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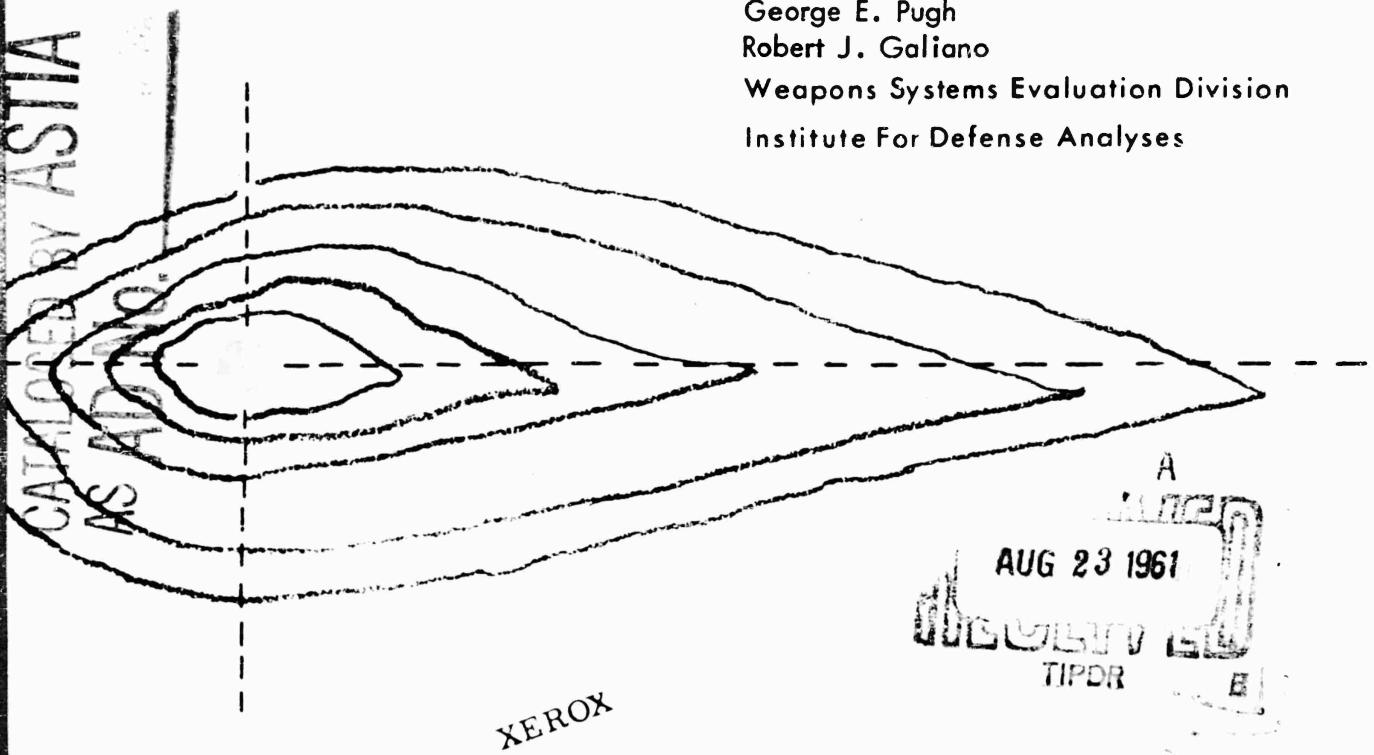
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AN ANALYTIC MODEL OF CLOSE-IN DEPOSITION OF
FALLOUT FOR USE IN OPERATIONAL-TYPE STUDIES

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Institute For Defense Analyses



WSEG RESEARCH MEMORANDUM NO. 10

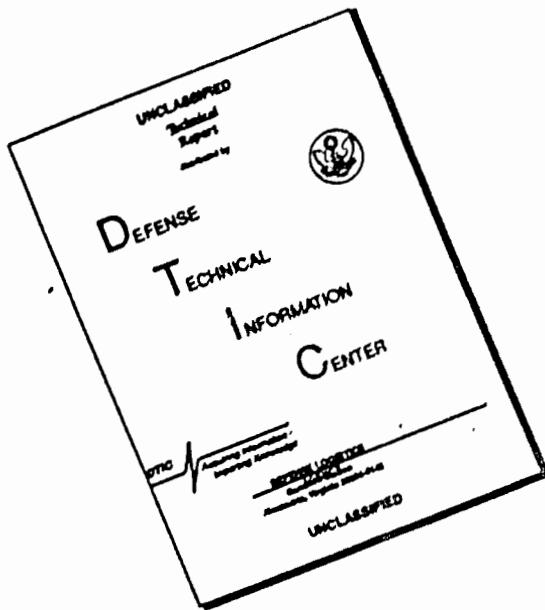


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WSEG
Research Memorandum
No. 10

AN ANALYTIC MODEL
OF CLOSE-IN DEPOSITION OF FALLOUT
FOR USE IN OPERATIONAL-TYPE STUDIES

George E. Pugh
Robert J. Galiano

15 October 1959

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AN ANALYTIC MODEL OF CLOSE-IN DEPOSITION OF FALLOUT
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INTRODUCTION

1. Fallout estimates for use in operational planning have usually been obtained either by use of stylized patterns or by detailed machine calculations. Stylized patterns are too inflexible and too unrealistic to answer many questions encountered in operations research. Detailed calculations which have been used previously are laborious and costly, and unless meteorological conditions are known in extreme detail they do not produce accuracy of results commensurate with the effort. The purpose of this memorandum is to introduce a simplified computational model which is more directly tied to the physics of fallout than the stylized patterns, so that changes in physical knowledge or assumptions can be more readily incorporated. The model is also analytic and sufficiently simple to permit rapid calculations of the type required to allow solution of Monte Carlo problems in reasonable time.

2. The problem here is divided into three parts which are described separately:

a. A fallout model for calculating the distribution of activity with given wind conditions.

b. A climatologic model using existing climatologic data to provide a probabilistic treatment of the wind parameters in the fallout model.

c. A biological effect relation between the distribution of activity and the biological damage done.

* Views contained in this paper are the authors' and do not necessarily reflect those of the Weapons Systems Evaluation Group or the Department of Defense.

3. A final section of the memorandum gives a summary of the important relations arranged for convenient reference. It also provides a tabulation of characteristic values of computed fallout contours from 1 KT to 100 MT for both H+1 dose rate and maximum biological dose. These tables are arranged to include those parameters usually required to establish templates for hand fallout calculations.

PART I

THE FALLOUT MODEL

The physical assumptions of this model are essentially the same as the assumptions used in the RAND fallout models (see especially reference No. 1) which have been quite successful in reproducing actual fallout patterns. However, certain simplifications have been made to make the results mathematically tractable and sufficiently simple to be operationally useful.

The discussion here will be separated into two sections. The first section deals primarily with the mathematical form of the model. The second deals with the adjustment of constants to fit experimental data.

The fundamental character of the model is determined by the fact that the rate with which the radioactive debris falls on the ground is essentially independent of the wind. In other words, for a given yield, resulting in a given distribution of activity vs. particle size, the percentage of the total activity which at any time after the burst has actually reached the ground, or alternatively the percentage that is still in the air, will be essentially independent of the wind. The transport of the debris by wind is primarily horizontal not vertical so that it will not have a big influence on the rate of fall. For any radioactive cloud the rate of deposition of the debris on the ground as a function of time is completely determined once the distribution of activity vs. particle size (rate of fall) and the distribution of activity vs. altitude (vertical fall distance) are known. Horizontal transport of the debris by winds at various altitudes will alter the

location of deposition but will not alter the basic deposition rate.^{1/}

Consequently, once this deposition rate vs. time has been determined for a given yield weapon, it can be used as a basis for determining the fallout pattern for any wind distribution. Specifically, for any radioactive cloud configuration there exists some function of time, $g(t)$, that represents the fraction of the total radioactivity that arrives on the ground per unit time.

We have calculated $g(t)$ using the activity vs. particle size distribution developed by Rapp at RAND, together with an activity vs. altitude distribution based on rocket test data. It will be shown that the function $g(t)$ obtained in this way can be approximated by a function of the form

$$g(t) = K \exp - \left(\frac{t}{T} \right)^{n_0} \quad (1)$$

where T and n_0 are empirical constants that are adjusted to give a best fit to the data. In most cases considered, T (the characteristic time required before the rate of arrival of debris on the ground has fallen to $1/e$ of its initial rate) is of the order of ten hours, and n_0 (which controls the shape of the arrival rate curve) is between 1 and 2.

We require that

$$\int_{-\infty}^{\infty} g(t) dt = F \quad (2)$$

^{1/} This approach ignores effects due to local vertical wind components, but these are particularly unpredictable and are normally ignored in all but the most detailed calculations.

where F is the fraction of the total radioactive debris to be accounted for in the fallout pattern (i.e., that portion of the debris that falls in a reasonably short time).

Carrying out the integration we find

$$F = K T \Gamma \left(1 + \frac{1}{n_0} \right) \quad (3)$$

where Γ is the complete gamma function.

Solving for K and substituting in Equation (1) we find

$$g(t) = \frac{F}{T \Gamma \left(1 + \frac{1}{n_0} \right)} \exp - \left(\frac{t}{T} \right)^{n_0} \quad (4)$$

In the cases investigated so far, using the values of $g(t)$ calculated from the basic rate of fall data mentioned above, the best fit in the interesting range has been obtained with values of F between .95 and 1.00. Allowing for computational inaccuracy, this is sufficiently close to unity that one is tempted to use $F \equiv 1$. However, for the sake of generality, we will maintain F as an experimental constant whose value is to be determined.

If we represent the spatial distribution of the activity reaching the ground at any time t by a function $f(x,y,t)$ which is normalized to integrate to 1 for all values of t , then the final distribution of activity will be represented by the integral

$$\int_{-\infty}^{\infty} f(x,y,t) g(t) dt.$$

It is convenient to approximate the horizontal distribution of activity reaching the ground, $\rho(x,y)$, by a two dimensional gaussian (the appropriateness of this approximation is discussed later).

$$\rho(x,y) = \frac{1}{2\pi\sigma^2} \exp \left\{ -\frac{1}{2} \left(\frac{x^2 + y^2}{\sigma^2} \right) \right\} \quad (5)$$

where σ is a measure of the effective cloud radius.^{2/}

To simplify the problem of computing the spatial distribution of activity, we divide the problem into two parts; the downwind distribution of the activity, and the lateral distribution. To determine the downwind distribution we consider first a very simple case where the cloud moves under the influence of a uniform wind W (which we will later identify with the effective fallout wind).

In this case, we replace x by $x - Wt$ in the expression for ρ , and ignoring crosswind dependence, one can express the deposition, $d(x)$, as a function of x , the distance downwind:

$$d(x) = \int_0^\infty g(t) \frac{1}{\sqrt{2\pi\sigma}} e^{-\frac{1}{2} \frac{(x - Wt)^2}{\sigma^2}} dt. \quad (6)$$

This integration can be performed exactly only for particular values of the n_0 in $g(t)$. In most cases of interest n_0 lies between 1 and 2. Fortunately, the integration can be carried out by completing a square in the exponential for both cases. The results are:

For $n_0 = 1$

$$d(x) = \frac{P}{L_0 \Gamma(1 + \frac{1}{n_0})} \phi\left(\frac{x}{\sigma} - \frac{\sigma}{L_0}\right) e^{-\frac{x}{L_0}} e^{\frac{1}{2} \frac{\sigma^2}{L_0^2}}. \quad (7)$$

^{2/} Deposition which occurs shortly after burst is swept toward the center by toroidal circulation and is deposited as if the effective radius were less than the actual radius of the radioactive cloud.

For $n_0 = 2$

$$d(x) = \frac{F}{L\Gamma(1 + \frac{1}{n_0})} \phi\left(\frac{x}{\sigma} \cdot \frac{L_0}{L}\right) e^{-\left(\frac{x}{L}\right)^2} \quad (8)$$

where $L_0 = WT$ and $L^2 = L_0^2 + 2\sigma^2$

and $\phi(u) = \int_{-\infty}^u \frac{1}{\sqrt{2\pi}} e^{-\frac{x^2}{2}} dx$ (i.e., the standard cumulative normal function).

There is a fairly simple generalization of the result for $n_0 = 2$ which preserves normalization and appears to give rather good results for most of the useful range of n_0 .

This generalization is

$$d(x) \approx \frac{F}{L\Gamma(1 + \frac{1}{n})} \phi\left(\frac{x}{\sigma} \cdot \frac{L_0}{L}\right) e^{-\left(\frac{|x|}{L}\right)^n} \quad (9)$$

where $n = \frac{n_0 L_0^2 + \sigma^2}{L_0^2 + 2\sigma^2}$ (10)

and ϕ is the standard cumulative normal function.

The form of n is chosen to be equal to n_0 for large values of W (i.e., $W^2 T^2 \gg \sigma^2$) to give a good fit downwind. For small values of W it approaches a limit of 2 which gives the correct result for $W = 0$. The crossover point, which is controlled by the coefficients of σ , is not really critical; however, the coefficient shown seems to give as good a fit as any. Figures 1 and 1A show the fit of this approximation to the exact result for $n_0 = 1$. The

COMPARISON OF APPROXIMATE EQUATION (9) (DOTTED LINES) FOR $n_o = 1$
 WITH
 EXACT EXPRESSION (EQ 7) FOR $n_o = 1$

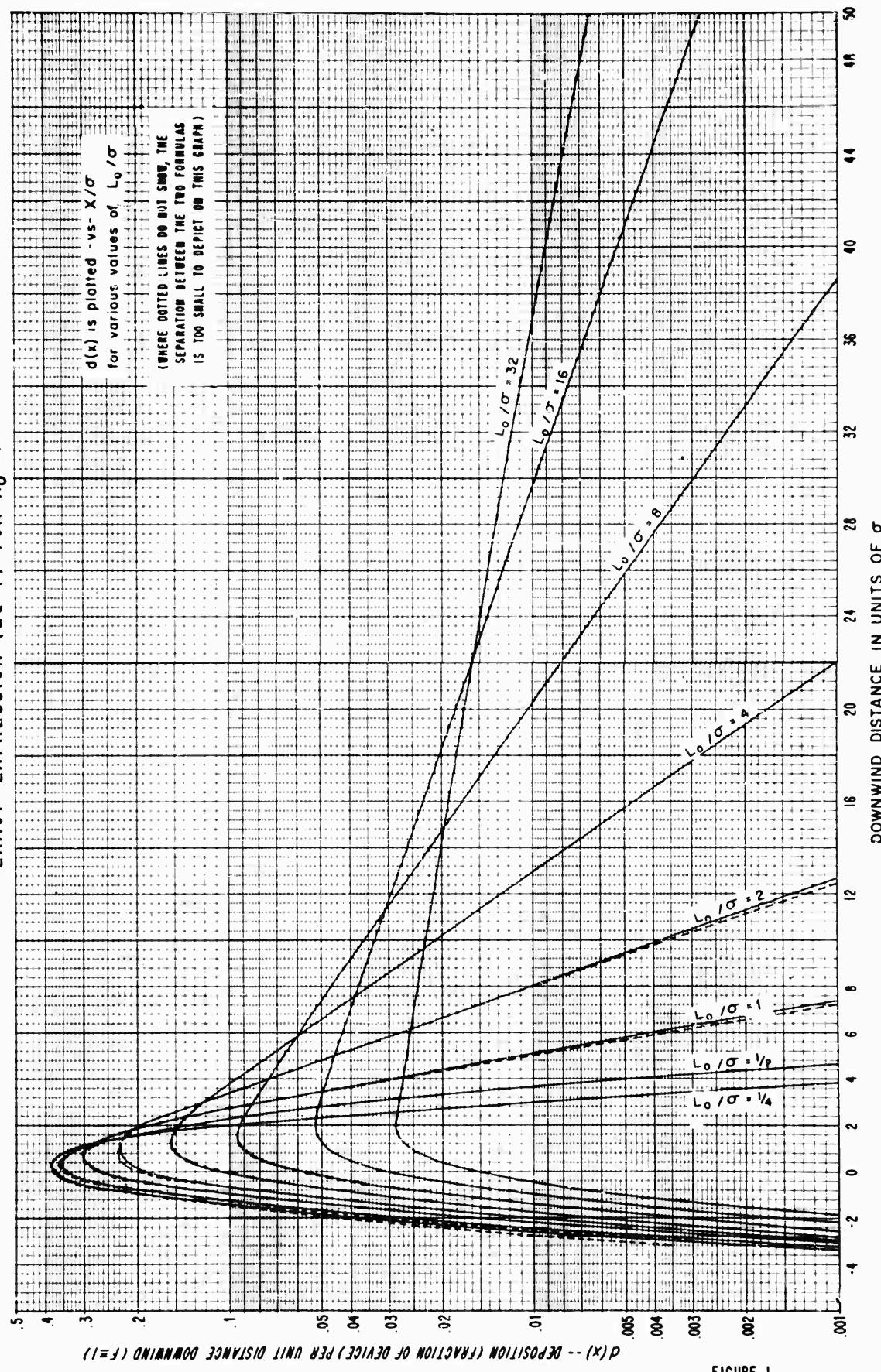


FIGURE 1
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EXPANSION OF FIGURE 1 SHOWING REGION OF POOREST FIT

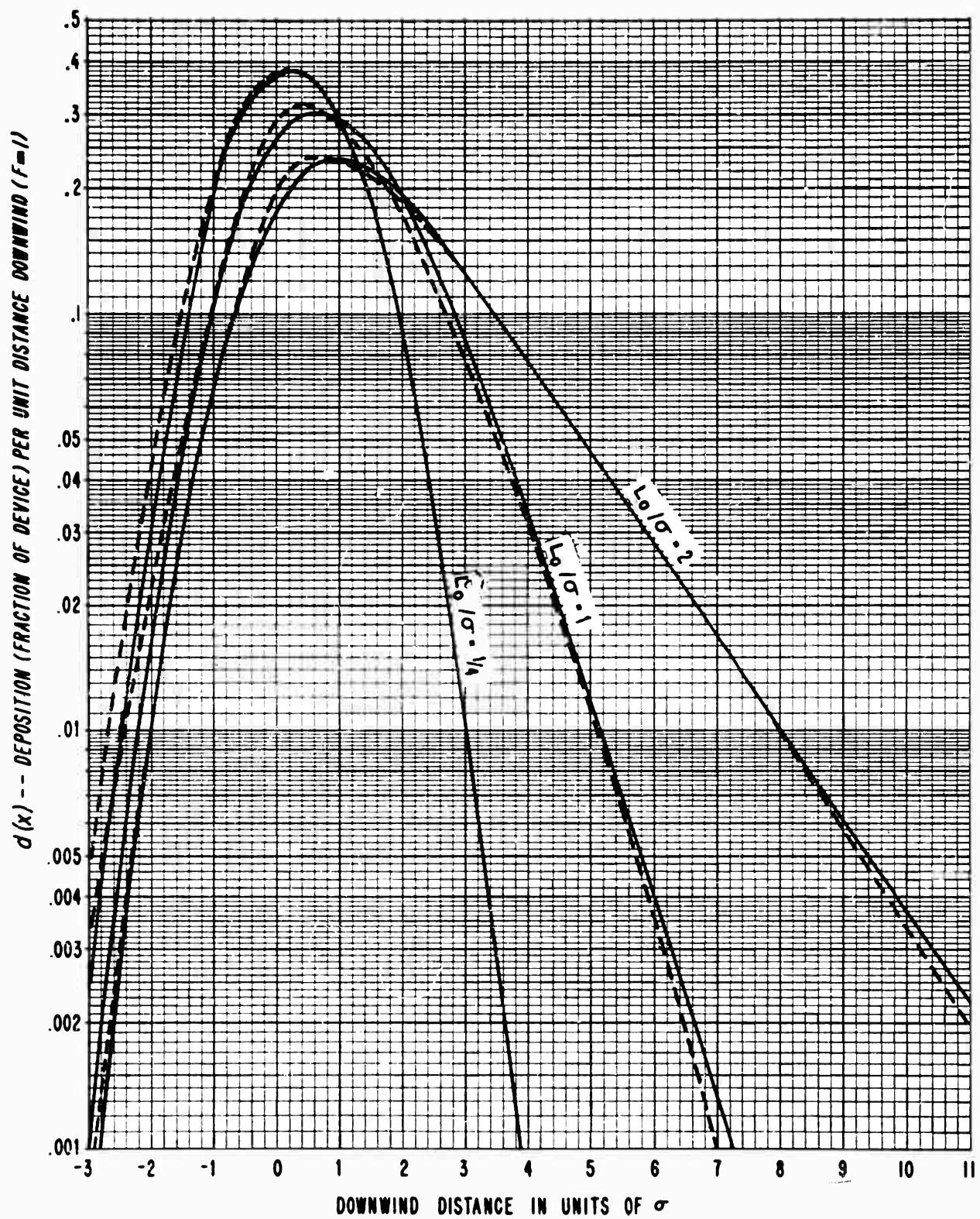


FIGURE 1A

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value of F has been taken to be 1. It is clear that the fit is good enough for any probable application of the method.

Assuming no change in the dimensions of the cloud, the final distribution, $F(x,y)$, of activity would be given by

$$F(x,y) = d(x) f(y) \quad (11)$$

where $f(y) = \frac{1}{\sqrt{2\pi}\sigma} e^{-\frac{1}{2} \frac{y^2}{\sigma^2}} \equiv f_y$ (12)

While this approach was introduced as a very special case, it turns out to have rather useful application. The original integrals obviously represent exact answers if cloud thickness and changes of cloud dimensions with time are neglected.

However, even with finite cloud thickness the answers are exact so long as the "effective fallout wind" is independent of altitude within the original stabilized cloud of activity. In order to discuss how the results are changed when the effective fallout wind is altitude dependent, we must discuss in more detail the meaning of the "effective fallout wind".

The "effective fallout wind", \vec{W} , is simply an appropriate average of the winds through which the particles must fall and is here defined as

$$\vec{W} = \int_0^{h_0} \frac{\vec{\omega}(h)}{v(h)} dh / \int_0^{h_0} \frac{1}{v(h)} dh \quad (13)$$

where $\vec{\omega}(h)$ is the local wind at altitude h , $v(h)$ is the rate of fall of a typical particle at altitude h , and h_0 is the height of the cloud

center^{3/}. In general, \vec{W} is a slowly varying vector function of h_0 . Expanding the x and y components of W about h_0 , we can write

$$w_x = (w_x)_{h_0} + \left(\frac{dw_x}{dh}\right)_{h_0} (h - h_0) + \frac{1}{2} \left(\frac{d^2 w_x}{dh^2}\right)_{h_0} (h - h_0)^2 + \dots \quad (14)$$

$$w_y = 0 + \left(\frac{dw_y}{dh}\right)_{h_0} (h - h_0) + \frac{1}{2} \left(\frac{d^2 w_y}{dh^2}\right)_{h_0} (h - h_0)^2 + \dots$$

The first term is identified as the mean wind; the coefficient of the second term we will call the fallout shear, $s_x = \left(\frac{dw_x}{dh}\right)_{h_0}$ and $s_y = \left(\frac{dw_y}{dh}\right)_{h_0}$. (Note: This shear is related to but not the same as conventional wind shear which is given by $\frac{dw}{dh}$).

If we consider first a cloud with negligible lateral dimensions but with a vertical spread given by

$$\rho_h = \frac{1}{\sqrt{2\pi}\sigma_h} \exp\left[-\frac{1}{2}\left(\frac{h - h_0}{\sigma_h}\right)^2\right] \quad (15)$$

we can see clearly the effect of fallout shear on the deposition of fission products. Figure 2 shows how this might work out. In most cases the effect of s_x will be relatively minor on the over-all pattern after integration over t , but the effect of s_y will be to spread the pattern out laterally. The right hand edge of Figure 2 indicates how the resulting lateral distribution is related to the original vertical distribution of activity. The characteristic width, σ_y , of this lateral distribution is given by

$$\sigma_y = s_y t \sigma_h \approx s_y \frac{x}{W} \sigma_h. \quad (16)$$

3/ Actually $v(h)$ is quite sensitive to particle size, but $v(h_1)/v(h_2)$ is nearly independent of particle size, as a single evaluation of W using a typical particle size gives an acceptable approximation.

SKETCH ILLUSTRATING THE EFFECT OF WIND SHEAR
ON LATERAL DISTRIBUTION OF FALLOUT

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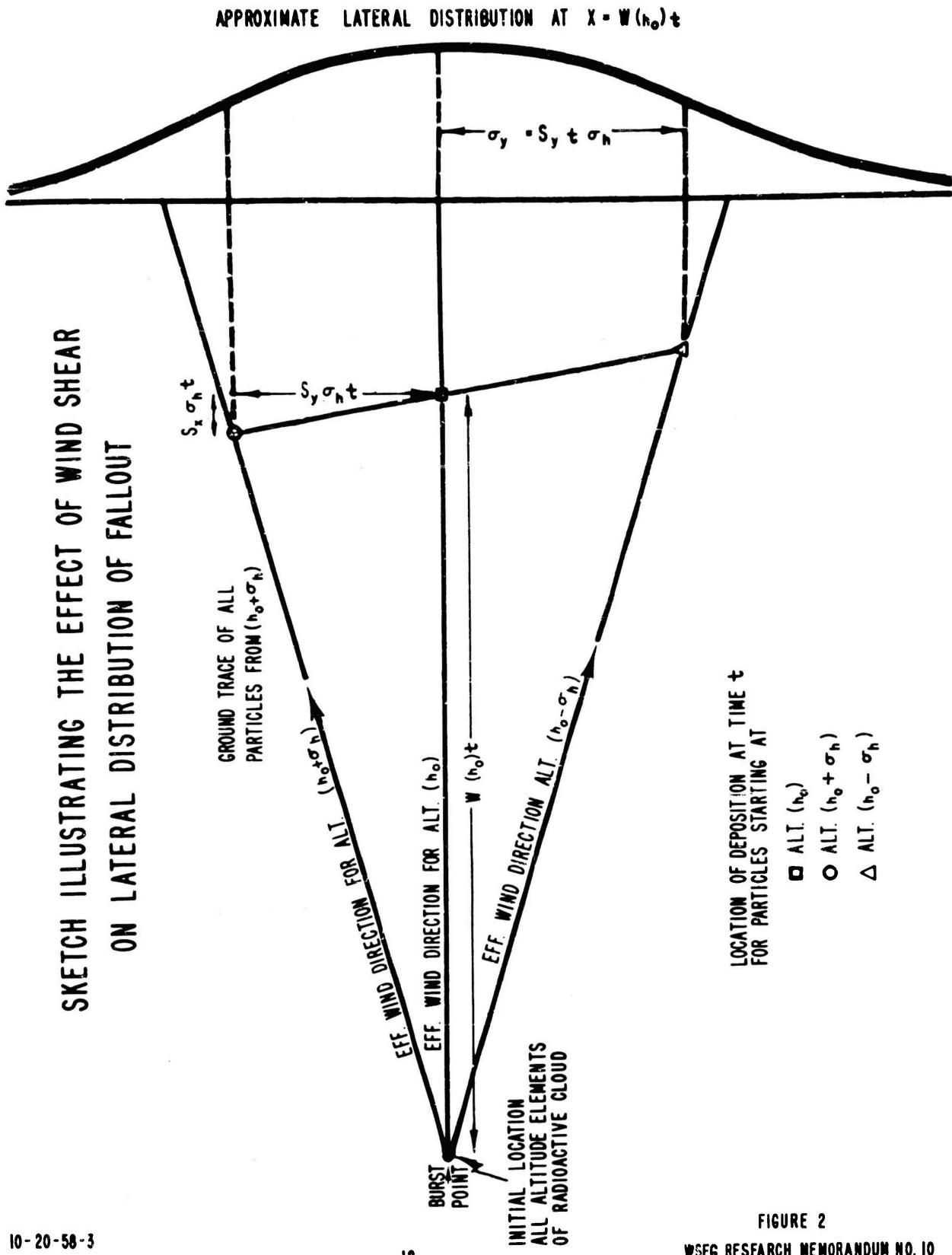


FIGURE 2
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Where the total lateral spread results from the effective cloud radius σ_e as well as the shear, it is more appropriate to write

$$\sigma_y^2 = \sigma_e^2 + \left(s_y \sigma_h \frac{x}{W} \right)^2 \quad (17)$$

This expression is exact for a constant effective cloud radius if the x components of the cloud are ignored. However, the effective radius apparently changes with time. At early times, the fallout is swept toward the center of the cloud by the toroidal circulation and is deposited on the ground as if the effective cloud radius, σ_e , were about 1/2 the actual cloud radius, σ_c . At later times, the circulation effectively stops and the entire cloud radius should contribute to the width of the pattern.

To allow for this, we set σ_e equal to σ_0 at $t = 0$, where σ_0 is about one half, σ_c , the characteristic cloud radius (at 15 minutes). No evidence seems to exist that will define how rapidly σ_e should increase as the toroidal circulation slows down. We have postulated that for megaton size detonations the effective radius should equal σ_c at about three hours, but probably would continue to increase very slowly after that because the cloud itself continues to expand after 15 minutes.

These assumptions are met by replacing σ_e^2 by $\sigma_0^2(1 + \frac{x}{W})$ where $\frac{x}{W}$ gives the time after burst, in hours. However, this characteristic time will probably be less for small bursts than for large ones. This adjustment occurs automatically if W is replaced by L/T and the value of T , which is about 8 for a megaton type of cloud, is used.

This results in a corrected value for σ_y given by

$$\sigma_y^2 = \sigma_0^2 \left(1 + \frac{x}{L/8}\right) + (S_y \sigma_h \frac{x}{W})^2 \quad (18)$$

To avoid having the minimum width of the pattern occur at $x=0$ it may be desirable to replace x by $x+2\sigma_x$, where σ_x is the effective cloud radius in the x direction, and L is now defined in terms of σ_x , i.e., $L = (L_0^2 + 2\sigma_x^2)^{1/2}$. Even further refinements may be called for if it is desired to get the best behavior near the origin for very low values of W . For this purpose we have sometimes used

$$\sigma_y^2 = \sigma_0^2 \left(1 + \frac{|x+2\sigma_x|}{L/8}\right) + \frac{L_0^2}{L^2} \left(S_y \sigma_h \frac{x+2\sigma_x}{L/T}\right)^2 + \frac{2\sigma_0^2}{L^2} (S_y \sigma_h T)^2 \quad (19)$$

The W in the denominator of the second term has been replaced by L/T to assure that this term will vanish for $W=0$. The third term provides for a reasonable lateral spread of activity near ground zero when the wind W is small. To give a corresponding spread in the x direction the σ in the expression for $d(x)$ is replaced by σ_x where

$$\sigma_x^2 = \sigma_0^2 + \frac{2\sigma_0^2}{L_0^2 + 2\sigma_0^2} (S_x \sigma_h T)^2 \quad (20)$$

A possible third term corresponding to the final term in the equation for σ_y has been omitted from σ_x because it would have little effect on the result, but the arbitrary inclusion of an x dependent term would spoil the normalization of $d(x)$.

We can now summarize the results as follows:

The fraction of the device, $F(x,y)$, which will be deposited per square mile as a function of downwind distance x and crosswind distance y is approximated by

$$F(x,y) = \frac{F_f y \phi\left(\frac{L_o}{L} \cdot \frac{x}{\sigma_x}\right)}{L \Gamma(1 + \frac{1}{n})} \exp\left(-\left(\frac{|x|}{L}\right)^n\right) \quad (21)$$

where F = fraction of device accounted for by the pattern

$$L = (L_o^2 + 2\sigma_x^2)^{\frac{1}{2}}, \quad L_o = WT \quad (22)$$

$$f_y = \frac{1}{\sqrt{2\pi}\sigma_y} e^{-\frac{1}{2}\left(\frac{y}{\sigma_y}\right)^2} \quad (23)$$

$$\phi(u) = \int_{-\infty}^u \frac{1}{\sqrt{2\pi}} e^{-\frac{1}{2}x^2} dx \quad (24)$$

Γ = complete gamma function.

$$\sigma_x^2 = \sigma_o^2 + \frac{2\sigma_o^2}{L_o^2 + 2\sigma_o^2} (S_x \sigma_h T)^2 \quad (25)$$

$$\sigma_y^2 = \sigma_o^2 \left(1 + \left|\frac{x+2\sigma_x}{L/8}\right|\right) + \frac{L_o^2}{L^2} \left(S_y \sigma_h \frac{x+2\sigma_x}{L/T}\right)^2 + \frac{2\sigma_x^2}{L^2} (S_y \sigma_h T)^2 \quad (26)$$

$$n = \frac{n_o L_o^2 + \sigma_x^2}{L_o^2 + \frac{1}{2}\sigma_x^2} \quad (27)$$

While the coordinates used here are fixed relative to a constant, space independent, effective fallout wind, this does not actually place such severe limitations on the conditions under which the model can be used. For instance, it is possible to include first order effects of wind differences from place to place by setting $W = (W_m + W_b)/2$, where

w_m is the wind at monitor point and w_b is the wind at the burst point. The coordinates used for calculating each monitor point then would be fixed relative to w . This procedure, incidentally, will usually result in rather realistically curved patterns. For machine calculations, this technique can be used most easily if one replaces x by $r \cos(\theta - \phi)$ and y by $r \sin(\theta - \phi)$, where ϕ is the wind direction and θ is the direction to the monitor point.

