The Event Probabilities are in the second "fire" column of Tables F.II -1 through F.II -3, and are converted to decimal format (divided by 100) for the calculations. Values for $t$ are obtained from a standard $t$-distribution table, the necessary excerpt from which is provided in Table F.II-4.

Table F.II-4. t-Distribution

**t-distribution**

| | | α | |
|---|---|---|---|
| | | 0.025 | 0.005 |
| v | 60 | 2.000 | 2.660 |
| | 120 | 1.980 | 2.617 |

Source: Ref. F2.68

where:

α = One minus the confidence interval divided by two (example: a 95% confidence interval corresponds to an α of 0.025)

v = Degrees of freedom (number of samples minus one)

For the data sets analyzed, confidence intervals of 95% and 99% were analyzed. This is done because, while 95% is an accepted and commonly used confidence interval, 99% is an extremely conservative confidence interval.

Completed calculations and the ranges based on the margins of error are provided in Tables F.II-5 through F.II-10 below. To demonstrate the calculations performed in Tables F.II-5 through F.II-10, an example will be completed from Table F.II-5, row 1. The event probability ($p$) is determined by dividing the number of occurrences (16) for that event by the total number of fires (187). Thus, 0.0856 is the event probability for an electrically originated fire. The margin of error is then calculated using Equation 1 above, obtaining $t$ from Table F.II-4. For this example, $t$ is 1.98 because the degrees of freedom (v = n-1 = 186) is greater than 120, and the confidence interval is 95%, making α = 0.025. The margin of error obtained, ±0.0405, when subtracted from and added to the event probability provides a percentile range (probability range column). It can be said with 95% confidence that the true event probability lies within this range. The final column is an occurrences range, which is calculated by converting the percentages of the preceding row to decimal format (dividing by 100), and multiplying them by the total number of fires (187). It can be said with 95% confidence that the true number of occurrences for any set of 187 fires is within this range. The calculations throughout Tables F.II 5 through F.II-10 are performed in the same manner, with the value of $t$ depending on the number of samples (fires) and the confidence intervals.

Table F.II-5. Margin of Error Results at 95% Confidence Interval for Fires in Radioactive Material Working Facilities by Originating Equipment

| Equipment Type | Occurances | Probability | | Margin of Error (95% confidence) | | Probability range based on Margin of Error (%) | | | | Occurances range based on Margin of Error | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Electrical | 16 | 8.56E-02 | ± | 4.05E-02 | | 4.51 | ≤ p ≤ | 12.61 | | 8.43 | ≤ O ≤ | 23.58 |
| Mechanical/Electrical HVAC | 15 | 8.02E-02 | ± | 3.93E-02 | | 4.09 | ≤ p ≤ | 11.95 | | 7.65 | ≤ O ≤ | 22.35 |
| Mechanical | 26 | 1.39E-01 | ± | 5.01E-02 | | 8.89 | ≤ p ≤ | 18.91 | | 16.62 | ≤ O ≤ | 35.36 |
| Heat Generating | 29 | 1.55E-01 | ± | 5.24E-02 | | 10.27 | ≤ p ≤ | 20.75 | | 19.20 | ≤ O ≤ | 38.80 |
| Torches/Welders | 41 | 2.19E-01 | ± | 5.99E-02 | | 15.93 | ≤ p ≤ | 27.92 | | 29.79 | ≤ O ≤ | 52.21 |
| Internal Combustion | 4 | 2.14E-02 | ± | 2.09E-02 | | 0.04 | ≤ p ≤ | 4.23 | | 0.07 | ≤ O ≤ | 7.91 |
| Offices/Kitchen Equipment | 12 | 6.42E-02 | ± | 3.55E-02 | | 2.87 | ≤ p ≤ | 9.97 | | 5.37 | ≤ O ≤ | 18.64 |
| Portable Equipment | 19 | 1.02E-01 | ± | 4.37E-02 | | 5.79 | ≤ p ≤ | 14.53 | | 10.83 | ≤ O ≤ | 27.17 |
| No Equipment | 25 | 1.34E-01 | ± | 4.93E-02 | | 8.44 | ≤ p ≤ | 18.3 | | 15.78 | ≤ O ≤ | 34.22 |
| Total | 187 | 1 | | | | | | | | | | |

Source: Original

Table F.II-6. Margin of Error Results at 99% Confidence Interval for Fires in Radioactive Material Working Facilities by Originating Equipment

| Equipment Type | Occurances | Probability | | Margin of Error (99% confidence) | | Probability range based on Margin of Error (%) | | | | Occurances range based on Margin of Error | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Electrical | 16 | 8.56E-02 | ± | 5.35E-02 | | 3.2 | ≤ p ≤ | 13.91 | | 5.98 | ≤ O ≤ | 26.01 |
| Mechanical/Electrical HVAC | 15 | 8.02E-02 | ± | 5.20E-02 | | 2.82 | ≤ p ≤ | 13.22 | | 5.27 | ≤ O ≤ | 24.72 |
| Mechanical | 26 | 1.39E-01 | ± | 6.62E-02 | | 7.28 | ≤ p ≤ | 20.53 | | 13.61 | ≤ O ≤ | 38.39 |
| Heat Generating | 29 | 1.55E-01 | ± | 6.93E-02 | | 8.58 | ≤ p ≤ | 22.44 | | 16.04 | ≤ O ≤ | 41.96 |
| Torches/Welders | 41 | 2.19E-01 | ± | 7.92E-02 | | 14.01 | ≤ p ≤ | 29.84 | | 26.20 | ≤ O ≤ | 55.80 |
| Internal Combustion | 4 | 2.14E-02 | ± | 2.77E-02 | | -0.63 | ≤ p ≤ | 4.91 | | 0.00 | ≤ O ≤ | 9.18 |
| Offices/Kitchen Equipment | 12 | 6.42E-02 | ± | 4.69E-02 | | 1.73 | ≤ p ≤ | 11.11 | | 3.24 | ≤ O ≤ | 20.78 |
| Portable Equipment | 19 | 1.02E-01 | ± | 5.78E-02 | | 4.38 | ≤ p ≤ | 15.94 | | 8.19 | ≤ O ≤ | 29.81 |
| No Equipment | 25 | 1.34E-01 | ± | 6.51E-02 | | 6.86 | ≤ p ≤ | 19.88 | | 12.83 | ≤ O ≤ | 37.18 |
| Total | 187 | 1 | | | | | | | | | | |

Source: Original

Table F.II-7. Margin of Error Results at 95% Confidence Interval for Structure Fires in Radioactive Material Working Facilities and Nuclear Energy Plants of Non-Combustible Construction and in which No Automatic Suppression System Was Present or the Automatic Suppression System Failed to Operate

| Extent of Flame Damage | Occurances | Probability | | Margin of Error (95% confidence) | | | Probability range based on Margin of Error (%) | | | | Occurances range based on Margin of Error | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Confined to object of origin | 54 | 6.21E-01 | | ± | 1.04E-01 | | 51.67 | ≤ p ≤ | 72.48 | | 44.78 | ≤ O ≤ | 62.81 |
| Confined to part of room/ area of origin | 13 | 1.49E-01 | | ± | 7.65E-02 | | 7.3 | ≤ p ≤ | 22.59 | | 6.33 | ≤ O ≤ | 19.58 |
| Confined to room of origin | 0.33 | 3.79E-03 | | ± | 1.32E-02 | | 0 | ≤ p ≤ | 1.7 | | 0 | ≤ O ≤ | 1.47 |
| Confined to fire-rated compartment of origin | 5 | 5.75E-02 | | ± | 4.99E-02 | | 0.76 | ≤ p ≤ | 10.74 | | 0.66 | ≤ O ≤ | 9.31 |
| Confined to floor of origin | 0.33 | 3.79E-03 | | ± | 1.32E-02 | | 0 | ≤ p ≤ | 1.7 | | 0 | ≤ O ≤ | 1.47 |
| Confined to structure of origin | 14 | 1.61E-01 | | ± | 7.88E-02 | | 8.21 | ≤ p ≤ | 23.97 | | 7.11 | ≤ O ≤ | 20.77 |
| Extended beyond structure of origin | 0.33 | 3.79E-03 | | ± | 1.32E-02 | | 0 | ≤ p ≤ | 1.7 | | 0 | ≤ O ≤ | 1.47 |
| Total | 86.99 | 1 | | | | | | | | | | | |

Source: Original

Table F.II-8. Margin of Error Results at 99% Confidence Interval for Structure Fires in Radioactive Material Working Facilities and Nuclear Energy Plants of Non-Combustible Construction and in which No Automatic Suppression System Was Present or the Automatic Suppression System Failed to Operate

| Extent of Flame Damage | Occurances | Probability | | Margin of Error (99% confidence) | | | Probability range based on Margin of Error (%) | | | | Occurances range based on Margin of Error | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Confined to object of origin | 54 | 6.21E-01 | | ± | 1.38E-01 | | 48.24 | ≤ p ≤ | 75.91 | | 41.8 | ≤ O ≤ | 65.78 |
| Confined to part of room/ area of origin | 13 | 1.49E-01 | | ± | 1.02E-01 | | 4.78 | ≤ p ≤ | 25.11 | | 4.14 | ≤ O ≤ | 21.76 |
| Confined to room of origin | 0.33 | 3.79E-03 | | ± | 1.75E-02 | | 0 | ≤ p ≤ | 2.13 | | 0 | ≤ O ≤ | 1.85 |
| Confined to fire-rated compartment of origin | 5 | 5.75E-02 | | ± | 6.64E-02 | | 0 | ≤ p ≤ | 12.39 | | 0 | ≤ O ≤ | 10.74 |
| Confined to floor of origin | 0.33 | 3.79E-03 | | ± | 1.75E-02 | | 0 | ≤ p ≤ | 2.13 | | 0 | ≤ O ≤ | 1.85 |
| Confined to structure of origin | 14 | 1.61E-01 | | ± | 1.05E-01 | | 5.61 | ≤ p ≤ | 26.57 | | 4.86 | ≤ O ≤ | 23.03 |
| Extended beyond structure of origin | 0.33 | 3.79E-03 | | ± | 1.75E-02 | | 0 | ≤ p ≤ | 2.13 | | 0 | ≤ O ≤ | 1.85 |
| Total | 86.99 | 1 | | | | | | | | | | | |

Source: Original

Table F.II-9. Margin of Error Results at 95% Confidence Interval for Structure Fires in Radioactive Material Working Facilities and Nuclear Energy Plants of Non-Combustible Construction and in which the Fire Was Too Small to Activate the Automatic Suppression System or the Automatic System Operated Properly

| Extent of Flame Damage | Occurances | Probability | | Margin of Error (95% confidence) | | | Probability range based on Margin of Error (%) | | | | Occurances range based on Margin of Error | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Confined to object of origin | 40 | 5.51E-01 | | ± | 1.17E-01 | | 43.38 | ≤ p ≤ | 66.72 | | 31.52 | ≤ O ≤ | 48.48 |
| Confined to part of room/area of origin | 23 | 3.17E-01 | | ± | 1.09E-01 | | 20.74 | ≤ p ≤ | 42.57 | | 15.07 | ≤ O ≤ | 30.93 |
| Confined to room of origin | 2 | 2.75E-02 | | ± | 3.84E-02 | | 0 | ≤ p ≤ | 6.59 | | 0 | ≤ O ≤ | 4.79 |
| Confined to fire-rated compartment of origin | 0.33 | 4.54E-03 | | ± | 1.58E-02 | | 0 | ≤ p ≤ | 2.03 | | 0 | ≤ O ≤ | 1.47 |
| Confined to floor of origin | 5 | 6.88E-02 | | ± | 5.94E-02 | | 0.94 | ≤ p ≤ | 12.82 | | 0.68 | ≤ O ≤ | 9.32 |
| Confined to structure of origin | 2 | 2.75E-02 | | ± | 3.84E-02 | | 0 | ≤ p ≤ | 6.59 | | 0 | ≤ O ≤ | 4.79 |
| Extended beyond structure of origin | 0.33 | 4.54E-03 | | ± | 1.58E-02 | | 0 | ≤ p ≤ | 2.03 | | 0 | ≤ O ≤ | 1.47 |
| Total | 72.66 | 1 | | | | | | | | | | | |

