890000E-03			
0.2480000E-04	0.6200000E-05	0.1998041E-04	0.2605039E-03
0.6232744E-03			
0.1794825E-04	0.5867371E-03	0.5514942E-03	0.8917431E-04
0.4626538E+00			
0.6874813E+00	0.8168257E+00	0.3640939E-01	0.3017169E+00
0.4122009E+00			
0.7202028E+00	0.1296351E+00	0.1731811E+00	0.8144715E-01
0.1461400E+00			
0.1579163E+00	0.1911253E+00	0.9371483E-01	0.4860009E-02
0.1215314E-02			
0.4551357E-03	0.3702343E-03	0.3448335E+00	0.1199499E+01
0.4980323E+00			
0.7862241E+00	0.5302883E+00	0.9108712E-01	0.2250325E-02
0.2606711E+02			
0.8366214E+01	0.1214004E+01	0.2819343E+02	0.1243600E+01
0.1829582E+02			
0.4208351E+02	0.7081622E+01	0.5738970E+01	0.1000000E+01
0.1004685E+01			
0.5056205E+01	0.1000000E+01	0.1101202E+01	0.1000000E+01
0.1230000E+01			
0.1390000E+01	0.1190000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.2412156E-04	0.2385779E-04	0.3028901E-01	0.6769141E-09
0.7090444E-03			
0.2568033E-06	0.1250559E-04	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.5000000E-08	0.4000000E-08	0.8000000E-01	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.4335181E-01	0.3655594E+00	0.3696446E+00
0.2612569E+00			
0.2425047E+00	0.1094316E+00	0.1614468E+00	0.3771034E+04
0.5239498E+00			
0.4314525E+00	0.3188201E+00	0.1966526E+00	0.8545374E+00
0.5044315E+00			

0.9870332E+00	0.7074651E+00	0.1999178E+02	0.3866587E-01
0.8783292E+00			
0.6993400E+00	0.5174455E+00	0.3290731E+00	0.4451517E+00
0.1363190E+00			
0.7715946E-01	0.3532746E+00	0.5787944E+00	0.2620451E+00
0.7307522E+00			
0.4891136E+00	0.6262735E+00	0.8137195E+00	0.4045829E+00
0.8320706E+00			
0.5597121E+00	0.1036210E+00	0.9754839E+00	0.3476020E+00
0.8899984E+00			
0.3193818E+00	0.2903116E-01	0.2828342E+00	0.2683508E+00
0.5798974E+00			
0.1023182E+00	0.2879969E+00	0.9626663E+00	0.4058301E+00
0.9806068E+04			
0.5398431E+04	0.3723207E+04	0.2087309E+04	0.1263162E+04
0.7352931E+04			
0.3988876E+04	0.6328869E+04	0.5393541E+04	0.2867326E+04
0.9757190E+04			
0.1679805E+04	0.3048031E+04	0.5832216E+04	0.7912473E+04
0.6081036E+04			
0.8340772E+04	0.7418421E+04	0.9814185E+04	0.4436407E+04
0.4009144E+04			
0.3004918E+04	0.8828364E+04	0.2428216E+04	0.1233233E+04
0.3210113E+04			
0.4300394E+04	0.3008062E+04	0.7289243E+04	0.1983875E+03
0.3045930E+00			
0.7708197E+00	0.2734795E+00	0.8200159E-01	0.6742808E+00
0.9612456E+00			
0.2091653E+00	0.6358783E+00	0.2711746E+00	0.8208589E+00
0.9978118E+00			
0.9374388E+00	0.9511399E+00	0.2260076E+00	0.7345161E+00
0.8521638E+00			
0.1652491E+00	0.8677756E+00	0.2356424E+00	0.6335484E+00
0.5422805E+00			
0.8997574E+00	0.9017672E+00	0.4939675E+00	0.5965557E+00
0.1455026E+00			
0.6694882E+00	0.8428629E+00	0.3358881E+00	0.6128429E+00
0.5935375E-02			
5	445		
0.0000000E+00	0.2460728E-15	0.7292515E-14	0.2417797E-15
0.1612316E-14			
0.7950762E-15	0.9700000E-15	0.9700000E-15	0.9700000E-15
0.9700000E-15			
0.9700000E-15	0.1400000E-03	0.2700000E-04	0.4100000E-04
0.4600000E-04			
0.4600000E-04	0.4600000E-04	0.4600000E-04	0.4600000E-04
0.4600000E-04			
0.4600000E-04	0.4832717E+02	0.2802398E+02	0.4908642E+02
0.2899540E+02			
0.5212282E+02	0.1000000E+02	0.1000000E+02	0.1000000E+02
0.1000000E+02			

0.1000000E+02	0.1769052E-18	0.2357441E-13	0.3806536E-19
0.1887876E-15			
0.2242495E-17	0.2008009E-15	0.3959874E-16	0.8711677E-15
0.6826793E-15			
0.1288180E-14	0.1440038E-15	0.1035422E-14	0.2788477E-15
0.1656058E-14			
0.9041098E-01	0.3592384E+00	0.2474724E+00	0.3027261E+00
0.2293764E+00			
0.2190157E+00	0.2970750E+00	0.4100000E-04	0.4600000E-04
0.4600000E-04			
0.1300000E-04	0.4600000E-04	0.1300000E-04	0.4600000E-04
0.1890765E+01			
0.3277344E+01	0.1333406E+01	0.2178155E+01	0.1792284E+01
0.3063739E+01			
0.2397503E+01	0.3779843E+01	0.5040736E+01	0.4713042E+01
0.4801753E+01			
0.4600858E+01	0.4551261E+01	0.4008570E+01	0.2600000E-02
0.2600000E-02			
0.2600000E-02	0.2600000E-02	0.2600000E-02	0.2600000E-02
0.2600000E-02			
0.1778714E+02	0.1383308E-03	0.9411175E-01	0.1884273E+01
0.1940753E+01			
0.7730140E+00	0.7738749E+01	0.2565768E+01	0.1903712E+01
0.7738446E+00			
0.2100787E+00	0.2336459E-01	0.5437097E+00	0.8309452E-01
0.3636939E+00			
0.5926346E-02	0.3942603E-04	0.2599626E-02	0.1385999E-02
0.0000000E+00			
0.1142531E-03	0.8483278E-02	0.6558009E-02	0.6671082E+01
0.4178011E+00			
0.1429703E+01	0.1684131E+02	0.1837412E+01	0.1580520E-01
0.3145000E+01			
0.2882128E-01	0.3970011E-01	0.3451053E-03	0.5538434E-03
0.3510786E-02			
0.8630791E-02	0.5810913E-02	0.7484160E-02	0.9341041E-01
0.2834344E-01			
0.3409083E-01	0.1937394E+00	0.2662771E+00	0.4090011E-01
0.1432040E+02			
0.2215136E+00	0.1342783E+02	0.8225101E+01	0.1597461E+00
0.7916159E+00			
0.7184036E+01	0.7801893E-02	0.2637322E+00	0.4151579E-02
0.1367656E+00			
0.9608741E-02	0.1009096E-01	0.5694079E-02	0.2589891E+01
0.2741538E+00			
0.7697538E+02	0.2205177E+00	0.3127025E+01	0.8534141E+00
0.1201968E+02			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.8373395E-05	0.0000000E+00
0.0000000E+00			

0.1848848E-03	0.0000000E+00	0.4730442E-03	0.0000000E+00
0.1595702E-02			
0.2606270E+00	0.6186716E-01	0.5620285E-02	0.7732509E-02
0.1530813E-01			
0.2021608E-01	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.1293425E-02
0.1845857E-01			
0.5800940E-02	0.5898455E-03	0.2823749E-02	0.4772162E-02
0.7864368E-03			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.1340000E-01	0.9700000E-01
0.4900000E-01			
0.3400000E-01	0.3900000E-01	0.3500000E-01	0.3900000E-01
0.4800000E-03			
0.3400000E-02	0.1700000E-02	0.1200000E-02	0.1400000E-02
0.1300000E-02			
0.1400000E-02	0.8000000E-02	0.3400000E-02	0.8900000E+00
0.4500000E-01			
0.7100000E+00	0.2800000E-01	0.7100000E+00	0.2885788E+06
0.1074575E+03			
-0.9243326E+00	-0.3212874E+01	0.1353452E+03	0.1303897E-01
0.1031174E+04			
0.1321367E+04	0.1895753E-03	0.1000000E-06	0.1000000E-04
0.1786000E-01			
0.3700000E+02	0.5256000E-07	0.3942000E-06	0.3200000E+02
0.4730000E+03			
0.3000000E+01	0.1000000E-02	0.6100000E-03	0.7200000E-03
0.4890000E-03			
0.2480000E-04	0.6200000E-05	0.2943122E-04	0.1809361E-04
0.2854840E-04			
0.9815420E-04	0.1774631E-03	0.2435103E-03	0.2965295E-04
0.7294739E+00			
0.2050561E+00	0.5930124E+00	0.6647134E+00	0.7213655E+00
0.9447991E+00			
0.9826183E+00	0.1633409E+00	0.1568426E+00	0.1303408E+00
0.9071422E-01			
0.1018503E+00	0.9918412E-01	0.1184012E+00	0.2828977E-02
0.3924039E-02			
0.3953299E-03	0.5022090E-03	0.1157713E+01	0.7859472E+00
0.6482103E+00			
0.2548811E+00	0.9005475E+00	0.6285954E+00	0.9103603E+00
0.1016910E+02			
0.8057976E+01	0.1203598E+01	0.1219587E+02	0.1594534E+01
0.1224856E+02			
0.2510527E+02	0.6376004E+01	0.1663909E+02	0.1000000E+01
0.1009197E+01			
0.3113888E+01	0.1000000E+01	0.1180737E+01	0.1000000E+01
0.1230000E+01			

0.1390000E+01	0.1190000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.7889126E-05	0.7001079E-04	0.1755760E-01	0.1409598E-03
0.7377898E-04			
0.1278933E-07	0.2690288E-04	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.5000000E-08	0.4000000E-08	0.8000000E-01	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.3145807E+00	0.2240683E+00	0.1134919E+00
0.1363510E+00			
0.1073979E-01	0.3558525E+00	0.3860000E+00	0.5166141E+04
0.2118215E+00			
0.3547767E+00	0.2043512E+00	0.7272416E-01	0.3933398E+00
0.5824571E+00			
0.3942901E-01	0.6122207E+00	0.1629473E+02	0.2108690E-01
0.7679302E+00			
0.8985609E+00	0.9257403E+00	0.6367801E+00	0.3331075E+00
0.8839136E+00			
0.1543758E+00	0.1240659E+00	0.3802921E+00	0.5154341E-01
0.8531419E+00			
0.3424083E+00	0.6712723E+00	0.7172137E+00	0.9393622E+00
0.5304582E-01			
0.7186100E+00	0.4547245E+00	0.8804473E+00	0.1260451E+00
0.6513821E+00			
0.9448185E+00	0.6556704E+00	0.5476568E+00	0.9699349E+00
0.3420102E+00			
0.4027227E+00	0.8162976E+00	0.3283657E+00	0.8478354E+00
0.3917878E+04			
0.3848164E+04	0.2372576E+04	0.9026106E+04	0.8675575E+04
0.9077904E+04			
0.2499144E+03	0.7813658E+04	0.6725330E+04	0.6533754E+04
0.8536094E+04			
0.6549851E+04	0.5651504E+04	0.3802850E+04	0.9391688E+04
0.9166502E+04			
0.1572422E+04	0.2027100E+04	0.6472233E+04	0.8951769E+04
0.3428697E+04			

0.7322715E+04	0.3408017E+04	0.9275742E+04	0.6166813E+04
0.5227012E+04			
0.4809946E+04	0.1747171E+04	0.2453482E+04	0.4937678E+04
0.6228277E+00			
0.5290897E+00	0.1247489E+00	0.9529550E+00	0.4578641E-01
0.3133966E+00			
0.4231600E+00	0.3935653E+00	0.7609463E+00	0.6117780E+00
0.1442501E+00			
0.3433370E+00	0.1429195E-02	0.7318804E+00	0.1341905E+00
0.1682072E+00			
0.7231221E+00	0.1075782E+00	0.5208090E+00	0.6961168E+00
0.7218846E+00			
0.3948638E+00	0.4637880E+00	0.5871892E-01	0.6607284E+00
0.2337173E+00			
0.7131552E+00	0.4195628E-01	0.2114204E+00	0.7204762E+00
0.6139452E-02			
6	445		
0.0000000E+00	0.7780531E-15	0.1916864E-14	0.3286120E-15
0.9865810E-15			
0.4101573E-15	0.9700000E-15	0.9700000E-15	0.9700000E-15
0.9700000E-15			
0.9700000E-15	0.1400000E-03	0.2700000E-04	0.4100000E-04
0.4600000E-04			
0.4600000E-04	0.4600000E-04	0.4600000E-04	0.4600000E-04
0.4600000E-04			
0.4600000E-04	0.1453347E+02	0.5624206E+02	0.6201466E+02
0.7073537E+02			
0.8461458E+02	0.1000000E+02	0.1000000E+02	0.1000000E+02
0.1000000E+02			
0.1000000E+02	0.3399603E-17	0.5854948E-14	0.3226923E-20
0.1513321E-14			
0.7095402E-17	0.8086123E-15	0.2002000E-17	0.8257075E-15
0.2825022E-15			
0.3978984E-15	0.3488939E-15	0.1626536E-14	0.9129739E-16
0.1965405E-14			
0.8416745E-01	0.5340133E+00	0.3186583E+00	0.2536821E+00
0.2621393E+00			
0.1968962E+00	0.1930521E+00	0.4100000E-04	0.4600000E-04
0.4600000E-04			
0.1300000E-04	0.4600000E-04	0.1300000E-04	0.4600000E-04
0.1534398E+01			
0.2081368E+01	0.1804000E+01	0.2931921E+01	0.2139645E+01
0.2922461E+01			
0.1625297E+01	0.4293636E+01	0.4013054E+01	0.3798341E+01
0.4156633E+01			
0.5076150E+01	0.4098196E+01	0.5263167E+01	0.2600000E-02
0.2600000E-02			
0.2600000E-02	0.2600000E-02	0.2600000E-02	0.2600000E-02
0.2600000E-02			
0.9093669E+01	0.4939338E-03	0.4572295E+00	0.1110456E+01
0.1288675E+01			

0.2735675E+00	0.5066391E+00	0.2301101E+00	0.3619592E+00
0.4674769E-01			
0.4095392E-01	0.9328940E-02	0.1022631E+00	0.9973645E-01
0.7018632E+00			
0.3769090E+00	0.2424623E-03	0.1673889E+00	0.1596121E-03
0.0000000E+00			
0.5280935E-03	0.6705121E-02	0.1034928E-03	0.6311280E+01
0.1434756E+01			
0.7160901E+01	0.5178722E+01	0.6156291E+00	0.2008872E+00
0.1092543E+01			
0.9523820E-02	0.1059144E-01	0.9534790E-02	0.3352535E-01
0.1939912E-01			
0.1938408E-01	0.1653200E-02	0.1044209E-01	0.2497469E+00
0.6816175E+00			
0.1232982E+00	0.7505042E-01	0.3893395E-01	0.3573434E+00
0.1970446E+00			
0.7687519E+00	0.2584692E+00	0.7043637E+00	0.2834024E+01
0.9678928E+01			
0.1806050E+00	0.8153511E-03	0.7032263E-02	0.6160595E-02
0.2883225E-02			
0.6189958E-02	0.1434493E+00	0.3229329E-01	0.6392530E+00
0.3055595E-01			
0.4288190E+02	0.5979091E+00	0.1946350E+01	0.4514873E+01
0.7812686E+02			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.1818024E-04	0.0000000E+00
0.0000000E+00			
0.6021410E-04	0.0000000E+00	0.3894736E-01	0.0000000E+00
0.5702389E-03			
0.2767020E-02	0.3186530E-01	0.2365604E-02	0.4093356E-01
0.2584681E-01			
0.4197420E-02	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.1300392E-01
0.3671765E-03			
0.3841724E-02	0.7421756E-02	0.5461602E-02	0.1638259E-01
0.3907658E-03			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.1340000E-01	0.9700000E-01
0.4900000E-01			
0.3400000E-01	0.3900000E-01	0.3500000E-01	0.3900000E-01
0.4800000E-03			
0.3400000E-02	0.1700000E-02	0.1200000E-02	0.1400000E-02
0.1300000E-02			
0.1400000E-02	0.8000000E-02	0.3400000E-02	0.8900000E+00
0.4500000E-01			
0.7100000E+00	0.2800000E-01	0.7100000E+00	0.3536775E+06
0.1433556E+03			

-0.1921164E+01	-0.3071334E+01	0.1556078E+03	0.2121635E-01
0.1306861E+04			
0.1028385E+04	0.8933273E-04	0.1000000E-06	0.1000000E-04
0.1786000E-01			
0.3700000E+02	0.5256000E-07	0.3942000E-06	0.3200000E+02
0.4730000E+03			
0.3000000E+01	0.1000000E-02	0.6100000E-03	0.7200000E-03
0.4890000E-03			
0.2480000E-04	0.6200000E-05	0.1025707E-03	0.4599193E-03
0.3636310E-03			
0.4308843E-04	0.7465135E-04	0.1160549E-04	0.1859894E-04
0.5587727E+00			
0.4125509E-01	0.4997456E+00	0.4455546E+00	0.9419128E+00
0.3036468E+00			
0.2450254E+00	0.1408870E+00	0.1771565E+00	0.1272834E+00
0.1340766E+00			
0.1793992E+00	0.1440420E+00	0.1309522E+00	0.2277798E-02
0.3362729E-02			
0.2361566E-03	0.3789658E-03	0.3760364E+00	0.4697768E+00
0.3231290E+00			
0.4569309E+00	0.2880304E-01	0.1091594E+01	0.7082791E+00
0.1770830E+02			
0.4675888E+01	0.1110279E+01	0.4500435E+01	0.1122744E+01
0.2780302E+02			
0.1509374E+02	0.1215428E+02	0.1271453E+02	0.1000000E+01
0.1011651E+01			
0.2338869E+01	0.1000000E+01	0.1197704E+01	0.1000000E+01
0.1230000E+01			
0.1390000E+01	0.1190000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.5764193E-04	0.2043754E-04	0.2243197E-02	0.1060541E-08
0.2092583E-01			
0.4234205E-06	0.6023409E-04	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.5000000E-08	0.4000000E-08	0.8000000E-01	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			



0.0000000E+00	0.3930770E+00	0.1998083E+00	0.3029265E+00
0.2372544E+00			
0.3394530E+00	0.2331173E+00	0.7196459E-01	0.9135643E+04
0.1380623E+00			
0.4747503E+00	0.3876046E+00	0.4494013E+00	0.5384311E-01
0.6491000E+00			
0.5940086E+00	0.1722050E+00	0.1891039E+02	0.3599265E-01
0.1680320E-01			
0.5871835E+00	0.7378863E+00	0.4181554E+00	0.2309773E+00
0.4625868E+00			
0.6555491E+00	0.1978597E+00	0.1125018E+00	0.8543394E+00
0.1105198E-01			
0.2114685E+00	0.9601543E+00	0.1296528E+00	0.2476628E+00
0.7390248E+00			
0.6263180E+00	0.8034602E+00	0.1680381E+00	0.2245233E+00
0.9462160E+00			
0.8853320E+00	0.1408887E+00	0.5847764E+00	0.4568453E+00
0.7793895E+00			
0.3019112E+00	0.4208666E+00	0.6204857E+00	0.1665605E-01
0.7827868E+04			
0.4919882E+04	0.6662743E+03	0.6506123E+04	0.5558128E+04
0.8466699E+04			
0.9449206E+04	0.7079006E+04	0.4786961E+04	0.2249031E+04
0.6353099E+04			
0.5040469E+04	0.7451493E+04	0.2111461E+04	0.3744674E+04
0.9673065E+04			
0.3698377E+03	0.8956665E+04	0.7920527E+04	0.5062085E+04
0.4185145E+04			
0.2046395E+04	0.9460034E+04	0.8066516E+04	0.9082991E+04
0.4178851E+04			
0.8231905E+04	0.3433047E+04	0.8239214E+04	0.7768706E+04
0.2029671E+00			
0.4141842E+00	0.6247585E+00	0.9078375E+00	0.7913682E+00
0.3761072E+00			
0.3260298E+00	0.4090245E+00	0.8905688E+00	0.7387021E+00
0.2743192E+00			
0.2583520E+00	0.5451469E+00	0.7604893E+00	0.6804600E+00
0.3630272E+00			
0.6044896E+00	0.6377945E+00	0.9516228E+00	0.1751122E+00
0.6849288E+00			
0.1676674E-01	0.2261974E+00	0.7651271E+00	0.2706575E+00
0.6212309E+00			
0.1585365E+00	0.5509412E+00	0.9586440E+00	0.3625951E+00
0.7273710E-02			
7	445		
0.0000000E+00	0.6120151E-15	0.6343345E-15	0.1313451E-14
0.1181206E-14			
0.3032897E-15	0.9700000E-15	0.9700000E-15	0.9700000E-15
0.9700000E-15			
0.9700000E-15	0.1400000E-03	0.2700000E-04	0.4100000E-04
0.4600000E-04			