The full representation given here may be more involved than is desirable or needed for most applications. If behavior near the origin is not critical, the expression can be simplified by the following changes:

$$\sigma_x^2 = \sigma_0^2 \quad (28)$$

$$L^2 = L_0^2 + 2\sigma_0^2 \quad (29)$$

$$\sigma_y^2 = \sigma_0^2 \left(1 + \frac{8|x|}{L} \right) + (S_y \sigma_h \frac{x}{w})^2 \quad (30)$$

If one is interested only in cases where $L_0^2 \gg 2\sigma_0^2$ the formula can be drastically simplified to give

$$n = n_0 \quad (31)$$

$$F(x, y) = \frac{F_f y \phi \left(\frac{x}{\sigma_0} \right)}{L_0 \Gamma \left(1 + \frac{1}{n_0} \right)} \exp \left[- \left(\frac{|x|}{L_0} \right)^{n_0} \right] \quad (32)$$

where σ_y^2 for f_y is defined as above.

This last case may be of the greatest practical interest because it is extremely simple and is applicable to most cases of interest. The requirement that $L_0^2 \gg 2\sigma_0^2$ is actually satisfied for almost all cases of interest. For instance, for a 3 MT weapon, σ_0 is about three

miles, and T is about 9 hours. Thus for any wind greater than one-half knot $L_0^2 = W^2 T^2 > 2\sigma_0^2$ and the stronger inequality is adequately satisfied for values of W greater than two or three knots.

In order to convert the fractional deposition function $F(x,y)$ to the conventional H+1 dose rate, it is only necessary to multiply by the appropriate factors.

$$\text{Dose rate} = kfY F(x,y)$$

k = number of (roentgens/hr at H+1) \times (miles)²/megaton
of fission

f = fraction of yield due to fission

Y = total yield in megatons

The usefulness of the model just described depends on the accuracy with which it can describe available data on the fallout process. The remainder of this section, therefore, is devoted to a comparison of the mathematical parameters of the model with available physical data. There are two basic parameters for which this comparison is required. These are:

- a. The spatial distribution of activity falling from the radioactive cloud
- b. The rate of fall data.

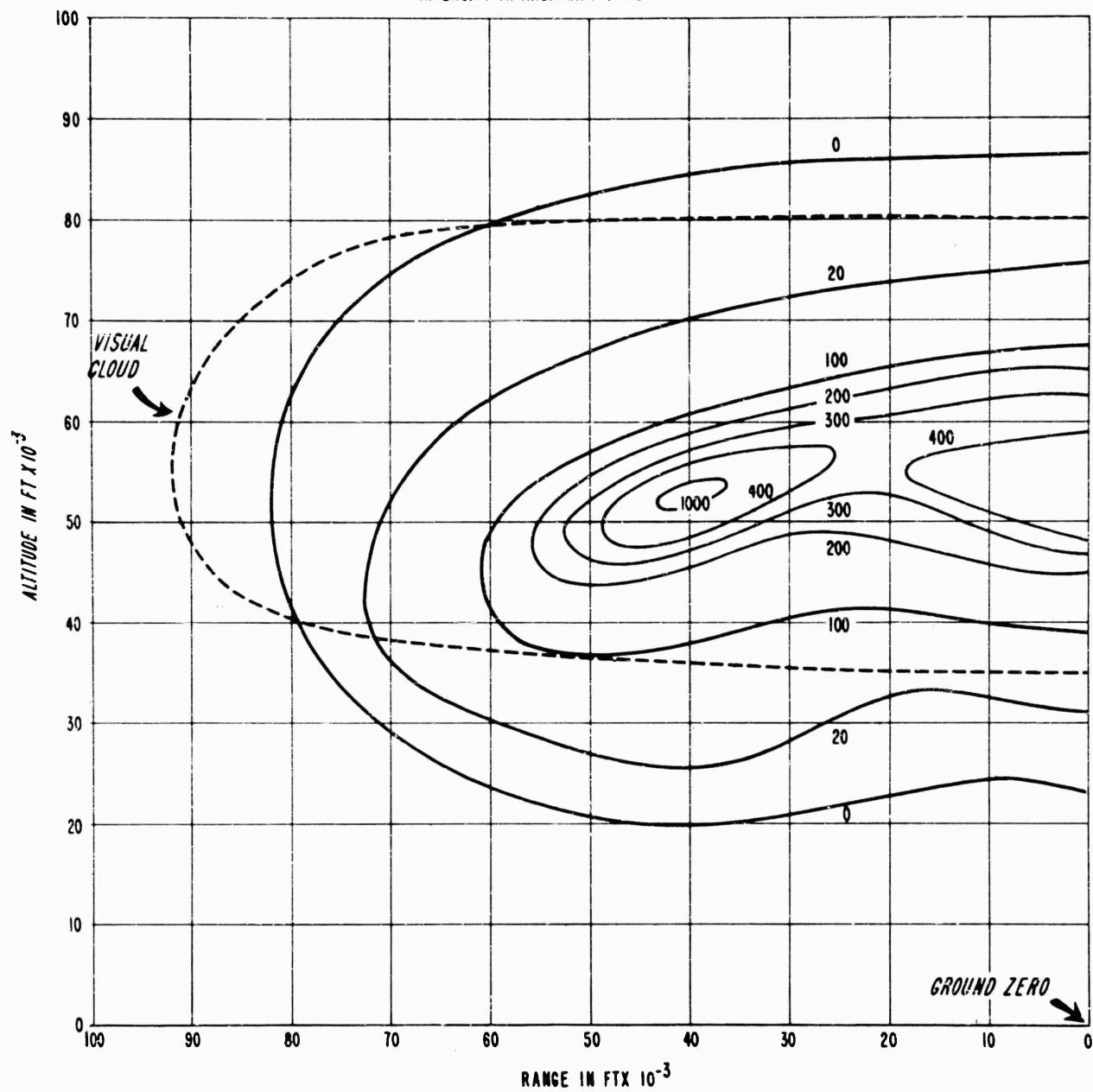
These two items are taken up in that order, and an empirical yield dependence for each is derived. A word of caution should be interjected here, in that the actual values given below represent only data presently known to the authors. At any time improved data or new experiments may require a revision of the values given here.

Figure 3 shows a plot of activity vs. position in a radioactive cloud as derived from NOTS rocket data (Ref. 2). Of course, the

TYPICAL CLOUD RADIOACTIVITY INTENSITY CONTOURS

15 MINUTES AFTER BURST

INTENSITY IN ARBITRARY UNITS



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18

FIGURE 3
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detailed three-dimensional structure of the cloud is lost in the fall-out process. However, a one-dimensional projection of the cloud on the vertical axis is important in determining the effect of shear. By definition the "effective" cloud radius determines the initial width of the pattern. It also determines the upwind extent of the pattern. At later times the final diameter of the stabilized cloud will contribute to the width of the pattern.

For the purpose of this model, therefore, we replace the actual distribution in the cloud by a fictitious distribution which is a simple product of the three orthogonal projections.

Thus the effective radioactive cloud is approximated by

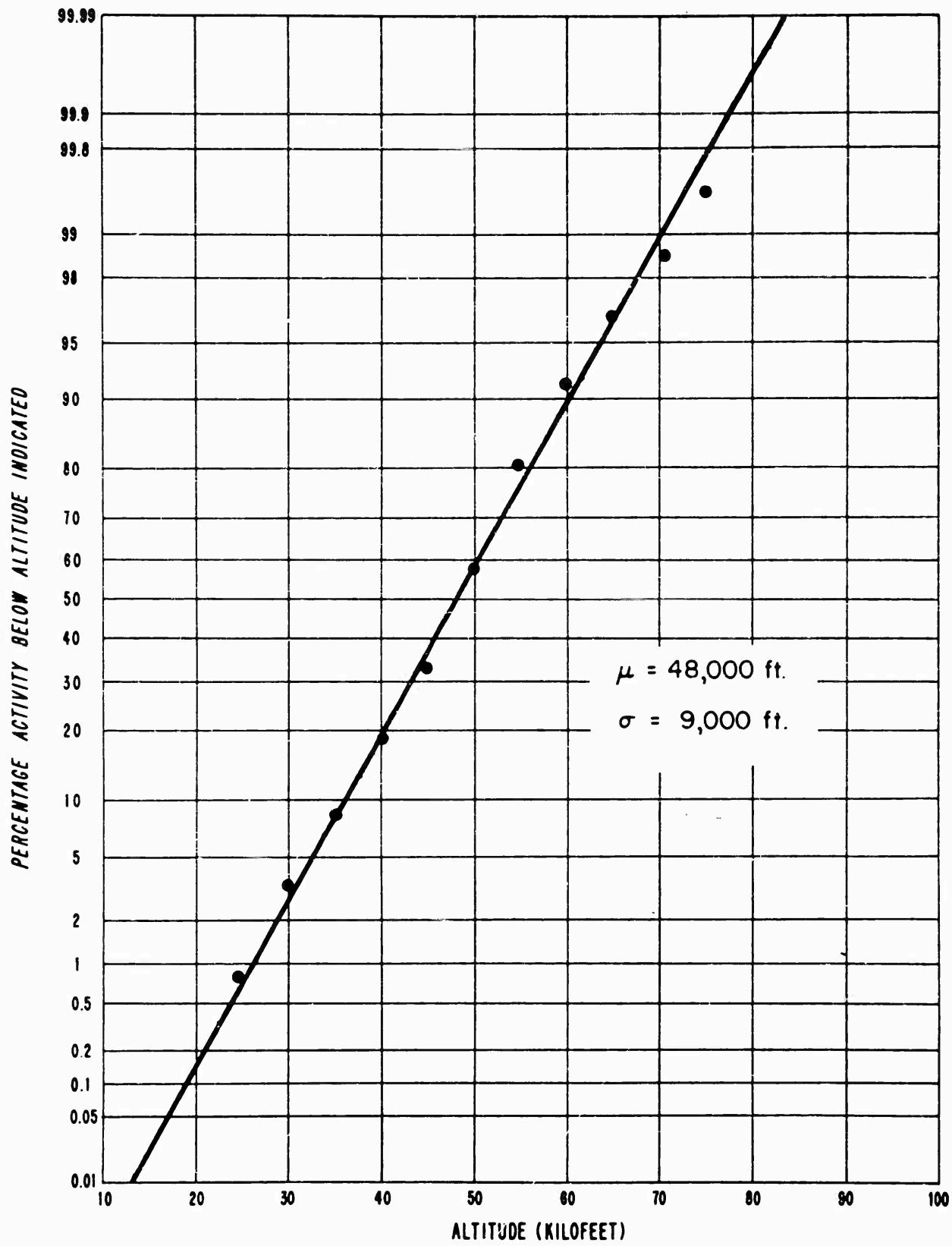
$$\rho(x, y, h) = \frac{1}{(2\pi)^{3/2} \sigma_e^2 \sigma_h} \exp \left[-\frac{x^2 + y^2}{\sigma_e^2} - \left(\frac{h - h_0}{\sigma_h} \right)^2 \right] \quad (33)$$

The adequacy of this approximation can be tested by comparing experimental data where it is available with the functional form given here.

We consider first the distribution of activity with altitude (which can be derived from figure 3). Figure 4 demonstrates the use of a normal distribution (a straight line on cumulative normal graph paper) to fit the altitude data in figure 3. While the fit is not perfect, the comparison appears adequate for the purpose of this model.

To demonstrate the fit of the lateral spread to the normal distribution, two comparisons must be made, one for the deposition at early times when the toroidal rotation is important and one for later times when it has ceased to be important. To indicate the adequacy of the

FIT OF NORMAL DISTRIBUTION TO DISTRIBUTION IN ALTITUDE



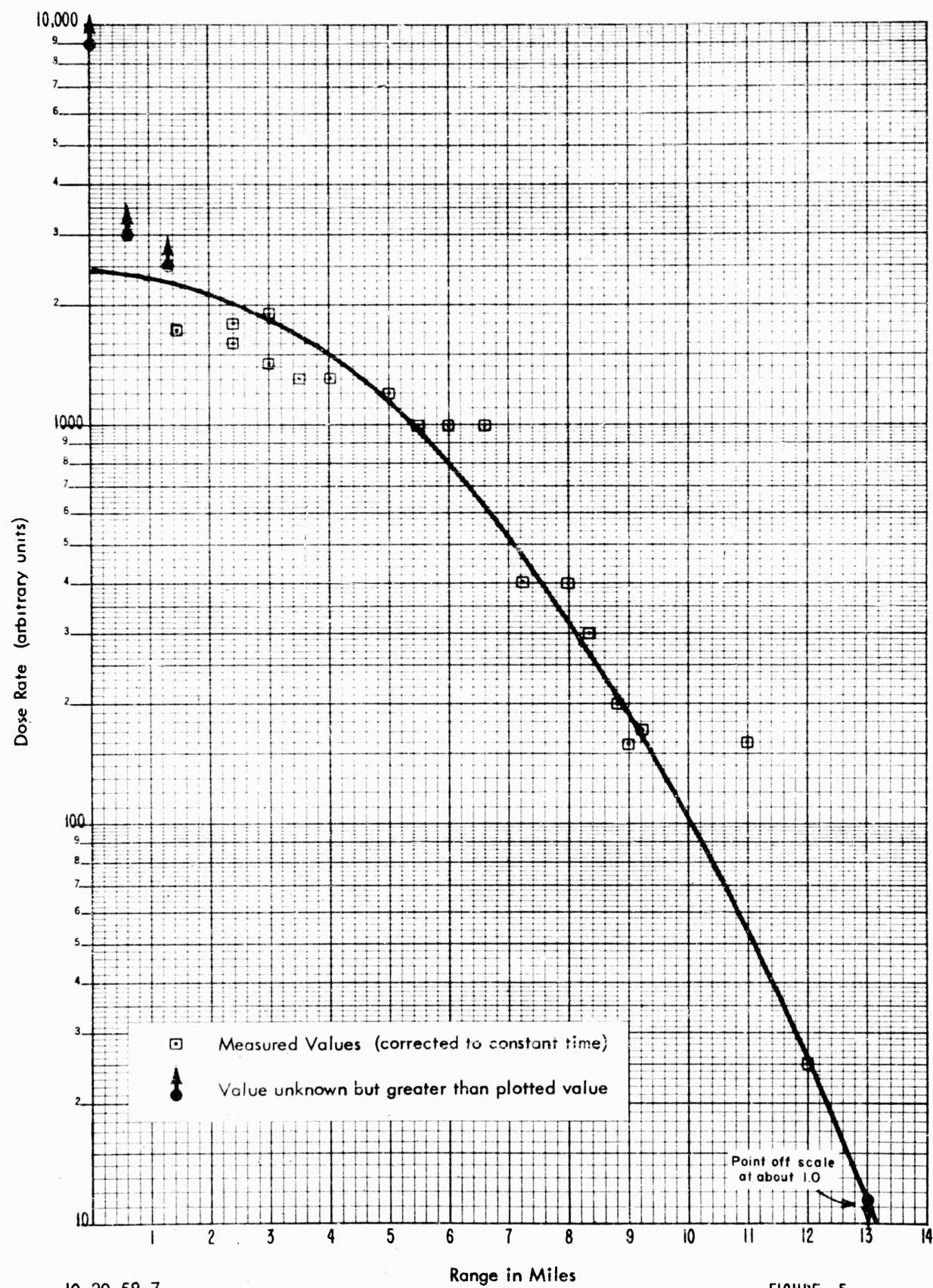
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approximation at early times, we can compare with actual radiation measurements upwind and crosswind from ground zero. In figure 5, a gaussian or normal curve is drawn for comparison with the experimental data of Ref. 3. The fit is entirely satisfactory considering the scatter in the data. (The very intense dose rate near the origin, in the region included in the original fireball, may be due to induced activity and is not considered in the fit to this data.)

As the effective radius grows, it should ultimately coincide with the actual cloud radius. Therefore, to provide a comparison for later times, figure 6 compares the measured lateral spread of activity in the cloud of figure 3 with the normal distribution curve. In this case the fit is not as good as might be desired. The actual radioactive cloud (solid line), at least as measured at 15 minutes, is considerably sharper at the edge than the normal curve indicated by the dotted line. However, this is probably not very important because at late times when the full cloud radius might begin to be reflected in the fallout, the actual ground deposition will normally be dominated by wind shear of the cloud, so that the vertical, not the lateral distribution of activity will dominate the pattern. Consequently it seems justified for the sake of simplicity to use the normal distribution for all parts of the fallout pattern.

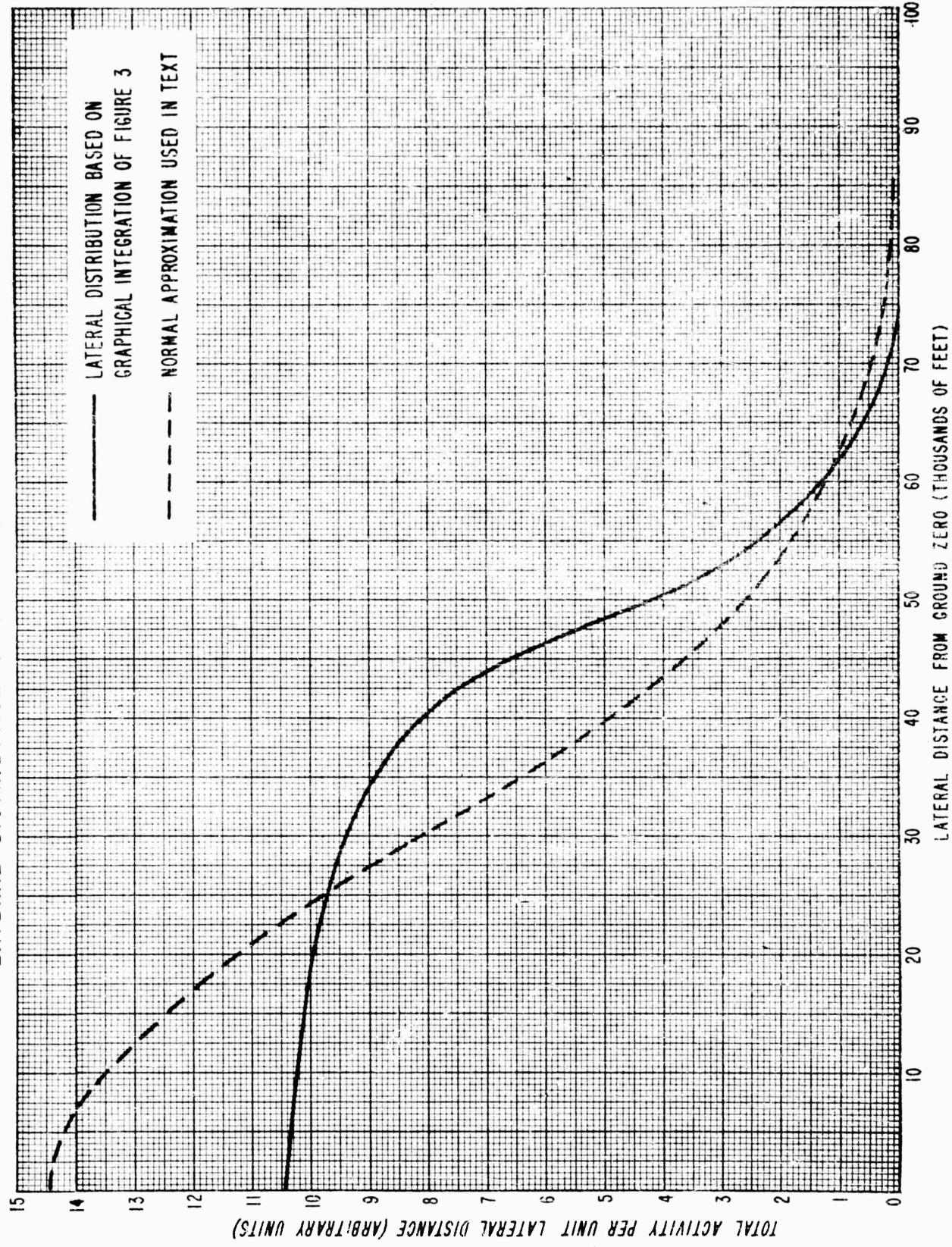
We can now consider the selection of actual numbers to use in the model, as well as the problem of scaling the numbers for various total

CROSSWIND AND UPWIND DOSE RATE



10-20-58-7

LATERAL DISTRIBUTION OF ACTIVITY IN RADIOACTIVE CLOUD



yields. The height, h_o , of the radioactive cloud and the thickness parameter, σ_h of the cloud, are normalized to the data in Figure 4. To get scaling laws, we observe that the center of the radioactive cloud is near the bottom of the visual cloud, assume that the ratio of h_o to the height of the bottom of the visual cloud is a constant. Then, using D.A.S.A. data (TM 23-200) for the bottom of the visual cloud, we obtain the curve shown in Figure 7 for h_o vs. yield.

The cloud thickness defined by σ_h is also based on this data and we have taken $\sigma_h = .18 h_o$.

A useful empirical fit to the curve in Figure 7 is given by

$$h_o = 44 + 6.1 \ln Y - .205(\ln Y + 2.42)|\ln Y + 2.42| \quad (34)$$

where Y is in megatons (total yield)

h_o is in thousands of feet

(Do not neglect the absolute value sign on the last term.)

Figure 8 shows the dependence of σ_o , the effective radius parameter, on yield. The curve also is based on AFSWP visual data for the cloud radius normalized to fit ground zero dose rate data for the distribution of activity. A useful approximation to this curve is given by

$$\ln \sigma_o = 0.70 + \frac{1}{2} \ln Y - 3.25/[4.00 + (\ln Y + 5.4)^2] \quad (35)$$

where σ_o is in statute miles

Y is in megatons.

ESTIMATED CLOUD HEIGHT h_o (RADIOACTIVE CENTER) VS. WEAPON YIELD

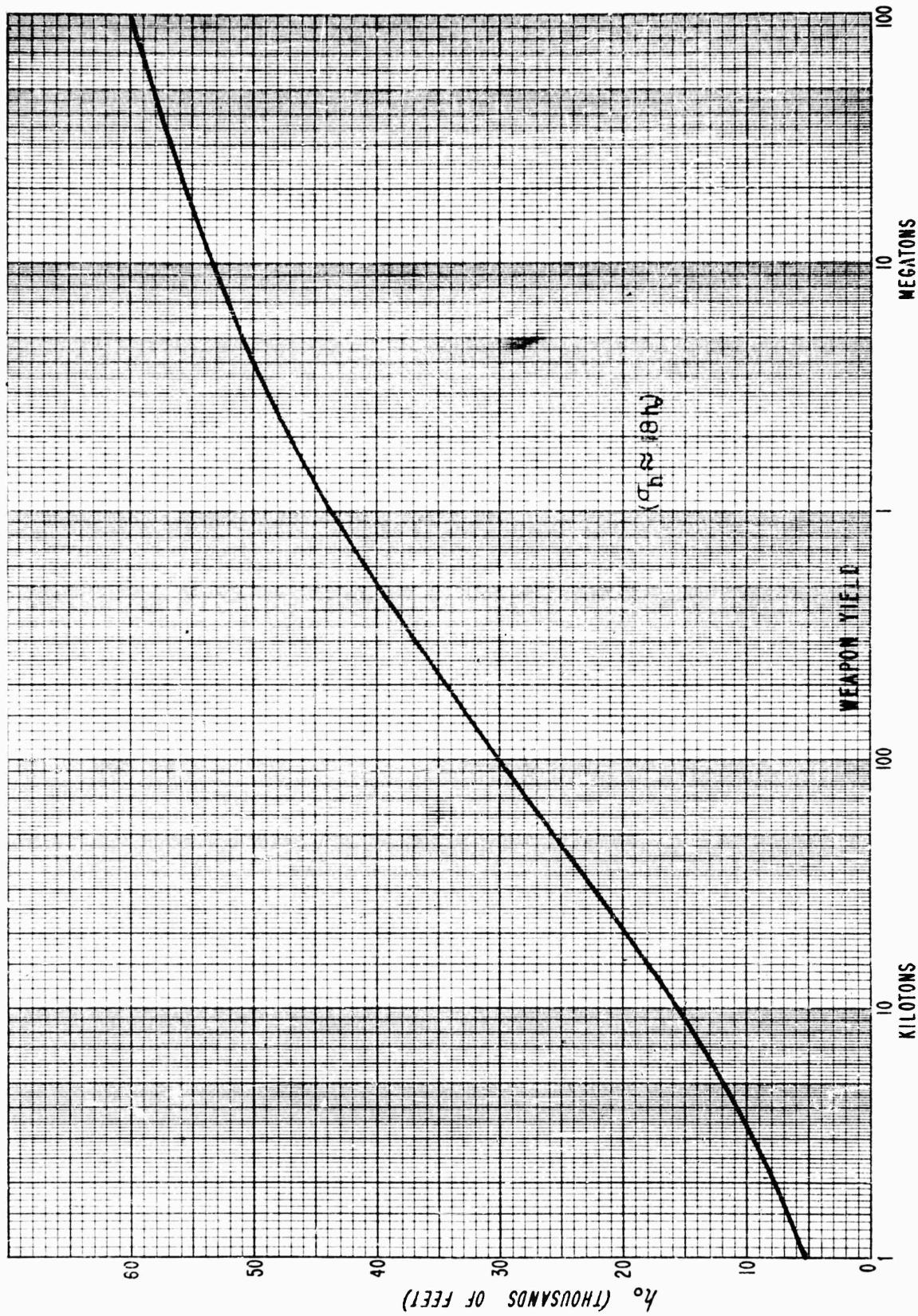


FIGURE 7

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ESTIMATED VALUE OF σ_0 AS A FUNCTION OF WEAPON YIELD

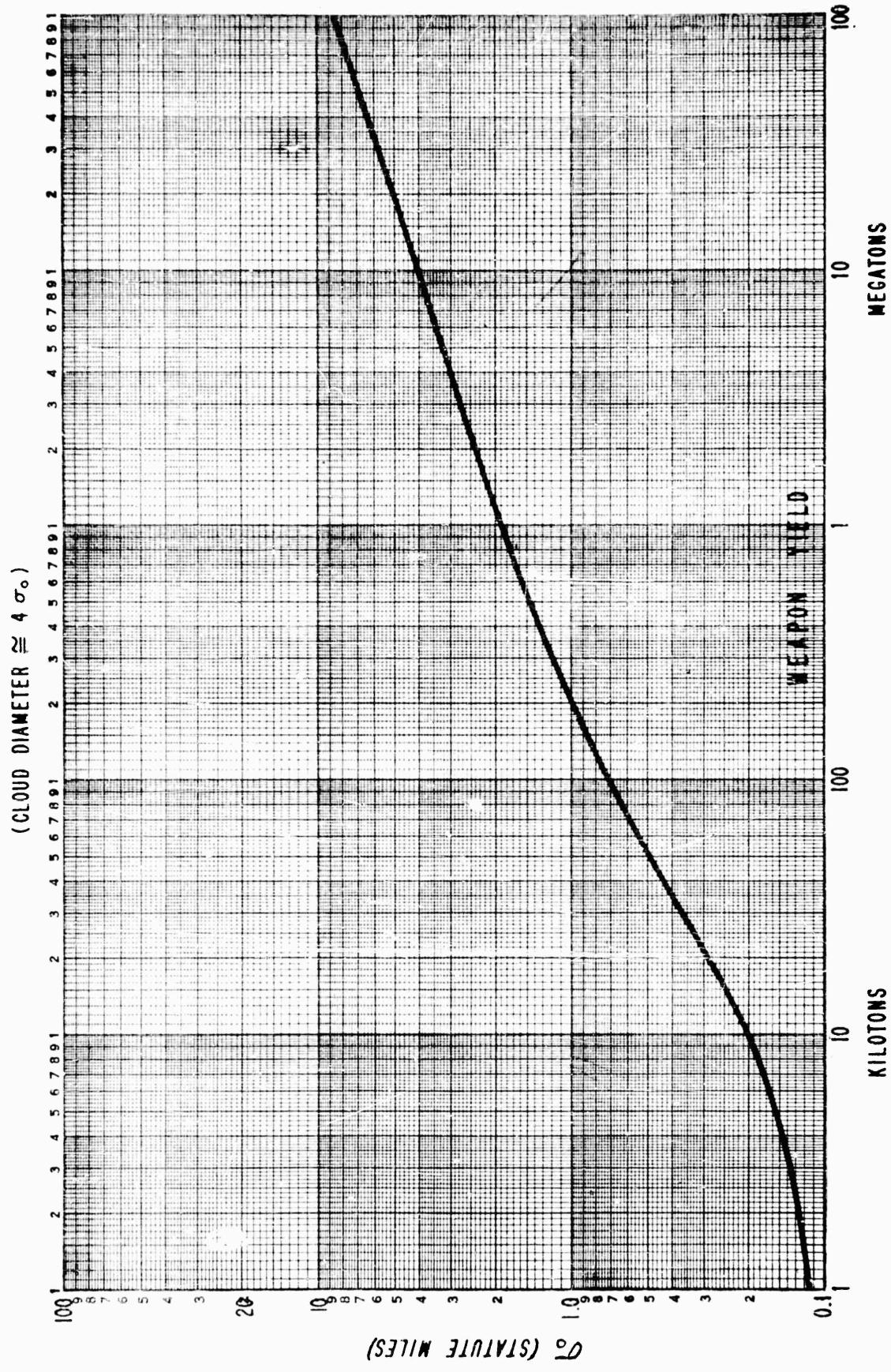


FIGURE 8

WSEG RESEARCH MEMORANDUM NO. 10

When σ_0 is multiplied by 2.0 it gives a reasonable fit to the actual radioactivity in the cloud derived from N.C.T.S. rocket data.

Figure 9 shows the distribution of activity vs. particle size chosen by Rapp (Reference 1) to give a good fit to actual deposition data. The rate of fall relations used in that calculation and this memorandum together with the percentage activity in each size interval are shown in Figure 10.

It is worth calling attention to the fact that errors in rate of fall data and particle size data will tend to cancel out in the procedure used by Rapp because in the final analysis the actual fit was made to the observed surface arrival rate for the debris; it was not made to the particle size or rate of fall data.