Source: Original

Table F.II-10. Margin of Error Results at 99% Confidence Interval for Structure Fires in Radioactive Material Working Facilities and Nuclear Energy Plants of Non-Combustible Construction and in which the Fire Was Too Small to Activate the Automatic Suppression System or the Automatic System Operated Properly

| Extent of Flame Damage | Occurances | Probability | | Margin of Error (99% confidence) | | | Probability range based on Margin of Error (%) | | | | Occurances range based on Margin of Error | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Confined to object of origin | 40 | 5.51E-01 | | ± | 1.55E-01 | | 39.53 | ≤ p ≤ | 70.57 | | 28.72 | ≤ O ≤ | 51.28 |
| Confined to part of room/ area of origin | 23 | 3.17E-01 | | ± | 1.45E-01 | | 17.14 | ≤ p ≤ | 46.17 | | 12.45 | ≤ O ≤ | 33.55 |
| Confined to room of origin | 2 | 2.75E-02 | | ± | 5.11E-02 | | 0 | ≤ p ≤ | 7.86 | | 0 | ≤ O ≤ | 5.71 |
| Confined to fire-rated compartment of origin | 0.33 | 4.54E-03 | | ± | 2.10E-02 | | 0 | ≤ p ≤ | 2.55 | | 0 | ≤ O ≤ | 1.85 |
| Confined to floor of origin | 5 | 6.88E-02 | | ± | 7.90E-02 | | 0 | ≤ p ≤ | 14.78 | | 0 | ≤ O ≤ | 10.74 |
| Confined to structure of origin | 2 | 2.75E-02 | | ± | 5.11E-02 | | 0 | ≤ p ≤ | 7.86 | | 0 | ≤ O ≤ | 5.71 |
| Extended beyond structure of origin | 0.33 | 4.54E-03 | | ± | 2.10E-02 | | 0 | ≤ p ≤ | 2.55 | | 0 | ≤ O ≤ | 1.85 |
| Total | 72.66 | 1 | | | | | | | | | | | |

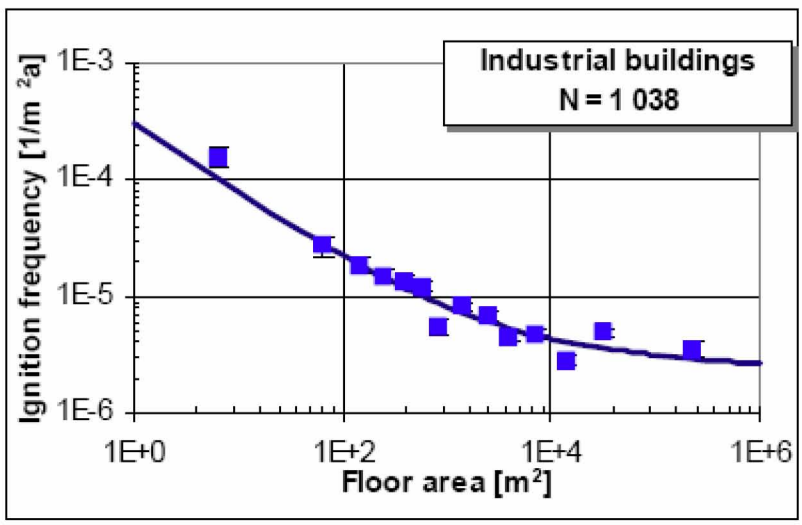
Source: Original

# APPENDIX F.III
# DERIVATION OF IGNITION FREQUENCY DISTRIBUTION

For proper consideration of the fire frequency analysis of the CRCF, WHF, IHF, and RF, it was necessary to develop an uncertainty distribution for the industrial building fire frequency. *Utilisation of Statistics to Assess Fire Risks in Buildings* (Ref. F2.67) is used to develop these frequencies. It presents an equation with floor area as an input to determine frequency. The following equation is developed based on sample data collected:

$$f_m''(A) = c_1 A^r + c_2 A^s \qquad \text{(Eq. F.III-1)}$$

Where $f_m''$ is the annual fire frequency per square meter of floor area, $A$ is the floor area, and the values $c_1$, $c_2$, $r$, and $s$ are constants determined by the line of best fit derived from the data. For industrial buildings, the values for the constants are as follows: $c_1 = 3 \times 10^{-4}$, $c_2 = 5 \times 10^{-6}$, $r = -0.61$, and $s = -0.05$. The data for industrial buildings and the resulting line of best fit are presented in Figure F.III-1.

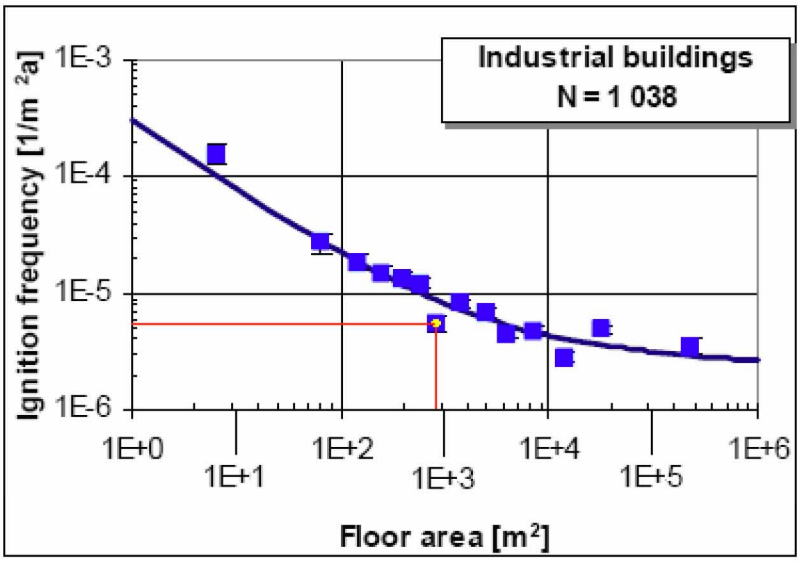



Source: Ref. F2.67

Figure F.III.1. Ignition Frequency Observations

Each data point in the graph represents the average of many data points. The individual data points and the average values were not provided in the reference. Because the data were only presented graphically, it was necessary to estimate the data for the purposes of this analysis. To do so, the center of each data point was found, and x-axis values were added such that the powers increased by a unit of one. Horizontal and vertical lines were drawn from each data point to the x and y axes. The ignition frequency and floor area were then estimated based on the relative distances between these lines and the major axis values. For the example shown in Figure F.III-2, the distance from the 1E+2 label to the red vertical line is divided by the distance from the 1E+2 to 1E+3 labels. In this case, the result is 0.925. Thus, the floor area for the data point is $10^{2.925}$. The ignition frequency is determined in an identical manner. The ignition

frequency and floor area obtained in this manner are displayed in Table F.III-1. The ignition frequency predicted based on Equation F.III-1 is also provided in the table.




Source: Original

Figure F.III-2. Data Point Determination

Table F.III-1. Ignition Frequency Data from Figure F.III-1 and Equation F.III-1

| Graphically Determined Data Points | | From Equation F.III-1 |
|---|---|---|
| Floor Area ($m^2$) | Ignition Frequency (1/yr $m^2$) | Predicted Frequency (1/yr $m^2$) |
| 7 | $1.6 \times 10^{-4}$ | $9.6 \times 10^{-5}$ |
| 65 | $2.8 \times 10^{-5}$ | $2.8 \times 10^{-5}$ |
| 150 | $1.9 \times 10^{-5}$ | $1.8 \times 10^{-5}$ |
| 240 | $1.5 \times 10^{-5}$ | $1.4 \times 10^{-5}$ |
| 380 | $1.4 \times 10^{-5}$ | $1.2 \times 10^{-5}$ |
| 570 | $1.2 \times 10^{-5}$ | $9.9 \times 10^{-6}$ |
| 840 | $5.6 \times 10^{-6}$ | $8.5 \times 10^{-6}$ |
| 1,400 | $8.9 \times 10^{-6}$ | $7.1 \times 10^{-6}$ |
| 2,500 | $7.0 \times 10^{-6}$ | $5.9 \times 10^{-6}$ |
| 4,100 | $4.6 \times 10^{-6}$ | $5.2 \times 10^{-6}$ |
| 7,100 | $4.8 \times 10^{-6}$ | $4.5 \times 10^{-6}$ |
| 14,000 | $2.9 \times 10^{-6}$ | $4.0 \times 10^{-6}$ |
| 33,000 | $5.1 \times 10^{-6}$ | $3.5 \times 10^{-6}$ |
| 230,000 | $3.6 \times 10^{-6}$ | $2.9 \times 10^{-6}$ |

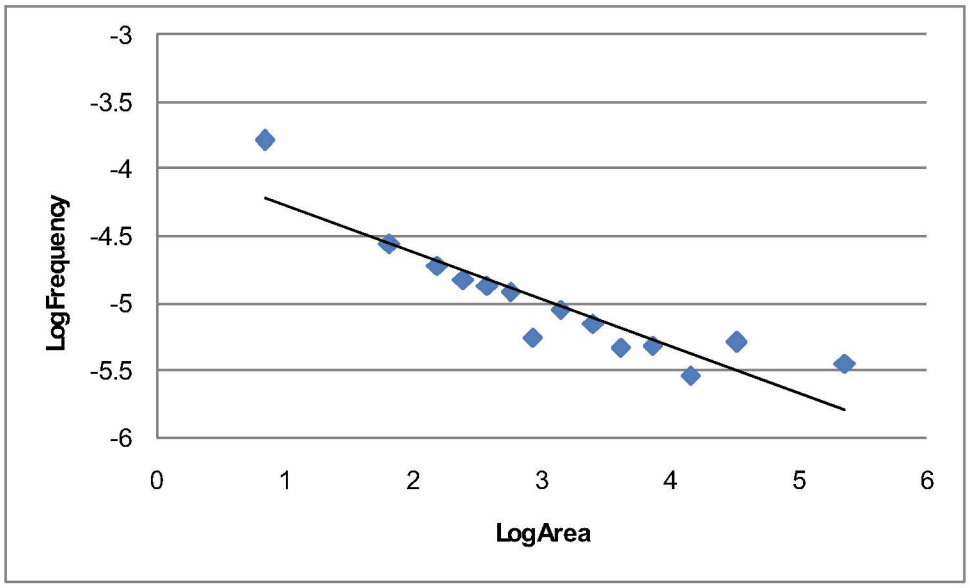
Source: Original

Because the ignition frequency is determined based on the line of best fit, the uncertainty distribution for the calculated ignition frequency can be determined by estimating the uncertainty

in the ability of the best fit equation to predict the ignition frequency of any industrial building not included in the database. This is accomplished using the methodology presented below.

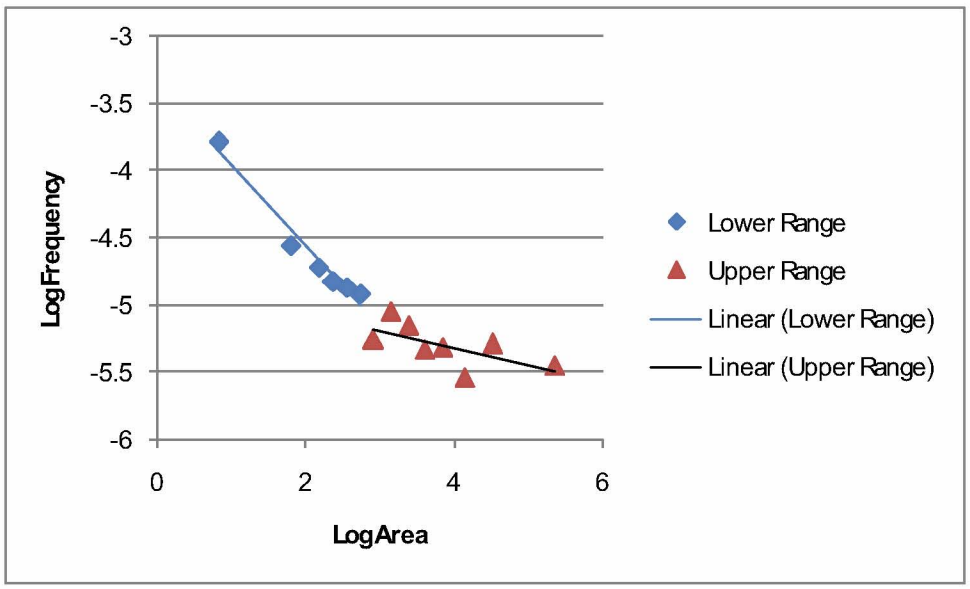
*Statistics: Probability, Inference, and Decision*(Ref. F2.68) outlines a procedure to determine the confidence limits for a value predicted based on a linear regression equation. Though the ignition frequency and floor area are not linearly related, as illustrated by the figure and by Equation F.III-1, the relationship between the log of the ignition frequency and the log of the floor area is approximately linear. This is illustrated in Figure F.III-3.