0.4600000E-04	0.4600000E-04	0.4600000E-04	0.4600000E-04
0.4600000E-04			
0.4600000E-04	0.9926968E+02	0.9290698E+02	0.6572613E+02
0.5186893E+02			
0.4490747E+02	0.1000000E+02	0.1000000E+02	0.1000000E+02
0.1000000E+02			
0.1000000E+02	0.1868856E-17	0.2351330E-14	0.1768329E-18
0.1187607E-15			
0.3084367E-17	0.5392667E-15	0.2302790E-16	0.4780194E-15
0.4606544E-15			
0.2982284E-14	0.1803792E-15	0.4332709E-15	0.1978692E-15
0.2601485E-14			
0.1587728E+00	0.3346720E+00	0.2148936E+00	0.3121754E+00
0.2059033E+00			
0.2785616E+00	0.2468265E+00	0.4100000E-04	0.4600000E-04
0.4600000E-04			
0.1300000E-04	0.4600000E-04	0.1300000E-04	0.4600000E-04
0.2014512E+01			
0.4527416E+01	0.2053894E+01	0.3343631E+01	0.1831578E+01
0.3259385E+01			
0.1829147E+01	0.5277479E+01	0.3473273E+01	0.3874063E+01
0.3479200E+01			
0.4155414E+01	0.4415764E+01	0.4089765E+01	0.2600000E-02
0.2600000E-02			
0.2600000E-02	0.2600000E-02	0.2600000E-02	0.2600000E-02
0.2600000E-02			
0.2386956E+02	0.1660592E-03	0.3199496E+00	0.7158867E+00
0.5009841E+01			
0.3091206E+01	0.5250528E+01	0.5320521E+01	0.1526036E+00
0.5579534E+00			
0.1040341E+01	0.4976059E+00	0.8341987E+00	0.3277047E-01
0.7679365E-01			
0.5131075E+00	0.4931543E-04	0.1902833E-01	0.1250277E-02
0.0000000E+00			
0.2920347E-02	0.2081070E-03	0.6223893E-02	0.4771434E+01
0.7627956E+01			
0.3411936E+00	0.4388232E+01	0.4444810E+00	0.2107102E-01
0.8029521E+01			
0.4344088E-02	0.3025802E-02	0.1320935E-02	0.2194714E-01
0.3437884E-03			
0.7700608E-03	0.6753680E-03	0.9382753E-01	0.2196002E+01
0.1423435E+01			
0.7998863E-01	0.4252566E-01	0.1206303E+01	0.6801789E+00
0.8319393E+00			
0.3971353E+01	0.3174439E+00	0.2575799E+00	0.1177044E+02
0.5919796E+00			
0.6438984E+00	0.6321440E-02	0.1770480E+00	0.7043986E-02
0.1204860E-01			
0.4560745E-01	0.4806457E-02	0.7222223E-01	0.8190911E-01
0.2956946E-01			

0.3050360E+01	0.9772763E+00	0.6045937E+02	0.3453093E+01
0.6905161E+01			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.4172436E-04	0.0000000E+00
0.0000000E+00			
0.2843328E-03	0.0000000E+00	0.2674223E-02	0.0000000E+00
0.1429943E-02			
0.1183293E-01	0.1224621E-01	0.2259471E-02	0.1185925E-01
0.3858392E-01			
0.4300976E-01	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.7767260E-02
0.4651953E-02			
0.9433804E-03	0.3486284E-03	0.1559644E-02	0.3143431E-02
0.1066860E-01			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.1340000E-01	0.9700000E-01
0.4900000E-01			
0.3400000E-01	0.3900000E-01	0.3500000E-01	0.3900000E-01
0.4800000E-03			
0.3400000E-02	0.1700000E-02	0.1200000E-02	0.1400000E-02
0.1300000E-02			
0.1400000E-02	0.8000000E-02	0.3400000E-02	0.8900000E+00
0.4500000E-01			
0.7100000E+00	0.2800000E-01	0.7100000E+00	0.2357762E+06
0.1332060E+03			
-0.1211212E+01	-0.3359622E+01	0.2138064E+03	0.1996032E-01
0.1220132E+04			
0.1294223E+04	0.6012604E-03	0.1000000E-06	0.1000000E-04
0.1786000E-01			
0.3700000E+02	0.5256000E-07	0.3942000E-06	0.3200000E+02
0.4730000E+03			
0.3000000E+01	0.1000000E-02	0.6100000E-03	0.7200000E-03
0.4890000E-03			
0.2480000E-04	0.6200000E-05	0.1707649E-04	0.2434994E-03
0.1843154E-04			
0.1692714E-03	0.7561947E-03	0.1475038E-04	0.1029615E-04
0.5012425E+00			
0.3798682E+00	0.9571098E+00	0.5723228E+00	0.7639700E+00
0.9737492E+00			
0.1650430E+00	0.1684589E+00	0.9716056E-01	0.1689855E+00
0.1913563E+00			
0.1302731E+00	0.1572061E+00	0.1073649E+00	0.3107578E-02
0.4645552E-02			
0.9838978E-04	0.4987908E-04	0.5993295E+00	0.5371013E+00
0.2675252E+00			
0.4852657E+00	0.3366597E+00	0.3218062E+00	0.5505044E+00
0.7848004E+01			

0.1507470E+02	0.1248764E+01	0.4568473E+02	0.1209133E+01
0.4666912E+01			
0.1302162E+02	0.5838181E+01	0.7034038E+01	0.1000000E+01
0.1007583E+01			
0.2263943E+01	0.1000000E+01	0.1357732E+01	0.1000000E+01
0.1230000E+01			
0.1390000E+01	0.1190000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
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0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.6557474E-06	0.5828927E-05	0.6147315E-02	0.2768630E-04
0.8490407E+00			
0.1887879E-07	0.4546876E-04	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
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0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
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0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.3901382E-01	0.1772601E+00	0.3238752E+00
0.9614088E-01			
0.2165995E+00	0.2181443E+00	0.2801838E+00	0.1257253E+03
0.5834103E-01			
0.6167711E+00	0.6068230E+00	0.3241448E-01	0.6896870E+00
0.6699265E-01			
0.3385307E+00	0.2535407E+00	0.1573377E+02	0.7323965E-01
0.1413105E+00			
0.8438700E+00	0.3380728E+00	0.9302239E+00	0.5242982E+00
0.3329809E+00			
0.9407378E+00	0.6660281E+00	0.4297652E+00	0.1100353E+00
0.1122176E+00			
0.1832272E+00	0.8558057E+00	0.7589105E+00	0.3152293E+00
0.3947783E+00			
0.3570276E+00	0.9881683E+00	0.6591374E+00	0.2730588E-01
0.7713445E+00			
0.7105106E+00	0.1592080E+00	0.7583705E+00	0.8561546E+00
0.6667354E+00			
0.2681112E+00	0.4635216E+00	0.2586967E+00	0.4606760E+00
0.1357337E+04			
0.1563958E+04	0.9004119E+04	0.4908967E+04	0.2601813E+04
0.2424213E+04			

0.7429120E+04	0.4925525E+04	0.4187224E+04	0.3061526E+04
0.4378625E+04			
0.7177702E+04	0.8193217E+04	0.3143921E+04	0.5805192E+04
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0.6561424E+04	0.4432728E+03	0.2748573E+04	0.7965475E+04
0.8593157E+04			
0.4912884E+04	0.3013194E+04	0.7601283E+04	0.5051653E+04
0.4948681E+04			
0.7573201E+04	0.3479578E+03	0.4980519E+04	0.8550973E+04
0.9759040E+00			
0.7219445E+00	0.7554701E+00	0.5047221E+00	0.5895038E+00
0.1908168E+00			
0.3968007E+00	0.8120699E+00	0.7365796E+00	0.3109738E+00
0.5099297E+00			
0.1021446E+00	0.9233087E+00	0.5401309E+00	0.4003389E+00
0.6039284E+00			
0.5147047E-01	0.1781260E+00	0.4631583E+00	0.3770236E+00
0.3820953E-01			
0.6698875E+00	0.9788612E+00	0.3962701E+00	0.8324365E+00
0.4316679E+00			
0.4050379E+00	0.5407815E+00	0.7197901E+00	0.7472841E-01
0.7242698E-02			
8	445		
0.0000000E+00	0.5605647E-15	0.8383958E-15	0.6245493E-16
0.1294592E-14			
0.9246466E-15	0.9700000E-15	0.9700000E-15	0.9700000E-15
0.9700000E-15			
0.9700000E-15	0.1400000E-03	0.2700000E-04	0.4100000E-04
0.4600000E-04			
0.4600000E-04	0.4600000E-04	0.4600000E-04	0.4600000E-04
0.4600000E-04			
0.4600000E-04	0.4222258E+02	0.4564564E+02	0.3391532E+02
0.3813953E+02			
0.4679220E+02	0.1000000E+02	0.1000000E+02	0.1000000E+02
0.1000000E+02			
0.1000000E+02	0.5194199E-18	0.3319773E-14	0.2018933E-17
0.1105877E-14			
0.1000771E-16	0.1757635E-15	0.4815151E-17	0.6052415E-15
0.6101904E-15			
0.1499645E-14	0.1576066E-15	0.7137687E-15	0.9918155E-16
0.7978081E-15			
0.1369005E+00	0.4164748E+00	0.3128813E+00	0.3800709E+00
0.1813800E+00			
0.2357449E+00	0.2670374E+00	0.4100000E-04	0.4600000E-04
0.4600000E-04			
0.1300000E-04	0.4600000E-04	0.1300000E-04	0.4600000E-04
0.1481747E+01			
0.2377748E+01	0.1262385E+01	0.2655315E+01	0.2065962E+01
0.3926985E+01			
0.2049558E+01	0.3623016E+01	0.3550980E+01	0.4630551E+01
0.4521835E+01			

0.3860663E+01	0.3493255E+01	0.4676105E+01	0.2600000E-02
0.2600000E-02			
0.2600000E-02	0.2600000E-02	0.2600000E-02	0.2600000E-02
0.2600000E-02			
0.1651030E+02	0.3371305E-02	0.1775446E+00	0.4768598E+01
0.1065197E+02			
0.6630153E+00	0.1424153E+00	0.1135490E+02	0.2670540E+00
0.6607824E-01			
0.2860974E+00	0.1179591E-01	0.2348430E+00	0.5502957E-02
0.2770084E+00			
0.4225330E-01	0.2372323E-04	0.1145561E-01	0.1069223E-03
0.0000000E+00			
0.3347705E-02	0.1125086E-02	0.1311479E-02	0.2458272E+00
0.1359839E+00			
0.8059472E+00	0.2053387E+01	0.1508537E+01	0.1346640E+00
0.3500101E+01			
0.5986896E-02	0.1634006E-02	0.4424230E-03	0.7710336E-02
0.7006902E-02			
0.4194851E-01	0.1098452E-02	0.5491385E-01	0.1200621E+00
0.3632579E+00			
0.1764573E-01	0.9359652E+00	0.9973261E-01	0.1149281E+01
0.4704521E+01			
0.3278135E+00	0.6778070E+01	0.3264329E+00	0.8562027E+01
0.3140448E+02			
0.4674426E+01	0.1091910E-02	0.5564122E-02	0.6914335E-01
0.4156074E-01			
0.2566591E-01	0.9539257E-01	0.9170843E-02	0.4300182E-01
0.5644264E-01			
0.2888230E+02	0.1445416E+01	0.1413956E+03	0.1289738E+01
0.2361527E+01			
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0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.3183927E-05	0.0000000E+00
0.0000000E+00			
0.4147044E-03	0.0000000E+00	0.1030976E-02	0.0000000E+00
0.8632335E-03			
0.5040706E-01	0.3960422E-01	0.2750392E-01	0.1047204E-01
0.2019432E-01			
0.6190434E-01	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.2788254E-03
0.1924382E-01			
0.2807191E-01	0.9740210E-03	0.1331522E-02	0.3445242E-01
0.5194259E-03			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.1340000E-01	0.9700000E-01
0.4900000E-01			
0.3400000E-01	0.3900000E-01	0.3500000E-01	0.3900000E-01
0.4800000E-03			

0.3400000E-02	0.1700000E-02	0.1200000E-02	0.1400000E-02
0.1300000E-02			
0.1400000E-02	0.8000000E-02	0.3400000E-02	0.8900000E+00
0.4500000E-01			
0.7100000E+00	0.2800000E-01	0.7100000E+00	0.1617470E+06
0.1280085E+03			
-0.8690379E+00	-0.3234159E+01	0.2995125E+03	0.3502993E-02
0.1156847E+04			
0.1002276E+04	0.8545942E-03	0.1000000E-06	0.1000000E-04
0.1786000E-01			
0.3700000E+02	0.5256000E-07	0.3942000E-06	0.3200000E+02
0.4730000E+03			
0.3000000E+01	0.1000000E-02	0.6100000E-03	0.7200000E-03
0.4890000E-03			
0.2480000E-04	0.6200000E-05	0.3191423E-04	0.3209552E-04
0.9093303E-04			
0.7018434E-03	0.4213061E-04	0.3162098E-03	0.1726553E-03
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0.5884297E+00	0.8766608E+00	0.7696746E+00	0.1962945E+00
0.6524283E+00			
0.5630443E+00	0.8479645E-01	0.1267171E+00	0.1558458E+00
0.1844462E+00			
0.1952621E+00	0.1494882E+00	0.1234501E+00	0.3431723E-02
0.4882056E-02			
0.4723835E-03	0.1382561E-03	0.1025372E+01	0.9875253E+00
0.4323205E+00			
0.9600961E+00	0.6767545E+00	0.1151600E+01	0.1034631E+00
0.6397900E+01			
0.4497494E+01	0.1094482E+01	0.3297286E+02	0.1418389E+01
0.7155033E+01			
0.1966546E+02	0.8971084E+01	0.8431684E+01	0.1000000E+01
0.1010766E+01			
0.3682176E+01	0.1000000E+01	0.1343094E+01	0.1000000E+01
0.1230000E+01			
0.1390000E+01	0.1190000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.3327720E-03	0.3974371E-06	0.2915143E-02	0.2164340E-05
0.1758199E+00			
0.3892479E-07	0.8217661E-04	0.1000000E+01	0.1000000E+01
0.1000000E+01			
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0.1000000E+01			
0.5000000E-08	0.4000000E-08	0.8000000E-01	0.0000000E+00
0.0000000E+00			

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0.0000000E+00			
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0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
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0.1472500E+00			
0.3113426E+00	0.2438788E-01	0.2105949E+00	0.4591701E+04
0.2761215E+00			
0.9777422E+00	0.9374101E+00	0.8298527E+00	0.4493570E+00
0.9702813E+00			
0.5537899E-01	0.9803425E+00	0.1156460E+02	0.6000534E-01
0.9026661E+00			
0.6361256E+00	0.1585467E+00	0.7006853E+00	0.3712553E+00
0.6957057E+00			
0.7561346E+00	0.8150589E+00	0.6945524E+00	0.3333807E+00
0.3509187E+00			
0.9607754E+00	0.3875165E+00	0.8794991E+00	0.1202577E+00
0.9044357E+00			
0.1922956E+00	0.5205029E+00	0.9514787E-01	0.5580471E+00
0.1465258E+00			
0.4776545E+00	0.7206831E-01	0.6482174E+00	0.6945049E+00
0.3589964E+00			
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0.5355310E+04			
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0.6676098E+04			
0.9253122E+04	0.9056824E+04	0.7301879E+04	0.9173927E+04
0.1182330E+04			
0.6322646E+04	0.1437072E+04	0.5209228E+04	0.6293489E+04
0.7987145E+04			
0.9826635E+03	0.8854190E+04	0.2381863E+04	0.3895037E+04
0.7285058E+04			
0.2106484E+03	0.6806796E+04	0.1509290E+04	0.3269046E+04
0.8072165E+04			
0.7059772E+04	0.8546339E+04	0.6106825E+03	0.3105084E+04
0.7120690E+00			
0.3092115E+00	0.7482691E+00	0.7937990E+00	0.4875870E+00
0.6067082E+00			
0.1315877E+00	0.6623063E+00	0.3489781E+00	0.9460230E+00
0.8851584E+00			
0.8828582E+00	0.4444379E+00	0.6756606E-01	0.8358588E-01
0.2513174E+00			
0.3161516E+00	0.4004975E+00	0.9255282E+00	0.5820178E+00
0.3421387E+00			
0.9270223E+00	0.2589476E+00	0.9708970E+00	0.8879993E+00
0.4883861E-02			
0.9441580E+00	0.3257389E+00	0.2835841E+00	0.8302550E+00
0.5417034E-02			



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0.2489585E-14			
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0.9700000E-15			
0.9700000E-15	0.1400000E-03	0.2700000E-04	0.4100000E-04
0.4600000E-04			
0.4600000E-04	0.4600000E-04	0.4600000E-04	0.4600000E-04
0.4600000E-04			
0.4600000E-04	0.6512678E+02	0.2264429E+02	0.5815707E+02
0.8458073E+02			
0.6054285E+02	0.1000000E+02	0.1000000E+02	0.1000000E+02
0.1000000E+02			
0.1000000E+02	0.1322122E-17	0.2890930E-13	0.2250649E-19
0.3376449E-15			
0.2365372E-16	0.1223026E-15	0.2857910E-17	0.6280680E-15
0.2531975E-14			
0.6352022E-15	0.1991272E-15	0.2315720E-14	0.1281726E-15
0.5734550E-15			
0.1107774E+00	0.4477436E+00	0.2042910E+00	0.3100021E+00
0.2427726E+00			
0.2515953E+00	0.2029725E+00	0.4100000E-04	0.4600000E-04
0.4600000E-04			
0.1300000E-04	0.4600000E-04	0.1300000E-04	0.4600000E-04
0.2050363E+01			
0.1528451E+01	0.2640032E+01	0.3170899E+01	0.1651455E+01
0.2644749E+01			
0.1985967E+01	0.3891712E+01	0.4258769E+01	0.3271558E+01
0.4907886E+01			
0.4045703E+01	0.5030114E+01	0.3257700E+01	0.2600000E-02
0.2600000E-02			
0.2600000E-02	0.2600000E-02	0.2600000E-02	0.2600000E-02
0.2600000E-02			
0.5179984E+01	0.3942762E-03	0.4208202E+01	0.7180740E+01
0.1953410E+00			
0.7601863E+01	0.3287210E+00	0.4661346E+00	0.3065974E+01
0.1986211E+00			
0.5694628E+00	0.3643962E+00	0.5652774E-01	0.1312942E+00
0.1434797E-01			
0.7349284E-01	0.7921354E-03	0.7854690E-01	0.3238580E-02
0.0000000E+00			
0.4810546E-02	0.4457902E-02	0.1843961E-03	0.2766606E+00
0.1099680E+00			
0.1803646E+01	0.1298591E+02	0.7336427E+00	0.3686880E-01
0.1829372E+01			
0.1718072E-02	0.1820896E-01	0.3609186E-02	0.2627007E-01
0.3718895E-03			
0.1019092E-01	0.4450418E-03	0.4058090E-01	0.9461467E+00
0.6988735E-01			
0.2880473E+00	0.1847955E-01	0.2205222E+00	0.3372442E+00
0.1500724E+00			