Using the data from Figures 9 and 10 and a distribution of activity with altitude based on Figure 7 ($\sigma_h = .18 \sigma_0$), we have calculated the rate of arrival function $g(t)$. This is plotted in Figure 11 for several values of h_0 . The dotted lines show a comparison with $g(t)$ obtained using the approximate function

$$g(t) = \frac{F}{T(1 + \frac{t}{n_0})} \exp \left\{ - \left(\frac{t}{T} \right)^{n_0} \right\} \quad (36)$$

for the values of F , T , and n_0 indicated. The fit appears to be about as good as could be desired except for very low values of t . The comparison here is not completely satisfactory. However, the particle size distribution for very heavy particles with this high rate of fall is not really determined in the Rapp calculation. Consequently no effort has been made to correct this discrepancy. Indeed, where a

DISTRIBUTION OF ACTIVITY WITH PARTICLE SIZE

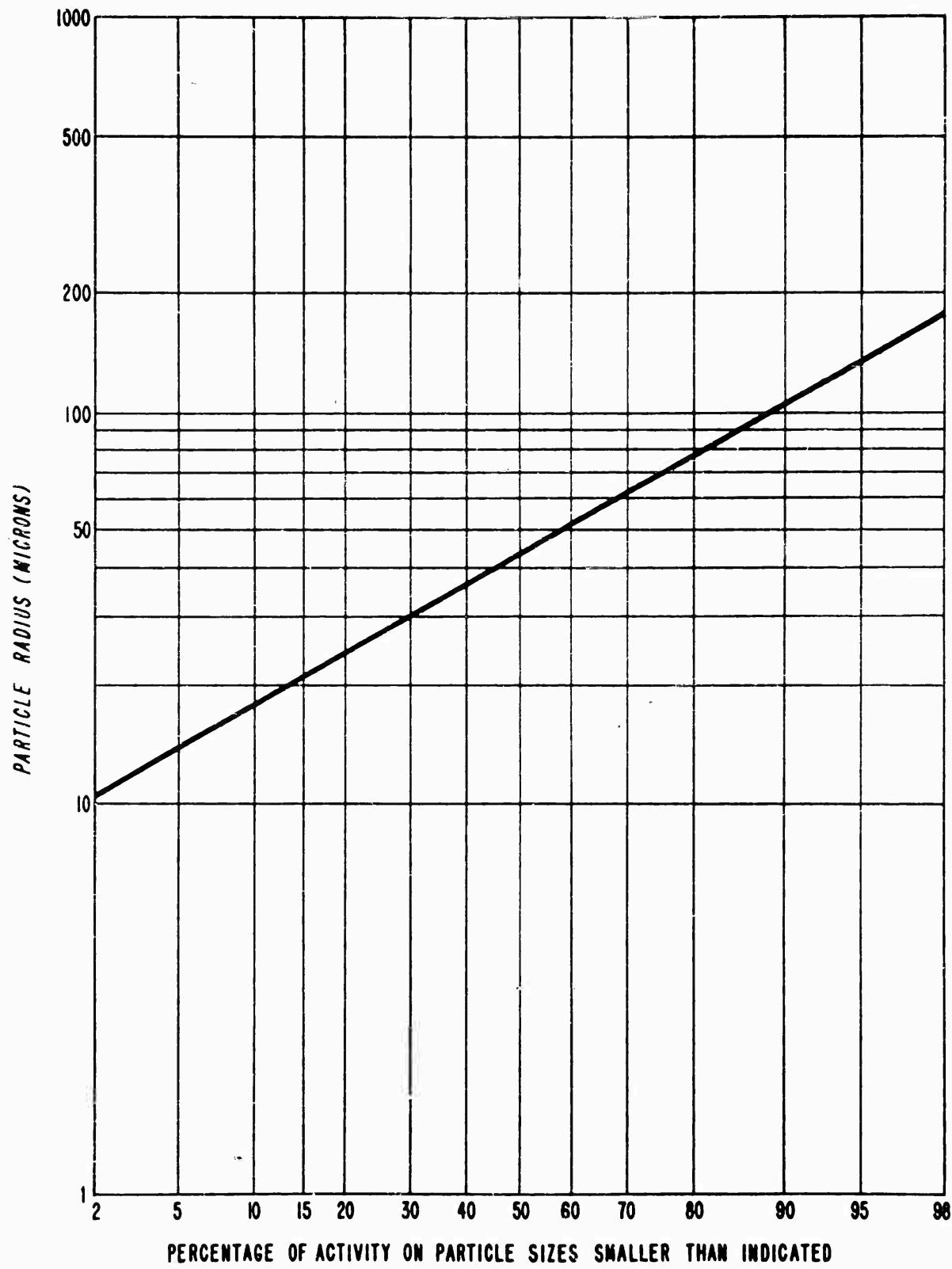
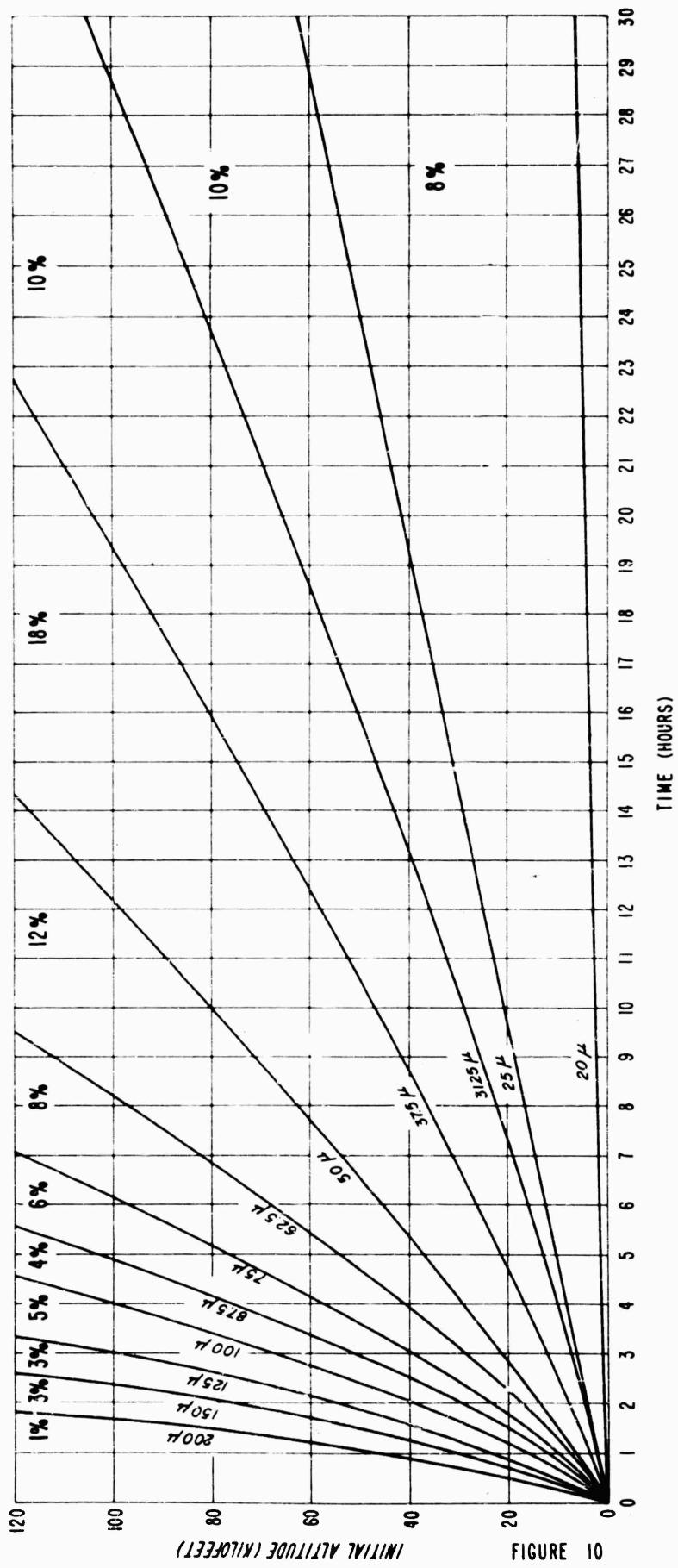


FIGURE 9

WSEG RESEARCH MEMORANDUM NO. 10

TIME OF FALL FOR VARIOUS PARTICLE SIZES



RATE OF ARRIVAL OF RADIOACTIVITY ON THE GROUND -- $g(t)$

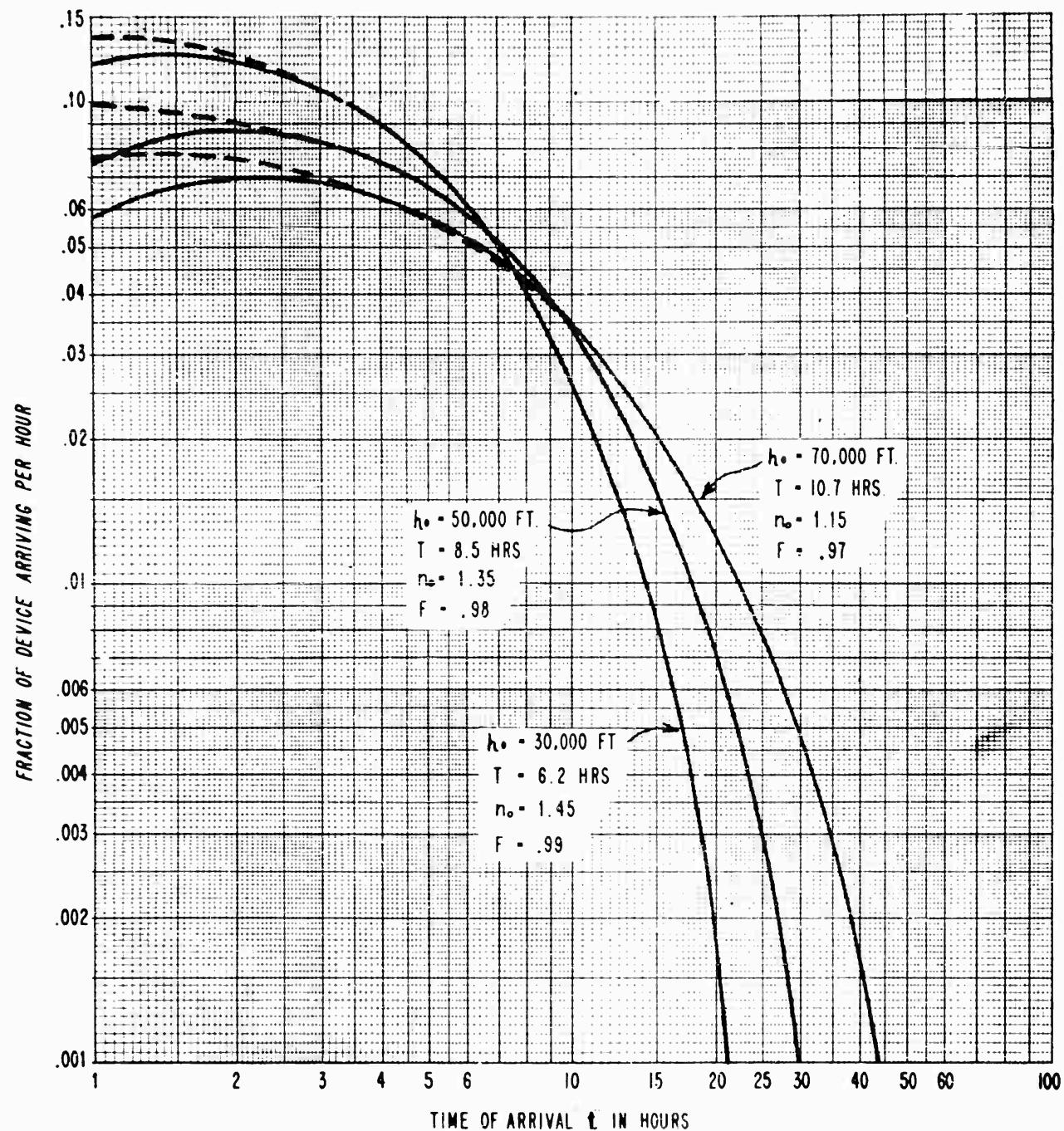


FIGURE 11

WSEG RESEARCH MEMORANDUM NO. 10

comparison with very close in fallout has been attempted, the $g(t)$ used here appears to give at least as good a fit to the data as the actual Rapp curve.

Figure 12 shows a graph of the dependence of n_0 and T required to fit the rate of fall data as a function of cloud altitude h_0 . The following empirical forms give a good fit to this data:

$$T = 12 \left(\frac{h_0}{60} \right) - 2.5 \left(\frac{h_0}{60} \right)^2 \quad (37)$$

$$n_0 = 1.5 - .25 \left(\frac{h_0}{60} \right)^2 \quad (38)$$

where T is in hours and h_0 is in thousands of feet.

The yield dependence relations given here provide a good fit to the experimental data on effective cloud dimensions in the range from 1 KT to 15 MT.

The cloud altitudes predicted by the formula will not be reasonable much below 1 KT. Above 15 MT the formulas provide a smooth extrapolation toward larger radii and higher cloud altitudes up to a maximum near 75,000 feet. This maximum is not reached except for exceedingly large yields near 10^5 MT. However, we urge extreme caution in the use of the formulas much above the region of experimental verification because somewhere near 300 MT the radius of the fireball becomes equivalent to the entire atmospheric thickness. It is therefore to be expected that the mechanism of cloud formation will be quite different for yields in this range and above. Related effects such as cloud formation by explosive rather than buoyant forces, and atmospheric bounding of the usual toroidal circulation can be expected to produce pronounced effects on the cloud formation well below this yield.

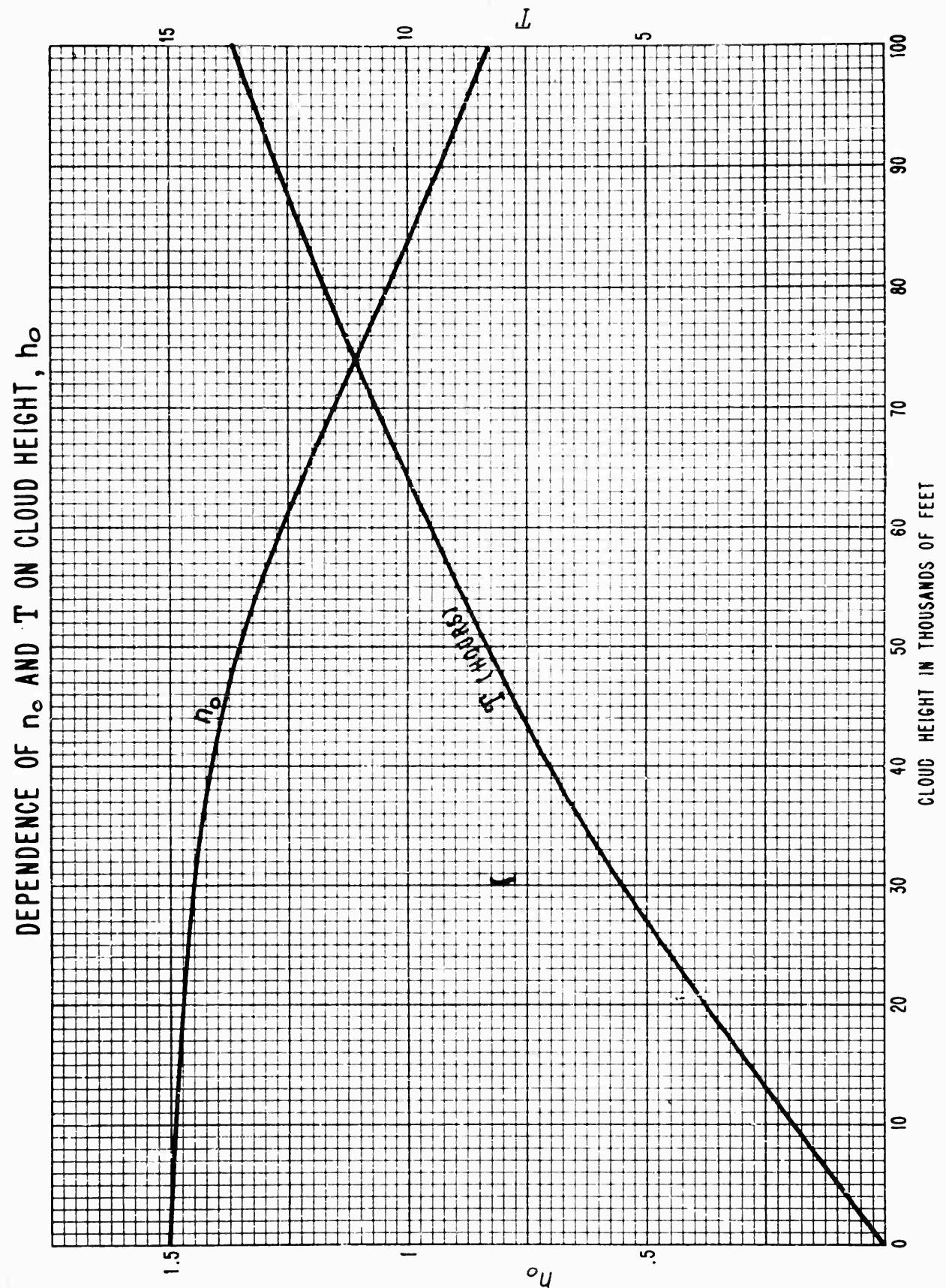


FIGURE 12
WSEG RESEARCH MEMORANDUM NO.10

Therefore one should not expect a simple extrapolation to give reliable answers for very large yields. However, if the cloud size and height can be specified, there is no reason to believe that the general procedure used here cannot be adapted to both lower and higher yields.

PART II
THE CLIMATOLOGIC MODEL

The fallout model presented in the previous section differs from previous simplified models in that it uses a new meteorological variable, the fallout shear. Of course, in any case where shear data are not available, the model can be used as well as any other model by simply using some typical value of the shear. A shear ranging from 1 to 3 knots per 10,000 feet appears to be typical in most areas. However, the introduction of this new variable provides the flexibility to take advantage of whatever shear data are available.

In any particular case where specific wind data vs. altitude are available, it is trivial to get the shear by calculating the effective wind for two altitudes slightly above and below the cloud center. The difference between these two results divided by their separation in altitude gives the shear. Some judgment can be used in choosing the separation to use between the altitudes. A separation between two and four times σ_h is normally a good choice.

However, the main purpose of this section is to discuss a technique for using statistical meteorological data to obtain a mean shear, μ_s , (i.e., the shear of the mean) and the standard deviation, σ_s , of the shear about the mean shear, in a way that is analogous to the present procedure used for the mean effective wind and its standard deviation. In the application of this technique to a Monte Carlo problem one might randomize on both the shear and the wind using the appropriate means and standard deviations.

To introduce this problem we will review briefly some of the procedures which are presently being used to express statistical meteorological data.

As mentioned previously, the effective fallout wind is a vector defined by the following relations:

$$\vec{W} = \frac{\int_0^{h_0} \frac{\vec{\omega}(h)}{v(h)} dh}{\int_0^{h_0} \frac{dh}{v(h)}} \quad (1)$$

where $\vec{\omega}$ is the actual wind at altitude h , and v is the rate of fall of a particle at altitude h .

This equation can, of course, be separated into x and y components, usually east-west versus north-south. However, because actual wind data are obtained at discrete altitudes, the expression is usually written

$$w_x = \frac{\sum_{i=1}^n \tau_i \omega_x(i)}{\sum_{i=1}^n \tau_i} \quad (2)$$

where $\omega_x(i)$ is the x component of the wind in the i^{th} altitude layer,

and τ_i is the time spent by a typical particle traversing the i^{th} layer.

Of course, $\tau_i = \int_{h_1}^{h_2} \frac{dh}{v(h)}$, where h_1 and h_2 are the upper and lower limits of the i^{th} layer.

Identical expressions apply for the y component. Wind data recently developed cooperatively by Sandia Corporation and National Weather Central give the mean wind μ_1 and its standard deviation σ_i for twenty-six altitude layers of about 2000 feet thickness. This data has been computed for some sixty stations in the United States. The data also gives the correlation coefficients ϕ_{ij} between the wind deviates for the i^{th} and j^{th} layers, and the correlation coefficients $(\theta_{xy})_i$ between the x and y components at each altitude. The $(\theta_{xy})_i$ coefficients are consistently small and will be ignored.

These wind data can be used to obtain four parameters:

μ , the mean effective wind

σ , the standard deviation of the effective wind

μ_s , the mean fallout shear

σ_s , the standard deviation of the shear

These are required for a probabilistic treatment of the fallout problem with this model.

The quantities μ and σ are routinely obtained and are given

by

$$\mu = \frac{\sum_{i=1}^n \tau_i \mu_i}{\sum_{i=1}^n \tau_i} \quad (4)$$

$$\sigma^2 = \frac{\sum_{i=1}^n \sum_{j=1}^n \sigma_i \tau_i \phi_{ij} \sigma_j \tau_j}{\left(\sum_{i=1}^n \tau_i\right)^2} \quad (5)$$

where the n^{th} altitude layer corresponds to the initial central altitude for the radioactive cloud.

We will now proceed to derive corresponding expressions for μ_s and σ_s . Consider first μ_s . An approximation for μ_s is obtained by taking the difference between values of μ computed for nearby altitude layers, and dividing by the separation between layers. The result will depend slightly on the exact choice of the separation. Strictly speaking, the separation should be as small as possible to evaluate $\left| \frac{dW}{dh} \right|_{h_0} = \mu_s$. However, because of experimental uncertainties and because the application intended is most sensitive to the shear between the top and bottom of cloud, it is a better choice to choose layers separated by two to four σ_h . The average value of the mean shear μ_s between any two altitudes k and ℓ is given by

$$\mu_s(k, \ell) = \left[\frac{\sum_{i=1}^{\ell} \tau_i \mu_i}{\sum_{i=1}^{\ell} \tau_i} - \frac{\sum_{i=1}^k \tau_i \mu_i}{\sum_{i=1}^k \tau_i} \right] \frac{1}{\Delta h} \quad (6)$$

where $\Delta h = h_\ell - h_k$.

This can be written

$$\Delta h[\mu_s(k, \ell)] = \frac{\sum_{i=1}^k \tau_i \mu_i + \sum_{i=k+1}^{\ell} \tau_i \mu_i}{\sum_{i=1}^k \tau_i + \sum_{i=k+1}^{\ell} \tau_i} - \frac{\sum_{i=1}^k \tau_i \mu_i}{\sum_{i=1}^k \tau_i} \quad (7)$$

If we let

$$\begin{aligned} A &= \sum_{i=1}^k \tau_i \mu_i & a &= \sum_{i=1}^k \tau_i \\ B &= \sum_{i=1+k}^{\ell} \tau_i \mu_i & b &= \sum_{i=1+k}^{\ell} \tau_i \end{aligned} \tag{8}$$

then

$$\Delta h[\mu_s(k, \ell)] = \frac{b}{a+b} \left[\frac{B}{b} - \frac{A}{a} \right] \tag{9}$$

Now let

$$\gamma_i = -\frac{\tau_i}{a} \left(\frac{b}{a+b} \right) \quad \text{for } 1 \leq i \leq k \tag{10}$$

$$\gamma_i = +\frac{\tau_i}{b} \left(\frac{b}{a+b} \right) \quad \text{for } k+1 \leq i \leq \ell \tag{11}$$

then

$$\mu_s(k, \ell) = \frac{1}{\Delta h} \sum_{i=1}^{\ell} \gamma_i \mu_i \tag{12}$$

To compute σ_s , we will express ω_1 , a component of the wind at the i^{th} altitude as

$$\omega_1 = \mu_1 + x_1 \tag{13}$$

where x_1 is the deviation of the wind from the mean value μ_1 .

By definition σ_1^2 is the expected value of x_1^2 , i.e.,

$$\sigma_1^2 = E(x_1^2) \text{ and, of course} \tag{14}$$

$$\sigma_1 \phi_{1j} \sigma_j = E(x_1 x_j) \tag{15}$$

We will also express the fallout shear, S , as

$$S = \mu_s + x_s \quad (16)$$

and define

$$\sigma_s^2 \equiv E(x_s^2) \quad (17)$$

Noting that

$$S = \frac{1}{\Delta h} [W(h_k) - W(h_l)] \quad (18)$$

$$\text{or } S(\Delta h) = \Delta h(\mu_s + x_s) = \frac{\sum_{i=1}^l \tau_i (\mu_i + x_i)}{\sum_{i=1}^l \tau_i} - \frac{\sum_{i=1}^k \tau_i (\mu_i + x_i)}{\sum_{i=1}^k \tau_i} \quad (19)$$

$$\Delta h(x_s) = \frac{\sum_{i=1}^l \tau_i x_i}{\sum_{i=1}^l \tau_i} - \frac{\sum_{i=1}^k \tau_i x_i}{\sum_{i=1}^k \tau_i} \quad (20)$$

By analogy with the previous calculations

$$(\Delta h)x_s = \sum_{i=1}^l \gamma_i x_i \quad (21)$$

$$(\Delta h)^2 x_s^2 = \sum_{i=1}^l \sum_{j=1}^l \gamma_i x_i \gamma_j x_j \quad (22)$$

$$\text{and } (\Delta h)^2 E(x_s^2) = \sum_{i=1}^l \sum_{j=1}^l \gamma_i \sigma_i \phi_{ij} \gamma_j \sigma_j \quad (23)$$

$$\therefore \sigma_s^2 = \left(\frac{1}{\Delta h} \right)^2 \sum_{i=1}^l \sum_{j=1}^l \gamma_i \sigma_i \phi_{ij} \gamma_j \sigma_j \quad (24)$$

This final expression has proved to be quite convenient for calculating the standard deviation of the shear. Of course, there are two components of this shear, a north-south component, $\sigma_s(N)$, and an east-west component, $\sigma_s(E)$. Usually it is sufficient just to average these two in a circular normal deviation. However, if it were necessary to treat the two components separately, one would use

$$S(E) = \mu_s(E) + X_s(E) \quad (25)$$

$$S(N) = \mu_s(N) + X_s(N) \quad (26)$$

and $s_y = \frac{S(E)W(N) + S(N)W(E)}{[W^2(N) + W^2(E)]^{1/2}} \quad (27)$

$$s_x = \frac{S(N)W(N) + S(E)W(E)}{[W^2(N) + W^2(E)]^{1/2}} \quad (28)$$

In the previous discussion of applications it has been tacitly assumed that the wind and shear deviates should be treated as independent. This is done because the important component of the shear is that perpendicular to the wind. The fact that the $(\theta_{xy})_1$ correlation coefficients are all small virtually guarantees that the correlation of s_y with the wind will be small. Correlation of s_x may be appreciable, but is relatively unimportant. If one rigorously maintains the assumption that the wind deviates are normally distributed, then all higher order correlations must vanish. For instance, there must be no correlation between x_s^2 and the deviates, x , for the effective wind. (It is probable that the wind deviate distribution is not that normal, and that correlations of this type do exist.

However, no such data is available and no provision has been made for incorporating the effects of such correlation.)

Summarizing the results of this section, we find that all four quantities required for the statistical employment of this model can be obtained from presently existing types of wind data. The relations are

$$\mu = \frac{\sum_{i=1}^n \tau_i \mu_i}{\sum_{i=1}^n \tau_i} \quad (29)$$

$$\sigma^2 = \frac{\sum_{c=1}^n \sum_{j=1}^n \sigma_i \tau_i \phi_{ij} \sigma_j \tau_j}{\left(\sum_{i=1}^n \tau_i \right)^2} \quad (30)$$

$$\mu_s(k, \ell) = \frac{1}{\Delta h} \sum_{i=1}^{\ell} \gamma_i \mu_i \quad (31)$$

$$\sigma_s^2(k, \ell) = \frac{1}{(\Delta h)^2} \sum_{i=1}^{\ell} \sum_{j=1}^{\ell} \gamma_i \sigma_i \phi_{ij} \gamma_j \sigma_j \quad (32)$$

where

$$\Delta h = h_{\ell} - h_k \quad (33)$$

and

$$\gamma_i = - \frac{\tau_i}{\sum_{j=1}^{\ell} \tau_j} \frac{\sum_{j=k+1}^{\ell} \tau_j}{\sum_{j=1}^k \tau_j} \quad \text{for } 1 \leq i \leq k \quad (34)$$

$$\gamma_i = \frac{\tau_1}{\sum_{j=1}^l \tau_j} \quad \text{for } k+1 \leq i \leq l \quad (35)$$

The wind data that have been analyzed this way so far suggests that the value of σ_s , rather than μ_s , is the dominant contributor to the fallout shear. This is especially true of the north-south shear component. The data also suggest that the value of σ_s is relatively independent of geographic location and season, compared to the variables μ and σ , so that adequate data could be provided with a coarser grid of points than has been used in the other wind data.

PART III

THE APPLICATION OF BIOLOGICAL EFFECT RELATIONS

In order to determine the biological consequences of any given density of fission fragments on the ground, it is necessary to have an estimate of the time of arrival, t , of the debris at each point in question. Without such an estimate one cannot calculate either integrated dosages or effective biological doses. A quite satisfactory estimate of t can always be made where $x \gg \sigma_x$. For such cases, one can use simply $t \approx \frac{x}{W}$.

Once the arrival time has been determined, it is usually quite simple to find an adequate approximation for the dosage function required. For instance, if we accept the $t^{-1.2}$ decay law, the total integrated dose, D_∞ , is given by

$$D_\infty = 5t^{-1.2} D_{H+1} \quad (1)$$

where D_{H+1} is the hypothetical dose rate at one hour after burst.

If we wish to obtain the integrated dose, D_{96} , during the first 96 hours after arrival of the material, we have

$$D_{96} = 5[t^{-1.2} - (t+96)^{-1.2}]D_{H+1} \quad (2)$$

If we wish to obtain the maximum effective biological dose as would be indicated by the maxima of curves similar to those in Figure 12 of Reference 5 using 10 per cent irreparable damage dose and a 30-day time constant for the reparable portion, but adjusted to the $t^{-1.2}$ decay law, we can use a convenient approximation

$$D_{bio} \approx (t/19)^{-0.33} D_{H+1} \quad (3)$$

However, if it is desired to obtain such relations for the case where " $x \gg \sigma_x$ " does not hold, no such simple procedure will give really accurate results. This difficulty arises because the time interval Δt during which appreciable debris is arriving may be nearly as large as t itself. The only valid procedure then is to multiply the rate of fall function, $g(t)$, by the time dependent ratio of the dose-measure of interest to the H+1 dose-rate before carrying out the integration indicated in Equation (6), Part I. This technique will usually not give an integrable result and is, therefore, not very useful.

An alternative is to search for some way of estimating an effective time which will at least give reasonable answers in the questionable region, and will reduce to the correct answers where $x \gg \sigma_x$.

No strong argument can be made for the use of any particular effective t function, except perhaps in conjunction with a particular dose relation for which it has been proved to give good results. However, in most cases it is not critical that accurate answers be obtained in the region $|x| \approx \sigma_x$, although it is necessary to have a relation which does not give absurd results. For such situations the following relation is offered as a convenient form that will give reasonable answers in most cases.

$$t^2 = a^2 + \frac{L_0^2 \left(\frac{x+2\sigma_x}{L/T} \right)^2 + 2\sigma_x^2 T_1^2}{L_0^2 + \frac{2\sigma_x^2}{T_1^2}} \quad (4)$$

where a is the minimum arrival time (probably one-fourth to one-half hour), and T_1 is a constant equal to one hour which is inserted to keep the dimensionality correct.

This form is of the same general type used for n in terms of no. It goes to the proper limit for large values of x . When $W = 0$ the effective arrival time is about two hours, which is quite close to the proper value, at least for D_{bio} and D_{ee} .

Moreover, the arrival time is earlier for negative than for positive x . In every specific case, of course, there exists an effective t that corresponds to the exact answer. Therefore, with enough effort, it should always be possible to find a form for t which is better than the one given here. This form is offered only as a relatively simple one which can be used when highly accurate answers are not required near the origin.

PART IV

SUMMARY AND TABLES

This section contains a summary of formulae and calculated tables of fallout contours.

The numerical parameters used in the formulae represent our best current estimates but may change at any time as better information becomes available. However, changes in the parameters should not affect the usefulness of the equations.

The contour tables of course reflect the specific values of the parameters used and any significant change in the parameters could jeopardize the usefulness of the tables.

The contours tabulated correspond to the indicated total yield and an assumption of 100 per cent fission yield. While this assumption is not correct for many large-yield weapons, it is a convenient simplifying assumption and it is easy to reduce the dose ascribed to the contours by the correct factor for any particular weapon.

There are actually two complete tables. Table 1 gives the contours for the hypothetical H+1 dose rate if all the radioactivity were on the ground at that time, while Table 2 gives the contours for the maximum effective biological dose based on a 30-day biological recovery, 10 per cent irreparable damage, and a $t^{-1.2}$ radiation decay law.

Each table is arranged first in order of total yield, from one kiloton to 100 megatons. The individual pages are ordered by the velocity of the effective fallout wind -- 0, 10, 20, 40, and 60 knots.

On each page there are three complete sets of contours for different values of the effective fallout shear -- 0.1, 0.2, and 0.4 knots per thousand feet of altitude. This spread in wind shears appears to be quite typical of the wind structure near 50,000 feet. However, at lower altitudes, for instance around 30,000 feet, effective fallout shear values of 0.8 knots per thousand feet are quite common.

Several comments should be made about the accuracy of the tables. First, the numbers are shown just as they were printed by the IBM 650. They have not been proofread or checked except by a few hand examples. Because the maximum values and areas indicated were obtained from a limited number of calculated points, the maxima will be somewhat less than maximum, and the areas are only approximate. Because of certain convenient machine interpolations the other numbers may not be accurate to more than one or two significant figures, which is of course more accurate than many of the basic assumptions of the model. The percentage accuracy in general should be better for the larger-yield weapons.

The interpretation of the data for each individual pattern or set of contours should be as follows:

Column 1, DOSE (ROENTGENS), indicates the values of the dose pertaining to the contours tabulated. For instance, all the numbers in succeeding columns on the line opposite 3 pertain to the characteristics of the 3-Roentgen contour. The final number in this column indicates the maximum value of the dose calculated anywhere in the pattern.

Column 2, MAXIMUM UPWIND POSITION, indicates the location of that point on the contour which is farthest upwind. When this number is followed by a minus sign this position is upwind from the burst

point. When it is not followed by the minus sign, the contour begins downwind from the burst point. As is the case with all succeeding columns the last two figures in each number should be interpreted as being to the right of the decimal point.

Column 3, MAXIMUM DOWNWIND DISTANCE, tabulates the maximum downwind extent of each contour from the burst point.

Column 4, CROSWIND HALFWIDTH AT ORIGIN, lists the distance crosswind from the burst point to the contour.

Column 5, MAXIMUM CROSWIND HALFWIDTH, lists one half the maximum width of the contour.

Column 6, ACTUAL AREA, lists the calculated total area for each contour. This area is obtained by interpolating between the actual calculated widths of the contour and using an appropriate approximation at both ends of the contour.

Column 7, ESTIMATED AREA (ELLIPSE), is an approximate estimate of the total area using the formula for an ellipse of length given by (Column 3 minus Column 2) and width given by (twice Column 5). The comparison of this number with Column 6 is sometimes useful in estimating the shape of the contours.

Column 8, RANGE TO MAXIMUM WIDTH, gives the downwind distance to the region of maximum width for the contour. This is very useful in constructing hand templates of the proper shape.

SUMMARY OF FORMULAE

1. Dose rate at H+1 = $k f Y F(x, y)$

f = fraction of yield due to fission

k = (roentgens/hour at H+1) \times square miles/MT of fission

numerically $k \approx 2.5 \times 10^6$ ^{3/}

Y = yield in megatons

$F(x, y)$ = fraction of device deposited per square mile of cross-wind distance y and downwind distance x .

$$2. F(x, y) = \frac{F f_y}{L \Gamma(1 + \frac{1}{n})} \phi \left(\frac{L_0}{L} \frac{x}{\sigma_x} \right) \exp - \left(\frac{|x|}{L} \right)^n.$$

$$f_y = \frac{1}{\sqrt{2\pi}\sigma_y} e^{-\frac{1}{2} \left(\frac{y}{\sigma_y} \right)^2}$$

F = fraction of the debris included in the pattern

ϕ is the cumulative normal function

Γ is the standard gamma function.