As shown in Figures F.III-1 and F.III-3, the portion of the curve for buildings less than 1,000m$^2$ has a steeper slope than the portion of the curve for buildings larger than 1,000m$^2$. For that reason, the data were divided into two ranges as shown in Figure F.III-4. Because all of the YMP facilities have floor areas larger than 1,000m$^2$, the remaining analysis focused on the upper end of the floor area range.




Source: Original

Figure F.III-3. Plot of Log(Ignition Frequency) as a Function of Log(Floor Area)




Source: Original

Figure F.III-4. Plot of Log (Ignition Frequency) as a Function of Log (Floor Area) Divided into Two Floor Area Ranges

To arrive at the confidence interval for the log of the ignition frequency, the follow equations are used:

$$\hat{y} \pm a \frac{s_{xy}}{\sqrt{n-2}} \sqrt{n+1+\frac{(x-m_x)^2}{s_x^2}} \qquad \text{(Eq. F.III-2)}$$

$$s_{xy} = \sqrt{s_y^2(1-r_{xy}^2)} \qquad \text{(Eq. F.III-3)}$$

$$r_{xy} = \frac{\sum_{i=0}^{i=n}(x_i - m_x)(y - m_y)}{n\, s_x\, s_y} \qquad \text{(Eq. F.III-4)}$$

where:

$\hat{y}$ = the predicted value for the log of the ignition frequency using Equation F-III.1

$x$ = the log of the corresponding floor area value

$n$ = number of data points used in the linear regression analysis (8 for the upper floor area range)

$a$ = the 1-(α/2) fractile of the t-distribution with n-2 degrees of freedom (for a 95% confidence interval, α is 5% and the value for a is 2.447)

$x_i$ = the x data values (log of floor area)

$y_i$ = the y data values (log of ignition frequency)

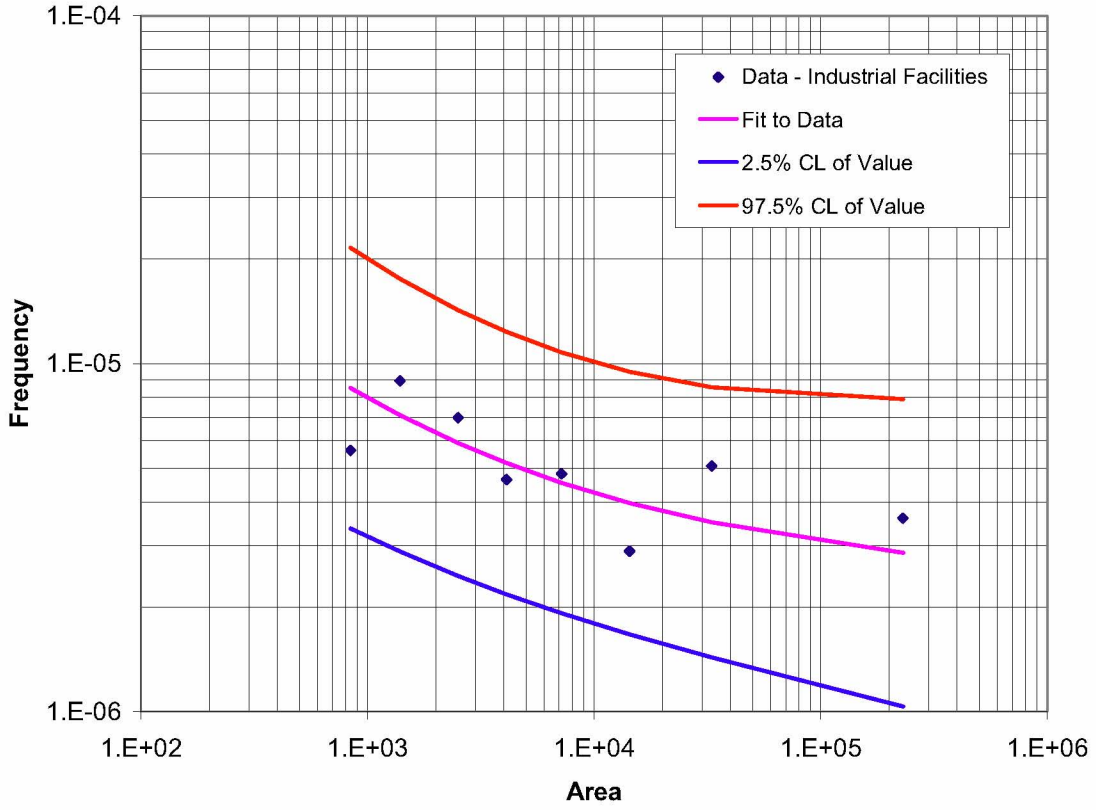
$m_x$ = the mean of the x data values

$m_y$ = the mean of the y data values

$s_x$ = the standard deviation of the x data values

$s_y$ = the standard deviation of the y data values.

The upper and lower confidence limits (i.e., the 97.5% and 2.5% values) for any predicted value of the ignition frequency can be determined from Equations F.III-2 through F.III-4 using the x-y data for the upper end of the floor area range. The upper and lower confidence limits for the ignition frequency were then determined by taking the anti-log of the predicted y values. Figure F.III-5 is a plot showing the original data, the predicted values using Equation F.III-1, and the upper and lower confidence limits for the predicted values. The same approach can be used to determine the upper and lower confidence limits for the ignition frequency calculated for each of the YMP facilities. Those results are provided in Table F.III-2.




NOTE: CL = confidence limit.

Source: Original

Figure F.III-5. Plot of the Ignition Frequency Data, the Predicted Ignition Frequency, and Confidence Limits for the Predicted Value

Table F.III-2. Calculated Mean and Confidence Limits for the YMP Facility Ignition Frequency

| Facility | Ignition Frequency (Ignitions per sq-m per year) | | |
|---|---|---|---|
| | **Median** | **2.5% LCL** | **97.5% UCL** |
| CRCF | $3.78 \times 10^{-6}$ | $1.58 \times 10^{-6}$ | $9.08 \times 10^{-6}$ |
| IHF | $4.79 \times 10^{-6}$ | $2.02 \times 10^{-6}$ | $1.14 \times 10^{-5}$ |
| RF | $4.05 \times 10^{-6}$ | $1.70 \times 10^{-6}$ | $9.64 \times 10^{-6}$ |
| WHF | $3.93 \times 10^{-6}$ | $1.65 \times 10^{-6}$ | $9.39 \times 10^{-6}$ |

NOTE: LCL = lower confidence limit; UCL = upper confidence limit;

Source: Original

# APPENDIX F.IV
# PROOF OF LOGNORMAL DISTRIBUTION

The fire initiating event frequencies presented throughout this document are the result of a series of calculations performed using inputs in the form of three different probability distributions. Two of the input distributions (see Appendix F.II) are normally distributed, and the third (see Appendix F.III) is lognormally distributed. After the calculations were performed, it was necessary to determine what type of distribution best represented the results. The Crystal Ball output (see Appendix E.VI) shows the calculated distributions at ten percentile intervals. Crystal Ball also provides the mean and the median of the distributions.

Microsoft Excel (*WHF Fire Frequency_No Suppression.xls*) has a function, LOGNORMDIST, which can be used to calculate intervals for a lognormal distribution. The Excel function requires that the log mean ($\mu$) and log standard deviation ($\sigma$) be provided. To perform this analysis, it was necessary to calculate $\mu$ and $\sigma$ using Equations F.IV-1 and F.IV-2, where the mean and median in these equations are provided in the Crystal Ball results.

$$\mu = \ln(median) \qquad \text{(Eq. F.IV-1)}$$

$$\sigma = \sqrt{2\ln\left(\frac{mean}{median}\right)} \qquad \text{(Eq. F.IV-2)}$$

A comparison between the Crystal Ball and Excel percentile intervals reveals whether the data is a satisfactory fit to a lognormal distribution. Table F.IV-1 shows the result of this analysis. The table shows that the difference between the Excel calculated values and the Crystal Ball percentile values never exceeds 1%. Thus, it is concluded that the fire initiating events are lognormally distributed.

Table F.IV-1 Comparison Between Crystal Ball and Excel Percentile Intervals

| Forecast Values | Excel Calculated Percentiles | Crystal Ball Percentiles | Difference |
|---|---|---|---|
| 1.10E-08 | 0.003 | 0 | 0.00 |
| 4.04E-08 | 10.042 | 10 | 0.04 |
| 5.0E-08 | 19.93 | 20 | 0.07 |
| 5.8E-08 | 30.58 | 30 | 0.58 |
| 6.6E-08 | 40.23 | 40 | 0.23 |
| 7.4E-08 | 50.00 | 50 | 0.00 |
| 8.4E-08 | 59.75 | 60 | 0.25 |
| 9.5E-08 | 69.67 | 70 | 0.33 |
| 1.1E-07 | 79.85 | 80 | 0.15 |
| 1.4E-07 | 90.01 | 90 | 0.01 |
| 4.3E-07 | 99.99 | 100 | 0.01 |
| Mu | -16.4149 | Mean | 8.33E-08 |
| Sigma | 0.4771 | Median | 7.43E-08 |

Source: Original

# APPENDIX F.V
# DERIVATION OF ERROR FACTORS

It was necessary to provide an error factor for each initiating event frequency, which was calculated using data provided by Crystal Ball. The software output in Appendix F.VI provides the mean and median necessary to determine the error factor. Equation F.V-1 is utilized to calculate the log standard deviation ($\sigma$), and equation F.V-2 provides a method for calculating the error factor from the log standard deviation.

$$\sigma = \sqrt{2\ln\left(\frac{mean}{median}\right)} \qquad \text{(Eq. F.V-1)}$$

$$\text{EF} = e^{\sigma \times 1.645} \qquad \text{(Eq. F.V-2)}$$

The resultant error factors for each initiating event frequency are displayed in Table F5.7-5, as well as the mean and median utilized to calculate the error factor.

Several of the initiating event frequencies were not utilized as originally anticipated, many were summed for the purpose of developing split fractions. It was necessary to develop error factors for these summed figures as well. This was accomplished by directly summing the figures, then defining the summation as a Crystal Ball forecast value. The Crystal Ball results (Table F.5.7-5) provided a mean and median by which the error factor can be calculated using equations F.V-1 and F.V-2.