0.7653278E+01	0.2063529E+01	0.6346585E+01	0.6656937E+01
0.6261528E+01			
0.7714871E+00	0.4747839E-02	0.1658477E-01	0.1926094E+00
0.1874741E-01			
0.6705036E-02	0.6333268E-02	0.2417964E-01	0.5322479E+00
0.1656705E+00			
0.1873848E+02	0.3279179E+01	0.2768520E+02	0.6068831E+01
0.3516664E+02			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.2757891E-04	0.0000000E+00
0.0000000E+00			
0.1521403E-02	0.0000000E+00	0.3504271E-02	0.0000000E+00
0.1070892E-02			
0.1950794E+00	0.2531676E-01	0.1019949E-02	0.1032909E+00
0.1186464E-01			
0.1368886E-02	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.7834428E-03
0.3415444E-02			
0.4231336E-01	0.4915307E-02	0.9326543E-02	0.1492573E-02
0.9518043E-03			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.1340000E-01	0.9700000E-01
0.4900000E-01			
0.3400000E-01	0.3900000E-01	0.3500000E-01	0.3900000E-01
0.4800000E-03			
0.3400000E-02	0.1700000E-02	0.1200000E-02	0.1400000E-02
0.1300000E-02			
0.1400000E-02	0.8000000E-02	0.3400000E-02	0.8900000E+00
0.4500000E-01			
0.7100000E+00	0.2800000E-01	0.7100000E+00	0.5754000E+05
0.1211901E+03			
-0.5011252E+00	-0.3096146E+01	0.1835599E+03	0.1701382E-01
0.1123941E+04			
0.1051626E+04	0.1464871E-04	0.1000000E-06	0.1000000E-04
0.1786000E-01			
0.3700000E+02	0.5256000E-07	0.3942000E-06	0.3200000E+02
0.4730000E+03			
0.3000000E+01	0.1000000E-02	0.6100000E-03	0.7200000E-03
0.4890000E-03			
0.2480000E-04	0.6200000E-05	0.8946784E-03	0.4689360E-04
0.1062123E-03			
0.3174597E-03	0.1299312E-03	0.3597555E-03	0.1176602E-03
0.6230393E+00			
0.3103756E+00	0.1234829E+00	0.9657980E+00	0.4675191E-01
0.2618369E+00			
0.4260210E+00	0.1805479E+00	0.1317833E+00	0.1219781E+00
0.1019270E+00			

0.1660331E+00	0.1997930E+00	0.1724140E+00	0.3426915E-03
0.4557049E-02			
0.4160855E-03	0.2344166E-03	0.1624546E-01	0.8789195E+00
0.7480284E-02			
0.3559149E-01	0.5658646E+00	0.7959914E+00	0.1125125E+01
0.2251320E+02			
0.1007050E+02	0.1186506E+01	0.3488523E+02	0.1248483E+01
0.1044469E+02			
0.1632496E+02	0.5051805E+01	0.1852266E+02	0.1000000E+01
0.1007242E+01			
0.4057031E+01	0.1000000E+01	0.1225982E+01	0.1000000E+01
0.1230000E+01			
0.1390000E+01	0.1190000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.7540967E-04	0.1284588E-03	0.4446398E-02	0.9641233E-04
0.1467282E-02			
0.2110494E-06	0.6835752E-04	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.5000000E-08	0.4000000E-08	0.8000000E-01	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.1426333E+00	0.3474198E+00	0.3732286E-01
0.1613890E+00			
0.2138934E-01	0.1576145E+00	0.1955342E+00	0.2565819E+04
0.9801277E+00			
0.1430183E+00	0.6708216E+00	0.5448347E+00	0.7223477E+00
0.6771971E+00			
0.4847819E+00	0.2547898E-01	0.1543410E+02	0.9100606E-01
0.2160935E+00			
0.7046092E+00	0.4494085E+00	0.1753139E+00	0.9555360E+00
0.7345227E+00			
0.2000667E+00	0.9735001E+00	0.2824670E+00	0.3828693E-01
0.4261126E+00			
0.6142961E+00	0.9067694E+00	0.9914391E+00	0.5613598E+00
0.5052479E+00			
0.2858061E+00	0.9497629E+00	0.4362523E+00	0.8706334E+00
0.5843771E+00			

0.1387198E+00	0.6055202E+00	0.4136793E-01	0.8675150E-01
0.1790074E+00			
0.2371404E+00	0.3195035E+00	0.7447108E+00	0.2957077E+00
0.5934333E+04			
0.5751612E+04	0.4457846E+04	0.6339310E+04	0.6709302E+04
0.9553619E+04			
0.8148835E+04	0.1637571E+04	0.3068917E+04	0.9840484E+04
0.6737797E+04			
0.5733919E+03	0.8965323E+03	0.3272652E+03	0.5410768E+04
0.7928976E+04			
0.4051098E+04	0.5216202E+04	0.8344678E+04	0.5822220E+04
0.1441940E+04			
0.4146485E+04	0.8935948E+04	0.8526641E+04	0.4604555E+04
0.2444582E+04			
0.5865875E+04	0.5385280E+04	0.3822810E+04	0.6927341E+04
0.1611863E+00			
0.6141885E+00	0.6180214E-01	0.6772412E+00	0.8425531E+00
0.5376018E-01			
0.8832581E-01	0.5970053E+00	0.1096636E+00	0.1745990E+00
0.8498158E+00			
0.7649829E+00	0.8948503E+00	0.3722661E-01	0.9247573E+00
0.6501427E+00			
0.4780091E+00	0.8042485E+00	0.4427527E-01	0.7622185E+00
0.5524836E+00			
0.4070956E+00	0.5073075E+00	0.3416752E+00	0.5305129E+00
0.5061052E+00			
0.3270684E-01	0.7659958E+00	0.5020947E+00	0.1891158E+00
0.7945178E-02			
10	445		
0.0000000E+00	0.8997406E-15	0.3125532E-14	0.8677662E-15
0.8767690E-15			
0.2707143E-14	0.9700000E-15	0.9700000E-15	0.9700000E-15
0.9700000E-15			
0.9700000E-15	0.1400000E-03	0.2700000E-04	0.4100000E-04
0.4600000E-04			
0.4600000E-04	0.4600000E-04	0.4600000E-04	0.4600000E-04
0.4600000E-04			
0.4600000E-04	0.5658262E+02	0.8335108E+02	0.2768383E+02
0.3396617E+02			
0.8105483E+02	0.1000000E+02	0.1000000E+02	0.1000000E+02
0.1000000E+02			
0.1000000E+02	0.4154716E-18	0.3728376E-14	0.5851407E-18
0.2121068E-15			
0.5003062E-17	0.1462488E-14	0.7206049E-16	0.3898427E-15
0.8365566E-15			
0.2060651E-14	0.3171216E-15	0.5627555E-14	0.1804882E-15
0.9887242E-15			
0.7090179E-01	0.4926865E+00	0.2723807E+00	0.2907631E+00
0.2279785E+00			
0.2047425E+00	0.1834748E+00	0.4100000E-04	0.4600000E-04
0.4600000E-04			

0.1300000E-04	0.4600000E-04	0.1300000E-04	0.4600000E-04
0.1841586E+01			
0.4373031E+01	0.1423471E+01	0.3267644E+01	0.2237983E+01
0.2330896E+01			
0.1562923E+01	0.4671536E+01	0.4979712E+01	0.4325777E+01
0.3959593E+01			
0.3466564E+01	0.4710360E+01	0.5140461E+01	0.2600000E-02
0.2600000E-02			
0.2600000E-02	0.2600000E-02	0.2600000E-02	0.2600000E-02
0.2600000E-02			
0.1058262E+02	0.2355439E-02	0.1228975E+01	0.2211734E+01
0.8717850E+01			
0.1146220E+01	0.4002394E+00	0.7319012E+00	0.7668106E+00
0.2762715E-01			
0.6048327E-01	0.2712083E-01	0.7860850E+00	0.1789649E-01
0.6651835E-01			
0.2774969E-01	0.1395925E-03	0.1211999E+00	0.4742754E-02
0.0000000E+00			
0.2166112E-03	0.6116542E-03	0.2061916E-03	0.5797809E+00
0.7508767E+00			
0.1076823E+02	0.6091674E+00	0.1068413E+01	0.4486363E+00
0.1680581E+01			
0.8987138E-03	0.7015736E-03	0.2538103E-02	0.1063484E-02
0.1501922E-01			
0.2359733E-02	0.9359823E-02	0.4030691E+00	0.5357894E+00
0.1659892E+00			
0.1061612E+00	0.8851849E-01	0.1878501E-01	0.1011552E+00
0.4809877E+01			
0.5460504E+01	0.5163048E+00	0.4261600E+00	0.5441354E+01
0.2407955E+01			
0.3899474E+00	0.1660670E-02	0.2416519E-01	0.4371277E-01
0.6670381E-01			
0.2509480E-01	0.1768262E-01	0.3109123E-02	0.4290039E+00
0.8102642E+00			
0.1135827E+03	0.2168522E+01	0.9844832E+02	0.3163838E+01
0.2534110E+02			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.1470860E-05	0.0000000E+00
0.0000000E+00			
0.1051639E-03	0.0000000E+00	0.1107588E-01	0.0000000E+00
0.3989198E-03			
0.7082635E-02	0.1317219E+00	0.3223660E-01	0.2890613E-01
0.7617303E-02			
0.5391067E-02	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.1833508E-02
0.2376552E-02			
0.1272652E-02	0.3051569E-03	0.1941861E-02	0.4615731E-01
0.3300332E-02			

0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.1340000E-01	0.9700000E-01
0.4900000E-01			
0.3400000E-01	0.3900000E-01	0.3500000E-01	0.3900000E-01
0.4800000E-03			
0.3400000E-02	0.1700000E-02	0.1200000E-02	0.1400000E-02
0.1300000E-02			
0.1400000E-02	0.8000000E-02	0.3400000E-02	0.8900000E+00
0.4500000E-01			
0.7100000E+00	0.2800000E-01	0.7100000E+00	0.1545739E+06
0.1404364E+03			
-0.1460962E+01	-0.3035421E+01	0.1606877E+03	0.4411576E-02
0.1146801E+04			
0.1404189E+04	0.1759544E-04	0.1000000E-06	0.1000000E-04
0.1786000E-01			
0.3700000E+02	0.5256000E-07	0.3942000E-06	0.3200000E+02
0.4730000E+03			
0.3000000E+01	0.1000000E-02	0.6100000E-03	0.7200000E-03
0.4890000E-03			
0.2480000E-04	0.6200000E-05	0.1575300E-04	0.6983786E-04
0.1840607E-03			
0.5886310E-04	0.1273933E-04	0.3866041E-04	0.2793963E-03
0.9441581E+00			
0.2590688E+00	0.2865514E+00	0.1328109E+00	0.1067096E+00
0.8630976E-02			
0.8053020E+00	0.1508606E+00	0.1189743E+00	0.1799909E+00
0.1551127E+00			
0.1252663E+00	0.1245228E+00	0.1773484E+00	0.1766746E-02
0.2896754E-02			
0.3145398E-03	0.3264809E-03	0.1266283E+00	0.7506079E+00
0.8517034E+00			
0.1054122E+01	0.4271826E+00	0.7026763E+00	0.5002644E+00
0.1453303E+02			
0.1714968E+02	0.1128764E+01	0.2202842E+02	0.1340320E+01
0.1659567E+02			
0.3099864E+02	0.4677866E+01	0.1040555E+02	0.1000000E+01
0.1012866E+01			
0.5591953E+01	0.1000000E+01	0.1299708E+01	0.1000000E+01
0.1230000E+01			
0.1390000E+01	0.1190000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1647000E-03	0.3760972E-04	0.9524265E-02	0.9247235E-07
0.4870093E-01			

0.1081506E-07	0.1508612E-04	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.5000000E-08	0.4000000E-08	0.8000000E-01	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.2992494E+00	0.8868312E-01	0.2194867E+00
0.1812999E-02			
0.2633159E+00	0.1683964E+00	0.3467730E+00	0.8988891E+04
0.3547728E+00			
0.1513604E+00	0.7277603E-01	0.1008448E+00	0.2454556E+00
0.4785673E+00			
0.7250418E+00	0.8773794E+00	0.8875040E+01	0.6562370E-01
0.3826467E+00			
0.3529520E+00	0.7558295E+00	0.8143832E+00	0.6725883E+00
0.9053872E+00			
0.2125165E-01	0.9174730E+00	0.7663830E+00	0.8490766E+00
0.5120841E+00			
0.7950402E+00	0.9336919E-01	0.4605336E+00	0.5271952E+00
0.1858869E+00			
0.7851099E-01	0.4025588E+00	0.6201470E+00	0.6963483E+00
0.8002743E+00			
0.3748469E+00	0.7033933E+00	0.6798403E+00	0.7931720E+00
0.8499895E+00			
0.4726920E+00	0.7789092E+00	0.8900997E+00	0.7275957E+00
0.4663405E+04			
0.6733289E+04	0.3351729E+04	0.1873179E+04	0.3381280E+04
0.2012409E+04			
0.9483814E+03	0.3590573E+04	0.3895604E+04	0.1990746E+04
0.3789696E+04			
0.4008962E+04	0.8568827E+04	0.7700699E+04	0.9445874E+04
0.8819159E+04			
0.5301381E+04	0.5905168E+04	0.1173914E+04	0.6841413E+04
0.5137760E+04			
0.8412449E+04	0.2076852E+04	0.2041667E+04	0.5566285E+03
0.1297598E+04			
0.9250581E+04	0.4364754E+04	0.9700463E+04	0.6654933E+03
0.7653638E+00			
0.6297073E-01	0.8390793E+00	0.2410827E+00	0.9341311E+00
0.4841847E+00			
0.1651333E+00	0.1014902E+00	0.4981607E+00	0.2374091E-01
0.6185111E+00			
0.6510640E+00	0.1971874E+00	0.8939053E+00	0.8045701E+00
0.5265023E+00			

0.6704425E+00	0.3162859E+00	0.3607647E+00	0.2324273E+00
0.8707183E+00			
0.5080784E+00	0.8845005E+00	0.5778208E+00	0.1665431E+00
0.5679629E+00			
0.8200891E+00	0.8519648E+00	0.4162275E+00	0.5199490E+00
0.6288801E-02			
11	445		
0.0000000E+00	0.1195798E-14	0.3517100E-14	0.1883884E-15
0.7428698E-15			
0.7248835E-15	0.9700000E-15	0.9700000E-15	0.9700000E-15
0.9700000E-15			
0.9700000E-15	0.1400000E-03	0.2700000E-04	0.4100000E-04
0.4600000E-04			
0.4600000E-04	0.4600000E-04	0.4600000E-04	0.4600000E-04
0.4600000E-04			
0.4600000E-04	0.1068460E+02	0.2644701E+02	0.1897795E+02
0.5734712E+02			
0.8929661E+02	0.1000000E+02	0.1000000E+02	0.1000000E+02
0.1000000E+02			
0.1000000E+02	0.1670537E-17	0.5150860E-13	0.2447308E-18
0.2221589E-14			
0.4184441E-16	0.2541680E-15	0.1192622E-16	0.2598355E-15
0.5459068E-15			
0.2173006E-14	0.9990423E-16	0.2289787E-15	0.2506681E-15
0.7172296E-15			
0.1287443E+00	0.5477542E+00	0.3091566E+00	0.2604349E+00
0.1987679E+00			
0.1964380E+00	0.2899719E+00	0.4100000E-04	0.4600000E-04
0.4600000E-04			
0.1300000E-04	0.4600000E-04	0.1300000E-04	0.4600000E-04
0.1782419E+01			
0.1715087E+01	0.3061068E+01	0.2898323E+01	0.2101859E+01
0.2548873E+01			
0.1890965E+01	0.4873519E+01	0.4249154E+01	0.4814829E+01
0.5188176E+01			
0.4859119E+01	0.3398694E+01	0.5031082E+01	0.2600000E-02
0.2600000E-02			
0.2600000E-02	0.2600000E-02	0.2600000E-02	0.2600000E-02
0.2600000E-02			
0.2290109E+02	0.4926167E-02	0.2240758E+00	0.4282147E+00
0.2394564E+01			
0.6862954E+01	0.1202043E+01	0.1279324E+01	0.5559474E+01
0.4140803E-01			
0.2485198E+00	0.1909160E+00	0.1483983E-01	0.6047365E-01
0.4410736E-01			
0.1390050E-01	0.1126088E-02	0.1583871E-01	0.2709889E-03
0.0000000E+00			
0.1816065E-02	0.5587760E-02	0.4346272E-02	0.1406769E+01
0.5434437E+00			
0.5393746E+00	0.3608619E+02	0.4084148E+00	0.7804522E+00
0.1603146E+00			



0.3082424E-02	0.2823611E-02	0.1383032E-02	0.4445792E-02
0.4569517E-03			
0.5551191E-02	0.1933237E-01	0.3354905E+00	0.7488295E+00
0.1264747E+01			
0.1978274E+00	0.1290142E+01	0.6966259E-01	0.5570639E-01
0.1180564E+01			
0.2417614E+01	0.3114480E+01	0.4687429E+01	0.2408674E+00
0.4587152E+02			
0.2319246E+01	0.3643696E-01	0.3539759E-01	0.2807613E-01
0.1119495E+00			
0.1504852E+00	0.6858655E-01	0.4279769E-01	0.1451238E+00
0.1225980E+01			
0.1235999E+02	0.7051144E+00	0.2697757E+01	0.6998123E+00
0.5846632E+02			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.5877946E-04	0.0000000E+00
0.0000000E+00			
0.4036703E-04	0.0000000E+00	0.1283729E-02	0.0000000E+00
0.2730582E-01			
0.3963562E-02	0.8277680E-01	0.1225347E-01	0.1626788E-01
0.1743527E-02			
0.2851705E-01	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.8838033E-02
0.6497779E-02			
0.5662792E-02	0.1724767E-02	0.1680869E-01	0.2857091E-01
0.6482598E-03			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.1340000E-01	0.9700000E-01
0.4900000E-01			
0.3400000E-01	0.3900000E-01	0.3500000E-01	0.3900000E-01
0.4800000E-03			
0.3400000E-02	0.1700000E-02	0.1200000E-02	0.1400000E-02
0.1300000E-02			
0.1400000E-02	0.8000000E-02	0.3400000E-02	0.8900000E+00
0.4500000E-01			
0.7100000E+00	0.2800000E-01	0.7100000E+00	0.3178145E+06
0.1131554E+03			
-0.9611135E+00	-0.3000189E+01	0.2720255E+03	0.1639256E-01
0.1349500E+04			
0.1098256E+04	0.2090139E-04	0.1000000E-06	0.1000000E-04
0.1786000E-01			
0.3700000E+02	0.5256000E-07	0.3942000E-06	0.3200000E+02
0.4730000E+03			
0.3000000E+01	0.1000000E-02	0.6100000E-03	0.7200000E-03
0.4890000E-03			
0.2480000E-04	0.6200000E-05	0.3929198E-03	0.1162458E-03
0.2449584E-03			