3. Important Secondary Quantities

$$L_0 = WT$$

$$L = (L_0^2 + 2\sigma_x^2)^{1/2}$$

$$n = (n_0 L_0^2 + \sigma_x^2) / (L_0^2 + \frac{1}{2}\sigma_x^2)$$

$$\sigma_x^2 = \sigma_0^2 + \frac{2\sigma_0^2}{L_0^2 + 2\sigma_0^2} \left(Ts_x \sigma_h \right)^2$$

$$\sigma_y^2 = \sigma_0^2 \left(1 + \frac{|x| + 2\sigma_x|}{L/8} \right) + \frac{2\sigma_x^2}{L^2} (Ts_y \sigma_h)^2 + \frac{L_0^2}{L^2} \left(\frac{x + 2\sigma_x}{L/T} s_y \sigma_h \right)^2$$

^{3/} See Reference 6.

4. Yield Dependent Experimental Parameters

σ_0 = initial cloud radius parameter

σ_h = cloud thickness parameter

T = characteristic time for rate of deposition to decrease to
1/e of maximum value

n_0 = empirical number controlling late deposition.

5. Wind Dependent Variables

W = effective fallout wind (in statute miles/hr)

s_x = rate of change of W with altitude in cloud (downwind of shear)

s_y = rate of change of W with altitude in cloud (crosswind component of shear).

6. Simplified Version of $F(x,y)$ for use when $L_0^2 \gg 2\sigma_0^2$

$$F'(x,y) = \frac{F f' y}{L_0 \Gamma(1 + \frac{1}{n_0})} \Phi\left(\frac{x}{\sigma_0}\right) \exp - \left(\frac{|x|}{L_0}\right)^{n_0}$$

$$f' y = \frac{1}{\sqrt{2\pi\sigma_y}} e^{-\frac{1}{2}\left(\frac{y}{\sigma_y}\right)^2}$$

$$\sigma'_y = \sigma_0 \left(1 + \frac{8|x|}{L}\right) + \left(\frac{x}{W} s_y \sigma_h\right)^2$$

^{4/} These variables are normally quoted in knots. If the rest of the calculations are carried out in statute miles as indicated, then these numbers must be converted to miles per hour to give a consistent set of units.

7. Empirical Yield Dependence of Parameters (y in Megatons)

$$\ln\sigma_0 = .70 + \frac{1}{2} \ln Y - 3.25/[4.00 + (\ln Y + 5.4)^2]$$

σ_0 in statute miles

$$h_0 = 44 + 6.1 \ln Y - .205(\ln Y + 2.42)|\ln Y + 2.42|$$

h_0 in thousands of feet

$$\sigma_h = .18 h_0$$

$$T = 12 \left(\frac{h_0}{60} \right) - 2.5 \left(\frac{h_0}{60} \right)^2$$

T in hours

$$n_0 = 1.5 - .25 \left(\frac{h_0}{60} \right)^2$$

8. Conversion to Effective Biological Dose

$$D_{bio} \approx (t/19)^{-0.33} D_{H+1}$$

where t = time of arrival of debris

$$\text{If } L_0^2 \gg 2\sigma^2 \text{ then } t \approx \left(\frac{1}{2} + \frac{x}{W} \right) \text{ hours}$$

$$\text{In general, } t^2 \approx a^2 + \frac{\frac{L_0^2}{x} \left(\frac{x + 2\sigma x}{1/T} \right)^2 + 2\sigma^2 \frac{T_1^2}{x}}{L_0^2 + \frac{1}{2\sigma^2} \frac{x}{x}}$$

($a \approx \frac{1}{2}$ hour)

($T_1 = 1$ hour)

Calculated Fallout Contours

("H+1" Dose Rate Contours)

.001

YIELD (MEGATONS)

10

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	36-	7816	44	126	7614	7619	2100
3	31-	3275	39	107	5156	5316	2100
10	26-	2608	34	79	3278	3279	1200
30	20-	1973	28	57	1769	1793	1200
100	12-	1197	20	38	607	671	500
300	1-	246	6	6	19	22	
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
720							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	36-	7651	44	125	9673	9976	2100
3	31-	3112	39	107	5724	6069	2100
10	26-	2457	34	90	3444	3504	1200
30	20-	1831	28	67	1779	1821	1200
100	12-	1094	20	37	575	675	500
300	1-	180	6	6	14	16	
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
720							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	36-	3394	44	227	10796	12236	2100
3	31-	2835	40	170	7024	7647	2100
10	26-	2200	34	118	3705	4142	1200
30	20-	1580	28	73	1809	1830	1200
100	12-	899	20	40	513	568	500
300	1-	97	6	6	7	9	
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
720							

Calculated Fallout Contours

("H+1" Dose Rate Contours)

.001 YIELD (MEGATONS)

20 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	33-	6963	40	110	12337	12095	4500
3	29-	5817	35	90	8288	8276	3200
10	23-	4452	30	66	4675	4626	2100
30	16-	3081	23	44	2201	2151	1200
100	7-	1437	13	23	500	522	500
300							
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
202							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	33-	6634	40	134	13738	14017	4500
3	29-	5492	35	105	8918	9093	3200
10	23-	4153	30	73	4792	4783	2100
30	16-	2836	23	47	2141	2088	1200
100	7-	1309	13	21	445	480	500
300							
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
105							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	33-	6111	40	189	16686	18187	4500
3	29-	4957	35	142	10341	11136	3200
10	23-	3633	30	92	5036	5276	2100
30	16-	2378	23	53	1975	2011	1200
100	7-	1048	13	24	357	393	500
300							
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
176							

Calculated Fallout Contours

("H+1" Dose Rate Contours)

.001

YIELD (MEGATONS)

40

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	30-	12506	37	97	19560	19109	6000
3	25-	10091	32	75	12726	11984	6000
10	19-	7205	25	52	6160	5921	3200
30	11-	4308	18	32	2240	2148	2100
100		180		11	141	221	500
300							
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
128							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	30-	11871	37	115	21100	21534	7700
3	25-	9490	32	86	12902	12848	6000
10	19-	6877	25	56	6094	5902	3200
30	11-	3934	18	32	2107	2011	2100
100		186		11	129	207	500
300							
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
128							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	30-	10789	37	155	25412	26823	7700
3	25-	8421	32	110	14236	14622	6000
10	19-	5700	25	67	5925	6001	3200
30	11-	3186	18	34	1761	1693	2100
100		210		11	94	172	500
300							
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
128							

Calculated Fallout Contours

("H+1" Dose Rate Contours)

.01

YIELD (MEGATONS)

60

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	29-	17461	35	90	25180	24650	9600
3	23-	13738	30	68	15154	14651	7700
10	16-	9258	23	45	6708	6501	4500
30	8-	4772	14	25	1923	1847	2100
100							
300							
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
94							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	29-	16522	7*	105	26570	27123	9600
3	23-	12849	30	76	15586	15344	7700
10	16-	8532	23	47	6596	6346	4500
30	8-	4351	14	25	1788	1700	2100
100							
300							
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
93							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	29-	14902	35	142	31488	33252	9600
3	23-	11286	30	95	16540	16903	7700
10	16-	7153	23	54	6130	6041	4500
30	8-	3476	14	25	1457	1384	1200
100							
300							
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
91							

Calculated Fallout Contours

("H+1" Dose Rate Contours)

.003

YIELD (MEGATONS)

0

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	373-	271	260	260	2458	2627	
3	345-	231	240	240	2041	2174	
10	211-	188	217	217	1402	1700	
30	277-	149	193	193	1221	1290	
100	234-	106	163	163	826	867	
300	185-	67	129	129	490	511	
1000	110-	24	77	77	157	162	
3000							
10000							
30000							
MAXIMUM DOSE							
1739							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	362-	258	400	400	3642	3890	
3	312-	218	368	368	2945	3178	
10	297-	174	329	329	2297	2435	
30	261-	134	289	289	1700	1790	
100	215-	91	237	237	1088	1138	
300	161-	51	178	178	569	591	
1000	61-	7	67	67	70	71	
3000							
10000							
30000							
MAXIMUM DOSE							
1220							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	346-	238	706	706	6067	6471	
3	315-	198	644	644	4876	5152	
10	278-	153	567	567	3632	3842	
30	238-	113	487	487	2589	2692	
100	186-	69	381	381	1465	1528	
300	121-	29	246	246	561	578	
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
660							

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TABLE I-4
WSEG RESEARCH MEMORANDUM NO. 10

Calculated Fallout Contours

("H+1" Dose Rate Contours)

.003

YIELD (MEGATONS)

10

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	41-	6689	49	227	22349	24017	4500
3	37-	5718	45	179	15216	16067	3200
10	31-	4591	39	130	8861	9440	3200
30	25-	3490	33	92	4873	5059	2100
100	17-	2225	25	53	1810	1875	1200
300	7-	1061	14	26	396	437	500
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
500							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	41-	6162	49	254	30417	34504	4500
3	37-	5162	45	273	19979	22256	3200
10	31-	4024	39	180	10833	11490	2100
30	25-	2940	33	118	5118	5519	2100
100	17-	1745	25	61	1614	1675	1200
300	7-	780	14	25	296	315	500
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
500							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	41-	5560	50	576	44925	50654	3200
3	37-	4552	45	431	25906	31045	3200
10	31-	3387	40	277	12829	14882	2100
30	25-	2306	34	156	5168	5720	1200
100	17-	1194	25	67	1086	1273	500
300	7-	430	14	14	84	99	
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
500							

Calculated Fallout Contours

("H+1" Dose Rate Contours)

.003 YIELD (MEGATONNE)

20 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	32-	12190	45	197	35605	37973	7700
3	34-	10159	41	151	23211	24194	6000
10	28-	7822	35	105	12516	12996	4500
30	21-	5551	28	68	6006	5987	3200
100	12-	2975	19	35	1680	1624	1200
300	212	822		12	103	190	500
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
362							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	39-	11088	46	303	47870	52941	7700
3	34-	9045	41	227	28977	31788	6000
10	28-	6697	35	144	14164	15178	4500
30	21-	4403	28	82	5640	5830	3200
100	12-	2201	19	38	1261	1305	1200
300	306	612		9	40	128	500
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
327							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	32-	9868	46	443	66210	75152	6000
3	34-	7784	41	333	36063	40874	4500
10	28-	5419	35	199	15494	17036	3200
30	21-	3300	28	105	4865	5453	2100
100	12-	1417	19	37	845	837	500
300							
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
259							

Calculated Fallout Contours ("H+1" Dose Rate Contours)

003 YIELD (MEGATONS)

40 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	36-	21857	42	148	43374	57735	14000
3	30-	17670	37	124	13805	34472	11700
10	24-	12813	31	91	16484	16420	7700
30	16-	8150	23	53	8398	6145	4500
100	6-	3113	10	21	1028	1010	1200
300							
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
200							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	36-	19637	42	122	20762	77003	14000
3	30-	15425	37	97	39726	42587	9600
10	24-	10629	31	74	16784	17314	6000
30	16-	6279	23	53	8211	5334	3200
100	6-	2254	10	20	7504	727	1200
300							
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
200							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	36-	17132	42	392	94088	105715	11700
3	30-	12861	37	253	46485	51372	7700
10	24-	8138	31	133	16190	17110	4500
30	16-	4259	23	60	4014	4060	2100
100	6-	1392	10	21	408	462	500
300							
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
200							

8-24-59-2

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TABLE I - 7
WSEG RESEARCH MEMORANDUM NO. 10

Calculated Fallout Contours

("H+1" Dose Rate Contours)

.003

YIELD (MEGATONS)

60

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	34-	30508	40	151	70347	72670	19200
3	28-	24111	35	109	40963	41354	14000
10	21-	16679	28	68	18078	17908	9600
30	13-	9615	20	37	5832	5648	4500
100	11	2473		14	505	578	500
300							
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
154							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO, MAXIMUM WIDTH
1	34-	27161	40	221	87765	94397	16500
3	28-	20745	35	150	46153	48856	14000
10	21-	13504	28	84	17480	17779	7700
30	13-	7188	20	40	4756	4551	4500
100	11	1859		14	373	440	500
300							
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
151							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	34-	21362	40	337	112118	123792	16500
3	28-	16895	35	210	51096	55895	11700
10	21-	9926	28	104	15295	16274	6000
30	13-	4635	20	43	3156	3120	2100
100	11	1164		14	203	283	500
300							
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
141							

Calculated Fallout Contours

("H+1" Dose Rate Contours)

.01

YIELD (MEGATONS)

0

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	849-	766	512	512	13382	12976	
3	782-	702	471	471	11283	10981	
10	701-	632	422	422	8995	8843	
30	618-	568	372	372	6480	6937	
100	511-	495	308	308	4507	4574	
300	390-	288	235	235	2338	2501	
1000	179-	60	108	108	389	404	
3000							
10000							
30000							
MAXIMUM DOSE							
1777							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	816-	740	859	859	21109	20987	
3	745-	676	785	785	17573	17525	
10	660-	606	695	695	13694	13816	
30	571-	542	601	601	10037	10506	
100	454-	404	478	478	5971	6436	
300	310-	189	327	327	2414	2563	
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
788							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	775-	705	1567	1567	36261	36417	
3	700-	640	1417	1417	29561	29839	
10	609-	570	1231	1231	22125	22793	
30	511-	506	1033	1033	14469	16494	
100	375-	280	759	759	7300	7812	
300	177-	62	357	357	1287	1340	
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
410							

Calculated Fallout Contours

("H-1" Dose Rate Contours)

.01

YIELD (MEGATONS)

10

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	69-	10192	82	490	72483	78938	6000
3	62-	8701	75	389	49222	53524	6000
10	53-	6967	66	282	28980	31185	4500
30	44-	5343	57	193	15491	16303	3200
100	32-	3473	44	111	5915	6091	2100
300	17-	1805	29	52	1570	1488	1200
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
	826						

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	69-	9325	82	815	105457	120243	6000
3	62-	7807	75	604	65989	74681	4500
10	53-	6063	66	411	34975	39515	4500
30	44-	4411	57	261	16703	18298	3200
100	31-	2624	45	128	5269	5332	1200
300	17-	1199	29	57	969	1088	500
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
	687						

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	69-	8385	85	1351	156617	179404	6000
3	61-	6828	77	988	93246	106965	4500
10	53-	5054	68	629	44297	50447	3200
30	43-	3413	58	362	17171	19669	2100
100	31-	1781	46	157	4035	4465	1200
300	16-	734	30	57	617	669	500
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
	668						

Calculated Fallout Contours

("H+1" Dose Rate Contours)

.01 YIELD (MEGATONS)

20 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	64-	18541	76	427	115082	124809	11700
3	57-	15469	68	325	74093	79285	9600
10	47-	11939	59	224	39669	42152	7700
30	37-	8560	49	140	18886	18959	4500
100	23-	4819	35	71	5611	5393	2100
300	4-	1780	13	31	829	865	500
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
540							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	64-	16760	76	686	160375	181230	11700
3	57-	13633	68	498	96658	107040	9600
10	47-	10061	59	317	46183	50352	6000
30	37-	6749	49	184	18485	19623	4500
100	23-	3385	35	81	4211	4329	2100
300	4-	1158	13	31	492	567	500
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
482							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	64-	14839	76	1116	229966	261340	9600
3	57-	11651	69	772	125179	142021	7700
10	47-	8047	59	441	51113	56099	4500
30	37-	4870	49	231	16254	17842	3200
100	23-	2074	35	88	2654	2907	1200
300	4-	678	13	26	252	275	500
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
358							

Calculated Fallout Contours

("H+1" Dose Rate Contours)

.01 YIELD (MEGATONS)

40 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	60-	33257	70	362	176540	189456	22100
3	52-	26932	62	265	106589	112178	16500
10	41-	19657	52	171	51262	52775	11700
30	30-	12804	41	99	20316	20030	7700
100	13-	5649	24	43	4098	3833	2100
300	463	655		7	19	126	800
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
312							
EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	60-	29614	70	566	237840	263998	19200
3	52-	23197	62	389	130722	142082	14000
10	41-	15946	52	229	54112	57569	9600
30	30-	9485	41	118	17242	17691	6000
100	13-	3756	24	45	2775	2657	2100
300	498	504		1		23	500
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
300							
EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	60-	25696	70	892	319881	360778	16500
3	52-	19174	62	574	156596	173382	11700
10	41-	12023	52	303	52264	57452	7700
30	30-	6264	41	133	12682	13170	3200
100	13-	2155	24	46	1502	1578	1200
300							
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
262							

Calculated Fallout Contours

("H+1" Dose Rate Contours)

.01 YIELD (MEGATONS)

60 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	57-	46447	67	324	223217	236717	28500
3	48-	36791	59	231	126275	133670	22100
10	37-	25714	48	142	56827	57553	16500
30	25-	15454	36	77	19572	18725	9600
100	5-	5376	13	31	2726	2595	2100
300							
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
219							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	57-	40922	67	498	291534	320432	28500
3	46-	31165	59	332	150874	162950	19200
10	37-	20271	48	183	55897	58299	11700
30	25-	10997	36	87	15294	15147	6000
100	5-	3554	13	31	1795	1736	1200
300							
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
214							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	57-	34971	67	768	379486	422651	22100
3	48-	25117	59	476	170409	188034	16500
10	37-	14633	48	231	49515	53234	9600
30	25-	6892	36	96	10274	10413	4500
100	5-	2033	13	31	984	980	500
300							
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
199							

Calculated Fallout Contours

("H+1" Dose Rate Contours)

.03

YIELD (MEGATONS)

0

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	1512-	1435	928	951	44765	44018	500
3	1391-	1330	853	863	37554	36905	500
10	1245-	1214	764	764	29005	29506	
30	1095-	1026	671	671	22620	22370	
100	901-	806	553	553	15036	14826	
300	679-	604	416	416	8347	8390	
1000	274-	135	168	168	1023	1078	
3000							
10000							
30000							
MAXIMUM DOSE	1263						

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	1453-	1326	1539	1539	62496	68876	
3	1127-	1290	1405	1405	57464	57746	
10	1173-	1142	1242	1242	44806	45273	
30	1012-	944	1071	1071	32785	32900	
100	799-	720	846	846	20152	20163	
300	535-	515	566	566	8493	9331	
1000							
3000							
10000							
30000							
MAXIMUM DOSE	722						

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	1380-	1339	2797	2795	118453	119355	
3	1246-	1232	2523	2523	94978	98240	
10	1080-	1036	2188	2189	71776	72746	
30	903-	830	1829	1829	49473	49782	
100	656-	604	1328	1328	25803	26272	
300	280-	155	566	566	3648	3859	
1000							
3000							
10000							
30000							
MAXIMUM DOSE	392						

Calculated Fallout Contours

("H+1" Dose Rate Contours)

.03 YIELD (MEGATONS)

10 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	133-	14048	160	943	187711	210136	9600
3	119-	12043	146	748	130663	142988	7700
10	103-	9751	130	547	78003	84696	6000
30	86-	7553	112	382	43517	45801	4500
100	63-	5046	89	226	17915	18138	3200
300	37-	2773	62	116	5257	5120	1200
1000	340	650		27	123	427	500
3000							
10000							
30000							
MAXIMUM DOSE							
1102							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	133-	12868	162	1532	280407	312859	7700
3	119-	10834	148	1182	181936	203298	7700
10	103-	8506	131	919	100277	110806	6000
30	86-	6305	113	528	48674	52985	4500
100	63-	3889	90	279	15533	17295	2100
300	36-	1915	62	126	3762	3858	1200
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
915							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	132-	11630	170	2603	416866	480982	7700
3	118-	9547	155	1909	252888	289781	6000
10	102-	7170	137	1246	125680	142298	4500
30	85-	4967	118	743	52506	58980	3200
100	62-	2707	94	320	13566	13904	1200
300	35-	1136	64	134	2149	2455	500
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
761							

Calculated Fallout Contours

("H+1" Dose Rate Contours)

.03 YIELD (MEGATONS)

20 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	124-	25600	147	517	303324	330093	16500
3	110-	21490	133	629	199528	213340	14000
10	92-	16770	115	435	110132	115267	9600
30	74-	12261	97	288	54469	55712	7700
100	48-	7226	72	151	17871	17290	4500
300	15-	2979	35	68	3283	3204	1200
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
684							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	124-	23214	147	1309	430907	479530	16500
3	110-	19045	133	964	262953	290202	11700
10	92-	14276	116	633	129936	142933	9600
30	74-	9830	97	378	54697	58770	6000
100	48-	5222	72	174	14292	14425	3200
300	15-	1971	35	68	2141	2105	500
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
634							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	124-	20657	149	2153	620039	702898	14000
3	110-	16399	135	1500	347446	388861	11700
10	92-	11582	117	911	149775	167064	7700
30	73-	7272	98	487	51537	56189	4500
100	48-	3299	72	193	9453	10161	2100
300	14-	1119	34	71	1115	1259	500
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
506							

8-24-59-2

68

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WSEG RESEARCH MEMORANDUM NO. 10

Calculated Fallout Contours

("H+1" Dose Rate Contours)

.03 YIELD (MEGATONS)

40 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	115-	46071	136	693	471836	503016	28500
3	100-	37620	121	515	290570	305236	25200
10	81-	27914	103	339	145881	149214	16500
30	60-	18741	82	204	61147	60276	11700
100	30-	8957	51	94	14172	13293	4500
300	289	1766		32	685	1044	500
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
384							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	115-	41223	136	1090	640287	707725	28500
3	100-	32661	121	768	360698	395295	22100
10	81-	22968	103	463	157262	167756	14000
30	60-	14223	82	247	53910	55376	9600
100	30-	6060	51	99	9695	9514	3200
300	302	1270		31	408	776	500
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
375							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	115-	36000	137	1730	871441	981302	25200
3	100-	27293	122	1141	444859	490919	19200
10	81-	17687	103	625	160245	174496	11700
30	60-	9678	83	295	41908	45097	6000
100	29-	3588	51	103	5949	5873	2100
300	360	759		27	150	468	500
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
343							

Calculated Fallout Contours

("H+1" Dose Rate Contours)

.03

YIELD (MEGATONS)

60

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	110-	64508	130	626	599299	635006	43700
3	94-	51619	115	454	353699	368505	32000
10	74-	36837	95	287	164213	166158	22100
30	51-	23049	73	162	60748	58683	14000
100	16-	9036	35	68	10366	9659	3200
300							
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
267							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	110-	57172	130	965	791205	868471	39600
3	94-	44146	115	659	420818	458156	28500
10	74-	29552	95	377	166476	175331	19200
30	51-	16839	73	188	49511	49764	9600
100	16-	6014	35	69	6776	6511	3200
300							
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
263							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	110-	49232	130	1507	1045255	1168128	32000
3	94-	36070	115	951	489598	539992	22100
10	74-	21871	95	485	155559	167292	14000
30	51-	10887	73	210	35453	36148	6000
100	16-	3492	35	69	4012	3807	1200
300							
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
251							

Calculated Fallout Contours

("H+1" Dose Rate Contours)

.1 YIELD (MEGATONS)

0 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE								
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH	
1	2557-	2460	1611	1671	133502	131670	500	
3	2356-	2277	1484	1533	112431	111568	500	
10	2115-	2061	1332	1366	90001	89623	500	
30	1867-	1770	1176	1194	69295	68213	500	
100	1552-	1450	977	977	47205	46089		
300	1193-	1123	751	751	27229	27323		
1000	585-	521	369	369	5926	6409		
3000								
10000								
30000								
MAXIMUM DOSE								
1465								

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE								
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH	
1	2462-	2396	2630	2630	203760	200663		
3	2254-	2211	2406	2406	169400	168761		
10	2000-	1954	2135	2135	133375	132606		
30	1736-	1658	1854	1854	99708	98837		
100	1391-	1334	1485	1485	63379	63572		
300	974-	891	1040	1040	30295	30477		
1000								
3000								
10000								
30000								
MAXIMUM DOSE								
864								

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE								
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH	
1	2343-	2299	4752	4752	345703	346460		
3	2122-	2113	4304	4304	278064	286366		
10	1850-	1795	3753	3753	214536	214914		
30	1562-	1498	3157	3167	152103	152204		
100	1166-	1145	2364	2364	84219	85813		
300	611-	569	1240	1240	22254	22986		
1000								
3000								
10000								
30000								
MAXIMUM DOSE								
455								

Calculated Fallout Contours

("H+1" Dose Rate Contours)

.1 YIELD (MEGATONS)

:10 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	248-	19241	304	1745	482752	534329	11700
3	224-	16638	279	1398	340542	370409	11700
10	195-	13661	249	1045	215163	227403	9600
30	166-	10819	219	751	125398	129654	6000
100	127-	7585	179	477	56551	57786	4500
300	83-	4580	132	264	19404	19308	2100
1000	12-	1573	42	109	2507	2713	500
3000							
10000							
30000							
MAXIMUM DOSE							
1697							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	247-	17715	310	2901	724251	818645	11700
3	224-	15074	285	2254	483289	541730	9600
10	195-	12065	254	1612	277503	310368	7700
30	165-	9215	223	1091	146622	160726	6000
100	127-	6040	182	604	54261	58506	3200
300	82-	3310	134	301	15466	16045	2100
1000	10-	1030	39	107	1494	1754	500
3000							
10000							
30000							
MAXIMUM DOSE							
1468							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	246-	16101	334	4844	1096845	1243755	11700
3	222-	13401	306	3656	691661	782254	9600
10	193-	10333	273	2452	364147	405319	6000
30	163-	7468	238	1558	167213	186775	4500
100	124-	4407	193	760	50570	54098	3200
300	79-	2075	141	338	10459	11442	2100
1000	3-	538	22	47	372	399	500
3000							
10000							
30000							
MAXIMUM DOSE							
1037							

Calculated Fallout Contours

("H+1" Dose Rate Contours)

.1

YIELD (MEGATONS)

20

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	232-	35236	276	1526	789364	850402	22100
3	207-	29899	251	1198	530648	566371	19200
10	177-	23798	221	857	309812	322741	14000
30	145-	17983	189	586	163733	166943	11700
100	102-	11426	146	334	61750	60435	6000
300	50-	5629	91	163	15486	14538	2100
1000	479	575		19	25	311	500
3000							
10000							
30000							
MAXIMUM DOSE							
1022							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	232-	32162	279	2475	1117704	1259283	22100
3	207-	26745	253	1857	713874	786261	16500
10	177-	20588	222	1264	378453	412198	14000
30	145-	14819	190	797	175363	187409	9600
100	102-	8633	147	395	53912	54190	4500
300	49-	3856	91	173	10977	10588	2100
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
967							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	232-	28850	284	4101	1642228	1873360	19200
3	207-	23330	258	2944	972651	1088504	16500
10	176-	17101	227	1570	475554	507402	11700
30	144-	11413	194	1069	178083	194153	7700
100	101-	5802	149	466	41188	43171	3200
300	48-	2253	91	180	6334	6517	1200
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
811							

Calculated Fallout Contours

("H+1" Dose Rate Contours)

1

YIELD (MEGATONS)

40

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	217-	63815	255	1311	1237513	1318763	39600
3	190-	52882	229	994	786818	829002	35700
10	157-	40351	197	683	421404	434490	25200
30	122-	28486	163	434	195704	194805	16800
100	72-	15474	113	219	56521	53437	7700
300	2-	5040	15	92	7309	7299	1200
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
	565						

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	217-	57570	256	2078	1699067	1886085	39600
3	190-	46494	230	1503	1010624	1102230	32000
10	157-	33957	198	957	478456	512767	22100
30	122-	22455	163	550	186887	194964	14000
100	72-	10986	113	241	43077	41796	6000
300	2-	3454	15	92	4942	4999	1200
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
	565						

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	217-	50811	257	3345	2397807	2680976	32000
3	190-	39566	231	2302	1293164	1437470	25200
10	157-	27035	199	1334	522965	569723	16500
30	122-	16139	164	682	164359	174302	9600
100	72-	6799	113	256	28145	27585	4500
300	1-	1998	12	93	2695	2915	500
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
	565						

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Calculated Fallout Contours

("H+1" Dose Rate Contours)

.1 YIELD (MEGATONS)

60 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	208-	89771	244	1193	1582381	1686628	57200
3	180-	73103	218	886	975192	1019623	48000
10	145-	54035	184	584	490075	497390	32000
30	107-	36110	147	353	204650	200674	22100
100	51-	17044	90	164	47171	43972	7700
300	293	3046		57	2271	2996	500
1000							
3000							
10000							
30000							
MAXIMUM DOSE	389						

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	207-	60304	244	1861	2137566	2353357	52300
3	180-	63486	218	1307	1205461	1306756	39600
10	145-	44555	184	794	525085	557225	28500
30	107-	27576	147	427	183240	185863	16500
100	51-	11720	90	172	33120	31848	6000
300	299	2281		57	1613	2295	500
1000							
3000							
10000							
30000							
MAXIMUM DOSE	386						

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	207-	70066	245	2947	2914660	3252974	48000
3	180-	53040	218	1951	1471600	1631402	35700
10	145-	34360	185	1068	535130	578730	22100
30	107-	18877	147	506	144997	151026	11700
100	51-	7002	90	178	20710	19670	3200
300	316	1404		55	845	1477	500
1000							
3000							
10000							
30000							
MAXIMUM DOSE	374						

Calculated Fallout Contours

("H+1" Dose Rate Contours)

.3 YIELD (MEGATONS)

0 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	3761-	3642	2455	2570	302882	298913	1200
3	3480-	3381	2271	2352	256854	253434	1200
10	3143-	3048	2051	2114	208349	205572	800
30	2800-	2672	1827	1875	163687	161120	500
100	2367-	2260	1545	1571	115251	114179	500
300	1888-	1760	1232	1232	72053	70632	
1000	1154-	1035	753	753	25694	25906	
3000							
10000							
30000							
MAXIMUM DOSE							
2050							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	3635-	3558	3928	3956	452892	446947	500
3	3343-	3295	3612	3631	379747	378860	500
10	2990-	2921	3231	3237	304351	300551	500
30	2627-	2541	2839	2839	233646	230452	
100	2161-	2124	2335	2335	154416	157131	
300	1622-	1531	1753	1753	87198	86805	
1000	630-	565	681	681	12320	12779	
3000							
10000							
30000							
MAXIMUM DOSE							
1238							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	3470-	3425	7055	7055	764285	764148	
3	3162-	3144	6430	6430	636354	636997	
10	2787-	2724	5667	5667	491771	490574	
30	2394-	2341	4867	4867	361395	361952	
100	1870-	1813	3802	3802	219254	219914	
300	1207-	1197	2455	2455	90773	92734	
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
658							

Calculated Fallout Contours

("H+1" Dose Rate Contours)

.3 YIELD (MEGATONS)

10 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPE)	RANGE TO MAXIMUM WIDTH
1	407-	24825	509	2866	1042369	1135815	16500
3	371-	21668	470	2340	749682	810108	14000
10	327-	18070	423	1796	487156	519113	11700
30	282-	14660	376	1336	298730	313495	9600
100	225-	10770	315	884	150192	152604	6000
300	162-	7125	248	535	62575	61213	4500
1000	68-	1230	141	252	12920	13034	1200
3000							
10000							
30000							
MAXIMUM DOSE		2791					

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPE)	RANGE TO MAXIMUM WIDTH
1	406-	22993	523	4710	1545020	1731097	16500
3	370-	19797	483	3747	1061242	1187087	14000
10	326-	16167	435	2748	647095	711778	9600
30	281-	12733	386	1952	366019	398991	7700
100	224-	8891	323	1188	160181	170098	6000
300	160-	5452	253	650	55742	57268	3200
1000	65-	2204	141	262	9168	9333	1200
3000							
10000							
30000							
MAXIMUM DOSE		2473					

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPE)	RANGE TO MAXIMUM WIDTH
1	403-	21033	577	8106	2384173	2729414	14000
3	366-	17775	532	6248	1561901	1780466	11700
10	322-	14088	478	4391	863073	993818	9600
30	276-	10624	423	2867	446946	490989	7700
100	219-	6846	352	1606	163007	178183	4500
300	154-	3714	273	770	44198	46757	2100
1000	54-	1241	141	275	4818	5586	500
3000							
10000							
30000							
MAXIMUM DOSE		1814					

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Calculated Fallout Contours

("H+1" Dose Rate Contours)

.3

YIELD (MEGATONS)

20

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	782-	45712	457	2512	1622926	1218628	28500
3	344-	39271	419	2010	1177916	1250660	25200
10	298-	31921	373	1482	716881	753032	19200
30	250-	24937	325	1052	409377	418596	16500
100	188-	17024	262	654	177512	176701	9500
300	116-	9791	187	355	57686	55288	4500
1000	50	2768		140	5881	6216	500
3000							
10000							
30000							
MAXIMUM DOSE							
1659							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	381-	42011	461	4099	2447183	2729938	28500
3	344-	38490	422	3152	1608493	1774661	22100
10	298-	28077	375	2227	910202	992715	19200
30	250-	21118	327	1486	465553	498708	14000
100	188-	13483	264	818	170647	175706	7700
300	116-	7086	188	390	45668	44134	4500
1000	50	1909		140	3934	4337	500
3000							
10000							
30000							
MAXIMUM DOSE							
1657							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	380-	38021	475	6870	3658327	4144054	25200
3	342-	31381	435	5089	2263347	2536089	22100
10	296-	23876	387	3396	1160674	1289285	16500
30	248-	16943	336	2086	513274	563255	11700
100	188-	9706	270	1025	146847	159195	6000
300	113-	4424	191	425	30303	30298	2100
1000	50	1066		134	1814	2496	500
3000							
10000							
30000							
MAXIMUM DOSE							
1370							