# APPENDIX F.VI
# CRYSTAL BALL FULL RESULTS

| Percentiles | Mean | 97.5% |
|---|---|---|
| Large Fire Threatens DPC (all) in CTM | 5.2E-07 | 1.2E-06 |
| Large Fire Threatens STC/DPC (all) | 1.9E-05 | 4.5E-05 |
| Large Fire Threatens STC/DPC (all) (Dry Cavity, Wet Annulus) | 2.0E-05 | 4.6E-05 |
| Large Fire Threatens STC/DPC (all) (Wet Cavity, Wet Annulus) | 1.6E-05 | 3.7E-05 |
| Large Fire Threatens STC/TAD (Dry Cavity, Dry Annulus) | 8.8E-06 | 2.1E-05 |
| Large Fire Threatens STC/TAD (Dry Cavity, Wet Annulus) | 3.3E-05 | 7.7E-05 |
| Large Fire Threatens STC/TAD (Wet Cavity, Wet Annulus) | 1.9E-05 | 4.4E-05 |
| Large Fire Threatens TAD in AO | 5.9E-06 | 1.4E-05 |
| Large Fire Threatens TAD in CTM | 4.3E-07 | 1.0E-06 |
| Large Fire Threatens TC/DPC (No Diesel) | 1.8E-05 | 4.3E-05 |
| Large Fire Threatens TC/DPC (TTC) (No Diesel) | 2.6E-05 | 6.1E-05 |
| Large Fire Threatens TC/SNF (No Diesel) | 6.7E-06 | 1.6E-05 |
| Large Fire Threatens TC/SNF (Wet Cavity) | 3.6E-06 | 8.4E-06 |
| Large Fire Threatens TC/SNF or TC/DPC (all) (Diesel Present) | 7.9E-07 | 1.8E-06 |
| Localized Fire Threatens DPC (all) in the Transfer Room | 8.3E-08 | 1.9E-07 |
| Localized Fire Threatens STC/DPC (all) in DPC Cutting Station (Dry Cavity, Dry Annulus) in the Preparation Area | 1.2E-06 | 2.8E-06 |
| Localized Fire Threatens STC/DPC (all) in DPC Cutting Station (Dry Cavity, Wet Annulus) in the Preparation Area | 8.3E-06 | 1.9E-05 |
| Localized Fire Threatens STC/DPC (all) in DPC Cutting Station (Wet Cavity, Wet Annulus) in the Preparation Area | 6.8E-06 | 1.5E-05 |
| Localized Fire Threatens STC/DPC (all) on CTT in the Preparation Station in the Preparation Area | 5.4E-06 | 1.3E-05 |
| Localized Fire Threatens STC/DPC (all) on CTT in the Unloading Room | 3.9E-07 | 8.9E-07 |
| Localized Fire Threatens STC/TAD in TAD Closure Station (Dry Cavity, Dry Annulus) in the Preparation Area | 7.5E-06 | 1.7E-05 |
| Localized Fire Threatens STC/TAD in TAD Closure Station (Dry Cavity, Wet Annulus) in the Preparation Area | 8.6E-06 | 2.0E-05 |
| Localized Fire Threatens STC/TAD in TAD Closure Station (Wet Cavity, Wet Annulus) in the Preparation Area | 6.8E-06 | 1.6E-05 |
| Localized Fire Threatens STC/TAD on CTT in the Unloading Room | 3.3E-07 | 7.6E-07 |
| Localized Fire Threatens TAD in AO in Bolting Room | 3.5E-07 | 8.3E-07 |
| Localized Fire Threatens TAD in AO in Loading Room | 2.9E-07 | 6.8E-07 |
| Localized Fire Threatens TAD in the Transfer Room | 6.9E-08 | 1.6E-07 |
| Localized Fire Threatens TC/DPC (all) on CTT in the Preparation Station in the Preparation Area | 4.2E-06 | 9.8E-06 |
| Localized Fire Threatens TC/DPC (all) on CTT in the Unloading Room | 1.5E-07 | 3.5E-07 |
| Localized Fire Threatens TC/DPC (TTC) on Railcar/Trailer in Receipt Area w/o Tractor/SPM (No Diesel Present) | 7.6E-06 | 1.7E-05 |
| Localized Fire Threatens TC/DPC on Truck Trailer in Receipt Area w/o Tractor (No Diesel Present) | 4.0E-06 | 9.0E-06 |
| Localized Fire Threatens TC/SNF (Dry Cavity) in the Preparation Station in the Preparation Area | 1.9E-06 | 4.2E-06 |
| Localized Fire Threatens TC/SNF (Wet Cavity) in the Preparation Station in the Preparation Area | 3.6E-06 | 8.2E-06 |
| Localized Fire Threatens TC/SNF on Truck Trailer in Receipt Area w/o Tractor (No Diesel Present) | 2.5E-06 | 5.7E-06 |
| Localized Fire Threatens TC/SNF or TC/DPC (incl. TTC) on Railcar/Trailer in Receipt Area w/Tractor (Diesel Present) | 4.7E-07 | 1.1E-06 |

The Crystal Ball report *WHF CB Report.xls*, forecast worksheets, and "assumptions" follow. The term "assumptions" is used by Crystal Ball to denote the probability distributions of the inputs, and does not refer to assumptions as defined by the calculations and analysis procedure.

**Crystal Ball Report - Full**
Simulation started on 12/31/2007 at 13:26:08
Simulation stopped on 12/31/2007 at 13:27:24

| | |
|---|---|
| Run preferences: | |
| Number of trials run | 10,000 |
| Monte Carlo | |
| Random seed | |
| Run statistics: | |
| Total running time (sec) | 76.07 |
| Trials/second (average) | 131 |
| Random numbers per sec | 2,235 |
| Crystal Ball data: | |
| Assumptions | 17 |
| Correlations | 0 |
| Correlated groups | 0 |
| Decision variables | 0 |
| Forecasts | 35 |

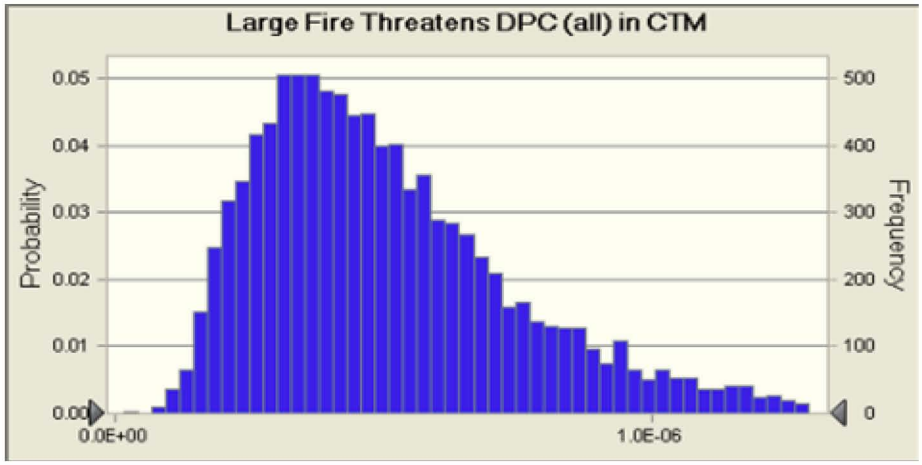
**Forecasts**

**Worksheet: [WHF Fire Frequency_No Suppression.xls]Initiating Event Frequency**

**Forecast: Large Fire Threatens DPC (all) in CTM** **Cell: K225**

Summary:

Entire range is from 1.5E-08 to 3.6E-06
Base case is 4.7E-07
After 10,000 trials, the std. error of the mean is 2.8E-09




| Statistics: | Forecast values |
|---|---|
| Trials | 10,000 |
| Mean | 5.2E-07 |
| Median | 4.6E-07 |
| Mode | --- |
| Standard Deviation | 2.8E-07 |
| Variance | 7.6E-14 |
| Skewness | 1.66 |
| Kurtosis | 8.45 |
| Coeff. of Variability | 0.5314 |
| Minimum | 1.5E-08 |
| Maximum | 3.6E-06 |
| Range Width | 3.6E-06 |
| Mean Std. Error | 2.8E-09 |

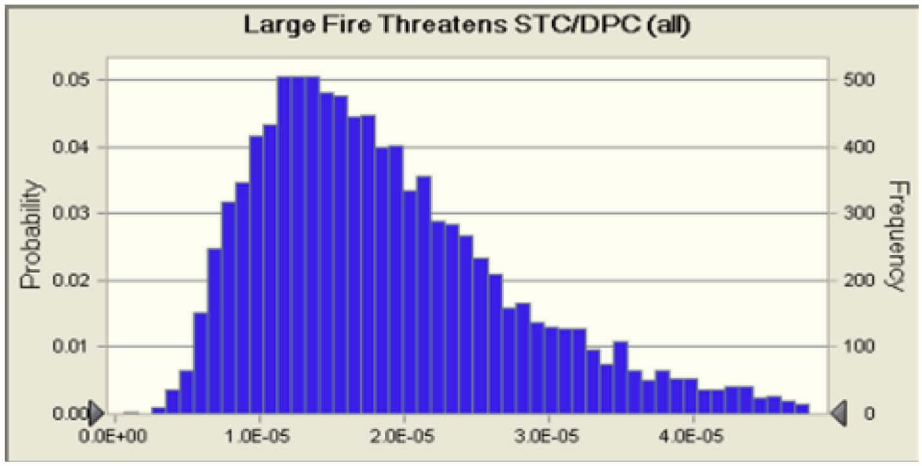
**Forecast: Large Fire Threatens DPC (all) in CTM (cont'd)** **Cell: K225**

| Percentiles: | Forecast values |
|---|---|
| 0% | 1.5E-08 |
| 10% | 2.4E-07 |
| 20% | 3.0E-07 |
| 30% | 3.5E-07 |
| 40% | 4.0E-07 |
| 50% | 4.6E-07 |
| 60% | 5.2E-07 |
| 70% | 6.0E-07 |
| 80% | 7.0E-07 |
| 90% | 8.7E-07 |
| 100% | 3.6E-06 |

**Forecast: Large Fire Threatens STC/DPC (all)** **Cell: K226**

Summary:

Entire range is from 5.5E-07 to 1.3E-04
Base case is 1.7E-05
After 10,000 trials, the std. error of the mean is 1.0E-07




| Statistics: | Forecast values |
|---|---|
| Trials | 10,000 |
| Mean | 1.9E-05 |
| Median | 1.7E-05 |
| Mode | --- |
| Standard Deviation | 1.0E-05 |
| Variance | 1.0E-10 |
| Skewness | 1.66 |
| Kurtosis | 8.45 |
| Coeff. of Variability | 0.5314 |
| Minimum | 5.5E-07 |
| Maximum | 1.3E-04 |
| Range Width | 1.3E-04 |
| Mean Std. Error | 1.0E-07 |

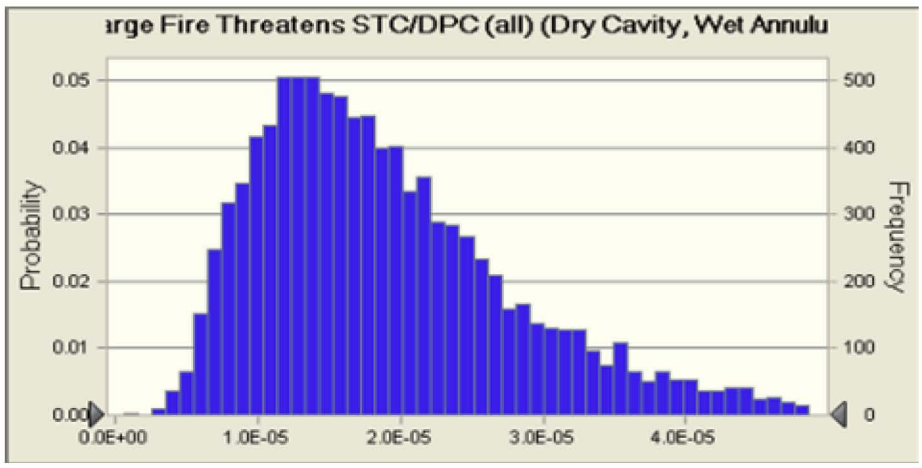
**Forecast: Large Fire Threatens STC/DPC (all) (cont'd)** **Cell: K226**

| Percentiles: | Forecast values |
|---|---|
| 0% | 5.5E-07 |
| 10% | 8.8E-06 |
| 20% | 1.1E-05 |
| 30% | 1.3E-05 |
| 40% | 1.5E-05 |
| 50% | 1.7E-05 |
| 60% | 1.9E-05 |
| 70% | 2.2E-05 |
| 80% | 2.6E-05 |
| 90% | 3.2E-05 |
| 100% | 1.3E-04 |

**Forecast: Large Fire Threatens STC/DPC (all) (Dry Cavity, Wet Annulus)** **Cell: K227**

Summary:

Entire range is from 5.5E-07 to 1.3E-04
Base case is 1.8E-05
After 10,000 trials, the std. error of the mean is 1.0E-07




| Statistics: | Forecast values |
|---|---|
| Trials | 10,000 |
| Mean | 2.0E-05 |
| Median | 1.7E-05 |
| Mode | --- |
| Standard Deviation | 1.0E-05 |
| Variance | 1.1E-10 |
| Skewness | 1.66 |
| Kurtosis | 8.45 |
| Coeff. of Variability | 0.5314 |
| Minimum | 5.5E-07 |
| Maximum | 1.3E-04 |
| Range Width | 1.3E-04 |
| Mean Std. Error | 1.0E-07 |