0.4439744E-03	0.1205419E-03	0.2312527E-04	0.9935086E-03
0.3295640E+00			
0.7460714E-01	0.4405700E+00	0.9574123E-01	0.4385184E+00
0.2390285E+00			
0.3803626E+00	0.1835836E+00	0.1892845E+00	0.1043298E+00
0.1413444E+00			
0.1376202E+00	0.1855677E+00	0.1840222E+00	0.2292548E-02
0.3580359E-02			
0.2113748E-03	0.4510615E-03	0.4447135E+00	0.3149887E+00
0.9298382E-01			
0.9589771E+00	0.1075480E+01	0.4723582E+00	0.8020613E+00
0.1552189E+02			
0.2788473E+01	0.1191204E+01	0.1236199E+02	0.1427364E+01
0.1584890E+02			
0.5817533E+02	0.1390649E+02	0.1108704E+02	0.1000000E+01
0.1006964E+01			
0.2699891E+01	0.1000000E+01	0.1309008E+01	0.1000000E+01
0.1230000E+01			
0.1390000E+01	0.1190000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1523983E-05	0.7138692E-05	0.1823467E-02	0.1226459E-06
0.9691723E-02			
0.5477749E-07	0.1036463E-04	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.5000000E-08	0.4000000E-08	0.8000000E-01	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.2784624E+00	0.7393258E-01	0.9990887E-01
0.3448493E+00			
0.1067813E+00	0.9706884E-01	0.5425683E-01	0.4221493E+04
0.4318027E+00			
0.9600705E-01	0.5378907E+00	0.2077953E+00	0.4523286E+00
0.9070078E+00			
0.9028308E+00	0.3327610E+00	0.1739119E+02	0.9362661E-01
0.4338373E+00			
0.5362342E+00	0.1141777E-01	0.8381117E-02	0.4228227E-01
0.4163046E+00			

0.4529236E+00	0.4749304E+00	0.7360649E+00	0.9807204E+00
0.4769937E+00			
0.6670754E+00	0.2683683E+00	0.5895889E+00	0.8287892E+00
0.2796877E-01			
0.1193049E+00	0.1451927E-01	0.7681976E+00	0.7767336E+00
0.9774123E+00			
0.6810171E+00	0.3143763E+00	0.6748319E-01	0.3407868E+00
0.5666700E-01			
0.9013136E+00	0.5702851E+00	0.5711301E-01	0.9400159E+00
0.3401101E+04			
0.8717402E+04	0.6062782E+04	0.9349818E+03	0.4740787E+03
0.3116382E+04			
0.2818496E+04	0.1266076E+04	0.2137753E+04	0.8475863E+04
0.1945328E+04			
0.4479471E+04	0.4166154E+04	0.4339701E+04	0.6190929E+03
0.5770430E+04			
0.4683229E+04	0.4145963E+04	0.3372081E+04	0.2300627E+04
0.2074661E+04			
0.9857483E+04	0.4100614E+04	0.7336179E+04	0.9652563E+04
0.7748903E+04			
0.3443571E+04	0.9156430E+04	0.7559385E+04	0.9127120E+04
0.9305773E+00			
0.1985053E-01	0.1729358E-01	0.5932665E+00	0.3866200E+00
0.2943361E+00			
0.9922705E+00	0.7624394E+00	0.6813165E+00	0.2058167E+00
0.2080324E+00			
0.8945047E-01	0.3785440E+00	0.9286577E+00	0.5931376E+00
0.4230457E+00			
0.2745433E-01	0.6923417E+00	0.8358979E+00	0.3323914E+00
0.9119047E+00			
0.4789219E+00	0.7047437E-01	0.5487971E+00	0.5831198E-01
0.8575629E-01			
0.3744377E+00	0.4396161E+00	0.1698717E+00	0.4814260E+00
0.8723372E-02			
12	445		
0.0000000E+00	0.3305044E-14	0.1994891E-14	0.4834051E-15
0.1599746E-14			
0.2445537E-15	0.9700000E-15	0.9700000E-15	0.9700000E-15
0.9700000E-15			
0.9700000E-15	0.1400000E-03	0.2700000E-04	0.4100000E-04
0.4600000E-04			
0.4600000E-04	0.4600000E-04	0.4600000E-04	0.4600000E-04
0.4600000E-04			
0.4600000E-04	0.3998884E+02	0.4087964E+02	0.7392006E+02
0.4917420E+02			
0.1793572E+02	0.1000000E+02	0.1000000E+02	0.1000000E+02
0.1000000E+02			
0.1000000E+02	0.1116989E-18	0.6494346E-13	0.7135725E-19
0.6414280E-15			
0.3331447E-16	0.4149000E-15	0.1482189E-17	0.2076182E-15
0.2056863E-14			

0.1755059E-14	0.1471082E-15	0.1377149E-14	0.1053940E-15
0.4176160E-14			
0.8522492E-01	0.4096880E+00	0.2994314E+00	0.3885606E+00
0.2960913E+00			
0.2830698E+00	0.2619116E+00	0.4100000E-04	0.4600000E-04
0.4600000E-04			
0.1300000E-04	0.4600000E-04	0.1300000E-04	0.4600000E-04
0.1454392E+01			
0.4759463E+01	0.1573060E+01	0.2057354E+01	0.1579462E+01
0.2480943E+01			
0.1806625E+01	0.3379226E+01	0.3706204E+01	0.5119748E+01
0.3923071E+01			
0.4909112E+01	0.3680989E+01	0.4180544E+01	0.2600000E-02
0.2600000E-02			
0.2600000E-02	0.2600000E-02	0.2600000E-02	0.2600000E-02
0.2600000E-02			
0.1347477E+02	0.3319996E-03	0.2267012E+00	0.9697965E+01
0.3759323E+01			
0.2425669E+01	0.3236730E+01	0.3695228E+01	0.1934678E+00
0.1109469E+01			
0.8246230E+00	0.5734337E+00	0.1757964E-01	0.1285628E-01
0.1808365E-01			
0.6161231E-01	0.5038213E-03	0.6565875E-02	0.2500812E-02
0.0000000E+00			
0.4037630E-03	0.3892895E-03	0.8901024E-04	0.3799392E+01
0.3402915E+00			
0.5228859E+00	0.3103529E+02	0.1939751E+00	0.2925600E+00
0.9119667E+00			
0.1232898E-02	0.7212940E-03	0.1154844E-01	0.3838908E-02
0.1124695E-02			
0.1656780E-02	0.3843209E-02	0.5324014E-02	0.8470302E-01
0.1015141E+00			
0.7807861E+00	0.3154283E+00	0.4652433E-01	0.6132623E-01
0.1327541E+01			
0.1327866E+02	0.1110591E+01	0.1958013E+01	0.7137494E+00
0.1457814E+02			
0.1120991E+02	0.3882609E-02	0.7012119E-01	0.2429989E-01
0.3936607E-02			
0.3560416E-02	0.8104828E-01	0.2314582E-02	0.3514103E+01
0.4155595E-01			
0.2327491E+02	0.4230024E+01	0.9917822E+01	0.1032840E+02
0.1980884E+01			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.4227049E-05	0.0000000E+00
0.0000000E+00			
0.1874535E-04	0.0000000E+00	0.5451870E-02	0.0000000E+00
0.6945830E-02			
0.3824545E-01	0.1852095E-02	0.8799563E-01	0.6921655E-02
0.4288585E-02			

0.1185074E-01	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.8987216E-03
0.2870341E-01			
0.1553881E-01	0.3011281E-02	0.8195552E-02	0.8044007E-02
0.3299461E-01			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.1340000E-01	0.9700000E-01
0.4900000E-01			
0.3400000E-01	0.3900000E-01	0.3500000E-01	0.3900000E-01
0.4800000E-03			
0.3400000E-02	0.1700000E-02	0.1200000E-02	0.1400000E-02
0.1300000E-02			
0.1400000E-02	0.8000000E-02	0.3400000E-02	0.8900000E+00
0.4500000E-01			
0.7100000E+00	0.2800000E-01	0.7100000E+00	0.3723332E+06
0.1091543E+03			
-0.6588275E+00	-0.3191231E+01	0.2357176E+03	0.1758284E-01
0.1363426E+04			
0.1228909E+04	0.2526315E-04	0.1000000E-06	0.1000000E-04
0.1786000E-01			
0.3700000E+02	0.5256000E-07	0.3942000E-06	0.3200000E+02
0.4730000E+03			
0.3000000E+01	0.1000000E-02	0.6100000E-03	0.7200000E-03
0.4890000E-03			
0.2480000E-04	0.6200000E-05	0.1998761E-03	0.3682868E-03
0.2438997E-04			
0.1487855E-04	0.3755300E-04	0.8403525E-03	0.1273856E-04
0.7832000E+00			
0.4709396E+00	0.3371943E+00	0.5106992E+00	0.5283159E+00
0.3675356E+00			
0.7732600E+00	0.1563531E+00	0.1375039E+00	0.1459022E+00
0.1988201E+00			
0.1140335E+00	0.1588937E+00	0.1906176E+00	0.8949291E-03
0.2212927E-02			
0.5253735E-03	0.5209062E-03	0.9843757E+00	0.5910967E+00
0.1136080E+01			
0.8593661E+00	0.1568273E+00	0.3652104E+00	0.3945761E+00
0.2160122E+02			
0.5057471E+01	0.1135617E+01	0.1550174E+02	0.1450038E+01
0.4007319E+02			
0.6429900E+02	0.1006926E+02	0.2341323E+02	0.1000000E+01
0.1008553E+01			
0.3741276E+01	0.1000000E+01	0.1455617E+01	0.1000000E+01
0.1230000E+01			
0.1390000E+01	0.1190000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			

0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.7639576E-05	0.2489908E-03	0.5343236E-02	0.4703939E-08
0.4308237E-03			
0.2774730E-06	0.3370936E-04	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.5000000E-08	0.4000000E-08	0.8000000E-01	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.2560013E+00	0.2098899E+00	0.2120424E-02
0.3996004E+00			
0.1466232E+00	0.2496784E+00	0.3325815E+00	0.1942380E+04
0.9045226E+00			
0.3126025E+00	0.7613688E+00	0.6384615E+00	0.9179552E+00
0.1937594E+00			
0.4169859E+00	0.5538914E-01	0.2193026E+02	0.7853039E-01
0.2566443E+00			
0.3440082E+00	0.8546139E+00	0.2429443E+00	0.2636244E+00
0.1525583E+00			
0.3373015E+00	0.3301906E+00	0.8857497E+00	0.3763475E+00
0.8134986E+00			
0.1647653E-01	0.7487911E+00	0.5482771E+00	0.3711050E+00
0.6152277E+00			
0.6669198E+00	0.1639469E+00	0.2189218E+00	0.4086649E+00
0.1871981E+00			
0.4452458E+00	0.2082366E+00	0.2267735E+00	0.1622130E+00
0.6425620E+00			
0.6322126E-01	0.1407601E-01	0.1183306E+00	0.8666266E+00
0.6994499E+04			
0.8119450E+04	0.6779962E+04	0.1449979E+04	0.9808691E+04
0.4786208E+04			
0.3268110E+04	0.2307801E+04	0.9701558E+04	0.6417776E+04
0.8259189E+04			
0.9677815E+04	0.1870238E+04	0.9002174E+04	0.4277307E+04
0.4293751E+04			
0.3747924E+04	0.3276324E+04	0.7346859E+04	0.3046011E+04
0.5452936E+03			
0.6757948E+04	0.6980765E+04	0.3751750E+04	0.4123116E+04
0.9687882E+03			
0.9640745E+04	0.8309381E+03	0.1372700E+04	0.5480489E+04
0.5717842E+00			

0.9157446E+00	0.1975838E+00	0.3381724E+00	0.5380189E+00
0.1221793E+00			
0.5624844E+00	0.7386362E+00	0.9718823E+00	0.7751259E+00
0.7469843E+00			
0.1627425E+00	0.2102391E+00	0.3302887E+00	0.2479094E+00
0.7104028E+00			
0.5680513E+00	0.9321992E+00	0.5794536E-01	0.4491191E+00
0.1616369E+00			
0.8294321E+00	0.3870024E+00	0.6830914E+00	0.2299581E+00
0.1799141E+00			
0.5024486E+00	0.6263239E+00	0.4633752E+00	0.1290845E+00
0.7730175E-02			
	13	445	
0.0000000E+00	0.7995556E-15	0.4678327E-15	0.1285793E-15
0.1087953E-14			
0.6034994E-15	0.9700000E-15	0.9700000E-15	0.9700000E-15
0.9700000E-15			
0.9700000E-15	0.1400000E-03	0.2700000E-04	0.4100000E-04
0.4600000E-04			
0.4600000E-04	0.4600000E-04	0.4600000E-04	0.4600000E-04
0.4600000E-04			
0.4600000E-04	0.2724130E+02	0.6781934E+02	0.1178724E+02
0.8751202E+02			
0.2944221E+02	0.1000000E+02	0.1000000E+02	0.1000000E+02
0.1000000E+02			
0.1000000E+02	0.1137556E-17	0.9732708E-14	0.5142403E-19
0.1509659E-15			
0.1129901E-16	0.6962392E-15	0.1528029E-16	0.1614606E-14
0.1220515E-14			
0.8451169E-15	0.1342269E-15	0.6007374E-15	0.4833569E-16
0.2121418E-14			
0.9797085E-01	0.5069004E+00	0.2369952E+00	0.3255734E+00
0.2187003E+00			
0.2875134E+00	0.2336105E+00	0.4100000E-04	0.4600000E-04
0.4600000E-04			
0.1300000E-04	0.4600000E-04	0.1300000E-04	0.4600000E-04
0.1592130E+01			
0.3695540E+01	0.3246741E+01	0.2465574E+01	0.1684090E+01
0.3168469E+01			
0.2250090E+01	0.4174525E+01	0.4090648E+01	0.3992906E+01
0.5048782E+01			
0.4039781E+01	0.5214299E+01	0.4395295E+01	0.2600000E-02
0.2600000E-02			
0.2600000E-02	0.2600000E-02	0.2600000E-02	0.2600000E-02
0.2600000E-02			
0.8060866E+01	0.1340904E-02	0.2773316E+01	0.2880196E+01
0.2705948E+00			
0.5603986E+01	0.5735683E+00	0.4246633E+01	0.1276149E+02
0.2574525E-01			
0.1876087E-01	0.1241587E+00	0.2464193E-01	0.2680970E+00
0.2263766E+00			

0.2402439E-01	0.3519233E-03	0.1392367E+00	0.7149323E-02
0.0000000E+00			
0.1471288E-03	0.2018440E-02	0.6471442E-03	0.1188636E+00
0.1656686E+01			
0.2378190E+01	0.1231500E+01	0.4557635E+01	0.1021746E+00
0.1162979E+02			
0.2611729E-01	0.2446074E-01	0.8778129E-03	0.2239755E-02
0.1078851E-02			
0.3853336E-02	0.8673788E-02	0.7340890E-01	0.5861507E+00
0.3846250E-01			
0.1590283E+00	0.2449570E+00	0.2200668E-01	0.5363048E+00
0.1618705E+01			
0.4337699E+00	0.8209691E+00	0.5310792E+00	0.3027716E+00
0.1357256E+01			
0.5626474E+01	0.4589635E-01	0.2215497E+00	0.2799371E-02
0.1747491E-02			
0.3922257E-01	0.1993629E-02	0.3284325E-02	0.9978204E-01
0.5940647E+00			
0.4594910E+02	0.4877201E+00	0.3687730E+02	0.4013220E+00
0.9940621E+01			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.5663495E-05	0.0000000E+00
0.0000000E+00			
0.1111985E-03	0.0000000E+00	0.1819408E-01	0.0000000E+00
0.4765117E-02			
0.1018299E-01	0.3719198E-02	0.3763288E-02	0.2126839E-01
0.2805809E-02			
0.8016844E-02	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.2991926E-02
0.8465968E-02			
0.2741654E-02	0.1739021E-01	0.1347601E-01	0.1401813E-01
0.7575914E-02			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.1340000E-01	0.9700000E-01
0.4900000E-01			
0.3400000E-01	0.3900000E-01	0.3500000E-01	0.3900000E-01
0.4800000E-03			
0.3400000E-02	0.1700000E-02	0.1200000E-02	0.1400000E-02
0.1300000E-02			
0.1400000E-02	0.8000000E-02	0.3400000E-02	0.8900000E+00
0.4500000E-01			
0.7100000E+00	0.2800000E-01	0.7100000E+00	0.1887674E+06
0.1324969E+03			
-0.7854417E+00	-0.3325317E+01	0.2640743E+03	0.1118754E-01
0.1384394E+04			
0.1399070E+04	0.1061741E-03	0.1000000E-06	0.1000000E-04
0.1786000E-01			



0.3700000E+02	0.5256000E-07	0.3942000E-06	0.3200000E+02
0.4730000E+03			
0.3000000E+01	0.1000000E-02	0.6100000E-03	0.7200000E-03
0.4890000E-03			
0.2480000E-04	0.6200000E-05	0.7294486E-04	0.1397554E-04
0.2714621E-03			
0.2498724E-03	0.2105973E-03	0.1800242E-04	0.3286247E-03
0.6737604E+00			
0.8921737E+00	0.3954694E-01	0.4550796E+00	0.6406445E+00
0.4742289E+00			
0.6171363E+00	0.1730000E+00	0.1144755E+00	0.9270245E-01
0.1647951E+00			
0.1853586E+00	0.9532082E-01	0.1431734E+00	0.8059487E-04
0.1682423E-02			
0.3467283E-04	0.1911228E-03	0.9359046E+00	0.2558957E+00
0.1376369E+00			
0.7540650E+00	0.1172285E+01	0.1811527E+00	0.6202150E+00
0.8833275E+01			
0.7076339E+01	0.1161992E+01	0.1498289E+02	0.1566779E+01
0.1380707E+02			
0.7064430E+02	0.8133421E+01	0.7526581E+01	0.1000000E+01
0.1006024E+01			
0.2982926E+01	0.1000000E+01	0.1247823E+01	0.1000000E+01
0.1230000E+01			
0.1390000E+01	0.1190000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.3353979E-05	0.1425371E-04	0.3894369E-02	0.1477056E-04
0.2837013E+00			
0.3426012E-06	0.9722984E-05	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.5000000E-08	0.4000000E-08	0.8000000E-01	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.3496836E+00	0.2949836E+00	0.3596536E+00
0.1926058E+00			
0.3690424E+00	0.1253502E+00	0.3350501E-01	0.7066085E+04
0.3189129E+00			

0.1831255E-01	0.2757461E+00	0.8808378E+00	0.8499945E+00
0.7919494E+00			
0.3584386E+00	0.5963703E+00	0.1457940E+02	0.7115102E-01
0.7267710E+00			
0.4445106E+00	0.8301018E-01	0.9717044E+00	0.6064536E-01
0.5574596E+00			
0.6331830E+00	0.6497393E+00	0.9127615E+00	0.2355673E+00
0.6334312E+00			
0.8649683E+00	0.3269165E+00	0.3427983E+00	0.6209179E+00
0.3460341E+00			
0.3316864E+00	0.2848924E+00	0.9396460E+00	0.6351912E+00
0.8138853E-01			
0.5343390E+00	0.9972306E+00	0.4002401E+00	0.3604775E+00
0.9429817E+00			
0.9536054E+00	0.7986758E-01	0.9053479E+00	0.1755657E+00
0.6698678E+04			
0.7275031E+04	0.4590675E+04	0.4096475E+04	0.1590807E+04
0.7513396E+04			
0.6846684E+04	0.9674021E+04	0.6253858E+04	0.7460567E+03
0.3832495E+03			
0.2880139E+04	0.6843700E+04	0.8434020E+04	0.2045822E+04
0.1302004E+04			
0.5966781E+04	0.1523768E+04	0.3621819E+04	0.6441240E+03
0.1012755E+04			
0.9012127E+04	0.1584066E+04	0.4738755E+04	0.2239889E+04
0.3998245E+04			
0.8853316E+04	0.2489711E+04	0.9033646E+04	0.4236325E+04
0.5313965E+00			
0.1773799E+00	0.9059042E+00	0.2604614E-01	0.2504251E+00
0.4228298E+00			
0.7488015E+00	0.6860958E-01	0.3308391E-02	0.3952605E+00
0.3848232E+00			
0.2242249E+00	0.4746103E+00	0.4964134E+00	0.5465561E+00
0.3491736E+00			
0.8597747E+00	0.3743440E+00	0.8810064E+00	0.8980973E+00
0.2071098E+00			
0.7884883E+00	0.5920982E+00	0.1893600E+00	0.4939735E+00
0.6646527E+00			
0.8880239E+00	0.9584044E+00	0.6870067E+00	0.4166559E-01
0.6640341E-02			
14	445		
0.0000000E+00	0.1054333E-14	0.1700611E-14	0.3211997E-15
0.4836046E-15			
0.1127098E-14	0.9700000E-15	0.9700000E-15	0.9700000E-15
0.9700000E-15			
0.9700000E-15	0.1400000E-03	0.2700000E-04	0.4100000E-04
0.4600000E-04			
0.4600000E-04	0.4600000E-04	0.4600000E-04	0.4600000E-04
0.4600000E-04			
0.4600000E-04	0.3429977E+02	0.3353060E+02	0.2270662E+02
0.9817624E+02			