Calculated Fallout Contours

("H+1" Dose Rate Contours)

.3 YIELD (MEGATONS)

40 WIND (KNOTS)

ALL DISTANCES AND AREAS SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	358-	87399	421	2185	2700190	2874325	52500
3	318-	70182	382	1699	1790404	1881850	43700
10	269-	55131	334	1210	1022217	1052989	35700
30	217-	40875	283	813	523412	526006	25200
100	147-	24957	213	455	186431	179276	14000
300	58-	11197	118	216	41061	38252	4500
1000							
3000							
10000							
30000							
MAXIMUM DOSE	911						

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	358-	75779	422	3493	3779900	4170486	52500
3	318-	62552	383	2602	2340745	2569364	39600
10	269-	47465	335	1738	1213421	1303512	32000
30	217-	33473	283	1073	543547	568664	22100
100	147-	18752	213	527	157659	156317	11700
300	58-	7763	118	222	28680	27300	3200
1000							
3000							
10000							
30000							
MAXIMUM DOSE	898						

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	358-	67760	426	5716	5430302	6115547	43700
3	318-	54221	386	4086	3136760	3500195	35700
10	269-	39065	337	2538	1426130	1567925	25200
30	217-	25452	285	1420	528926	572660	16500
100	146-	12468	215	604	116993	119695	7700
300	57-	4594	118	229	17139	16738	2100
1000							
3000							
10000							
30000							
MAXIMUM DOSE	854						

Calculated Fallout Contours

("H+1" Dose Rate Contours)

.3

YIELD (MEGATONS)

60

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	344-	117871	403	2000	3506963	3714010	78000
3	303-	97799	363	1529	2254393	2355541	62100
10	251-	74912	313	1056	1222778	1247239	48000
30	196-	53316	259	683	578811	573985	32000
100	119-	29595	183	354	175412	165242	16500
300	13-	10227	50	154	25837	24755	2100
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
	627						

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	344-	106540	404	3149	4507440	5286468	72500
3	303-	86303	363	2299	2873522	3126891	57200
10	251-	63487	313	1477	1387700	1478645	39600
30	196-	42597	259	865	565638	581332	25200
100	119-	21512	183	392	138090	133207	11700
300	12-	7175	50	155	18424	17482	2100
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
	623						

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	344-	94235	405	5091	6760233	7562894	62100
3	302-	73740	365	3526	3694407	4101258	48000
10	251-	50994	315	2083	1540767	1676406	32000
30	196-	31147	260	1093	508879	538042	19200
100	119-	13633	183	429	93624	92687	7700
300	12-	4251	49	156	10819	10413	1200
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
	607						

Calculated Fallout Contours

("H+1" Dose Rate Contours)

YIELD (MEGATONS) WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	5267-	5053	3677	3892	639116	630972	1000
3	4900-	4705	3420	3607	548764	544225	1000
10	4462-	4324	3115	3266	446741	450794	1000
30	4022-	3847	2808	2920	362143	360954	1000
100	3476-	3243	2426	2487	266576	262473	1000
300	2888-	2693	2016	2016	180901	176773	
1000	2061-	1819	1439	1439	88227	87692	
3000	714-	401	499	499	8256	8738	
10000							
30000							
MAXIMUM DOSE							
3485							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	5116-	4958	5663	5730	921599	906842	1000
3	4737-	4609	5243	5286	786050	775978	1000
10	4283-	4225	4741	4751	626667	635009	1000
30	3822-	3682	4230	4230	505970	498666	
100	3242-	3071	3589	3589	360931	355865	
300	2603-	2512	2881	2881	228041	231498	
1000	1637-	1447	1812	1812	87532	87756	
3000							
10000							
30000							
MAXIMUM DOSE							
2198							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	4908-	4794	10031	10031	1536257	1528723	
3	4512-	4442	9220	9220	1291051	1296790	
10	4032-	3971	8241	8241	1033367	1035927	
30	3539-	3407	7232	7232	790421	789028	
100	2903-	2790	5932	5932	529080	530464	
300	2165-	2064	4425	4425	290120	294038	
1000	770-	574	1574	1574	31069	33245	
3000							
10000							
30000							
MAXIMUM DOSE							
1190							

Calculated Fallout Contours

("H+1" Dose Rate Contours)

1

YIELD (MEGATONS)

10

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	673-	31790	664	4564	2148036	2127076	19200
3	617-	29056	804	3795	1552511	1709168	19200
10	551-	27802	731	3012	1066027	1152237	15400
30	494-	19795	657	2328	697393	741090	12000
100	401-	15229	566	1647	388434	403318	9000
300	311-	10925	467	1091	191070	192507	6400
1000	186-	6164	326	583	59634	58158	2400
3000	10-	2137	64	253	8679	8521	1000
10000							
30000							
MAXIMUM DOSE							
4301							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	671-	29647	897	7520	2189473	3514672	19200
3	615-	25850	833	6097	2275770	2571310	15400
10	549-	21580	757	4644	1461705	1614257	15400
30	482-	17554	680	3459	920756	980013	12000
100	398-	13029	585	2266	443873	477857	9000
300	308-	8869	481	1339	187390	193098	6400
1000	181-	4578	333	661	47868	49389	2400
3000	1-	1471	20	219	3793	5069	1000
10000							
30000							
MAXIMUM DOSE							
3645							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	665-	27343	1013	13019	4382247	5727520	19200
3	609-	23504	939	10348	3328368	3919561	15400
10	541-	19161	852	7579	2046624	2345499	12000
30	473-	15089	763	5312	1149196	1298541	9000
100	388-	10581	653	3256	504430	561009	6400
300	296-	6589	532	1781	171062	192615	4200
1000	165-	2933	356	693	33427	33735	1000
3000							
10000							
30000							
MAXIMUM DOSE							
2647							

Calculated Fallout Contours

("H+1" Dose Rate Contours)

1 YIELD (MEGATONS) 20 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	631-	58914	766	406.8	7537870	3804572	38400
3	574-	51282	707	3322	2530839	2705930	33000
10	506-	42616	637	2542	1648371	1726642	28000
30	436-	34426	565	1820	1009099	1035044	19200
100	347-	25141	477	1270	505405	508483	15400
300	248-	16485	370	778	209274	204489	9000
1000	99-	7303	205	365	44113	42415	2400
3000							
10000							
30000							
MAXIMUM DOSE	2749						

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	631-	54592	774	6596	5148171	5721218	38400
3	574-	46885	715	5225	2530726	3895119	33000
10	505-	38189	643	3954	2139056	2342227	23400
30	435-	30007	570	2737	1208946	1308736	19200
100	346-	20919	477	1661	530655	555480	12000
300	247-	12837	373	903	185740	185855	6400
1000	98-	5240	205	380	32514	31849	2400
3000							
10000							
30000							
MAXIMUM DOSE	2565						

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	629-	49910	806	11238	7936837	8921354	33000
3	572-	42080	743	864	5122062	5797699	28000
10	503-	33276	669	6047	2833814	3208456	23400
30	432-	25080	592	4034	1459028	1616554	15400
100	343-	16207	494	2209	533316	574264	9000
300	243-	8878	384	1051	147150	150515	4200
1000	91-	3161	205	385	19580	19663	1000
3000							
10000							
30000							
MAXIMUM DOSE	2082						

Calculated Fallout Contours

("H+1" Dose Rate Contours)

YIELD (MEGATONS)

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	595-	108297	702	3577	5761427	6115475	71400
3	536-	92715	643	2958	3991139	4185860	57000
10	463-	75031	571	2122	2443083	2516562	44200
30	388-	58324	496	1516	1382979	1399040	33000
100	290-	39486	398	942	599280	588706	23400
300	175-	22342	281	517	194212	182914	12000
1000	208	5757		203	17080	19013	1000
3000							
10000							
30000							
MAXIMUM DOSE							
1581							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	595-	99573	704	5724	8145035	9006718	64000
3	536-	83881	645	4417	5147654	5866978	57000
10	463-	66173	572	3120	3017579	3265696	44200
30	388-	49657	497	2092	156824	1636478	33000
100	290-	31654	399	1162	571833	583210	19200
300	175-	16606	281	566	154182	149174	9000
1000	221	4246		202	11670	14198	1000
3000							
10000							
30000							
MAXIMUM DOSE							
1545							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	595-	90049	712	9506	12038751	13534586	57000
3	535-	74149	652	7095	7431997	8023839	50400
10	462-	56318	578	4724	3809084	4213595	38400
30	387-	39973	502	2899	1698497	1637773	23400
100	289-	23040	403	1434	501153	525370	15400
300	173-	10695	283	616	106059	105138	6400
1000	279	2572		198	6358	8852	1000
3000							
10000							
30000							
MAXIMUM DOSE							
1420							

Calculated Fallout Contours

("H+1" Dose Rate Contours)

1 YIELD (MEGATONS) 60 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	574-	153946	672	3302	7598600	8015441	96000
3	513-	130284	612	2600	5130093	5340857	79200
10	437-	103437	538	1894	3019304	3091153	64000
30	358-	78090	460	1310	1618960	1614467	44200
100	253-	49711	356	771	628534	605445	28000
300	123-	24538	221	391	162761	151720	12000
1000	832	2394		92	1946	4657	1000
3000							
10000							
30000							
MAXIMUM DOSE							
110-							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	574-	140787	673	5222	10547271	11594832	96000
3	513-	117002	612	3957	5701173	7304197	79200
10	437-	90202	538	2715	3604583	3865500	57000
30	358-	65360	460	1775	1715898	1790709	38400
100	252-	38820	356	910	555074	558514	23400
300	123-	17878	221	411	123633	116181	9000
1000	848	1992		88	1365	3909	1000
3000							
10000							
30000							
MAXIMUM DOSE							
1096							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	574-	126383	676	8581	15256587	17111963	87400
3	512-	102317	615	6230	9072456	10062408	64000
10	437-	75447	541	4012	4353818	4782760	50400
30	358-	51165	462	2358	1761957	1908032	33000
100	252-	27092	357	1072	449117	460660	15400
300	122-	11122	221	429	79225	75808	6400
1000	915	1317		66	368	2324	1000
3000							
10000							
30000							
MAXIMUM DOSE							
1049							

Calculated Fallout Contours

("H+1" Dose Rate Contours)

3

YIELD (MEGATONS)

0

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	6777-	6597	5190	5674	1172611	1191951	2400
3	6336-	6149	4853	5240	1023918	1027629	2400
10	5814-	5564	4453	4718	953743	843349	2400
30	5294-	5031	4054	4265	700910	691852	1000
100	4657-	4446	3567	3724	532914	532456	1000
300	3988-	3746	3054	3149	375389	382553	1000
1000	3093-	2826	2369	2369	225978	220275	
3000	1946-	1637	1490	1490	84046	83887	
10000							
30000							
MAXIMUM DOSE	6160						

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	6618-	6517	7598	7766	1605968	1602238	1000
3	6166-	6031	7079	7219	1401197	1383127	1000
10	5628-	5441	6462	6569	1160260	1142184	1000
30	5089-	4903	5842	5913	942944	928057	1000
100	4422-	4313	5078	5099	699748	699617	1000
300	3711-	3523	4261	4261	491611	484252	
1000	2727-	2585	3131	3131	259767	261296	
3000	1287-	1131	1477	1477	54203	56114	
10000							
30000							
MAXIMUM DOSE	4109						

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	6381-	6344	13147	13147	2643179	2627853	
3	5911-	5801	12178	12178	2258384	2240311	
10	5348-	5206	11018	11018	1842400	1826606	
30	4777-	4663	9842	9842	1464403	1459335	
100	4060-	3989	8364	8364	1055227	1057489	
300	3271-	3121	6739	6739	678161	676541	
1000	2088-	1955	4302	4302	270075	273222	
3000							
10000							
30000							
MAXIMUM DOSE	2289						

Calculated Fallout Contours

("H+1" Dose Rate Contours)

3 YIELD (MEGATONS)

10 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	1043-	39016	1389	6738	3915024	4239695	23400
3	964-	34707	1297	5697	2988305	3192056	23400
10	869-	29861	1189	4629	2106612	2234248	19200
30	775-	25302	1080	3692	1442871	1512282	15400
100	654-	20146	947	2736	864216	894021	12000
300	536-	15288	807	1942	476268	482815	9000
1000	372-	9819	617	1170	192607	187215	4200
3000	167-	4884	367	624	50425	49484	2400
10000							
30000							
MAXIMUM DOSE							
7962							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	1040-	36609	1448	11091	5824654	6559210	23400
3	960-	32292	1352	9079	4270055	4742248	19200
10	866-	27424	1238	7147	2869923	3175717	19200
30	770-	22859	1125	5513	1858063	2046110	15400
100	654-	17727	985	3848	1031759	1110991	12000
300	530-	12973	837	2513	511282	533118	9000
1000	365-	7843	637	1397	177437	180128	4200
3000	157-	3606	369	648	38567	38329	1000
10000							
30000							
MAXIMUM DOSE							
6975							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	1030-	33988	1663	19179	9136390	10549818	23400
3	949-	29604	1551	15546	6499141	7461091	19200
10	853-	24682	1418	11788	4148738	4728021	15400
30	757-	20080	1284	8660	2511724	2834482	12000
100	638-	14952	1119	5729	1255798	1403052	9000
300	512-	10300	944	3503	544123	594949	6400
1000	341-	5566	704	1623	148556	150620	2400
3000	121-	2162	367	704	22277	25234	1000
10000							
30000							
MAXIMUM DOSE							
5020							

Calculated Fallout Contours

("H+1" Dose Rate Contours)

3

YIELD (MEGATONS)

20

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	979-	72661	1210	6038	6555591	6984207	44200
3	898-	63941	1124	5028	4861580	5120636	38400
10	801-	54068	1022	3990	3299025	3438641	33000
30	704-	44800	918	3095	2136772	2211972	28000
100	582-	34296	790	2191	1190912	1200459	19200
300	450-	24446	650	1456	582354	569287	12000
1000	266-	13584	450	805	183443	175067	6400
3000	4-	4443	44	363	22373	25359	1000
10000							
30000							
MAXIMUM DOSE							
5041							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	978-	67831	1226	9788	9511327	10579404	44200
3	897-	59057	1139	7941	6755735	7478680	38400
10	800-	49182	1035	6049	4343593	4749484	33000
30	702-	39932	930	4446	2644253	2837702	23400
100	580-	29598	799	2966	1329391	1405916	19200
300	448-	20168	657	1817	572399	588318	12000
1000	263-	10458	454	869	152193	146314	6400
3000	6	3319		363	18146	18945	1000
10000							
30000							
MAXIMUM DOSE							
4779							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	975-	62526	1286	16618	14673234	16575897	44200
3	893-	53640	1194	13127	10012394	11244695	33000
10	796-	43675	1084	9703	6032717	6778161	28000
30	697-	34386	973	6838	3386061	3768568	23400
100	575-	24167	834	4199	1482991	1631773	15400
300	442-	15202	684	2316	534456	569010	9000
1000	254-	6918	466	969	108063	109134	4200
3000	153	1956		343	8914	11354	1000
10000							
30000							
MAXIMUM DOSE							
4033							

Calculated Fallout Contours

("H+1" Dose Rate Contours)

3 YIELD (MEGATONS)

40 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	928-	134426	1100	583	10781466	11445106	87400
3	843-	116652	1015	4404	7781167	812467	71400
10	742-	96594	913	3393	5928342	5188221	57000
30	637-	77689	808	2543	3103194	3129012	44200
100	503-	56348	674	1713	1550878	1529481	33000
300	357-	36520	524	1058	640478	612732	19200
1000	132-	15531	278	500	128327	123088	6400
3000							
10000							
30000							
MAXIMUM DOSE							
2892							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	927-	124724	1104	8553	15266578	16881592	79200
3	843-	106890	1019	6707	10505151	11501622	71400
10	741-	86343	916	5015	6391112	6899390	57000
30	637-	68124	810	3557	3621351	3841966	44200
100	503-	47425	677	2190	1603368	1648520	28000
300	357-	29087	525	1214	570072	561401	15400
1000	132-	11694	278	512	101000	95114	4200
3000							
10000							
30000							
MAXIMUM DOSE							
2891							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	926-	113976	1119	14363	23085588	25923440	79200
3	842-	95961	1033	11090	15054311	16882674	64000
10	740-	75769	928	7810	8461891	9386613	50400
30	636-	57126	821	5206	4264829	4723845	38400
100	503-	37077	685	2917	1614027	1721630	23400
300	355-	20591	531	1435	462283	472210	12000
1000	128-	7403	277	524	65191	61967	4200
3000							
10000							
30000							
MAXIMUM DOSE							
2662							

Calculated Fallout Contours

("H+1" Dose Rate Contours)

3

YIELD (MEGATONS)

60

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	895-	191917	1051	5009	14426913	15171413	124200
3	811-	164991	965	4053	10187235	10555139	105000
10	705-	134573	861	3067	6354877	6517847	79200
30	597-	105914	763	2251	3747322	3766687	64000
100	456-	73638	614	1450	1735621	1687470	44200
300	295-	43982	451	845	624426	587619	23400
1000	27-	14066	115	361	81603	79936	2400
3000							
10000							
30000							
MAXIMUM DOSE							
2027							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	897-	177324	1053	7994	20143281	22070881	114400
3	811-	150335	967	6163	13474981	14632607	96000
10	705-	120010	862	4445	7873600	8428096	79200
30	597-	91796	754	3059	4230961	4439218	57000
100	456-	60890	615	1794	1708379	1728421	38400
300	295-	34282	452	935	526345	507662	19200
1000	27-	10776	114	363	63309	61534	2400
3000							
10000							
30000							
MAXIMUM DOSE							
2029							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	897-	161090	1060	13116	29776830	33373176	105000
3	810-	133859	973	9919	18836889	20980273	87400
10	705-	103413	868	6761	10075335	11057890	64000
30	596-	75503	759	4351	4805067	5201528	50400
100	455-	46125	618	2297	1593706	1673246	28000
300	294-	23282	454	1040	391441	385094	12000
1000	24-	6821	110	365	39298	39270	2400
3000							
10000							
30000							
MAXIMUM DOSE							
1943							

Calculated Fallout Contours

("H+1" Dose Rate Contours)

10 YIELD (MEGATONS)

0 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL 'NOT SHOWN' SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	8548-	8272	7536	8436	2202849	2228855	2400
3	8033-	7727	7092	7822	1930718	1948705	2400
10	7427-	7130	6548	7207	1633777	1647033	2400
30	6829-	6586	6020	6512	1357567	1375435	2400
100	6105-	5811	5382	5709	1077645	1084413	2400
300	5360-	5030	4725	4949	818452	807771	1000
1000	4401-	4160	3880	4006	539541	538740	1000
3000	3290-	2942	2901	2901	291151	283968	
10000	1211-	928	1068	1068	33507	35894	
30000							
MAXIMUM DOSE							
12077							
EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	8397-	8188	10275	10730	2831712	2795348	2400
3	7673-	7641	9632	9980	2475774	2434047	2400
10	7254-	7041	8875	9123	2097466	2048454	1000
30	6639-	6493	8121	8329	1719785	1718147	1000
100	5892-	5670	7209	7362	1357036	1336952	1000
300	5116-	4881	6260	6351	1013055	997368	1000
1000	4101-	3910	5018	5018	640769	631400	
3000	2877-	2664	3520	3520	306560	306416	
10000							
30000							
MAXIMUM DOSE							
8702							
EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	8145-	7997	17040	17136	4403912	4345146	1000
3	7603-	7445	15905	15975	3826983	3775341	1000
10	6961-	6841	14561	14598	3192548	3164718	1000
30	6317-	6241	13215	13215	2630489	2606863	1000
100	5527-	5366	11562	11562	2000407	1978353	
300	4691-	4567	9814	9814	1431273	1427286	
1000	3557-	3390	7440	7440	814304	811809	
3000	2027-	1856	4241	4241	256011	258649	
10000							
30000							
MAXIMUM DOSE							
5089							

Calculated Fallout Contours

("H+1" Dose Rate Contours)

10 YIELD (MEGATONS)

10 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	1666-	47911	2334	10036	7361343	7815367	28000
3	1549-	42997	2191	86=7	5729273	6057910	28000
10	1410-	37475	2023	7196	4186052	4395654	23400
30	1273-	32303	1856	5912	2998534	3117808	19200
100	1106-	26466	1653	4581	1937780	1985058	15400
300	933-	20985	1444	3456	1179824	1189945	12000
1000	709-	14811	1173	2307	575660	562530	9000
3000	451-	9065	853	1440	214354	215251	4200
10000	15-	3005	131	637	26028	30226	1000
30000							
MAXIMUM DOSE							
15623							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	1661-	45286	2444	16139	10613837	11901179	28000
3	1543-	40347	2294	13572	8049774	8930395	26000
10	1404-	34820	2116	10982	5656789	6249023	23400
30	1266-	29661	1940	P744	3875681	4247739	19200
100	1098-	23883	1727	6464	2329833	2536579	15400
300	925-	18503	1506	4597	1327984	1401586	12000
1000	699-	12566	1218	2830	576915	589791	6400
3000	438-	7306	877	1589	196204	193220	4200
10000	55	2224		619	19269	22158	1000
30000							
MAXIMUM DOSE							
14083							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	1645-	42321	2838	28043	16952664	19366579	28000
3	1526-	37349	2660	23121	12163508	14118347	23400
10	1385-	31774	2450	1P0R2	8332322	9418317	19200
30	1245-	26582	2241	13R34	5426244	6047090	15400
100	1075-	20793	1987	9787	3042340	3361737	12000
300	897-	15471	1723	6590	1504206	1694359	9000
1000	666-	9773	1376	3694	573007	605788	6400
3000	393-	5081	957	1839	155122	158138	2400
10000	739	1174		350	2246	10531	1000
30000							
MAXIMUM DOSE							
10647							

Calculated Fallout Contours

("H+1" Dose Rate Contours)

10 YIELD (MEGATONS)

20 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	1563-	82642	1990	9100	12380973	13040563	57000
3	1445-	79705	1860	7732	2385994	9856043	50400
10	1304-	68484	1705	6286	6689232	6892139	44200
30	1154-	58005	1551	5056	4591718	4698733	33000
100	992-	45166	1363	3798	2797596	2813159	28000
300	811-	35060	1168	2743	1565298	1545447	12200
1000	570-	22623	898	1714	649126	624424	12000
3000	272-	11782	553	979	179661	171927	4200
10000							
30000							
MAXIMUM DOSE							
9901							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	1561-	84382	2019	14407	17627684	19445294	57000
3	1443-	74409	1887	11937	12975752	14222935	50400
10	1303-	63235	1730	9387	8787273	9516451	38400
30	1152-	52796	1573	7284	5743928	6175557	33000
100	990-	41137	1392	5129	3241511	3394144	28000
300	808-	30376	1180	3478	1657131	1703476	19200
1000	555-	18740	808	1948	404100	590697	9000
3000	267-	8278	555	977	147055	141880	4200
10000							
30000							
MAXIMUM DOSE							
9505							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	1455-	78433	2132	24625	27323715	30940441	50400
3	1426-	69362	1991	20007	19444547	21935403	44200
10	1295-	57115	1824	15291	12339011	14029820	38400
30	1154-	46647	1658	11295	7680006	8481588	28000
100	981-	35060	1453	7593	3926634	4298659	23400
300	798-	24586	1237	4738	1757978	1889025	15400
1000	553-	13870	946	2355	525807	533447	9000
3000	248-	5937	561	1035	102082	100531	2400
10000							
30000							
MAXIMUM DOSE							
8294							

Calculated Fallout Contours

("H+1" Dose Rate Contours)

10 YIELD (MEGATONS)

40 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	1486-	16671	1756	8190	20803821	21658440	105000
3	1364-	146647	1650	6844	15420847	15234794	87400
10	1218-	123916	1509	5467	10554729	10746007	71400
30	1070-	102579	1358	4287	6945180	6979438	64000
100	886-	78543	1169	3095	3907551	3861902	44200
300	689-	56052	965	2106	1946741	1877101	28000
1000	412-	31254	674	1189	628628	591166	15400
3000	24-	10348	137	551	88874	89777	2400
10000							
30000							
MAXIMUM DOSE							
5702							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	1486-	156321	1794	12746	28737054	21645145	105000
3	1363-	126104	1667	10409	20666961	22477103	87400
10	1217-	113463	1516	7993	13425999	14398447	71400
30	1070-	92363	1363	5991	8706489	8777791	57000
100	886-	69896	1173	4029	4278952	4416574	44200
300	689-	47516	968	2675	1918222	1919230	28000
1000	411-	25264	675	1272	542272	515413	12000
3000	22-	8334	130	652	72143	72402	2400
10000							
30000							
MAXIMUM DOSE							
5625							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	1484-	144294	1823	21559	43945874	49367649	96000
3	1361-	123936	1694	17101	30157171	33657190	72000
10	1215-	101186	1540	12652	18389269	20351030	64000
30	1067-	80137	1384	2036	10477157	11526094	50400
100	883-	57070	1191	6699	4723659	5132937	38400
300	684-	36840	982	3222	1827319	1899044	23400
1000	406-	17667	682	1419	413149	402548	9000
3000	13-	5487	102	554	46500	47856	1000
10000							
30000							
MAXIMUM DOSE							
5348							

Calculated Fallout Contours

("H+1" Dose Rate Contours)

10 YIELD (MEGATONS)

60 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	1443-	239217	1701	767.3	28023692	29007770	145000
3	1318-	208627	1574	636.8	20470707	21001689	124200
10	1167-	174203	1423	5022	13647270	13835050	105000
30	1014-	141908	1269	386.3	8693568	8672195	87400
100	821-	105529	1075	270.8	4604453	4523922	57000
300	609-	71622	862	177.4	2090929	2012578	38400
1000	301-	34902	537	92.4	546233	510701	15400
3000	535	6441		35.0	28902	38346	1000
10000							
30000							
MAXIMUM DOSE							
4006							
EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	1443-	223394	1704	1186.2	78493160	41892300	145000
3	1317-	192858	1577	955.4	26939596	29139586	124200
10	1167-	158645	1425	720.6	16971608	18090330	105000
30	1013-	126818	1271	528.0	10103142	10602431	79200
100	820-	91565	1077	343.3	4882970	4981900	57000
300	609-	59638	863	205.1	1984768	1947805	33000
1000	300-	27925	537	96.0	456044	425722	12000
3000	543	5525		34.8	25449	33183	1000
10000							
30000							
MAXIMUM DOSE							
3979							
EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	1442-	205245	1717	1483.6	57434942	64409887	134400
3	1316-	174537	1589	1553.6	38592287	42916386	114400
10	1166-	140240	1436	1122.1	22676539	24923479	96000
30	1012-	108613	1281	780.3	12350639	13437285	71400
100	819-	74315	1085	464.2	5178706	5478298	44200
300	607-	45001	868	249.9	1745287	1790286	28000
1000	298-	18987	539	101.9	325651	308743	9000
3000	572	3849		34.1	16317	23651	1000
10000							
30000							
MAXIMUM DOSE							
3879							

Calculated Fallout Contours

("H+1" Dose Rate Contours)

30

YIELD (MEGATONS)

0

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	10263-	9925	10664	12345	3903673	3914749	4200
3	9685-	9384	10064	11477	3249618	3437760	4200
10	9009-	8717	9361	10469	2979922	2915076	2400
30	8344-	7986	8670	9616	2445001	2466493	2400
100	7549-	7184	7844	8583	1974730	1986319	2400
300	6742-	6453	7005	7518	1528897	1558152	2400
1000	5728-	5332	5952	6228	1097563	1081946	1000
3000	4613-	4288	4793	4977	694176	690269	1000
10000	2939-	2567	3053	3053	263421	264084	
30000							
MAXIMUM DOSE							
22751							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	10135-	9869	13523	14482	4584109	4550452	2400
3	9549-	9326	12741	13583	4032133	4027094	2400
10	8862-	8636	11825	12524	3463716	3442198	2400
30	8185-	7901	10922	11472	2932334	2898748	2400
100	7373-	7095	9838	10196	2355788	2317103	2400
300	6544-	6342	8732	9980	1939600	1917635	1000
1000	5494-	5186	7331	7482	1275503	1255211	1000
3000	4319-	4092	5763	5987	772931	764497	1000
10000	2451-	2187	3271	3271	235159	238114	
30000							
MAXIMUM DOSE							
17724							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	9887-	9721	21168	21424	713427	6598576	1000
3	9285-	9175	19880	20104	5972336	5829604	1000
10	8577-	8425	18365	19549	5027624	4954105	1000
30	7876-	7684	16864	17007	4221136	4156807	1000
100	7028-	6871	15048	15139	3339451	3304951	1000
300	6153-	6009	13174	13203	2551116	2522223	1000
1000	5022-	4834	10752	10752	1682831	1664623	
3000	3699-	3504	7921	7921	899702	896251	
10000	1022-	877	2168	2168	60673	65297	
30000							
MAXIMUM DOSE							
11046							

Calculated Fallout Contours

("H+1" Dose Rate Contours)

30 YIELD (MEGATONS)

10 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	2535-	56994	3771	14304	12703343	13375655	33000
3	2368-	51467	3554	12488	10065769	10560300	33000
10	2172-	45294	3300	10596	7576376	7900527	28000
30	1979-	39535	3049	8923	5624391	5818624	23400
100	1746-	33077	2748	7161	3778481	3917157	19200
300	1509-	27011	2442	5638	2510381	2525898	15400
1000	1209-	20187	2054	4047	1381518	1360242	12000
3000	877-	13805	1622	2785	659003	642169	6400
10000	383-	6763	942	1540	171745	172833	2400
30000							
MAXIMUM DOSE							
	27778						

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	2528-	54125	3953	22197	17864953	19777348	33000
3	2360-	49688	3724	19011	13841130	15244465	33000
10	2164-	42536	3456	15710	10073192	11030469	28000
30	1970-	36812	3192	12943	7205823	7824073	23400
100	1736-	30413	2874	9868	4668383	4998261	19200
300	1498-	24468	2551	7433	2872723	3031579	15400
1000	1196-	17861	2140	4986	1472720	1492508	9000
3000	860-	11831	1681	3189	635756	635784	6400
10000	357-	5516	949	1604	148335	147967	2400
30000							
MAXIMUM DOSE							
	25551						

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	2504-	50958	4601	38324	27833249	32183069	33000
3	2335-	45410	4330	32119	21091007	24088636	28000
10	2136-	39229	4012	25765	14774609	16741131	23400
30	1940-	33488	3699	20494	10094906	11405238	23400
100	1703-	27092	3321	15105	6206266	6832552	15400
300	1460-	21194	2934	10848	3553307	3860377	12000
1000	1151-	14750	2441	6877	1606832	1717663	9000
3000	804-	9080	1881	3875	574321	601685	4200
10000	269-	3671	942	1658	101964	102620	1000
30000							
MAXIMUM DOSE							
	20102						

Calculated Fallout Contours

("H+1" Dose Rate Contours)

30

YIELD (MEGATONS)

20

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	2375-	106984	3141	13041	21522687	22401373	64000
3	2208-	95847	2949	11272	15815523	17361150	57000
10	2012-	87351	2724	9403	12718992	12611703	50400
30	1817-	71711	2500	7741	8798181	89673366	44200
100	1591-	58613	2230	6081	5726424	5749564	33000
300	1337-	46354	1951	4614	3507407	3456357	23400
1000	1022-	32593	1590	3161	1723962	1668651	15400
3000	659-	19842	1166	1982	664969	638830	9000
10000	56-	6570	285	894	28751	93041	2400
30000							
MAXIMUM DOSE							
17813							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	2372-	101438	3190	19982	29798926	32584396	64000
3	2206-	90320	2995	16883	22633782	24537938	57000
10	2009-	77910	2766	13669	15921729	17159534	50400
30	1814-	66361	2539	10886	10953264	11658132	44200
100	1578-	53477	2263	8145	6710368	7044761	33000
300	1333-	41548	1979	5849	3845057	3939522	23400
1000	1017-	28425	1611	3714	1709102	1717588	15400
3000	653-	16777	1179	2137	407416	585072	9000
10000	44-	5439	257	826	74870	76354	1000
30000							
MAXIMUM DOSE							
17241							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	2363-	94925	3381	33998	41677244	51955278	64000
3	2195-	83742	3173	28175	33788031	37979798	57000
10	1999-	71293	2928	22110	22820932	25454649	44200
30	1803-	59735	2685	17157	14935959	16584920	39400
100	1565-	46927	2390	12126	8478169	9236657	28000
300	1318-	35222	2086	8235	4410650	4726670	23400
1000	999-	22715	1690	4699	1704799	1750351	12000
3000	629-	12333	1222	2436	493985	496021	6400
10000	3-	3573		884	49068	49644	1000
30000							
MAXIMUM DOSE							
15402							

Calculated Fallout Contours

("H+1" Dose Rate Contours)