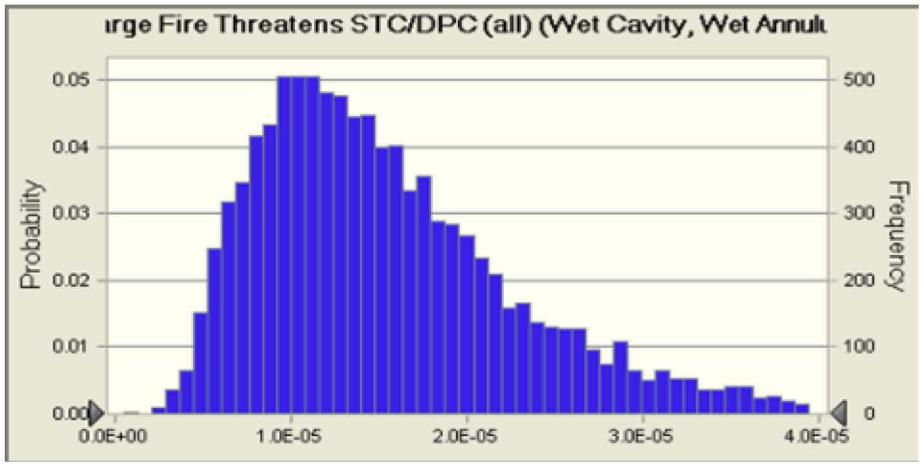
**Forecast: Large Fire Threatens STC/DPC (all) (Dry Cavity, Wet Annulus) (cont'd)** **Cell: K227**

| Percentiles: | Forecast values |
|---|---|
| 0% | 5.5E-07 |
| 10% | 8.9E-06 |
| 20% | 1.1E-05 |
| 30% | 1.3E-05 |
| 40% | 1.5E-05 |
| 50% | 1.7E-05 |
| 60% | 2.0E-05 |
| 70% | 2.3E-05 |
| 80% | 2.6E-05 |
| 90% | 3.3E-05 |
| 100% | 1.3E-04 |

**Forecast: Large Fire Threatens STC/DPC (all) (Wet Cavity, Wet Annulus)** **Cell: K228**

Summary:

Entire range is from 4.5E-07 to 1.1E-04
Base case is 1.4E-05
After 10,000 trials, the std. error of the mean is 8.4E-08




| Statistics: | Forecast values |
|---|---|
| Trials | 10,000 |
| Mean | 1.6E-05 |
| Median | 1.4E-05 |
| Mode | --- |
| Standard Deviation | 8.4E-06 |
| Variance | 7.1E-11 |
| Skewness | 1.66 |
| Kurtosis | 8.45 |
| Coeff. of Variability | 0.5314 |
| Minimum | 4.5E-07 |
| Maximum | 1.1E-04 |
| Range Width | 1.1E-04 |
| Mean Std. Error | 8.4E-08 |

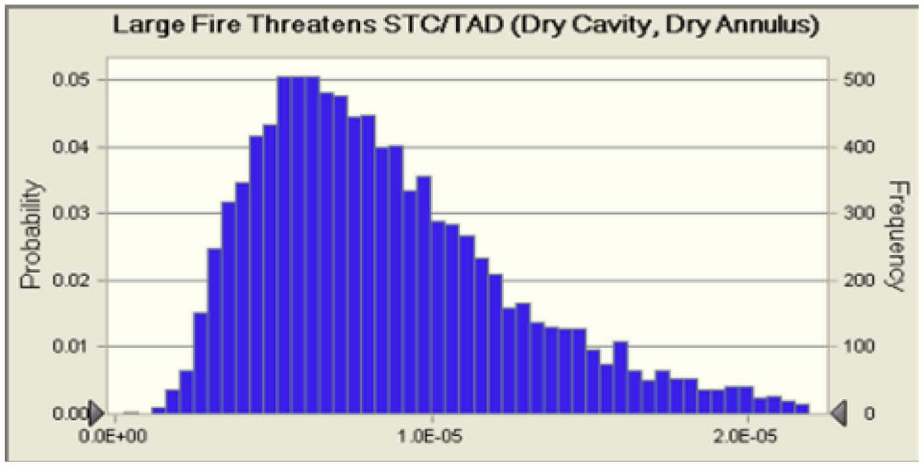
**Forecast: Large Fire Threatens STC/DPC (all) (Wet Cavity, Wet Annulus) (cont'd)** **Cell: K228**

| Percentiles: | Forecast values |
|---|---|
| 0% | 4.5E-07 |
| 10% | 7.2E-06 |
| 20% | 9.2E-06 |
| 30% | 1.1E-05 |
| 40% | 1.2E-05 |
| 50% | 1.4E-05 |
| 60% | 1.6E-05 |
| 70% | 1.8E-05 |
| 80% | 2.1E-05 |
| 90% | 2.7E-05 |
| 100% | 1.1E-04 |

**Forecast: Large Fire Threatens STC/TAD (Dry Cavity, Dry Annulus)** **Cell: K232**

Summary:

Entire range is from 2.5E-07 to 6.1E-05
Base case is 7.9E-06
After 10,000 trials, the std. error of the mean is 4.7E-08




| Statistics: | Forecast values |
|---|---|
| Trials | 10,000 |
| Mean | 8.8E-06 |
| Median | 7.8E-06 |
| Mode | --- |
| Standard Deviation | 4.7E-06 |
| Variance | 2.2E-11 |
| Skewness | 1.66 |
| Kurtosis | 8.45 |
| Coeff. of Variability | 0.5314 |
| Minimum | 2.5E-07 |
| Maximum | 6.1E-05 |
| Range Width | 6.0E-05 |
| Mean Std. Error | 4.7E-08 |

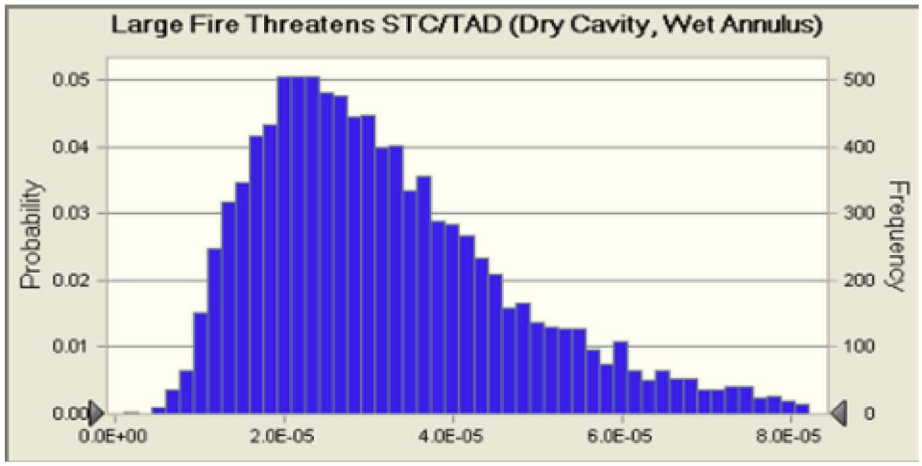
**Forecast: Large Fire Threatens STC/TAD (Dry Cavity, Dry Annulus) (cont'd)** **Cell: K232**

| Percentiles: | Forecast values |
|---|---|
| 0% | 2.5E-07 |
| 10% | 4.0E-06 |
| 20% | 5.1E-06 |
| 30% | 6.0E-06 |
| 40% | 6.9E-06 |
| 50% | 7.8E-06 |
| 60% | 8.9E-06 |
| 70% | 1.0E-05 |
| 80% | 1.2E-05 |
| 90% | 1.5E-05 |
| 100% | 6.1E-05 |

**Forecast: Large Fire Threatens STC/TAD (Dry Cavity, Wet Annulus)** **Cell: K231**

Summary:

Entire range is from 9.3E-07 to 2.3E-04
Base case is 3.0E-05
After 10,000 trials, the std. error of the mean is 1.8E-07




| Statistics: | Forecast values |
|---|---|
| Trials | 10,000 |
| Mean | 3.3E-05 |
| Median | 2.9E-05 |
| Mode | --- |
| Standard Deviation | 1.8E-05 |
| Variance | 3.1E-10 |
| Skewness | 1.66 |
| Kurtosis | 8.45 |
| Coeff. of Variability | 0.5314 |
| Minimum | 9.3E-07 |
| Maximum | 2.3E-04 |
| Range Width | 2.3E-04 |
| Mean Std. Error | 1.8E-07 |

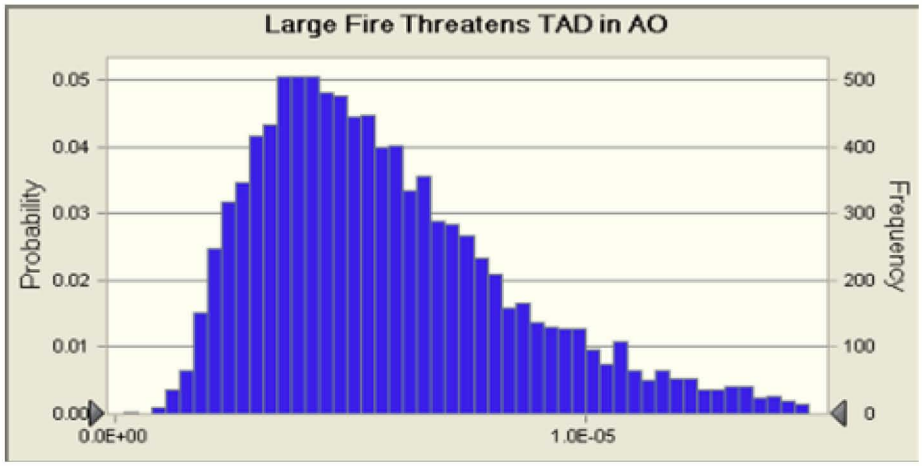
**Forecast: Large Fire Threatens STC/TAD (Dry Cavity, Wet Annulus) (cont'd)** **Cell: K231**

| Percentiles: | Forecast values |
|---|---|
| 0% | 9.3E-07 |
| 10% | 1.5E-05 |
| 20% | 1.9E-05 |
| 30% | 2.2E-05 |
| 40% | 2.6E-05 |
| 50% | 2.9E-05 |
| 60% | 3.3E-05 |
| 70% | 3.8E-05 |
| 80% | 4.4E-05 |
| 90% | 5.5E-05 |
| 100% | 2.3E-04 |

**Forecast: Large Fire Threatens TAD in AO** **Cell: K234**

Summary:

Entire range is from 1.7E-07 to 4.1E-05
Base case is 5.3E-06
After 10,000 trials, the std. error of the mean is 3.1E-08




| Statistics: | Forecast values |
|---|---|
| Trials | 10,000 |
| Mean | 5.9E-06 |
| Median | 5.3E-06 |
| Mode | --- |
| Standard Deviation | 3.1E-06 |
| Variance | 9.9E-12 |
| Skewness | 1.66 |
| Kurtosis | 8.45 |
| Coeff. of Variability | 0.5314 |
| Minimum | 1.7E-07 |
| Maximum | 4.1E-05 |
| Range Width | 4.1E-05 |
| Mean Std. Error | 3.1E-08 |

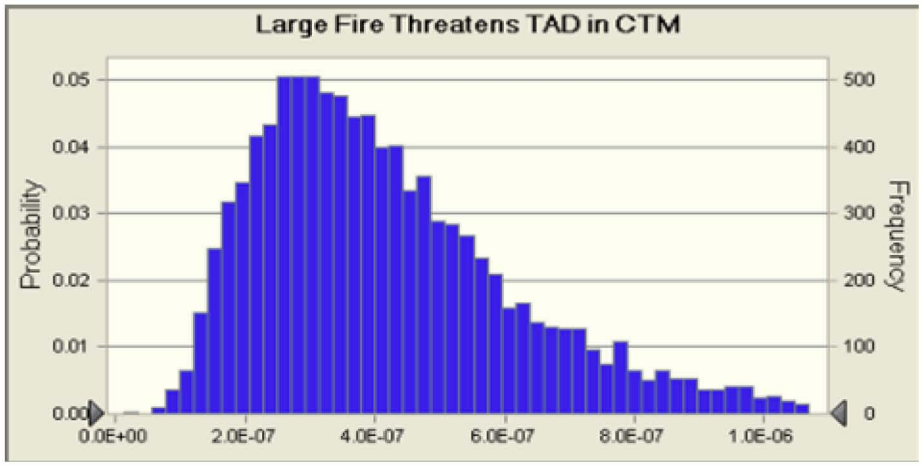
**Forecast: Large Fire Threatens TAD in AO (cont'd)** **Cell: K234**

| Percentiles: | Forecast values |
|---|---|
| 0% | 1.7E-07 |
| 10% | 2.7E-06 |
| 20% | 3.4E-06 |
| 30% | 4.0E-06 |
| 40% | 4.6E-06 |
| 50% | 5.3E-06 |
| 60% | 6.0E-06 |
| 70% | 6.8E-06 |
| 80% | 8.0E-06 |
| 90% | 1.0E-05 |
| 100% | 4.1E-05 |