0.2218746E+02	0.1000000E+02	0.1000000E+02	0.1000000E+02
0.1000000E+02			
0.1000000E+02	0.2738477E-18	0.2123565E-13	0.1177692E-18
0.1275807E-14			
0.1971420E-16	0.5590788E-15	0.1302596E-16	0.3923267E-15
0.2399001E-14			
0.1084505E-14	0.7312372E-16	0.3506290E-15	0.1427248E-15
0.1304392E-14			
0.1412112E+00	0.4710521E+00	0.2101094E+00	0.3447917E+00
0.1932175E+00			
0.2233186E+00	0.2042090E+00	0.4100000E-04	0.4600000E-04
0.4600000E-04			
0.1300000E-04	0.4600000E-04	0.1300000E-04	0.4600000E-04
0.1932603E+01			
0.4155674E+01	0.1956788E+01	0.3236242E+01	0.2301182E+01
0.3696160E+01			
0.1699914E+01	0.4918611E+01	0.3811130E+01	0.3437512E+01
0.3576916E+01			
0.3669715E+01	0.3807770E+01	0.4896875E+01	0.2600000E-02
0.2600000E-02			
0.2600000E-02	0.2600000E-02	0.2600000E-02	0.2600000E-02
0.2600000E-02			
0.1944584E+02	0.1826576E-03	0.1033521E+01	0.1537187E+01
0.3382645E+00			
0.3920096E+00	0.6925008E+00	0.2009677E+01	0.9766993E+01
0.1695645E+01			
0.4596987E+00	0.8504724E-01	0.3470505E-01	0.1499804E+00
0.1084707E+00			
0.2356231E+00	0.9157532E-03	0.2163333E-01	0.1851834E-02
0.0000000E+00			
0.8513140E-04	0.1743479E-02	0.2261955E-02	0.1715326E+01
0.3472946E+01			
0.4328922E+01	0.8482026E+00	0.2426088E+00	0.2709203E-01
0.2492063E+01			
0.8818148E-03	0.7353994E-02	0.6044305E-03	0.6937299E-03
0.2642314E-03			
0.6878970E-02	0.1448683E-01	0.9996029E-01	0.1845063E+00
0.4905194E+00			
0.2280439E-01	0.2561615E-01	0.1881561E+00	0.1587100E+00
0.5912262E+00			
0.6055215E+00	0.2470785E+01	0.2219251E+00	0.4238901E+00
0.3754039E+01			
0.3754129E+01	0.9759777E-02	0.9089432E-02	0.8941558E-02
0.2270408E-02			
0.1885091E-01	0.3074673E-02	0.1102721E-01	0.1648463E+01
0.9798567E+00			
0.1504821E+03	0.6656008E+01	0.5858109E+01	0.1990131E+02
0.3411680E+01			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			

0.0000000E+00	0.0000000E+00	0.7838015E-04	0.0000000E+00
0.0000000E+00			
0.8318206E-03	0.0000000E+00	0.1359128E-02	0.0000000E+00
0.1734138E-01			
0.5449608E-01	0.4732527E-02	0.7736478E-02	0.8108255E-01
0.6066296E-01			
0.2459824E-02	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.1308664E-02
0.1724562E-02			
0.3158804E-01	0.3334173E-02	0.3908052E-02	0.2203947E-01
0.1234190E-01			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.1340000E-01	0.9700000E-01
0.4900000E-01			
0.3400000E-01	0.3900000E-01	0.3500000E-01	0.3900000E-01
0.4800000E-03			
0.3400000E-02	0.1700000E-02	0.1200000E-02	0.1400000E-02
0.1300000E-02			
0.1400000E-02	0.8000000E-02	0.3400000E-02	0.8900000E+00
0.4500000E-01			
0.7100000E+00	0.2800000E-01	0.7100000E+00	0.3281295E+06
0.1450577E+03			
-0.1297449E+01	-0.3293369E+01	0.2577214E+03	0.2280921E-01
0.1496141E+04			
0.1204441E+04	0.5348797E-04	0.1000000E-06	0.1000000E-04
0.1786000E-01			
0.3700000E+02	0.5256000E-07	0.3942000E-06	0.3200000E+02
0.4730000E+03			
0.3000000E+01	0.1000000E-02	0.6100000E-03	0.7200000E-03
0.4890000E-03			
0.2480000E-04	0.6200000E-05	0.4950205E-03	0.1056717E-04
0.7922846E-03			
0.2234050E-04	0.4981518E-03	0.4080923E-04	0.2203918E-03
0.8694262E+00			
0.7885396E+00	0.5085548E+00	0.8430162E+00	0.8010155E+00
0.8961698E+00			
0.3391622E+00	0.1276643E+00	0.8908719E-01	0.8701944E-01
0.1112758E+00			
0.1454067E+00	0.1809010E+00	0.8952195E-01	0.4389890E-02
0.5751522E-03			
0.6418381E-04	0.5698349E-03	0.7390964E-01	0.4525678E-02
0.1853950E+00			
0.1103012E+01	0.1114943E+01	0.9401617E+00	0.1360564E+00
0.2885101E+02			
0.1029980E+02	0.1120649E+01	0.2609519E+02	0.1355631E+01
0.2047766E+02			
0.4100796E+02	0.1706679E+02	0.1243898E+02	0.1000000E+01
0.1009906E+01			

0.2532058E+01	0.1000000E+01	0.1419526E+01	0.1000000E+01
0.1230000E+01			
0.1390000E+01	0.1190000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.2757078E-06	0.8079041E-06	0.4568447E-01	0.3812638E-07
0.4155999E-05			
0.3040295E-07	0.2168899E-04	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.5000000E-08	0.4000000E-08	0.8000000E-01	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.1240971E+00	0.2475435E+00	0.2959417E+00
0.3572702E-01			
0.9709451E-01	0.3152600E+00	0.1007953E-01	0.8091173E+04
0.6164411E+00			
0.8528485E+00	0.9771145E+00	0.2529909E+00	0.2831185E+00
0.8228077E+00			
0.8279914E+00	0.7598273E+00	0.1411975E+02	0.4601409E-01
0.3380489E+00			
0.2415943E+00	0.1284343E+00	0.6564138E+00	0.8967345E+00
0.8292328E+00			
0.8598781E+00	0.5842683E+00	0.5257086E+00	0.7735252E+00
0.9216413E+00			
0.5596589E+00	0.8354811E+00	0.3542452E+00	0.4603572E+00
0.9791217E+00			
0.8259225E+00	0.7082356E+00	0.3809582E+00	0.9467439E+00
0.7194332E+00			
0.5534078E+00	0.2826929E+00	0.9779796E+00	0.6292643E+00
0.2803915E+00			
0.5711497E+00	0.9855291E+00	0.6991304E+00	0.5672088E+00
0.6248425E+04			
0.4229875E+04	0.1406870E+04	0.9476005E+04	0.2175527E+04
0.2752579E+04			
0.6044771E+04	0.3426902E+04	0.9008516E+04	0.7999176E+04
0.2636566E+04			
0.7266527E+03	0.7212671E+04	0.4575459E+04	0.8857790E+04
0.3282121E+04			

0.9115002E+04	0.6874671E+04	0.4208362E+04	0.1468466E+04
0.9579868E+04			
0.1404049E+04	0.3814590E+04	0.6703912E+04	0.2595165E+04
0.5810889E+04			
0.2903707E+04	0.8006496E+04	0.4431904E+04	0.9494092E+04
0.3588648E+00			
0.2837683E+00	0.3403591E+00	0.3856580E+00	0.3372569E+00
0.8021841E+00			
0.7592909E+00	0.8662162E+00	0.9334127E+00	0.2639255E+00
0.7859018E+00			
0.4962990E+00	0.1257218E+00	0.1062385E+00	0.8727031E+00
0.7161637E-01			
0.8299952E+00	0.5256151E+00	0.7224170E+00	0.7071820E+00
0.8209751E-01			
0.7610141E-01	0.7446968E+00	0.4317671E+00	0.4211596E+00
0.9228655E+00			
0.2244699E+00	0.1250139E+00	0.7246056E-01	0.8630539E+00
0.9933433E-02			
	15	445	
0.0000000E+00	0.5002563E-15	0.1583803E-14	0.2008367E-15
0.4154041E-15			
0.1591624E-14	0.9700000E-15	0.9700000E-15	0.9700000E-15
0.9700000E-15			
0.9700000E-15	0.1400000E-03	0.2700000E-04	0.4100000E-04
0.4600000E-04			
0.4600000E-04	0.4600000E-04	0.4600000E-04	0.4600000E-04
0.4600000E-04			
0.4600000E-04	0.6101650E+02	0.4723008E+02	0.9312685E+02
0.1330298E+02			
0.5937370E+02	0.1000000E+02	0.1000000E+02	0.1000000E+02
0.1000000E+02			
0.1000000E+02	0.4978099E-18	0.1392606E-13	0.1001642E-18
0.4336740E-15			
0.5718109E-18	0.1141876E-14	0.3279937E-17	0.1678559E-15
0.1767559E-14			
0.5598633E-15	0.2444733E-15	0.2000302E-14	0.1144976E-15
0.1198457E-14			
0.6829565E-01	0.4388438E+00	0.2201059E+00	0.3530675E+00
0.2133338E+00			
0.2483063E+00	0.2170410E+00	0.4100000E-04	0.4600000E-04
0.4600000E-04			
0.1300000E-04	0.4600000E-04	0.1300000E-04	0.4600000E-04
0.2114481E+01			
0.3050354E+01	0.3122627E+01	0.2400920E+01	0.1925827E+01
0.4194203E+01			
0.1765499E+01	0.3521963E+01	0.3364695E+01	0.5197044E+01
0.3235095E+01			
0.5138374E+01	0.4338190E+01	0.3443716E+01	0.2600000E-02
0.2600000E-02			
0.2600000E-02	0.2600000E-02	0.2600000E-02	0.2600000E-02
0.2600000E-02			

0.1483780E+02	0.7242832E-03	0.3244304E+01	0.2648575E+02
0.4182883E+00			
0.3224675E+00	0.2343888E+01	0.1844354E+00	0.2095148E+00
0.2060668E-01			
0.2947948E-01	0.5859824E-01	0.1184585E+00	0.5066309E+00
0.4922470E-01			
0.7161018E-02	0.2859552E-04	0.5117014E-01	0.1531874E-03
0.0000000E+00			
0.9183218E-03	0.3040014E-03	0.1821481E-02	0.2997564E+01
0.2041244E+01			
0.3367037E+00	0.9391243E+01	0.8916482E+01	0.7247519E-01
0.4585514E+01			
0.4611253E-03	0.1063378E-02	0.1920946E-01	0.1622516E-01
0.1444545E-02			
0.2037674E-01	0.5515037E-02	0.2013988E-01	0.3488209E-01
0.2082494E-01			
0.2413470E-01	0.4832762E-01	0.7431502E+00	0.1949244E-01
0.3111965E+00			
0.9802994E+01	0.4221861E+01	0.3280723E+01	0.1304588E+01
0.1668454E+02			
0.1406746E+00	0.2611464E-02	0.5098849E-01	0.1599281E-01
0.8490958E-02			
0.1523336E-01	0.2658982E-01	0.1902810E+00	0.1410603E+00
0.2079281E+00			
0.1618346E+02	0.1090965E+02	0.1399916E+02	0.4144372E+00
0.3007346E+02			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.1715523E-05	0.0000000E+00
0.0000000E+00			
0.5546875E-03	0.0000000E+00	0.8131564E-02	0.0000000E+00
0.1368988E-01			
0.6659363E-02	0.1532594E-01	0.1005554E-01	0.2186387E-02
0.2164935E-02			
0.3013295E-02	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.4566502E-03
0.5691893E-02			
0.7160987E-03	0.5503596E-02	0.5534438E-03	0.7253785E-01
0.6992392E-02			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.1340000E-01	0.9700000E-01
0.4900000E-01			
0.3400000E-01	0.3900000E-01	0.3500000E-01	0.3900000E-01
0.4800000E-03			
0.3400000E-02	0.1700000E-02	0.1200000E-02	0.1400000E-02
0.1300000E-02			
0.1400000E-02	0.8000000E-02	0.3400000E-02	0.8900000E+00
0.4500000E-01			

0.7100000E+00	0.2800000E-01	0.7100000E+00	0.2089432E+06
0.1174234E+03			
-0.1946659E+01	-0.3104964E+01	0.2426527E+03	0.1319633E-01
0.1273301E+04			
0.1433871E+04	0.7883173E-04	0.1000000E-06	0.1000000E-04
0.1786000E-01			
0.3700000E+02	0.5256000E-07	0.3942000E-06	0.3200000E+02
0.4730000E+03			
0.3000000E+01	0.1000000E-02	0.6100000E-03	0.7200000E-03
0.4890000E-03			
0.2480000E-04	0.6200000E-05	0.7300401E-03	0.6834630E-03
0.9895164E-03			
0.3792212E-04	0.2018099E-04	0.1227608E-03	0.6256003E-03
0.2702274E+00			
0.1910300E+00	0.9318084E+00	0.8529898E+00	0.6642446E+00
0.1860782E+00			
0.8056547E-01	0.1167288E+00	0.1494259E+00	0.1707279E+00
0.1741277E+00			
0.9146267E-01	0.1361445E+00	0.1001356E+00	0.3765460E-02
0.9403769E-03			
0.1280793E-04	0.1614769E-04	0.2011210E+00	0.1216356E+00
0.1156217E+01			
0.1186511E+01	0.7397554E+00	0.1077905E+01	0.7599373E+00
0.5480611E+02			
0.3512109E+01	0.1104547E+01	0.1770087E+02	0.1279491E+01
0.6798393E+01			
0.2272750E+02	0.1878304E+02	0.6399840E+01	0.1000000E+01
0.1007910E+01			
0.4295785E+01	0.1000000E+01	0.1130572E+01	0.1000000E+01
0.1230000E+01			
0.1390000E+01	0.1190000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.9159331E-06	0.1731608E-05	0.1740265E-02	0.1660720E-08
0.2936144E-06			
0.7866879E-07	0.4076680E-04	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.5000000E-08	0.4000000E-08	0.8000000E-01	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			



0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.1068626E+00	0.3916167E+00	0.2478507E+00
0.1051982E+00			
0.6073487E-01	0.3937888E+00	0.3057911E+00	0.7904117E+04
0.5901673E+00			
0.5850363E+00	0.8748169E+00	0.4844655E+00	0.9791083E+00
0.4441006E+00			
0.1831148E+00	0.9299122E+00	0.1317062E+02	0.8357760E-01
0.5206182E+00			
0.9452799E+00	0.2568339E+00	0.5696410E+00	0.8079509E+00
0.7572621E+00			
0.8205851E+00	0.8814373E+00	0.4758151E+00	0.6130993E+00
0.6616036E+00			
0.4195387E+00	0.1112810E+00	0.7987187E-01	0.7812679E+00
0.8903552E+00			
0.9942879E+00	0.3865575E+00	0.5971073E+00	0.7112999E+00
0.2850062E+00			
0.2093311E+00	0.8002037E+00	0.7168288E+00	0.2409266E+00
0.4840400E+00			
0.8677894E+00	0.9039785E+00	0.6185127E-02	0.5393044E+00
0.1023337E+04			
0.2040686E+04	0.8312613E+04	0.8797013E+04	0.8233557E+04
0.3636242E+04			
0.5476773E+04	0.8755970E+04	0.8058135E+04	0.3610990E+04
0.7276222E+04			
0.5735833E+04	0.3655493E+04	0.1953643E+04	0.8329608E+04
0.2567282E+04			
0.7348762E+04	0.2707933E+04	0.2411187E+03	0.2729560E+04
0.6884619E+04			
0.8138990E+03	0.5371159E+04	0.4143718E+04	0.8030388E+04
0.6009806E+04			
0.1702724E+04	0.6354093E+04	0.5003736E+04	0.3028353E+04
0.4084424E+00			
0.2045093E+00	0.5641078E+00	0.1928645E+00	0.9500493E+00
0.8527551E+00			
0.6947599E+00	0.9810313E+00	0.5837307E+00	0.5888222E+00
0.7080250E-01			
0.6286943E+00	0.7185114E+00	0.2829336E+00	0.7759565E+00
0.9125376E+00			
0.1288920E+00	0.2663953E+00	0.4326665E+00	0.7540888E-01
0.4433131E+00			
0.1987959E+00	0.3185509E-01	0.8491872E+00	0.6010244E+00
0.8231028E+00			
0.4813678E+00	0.9071179E+00	0.7551262E+00	0.9403023E+00
0.9151567E-02			
	16	445	
0.0000000E+00	0.1859087E-14	0.1217914E-14	0.8222670E-15
0.3472044E-15			
0.4712564E-15	0.9700000E-15	0.9700000E-15	0.9700000E-15
0.9700000E-15			

0.9700000E-15	0.1400000E-03	0.2700000E-04	0.4100000E-04
0.4600000E-04			
0.4600000E-04	0.4600000E-04	0.4600000E-04	0.4600000E-04
0.4600000E-04			
0.4600000E-04	0.8739595E+02	0.7660372E+02	0.7177663E+02
0.7937486E+02			
0.9899924E+02	0.1000000E+02	0.1000000E+02	0.1000000E+02
0.1000000E+02			
0.1000000E+02	0.6059090E-18	0.1787350E-14	0.9294981E-17
0.2464062E-15			
0.8143896E-17	0.7037908E-16	0.9531622E-18	0.3447278E-16
0.4062662E-15			
0.4493302E-14	0.1222576E-15	0.4959047E-15	0.1554579E-15
0.4498174E-15			
0.1336930E+00	0.4810512E+00	0.2608324E+00	0.2427662E+00
0.2651338E+00			
0.2622694E+00	0.1869212E+00	0.4100000E-04	0.4600000E-04
0.4600000E-04			
0.1300000E-04	0.4600000E-04	0.1300000E-04	0.4600000E-04
0.2129397E+01			
0.3726094E+01	0.2310018E+01	0.3074157E+01	0.1880274E+01
0.3900065E+01			
0.1539369E+01	0.3202943E+01	0.5286257E+01	0.4491385E+01
0.4607693E+01			
0.3355500E+01	0.3938554E+01	0.3825398E+01	0.2600000E-02
0.2600000E-02			
0.2600000E-02	0.2600000E-02	0.2600000E-02	0.2600000E-02
0.2600000E-02			
0.1397029E+02	0.7021227E-03	0.2058155E+01	0.6074000E+00
0.2586122E+00			
0.2028891E+00	0.4039975E+01	0.1263659E+00	0.4584038E+01
0.1116263E+00			
0.7915208E-01	0.1607273E-01	0.1374811E+00	0.6722761E-02
0.2436992E-01			
0.3643607E-01	0.1455398E-02	0.9096855E-02	0.4571025E-03
0.0000000E+00			
0.7477670E-03	0.1387347E-01	0.1058456E-02	0.3665390E+00
0.9443199E-01			
0.3542409E+01	0.4880104E+00	0.6611204E+01	0.1099188E+01
0.2504610E+00			
0.2253473E-01	0.2050964E-02	0.2944619E-02	0.9538700E-03
0.9451929E-02			
0.2979389E-01	0.1940705E-02	0.3096351E-01	0.1847221E+01
0.3229896E+00			
0.5328371E+00	0.8331250E+00	0.1338233E-01	0.1906990E+00
0.1076736E+02			
0.1207710E+01	0.8842892E+01	0.1452572E+02	0.7819932E+00
0.1243751E+02			
0.2822799E+00	0.3005153E-02	0.1278502E-01	0.2392006E+00
0.1064741E+00			