30 YIELD (MEGATONS)

40 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	2265-	19994	2776	11846	16524945	37637072	124200
3	2094-	177439	2595	10119	27946893	28535427	105000
10	1891-	152154	2380	8300	19863537	20084312	87400
30	1688-	128532	2165	6722	13740304	13748852	71400
100	1439-	101989	1903	5104	8395524	8292911	57000
300	1177-	77159	1626	3719	4718493	4576084	44200
1000	828-	49445	1256	2347	1963510	1869575	23400
3000	399-	24524	776	1313	541950	517931	9000
10000	937	1868		191	2388	8398	1000
30000							
MAXIMUM DOSE							
10759							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	2265-	168963	2789	17894	49651536	53749688	124200
3	2093-	166502	2607	14282	36702521	39430592	105000
10	1890-	141409	2391	11726	24098441	26551176	87400
30	1687-	118097	2173	9182	16464770	17277142	71400
100	1438-	92142	1911	6602	9416131	9705087	57000
300	1175-	68250	1633	4512	4906093	4921660	38400
1000	826-	42436	1260	2633	1849144	1789527	23400
3000	396-	20559	777	1348	470915	443821	9000
10000	956	1501		169	1180	6167	1000
30000							
MAXIMUM DOSE							
10247							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	2262-	176861	2840	30049	73151496	84074535	114400
3	2090-	153304	2654	24413	53618943	59589259	105000
10	1887-	128177	2434	19737	34684292	38279903	87400
30	1683-	104944	2213	4023	21512418	23486897	71400
100	1433-	79326	1944	9511	11089710	12065115	50400
300	1170-	56257	1660	6012	5182372	5423700	33000
1000	820-	32536	1278	3128	1635132	1639189	19200
3000	387-	14585	780	1420	351752	334057	6400
10000							
30000							
MAXIMUM DOSE							
9332							

Calculated Fallout Contours

("H+1" Dose Rate Contours)

30 YIELD (MEGATONS)

60 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	2205-	287636	2629	11175	49714161	50876459	179200
3	2030-	253530	2449	9474	37444577	38031760	156000
10	1821-	215319	2235	7692	26089108	26237800	124200
30	1612-	179594	2020	6152	17524150	17410002	105000
100	1352-	139432	1755	4566	10300624	10098334	79200
300	1076-	101925	1472	3233	5435986	5230063	50400
1000	698-	60365	1080	1944	1976564	1864843	28000
3000	202-	24247	504	982	392558	377173	6400
10000							
30000							
MAXIMUM DOSE							
7312							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	2205-	271129	2634	16722	66672908	71794627	179200
3	2029-	237211	2454	13787	48493522	51810001	156000
10	1821-	199353	2240	10782	32259994	34070526	124200
30	1611-	164194	2025	8258	20652018	21507883	105000
100	1352-	125127	1759	5769	11212328	11461481	79200
300	1075-	89379	1475	3815	5461838	5419908	50400
1000	697-	51330	1082	2092	1792851	1709714	28000
3000	200-	20509	503	990	339467	322105	6400
10000							
30000							
MAXIMUM DOSE							
7273							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	2203-	251423	2657	27876	99645677	111056590	167400
3	2028-	217409	2475	22421	69429005	77282210	145000
10	1819-	179542	2259	16907	43638110	48164928	114400
30	1609-	144592	2042	12394	26213420	28462209	96000
100	1349-	106271	1773	8080	12820916	13658626	64000
300	1072-	72206	1486	4913	5444008	5655111	44200
1000	694-	38337	1088	2367	1490529	1451293	23400
3000	195-	14514	500	1005	246842	232200	6400
10000							
30000							
MAXIMUM DOSE							
7121							

Calculated Fallout Contours

("4+1" Dose Rate Contours)

100 YIELD (MEGATONS)

0 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	12298-	11999	15804	15714	6964245	7142190	4200
3	11661-	11275	14973	17565	6110110	6325942	4200
10	10899-	10484	14066	16213	5294197	5445610	4200
30	10163-	9760	13061	14873	4353973	4654744	4200
100	9291-	8957	11940	13268	3762283	3802986	2400
300	8417-	7982	10816	11885	3043961	3061611	2400
1000	7340-	6914	9432	10157	2269032	2274138	2400
3000	6196-	5747	7952	9314	1581863	1559628	1000
10000	4628-	4230	5947	6075	831203	845206	1000
30000	2435-	1930	3130	3130	212283	214632	
MAXIMUM DOSE							
	45595						
EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	12200-	11955	18570	20774	7764293	7882290	4200
3	11568-	11230	17577	19493	6909008	6971072	4200
10	10789-	10435	16421	17962	5082225	5984132	4200
30	10045-	9710	15290	16500	5139718	5120309	2400
100	9162-	8886	13945	14929	4239092	4232161	2400
300	8274-	7907	12593	13334	3417228	3388984	2400
1000	7175-	6833	10921	11332	2526982	2493518	2400
3000	6000-	5621	9133	9376	1737482	1711596	1000
10000	4362-	4029	6640	6663	889152	878359	1000
30000	1883-	1453	2866	2866	148176	150217	
MAXIMUM DOSE							
	38581						
EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	11978-	11812	26722	27618	10478771	10323651	2400
3	11313-	11090	25239	26009	9307147	9152678	2400
10	10536-	10291	23506	24121	8034039	7891812	2400
30	9773-	9561	21805	22264	6870709	6761662	2400
100	8863-	8677	19774	20085	5630387	5533849	1000
300	7941-	7688	17718	17959	4487641	4408897	1000
1000	6789-	6604	15188	15292	3232870	3217090	1000
3000	5633-	5270	12344	12367	2133097	2098395	1000
10000	3693-	3427	8240	8240	926634	921616	
MAXIMUM DOSE							
	26321						

Calculated Fallout Contours

("H+1" Dose Rate Contours)

100 YIELD (MEGATONS)

10 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	3294-	67902	6442	21075	22856429	23003153	38400
3	3749-	61711	6094	18649	19555714	19176291	38400
10	3463-	54797	5689	16143	14362973	14773699	33000
30	3182-	48369	5292	13912	11017695	11265441	28000
100	2847-	41173	4820	11525	7857997	7969011	23400
300	2509-	34463	4344	9427	540790	5474700	19200
1000	2090-	26927	3755	7191	3323360	3277558	15400
3000	1640-	19875	3121	5341	1820792	1805004	9000
10000	1018-	11990	2228	3410	712113	696841	4200
30000	170-	4871	778	1687	129887	133615	2400
MAXIMUM DOSE							
	49703						

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	3984-	65092	6738	30886	30531895	33513134	44200
3	3739-	58919	6373	26981	24290912	26555558	38400
10	3451-	52054	5947	22765	18278911	19848472	33000
30	3170-	45686	5529	19086	13607160	14647149	28000
100	2833-	38594	5033	15282	9259893	9944535	23400
300	2494-	32001	4932	12044	6245209	6526203	19200
1000	2072-	24665	3910	8741	3600828	3671170	15400
3000	1619-	17897	3240	6140	1985558	1882514	9000
10000	999-	10512	2291	3665	675690	662191	4200
30000	120-	4079	678	1621	105498	106949	2400
MAXIMUM DOSE							
	46152						

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	3950-	61570	7802	52332	47201755	53860071	38400
3	3703-	55388	7372	44658	36599193	41450968	38400
10	3413-	48511	6871	36975	26709208	30124896	33000
30	3128-	42145	6379	30290	19203086	21533782	28000
100	2788-	35072	5792	23397	12560867	13914288	23400
300	2443-	28546	5199	17648	78371118	8590674	19200
1000	2013-	21353	4460	12172	4200165	4467639	12000
3000	1548-	14847	3657	7909	1968338	2036733	9000
10000	892-	8055	2496	4235	594664	595204	4200
30000	175	2609		1433	52219	62465	1000
MAXIMUM DOSE							
	37743						

Calculated Fallout Contours

("H+1" Dose Rate Contours)

100

YIELD (MEGATONS)

20

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	3732-	127945	5220	19719	38933412	39928294	79200
3	3490-	115354	4923	16979	30979691	31694393	64000
10	3206-	101400	4577	14510	23504341	23841794	57000
30	2927-	88435	4236	12313	17475678	17671114	50400
100	2591-	73911	3827	9972	12009215	11982924	38400
300	2230-	60364	3412	7962	7918316	7830603	33000
1000	1820-	45180	2839	5857	4413677	4123969	23400
3000	1348-	31049	2311	4061	2148992	206398	15400
10000	658-	15586	1431	2298	500716	586454	6400
30000	828	2982		426	19027	29693	2400
MAXIMUM DOSE		32262					
EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	3728-	122252	5304	27114	51508208	56633969	79200
3	3486-	109828	5002	24166	40091364	43014596	71400
10	3202-	96019	4649	20015	29054264	31194352	57000
30	2922-	87195	4302	16523	21209756	22350755	50400
100	2586-	68929	3986	12869	13938410	14456404	44200
300	2244-	55718	3463	9854	8766001	8971657	33000
1000	1813-	41083	2930	6850	4613831	4615790	23400
3000	1339-	27738	2340	4468	2096295	2040906	15400
10000	646-	13647	1439	2362	554067	530243	4200
30000	887	2553		405	10873	21896	1000
MAXIMUM DOSE		31429					
EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	3715-	115219	5625	46867	77683999	87532368	79200
3	3472-	102776	5307	39766	59141542	66033303	64000
10	3187-	83950	4926	32127	41679911	46501429	57000
30	2906-	76181	4555	25692	29039906	31926095	50400
100	2568-	62025	4110	19257	17928296	19534226	38400
300	2224-	49028	3657	13027	10507322	11212049	33000
1000	1789-	34876	3086	8979	4980272	5171466	19200
3000	1309-	22413	2450	5386	1997653	2006453	12000
10000	602-	10198	1465	2542	441994	431309	4200
MAXIMUM DOSE		28643					

Calculated Fallout Contours

("H+1" Dose Rate Contours)

100 YIELD (MEGATONS) 40 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	3569-	239971	4516	17733	6.67720359	67239211	145000
3	3322-	214732	4244	15427	5.2132071	52891528	124200
10	3031-	186547	3923	13000	3.9573527	38712413	105000
30	2742-	160314	3606	10550	2.7994053	27790792	97400
100	2392-	130945	3223	8602	1.9259484	18016846	71400
300	2031-	103547	2828	6679	1.1292843	11010435	57000
1000	1568-	72902	2319	4627	.5625081	.5412292	38400
3000	1039-	44705	1779	2964	.2231523	.2129626	19200
10000	180-	15486	611	1415	.344576	.348174	4200
30000							
MAXIMUM DOSE							
18077							
EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	3568-	228899	4539	25410	86902167	92786449	145000
3	3321-	203865	4265	21562	5.6281981	70172169	124200
10	3029-	175988	3942	17608	4.7214870	49513099	114400
30	2740-	150159	3623	14227	3.29137261	34164875	96000
100	2390-	121433	3238	10792	2.0534404	20991271	71400
300	2030-	94905	2841	7948	1.2055089	12101968	57000
1000	1566-	64736	2329	5198	.620053	.5494929	38400
3000	1036-	39661	1735	3127	.2097354	.1999064	19200
10000	175-	13777	605	1420	.315706	.311210	2400
30000							
MAXIMUM DOSE							
18908							
EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	3564-	214818	4628	41922	1.29197270	143808750	145000
3	3316-	189771	4348	34923	9.5790496	104921130	124200
10	3024-	161954	4018	27707	6.5339877	71802685	105000
30	2735-	136281	3692	21635	4.3298443	47242765	87400
100	2384-	107927	3298	15602	2.5204351	27034039	71400
300	2022-	82091	2892	10831	1.3592745	14309960	50400
1000	1557-	54447	2368	6485	.5613471	.5705303	33000
3000	1024-	31106	1758	3494	.1823902	.1763282	15400
10000	155-	10321	578	1438	.239213	.236712	2400
30000							
MAXIMUM DOSE							
18271							

Calculated Fallout Contours

("H+1" Dose Rate Contours)

100 YIELD (MEGATONS)

60 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	3483-	346092	4240	16843	21401476	92484607	204000
3	3231-	307998	3973	14570	70761318	71231124	179200
10	2933-	265449	3659	12156	51332846	51245321	156000
30	2636-	225827	3346	10049	36395670	36060824	124200
100	2274-	181456	2966	7834	23025456	22608397	96000
300	1897-	140073	2571	5923	13624980	13208001	71400
1000	1405-	93928	2082	3974	6238284	5951195	44200
3000	825-	52014	1422	2392	2095312	1976822	19200
10000	383	11500		963	160977	179761	2400
30000							
MAXIMUM DOSE							
	13573						
EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	3482-	329591	4250	23889	117779130	124984540	204000
3	3230-	291845	3983	20150	99600027	93397682	179200
10	2932-	249830	3667	16295	61978946	64698717	156000
30	2635-	210901	3354	12979	42259075	43533758	134400
100	2273-	167646	2973	9653	25313977	25763484	105000
300	1896-	127791	2576	6934	14219786	14124734	71400
1000	1404-	84261	2056	4358	6080110	5864036	44200
3000	823-	46067	1423	2458	1927466	1810716	19200
10000	390	10513		960	146835	164462	2400
30000							
MAXIMUM DOSE							
	13512						
EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	3480-	308472	4291	39183	173346450	192012290	204000
3	3228-	270742	4020	32309	126316970	139040450	179200
10	2929-	228866	3702	25277	84356353	92035381	145000
30	2632-	190254	3385	19435	54496877	58885123	124200
100	2270-	147727	3000	13690	30309221	32255099	96000
300	1893-	109220	2599	9167	15435185	15999488	71400
1000	1400-	68631	2072	5217	5760682	5739407	38400
3000	817-	35581	1431	2643	1595056	1510893	19200
10000	417	8187		948	112373	128092	2400
30000							
MAXIMUM DOSE							
	13276						

Calculated Fallout Contours

(Maximum Biological Dose)

.001

YIELD (MEGATONS)

10

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	40-	4007	48	140	8968	9093	2100
3	36-	1567	44	119	6661	6748	2100
10	31-	2975	39	94	4423	4422	1200
30	27-	3324	34	76	2851	2858	1200
100	20-	1725	28	51	1459	1401	500
300	13-	1087	21	35	558	608	500
1000	1-	141	5	5	10	12	
3000							
10000							
30000							
100000							
10 ⁶							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	40-	3922	48	174	10391	10804	2100
3	36-	3413	44	146	7427	7893	2100
10	31-	2820	39	107	4868	4807	1200
30	26-	2250	34	86	2936	3041	1200
100	20-	1610	28	54	1457	1381	500
300	13-	1005	21	36	535	583	500
1000	1-	112	5	5	8	9	
3000							
10000							
30000							
100000							
10 ⁶							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	40-	3671	48	259	13767	15108	2100
3	36-	3157	44	211	9246	10604	2100
10	31-	2578	40	146	5821	5959	1200
30	26-	2018	36	112	3169	3599	1200
100	20-	1394	28	61	1430	1402	500
300	13-	945	21	40	487	533	500
1000	1-	68	5	5	5	6	
3000							
10000							
30000							
MAXIMUM DOSE 10 ⁶							

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TABLE II
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Calculated Fallout Contours

(Maximum Biological Dose)

.001

YIELD (MEGATONS)

20

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	38-	7552	44	127	15133	15098	4500
3	33-	6474	40	105	10283	10785	3200
10	28-	5236	35	82	6982	6788	3200
30	23-	4044	30	63	4103	4028	2100
100	16-	2660	23	42	1794	1763	1200
300	7-	1363	14	24	488	517	500
1000							
3000							
10000							
30000							
100000							
644							
1000							
3000							
10000							
30000							
100000							
625							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	38-	7223	44	156	17248	17837	4500
3	33-	6171	40	125	11869	12157	3200
10	28-	4950	35	95	7390	7411	3200
30	23-	3788	30	70	4181	4167	2100
100	16-	2469	23	44	1735	1719	1200
300	7-	1259	14	24	436	482	500
1000							
3000							
10000							
30000							
100000							
625							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	38-	6713	44	229	22284	24305	4500
3	33-	5661	40	176	14703	15708	3200
10	28-	4460	35	125	8312	8786	3200
30	23-	3324	30	87	4257	4555	2100
100	16-	2076	23	50	1555	1646	1200
300	7-	1039	14	25	375	410	500
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
561							

Calculated Fallout Contours

(Maximum Biological Dose)

.001

YIELD (MEGATONS)

40

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	35-	13775	41	114	24975	24630	7700
3	31-	11540	37	93	17222	16984	6000
10	25-	9000	32	70	10271	9973	4500
30	19-	6524	26	51	5399	5208	3200
100	11-	3692	18	30	1826	1750	1200
300	64	.171		13	207	255	500
1000							
3000							
10000							
30000							
100000							
414							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	35-	13136	41	137	27939	26360	7700
3	31-	10941	37	108	18634	18628	6000
10	25-	8460	32	79	10627	10480	4500
30	19-	6080	26	54	5235	5208	3200
100	11-	3412	18	31	1712	1650	1200
300	67	1103		13	194	240	500
1000							
3000							
10000							
30000							
100000							
414							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	35-	12123	41	106	34784	37506	7700
3	31-	9957	37	149	21822	23168	6000
10	25-	7503	32	101	11473	11912	4500
30	19-	5229	26	64	5261	5288	3200
100	11-	2831	18	33	1308	1450	1200
300	76	926		13	156	200	500
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
306							

Calculated Fallout Contours (Maximum Biological Dose)

.001 YIELD (MEGATONS)

60 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

Calculated Fallout Contours

(Maximum Biological Dose)

.003

YIELD (MEGATONS)

0

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	391-	297	272	272	2742	2936	
3	264-	259	263	263	2715	2472	
10	312-	214	271	271	1865	1994	
30	300-	175	209	209	1471	1560	
100	261-	132	181	181	1061	1119	
300	218-	93	152	152	709	743	
1000	160-	50	111	111	373	367	
3000	73-	10	51	51	66	67	
10000							
30000							
MAXIMUM DOSE							
4017							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	380-	284	420	420	4090	4378	
3	352-	244	389	389	3418	3647	
10	319-	201	353	353	2709	2880	
30	284-	161	316	316	2092	2215	
100	244-	117	270	270	1452	1528	
300	198-	77	219	219	906	947	
1000	131-	34	144	144	561	573	
3000							
10000							
30000							
MAXIMUM DOSE							
2528							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	364-	264	745	745	6483	7357	
3	336-	224	686	686	5660	6030	
10	301-	180	615	615	4376	4643	
30	265-	140	542	542	3263	3446	
100	210-	96	448	448	2116	2219	
300	167-	56	341	341	1148	1194	
1000	76-	11	155	155	209	213	
3000							
10000							
30000							
MAXIMUM DOSE							
1368							

Calculated Fallout Contours (Maximum Biological Dose)

.003 YIELD (MEGATONS)

10 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	46-	7012	54	250	25813	27759	4500
3	42-	6101	50	198	18029	19100	3200
10	37-	5042	45	157	11874	12428	3200
20	32-	4047	40	115	7210	7354	2100
30	25-	2923	37	74	3539	3444	1200
100	25-	1894	26	48	1445	1434	1200
300	18-	-	-	-	-	-	-
1000	7-	859	14	23	301	317	500
3000							
10000							
30000							
100000							
1678							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	46-	6504	54	401	36631	41268	4500
3	42-	5376	50	311	24970	27469	3200
10	37-	4526	45	231	14266	16524	3200
20	32-	3531	40	163	8359	9146	2100
100	25-	2445	37	98	3651	3789	1200
300	18-	1512	26	51	1307	1237	500
1000	7-	659	14	21	222	220	500
3000							
10000							
30000							
100000							
1673							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	46-	5911	54	659	54555	61957	4500
3	42-	4907	50	518	35707	40990	3200
10	37-	3932	45	248	19901	21693	2100
20	32-	2950	40	238	9813	11112	2100
100	25-	1910	34	136	3568	4125	1200
300	18-	1026	26	67	990	1155	500
1000	7-	359	14	14	69	82	
3000							
10000							
30000							
MAXIMUM DOSE							
1652							

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III

TABLE II-5
WSEG RESEARCH MEMORANDUM NO. 10

Calculated Fallout Contours

(Maximum Biological Dose)

.003 YIELD (MEGATONS)

20 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	43-	12897	50	219	42376	44572	7700
3	39-	11003	46	174	29214	30095	7700
10	34-	8851	41	129	17769	18550	6000
30	28-	6815	35	93	10001	9947	4500
100	21-	4544	28	58	4153	4171	2100
300	12-	2559	20	34	1408	1373	1200
1000	257	701		10	67	154	500
3000							
10000							
30000							
100000							
1156							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	43-	11864	50	147	57783	54963	7700
3	39-	9960	46	265	37963	41639	6000
10	34-	7810	41	186	20964	22977	4500
30	28-	5914	35	124	10325	11372	3200
100	21-	3691	28	72	4067	4172	2100
300	12-	1977	20	37	1135	1143	1200
1000	388	548		6	15	92	500
3000							
10000							
30000							
100000							
1045							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	43-	10712	50	569	85633	96099	7700
3	39-	8707	46	425	52380	58895	6000
10	34-	6630	41	282	26509	29530	4500
30	28-	4678	35	175	11590	12924	3200
100	21-	2743	28	84	3629	3640	1200
300	12-	1348	20	39	808	823	500
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
854							

Calculated Fallout Contours

(Maximum Biological Dose)

.003 YIELD (MEGATONS)

40 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	41-	23430	47	191	67025	70480	14000
3	36-	19565	42	149	44455	45878	11700
10	30-	15150	37	106	28301	28377	9600
30	24-	11022	31	73	12860	12591	6000
100	16-	6547	23	42	4561	4362	3200
300	5-	2877	12	22	1002	977	1200
1000							
3000							
10000							
30000							
100000							
700							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	41-	21340	47	206	90891	90748	14000
3	36-	17467	42	220	56017	60435	11700
10	30-	13110	37	146	28769	30212	7700
30	24-	9150	31	92	12966	13265	6000
100	16-	5151	23	48	3969	3973	3200
300	5-	2207	12	22	759	754	1200
1000							
3000							
10000							
30000							
100000							
600							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	41-	19025	47	475	127643	142110	11700
3	36-	15105	42	339	72866	80746	9600
10	30-	10793	37	209	33005	35508	7700
30	24-	7950	31	122	12688	13564	4500
100	16-	3620	23	56	3111	3203	2100
300	5-	1454	12	22	506	515	500
1000							
3000							
10000							
30000							
MAXIMUM DOSE 602							

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TABLE II-7
WSEG RESEARCH MEMORANDUM NO. 10

Calculated Fallout Contours (Maximum Biological Dose)

.003

YIELD (MEGATONS)

60

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	39-	33040	45	175	88097	90905	22100
3	34-	27156	41	134	56374	57334	16500
10	28-	20470	35	93	30274	30049	11700
30	22-	14249	29	61	14149	13782	7700
100	13-	7675	20	34	4339	4090	3200
300	30	2567		16	608	636	500
1000							
3000							
10000							
30000							
100000							
506							
EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	39-	29829	45	267	115561	125401	19200
3	34-	24019	41	193	68651	72985	16500
10	28-	17459	35	125	33035	34322	11700
30	22-	11505	29	75	13668	13666	7700
100	13-	5941	20	37	3592	3458	3200
300	31	2003		16	471	499	500
1000							
3000							
10000							
30000							
100000							
496							
EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	39-	26343	45	423	158345	175587	16500
3	34-	20477	41	293	85990	94346	14000
10	28-	14050	35	175	35203	38603	9600
30	22-	8674	29	95	12510	12931	6000
100	13-	4061	20	41	2651	2617	2100
300	36	1311		16	288	329	500
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
493							

Calculated Fallout Contours

(Maximum Biological Dose)

.01 YIELD (MEGATONS)

0 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	891-	809	537	537	14784	14322	
3	827-	744	498	498	12672	12299	
10	751-	674	453	453	10379	10130	
30	674-	611	406	406	8289	8196	
100	578-	541	348	348	5924	6123	
300	474-	425	286	286	3742	4035	
1000	323-	198	195	195	1503	1596	
3000							
10000							
30000							
MAXIMUM DOSE	2852						

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	859-	783	905	905	23468	23324	
3	793-	718	835	835	19915	19812	
10	713-	648	751	751	16044	16049	
30	631-	584	665	665	12485	12693	
100	528-	514	556	556	8266	9092	
300	411-	331	433	433	4702	5047	
1000	221-	96	233	233	1105	1159	
3000							
10000							
30000							
MAXIMUM DOSE	1632						

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	820-	747	1659	1659	40714	40856	
3	750-	683	1518	1518	34002	34183	
10	666-	613	1346	1346	26647	27035	
30	578-	548	1168	1168	19755	20657	
100	462-	424	934	934	12057	13012	
300	322-	207	652	652	5090	5415	
1000							
3000							
10000							
30000							
MAXIMUM DOSE	849						

Calculated Fallout Contours

(Maximum Biological Dose)

.01 YIELD (MEGATONS)

10 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	76-	10508	89	524	80811	87159	7700
3	69-	9100	82	430	56789	61961	6000
10	62-	7500	74	323	35622	38339	4500
30	54-	5988	66	232	21022	22004	3200
100	44-	4299	56	150	10131	10234	2100
300	33-	2800	45	92	4171	4075	1200
1000	17-	1344	29	48	979	1024	500
3000							
10000							
30000							
MAXIMUM DOSE							
2438							
EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	76-	9687	89	885	117568	135683	6000
3	69-	8248	83	687	80451	89733	6000
10	61-	6629	75	502	47239	52789	4500
30	53-	5123	67	348	25622	28288	3200
100	43-	3490	57	209	10611	11589	2100
300	32-	2116	46	116	3372	3908	1200
1000	16-	976	29	52	743	813	500
3000							
10000							
30000							
MAXIMUM DOSE							
2243							
EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	76-	8796	92	1511	183477	210606	6000
3	69-	7344	85	1137	116177	132450	4500
10	61-	5708	77	770	62489	69737	3200
30	53-	4211	69	492	30278	32970	3200
100	43-	2667	58	283	10760	11178	1200
300	32-	1494	47	122	3053	2928	1200
1000	16-	614	29	43	437	431	500
3000							
10000							
30000							
MAXIMUM DOSE							
2179							

Calculated Fallout Contours

(Maximum Biological Dose)

.01 YIELD (MEGATONS)

20 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR .1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	72-	19277	83	464	128831	140990	11700
3	65-	16390	76	363	88371	93933	9600
10	57-	13110	68	266	52515	54956	7700
30	48-	10045	60	187	28643	29616	6000
100	37-	6696	49	112	12128	11843	4500
300	24-	3866	36	65	4112	3961	2100
1000	4-	1381	12	29	574	640	500
3000							
10000							
30000							
MAXIMUM DOSE							
1708							

EFFECTIVE FALLOUT SHEAR .2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	72-	17579	83	765	189309	212052	11700
3	65-	14660	76	581	120649	134382	9600
10	57-	11377	68	401	65624	71949	7700
30	48-	8364	60	258	32212	34039	6000
100	37-	5233	49	146	11567	12974	3200
300	24-	2838	36	72	3327	3238	1200
1000	4-	994	12	29	399	459	500
3000							
10000							
30000							
MAXIMUM DOSE							
1526							

EFFECTIVE FALLOUT SHEAR .4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	72-	15785	84	1261	279900	314019	9600
3	65-	12823	77	922	167468	186570	7700
10	57-	9531	69	608	81543	91498	6000
30	48-	6607	60	369	35057	38562	4500
100	37-	3782	49	185	10318	11096	2100
300	24-	1877	36	85	2395	2540	1200
1000	4-	610	12	21	198	207	500
3000							
10000							
30000							
MAXIMUM DOSE							
1147							

Calculated Fallout Contours (Maximum Biological Dose)

.01 YIELD (MEGATONS)

40 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	68-	34939	78	402	206799	221207	22100
3	60-	29043	71	309	132842	140639	19200
10	51-	22381	62	215	72839	75750	14000
30	42-	16222	53	143	36326	36438	9600
100	30-	9730	41	80	12721	12285	6000
300	14-	4682	25	43	3278	3143	2100
1000	4.9	537		4	3	62	500
3000							
10000							
30000							
MAXIMUM DOSE							
1011							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	68-	31516	78	643	289310	318859	22100
3	60-	25572	71	474	173013	190713	16500
10	51-	18953	62	310	86008	92473	11700
30	42-	13050	53	190	37342	39025	7700
100	30-	7299	41	97	11111	11123	4500
300	14-	3743	25	44	2459	2347	1200
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
972							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	68-	27865	78	1090	411478	460762	19200
3	60-	21873	71	737	228008	253842	14000
10	51-	15344	62	450	99203	108876	9600
30	42-	9803	53	254	35957	39316	6000
100	30-	4986	41	115	8745	9115	3200
300	14-	2110	25	49	1480	1613	1200
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
850							

Calculated Fallout Contours

(Maximum Biological Dose)

.01 YIELD (MFGATONS)

60 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	65-	49194	75	367	266309	283600	32000
3	57-	40236	68	275	165923	174091	25200
10	48-	30166	59	186	86871	88504	19200
30	38-	20973	49	119	40051	39408	11700
100	25-	11603	36	65	12531	11848	6000
300	6-	4743	16	32	2472	2393	1200
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
712							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	65-	44017	75	580	362606	401387	28500
3	57-	35028	69	415	210566	229572	22100
10	48-	25112	59	262	97396	103578	16500
30	38-	16475	49	154	58742	39878	9600
100	25-	8530	36	74	10236	9969	4500
300	6-	3420	16	33	1819	1763	1200
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
698							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	65-	38501	75	930	505182	563613	25200
3	57-	29487	68	633	265272	293747	19200
10	48-	19839	59	368	105894	114845	11700
30	38-	12000	49	199	35064	37597	7700
100	25-	5644	36	86	7522	7622	3200
300	6-	2109	16	33	1036	1099	1200
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
649							

Calculated Fallout Contours

(Maximum Biological Dose)

.03 YIELD (MEGATONS)

0 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	1588-	1505	974	1004	49512	48792	500
3	1473-	1400	903	922	42347	41608	500
10	1335-	1284	819	823	34356	33855	500
30	1196-	1160	734	734	27381	27163	
100	1023-	939	627	627	19581	19330	
300	833-	738	511	511	12768	12607	
1000	555-	517	341	341	5276	5736	
3000							
10000							
30000							
MAXIMUM DOSE	2617						

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	1532-	1466	1622	1622	77341	76360	
3	1412-	1360	1495	1495	65482	65102	
10	1268-	1244	1343	1343	51980	52983	
30	1121-	1080	1187	1187	40697	41026	
100	933-	855	988	988	27732	27760	
300	720-	651	763	763	16340	16428	
1000	365-	256	387	387	3538	3777	
3000							
10000							
30000							
MAXIMUM DOSE	1516						

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	1462-	1409	2961	2961	133295	133548	
3	1337-	1303	2706	2706	110788	112197	
10	1184-	1173	2396	2396	87069	88708	
30	1024-	967	2074	2074	54156	64850	
100	814-	741	1649	1649	40072	40279	
300	558-	534	1130	1130	18250	19387	
1000							
3000							
10000							
30000							
MAXIMUM DOSE	793						

Calculated Fallout Contours (Maximum Biological Dose)

.03

YIELD (MEGATONS)

10

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	146-	14291	173	995	204711	225627	9600
3	134-	12384	161	803	145799	157918	7700
10	119-	10227	146	606	92646	98454	6000
30	104-	8198	131	443	55647	57771	4500
100	85-	5932	112	294	27228	27814	3200
300	65-	3910	91	194	11621	11507	2100
1000	76-	1930	61	95	3017	2926	500
3000	326	575		23	86	324	500
10000							
30000							
MAXIMUM DOSE	3211						

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	146-	13171	176	1624	706894	741043	9600
3	134-	11249	163	1292	206954	232316	7700
10	119-	9073	140	945	122772	136637	6000
30	104-	7050	132	661	67738	74320	4500
100	85-	4852	112	402	28975	31172	3200
300	65-	3005	92	221	10482	10677	2100
1000	36-	1406	61	105	2332	2369	500
3000							
10000							
30000							
MAXIMUM DOSE	2665						

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	145-	11990	184	2811	464388	535777	7700
3	133-	10031	171	2120	228047	338444	6000
10	118-	7835	155	1464	161284	182927	4500
30	103-	5824	139	961	81046	89470	3200
100	84-	3735	118	540	29930	32855	2100
300	64-	2099	96	286	8530	9716	1200
1000	34-	921	63	120	1621	1803	500
3000							
10000							
30000							
MAXIMUM DOSE	2478						

Calculated Fallout Contours

(Maximum Biological Dose)

.03 YIELD (MEGATONS)

20 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (FLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	138-	26210	160	970	333792	360022	16500
3	125-	22333	148	693	225757	242620	14000
10	110-	17931	132	504	136619	142923	11700
30	94-	13819	117	364	76010	77335	7700
100	73-	9314	97	219	32981	32334	6000
300	50-	5481	74	129	11730	11089	3200
1000	14-	2088	33	63	2030	2090	500
3000							
10000							
30000							
MAXIMUM DOSE							
2154							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	138-	23949	161	1422	483319	538000	16500
3	125-	20027	148	1092	310697	342618	14000
10	110-	15621	133	756	171768	186775	9600
30	94-	11575	117	502	85807	91929	7700
100	73-	7349	97	285	31969	33171	4500
300	50-	4077	74	149	9774	9680	2100
1000	14-	1549	33	65	1541	1591	500
3000							
10000							
30000							
MAXIMUM DOSE							
1995							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	138-	21542	163	2376	715994	809158	14000
3	125-	17566	150	1741	432899	486686	11700
10	109-	13154	135	1141	216416	237810	7700
30	93-	9216	118	715	95135	104377	6000
100	73-	5376	98	369	29404	31548	3200
300	50-	2748	74	169	7461	7442	1200
1000	13-	975	33	67	928	1036	500
3000							
10000							
30000							
MAXIMUM DOSE							
1592							