**Forecast: Large Fire Threatens TAD in CTM** **Cell: K233**

Summary:

Entire range is from 1.2E-08 to 3.0E-06
Base case is 3.9E-07
After 10,000 trials, the std. error of the mean is 2.3E-09




| Statistics: | Forecast values |
|---|---|
| Trials | 10,000 |
| Mean | 4.3E-07 |
| Median | 3.8E-07 |
| Mode | --- |
| Standard Deviation | 2.3E-07 |
| Variance | 5.2E-14 |
| Skewness | 1.66 |
| Kurtosis | 8.45 |
| Coeff. of Variability | 0.5314 |
| Minimum | 1.2E-08 |
| Maximum | 3.0E-06 |
| Range Width | 2.9E-06 |
| Mean Std. Error | 2.3E-09 |

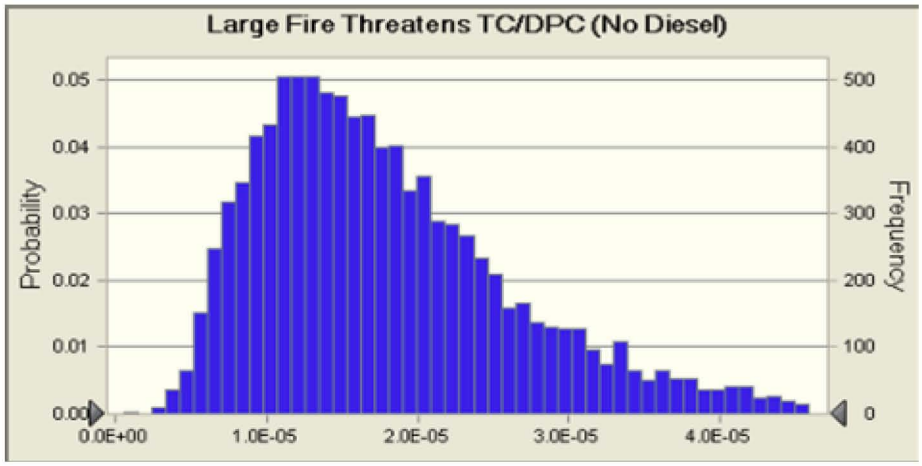
**Forecast: Large Fire Threatens TAD in CTM (cont'd)** **Cell: K233**

| Percentiles: | Forecast values |
|---|---|
| 0% | 1.2E-08 |
| 10% | 2.0E-07 |
| 20% | 2.5E-07 |
| 30% | 2.9E-07 |
| 40% | 3.3E-07 |
| 50% | 3.8E-07 |
| 60% | 4.3E-07 |
| 70% | 4.9E-07 |
| 80% | 5.8E-07 |
| 90% | 7.2E-07 |
| 100% | 3.0E-06 |

**Forecast: Large Fire Threatens TC/DPC (No Diesel)** **Cell: K224**

Summary:

Entire range is from 5.2E-07 to 1.3E-04
Base case is 1.7E-05
After 10,000 trials, the std. error of the mean is 9.8E-08




| Statistics: | Forecast values |
|---|---|
| Trials | 10,000 |
| Mean | 1.8E-05 |
| Median | 1.6E-05 |
| Mode | --- |
| Standard Deviation | 9.8E-06 |
| Variance | 9.6E-11 |
| Skewness | 1.66 |
| Kurtosis | 8.45 |
| Coeff. of Variability | 0.5314 |
| Minimum | 5.2E-07 |
| Maximum | 1.3E-04 |
| Range Width | 1.3E-04 |
| Mean Std. Error | 9.8E-08 |

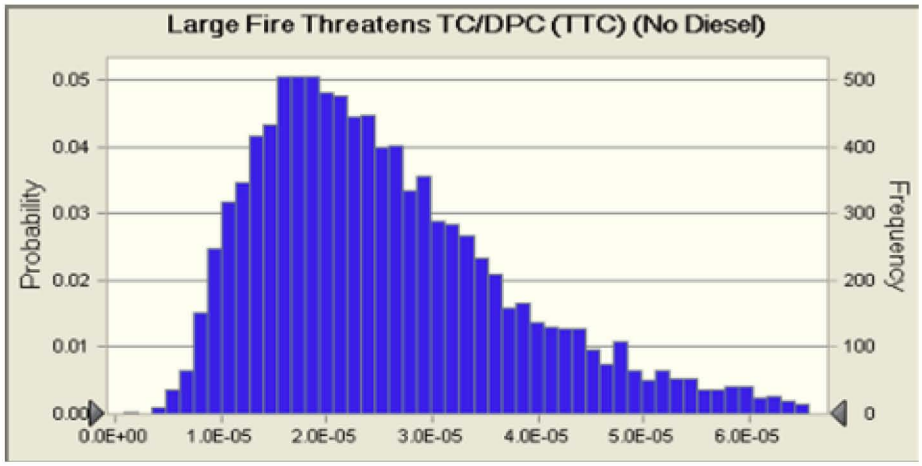
**Forecast: Large Fire Threatens TC/DPC (No Diesel) (cont'd)** **Cell: K224**

| Percentiles: | Forecast values |
|---|---|
| 0% | 5.2E-07 |
| 10% | 8.4E-06 |
| 20% | 1.1E-05 |
| 30% | 1.3E-05 |
| 40% | 1.4E-05 |
| 50% | 1.6E-05 |
| 60% | 1.9E-05 |
| 70% | 2.1E-05 |
| 80% | 2.5E-05 |
| 90% | 3.1E-05 |
| 100% | 1.3E-04 |

**Forecast: Large Fire Threatens TC/DPC (TTC) (No Diesel)** **Cell: K223**

Summary:

Entire range is from 7.5E-07 to 1.8E-04
Base case is 2.4E-05
After 10,000 trials, the std. error of the mean is 1.4E-07




| Statistics: | Forecast values |
|---|---|
| Trials | 10,000 |
| Mean | 2.6E-05 |
| Median | 2.3E-05 |
| Mode | --- |
| Standard Deviation | 1.4E-05 |
| Variance | 2.0E-10 |
| Skewness | 1.66 |
| Kurtosis | 8.45 |
| Coeff. of Variability | 0.5314 |
| Minimum | 7.5E-07 |
| Maximum | 1.8E-04 |
| Range Width | 1.8E-04 |
| Mean Std. Error | 1.4E-07 |

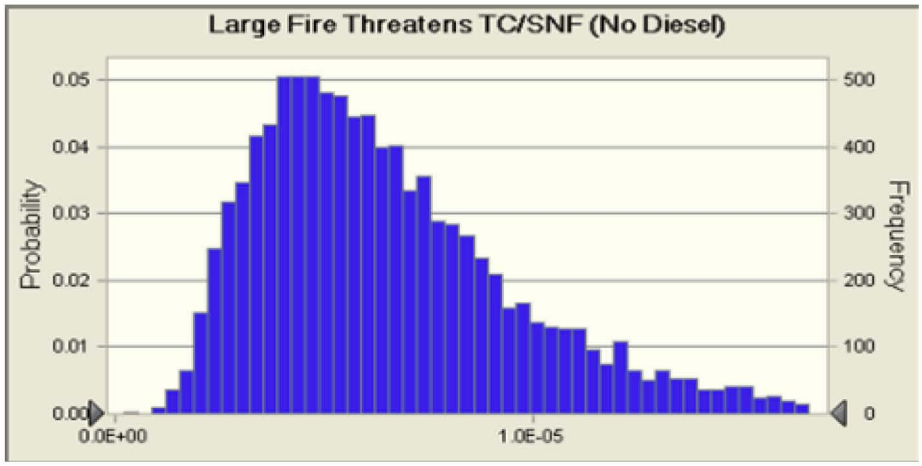
**Forecast: Large Fire Threatens TC/DPC (TTC) (No Diesel) (cont'd)** **Cell: K223**

| Percentiles: | Forecast values |
|---|---|
| 0% | 7.5E-07 |
| 10% | 1.2E-05 |
| 20% | 1.5E-05 |
| 30% | 1.8E-05 |
| 40% | 2.1E-05 |
| 50% | 2.3E-05 |
| 60% | 2.7E-05 |
| 70% | 3.0E-05 |
| 80% | 3.5E-05 |
| 90% | 4.4E-05 |
| 100% | 1.8E-04 |

**Forecast: Large Fire Threatens TC/SNF (No Diesel)** **Cell: K222**

Summary:

Entire range is from 1.9E-07 to 4.6E-05
Base case is 6.0E-06
After 10,000 trials, the std. error of the mean is 3.5E-08




| Statistics: | Forecast values |
|---|---|
| Trials | 10,000 |
| Mean | 6.7E-06 |
| Median | 5.9E-06 |
| Mode | --- |
| Standard Deviation | 3.5E-06 |
| Variance | 1.3E-11 |
| Skewness | 1.66 |
| Kurtosis | 8.45 |
| Coeff. of Variability | 0.5314 |
| Minimum | 1.9E-07 |
| Maximum | 4.6E-05 |
| Range Width | 4.6E-05 |
| Mean Std. Error | 3.5E-08 |

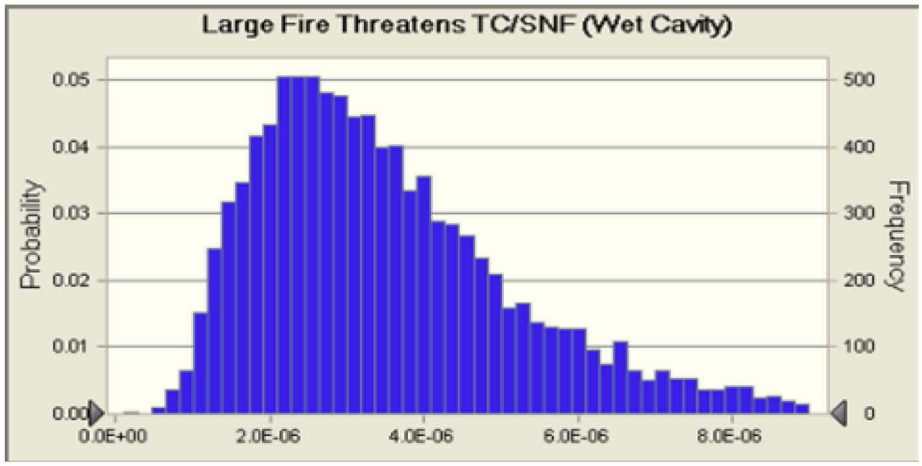
**Forecast: Large Fire Threatens TC/SNF (No Diesel) (cont'd)** **Cell: K222**

| Percentiles: | Forecast values |
|---|---|
| 0% | 1.9E-07 |
| 10% | 3.1E-06 |
| 20% | 3.9E-06 |
| 30% | 4.5E-06 |
| 40% | 5.2E-06 |
| 50% | 5.9E-06 |
| 60% | 6.7E-06 |
| 70% | 7.7E-06 |
| 80% | 9.0E-06 |
| 90% | 1.1E-05 |
| 100% | 4.6E-05 |

**Forecast: Large Fire Threatens TC/SNF (Wet Cavity)** **Cell: K229**

Summary:

Entire range is from 1.0E-07 to 2.5E-05
Base case is 3.2E-06
After 10,000 trials, the std. error of the mean is 1.9E-08




| Statistics: | Forecast values |
|---|---|
| Trials | 10,000 |
| Mean | 3.6E-06 |
| Median | 3.2E-06 |
| Mode | --- |
| Standard Deviation | 1.9E-06 |
| Variance | 3.7E-12 |
| Skewness | 1.66 |
| Kurtosis | 8.45 |
| Coeff. of Variability | 0.5314 |
| Minimum | 1.0E-07 |
| Maximum | 2.5E-05 |
| Range Width | 2.5E-05 |
| Mean Std. Error | 1.9E-08 |

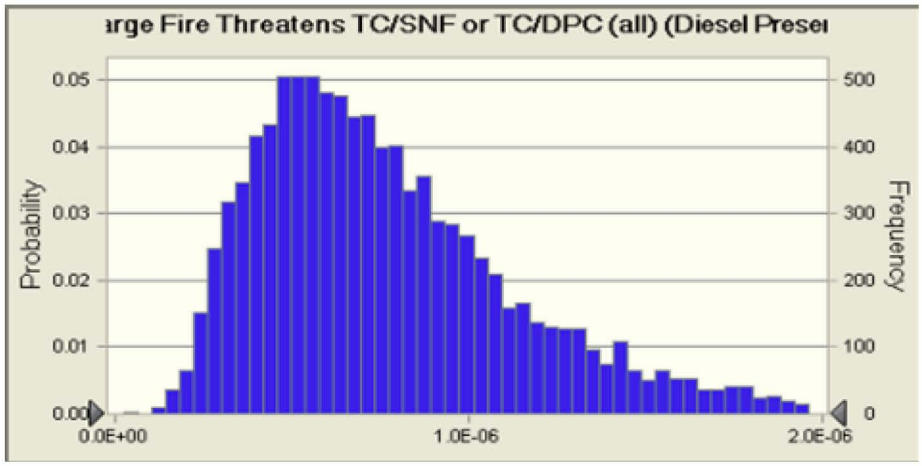
**Forecast: Large Fire Threatens TC/SNF (Wet Cavity) (cont'd)** **Cell: K229**

| Percentiles: | Forecast values |
|---|---|
| 0% | 1.0E-07 |
| 10% | 1.7E-06 |
| 20% | 2.1E-06 |
| 30% | 2.5E-06 |
| 40% | 2.8E-06 |
| 50% | 3.2E-06 |
| 60% | 3.6E-06 |
| 70% | 4.2E-06 |
| 80% | 4.9E-06 |
| 90% | 6.1E-06 |
| 100% | 2.5E-05 |

**Forecast: Large Fire Threatens TC/SNF or TC/DPC (all) (Diesel Present)** **Cell: K221**

Summary:

Entire range is from 2.2E-08 to 5.4E-06
Base case is 7.1E-07
After 10,000 trials, the std. error of the mean is 4.2E-09




| Statistics: | Forecast values |
|---|---|
| Trials | 10,000 |
| Mean | 7.9E-07 |
| Median | 7.0E-07 |
| Mode | --- |
| Standard Deviation | 4.2E-07 |
| Variance | 1.8E-13 |
| Skewness | 1.66 |
| Kurtosis | 8.45 |
| Coeff. of Variability | 0.5314 |
| Minimum | 2.2E-08 |
| Maximum | 5.4E-06 |
| Range Width | 5.4E-06 |
| Mean Std. Error | 4.2E-09 |

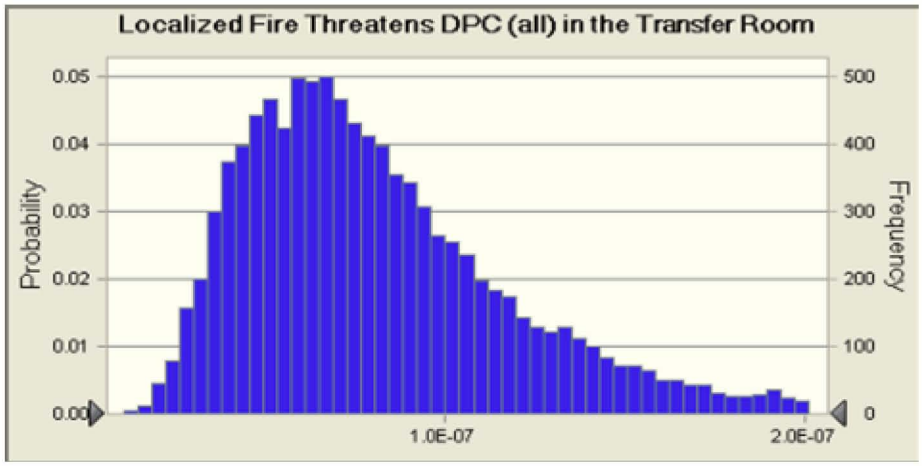
**Forecast: Large Fire Threatens TC/SNF or TC/DPC (all) (Diesel Present) (cont'd)** **Cell: K221**

| Percentiles: | Forecast values |
|---|---|
| 0% | 2.2E-08 |
| 10% | 3.6E-07 |
| 20% | 4.6E-07 |
| 30% | 5.3E-07 |
| 40% | 6.1E-07 |
| 50% | 7.0E-07 |
| 60% | 7.9E-07 |
| 70% | 9.1E-07 |
| 80% | 1.1E-06 |
| 90% | 1.3E-06 |
| 100% | 5.4E-06 |

**Forecast: Localized Fire Threatens DPC (all) in the Transfer Room** **Cell: K130**

Summary:

Entire range is from 1.1E-08 to 4.3E-07
Base case is 7.5E-08
After 10,000 trials, the std. error of the mean is 4.2E-10




| Statistics: | Forecast values |
|---|---|
| Trials | 10,000 |
| Mean | 8.3E-08 |
| Median | 7.4E-08 |
| Mode | --- |
| Standard Deviation | 4.2E-08 |
| Variance | 1.8E-15 |
| Skewness | 1.59 |
| Kurtosis | 7.38 |
| Coeff. of Variability | 0.5045 |
| Minimum | 1.1E-08 |
| Maximum | 4.3E-07 |
| Range Width | 4.2E-07 |
| Mean Std. Error | 4.2E-10 |

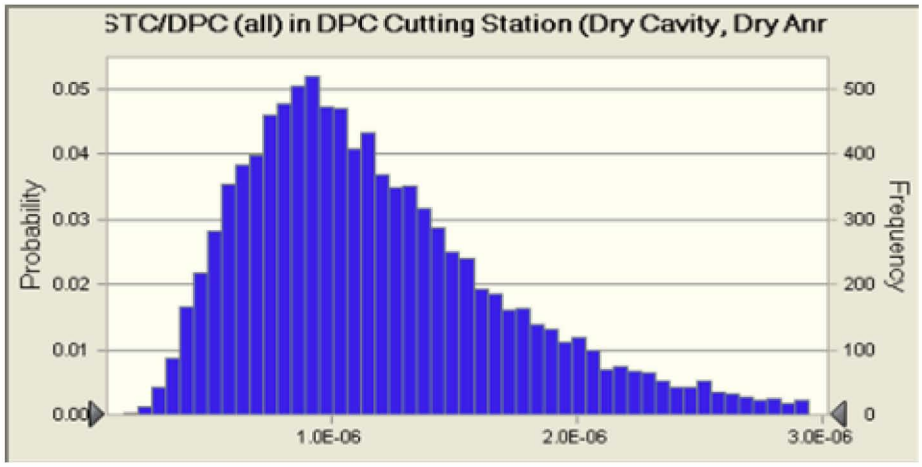
**Forecast: Localized Fire Threatens DPC (all) in the Transfer Room (cont'd)** **Cell: K130**

| Percentiles: | Forecast values |
|---|---|
| 0% | 1.1E-08 |
| 10% | 4.0E-08 |
| 20% | 5.0E-08 |
| 30% | 5.8E-08 |
| 40% | 6.6E-08 |
| 50% | 7.4E-08 |
| 60% | 8.4E-08 |
| 70% | 9.5E-08 |
| 80% | 1.1E-07 |
| 90% | 1.4E-07 |
| 100% | 4.3E-07 |

**Forecast: Localized Fire Threatens STC/DPC (all) in DPC Cutting Station (Dry Cavity, Dry Annulus) in the Preparation Area** **Cell: K154**

Summary:

Entire range is from 1.6E-07 to 6.2E-06
Base case is 1.1E-06
After 10,000 trials, the std. error of the mean is 6.2E-09




| Statistics: | Forecast values |
|---|---|
| Trials | 10,000 |
| Mean | 1.2E-06 |
| Median | 1.1E-06 |
| Mode | --- |
| Standard Deviation | 6.2E-07 |
| Variance | 3.8E-13 |
| Skewness | 1.60 |
| Kurtosis | 7.39 |
| Coeff. of Variability | 0.5047 |
| Minimum | 1.6E-07 |
| Maximum | 6.2E-06 |
| Range Width | 6.0E-06 |
| Mean Std. Error | 6.2E-09 |

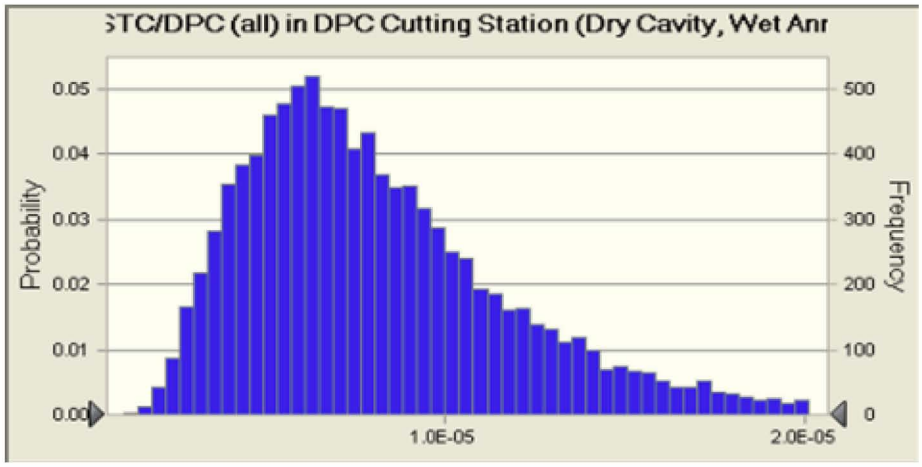
**Forecast: Localized Fire Threatens STC/DPC (all) in DPC Cutting Station (Dry Cavity, Dry Annulus) in the Preparation Area (cont'd)** **Cell: K154**

| Percentiles: | Forecast values |
|---|---|
| 0% | 1.6E-07 |
| 10% | 5.9E-07 |
| 20% | 7.3E-07 |
| 30% | 8.5E-07 |
| 40% | 9.6E-07 |
| 50% | 1.1E-06 |
| 60% | 1.2E-06 |
| 70% | 1.4E-06 |
| 80% | 1.6E-06 |
| 90% | 2.0E-06 |
| 100% | 6.2E-06 |

**Forecast: Localized Fire Threatens STC/DPC (all) in DPC Cutting Station (Dry Cavity, Wet Annulus) in the Preparation Area** **Cell: M155**

Summary:

Entire range is from 1.1E-06 to 4.2E-05
Base case is 7.5E-06
After 10,000 trials, the std. error of the mean is 4.2E-08




| Statistics: | Forecast values |
|---|---|
| Trials | 10,000 |
| Mean | 8.3E-06 |
| Median | 7.4E-06 |
| Mode | --- |
| Standard Deviation | 4.2E-06 |
| Variance | 1.8E-11 |
| Skewness | 1.60 |
| Kurtosis | 7.39 |
| Coeff. of Variability | 0.5047 |
| Minimum | 1.1E-06 |
| Maximum | 4.2E-05 |
| Range Width | 4.1E-05 |
| Mean Std. Error | 4.2E-08 |