0.6372822E-01	0.1401528E+00	0.9524972E-01	0.1236667E+01
0.2175797E+01			
0.6877263E+02	0.4897754E+01	0.3337310E+02	0.8113174E+01
0.1600441E+03			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.8306328E-04	0.0000000E+00
0.0000000E+00			
0.1542693E-03	0.0000000E+00	0.2504888E-01	0.0000000E+00
0.2327318E-01			
0.1242561E+00	0.5692322E-02	0.5467224E-01	0.2772864E-02
0.9372140E-02			
0.2571784E-01	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.1494717E-01
0.9966082E-03			
0.5362407E-03	0.8611432E-02	0.7689587E-03	0.6147913E-02
0.2534218E-01			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.1340000E-01	0.9700000E-01
0.4900000E-01			
0.3400000E-01	0.3900000E-01	0.3500000E-01	0.3900000E-01
0.4800000E-03			
0.3400000E-02	0.1700000E-02	0.1200000E-02	0.1400000E-02
0.1300000E-02			
0.1400000E-02	0.8000000E-02	0.3400000E-02	0.8900000E+00
0.4500000E-01			
0.7100000E+00	0.2800000E-01	0.7100000E+00	0.3790284E+05
0.1040511E+03			
-0.1347358E+01	-0.3380881E+01	0.1441887E+03	0.2440455E-02
0.1458458E+04			
0.1123257E+04	0.2345651E-03	0.1000000E-06	0.1000000E-04
0.1786000E-01			
0.3700000E+02	0.5256000E-07	0.3942000E-06	0.3200000E+02
0.4730000E+03			
0.3000000E+01	0.1000000E-02	0.6100000E-03	0.7200000E-03
0.4890000E-03			
0.2480000E-04	0.6200000E-05	0.1795403E-03	0.2436131E-04
0.6418456E-04			
0.1217558E-04	0.8042099E-03	0.9207267E-04	0.6158620E-04
0.8063118E+00			
0.8291786E+00	0.2000650E+00	0.2606793E+00	0.2406639E+00
0.6471622E-01			
0.4576307E+00	0.1980442E+00	0.1019330E+00	0.1386902E+00
0.1818797E+00			
0.1939740E+00	0.1125202E+00	0.1505519E+00	0.5387604E-02
0.2817393E-02			
0.3530280E-03	0.4083713E-03	0.1084491E+01	0.6146607E+00
0.9075124E+00			

0.3015820E+00	0.8302997E+00	0.4083171E-01	0.1023481E+01
0.4373107E+02			
0.1240674E+02	0.1079561E+01	0.2469425E+02	0.1189107E+01
0.9664157E+01			
0.3370451E+02	0.5461845E+01	0.1414075E+02	0.1000000E+01
0.1005202E+01			
0.3408895E+01	0.1000000E+01	0.1315680E+01	0.1000000E+01
0.1230000E+01			
0.1390000E+01	0.1190000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1159662E-04	0.1326541E-05	0.1455347E-01	0.4126390E-06
0.8589106E-05			
0.1598021E-07	0.3738759E-04	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.5000000E-08	0.4000000E-08	0.8000000E-01	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.1649553E+00	0.1384660E+00	0.2334599E+00
0.4211881E-01			
0.2932055E+00	0.1077743E-01	0.9241415E-01	0.6391353E+04
0.7648709E+00			
0.2410522E+00	0.4878915E-01	0.9291286E+00	0.3093557E+00
0.2954362E+00			
0.6183101E+00	0.1389721E+00	0.1369679E+02	0.8682371E-01
0.4690099E+00			
0.4937537E+00	0.3565768E+00	0.5037006E+00	0.1858817E+00
0.6247784E+00			
0.3504014E+00	0.2429078E+00	0.1631784E+00	0.6870256E+00
0.9520658E-01			
0.7353900E+00	0.5314493E+00	0.6516896E+00	0.4354655E-01
0.2963154E+00			
0.8593810E+00	0.3295090E+00	0.7354575E+00	0.8072493E+00
0.6132234E+00			
0.1163676E-01	0.5575348E+00	0.8175632E+00	0.7180423E+00
0.2395633E+00			
0.3622739E+00	0.3900720E+00	0.5891940E+00	0.3176253E+00
0.2520360E+04			

0.8946556E+04	0.4030545E+03	0.2885602E+04	0.4969928E+04
0.4163788E+03			
0.2030092E+04	0.4470628E+04	0.1826387E+04	0.7496631E+04
0.5656759E+04			
0.4667590E+04	0.4714905E+04	0.8229511E+04	0.5622960E+03
0.5285308E+04			
0.2352862E+04	0.4564269E+04	0.6216243E+04	0.7762681E+04
0.7665686E+04			
0.7508298E+04	0.5490862E+04	0.5447085E+04	0.6605073E+04
0.2663564E+03			
0.1346584E+04	0.1254026E+04	0.2852603E+04	0.7183839E+04
0.6610286E+00			
0.1444511E+00	0.3901816E+00	0.8124982E+00	0.4260464E+00
0.6992994E+00			
0.9406785E+00	0.3278254E+00	0.6493624E+00	0.9205079E-01
0.4898937E+00			
0.7432169E+00	0.5706805E+00	0.8285916E+00	0.8251765E-02
0.4834921E+00			
0.9590271E+00	0.7401237E+00	0.2750767E+00	0.5018626E+00
0.4789771E+00			
0.2851832E+00	0.3351396E+00	0.2452713E+00	0.1178573E+00
0.9855575E+00			
0.1187533E+00	0.1999354E+00	0.2874696E-01	0.6524450E+00
0.8772524E-02			
17	445		
0.0000000E+00	0.3931190E-15	0.2899219E-14	0.2825332E-15
0.9069430E-15			
0.3440518E-14	0.9700000E-15	0.9700000E-15	0.9700000E-15
0.9700000E-15			
0.9700000E-15	0.1400000E-03	0.2700000E-04	0.4100000E-04
0.4600000E-04			
0.4600000E-04	0.4600000E-04	0.4600000E-04	0.4600000E-04
0.4600000E-04			
0.4600000E-04	0.5200482E+02	0.1310089E+02	0.7929524E+02
0.2244615E+02			
0.3480866E+02	0.1000000E+02	0.1000000E+02	0.1000000E+02
0.1000000E+02			
0.1000000E+02	0.3759738E-17	0.1213433E-13	0.3993590E-18
0.1823077E-16			
0.3348593E-17	0.3872123E-15	0.6128999E-17	0.1444081E-15
0.1029856E-14			
0.1011930E-14	0.1103394E-15	0.7986399E-15	0.7817711E-16
0.3239152E-15			
0.1232792E+00	0.3843628E+00	0.2864273E+00	0.3650850E+00
0.2814342E+00			
0.2717946E+00	0.2576776E+00	0.4100000E-04	0.4600000E-04
0.4600000E-04			
0.1300000E-04	0.4600000E-04	0.1300000E-04	0.4600000E-04
0.1732638E+01			
0.2969624E+01	0.2750571E+01	0.2529554E+01	0.2323247E+01
0.3545070E+01			

0.1674318E+01	0.4011993E+01	0.4376295E+01	0.4040113E+01
0.5276985E+01			
0.3257599E+01	0.3302715E+01	0.4829702E+01	0.2600000E-02
0.2600000E-02			
0.2600000E-02	0.2600000E-02	0.2600000E-02	0.2600000E-02
0.2600000E-02			
0.1316396E+02	0.1069518E-02	0.1379011E+00	0.6367752E+01
0.1431522E+01			
0.1276180E+01	0.5807141E+01	0.1044735E+01	0.4523560E+00
0.1490983E+00			
0.8665569E-01	0.3204967E+00	0.3356307E+00	0.2547136E+00
0.1666959E+00			
0.9653114E-01	0.1782397E-03	0.2924381E-01	0.7316466E-03
0.0000000E+00			
0.1795355E-03	0.2839484E-02	0.9275216E-03	0.8719036E+00
0.4437907E+01			
0.5479402E+01	0.8657346E+01	0.1243713E+01	0.1202991E+01
0.3420072E+00			
0.1846533E-02	0.4970984E-03	0.1594891E-01	0.1932172E-02
0.1250017E-01			
0.3769144E-01	0.8261577E-03	0.1428286E+00	0.1250714E+01
0.5206595E-01			
0.4292918E+00	0.7015604E-01	0.5306111E+00	0.2259162E+00
0.8047085E+01			
0.1054726E+01	0.1244348E+01	0.7940590E+00	0.1572659E+01
0.1247870E+01			
0.9295475E+01	0.1863510E-01	0.2462282E-01	0.1468405E+00
0.5437582E-02			
0.1241132E+00	0.1879948E-01	0.1846834E-01	0.7222486E+00
0.4784521E+00			
0.4863092E+01	0.1964061E+02	0.1235760E+02	0.1828866E+01
0.1306121E+03			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.6943317E-05	0.0000000E+00
0.0000000E+00			
0.2946759E-04	0.0000000E+00	0.2551048E-02	0.0000000E+00
0.2303397E-02			
0.1355843E+00	0.1047183E-01	0.1779792E-02	0.1478966E-02
0.3476238E-02			
0.1043905E-01	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.2589297E-01
0.1252811E-01			
0.8986664E-02	0.1233633E-01	0.6190754E-02	0.5321684E-01
0.1427345E-02			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.1340000E-01	0.9700000E-01
0.4900000E-01			

0.3400000E-01	0.3900000E-01	0.3500000E-01	0.3900000E-01
0.4800000E-03			
0.3400000E-02	0.1700000E-02	0.1200000E-02	0.1400000E-02
0.1300000E-02			
0.1400000E-02	0.8000000E-02	0.3400000E-02	0.8900000E+00
0.4500000E-01			
0.7100000E+00	0.2800000E-01	0.7100000E+00	0.3026930E+06
0.1352916E+03			
-0.1752936E+01	-0.3367388E+01	0.2279581E+03	0.9841183E-02
0.1005883E+04			
0.1198927E+04	0.3827734E-03	0.1000000E-06	0.1000000E-04
0.1786000E-01			
0.3700000E+02	0.5256000E-07	0.3942000E-06	0.3200000E+02
0.4730000E+03			
0.3000000E+01	0.1000000E-02	0.6100000E-03	0.7200000E-03
0.4890000E-03			
0.2480000E-04	0.6200000E-05	0.3007005E-03	0.1884179E-03
0.4077042E-03			
0.2701804E-03	0.3435526E-03	0.7801313E-03	0.2056812E-04
0.1126078E+00			
0.9408912E+00	0.6874780E+00	0.3285893E+00	0.9978745E+00
0.8347384E+00			
0.9170441E+00	0.9052175E-01	0.1950818E+00	0.1603950E+00
0.1626546E+00			
0.8583712E-01	0.8810326E-01	0.1980869E+00	0.7640355E-03
0.1770209E-03			
0.1324123E-03	0.3131138E-03	0.6920488E+00	0.1092382E+00
0.6650868E+00			
0.6367179E+00	0.1155850E+00	0.2712898E+00	0.1001825E+01
0.1269072E+02			
0.5974292E+01	0.1170495E+01	0.9301924E+01	0.1386576E+01
0.6158209E+01			
0.4005361E+01	0.1127619E+02	0.8951444E+01	0.1000000E+01
0.1006714E+01			
0.1468203E+01	0.1000000E+01	0.1288369E+01	0.1000000E+01
0.1230000E+01			
0.1390000E+01	0.1190000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.3466292E-03	0.3492009E-05	0.2019354E-01	0.1507624E-07
0.1893090E-03			
0.2837318E-07	0.2403919E-04	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			

0.5000000E-08	0.4000000E-08	0.8000000E-01	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.9555576E-01	0.1810676E-01	0.4283289E-01
0.2595813E+00			
0.1233452E+00	0.2920513E+00	0.1418559E+00	0.5924228E+04
0.3178388E-01			
0.2630329E+00	0.5715069E+00	0.7135196E+00	0.1709059E-01
0.7008466E+00			
0.7559176E+00	0.6995153E+00	0.2069058E+02	0.5393742E-01
0.8070798E+00			
0.1310867E+00	0.5710629E+00	0.5945132E-01	0.7088602E+00
0.2666887E+00			
0.5284347E+00	0.1373977E-01	0.8384748E+00	0.4308728E+00
0.2122593E+00			
0.8099495E+00	0.2215306E+00	0.9214320E+00	0.6847475E+00
0.1303669E+00			
0.4382856E+00	0.5860166E+00	0.3327384E+00	0.4510250E+00
0.3991001E+00			
0.9671054E-01	0.9119569E+00	0.9199268E+00	0.9441989E+00
0.2418546E-01			
0.6176371E+00	0.1848609E+00	0.8078940E+00	0.2464058E+00
0.1831482E+04			
0.3504058E+04	0.5870923E+04	0.5046659E+03	0.7903646E+04
0.9735167E+03			
0.2417262E+04	0.6757262E+04	0.7570227E+04	0.5957172E+04
0.5414264E+04			
0.9030801E+04	0.9598841E+04	0.9730398E+04	0.4930828E+04
0.2112820E+04			
0.8770092E+04	0.1041800E+04	0.1054710E+04	0.6024223E+04
0.9237968E+04			
0.6465484E+04	0.3953499E+03	0.6020091E+04	0.5881881E+04
0.7081944E+04			
0.3599564E+03	0.9759155E+04	0.5540894E+04	0.6467258E+04
0.3957363E-01			
0.5637051E+00	0.4952153E+00	0.4988396E+00	0.9462016E-01
0.2132228E+00			
0.2700648E+00	0.2640600E+00	0.1593745E+00	0.1100549E+00
0.3105439E+00			
0.5902726E+00	0.3125299E+00	0.9557289E+00	0.4563833E+00
0.1121331E+00			
0.9064556E+00	0.2473537E+00	0.6510421E+00	0.6128141E-02
0.6019813E+00			
0.3303328E+00	0.6160478E+00	0.7002589E+00	0.3615096E+00
0.7975788E+00			



0.8084968E-01	0.4821892E+00	0.8745865E+00	0.9602251E+00
0.9369505E-02			
18	445		
0.0000000E+00	0.6856518E-15	0.9376659E-15	0.6340946E-15
0.2837726E-15			
0.5719821E-15	0.9700000E-15	0.9700000E-15	0.9700000E-15
0.9700000E-15			
0.9700000E-15	0.1400000E-03	0.2700000E-04	0.4100000E-04
0.4600000E-04			
0.4600000E-04	0.4600000E-04	0.4600000E-04	0.4600000E-04
0.4600000E-04			
0.4600000E-04	0.9198742E+02	0.6992557E+02	0.8970020E+02
0.1563651E+02			
0.1246232E+02	0.1000000E+02	0.1000000E+02	0.1000000E+02
0.1000000E+02			
0.1000000E+02	0.2459776E-17	0.7077211E-14	0.1158719E-17
0.8778034E-15			
0.1637775E-17	0.3249162E-15	0.8577602E-17	0.3539720E-15
0.8011675E-15			
0.1337165E-14	0.8672189E-16	0.8706798E-15	0.2220626E-15
0.1466254E-14			
0.1173775E+00	0.4670330E+00	0.2523775E+00	0.2788763E+00
0.2719635E+00			
0.2303119E+00	0.2276557E+00	0.4100000E-04	0.4600000E-04
0.4600000E-04			
0.1300000E-04	0.4600000E-04	0.1300000E-04	0.4600000E-04
0.1839568E+01			
0.2553818E+01	0.1849005E+01	0.2266675E+01	0.1747037E+01
0.3020033E+01			
0.2149914E+01	0.3490927E+01	0.3922533E+01	0.4990968E+01
0.4095639E+01			
0.3740455E+01	0.4942424E+01	0.3603282E+01	0.2600000E-02
0.2600000E-02			
0.2600000E-02	0.2600000E-02	0.2600000E-02	0.2600000E-02
0.2600000E-02			
0.1180635E+02	0.2258126E-03	0.5164179E-01	0.2508378E+02
0.5382027E+01			
0.1704649E+01	0.1866005E+01	0.1575989E+01	0.6040251E+00
0.8045112E-01			
0.1335946E+01	0.7420802E-01	0.4942433E+00	0.4003558E+00
0.7865282E+00			
0.1355295E+00	0.7818061E-04	0.2097180E-02	0.8708195E-02
0.0000000E+00			
0.2097212E-02	0.7990772E-03	0.2620142E-02	0.7100497E+00
0.2593707E+01			
0.1635634E+02	0.1907006E+02	0.1340606E+02	0.2487308E+00
0.1848069E+00			
0.3737677E-01	0.1765512E-01	0.7512160E-02	0.5524471E-02
0.2652398E-02			
0.1458627E-01	0.2482456E-03	0.2412217E+00	0.5239126E-01
0.1323964E+00			

0.1245543E-01	0.1228810E+00	0.1017851E+01	0.3325751E-01
0.7270794E+00			
0.2852997E+00	0.1140272E+02	0.1327712E+01	0.1024158E+01
0.1880240E+01			
0.2482907E+01	0.1146798E-01	0.3590908E+00	0.3324724E-02
0.3373219E-01			
0.2275292E-02	0.3965328E-02	0.7798348E-02	0.4900592E-01
0.1157866E+00			
0.1015392E+02	0.7063642E+01	0.3572047E+01	0.2701883E+02
0.4708692E+02			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.1177235E-04	0.0000000E+00
0.0000000E+00			
0.2518484E-04	0.0000000E+00	0.6711236E-03	0.0000000E+00
0.6752901E-03			
0.5323163E-02	0.4987424E-01	0.5722430E-01	0.3978008E-02
0.9222611E-01			
0.1522928E-02	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.5400919E-02
0.2915321E-02			
0.1148259E-01	0.1452397E-01	0.6227975E-03	0.9146391E-01
0.5266882E-02			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.1340000E-01	0.9700000E-01
0.4900000E-01			
0.3400000E-01	0.3900000E-01	0.3500000E-01	0.3900000E-01
0.4800000E-03			
0.3400000E-02	0.1700000E-02	0.1200000E-02	0.1400000E-02
0.1300000E-02			
0.1400000E-02	0.8000000E-02	0.3400000E-02	0.8900000E+00
0.4500000E-01			
0.7100000E+00	0.2800000E-01	0.7100000E+00	0.1907041E+06
0.1395491E+03			
-0.1577387E+01	-0.3127756E+01	0.1156976E+03	0.7869299E-02
0.1413687E+04			
0.1335848E+04	0.1107114E-04	0.1000000E-06	0.1000000E-04
0.1786000E-01			
0.3700000E+02	0.5256000E-07	0.3942000E-06	0.3200000E+02
0.4730000E+03			
0.3000000E+01	0.1000000E-02	0.6100000E-03	0.7200000E-03
0.4890000E-03			
0.2480000E-04	0.6200000E-05	0.1334326E-03	0.5317068E-04
0.4162675E-04			
0.8024361E-03	0.1749311E-04	0.2649005E-04	0.1514417E-03
0.9106692E-02			
0.5327501E+00	0.5653235E-01	0.7298164E+00	0.9146363E-01
0.1496400E+00			