Calculated Fallout Contours

(Maximum Biological Dose)

.03 YIELD (MEGATONS)

40 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	130-	47580	150	752	529284	563347	32000
3	117-	39658	137	579	340764	361907	25200
10	100-	30714	121	409	192301	197545	19200
30	83-	22452	104	274	96725	96950	14000
100	60-	13707	82	159	35928	34370	7700
300	32-	6838	54	97	10024	9378	3200
1000	312	1367		30	442	798	500
3000							
10000							
30000							
MAXIMUM DOSE	1243						

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	130-	43001	150	1207	740296	817510	28500
3	117-	35028	137	889	450363	491035	22100
10	100-	26155	121	590	226628	243306	16500
30	83-	18220	104	367	101265	105579	11700
100	60-	10417	82	192	31656	31581	6000
300	32-	5004	54	93	7P19	7393	2100
1000	326	1068		29	300	639	500
3000							
10000							
30000							
MAXIMUM DOSE	1212						

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	130-	38110	151	1971	105727P	1183682	25200
3	117-	30078	138	1391	- 594610	659784	19200
10	100-	21318	121	963	265129	290218	14000
30	83-	13841	105	490	100923	107231	9600
100	60-	7223	82	234	25291	26809	4500
300	32-	3224	54	101	5109	5179	2100
1000	390	682		23	97	394	500
3000							
10000							
30000							
MAXIMUM DOSE	1108						

Calculated Fallout Contours

(Maximum Biological Dose)

.03 YIELD (MEGATONS)

60 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	125-	67038	145	697	684074	724492	43700
3	111-	55014	131	519	431228	449027	35700
10	94-	41511	114	366	228903	232417	25200
30	76-	29171	97	231	107890	106180	16500
100	51-	16400	72	129	35542	33393	7700
300	19-	7154	39	68	8081	7644	2100
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
	867						

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	125-	60129	145	1095	935669	1027336	39600
3	111-	48031	131	783	542100	592599	32000
10	94-	34791	114	501	259147	274682	22100
30	76-	23170	97	309	106522	109445	14000
100	51-	12301	72	148	29723	28749	7700
300	19-	5274	39	70	6215	5936	2100
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
	857						

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	125-	52752	145	1745	1294188	1449680	35700
3	111-	40670	131	1196	695546	766009	25200
10	94-	27711	115	709	287168	309805	16500
30	76-	17088	97	398	99378	104726	9600
100	51-	8305	73	175	22821	22998	4500
300	19-	3372	39	72	4026	3847	1200
1000							
3000							
10000							
30000							
MAXIMUM DOSE							
	818						

Calculated Fallout Contours

(Maximum Biological Dose)

.1 YIELD (MEGATONS)

0 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	2681-	2582	1689	1756	147398	145190	500
3	2491-	2398	1569	1626	126430	124853	500
10	2264-	2197	1426	1459	103060	102971	500
30	2035-	1963	1252	1311	82949	82307	500
100	1749-	1644	1102	1111	60510	59216	500
300	1441-	1352	907	907	40424	39809	
1000	998-	885	629	629	18627	18591	
3000	102-	17	64	64	118	121	
10000-							
30000							
MAXIMUM DOSE	3035						

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	2592-	2518	2768	2771	226192	222451	500
3	2394-	2333	2557	2557	192300	189842	
10	2157-	2131	2303	2303	153405	155122	
30	1915-	1854	2045	2045	121924	121055	
100	1608-	1530	1716	1718	89389	84682	
300	1266-	1235	1352	1352	51606	53087	
1000	723-	645	772	772	16424	16986	
3000							
10000							
30000							
MAXIMUM DOSE	1790						

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	2478-	2422	5027	5027	387652	386896	
3	2271-	2236	4606	4606	324044	326078	
10	2019-	1992	4095	4095	256714	258062	
30	1758-	1695	3566	3566	193356	193445	
100	1418-	1369	2877	2877	125163	125955	
300	1013-	951	2055	2055	62690	63402	
1000							
3000							
10000							
30000							
MAXIMUM DOSE	942						

8-24-59-2

125

TABLE II - 19
WSEG RESEARCH MEMORANDUM NO. 10

Calculated Fallout Contours (Maximum Biological Dose)

.1 YIELD (MEGATONS)

10 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	271-	19335	328	1802	506274	554960	11700
3	249-	16842	306	1468	365401	394225	11700
10	223-	14029	279	1130	233659	253005	9600
30	197-	11379	251	847	148049	153996	7700
100	165-	8423	218	574	76589	77380	4500
300	130-	5749	181	373	34745	34425	3200
1000	82-	3055	131	206	10465	10140	1200
3000	17-	1133	52	104	1668	1877	500
10000							
30000							
MAXIMUM DOSE	4850						

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	271-	17874	335	3019	763879	860401	11700
3	249-	15358	312	2389	525127	585675	9600
10	223-	12524	284	1766	319915	353564	7700
30	197-	9887	258	1263	181694	199979	6000
100	164-	7008	222	799	84312	90054	4500
300	129-	4513	185	456	31534	33277	3200
1000	81-	2259	133	234	8421	8598	1200
3000	16-	847	50	100	1228	1360	500
10000							
30000							
MAXIMUM DOSE	4197						

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	269-	16334	361	5112	1174541	1333310	11700
3	247-	13780	335	3968	769830	874304	9600
10	221-	10916	305	2804	438052	490606	7700
30	195-	8287	275	1880	227938	250529	6000
100	162-	5509	237	1117	90705	99466	3200
300	126-	3265	196	606	28840	32272	2100
1000	77-	1503	139	256	6387	6345	500
3000	9-	449	41	41	251	296	
10000							
30000							
MAXIMUM DOSE	3332						

Calculated Fallout Contours

(Maximum Biological Dose)

.1 YIELD (MEGATONS)

20 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	257-	35569	301	1590	833746	894579	22100
3	234-	30489	278	1272	578227	614083	19200
10	207-	24764	251	947	356460	371324	16500
30	179-	19406	223	686	204530	211040	11700
100	144-	13508	188	441	95538	94513	7700
300	105-	8375	149	267	37227	35567	4500
1000	48-	3548	89	141	8409	8159	1200
3000	437	644		31	91	535	500
10000							
30000							
MAXIMUM DOSE							
3191							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	256-	32627	302	2609	1206136	1347114	22100
3	234-	27510	280	2009	797232	875605	19200
10	207-	21772	252	1438	455128	496314	14000
30	179-	16488	224	972	239136	254377	9600
100	144-	10889	189	572	95596	99172	6000
300	105-	6370	150	315	32376	32066	3200
1000	48-	2710	89	148	6625	6426	1200
3000	493	512		11	3	170	500
10000							
30000							
MAXIMUM DOSE							
3019							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	256-	29486	309	4380	1809978	2046358	19200
3	233-	24311	286	3278	1127361	1263832	16500
10	206-	18558	257	2219	589150	654115	11700
30	178-	13381	229	1407	276235	299600	7700
100	143-	8173	193	760	93221	99249	4500
300	104-	4392	153	377	26206	26660	2100
1000	47-	1760	90	154	4523	4362	500
3000							
10000							
30000							
MAXIMUM DOSE							
2534							

Calculated Fallout Contours (Maximum Biological Dose)

.1

YIELD (MEGATONS)

40

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	242-	64790	280	1382	1331521	1412079	43700
3	219-	54461	257	1079	886841	927183	35700
10	190-	42829	229	775	511891	523816	25200
30	160-	32050	200	537	268977	271756	19200
100	121-	20494	162	324	109297	104867	11700
300	76-	11056	117	186	34859	32482	4500
1000	1	3358		89	4532	4708	500
3000							
10000							
30000							
MAXIMUM DOSE							
1821							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	242-	58860	281	2225	1872693	2065701	39600
3	219-	48480	257	1671	1166598	1278090	32000
10	190-	36919	229	1131	616954	659181	25200
30	160-	26492	200	732	292717	306240	16500
100	121-	15945	162	400	100887	100921	9600
300	76-	8240	117	207	28335	26978	4500
1000	2	2617		89	3649	3682	500
3000							
10000							
30000							
MAXIMUM DOSE							
1790							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	242-	52508	282	3661	2679632	3033897	35700
3	219-	42047	259	2619	1580701	1752207	28500
10	190-	30590	230	1690	746562	816971	19200
30	160-	20641	201	1006	307586	328614	14000
100	121-	11385	163	497	87545	89779	7700
300	76-	5906	118	237	21078	20757	3200
1000	8	1709		90	2359	2427	500
3000							
10000							
30000							
MAXIMUM DOSE							
1679							

Calculated Fallout Contours

(Maximum Biological Dose)

.1 YIELD (MEGATONS)

50 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	234-	91538	270	1268	1730693	1827759	57200
3	209-	75884	246	974	1118984	1163697	48000
10	179-	58308	217	684	617604	628104	35700
30	148-	42170	187	458	309556	304669	25200
100	106-	25255	146	266	111182	105868	14000
300	56-	12192	95	149	30558	28624	4500
1000	314	2209		54	1431	2144	500
3000							
10000							
30000							
MAXIMUM DOSE	1265						

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	234-	82604	270	2010	2388305	2614960	32500
3	209-	66918	246	1480	1440510	1560564	43700
10	179-	49575	217	975	717906	762304	32000
30	148-	34205	187	604	317254	325974	22100
100	106-	19268	146	316	97244	96129	11700
300	56-	9100	95	159	24494	22800	4500
1000	318	1817		54	1158	1798	500
3000							
10000							
30000							
MAXIMUM DOSE	1255						

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	234-	73013	271	3269	3364784	3761710	48000
3	209-	57275	247	2292	1865012	2069491	35700
10	179-	40255	218	1415	825464	898955	25200
30	148-	25925	187	812	312413	332526	16500
100	106-	13405	146	389	80544	81752	7700
300	56-	5988	95	174	17265	16562	3200
1000	336	1229		51	584	1261	500
3000							
10000							
30000							
MAXIMUM DOSE	1215						

Calculated Fallout Contours

(Maximum Biological Dose)

.3

YIELD (MEGATONS)

0

WIND (KNOTS)

ALL DISTANCES AND AREAS SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	3937-	3815	2569	2706	333161	329456	1200
3	3669-	3554	2394	2499	287464	283500	1200
10	3351-	3268	2187	2259	235998	234818	500
30	3031-	2921	1978	2036	193183	190414	500
100	2637-	2509	1721	1761	144587	142349	500
300	2217-	2133	1447	1465	99403	100105	500
1000	1638-	1503	1069	1069	53629	52759	
3000	803-	665	524	524	11966	12094	
10000							
30000							
MAXIMUM DOSE	4248						
EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	3816-	3732	4124	4157	500378	492936	500
3	3539-	3470	3824	3849	428636	423757	500
10	3208-	3173	3466	3480	351944	348854	500
30	2873-	2793	3104	3106	280390	276400	500
100	2454-	2376	2651	2651	203176	201117	
300	1995-	1933	2156	2156	133281	133057	
1000	1322-	1268	1429	1429	57069	58138	
3000							
10000							
30000							
MAXIMUM DOSE	2565						
EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	3659-	3601	7440	7440	651952	848488	
3	3369-	3336	6851	6851	718822	721627	
10	3020-	2978	6140	6140	578860	578464	
30	2661-	2595	5411	5411	447793	446671	
100	2202-	2175	4477	4477	303393	307732	
300	1676-	1606	3408	3408	175511	175662	
1000	758-	684	1542	1542	34633	34937	
3000							
10000							
30000							
MAXIMUM DOSE	1363						

Calculated Fallout Contours

(Maximum Biological Dose)

.3 YIELD (MEGATONS)

10 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	443-	24714	547	2911	1060700	1150449	16500
3	409-	21678	511	2406	775475	834630	14000
10	369-	16251	468	1883	518782	550747	11700
30	329-	15041	426	1444	333473	348543	9600
100	280-	11453	374	1003	182927	184767	7700
300	228-	8171	319	681	90343	89903	4500
1000	159-	4751	245	397	31632	30628	2100
3000	74-	2117	148	226	7231	7770	500
10000							
30000							
MAXIMUM DOSE	7787						

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	442-	22951	562	4817	1582979	1770135	14000
3	408-	19889	525	3885	1111737	1238746	14000
10	368-	16450	481	2922	702866	771873	11700
30	328-	13244	437	2147	422996	457792	7700
100	279-	9719	383	1429	205845	224432	6000
300	227-	6619	327	873	91698	93927	4500
1000	157-	3623	250	465	27742	27607	2100
3000	71-	1585	149	238	6046	6195	500
10000							
30000							
MAXIMUM DOSE	6901						

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	439-	21070	621	8351	2471112	2821365	14000
3	405-	17968	579	6558	1665462	1892701	11700
10	364-	14497	530	4779	982874	1115537	9600
30	324-	11296	481	3342	546418	610023	7700
100	274-	7850	420	2047	234998	261237	4500
300	221-	4980	356	1181	89635	96458	3200
1000	150-	2481	269	561	22405	23199	1200
3000	61-	998	150	257	3885	4279	500
10000							
30000							
MAXIMUM DOSE	5061						

Calculated Fallout Contours

(Maximum Biological Dose)

.3 YIELD (MEGATONS)

20 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	419-	45645	495	257.3	1739310	1861543	28500
3	384-	39481	460	208.8	1232679	1307485	25200
10	343-	32524	418	139.5	783896	818323	19200
30	301-	26026	376	118.1	476253	488241	16500
100	249-	18834	323	78.9	238533	236581	11700
300	193-	12433	266	50.1	103638	99274	6000
1000	114-	6178	185	27.7	28771	27419	2100
3000	3-	1974	25	14.4	3916	4484	500
10000							
30000							
MAXIMUM DOSE							
5126							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	419-	42096	499	422.6	2539807	2821976	28500
3	384-	35887	464	331.1	1704021	1886516	22100
10	343-	28922	421	243.0	1019722	1117021	19200
30	301-	22496	379	171.2	568778	612979	14000
100	249-	15576	326	106.2	253414	263972	9600
300	192-	9749	268	61.5	94908	96102	6000
1000	114-	4644	186	30.5	23435	22764	2100
3000	2-	1554	20	14.5	3019	3532	500
10000							
30000							
MAXIMUM DOSE							
4902							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	418-	38290	514	715.8	3855732	4352264	25200
3	383-	32013	478	545.5	2438238	2776006	22100
10	341-	25022	434	382.5	1368373	1523955	16500
30	299-	18677	390	255.0	691818	760054	11700
100	247-	12097	335	146.0	261619	283184	7700
300	191-	7018	275	77.5	84743	87724	4500
1000	111-	3090	189	33.8	17472	16990	1200
3000	27	996		14.0	1966	2254	500
10000							
30000							
MAXIMUM DOSE							
4234							

Calculated Fallout Contours

(Maximum Biological Dose)

3 YIELD (MEGATONS)

40 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPE)	RANGE TO MAXIMUM WIDTH
1	397-	83596	460	2257	2809926	2977448	52500
3	361-	71042	424	1789	1919377	2006692	43700
10	317-	56937	381	1323	1158441	1189923	35700
30	273-	43841	337	943	648376	653655	25200
100	216-	29602	282	599	289423	280351	16500
300	153-	17491	219	359	106529	99519	7700
1000	56-	6833	115	191	21346	20665	1200
3000							
10000							
30000							
MAXIMUM DOSE							
2928							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPE)	RANGE TO MAXIMUM WIDTH
1	397-	76435	461	3632	3988827	4383946	52500
3	361-	63837	425	2782	2576572	2805172	43700
10	317-	49805	382	1958	1435041	1541825	32000
30	273-	37035	338	1309	732163	767366	22100
100	216-	23744	282	760	283076	285945	14000
300	153-	13371	219	413	91613	87798	7700
1000	56-	5269	115	196	17285	15365	2100
3000							
10000							
30000							
MAXIMUM DOSE							
2928							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPE)	RANGE TO MAXIMUM WIDTH
1	397-	68736	465	6041	5866698	6559904	43700
3	361-	56050	429	4472	3571071	3962890	35700
10	317-	42084	385	2974	1808204	1980748	28500
30	272-	29719	341	1873	816206	882143	19200
100	215-	17629	284	984	265097	275902	11700
300	152-	9220	220	488	72824	71791	6000
1000	55-	3512	115	206	12035	11524	1200
3000							
10000							
30000							
100000							
2744							

Calculated Fallout Contours

(Maximum Biological Dose)

.3

YIELD (MEGATONS)

60

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	384-	118517	443	2078	3684641	3881775	78000
3	347-	99520	406	1626	2455025	2550768	62100
10	302-	78209	362	1176	1419309	1450527	45000
30	255-	58545	317	818	762844	755590	35700
100	195-	37511	258	500	311241	295972	19200
300	125-	20317	189	292	101230	93737	7700
1000	10-	6320	44	148	14329	14667	500
3000							
10000							
30000							
MAXIMUM DOSE							
2034							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	384-	107752	443	3312	5135321	5625672	72000
3	347-	88726	407	2493	3219399	3488761	57200
10	302-	67636	363	1704	1702537	1818576	43700
30	255-	48682	317	1103	818075	847841	32000
100	195-	29529	258	612	288849	288880	16800
300	125-	15423	189	324	84252	79060	7700
1000	10-	5065	44	148	11842	11781	500
3000							
10000							
30000							
MAXIMUM DOSE							
2020							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	384-	96143	445	5442	7381538	8251008	62100
3	347-	77040	408	3932	4333615	4779108	52500
10	302-	56204	364	2537	2086940	225412	35700
30	255-	38162	318	1529	866573	922890	25200
100	195-	21327	259	769	254798	260016	14000
300	125-	10475	190	373	63922	62065	6000
1000	9-	3433	43	149	8075	8062	1200
3000							
10000							
30000							
MAXIMUM DOSE							
1970							

Calculated Fallout Contours (Maximum Biological Dose)

1 YIELD (MEGATONS) 0 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	5498-	5283	3838	4070	699063	689273	1000
3	5146-	4936	3592	3799	608683	601563	1000
10	4732-	4555	3303	3476	509288	507104	1000
30	4319-	4207	3015	3154	408321	422379	1000
100	3815-	3608	2663	2757	324034	321522	1000
300	3289-	3058	2296	2337	237673	233045	1000
1000	2593-	2454	1810	1810	141676	143531	
3000	1728-	1472	1207	1207	60951	60663	
10000							
30000							
MAXIMUM DOSE		7220					
EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	5353-	5190	5925	6007	1011132	994798	1000
3	4992-	4840	5525	5584	876047	862476	1000
10	4563-	4457	5051	5081	726308	719976	1000
30	4133-	4052	4575	4575	595621	588258	
100	3604-	3441	3989	3989	448244	441432	
300	3042-	2882	3367	3367	316764	313302	
1000	2271-	2153	2513	2513	173101	174667	
3000	1191-	1087	1319	1319	44926	47200	
10000							
30000							
MAXIMUM DOSE		4553					
EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	5154-	5027	10534	10534	1696563	1684682	
3	4778-	4675	9765	9765	1454366	1450078	
10	4329-	4290	8846	8846	1178858	1197575	
30	3873-	3781	7915	7915	950773	951542	
100	3302-	3163	6748	6748	686877	685330	
300	2677-	2600	5471	5471	447576	453466	
1000	1752-	1593	3581	3581	187082	188191	
3000							
10000							
30000							
MAXIMUM DOSE		2466					

Calculated Fallout Contours

(Maximum Biological Dose)

1

YIELD (MEGATONS)

10

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	726-	31394	923	4589	2141337	2315317	19200
3	674-	27783	866	3825	1598502	1709883	19200
10	613-	23706	799	3084	1093136	1178223	15400
30	553-	19893	732	2433	739569	781358	12000
100	479-	15633	652	1781	430356	450785	9000
300	403-	11706	568	1260	237341	239706	6400
1000	304-	7497	459	786	98839	96346	4200
3000	190-	3988	330	468	31020	30669	1000
10000	523	1068		75	626	1865	1000
30000							
MAXIMUM DOSE							
10319							
EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	724-	29327	957	7641	3185246	3606855	19200
3	672-	25677	898	6202	2307962	2566918	15400
10	611-	21594	828	4793	1520495	1671908	15400
30	551-	17798	759	3673	963480	1058691	12000
100	477-	13601	674	2545	521187	562758	9000
300	400-	9825	587	1679	255036	269632	6400
1000	301-	5970	473	918	91915	90476	2400
3000	185-	3068	337	514	26183	26244	1000
10000							
30000							
MAXIMUM DOSE							
9295							
EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	718-	27101	1083	13131	5019754	5737880	19200
3	666-	23422	1014	10601	3383220	4011010	15400
10	604-	19300	934	7941	2125528	2482839	12000
30	543-	15493	854	5747	1255048	1447761	9000
100	468-	11354	757	3758	630593	697963	6400
300	390-	7761	656	2319	274006	296942	4200
1000	289-	4300	523	1218	77524	87784	2400
3000	168-	2047	361	603	18984	20975	1000
10000							
30000							
MAXIMUM DOSE							
8162							

Calculated Fallout Contours

(Maximum Biological Dose)

1

YIELD (MEGATONS)

20

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	687-	58293	824	4098	3543567	2796379	38400
3	635-	50947	770	3382	2571039	2740475	33000
10	572-	42684	705	2642	1723649	1725222	28000
30	510-	34981	641	2016	1102153	1123941	23400
100	433-	26420	562	1471	602110	603731	15400
300	353-	18649	479	958	295200	286011	9000
1000	245-	10647	366	569	102689	97215	4200
3000	110-	4595	219	332	23743	24558	1000
10000							
30000							
MAXIMUM DOSE	772						

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	687-	54127	832	6660	5191645	5734604	33000
3	634-	46744	778	5342	3628406	3980648	33000
10	572-	38497	713	4045	2339628	2482541	23400
30	509-	30862	648	2972	1462267	1467769	19200
100	433-	22534	568	1944	671540	701204	15400
300	352-	15249	483	1221	292433	299773	9000
1000	243-	8313	369	651	89497	87429	4200
3000	108-	3603	219	343	19719	19996	1000
10000							
30000							
MAXIMUM DOSE	7261						

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	685-	49631	857	11455	7981488	9053504	33000
3	632-	42176	810	8973	5349047	6033931	28000
10	570-	33890	741	6490	3130876	3513046	23400
30	507-	26314	673	4517	1734122	1902824	15400
100	430-	19245	589	2802	754744	821869	12000
300	348-	11562	500	1604	283095	300130	6400
1000	239-	5820	380	752	72395	71540	2400
3000	102-	2370	219	369	12965	14342	1000
10000							
30000							
MAXIMUM DOSE	5893						

Calculated Fallout Contours (Maximum Biological Dose)

1

YIELD (MEGATONS)

40

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN)
SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	654-	107409	761	3624	5825948	6152057	71400
3	600-	92492	706	2940	4119647	4299648	57000
10	534-	75784	641	2237	2617309	2680557	44200
30	469-	60219	576	1664	1578551	1585822	38400
100	386-	43118	494	1120	783393	765370	23400
300	297-	28001	405	716	328470	318464	15400
1000	172-	13479	277	405	91858	86889	4200
3000	75	3967		211	11952	13374	1000
10000							
30000							
MAXIMUM DOSE	4917						

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	654-	99045	763	5843	8303244	9151058	64000
3	599-	84103	708	4594	5396259	6099494	57000
10	534-	57460	643	3349	3320426	3576634	44200
30	468-	52208	577	2359	1842057	1951806	33000
100	386-	35917	495	1450	815280	831988	23400
300	297-	22343	406	856	310430	304249	12000
1000	172-	10518	278	433	77074	72632	4200
3000	75	3372		210	10081	11294	1000
10000							
30000							
MAXIMUM DOSE	4803						

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	653-	89956	771	9797	12439268	13943580	57000
3	599-	74920	715	7483	7959347	8877142	50400
10	534-	58306	650	5221	4353367	4825918	38400
30	468-	43348	584	3479	2196576	2394233	28000
100	385-	27978	500	1972	833816	878567	19200
300	296-	16231	410	1067	269658	277014	9000
1000	170-	7231	279	483	58007	56161	4200
3000	75	2311		207	6469	7939	1000
10000							
30000							
MAXIMUM DOSE	4416						

TABLE II-32
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Calculated Fallout Contours

(Maximum Biological Dose)

1 YIELD (MEGATONS)

60 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	635-	152951	731	3167	7737824	8122450	96000
3	579-	130392	676	2693	5349905	5540950	79200
10	511-	105129	610	2021	3266702	3353555	64000
30	443-	81725	543	1470	1904717	1896865	50400
100	356-	56229	458	957	884334	850985	33000
300	261-	34261	364	595	344429	322853	15400
1000	120-	14311	217	330	77848	74850	4200
3000	723	2432		116	2403	5744	1000
10000							
30000							
MAXIMUM DOSE	3535						

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	635-	140382	732	5352	10843587	11855925	96000
3	579-	117828	677	4146	7111738	7711535	79200
10	511-	92787	611	2955	4065191	4330655	57000
30	443-	70011	544	2030	2150278	2246400	44200
100	356-	46119	459	1214	878914	886205	28000
300	261-	26980	364	685	305834	293029	15400
1000	120-	11335	217	341	65036	61365	4200
3000	738	2148		113	2190	5124	1000
10000							
30000							
MAXIMUM DOSE	3494						

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	634-	126689	736	8899	15945441	17798928	87400
3	578-	104042	681	6639	9891474	10943026	71400
10	511-	79158	614	4529	5169869	5668058	50400
30	442-	57057	546	2909	2409339	2627621	38400
100	356-	35099	461	1591	851998	885906	23400
300	260-	19140	366	824	251963	251037	12000
1000	119-	7843	218	364	48157	45496	4200
3000	800	1567		100	1036	3710	1000
10000							
30000							
MAXIMUM DOSE	3345						

Calculated Fallout Contours

(Maximum Biological Dose)

3

YIELD (MEGATONS)

0

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	7054-	6813	5403	5944	1282441	1297570	2400
3	5632-	6472	5079	5531	1112203	1138504	2400
10	6135-	5916	4699	5040	956275	954283	2400
30	5644-	5384	4323	4563	802008	790455	1000
100	5052-	4719	3869	4060	635027	628330	1000
300	4443-	4266	3403	3540	477164	484301	1000
1000	3661-	3383	2804	2864	321720	316868	1000
3000	2760-	2542	2114	2114	176524	176093	
10000	1133-	914	867	867	25979	27889	
30000							
MAXIMUM DOSE							
12759							
EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	6901-	6764	7924	8107	1762578	1740296	1000
3	6469-	6388	7427	7586	1548955	1531997	1000
10	5959-	5798	6842	6970	1305523	1287137	1000
30	5452-	5259	6260	6355	1086828	1069377	1000
100	4836-	4669	5553	5606	848713	837024	1000
300	4196-	4090	4818	4821	634975	627497	1000
1000	3357-	3152	3858	3858	399890	394140	
3000	2343-	2204	2690	2690	190075	192118	
10000							
30000							
MAXIMUM DOSE							
8511							
EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	6675-	6609	13752	13752	2873992	2869534	
3	6226-	6161	12829	12829	2512801	2496137	
10	5695-	5566	11733	11733	2093408	2075439	
30	5162-	5023	10636	10636	1715150	1701686	
100	4507-	4428	9286	9286	1297500	1303300	
300	3812-	3697	7854	7854	926561	926281	
1000	2862-	2744	5897	5897	517253	519410	
3000	1553-	1391	3199	3199	146837	147922	
10000							
30000							
MAXIMUM DOSE							
4743							

Calculated Fallout Contours

(Maximum Biological Dose)

3 YIELD (MEGATONS)

10 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	1116-	38318	1473	6715	3867765	4159602	23400
3	1042-	34136	1387	5670	2951107	3133216	23400
10	954-	29462	1286	4662	2110459	2227540	19200
30	867-	25106	1186	3777	1475887	1540931	15400
100	763-	20238	1067	2870	919781	946812	12000
300	656-	15734	944	2125	536355	547039	9000
1000	520-	10816	789	1407	257698	250499	6400
3000	368-	6511	613	901	97533	97385	2400
10000	137-	2514	325	484	17986	20143	1000
30000							
MAXIMUM DOSE							
18443							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	1114-	35978	1537	11047	5725183	6436569	23400
3	1039-	31799	1445	9132	4240047	4710293	19200
10	931-	27126	1341	7213	2898007	3181366	19200
30	864-	22789	1236	5678	1924516	2109476	15400
100	759-	17981	1110	4105	1123193	1208797	12000
300	651-	13610	982	2859	609859	640584	9000
1000	514-	8970	818	1733	254811	258124	4200
3000	361-	5215	632	1028	90747	90053	2400
10000	126-	1986	324	489	15181	16220	1000
30000							
MAXIMUM DOSE							
16156							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	1104-	33446	1766	19085	8961944	10357686	23400
3	1028-	29221	1661	15660	6479423	7440844	19200
10	939-	24519	1537	12069	4232573	4826209	15400
30	851-	20175	1415	9070	2659548	2995454	12000
100	745-	15404	1267	6257	1363242	1587354	9000
300	636-	11169	1116	4125	699274	764831	6400
1000	496-	6877	922	2339	251235	270870	4200
3000	337-	3684	699	1198	75327	75693	2400
10000	87-	1259	304	381	8578	8055	1000
30000							
MAXIMUM DOSE							
13247							

Calculated Fallout Contours

(Maximum Biological Dose)

3

YIELD (MEGATONS)

20

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	1058-	71433	1294	6035	6401475	6871528	44200
3	983-	62987	1214	5062	4847507	5086132	38400
10	894-	53531	1120	4062	3347193	3472605	33000
30	806-	44737	1026	3208	2229129	2294679	28000
100	698-	34934	913	2356	1317301	1318472	19200
300	587-	25957	795	1676	715696	698817	15400
1000	443-	16376	643	1057	293723	279271	9000
3000	275-	8519	461	648	93190	89522	2400
10000	115	2124		290	8637	10519	1000
30000							
MAXIMUM DOSE							
	13928						

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	1057-	66761	1311	0782	9394742	10420226	44200
3	952-	58313	1230	8007	6751109	7457702	38400
10	893-	48885	1134	6190	4451318	4839870	33000
30	805-	40166	1039	4670	2812098	3005414	23400
100	697-	30589	924	3270	1524254	1606862	19200
300	586-	22034	803	2156	752412	766002	12000
1000	441-	13358	649	1240	275405	268780	6400
3000	273-	6790	464	691	79000	76716	2400
10000	169	1855		240	6842	8910	1000
30000							
MAXIMUM DOSE							
	13203						

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	1054-	61643	1375	16696	14587199	16432804	38400
3	978-	53132	1290	13363	10115730	11358358	33000
10	889-	43678	1189	10069	6291606	7048564	28000
30	800-	34996	1089	7344	3722561	4129769	23400
100	692-	25616	967	4802	1821510	1984306	15400
300	580-	17522	840	2943	793836	836728	12000
1000	434-	9867	675	1543	245179	249713	6400
3000	263-	4738	477	787	61688	61855	2400
10000	499	1255		207	2332	5704	1000
30000							
MAXIMUM DOSE							
	11141						

Calculated Fallout Contours (Maximum Biological Dose)

3 YIELD (MEGATONS) 40 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN)
SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	1011-	132310	1185	5385	10789519	11276906	87400
3	933-	115228	1106	4459	7P15266	8136651	71400
10	841-	96110	1013	3496	5166834	5324143	57000
30	748-	78342	919	2689	3330635	3340075	44200
100	634-	58683	805	1909	1808166	1778765	33000
300	514-	40956	684	1294	884667	843142	23400
1000	353-	22801	519	779	302733	283302	9000
3000	150-	9383	299	463	68666	69404	1000
10000							
30000							
MAXIMUM DOSE							
8890							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	1011-	122925	1189	8605	15288956	16760421	79200
3	933-	105909	1110	6903	10622750	11585831	71400
10	840-	86907	1016	5211	6687939	7182773	57000
30	748-	69434	922	3829	3994426	4220696	44200
100	634-	50475	807	2523	1947002	2025215	33000
300	514-	34038	686	1589	865881	862661	19200
1000	352-	18365	521	862	267710	253443	9000
3000	149-	7757	299	470	59887	58416	2100
10000							
30000							
MAXIMUM DOSE							
8734							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	1010-	112675	1205	14518	23179758	25925704	71400
3	932-	95517	1125	11384	15467878	17246877	64000
10	839-	76531	1030	8264	9088133	10043036	50400
30	747-	59285	935	5790	4993195	5460057	38400
100	633-	41067	818	3543	2187906	2121817	28000
300	512-	26093	694	2069	835465	864867	15400
1000	350-	13185	526	1007	219160	214136	6400
3000	146-	5501	303	494	45101	43817	2400
10000							
30000							
MAXIMUM DOSE							
8184							

Calculated Fallout Contours (Maximum Biological Dose)

3 YIELD (MEGATONS)

60 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	983-	189109	1137	5029	14440592	15016958	114400
3	904-	163290	1057	4117	10319323	10617191	105000
10	809-	134431	963	3186	6622929	6767299	79200
30	713-	107662	858	2414	4122591	4109280	54000
100	594-	78214	751	1467	2128115	2064012	44200
300	467-	52028	624	1100	961393	907181	28000
1000	291-	26224	447	645	286797	268484	9000
3000	52-	8738	161	370	48542	51131	1000
10000							
30000							
MAXIMUM DOSE							
	6425						

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	983-	175113	1138	7456	20172192	22007714	114400
3	904-	149356	1059	6310	13773122	14892228	96000
10	809-	120757	965	4670	8374060	8917585	79200
30	713-	94583	870	3350	4805248	5014761	57000
100	594-	65512	752	2146	2233474	2262124	38400
300	467-	42734	625	1305	910545	885268	23400
1000	291-	21158	447	688	248755	231360	9000
3000	51-	7508	160	371	42632	44104	1000
10000							
30000							
MAXIMUM DOSE							
	6359						

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	983-	159600	1146	13771	30094470	33626612	105000
3	903-	122761	1066	10272	19389857	21728459	87400
10	809-	105279	971	7273	10982056	12119844	71400
30	712-	79621	875	4968	5753165	6269441	50400
100	593-	53044	756	2950	2354410	2485509	33000
300	466-	32019	629	1644	826700	838787	19200
1000	289-	15022	449	772	196209	185610	9000
3000	49-	5497	158	375	32201	32705	1000
10000							
30000							
MAXIMUM DOSE							
	6160						

Calculated Fallout Contours (Maximum Biological Dose)

10 YIELD (MEGATONS)

0 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	8873-	8633	7822	8790	2385287	2417143	2400
3	8378-	8088	7386	8250	2110633	2133877	2400
10	7799-	7491	6876	7614	1813050	1828836	2400
30	7231-	6947	6375	6924	1542201	1555318	2400
100	6552-	6328	5776	6220	1252896	1258401	2400
300	5864-	5547	5170	5441	989658	975327	1000
1000	5303-	4692	4411	4600	707000	700493	1000
3000	4060-	3749	3580	3668	454126	449937	1000
10000	2676-	2414	2354	2354	180556	187966	
30000							
MAXIMUM DOSE							
25016							
EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	8728-	8551	10679	11194	3068882	3038204	2400
3	8224-	8004	10063	10485	2711097	2672853	2400
10	7634-	7404	9340	9650	2322411	2279462	2400
30	7053-	6856	8629	8863	1967007	1936421	1000
100	6354-	6192	7775	7961	1588632	1568990	1000
300	5643-	5404	6904	7037	1240526	1221041	1000
1000	4741-	4539	5801	5860	863680	854232	1000
3000	3734-	3490	4568	4568	526604	518306	
10000	2140-	1887	2619	2619	164406	165648	
30000							
MAXIMUM DOSE							
18025							
EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	8486-	8362	17752	17864	4788327	4727801	1000
3	7967-	7811	16666	16754	4209107	4152229	1000
10	7356-	7207	15388	15446	3577327	3533189	1000
30	6751-	6655	14121	14147	2992509	2978991	1000
100	6017-	5895	12588	12588	2379832	2355466	
300	5260-	5096	11004	11004	1808834	1790145	
1000	4279-	4221	8951	8951	1164401	1195264	
3000	3126-	2960	6539	6539	626131	625071	
10000	641-	371	1341	1341	20119	21316	
30000							
MAXIMUM DOSE							
10543							

Calculated Fallout Contours

(Maximum Biological Dose)

10

YIELD (MEGATONS)

10

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	1766-	46811	2457	9935	7140021	7581071	28000
3	1655-	42023	2321	8541	5589175	5859874	28000
10	1525-	36678	2163	7160	4119774	4291052	23400
30	1398-	31706	2037	5947	2989704	3592670	19200
100	1245-	25155	1822	4697	1970444	2017436	15400
300	1090-	21015	1634	3627	1253981	1259360	12000
1000	897-	15342	1401	2566	667687	654400	9000
3000	688-	10252	1146	1765	313569	303264	4200
10000	392-	5093	777	1060	91809	91332	1000
30000	354	1391		353	5420	9684	1000
MAXIMUM DOSE							
34409							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	1762-	44269	2573	15954	10147813	11535269	28000
3	1650-	39472	2430	13401	7821289	8656120	23400
10	1520-	34138	2264	10915	5557289	6113650	23400
30	1392-	29197	2100	8809	3871750	4232662	19200
100	1238-	23723	1905	6650	2396741	2607184	15400
300	1083-	18707	1707	4890	1441849	1520185	12000
1000	888-	13293	1460	3202	707662	713171	6400
3000	677-	8599	1190	2061	301476	300268	4200
10000	377-	4117	795	1126	79180	79468	1000
30000	788	1083		193	857	5679	1000
MAXIMUM DOSE							
31017							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	1746-	41383	2990	27654	16344647	18734334	28000
3	1634-	36569	2621	23007	12089871	13806032	23400
10	1502-	31215	2624	18193	8259617	9349700	19200
30	1373-	26274	2431	14131	5494556	6136590	15400
100	1217-	20834	2159	10249	3211434	3550122	12000
300	1059-	15913	1963	7193	1742279	1917685	9000
1000	860-	10757	1668	4485	766226	818401	6400
3000	643-	6495	1342	2559	272392	286900	4200
10000	329-	2865	853	1292	61733	64810	1000
30000							
MAXIMUM DOSE							
23450							

Calculated Fallout Contours

(Maximum Biological Dose)

10 YIELD (MEGATONS)

20 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	1675-	87655	2114	8987	11974368	12610726	57000
3	1565-	77981	1992	7672	9251278	9586411	50400
10	1435-	67181	1849	6303	6626206	6793905	38400
30	1306-	57161	1708	5143	4602808	4722990	33000
100	1152-	45989	1538	3943	2921985	2919446	28000
300	994-	35703	1366	2963	1739506	1708193	19200
1000	795-	24506	1147	2018	832321	802083	12000
3000	573-	14782	902	1313	333896	316753	6400
10000	242-	5808	515	763	70252	72689	1000
30000							
MAXIMUM DOSE	26348						
EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	1674-	82541	2145	14190	17127362	18771577	57000
3	1563-	72895	2021	11834	12688989	13841248	44200
10	1433-	62157	1876	9458	8742073	9447176	38400
30	1305-	52237	1732	7440	5837260	6257362	33000
100	1150-	41299	1560	5394	3447941	3596682	23400
300	992-	31391	1384	3845	1904770	1955702	19200
1000	792-	20938	1162	2417	831462	825084	12000
3000	570-	12368	912	1446	301504	292588	6400
10000	237-	4886	516	780	61153	62750	1000
30000							
MAXIMUM DOSE	25293						
EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	1668-	76774	2266	24430	26633019	30101890	50400
3	1557-	67080	2134	19985	19131685	21546197	44200
10	1426-	56339	1979	15443	2552353	14010193	38400
30	1297-	46447	1827	11693	7945228	8769221	28000
100	1142-	35569	1643	8175	4325733	4727273	23400
300	983-	26111	1456	5441	2165180	2315507	5400
1000	781-	16449	1218	3137	819820	849019	9000
3000	557-	9084	951	1709	254146	258868	4200
10000	216-	3482	517	825	46431	47946	1000
30000							
MAXIMUM DOSE	22071						

Calculated Fallout Contours

(Maximum Biological Dose)

10

YIELD (MEGATONS)

40

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	1607-	163211	1911	8117	20322024	21014361	105000
3	1493-	143682	1793	6855	15232569	15631631	87400
10	1359-	121876	1655	5534	10571039	10713109	71400
30	1226-	101644	1518	4409	7131929	7125064	57000
100	1064-	79203	1352	3291	4170792	4150009	44200
300	897-	58705	1180	2376	2310182	2224559	33000
1000	680-	36901	956	1538	966177	907809	15400
3000	430-	19071	693	962	310334	294368	6400
10000	3-	4994	51	503	33870	39495	1000
30000							
MAXIMUM DOSE							
17193							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	1606-	153041	1919	12655	28295998	30742518	96000
3	1493-	133584	1801	10411	20459541	22089918	87400
10	1359-	111954	1662	8113	13531174	14441215	71400
30	1226-	92063	1524	6204	8643081	9091009	57000
100	1064-	70284	1357	4362	4752878	4888741	44200
300	896-	50869	1184	2941	2382485	2391570	25000
1000	680-	31127	960	1745	911588	872071	15400
3000	428-	15994	694	1008	274955	259941	6400
10000	1-	4449	28	504	29566	35203	1000
30000							
MAXIMUM DOSE							
16958							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	1605-	141457	1951	21436	43089713	48171409	96000
3	1491-	121944	1831	17219	30000395	33384734	79200
10	1357-	100361	1689	12976	19786207	20733549	64000
30	1223-	80653	1549	9535	11206289	12263710	50400
100	1061-	59447	1378	6331	5604411	6017683	38400
300	894-	41164	1202	3970	2522171	2622766	23400
1000	676-	23696	973	2130	814184	815299	12000
3000	424-	11716	701	1113	223927	212302	6400
10000	31	3411		504	25246	27242	1000
30000							
MAXIMUM DOSE							
16131							

Calculated Fallout Contours (Maximum Biological Dose)

10 YIELD (MEGATONS)

60 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	1567-	234116	1826	7638	27428528	28275641	145000
3	1451-	204637	1709	6390	20205990	20684390	124200
10	1314-	171735	1571	5101	13766826	13865820	105000
30	1177-	141251	1433	4011	9050418	8974442	79200
100	1009-	107539	1264	2931	5134452	4996825	57000
300	834-	76989	1068	2071	2659088	2531606	38400
1000	603-	45147	855	1301	996702	934653	19200
3000	324-	20544	563	803	270626	263096	4200
10000	614	3299		311	11717	19112	1000
30000							
MAXIMUM DOSE							
12565							

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	1567-	218898	1830	11796	37668532	40250476	145000
3	1451-	189567	1712	9592	26925810	28730746	124200
10	1314-	157032	1574	7354	17241760	18291048	96000
30	1177-	127164	1435	5539	10702303	11167301	79200
100	1009-	94586	1267	3798	5619183	5709496	57000
300	834-	66139	1090	2495	2664564	2624601	38400
1000	602-	37900	856	1431	919105	865275	19200
3000	324-	17522	563	817	242170	229064	4200
10000	622	3074		308	10602	17907	1000
30000							
MAXIMUM DOSE							
12482							

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	1566-	201489	1844	19811	55733587	63187940	134400
3	1450-	172114	1726	15704	38655507	42815707	114400
10	1313-	139711	1586	11610	23487872	25719253	87400
30	1176-	110278	1446	8370	13525583	14653674	71400
100	1008-	78928	1276	5380	6368974	6755063	50400
300	832-	52544	1098	3269	2665834	2741125	33000
1000	601-	28445	862	1696	787726	773720	15400
3000	321-	12975	565	866	192990	180880	4200
10000	656	2492		298	7076	14711	1000
30000							
MAXIMUM DOSE							
12165							

Calculated Fallout Contours

(Maximum Biological Dose)

30

YIELD (MEGATONS)

0

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	10629-	10284	11045	12888	4101474	4233658	4200
3	10072-	9742	10466	12059	3551800	3753395	4200
10	9424-	9149	9792	11030	3142953	3232602	4200
30	8790-	8470	9134	10189	2732454	2762716	2400
100	8039-	7669	8353	9221	2258695	2275330	2400
300	7287-	6938	7571	8239	1929798	1840941	2400
1000	6361-	6024	6809	7008	1771434	1362967	2400
3000	5378-	4980	5888	5823	950105	947679	1000
10000	4035-	3637	4193	4258	520290	513211	1000
30000	2179-	1735	2264	2264	138279	139183	
MAXIMUM DOSE							
	47147						

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	10505-	10228	14018	15058	4944916	4904063	4200
3	9941-	9686	13265	14185	4399851	4373261	2400
10	9283-	9091	12388	13175	3776283	3802476	2400
30	8640-	8388	11529	12179	3293683	3257606	2400
100	7874-	7582	10507	10286	2704254	2667123	2400
300	7104-	6847	9480	9775	2177187	2142098	1000
1000	6151-	5885	8207	8420	1614437	1591840	1000
3000	5128-	4830	6843	6957	1104641	1088215	1000
10000	3595-	3376	4931	4931	556645	547698	
30000	1456-	1168	1947	1947	77562	80081	
MAXIMUM DOSE							
	36713						

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	10266-	10082	21980	22256	7256226	7113924	1000
3	9688-	9537	20743	20987	6435138	6338172	1000
10	9012-	8917	19295	19505	5567709	5492996	1000
30	8348-	8175	17873	18044	4754748	4683171	1000
100	7553-	7562	16171	16294	3873677	3817448	1000
300	6746-	6621	14443	14414	3060683	3047446	1000
1000	5733-	5544	12274	12274	2205773	2174301	
3000	4619-	4472	9889	9889	1414384	1412123	
10000	2948-	2767	6312	6312	565155	566576	
MAXIMUM DOSE							
	22839						

Calculated Fallout Contours

(Maximum Biological Dose)

30 YIELD (MEGATONS)

10 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	2365-	55467	3940	14085	12240916	12861449	33000
3	2505-	50093	3733	12292	9756246	10155541	28000
10	2320-	44101	3492	10448	7381576	7618746	28000
30	2138-	38539	3256	8872	5455666	5668634	23400
100	1923-	32342	2976	7200	3822710	3875062	19200
300	1706-	26604	2696	5766	2564112	2564166	15400
1000	1438-	20253	2350	4298	1490164	1464284	9000
3000	1154-	14470	1983	3141	792328	770830	6400
10000	770-	8352	1480	2028	298127	290589	2400
30000	275-	3460	774	1162	54452	68184	1000
MAXIMUM DOSE		57741					
EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	2658-	52768	4131	21816	17125792	18991149	33000
3	2498-	47399	3613	18621	13329864	14595077	28000
10	2312-	41441	3658	15453	9767168	10620323	28000
30	2130-	35934	3410	12756	7060095	7627078	23400
100	1913-	29833	3115	9961	4659264	4967436	19200
300	1695-	24229	2819	7640	2957085	3111125	15400
1000	1426-	18113	2454	5355	1623421	1643963	9000
3000	1140-	12665	2065	3687	797482	799483	6400
10000	751-	7126	1530	2200	277793	272229	2400
30000	246-	2892	764	1180	54224	58181	1000
MAXIMUM DOSE		53112					
EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	2635-	49611	4812	37545	26882990	30812370	33000
3	2474-	44234	4553	31666	19987693	23248016	28000
10	2286-	38264	4252	25612	14414294	16318327	23400
30	2102-	32762	3958	20452	10015988	11200602	19200
100	1883-	26698	3607	15425	6274345	6925110	15400
300	1662-	21184	3255	11361	3747287	4077032	12000
1000	1387-	15257	2818	7610	1851474	1989596	9000
3000	1094-	10184	2350	4769	823118	844845	6400
10000	690-	5330	1694	2620	245762	247752	2400
30000	147-	1897	671	1142	33313	38676	1000
MAXIMUM DOSE		41765					

Calculated Fallout Contours (Maximum Biological Dose)

30 YIELD (MEGATONS) 20 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	2526-	104150	3315	12840	20794702	21517560	64000
3	2369-	93310	3134	11134	16288318	16733466	57000
10	2186-	81259	2923	9328	12004244	12224112	50400
30	2006-	70049	2716	7780	8744258	8805344	38400
100	1791-	57604	2470	6192	5764954	5776642	33000
300	1573-	45116	2221	4828	3680118	3617017	23400
1000	1303-	33505	1912	3481	1260059	1903385	15400
3000	1011-	22253	1577	2418	927827	883696	9000
10000	604-	10990	1099	1498	278250	270928	2400
30000	29-	3215	205	745	32793	37995	1000
MAXIMUM DOSE							
	45256						

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	2524-	98783	3368	19633	28617725	31243698	64000
3	2367-	88006	3184	16646	21693155	23630090	57000
10	2183-	76027	2969	13537	15533259	16630276	50400
30	2003-	64983	2758	10913	10808313	11482431	38400
100	1788-	52787	2507	8328	6226871	7136598	33000
300	1570-	1669	2254	6172	4104320	4192275	23400
1000	1299-	29700	1939	4164	2041801	2027774	15400
3000	1006-	19342	1598	2700	880347	863137	9000
10000	597-	9473	1110	1541	251316	243687	2400
30000	17-	2843	159	739	27760	33198	1000
MAXIMUM DOSE							
	43801						

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	2515-	92465	3570	33278	44199789	49648753	64000
3	2358-	81659	3374	27682	32644534	36533566	50400
10	2174-	69695	3145	22074	22383693	24919703	44200
30	1993-	58702	2920	17311	14884649	16503766	38400
100	1776-	46663	2652	12375	8786170	9568102	28000
300	1557-	35842	2381	8898	4880468	5227209	23400
1000	1284-	24506	2043	5585	2166476	2262483	15400
3000	988-	15197	1676	3319	841442	843712	9000
10000	572-	7095	1147	1703	209879	205078	2400
30000	126	2030		693	19003	23467	1000
MAXIMUM DOSE							
	39129						

Calculated Fallout Contours

(Maximum Biological Dose)

30 YIELD (MEGATONS)

40 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	2432-	194744	2953	11691	35337201	36178995	114400
3	2272-	172872	2781	10029	27160303	27592312	105000
10	2084-	148527	2594	8299	19501552	19634874	87400
30	1899-	125977	2388	6805	13704933	13669581	71400
100	1576-	100952	2153	5277	8666013	8506617	57000
300	1449-	77985	1913	3995	5164490	4985032	38400
1000	1161-	53107	1610	2761	2480052	2353379	23400
3000	843-	31558	1271	1829	991279	933614	12000
10000	370-	12184	740	1098	208383	214211	2400
30000	971	1132		121	268	4010	1000
MAXIMUM DOSE 30433							
EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	2431-	184094	2967	17584	47754153	51520990	114400
3	2271-	162372	2796	14717	35639043	38114366	105000
10	2084-	138303	2595	11794	24568740	26008851	87400
30	1898-	116143	2399	9318	16508778	17276440	71400
100	1575-	91798	2163	6873	9849061	10092027	57000
300	1448-	69812	1921	4915	5512329	5501280	38400
1000	1160-	46646	1616	3157	2454214	2370470	23400
3000	841-	27489	1276	1952	924070	868765	12000
10000	367-	10874	741	1098	194737	193828	2400
30000	993	1029		60	30	1909	1000
MAXIMUM DOSE 30433							
EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	2429-	171441	3022	29605	72438513	80854191	114400
3	2269-	142717	2848	24244	52187366	57879811	96000
10	2080-	125721	2644	18825	34279361	37791038	79200
30	1895-	103768	2442	14353	21906221	23822184	64000
100	1571-	79225	2201	10097	11924920	12935995	50400
300	1443-	58864	1954	6791	6136516	6433464	38400
1000	1155-	37561	1642	4004	2416645	2435155	23400
3000	835-	21255	1294	2249	811440	780062	12000
10000	358-	8379	743	1137	159528	156064	2400
MAXIMUM DOSE 28883							

Calculated Fallout Contours (Maximum Biological Dose)

30

YIELD (MEGATONS)

60

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	2378-	290124	2807	11046	48126413	49017464	167400
3	2215-	247151	2639	9415	75470774	36880982	145000
10	2023-	210443	2442	7718	25759777	25759208	124200
30	1833-	176473	2247	6253	17717074	17514194	96000
100	1604-	139547	2012	4773	10118102	10529513	79200
300	1367-	104469	1771	3447	6162224	5897554	50400
1000	1065-	67682	1461	2382	2735780	2571992	28000
3000	722-	36980	1105	1532	966732	911117	12000
10000	179-	11518	470	874	153946	160458	2400
30000							
MAXIMUM DOSE		22586					

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	2378-	264235	2813	16488	64407648	69049060	167400
3	2215-	231539	2645	13680	47150711	50229098	145000
10	2023-	195212	2447	10824	31920591	33551116	124200
30	1833-	162032	2252	8420	20968601	21672941	105000
100	1603-	125609	2016	6021	11994023	12171217	79200
300	1367-	92985	1774	4262	6411408	6316072	57000
1000	1064-	59184	1464	2645	2639331	2513092	33000
3000	721-	32262	1107	1602	891318	830144	12000
10000	177-	10560	469	877	143396	147842	2400
30000							
MAXIMUM DOSE		22484					

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	2378-	245255	2838	27477	96169638	106879480	156000
3	2213-	212575	2668	22281	68241778	75172767	134400
10	2021-	176540	2469	17090	43831108	47935991	114400
30	1831-	143685	2271	12795	27095040	29247183	96000
100	1601-	108254	2033	8750	14240735	15099849	71400
300	1365-	77363	1789	5723	6867961	7077537	50400
1000	1062-	47005	1475	3258	2486605	2460020	28000
3000	718-	24852	1114	1783	757959	716018	12000
10000	171-	8454	465	887	119564	120199	2400
30000							
MAXIMUM DOSE		21995					

Calculated Fallout Contours (Maximum Biological Dose)

100 YIELD (MEGATONS)

0 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	12708-	12369	16331	19477	7333832	7656752	4200
3	12094-	11755	15329	18374	6608824	6865589	4200
10	11360-	10963	14598	17044	5796556	5973318	4200
30	10656-	10240	13695	15774	5044683	5177691	4200
100	9828-	9447	12630	14254	4229982	4315851	4200
300	22068-	8629	11573	12218	3518221	3552321	2400
1000	8779-	7560	10292	11214	2737474	2747346	2400
3000	6975-	6886	9263	9562	2023756	2036910	2400
10000	5629-	5147	7233	7509	1239184	1271085	1000
30000	4024-	3532	5172	5197	628810	6165578	1000
MAXIMUM DOSE	94453						

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	12914-	12336	12199	21383	9722667	8460197	4200
3	11985-	11710	18241	20348	7474799	7573495	4200
10	11254-	10915	17130	18297	5841573	6550759	4200
30	10544-	10191	16049	17468	5598466	5699245	4200
100	9706-	9346	14772	15898	4762754	4770165	2400
300	8872-	8586	11508	14411	3960052	3945074	2400
1000	7858-	7483	11941	12451	3065759	3031617	2400
3000	6802-	6503	10353	10689	2239398	2233742	1000
10000	57412-	5016	8279	9409	1399200	1377562	1000
30000	37116-	3300	5656	5456	632851	623389	
MAXIMUM DOSE	79916						

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	12399-	12233	27642	29635	11187859	11079042	2400
3	11758-	11573	26232	27085	10088217	9926676	2400
10	11012-	10774	21569	25291	8802076	8691629	2400
30	10205-	10045	22947	23513	7443174	7408623	2400
100	9424-	9245	21026	21408	6356217	6279158	2400
300	8563-	8344	19105	19394	5242091	5150600	1000
1000	7507-	7259	16749	16993	3996604	3932815	1000
3000	6393-	6213	14264	14772	2876514	2846058	1000
10000	4389-	4653	10908	10208	1652895	1635063	
30000	2902-	2670	6474	6474	562814	566646	
MAXIMUM DOSE	54520						

Calculated Fallout Contours

(Maximum Biological Dose)

100

YIELD (MEGATONS)

10

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	4161-	65892	6679	20672	21842P31	22747612	38400
3	3926-	52830	6344	19343	17780273	18369715	33000
10	3652-	57009	5957	15847	13808692	14144017	28000
30	3385-	46869	5578	13713	10644P87	10824P36	28000
100	3069-	39945	5132	11442	7660358	7731057	23400
300	2754-	33541	4689	9462	5372444	5394665	19200
1000	2370-	25430	1148	7427	3405404	3360728	12000
3000	1969-	19927	3585	5702	1391640	1961132	9200
10000	1443-	12979	2642	3959	912167	890721	4200
30000	817-	6812	1928	2574	303040	308452	2400
MAXIMUM DOSE							
	94965						

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	4151-	63156	6987	30241	29205518	31972P39	38400
3	3915-	57141	6636	26240	22959031	25166520	38400
10	3641-	50469	6228	22249	17303458	18911037	33000
30	3373-	44312	5930	18779	12973818	14065373	28000
100	3056-	37443	5361	17157	914P822	9654P15	23400
300	2740-	31229	4594	12096	6213788	6454413	19200
1000	2354-	24347	4225	8295	7714173	3773208	12000
3000	1950-	18123	3731	6612	2059795	2089497	9000
10000	1420-	11517	2944	4321	900533	878046	4200
30000	785-	5947	1969	2681	284261	283628	2400
MAXIMUM DOSE							
	88892						

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	4119-	59726	8094	51077	44806570	51223458	38400
3	3881-	53705	7681	42689	34851403	39519408	33000
10	3604-	47043	7201	36077	25551283	28699485	28000
30	3334-	40814	6734	29674	18511797	20624773	28000
100	3013-	34156	6181	23153	12263583	13517822	23400
300	2693-	27982	5629	17798	7912868	8570937	15400
1000	2301-	21286	4954	12746	4434113	4722373	12000
3000	1880-	15333	4245	8757	2274380	2368925	9000
10000	1342-	9266	3299	5284	863228	880479	4200
30000	675-	4502	2089	2888	232336	234880	2400
MAXIMUM DOSE							
	72596						

Calculated Fallout Contours (Maximum Biological Dose)

100 YIELD (MEGATONS)

20 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	3936-	124030	5470	18981	37302354	38153318	71400
3	3706-	111839	5188	16723	29829772	30352653	64000
10	3439-	98307	4860	14327	22634909	22897802	57000
30	3177-	85794	4541	12207	17037911	17060094	50400
100	2867-	71904	4162	10027	11780879	11776157	38400
300	2556-	59084	3784	8105	7978044	7847284	33000
1000	2174-	44959	3320	6163	4677199	4564312	23400
3000	1773-	32166	2832	4542	2521762	2421165	15400
10000	1236-	18741	2174	3002	980059	941904	6400
30000	571-	8154	1312	1842	248380	253294	2400
MAXIMUM DOSE							
	76765						

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	3932-	119604	5550	27379	49074346	52699454	71400
3	3703-	104529	5271	23622	39230384	40001153	64000
10	3435-	91147	4938	19734	29261907	29938349	57000
30	3173-	80923	4612	16261	20528984	21587200	50400
100	2862-	67215	4227	12900	13745963	14199915	38400
300	2551-	54764	3842	10057	8896487	9054690	33000
1000	2169-	41207	3370	7265	4967656	4950329	23400
3000	1766-	29148	2972	5079	2526571	2466306	15400
10000	1228-	16936	2200	3162	936311	897234	6400
30000	569-	7365	1316	1876	230157	233519	2400
MAXIMUM DOSE							
	74783						

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
DOSE (ROENTGENS)	MAXIMUM UPWIND POSITION	MAXIMUM DOWNWIND DISTANCE	CROSSWIND HALFWIDTH AT ORIGIN	MAXIMUM CROSSWIND HALFWIDTH	ACTUAL AREA	ESTIMATED AREA (ELLIPSE)	RANGE TO MAXIMUM WIDTH
1	3920-	111777	5897	45786	74210133	83209310	71400
3	3689-	99709	5591	38799	56404341	61015359	64000
10	3420-	86380	5235	31581	40169467	44547957	57000
30	3157-	74140	4887	25384	28102925	30211116	50400
100	2845-	60711	4475	19403	17815162	19370555	38400
300	2532-	48543	4063	14361	10835891	11539163	28000
1000	2148-	35530	3557	9725	5557102	5755683	19200
3000	1741-	24305	3023	6314	2568197	2583458	15400
10000	1196-	17470	2298	3613	854293	832452	6400
30000	511-	8729	1327	1950	190323	191174	2400
MAXIMUM DOSE							
	68156						

Calculated Fallout Contours (Maximum Biological Dose)

100

YIELD (MEGATONS)

40

WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN)
SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	3803-	232759	4775	17428	63920421	64762435	134400
3	3571-	208222	4518	15206	50301971	50487846	124200
10	3299-	180982	4219	12681	37283999	37285993	105000
30	3032-	155804	3925	10845	27308165	27059395	87400
100	2714-	127889	3576	8713	18221522	17875275	71400
300	2394-	102228	3225	6894	11678694	11329720	50400
1000	1996-	74177	2789	5051	6313544	6044217	33000
3000	1570-	49264	2322	3566	3007968	2847111	19200
10000	983-	24529	1666	2239	929405	897329	6400
30000	186-	7704	622	1247	146296	154522	2400
MAXIMUM DOSE		53698					

EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	3802-	222072	4790	24827	92915876	98087021	145000
3	3570-	197792	4540	21194	63530711	67037459	124200
10	3295-	170924	4239	17412	45583029	47649860	105000
30	3031-	146211	3944	14187	32126508	31259249	87400
100	2713-	119011	3593	10951	20586889	20239438	71400
300	2392-	94264	3240	8277	12604323	12566283	57000
1000	1994-	67642	2802	5745	6456789	6283699	38400
3000	1568-	44534	2332	3833	2907062	2775951	23400
10000	980-	22267	1671	2289	880054	835698	6400
30000	181-	7213	616	1249	137766	144924	2400
MAXIMUM DOSE		53220					

EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	3798-	208450	4894	40977	123196430	116615920	134400
3	3565-	184234	4629	34203	91616679	100902950	124200
10	3293-	157522	4322	27357	63067630	69105555	105000
30	3026-	133075	4020	21621	42677344	46222442	87400
100	2707-	106392	3661	15534	25549754	27306964	64000
300	2396-	82469	3300	11479	14587583	15300381	50400
1000	1987-	57362	2852	7393	6734579	6896751	33000
3000	1559-	36586	2370	4554	2793050	2728516	19200
10000	968-	17897	1692	2454	769905	727047	6400
30000	161-	5974	590	1247	116587	120135	2400
MAXIMUM DOSE		51430					

Calculated Fallout Contours

(Maximum Biological Dose)

100 YIELD (MEGATONS)

60 WIND (KNOTS)

ALL DISTANCES AND AREAS ARE SHOWN IN STATUTE MILES TO 2 DECIMAL PLACES. DECIMAL (NOT SHOWN) SHOULD BE READ BEFORE LAST 2 DIGITS.

EFFECTIVE FALLOUT SHEAR 0.1 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	3729--	335677	4500	16560	87424781	88286853	191400
3	3493--	299710	4250	14379	68228921	68258781	167400
10	3216--	257681	3958	12087	49877858	49536394	145000
30	2944--	219768	3671	10679	35767418	35261278	124200
100	2619--	177799	3328	8004	23271836	22683357	96000
300	2288--	139321	2981	6233	14379493	13865035	71400
1000	1875--	97544	2547	4464	7318564	6970993	44200
3000	1426--	61118	2073	3064	3194735	3009916	23400
10000	785--	26746	1379	1847	831422	814487	4200
30000	320	6103		878	76888	88605	2400
MAXIMUM DOSE							
40800							
EFFECTIVE FALLOUT SHEAR 0.2 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	3729-	319793	4511	23411	112249490	118973450	204000
3	3492-	281253	4260	19830	95201670	89316250	179200
10	3216-	242851	3967	16121	60159280	52312819	145000
30	2944-	205729	3680	13015	41559977	42662146	124200
100	2618-	164969	3336	9887	25847353	26026872	96000
300	2287-	128054	2988	7348	15228756	15043762	71400
1000	1874-	88705	2551	4963	7335226	7060862	44200
3000	1425-	55291	2078	3231	3069102	2878820	23400
10000	785-	24573	1380	1900	783350	756663	6400
30000	327	5861		874	73626	84944	2400
MAXIMUM DOSE							
40617							
EFFECTIVE FALLOUT SHEAR 0.4 KNOTS/1000 FT. ALTITUDE							
1 DOSE (ROENTGENS)	2 MAXIMUM UPWIND POSITION	3 MAXIMUM DOWNWIND DISTANCE	4 CROSSWIND HALFWIDTH AT ORIGIN	5 MAXIMUM CROSSWIND HALFWIDTH	6 ACTUAL AREA	7 ESTIMATED AREA (ELLIPSE)	8 RANGE TO MAXIMUM WIDTH
1	3727-	299392	4555	38305	145543270	18238680	191400
3	3490-	262992	4301	31748	121240670	132893470	167400
10	3213-	222889	4005	25103	82011126	89154621	145000
30	2941-	186268	3714	19524	54060501	58026046	114400
100	2615-	146461	3367	14139	31266718	33108392	96000
300	2284-	111049	3015	9925	17099160	17668953	71400
1000	1870-	74489	2575	6210	7445831	7449140	44200
3000	1420-	45075	2094	3707	2813633	2707093	23400
10000	778-	20019	1387	1976	679315	645385	6400
30000	396	5123		854	63004	73504	2400
MAXIMUM DOSE							
39908							

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LIST OF REFERENCES

1. A Simplified Model for Fallout Calculations, RAND, RM (AFSWP 1097), R. R. Rapp, SECRET, RESTRICTED DATA.
2. N.O.T.S. 2066, Generalized Prediction of the Radiological Effects from Fallout, Bloom, Wells, Harvey, CONFIDENTIAL, RESTRICTED DATA.
3. Operation IVY, WT-614, SECRET, RESTRICTED DATA.
4. Capabilities of Atomic Weapons, AFSWP, TM-23-200, CONFIDENTIAL, RESTRICTED DATA.
5. Biological Effects of Whole Body Gamma Radiation on Man, Harold O. Davison, Johns Hopkins University Press.
6. Theoretical Dose Rate Decay Curves for Contamination by Land Surface Burst Nuclear Weapons, D.A.S.A. 528, SECRET, RESTRICTED DATA.