0.1006331E+00	0.1396510E+00	0.1402819E+00	0.1942746E+00
0.1177582E+00			
0.1754330E+00	0.1701947E+00	0.1633984E+00	0.3244442E-02
0.3500993E-03			
0.5427230E-03	0.1507185E-03	0.4892247E+00	0.2299684E+00
0.7493443E+00			
0.4062972E+00	0.6563305E+00	0.7610588E+00	0.2964051E+00
0.3861998E+02			
0.5408671E+01	0.1061166E+01	0.3903301E+02	0.1324645E+01
0.1340885E+02			
0.1977611E+03	0.7827249E+01	0.4561803E+01	0.1000000E+01
0.1001028E+01			
0.3302156E+01	0.1000000E+01	0.1511881E+01	0.1000000E+01
0.1230000E+01			
0.1390000E+01	0.1190000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1311326E-03	0.2209967E-05	0.2730181E-01	0.3926362E-05
0.1899480E-04			
0.9697689E-07	0.1614487E-04	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.5000000E-08	0.4000000E-08	0.8000000E-01	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.3625858E+00	0.3241463E+00	0.6952942E-01
0.3766929E+00			
0.5294067E-01	0.1969526E+00	0.2338207E+00	0.6714640E+04
0.8848634E+00			
0.6529018E+00	0.8382312E+00	0.6922795E+00	0.6363240E+00
0.1822140E-01			
0.2580817E+00	0.4777295E+00	0.1260021E+02	0.9687399E-01
0.9851963E+00			
0.2764294E+00	0.2420875E+00	0.1320052E+00	0.5905664E+00
0.9593968E+00			
0.9706792E+00	0.4449284E+00	0.3235692E+00	0.7444890E+00
0.3354635E+00			
0.1023760E+00	0.7854097E+00	0.2574572E+00	0.1513455E+00
0.2296926E+00			

0.2466985E+00	0.2198074E+00	0.2728392E+00	0.5557374E-01
0.2317946E+00			
0.1989942E+00	0.3749889E+00	0.1804114E+00	0.4625453E-01
0.9721897E+00			
0.7025800E+00	0.7255412E+00	0.1914271E+00	0.7844924E+00
0.9140036E+04			
0.2221106E+04	0.8743437E+04	0.3590821E+04	0.6991252E+04
0.5499288E+04			
0.7820780E+04	0.8256490E+04	0.8571624E+04	0.7193512E+04
0.9275832E+04			
0.8135663E+04	0.9358958E+04	0.7192706E+04	0.3448359E+04
0.1744277E+04			
0.3229355E+04	0.9615729E+04	0.5843301E+04	0.8733966E+04
0.5869866E+04			
0.3169657E+04	0.7677699E+04	0.7345707E+03	0.9004137E+03
0.9451162E+04			
0.3685990E+04	0.4001397E+04	0.5807991E+03	0.2090357E+04
0.8582070E+00			
0.9908608E+00	0.5158437E+00	0.4006621E+00	0.8839804E+00
0.5845873E+00			
0.6400481E+00	0.5075209E+00	0.4311373E+00	0.5440734E+00
0.5629974E+00			
0.3156506E-01	0.5296769E-01	0.6837010E+00	0.6450460E+00
0.2245443E+00			
0.7670546E+00	0.4794695E+00	0.1478340E+00	0.8325014E+00
0.8187637E+00			
0.6251857E+00	0.8007742E+00	0.9496717E+00	0.7311614E+00
0.3375747E+00			
0.6221892E+00	0.8358927E-01	0.1216166E+00	0.7612527E+00
0.6953094E-02			
19	445		
0.0000000E+00	0.3202518E-15	0.4723487E-14	0.1039408E-15
0.2943495E-14			
0.1606576E-14	0.9700000E-15	0.9700000E-15	0.9700000E-15
0.9700000E-15			
0.9700000E-15	0.1400000E-03	0.2700000E-04	0.4100000E-04
0.4600000E-04			
0.4600000E-04	0.4600000E-04	0.4600000E-04	0.4600000E-04
0.4600000E-04			
0.4600000E-04	0.7206144E+02	0.6372042E+02	0.3089610E+02
0.6477290E+02			
0.7740501E+02	0.1000000E+02	0.1000000E+02	0.1000000E+02
0.1000000E+02			
0.1000000E+02	0.2374104E-18	0.1647264E-13	0.3371469E-17
0.7512524E-15			
0.5792535E-17	0.2313424E-15	0.1170644E-15	0.1884636E-15
0.3334262E-15			
0.8949834E-15	0.2220295E-15	0.2617550E-14	0.3664006E-15
0.9146877E-15			
0.1006488E+00	0.5149356E+00	0.2838211E+00	0.3419959E+00
0.2835754E+00			

0.2150131E+00	0.2355740E+00	0.4100000E-04	0.4600000E-04
0.4600000E-04			
0.1300000E-04	0.4600000E-04	0.1300000E-04	0.4600000E-04
0.1991014E+01			
0.2226500E+01	0.2458298E+01	0.2099261E+01	0.1592764E+01
0.4103396E+01			
0.1932955E+01	0.4587683E+01	0.4813653E+01	0.4363831E+01
0.3747119E+01			
0.4679615E+01	0.4868191E+01	0.3885901E+01	0.2600000E-02
0.2600000E-02			
0.2600000E-02	0.2600000E-02	0.2600000E-02	0.2600000E-02
0.2600000E-02			
0.1198977E+02	0.2199188E-02	0.4177939E+00	0.1446361E+02
0.3260345E+01			
0.4559479E+01	0.1711869E+00	0.5596283E+00	0.8039259E+01
0.9146561E-01			
0.1417078E+01	0.1571264E+00	0.6866960E-01	0.4983369E-01
0.9932735E-02			
0.1705572E+00	0.4156377E-03	0.8325524E-01	0.3517448E-03
0.0000000E+00			
0.1305609E-02	0.3729718E-02	0.4705581E-03	0.1443778E+00
0.1701443E+00			
0.2554300E+00	0.1568258E+01	0.1394846E+00	0.6086456E+00
0.5264016E+00			
0.1502769E-01	0.3741519E-02	0.6596914E-02	0.2658911E-02
0.4695416E-02			
0.5453453E-03	0.1349011E-01	0.2987878E-01	0.1509633E+00
0.1884846E+00			
0.4511638E-01	0.4747945E+00	0.5774348E-01	0.8587158E-01
0.2435344E+00			
0.1550482E+00	0.1976109E+00	0.2479952E+01	0.1467452E+00
0.6826491E+01			
0.1587109E+01	0.9942440E-03	0.1394844E+00	0.1245719E-01
0.5228340E-01			
0.1110532E-01	0.4822952E-01	0.1080174E+00	0.2128370E+00
0.3093602E+00			
0.2517412E+01	0.1157602E+02	0.7546808E+01	0.1179896E+01
0.5478416E+01			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.1228355E-05	0.0000000E+00
0.0000000E+00			
0.4612933E-04	0.0000000E+00	0.5968381E-03	0.0000000E+00
0.9662987E-02			
0.8408778E-01	0.3060784E-02	0.6296957E-02	0.2561229E-01
0.1236919E-02			
0.5408152E-01	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.2213921E-02
0.1034525E-01			

0.5888561E-03	0.2180261E-02	0.1064734E-02	0.1058787E-01
0.1463820E-01			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.1340000E-01	0.9700000E-01
0.4900000E-01			
0.3400000E-01	0.3900000E-01	0.3500000E-01	0.3900000E-01
0.4800000E-03			
0.3400000E-02	0.1700000E-02	0.1200000E-02	0.1400000E-02
0.1300000E-02			
0.1400000E-02	0.8000000E-02	0.3400000E-02	0.8900000E+00
0.4500000E-01			
0.7100000E+00	0.2800000E-01	0.7100000E+00	0.9862104E+05
0.1102446E+03			
-0.1652985E+01	-0.3258285E+01	0.1972176E+03	0.7350330E-02
0.1072010E+04			
0.1149282E+04	0.4394505E-03	0.1000000E-06	0.1000000E-04
0.1786000E-01			
0.3700000E+02	0.5256000E-07	0.3942000E-06	0.3200000E+02
0.4730000E+03			
0.3000000E+01	0.1000000E-02	0.6100000E-03	0.7200000E-03
0.4890000E-03			
0.2480000E-04	0.6200000E-05	0.8922411E-04	0.2834755E-04
0.1517062E-03			
0.6088638E-03	0.2767620E-04	0.1544573E-03	0.7521890E-04
0.3724055E+00			
0.7225370E+00	0.6014676E+00	0.3743167E+00	0.8649557E+00
0.7768382E+00			
0.2949807E-01	0.1898003E+00	0.1868862E+00	0.1460334E+00
0.1224946E+00			
0.1622216E+00	0.1333540E+00	0.1154354E+00	0.1455499E-02
0.5574240E-02			
0.1700922E-03	0.1102460E-03	0.2549682E+00	0.1131292E+01
0.8011430E+00			
0.1062929E+00	0.4003525E+00	0.8997494E+00	0.2253258E+00
0.1639128E+02			
0.4211357E+01	0.1150312E+01	0.1562601E+03	0.1517820E+01
0.2929907E+01			
0.2840747E+02	0.3087654E+01	0.5311845E+02	0.1000000E+01
0.1005605E+01			
0.2034521E+01	0.1000000E+01	0.1361627E+01	0.1000000E+01
0.1230000E+01			
0.1390000E+01	0.1190000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			

0.1807502E-05	0.2268810E-03	0.8397943E-02	0.8379895E-06
0.4887868E-04			
0.2157170E-07	0.2995501E-04	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.5000000E-08	0.4000000E-08	0.8000000E-01	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.6495451E-02	0.4819764E-01	0.1201539E+00
0.2811290E+00			
0.3850370E+00	0.7195973E-01	0.1210543E+00	0.2074763E+04
0.4578616E+00			
0.7218743E+00	0.1543988E+00	0.7902786E+00	0.5443148E+00
0.8741884E+00			
0.6678360E+00	0.8386572E+00	0.1667579E+02	0.4186862E-01
0.1890135E+00			
0.9620908E+00	0.8474603E+00	0.8690201E+00	0.4915206E+00
0.3644308E+00			
0.7384039E+00	0.7630981E+00	0.2356632E+00	0.1519530E+00
0.9673877E+00			
0.3986490E+00	0.2001467E-01	0.2113200E+00	0.8569864E+00
0.7782281E+00			
0.9391640E+00	0.6841788E+00	0.1058664E+00	0.9662313E+00
0.4230034E+00			
0.9573413E+00	0.5307539E+00	0.3207059E+00	0.1443274E+00
0.5337505E+00			
0.2467779E-01	0.6697527E+00	0.5406045E+00	0.3948687E+00
0.4142991E+04			
0.8443762E+03	0.9548923E+04	0.5437173E+04	0.3809382E+04
0.1318070E+04			
0.1329541E+04	0.5638418E+04	0.3170147E+03	0.4304294E+04
0.6709972E+03			
0.2220971E+04	0.3342211E+03	0.9541365E+03	0.2745598E+04
0.6682897E+04			
0.7750538E+04	0.6277180E+04	0.8671339E+04	0.4962022E+04
0.5990260E+04			
0.3988778E+04	0.6178816E+04	0.5909837E+04	0.7353458E+04
0.3009416E+04			
0.6747856E+04	0.5755192E+04	0.3277502E+04	0.3800363E+04
0.2793535E+00			
0.4793172E+00	0.2288575E+00	0.8992968E+00	0.7494072E+00
0.7176698E+00			
0.5418756E+00	0.2436736E+00	0.6841614E-01	0.6983382E+00
0.6668149E+00			

0.8038492E+00	0.6518130E+00	0.6016686E+00	0.3759793E+00
0.9706996E+00			
0.4420655E+00	0.7844274E-01	0.7891308E+00	0.9352733E+00
0.7777950E+00			
0.9959778E+00	0.1859767E+00	0.1356218E+00	0.9831624E+00
0.7028207E+00			
0.2939856E+00	0.2322039E+00	0.5559536E+00	0.2865268E+00
0.5121217E-02			
20	445		
0.0000000E+00	0.4785194E-15	0.4768076E-15	0.5911367E-15
0.2087919E-14			
0.2293885E-14	0.9700000E-15	0.9700000E-15	0.9700000E-15
0.9700000E-15			
0.9700000E-15	0.1400000E-03	0.2700000E-04	0.4100000E-04
0.4600000E-04			
0.4600000E-04	0.4600000E-04	0.4600000E-04	0.4600000E-04
0.4600000E-04			
0.4600000E-04	0.7585827E+02	0.1540879E+02	0.4490378E+02
0.7552576E+02			
0.2360659E+02	0.1000000E+02	0.1000000E+02	0.1000000E+02
0.1000000E+02			
0.1000000E+02	0.7922452E-18	0.2650000E-15	0.1879086E-17
0.3656447E-14			
0.5823166E-16	0.9919827E-15	0.1068801E-16	0.5285612E-15
0.9537723E-15			
0.5156679E-15	0.1160548E-15	0.9075163E-15	0.6824154E-16
0.1557460E-15			
0.1088637E+00	0.3424907E+00	0.2397955E+00	0.3302404E+00
0.2391466E+00			
0.3085405E+00	0.2827321E+00	0.4100000E-04	0.4600000E-04
0.4600000E-04			
0.1300000E-04	0.4600000E-04	0.1300000E-04	0.4600000E-04
0.1688926E+01			
0.4603595E+01	0.2843309E+01	0.2732653E+01	0.1965370E+01
0.3383773E+01			
0.2302220E+01	0.4361253E+01	0.4575643E+01	0.3610729E+01
0.3343295E+01			
0.3570170E+01	0.5109834E+01	0.3380624E+01	0.2600000E-02
0.2600000E-02			
0.2600000E-02	0.2600000E-02	0.2600000E-02	0.2600000E-02
0.2600000E-02			
0.1607043E+02	0.4071127E-02	0.1617670E+01	0.3947680E+01
0.6951053E+00			
0.1190207E+00	0.1197471E+02	0.6559726E+01	0.3684191E+01
0.2407923E+00			
0.1467469E+00	0.3542294E-01	0.2850685E-01	0.9483793E-02
0.5425595E+00			
0.1795474E-01	0.1804266E-02	0.5253881E-02	0.8079742E-03
0.0000000E+00			
0.3826582E-03	0.1308678E-02	0.2864114E-03	0.1057302E+01
0.9646538E+00			



0.1738188E+00	0.3184718E+01	0.7284070E+01	0.4211323E+00
0.3299737E+00			
0.2598664E-02	0.6084121E-02	0.1871812E-02	0.9908035E-02
0.5720613E-02			
0.2865390E-02	0.2825224E-02	0.1860976E-01	0.3479964E+00
0.9163295E+00			
0.6835823E-01	0.5976705E+00	0.4599566E+00	0.7228792E+00
0.4134891E+00			
0.2258525E+01	0.4602861E+00	0.4909983E+01	0.2104900E+00
0.4886764E+01			
0.3252937E+00	0.1423713E-01	0.4878980E-01	0.1319522E-01
0.8592460E-02			
0.9823012E-01	0.2687746E-02	0.5495530E-01	0.2068844E+01
0.6444621E+00			
0.9889214E+02	0.1661095E+02	0.4843197E+01	0.2458869E+02
0.7588903E+01			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.2174276E-05	0.0000000E+00
0.0000000E+00			
0.4749719E-03	0.0000000E+00	0.1607432E-01	0.0000000E+00
0.3140681E-02			
0.1388022E-01	0.1556077E-02	0.1796801E-01	0.2637985E-02
0.1878818E-01			
0.1606480E-01	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.1797156E-01
0.4136260E-03			
0.1816126E-02	0.4363869E-03	0.1932351E-01	0.1000452E-01
0.1439099E-02			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.1340000E-01	0.9700000E-01
0.4900000E-01			
0.3400000E-01	0.3900000E-01	0.3500000E-01	0.3900000E-01
0.4800000E-03			
0.3400000E-02	0.1700000E-02	0.1200000E-02	0.1400000E-02
0.1300000E-02			
0.1400000E-02	0.8000000E-02	0.3400000E-02	0.8900000E+00
0.4500000E-01			
0.7100000E+00	0.2800000E-01	0.7100000E+00	0.7577924E+05
0.1488336E+03			
-0.5974608E+00	-0.3310454E+01	0.2094624E+03	0.9760846E-02
0.1187224E+04			
0.1471476E+04	0.1353901E-03	0.1000000E-06	0.1000000E-04
0.1786000E-01			
0.3700000E+02	0.5256000E-07	0.3942000E-06	0.3200000E+02
0.4730000E+03			
0.3000000E+01	0.1000000E-02	0.6100000E-03	0.7200000E-03
0.4890000E-03			

0.2480000E-04	0.6200000E-05	0.4359714E-04	0.1393323E-03
0.3246593E-04			
0.1359392E-03	0.1002049E-04	0.7090445E-04	0.3936937E-04
0.1708065E+00			
0.1479505E+00	0.7360195E+00	0.1645231E+00	0.3635460E+00
0.5228441E+00			
0.2505975E+00	0.1026258E+00	0.1074752E+00	0.1127792E+00
0.1081904E+00			
0.1071894E+00	0.1677450E+00	0.1377180E+00	0.1223688E-02
0.2309619E-02			
0.2646729E-03	0.4621244E-03	0.6511894E+00	0.9397039E+00
0.1064906E+01			
0.1320440E+00	0.2134274E+00	0.5487041E+00	0.1158818E+01
0.3178627E+02			
0.2539781E+01	0.1222161E+01	0.1834821E+02	0.1371633E+01
0.8097859E+01			
0.3613044E+02	0.6872274E+01	0.9978475E+01	0.1000000E+01
0.1010528E+01			
0.2793739E+01	0.1000000E+01	0.1380335E+01	0.1000000E+01
0.1230000E+01			
0.1390000E+01	0.1190000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.4420474E-05	0.5084966E-06	0.1221634E-02	0.1207083E-07
0.5700023E-02			
0.1241333E-06	0.7329712E-04	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.1000000E+01	0.1000000E+01	0.1000000E+01	0.1000000E+01
0.1000000E+01			
0.5000000E-08	0.4000000E-08	0.8000000E-01	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.0000000E+00	0.0000000E+00	0.0000000E+00
0.0000000E+00			
0.0000000E+00	0.2282686E+00	0.2678661E+00	0.1518189E+00
0.2024137E+00			
0.3409904E+00	0.5733253E-01	0.2775678E+00	0.3093902E+04
0.1536507E+00			
0.7754915E+00	0.7048568E+00	0.3783111E+00	0.1547697E+00
0.3907762E+00			
0.1224642E+00	0.5256703E+00	0.9882470E+01	0.3057979E-01
0.6515394E-01			

0.9649122E-01	0.9954737E+00	0.7754661E+00	0.7534155E+00
0.5861234E-01			
0.1098187E+00	0.5359528E+00	0.2281527E-01	0.5987662E+00
0.5837547E+00			
0.9473713E+00	0.4249790E+00	0.1973722E+00	0.9550315E+00
0.6691960E+00			
0.3497832E-01	0.6270445E+00	0.5009157E+00	0.2686823E+00
0.3239245E+00			
0.6024051E+00	0.8531509E+00	0.1097319E+00	0.5769835E+00
0.8734236E+00			
0.7773039E+00	0.8609898E+00	0.4492124E+00	0.1184731E+00
0.2981240E+04			
0.1009018E+03	0.2788864E+04	0.5603441E+04	0.1008155E+04
0.4074162E+04			
0.4658899E+04	0.9952521E+03	0.5744226E+04	0.4940634E+04
0.2533887E+04			
0.8586024E+04	0.2271314E+04	0.6483810E+04	0.6746523E+04
0.4853868E+04			
0.2968287E+04	0.8252507E+04	0.1659471E+04	0.9570638E+04
0.2751564E+04			
0.8821470E+04	0.4865192E+04	0.3378797E+04	0.3823685E+04
0.1884780E+04			
0.5256064E+04	0.7674882E+04	0.8729732E+04	0.5710652E+04
0.1035260E+00			
0.6766725E+00	0.8689812E+00	0.7138317E+00	0.1157917E+00
0.7847000E+00			
0.8639330E+00	0.1639714E+00	0.5352219E+00	0.9735595E+00
0.9409407E+00			
0.3817028E+00	0.6114877E+00	0.1651431E+00	0.2772979E+00
0.5941539E+00			
0.2434221E+00	0.7547811E+00	0.5675447E+00	0.1091812E+00
0.3867952E+00			
0.5905285E+00	0.7866801E+00	0.3777742E-01	0.3362607E+00
0.8749384E+00			
0.5740806E+00	0.6689866E+00	0.6006767E+00	0.3357155E+00
0.8347075E-02			

## A.6 LISTING OF VOLCANO.OUT

### Sample Problem 1: Output file for TPA mode

	89912665 seed for RAN1 on stand-alone
System	-6000.000 6000.000 minimum, maximum X coordinate of
System	-7500.000 4500.000 minimum, maximum Y coordinate of
	12000.000 12000.000 System lengths in x and y
	1000.000 40000.000 minimum,maximum area of dike
	1000.000 4000.000 minimum,maximum length of dike
	1.000 10.000 minimum,maximum width of dike

75.000 90.000 minimum,maximum angle of dike  
(degrees) 1 method of cone generation (1=pick radius,2=pick  
area)

25.000 100.000 minimum,maximum radius of cone  
Nrect 17

y2	i	zone	#cans	x1	y1	x2
			x3	y3	x4	y4
	1	1	710	-10.9	-61.8	-46.6
-264.1			527.9	-365.5	563.6	-163.1
	2	1	1625	-46.6	-264.1	-111.1
-630.4			642.9	-763.3	707.4	-397.1
	3	2	1800	-111.1	-630.4	-185.2
-1050.6			763.6	-1217.9	837.7	-797.7
	4	3	1875	-185.2	-1050.6	-259.3
-1470.8			727.3	-1644.8	801.4	-1224.6
	5	3	1725	-259.3	-1470.8	-333.4
-1891.1			577.6	-2051.7	651.7	-1631.5
	6	3	1275	-333.4	-1891.1	-407.5
-2311.3			298.2	-2435.7	372.3	-2015.5
	7	4	975	-407.5	-2311.3	-481.6
-2731.5			51.2	-2825.5	125.3	-2405.3
	8	4	900	-481.6	-2731.5	-555.7
-3151.8			-60.8	-3239.1	13.3	-2818.8
	9	4	1050	-555.7	-3151.8	-592.4
-3359.8			-21.8	-3460.4	14.9	-3252.4
	10	4	750	-901.0	-2657.6	-975.1
-3077.8			-555.7	-3151.8	-481.6	-2731.5
	11	5	1275	-1091.6	-2190.7	-1165.7
-2610.9			-481.6	-2731.5	-407.5	-2311.3
	12	6	1575	-1168.8	-1743.8	-1242.9
-2164.0			-407.5	-2311.3	-333.4	-1891.1
	13	6	1875	-1243.3	-1297.3	-1317.4
-1717.6			-333.4	-1891.1	-259.3	-1470.8
	14	6	2175	-1323.2	-849.9	-1397.3
-1270.2			-259.3	-1470.8	-185.2	-1050.6
	15	2	2175	-1249.1	-429.7	-1323.2
-849.9			-185.2	-1050.6	-111.1	-630.4
	16	2	2175	-1174.8	-8.3	-1249.1
-429.7			-111.1	-630.4	-36.8	-208.9
	17	7	1073	-1137.9	200.6	-1174.8
-8.3			-36.8	-208.9	0.0	0.0

T TPA mode?

LHS file name: lhsoooo.out

MAP file name: volmap.dat

9 lhs vector number

1 flag to invoc program (1=normal run)

2565.819 10080.000 time of event, simulation stop  
time

Random numbers for dike/cone generation:

u1= 0.9801277E+00 u2= 0.1430183E+00  
u3= 0.6708216E+00 u4= 0.5448347E+00  
u5= 0.7223477E+00 u6= 0.6771971E+00  
u7= 0.4847819E+00 u8= 0.2547898E-01

2 event type (1=dike, 2=cone)

-4283.780 549.859 (x,y) coords of dike/cone  
3167.043 2.356 length and width of dike  
61.359 85.158 radius of cone, angle of dike

Nzone 7

i	area(i)	NcansZ(i)
1	404596.03	2335
2	1398660.63	6150
3	1127967.88	4875
4	749432.75	3675
5	296395.25	1275
6	1281494.25	5625
7	245109.88	1073

\*\*\*\*

This run was made as part of TPA.

\*\*\*\*

INVENTORIES per CANISTER:

CM246	PU242	U238	
0.072217	4.478567	0.890115	
CM245	AM241	NP237	
0.352687	4590.530762	0.806142	
AM243	PU239		
43.386116	862.124084		
PU240	U236		
1421.944946	0.671785		
U234	TH230	RA226	PB210
5.290307	0.000361	0.000001	0.000000
CS135			
0.979686			
I129			
0.082574			
TC99			
34.428982			
NI59			
9.964810			
C14			
4.310620			
SE79			
1.066459			
NB94			
2.219690			

zone#	areaHit	areaFrac	NcansHit	inven/can
release				
1	0.00	0.0000000	0	2060.9221
0.0000				

2	0.00	0.0000000	0	2060.9221
0.0000				
3	0.00	0.0000000	0	2060.9221
0.0000				
4	0.00	0.0000000	0	2060.9221
0.0000				
5	0.00	0.0000000	0	2060.9221
0.0000				
6	0.00	0.0000000	0	2060.9221
0.0000				
7	0.00	0.0000000	0	2060.9221
0.0000				
TOTALS	0.00	0.0000000	0	
0.000000				

#### A.7 LISTING OF VOLCANO.HST

##### Sample Problem 1: Output file for TPA mode

```

9 lhs vector number
  2565.819      10080.000 time of event, simulation stop
time
  2 event type (1=dikey, 2=cone)
    -4283.780      549.859 (x,y) coords of dikey/cone
      3167.043      2.356 length and width of dikey
        61.359      85.158 radius of cone, angle of dikey
zone#      areaHit      areaFrac      NcansHit      inven/can
release
  1          0.00      0.0000000          0      2060.9221
0.0000
  2          0.00      0.0000000          0      2060.9221
0.0000
  3          0.00      0.0000000          0      2060.9221
0.0000
  4          0.00      0.0000000          0      2060.9221
0.0000
  5          0.00      0.0000000          0      2060.9221
0.0000
  6          0.00      0.0000000          0      2060.9221
0.0000
  7          0.00      0.0000000          0      2060.9221
0.0000
TOTALS          0.00      0.0000000          0
0.000000

```

#### A.8 LISTING OF VOLAIR.DAT

##### Sample Problem 1: Output file for TPA mode

ACTIVITY RELEASE DATA FROM VOLCANO  
21

CM246		
5		
0.0	0.0	
2564.8	0.0	
2565.8	0.0	
2566.8	0.0	
10080.0	0.0	
PU242		
5		
0.0	0.0	
2564.8	0.0	
2565.8	0.0	
2566.8	0.0	
10080.0	0.0	
U238		
5		
0.0	0.0	
2564.8	0.0	
2565.8	0.0	
2566.8	0.0	
10080.0	0.0	
CM245		
5		
0.0	0.0	
2564.8	0.0	
2565.8	0.0	
2566.8	0.0	
10080.0	0.0	
AM241		
5		
0.0	0.0	
2564.8	0.0	
2565.8	0.0	
2566.8	0.0	
10080.0	0.0	
NP237		
5		
0.0	0.0	
2564.8	0.0	
2565.8	0.0	
2566.8	0.0	
10080.0	0.0	
AM243		
5		
0.0	0.0	
2564.8	0.0	
2565.8	0.0	
2566.8	0.0	
10080.0	0.0	
PU239		
5		

0.0	0.0
2564.8	0.0
2565.8	0.0
2566.8	0.0
10080.0	0.0
PU240	
5	
0.0	0.0
2564.8	0.0
2565.8	0.0
2566.8	0.0
10080.0	0.0
U236	
5	
0.0	0.0
2564.8	0.0
2565.8	0.0
2566.8	0.0
10080.0	0.0
U234	
5	
0.0	0.0
2564.8	0.0
2565.8	0.0
2566.8	0.0
10080.0	0.0
TH230	
5	
0.0	0.0
2564.8	0.0
2565.8	0.0
2566.8	0.0
10080.0	0.0
RA226	
5	
0.0	0.0
2564.8	0.0
2565.8	0.0
2566.8	0.0
10080.0	0.0
PB210	
5	
0.0	0.0
2564.8	0.0
2565.8	0.0
2566.8	0.0
10080.0	0.0
CS135	
5	
0.0	0.0
2564.8	0.0



	2565.8	0.0
	2566.8	0.0
	10080.0	0.0
I129		
5		
	0.0	0.0
	2564.8	0.0
	2565.8	0.0
	2566.8	0.0
	10080.0	0.0
TC99		
5		
	0.0	0.0
	2564.8	0.0
	2565.8	0.0
	2566.8	0.0
	10080.0	0.0
NI59		
5		
	0.0	0.0
	2564.8	0.0
	2565.8	0.0
	2566.8	0.0
	10080.0	0.0
C14		
5		
	0.0	0.0
	2564.8	0.0
	2565.8	0.0
	2566.8	0.0
	10080.0	0.0
SE79		
5		
	0.0	0.0
	2564.8	0.0
	2565.8	0.0
	2566.8	0.0
	10080.0	0.0
NB94		
5		
	0.0	0.0
	2564.8	0.0
	2565.8	0.0
	2566.8	0.0
	10080.0	0.0

## A.9 LISTING OF VOLSOT.DAT

### Sample Problem 2: Output file for TPA mode

CELL AREA RATIOS FROM VOLCANO TO SOTEC

0.257E+04	TIME (in years)
7	NUMBER OF CELLS (zones)
1	0.0000000
2	0.0000000
3	0.0000000
4	0.0000000
5	0.0000000
6	0.0000000
7	0.0000000

## A.10 LISTING OF VOLCANO.IN

### Sample Problem 2: Input file for the stand-alone mode

Parameter values (all dimensions to follow are in meter)

89912665	seed for RAN1 if not TPA mode
-6000 6000	system X coordinates
-7500 4500	system y coordinate
1000 40000	min area, max area
1000 4000	min length, max length
1 10	min width, max width
75 90	min angle, max angle in degrees (cannot cross 0)
1	1=pick radius for cone formation, 2=pick area
25 100	min radius, max radius

Coordinates of nodes used to build panel rectangles

43 = number of nodes

I	X	Y
1	0.0	0.0
2	-36.8	-208.9
3	-46.6	-264.1
4	-111.1	-630.4
5	-185.2	-1050.6
6	-259.3	-1470.8
7	-333.4	-1891.1
8	-407.5	-2311.3
9	-481.6	-2731.5
10	-555.7	-3151.8
11	-592.4	-3359.8
12	-1137.9	200.6
13	-1174.8	-8.3
14	-1249.1	-429.7
15	-1323.2	-849.9
16	-1397.3	-1270.2
17	-1243.3	-1297.3
18	-1317.4	-1717.6
19	-1168.8	-1743.8
20	-1242.9	-2164.0
21	-1091.6	-2190.7
22	-1165.7	-2610.9
23	-901.0	-2657.6

24	-975.1	-3077.8
25	-10.9	-61.8
26	563.6	-163.1
27	527.9	-365.5
28	707.4	-397.1
29	642.9	-763.3
30	837.7	-797.7
31	763.6	-1217.9
32	801.4	-1224.6
33	727.3	-1644.8
34	651.7	-1631.5
35	577.6	-2051.7
36	372.3	-2015.5
37	298.2	-2435.7
38	125.3	-2405.3
39	51.2	-2825.5
40	13.3	-2818.8
41	-60.8	-3239.1
42	14.9	-3252.4
43	-21.8	-3460.4

Node/Panel connectivity table

		= number of panels, number of zones				
I	C1	C2	C3	C4	Zone	NcansZ
1	25	3	27	26	1	710
2	3	4	29	28	1	1625
3	4	5	31	30	2	1800
4	5	6	33	32	3	1875
5	6	7	35	34	3	1725
6	7	8	37	36	3	1275
7	8	9	39	38	4	975
8	9	10	41	40	4	900
9	10	11	43	42	4	1050
10	23	24	10	9	4	750
11	21	22	9	8	5	1275
12	19	20	8	7	6	1575
13	17	18	7	6	6	1875
14	15	16	6	5	6	2175
15	14	15	5	4	2	2175
16	13	14	4	2	2	2175
17	12	13	2	1	7	1073

#### A.11 LISTING OF TEST15.NUC

Sample Problem 2: Input file for stand-alone mode

18			
CM	2	.24E-3	100.0
1 1			
2 1			
PU	4	.01E-0	100.0

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237.0	NP237	2.14E06	0.662
233.0	U233	1.62E05	6.01E-5
229.0	TH229	7.34E03	3.17E-7
243.0	AM243	7.95E03	35.9
239.0	PU239	2.44E04	657
235.0	U235	7.10E08	0.0361
240.0	PU240	6.58E03	11.07
236.0	U236	2.39E07	0.0538
238.0	PU238	8.60E01	4890.0
234.0	U234	2.47E05	2.5
230.0	TH230	8.00E04	2.79E-4
226.0	RA226	1.60E03	7.75E-7
210.0	PB210	2.23E01	9.79E-8
137.0	CS137	3.00E01	17.24E4
135.0	CS135	3.00E06	0.7245
129.0	I129	1.59E07	0.06615
126.0	SN126	1.00E05	1.63
99.0	TC99	2.15E05	27.5
93.0	ZR93	9.50E05	4.05
90.0	SR90	2.90E01	12.01E4
59.0	NI59	8.00E04	10.82
14.0	C14	5.73E03	3.26
79.0	SE79	6.49E04	0.859
94.0	NB94	2.03E04	2.69

#### A.12 LISTING OF VOLCANO.OUT

Sample Problem 2: Output file for stand-alone mode

```

CELL AREA RATIOS FROM VOLCANO TO SOTEC
0.757E+04          TIME (in years)
7                NUMBER OF CELLS (zones)
1 0.0000000
2 0.0000000
3 0.0000000
4 0.0000000
5 0.0000000
6 0.0000000
7 0.0000000

```

#### A.13 LISTING OF VOLCANO.HST

Sample Problem 2: Output file for stand-alone mode

```

7570.872          10000.000 time of event, simulation stop
time
1 event type (1=dikey, 2=cone)
-4906.419          -1427.712 (x,y) coords of dikey/cone
1019.001           1.243 length and width of dikey

```

zone#	0.000 areaHit	84.501 radius of cone, areaFrac	angle of dike NcansHit	inven/can
release				
1	0.00	0.0000000	0	616.0920
0.0000				
2	0.00	0.0000000	0	616.0920
0.0000				
3	0.00	0.0000000	0	616.0920
0.0000				
4	0.00	0.0000000	0	616.0920
0.0000				
5	0.00	0.0000000	0	616.0920
0.0000				
6	0.00	0.0000000	0	616.0920
0.0000				
7	0.00	0.0000000	0	616.0920
0.0000				
TOTALS	0.00	0.0000000	0	
0.000000				

#### A.14 LISTING OF VOLAIR.DAT

##### Sample Problem 2: Output file for stand-alone mode

ACTIVITY RELEASE DATA FROM VOLCANO

30

CM246

5

0.0	0.0
0.0	0.0
0.0	0.0
0.0	0.0
10000.0	0.0

PU242

5

0.0	0.0
0.0	0.0
0.0	0.0
0.0	0.0
10000.0	0.0

U238

5

0.0	0.0
0.0	0.0
0.0	0.0
0.0	0.0
10000.0	0.0

U234

5

0.0	0.0
-----	-----

	0.0	0.0
	0.0	0.0
	0.0	0.0
	10000.0	0.0
CM245		
5		
	0.0	0.0
	0.0	0.0
	0.0	0.0
	0.0	0.0
	10000.0	0.0
AM241		
5		
	0.0	0.0
	0.0	0.0
	0.0	0.0
	0.0	0.0
	10000.0	0.0
NP237		
5		
	0.0	0.0
	0.0	0.0
	0.0	0.0
	0.0	0.0
	10000.0	0.0
U233		
5		
	0.0	0.0
	0.0	0.0
	0.0	0.0
	0.0	0.0
	10000.0	0.0
TH229		
5		
	0.0	0.0
	0.0	0.0
	0.0	0.0
	0.0	0.0
	10000.0	0.0
AM243		
5		
	0.0	0.0
	0.0	0.0
	0.0	0.0
	0.0	0.0
	10000.0	0.0
PU239		
5		
	0.0	0.0
	0.0	0.0
	0.0	0.0

	0.0	0.0
	10000.0	0.0
U235		
5		
	0.0	0.0
	0.0	0.0
	0.0	0.0
	0.0	0.0
	10000.0	0.0
PU240		
5		
	0.0	0.0
	0.0	0.0
	0.0	0.0
	0.0	0.0
	10000.0	0.0
U236		
5		
	0.0	0.0
	0.0	0.0
	0.0	0.0
	0.0	0.0
	10000.0	0.0
PU238		
5		
	0.0	0.0
	0.0	0.0
	0.0	0.0
	0.0	0.0
	10000.0	0.0
U234		
5		
	0.0	0.0
	0.0	0.0
	0.0	0.0
	0.0	0.0
	10000.0	0.0
TH230		
5		
	0.0	0.0
	0.0	0.0
	0.0	0.0
	0.0	0.0
	10000.0	0.0
RA226		
5		
	0.0	0.0
	0.0	0.0
	0.0	0.0
	0.0	0.0
	10000.0	0.0



PB210		
5		
	0.0	0.0
	0.0	0.0
	0.0	0.0
	0.0	0.0
	10000.0	0.0
CS137		
5		
	0.0	0.0
	0.0	0.0
	0.0	0.0
	0.0	0.0
	10000.0	0.0
CS135		
5		
	0.0	0.0
	0.0	0.0
	0.0	0.0
	0.0	0.0
	10000.0	0.0
I129		
5		
	0.0	0.0
	0.0	0.0
	0.0	0.0
	0.0	0.0
	10000.0	0.0
SN126		
5		
	0.0	0.0
	0.0	0.0
	0.0	0.0
	0.0	0.0
	10000.0	0.0
TC99		
5		
	0.0	0.0
	0.0	0.0
	0.0	0.0
	0.0	0.0
	10000.0	0.0
ZR93		
5		
	0.0	0.0
	0.0	0.0
	0.0	0.0
	0.0	0.0
	10000.0	0.0
SR90		
5		

	0.0	0.0
	0.0	0.0
	0.0	0.0
	0.0	0.0
10000.0		0.0
NI59		
5		
	0.0	0.0
	0.0	0.0
	0.0	0.0
	0.0	0.0
10000.0		0.0
C14		
5		
	0.0	0.0
	0.0	0.0
	0.0	0.0
	0.0	0.0
10000.0		0.0
SE79		
5		
	0.0	0.0
	0.0	0.0
	0.0	0.0
	0.0	0.0
10000.0		0.0
NB94		
5		
	0.0	0.0
	0.0	0.0
	0.0	0.0
	0.0	0.0
10000.0		0.0

## A.15 LISTING OF VOLSOT.DAT

### Sample Problem 2: Output file for stand-alone mode

CELL AREA RATIOS FROM VOLCANO TO SOTEC	
0.757E+04	TIME (in years)
7	NUMBER OF CELLS (zones)
1	0.0000000
2	0.0000000
3	0.0000000
4	0.0000000
5	0.0000000
6	0.0000000
7	0.0000000

**APPENDIX B**  
**ERROR MESSAGES**

## **APPENDIX B: ERROR MESSAGES**

( ' VOLCANO could not find LHS file filename')  
( ' VOLCANO could not find MAP file filename')  
( 'Number of containers from standard input' for zone x is inconsistent with TPA global value.')