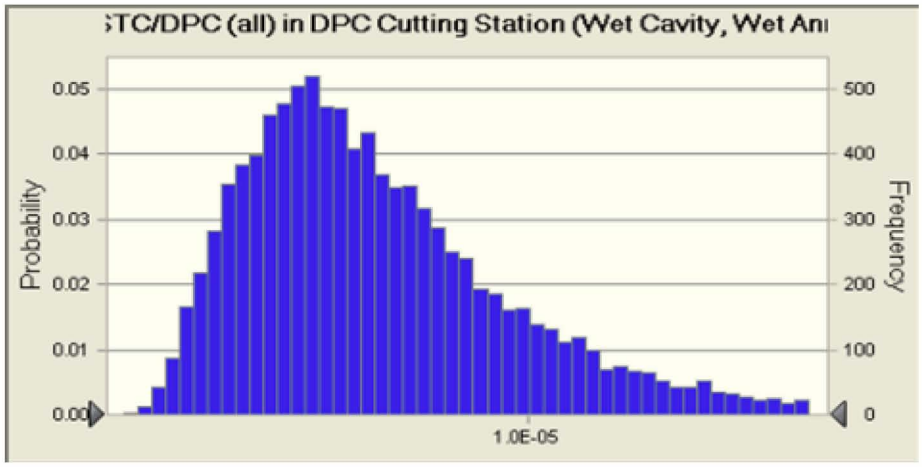
**Forecast: Localized Fire Threatens STC/DPC (all) in DPC Cutting Station (Dry Cavity, Wet Annulus) in the Preparation Area (cont'd)** **Cell: M155**

| Percentiles: | Forecast values |
|---|---|
| 0% | 1.1E-06 |
| 10% | 4.0E-06 |
| 20% | 5.0E-06 |
| 30% | 5.8E-06 |
| 40% | 6.6E-06 |
| 50% | 7.4E-06 |
| 60% | 8.4E-06 |
| 70% | 9.5E-06 |
| 80% | 1.1E-05 |
| 90% | 1.4E-05 |
| 100% | 4.2E-05 |

**Forecast: Localized Fire Threatens STC/DPC (all) in DPC Cutting Station (Wet Cavity, Wet Annulus) in the Preparation Area** **Cell: O156**

Summary:

Entire range is from 8.8E-07 to 3.4E-05
Base case is 6.1E-06
After 10,000 trials, the std. error of the mean is 3.4E-08




| Statistics: | Forecast values |
|---|---|
| Trials | 10,000 |
| Mean | 6.8E-06 |
| Median | 6.0E-06 |
| Mode | --- |
| Standard Deviation | 3.4E-06 |
| Variance | 1.2E-11 |
| Skewness | 1.60 |
| Kurtosis | 7.39 |
| Coeff. of Variability | 0.5047 |
| Minimum | 8.8E-07 |
| Maximum | 3.4E-05 |
| Range Width | 3.3E-05 |
| Mean Std. Error | 3.4E-08 |

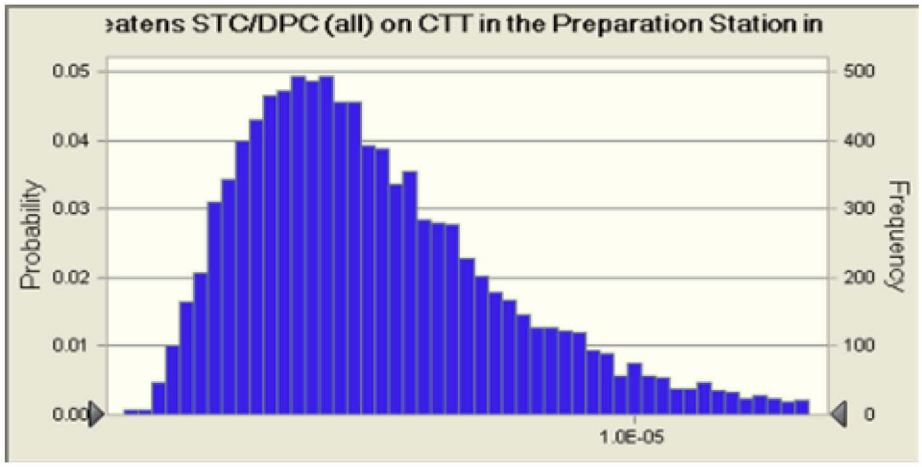
**Forecast: Localized Fire Threatens STC/DPC (all) in DPC Cutting Station (Wet Cavity, Wet Annulus) in the Preparation Area (cont'd)** **Cell: O156**

| Percentiles: | Forecast values |
|---|---|
| 0% | 8.8E-07 |
| 10% | 3.3E-06 |
| 20% | 4.1E-06 |
| 30% | 4.7E-06 |
| 40% | 5.3E-06 |
| 50% | 6.0E-06 |
| 60% | 6.8E-06 |
| 70% | 7.7E-06 |
| 80% | 9.0E-06 |
| 90% | 1.1E-05 |
| 100% | 3.4E-05 |

**Forecast: Localized Fire Threatens STC/DPC (all) on CTT in the Preparation Station in the Preparation Area** **Cell: M94**

Summary:

Entire range is from 6.8E-07 to 2.7E-05
Base case is 4.9E-06
After 10,000 trials, the std. error of the mean is 2.8E-08




| Statistics: | Forecast values |
|---|---|
| Trials | 10,000 |
| Mean | 5.4E-06 |
| Median | 4.8E-06 |
| Mode | --- |
| Standard Deviation | 2.8E-06 |
| Variance | 7.7E-12 |
| Skewness | 1.61 |
| Kurtosis | 7.43 |
| Coeff. of Variability | 0.5117 |
| Minimum | 6.8E-07 |
| Maximum | 2.7E-05 |
| Range Width | 2.7E-05 |
| Mean Std. Error | 2.8E-08 |

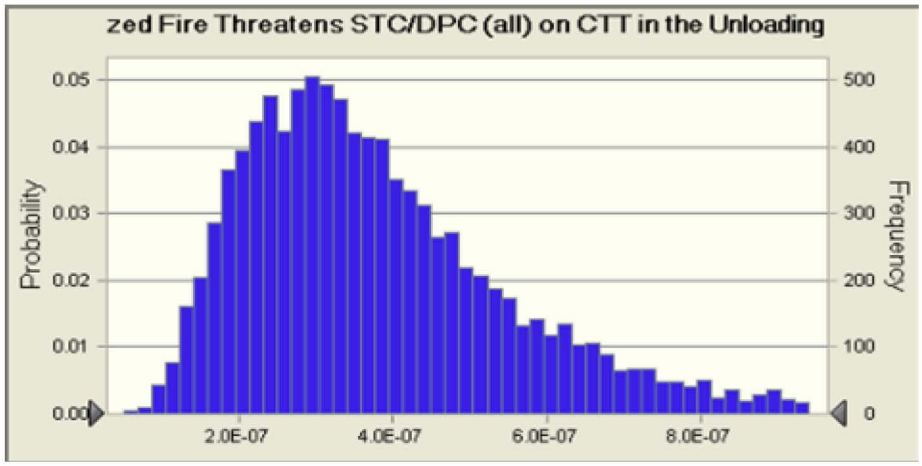
**Forecast: Localized Fire Threatens STC/DPC (all) on CTT in the Preparation Station in the Preparation Area (cont'd)** **Cell: M94**

| Percentiles: | Forecast values |
|---|---|
| 0% | 6.8E-07 |
| 10% | 2.6E-06 |
| 20% | 3.2E-06 |
| 30% | 3.8E-06 |
| 40% | 4.3E-06 |
| 50% | 4.8E-06 |
| 60% | 5.4E-06 |
| 70% | 6.2E-06 |
| 80% | 7.2E-06 |
| 90% | 9.0E-06 |
| 100% | 2.7E-05 |

**Forecast: Localized Fire Threatens STC/DPC (all) on CTT in the Unloading Room Cell: M112**

Summary:

Entire range is from 5.1E-08 to 2.0E-06
Base case is 3.5E-07
After 10,000 trials, the std. error of the mean is 2.0E-09




| Statistics: | Forecast values |
|---|---|
| Trials | 10,000 |
| Mean | 3.9E-07 |
| Median | 3.5E-07 |
| Mode | --- |
| Standard Deviation | 2.0E-07 |
| Variance | 3.9E-14 |
| Skewness | 1.59 |
| Kurtosis | 7.36 |
| Coeff. of Variability | 0.5035 |
| Minimum | 5.1E-08 |
| Maximum | 2.0E-06 |
| Range Width | 1.9E-06 |
| Mean Std. Error | 2.0E-09 |

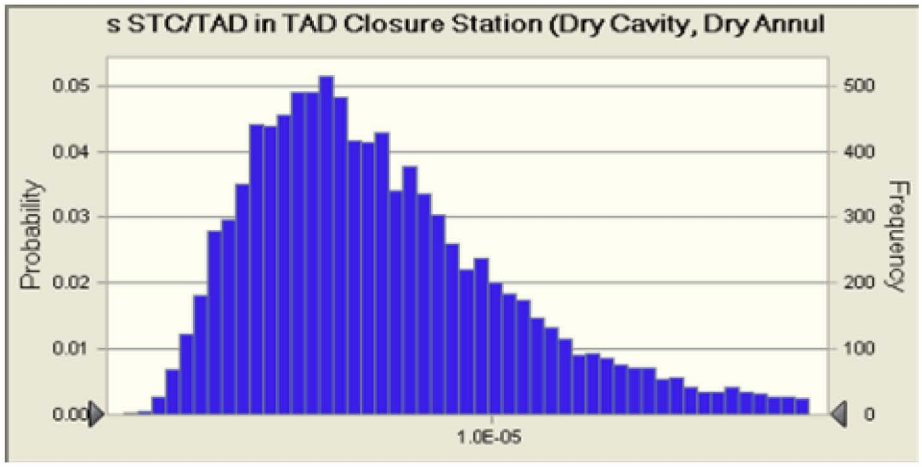
**Forecast: Localized Fire Threatens STC/DPC (all) on CTT in the Unloading Room (cont'd) Cell: M112**

| Percentiles: | Forecast values |
|---|---|
| 0% | 5.1E-08 |
| 10% | 1.9E-07 |
| 20% | 2.3E-07 |
| 30% | 2.7E-07 |
| 40% | 3.1E-07 |
| 50% | 3.5E-07 |
| 60% | 3.9E-07 |
| 70% | 4.5E-07 |
| 80% | 5.2E-07 |
| 90% | 6.4E-07 |
| 100% | 2.0E-06 |

**Forecast: Localized Fire Threatens STC/TAD in TAD Closure Station (Dry Cavity, Dry Annulus) in the Preparation Area** **Cell: K182**

Summary:

Entire range is from 9.8E-07 to 3.8E-05
Base case is 6.8E-06
After 10,000 trials, the std. error of the mean is 3.7E-08




| Statistics: | Forecast values |
|---|---|
| Trials | 10,000 |
| Mean | 7.5E-06 |
| Median | 6.8E-06 |
| Mode | --- |
| Standard Deviation | 3.7E-06 |
| Variance | 1.3E-11 |
| Skewness | 1.54 |
| Kurtosis | 7.03 |
| Coeff. of Variability | 0.4872 |
| Minimum | 9.8E-07 |
| Maximum | 3.8E-05 |
| Range Width | 3.7E-05 |
| Mean Std. Error | 3.7E-08 |

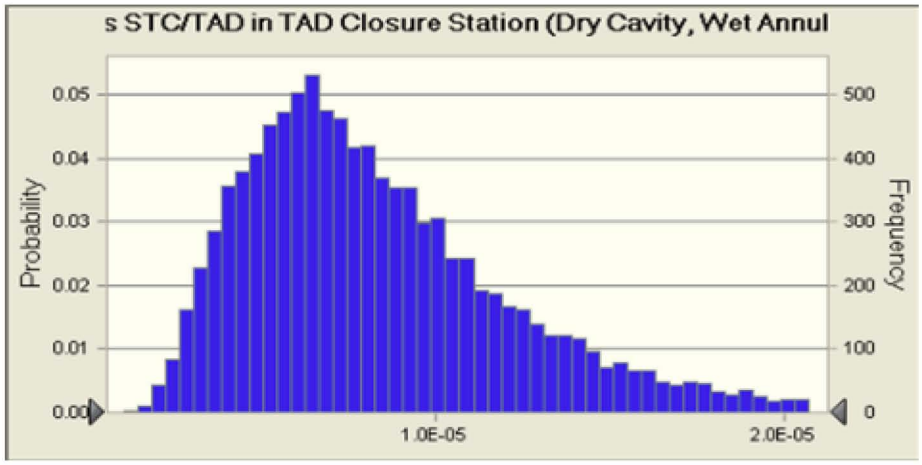
**Forecast: Localized Fire Threatens STC/TAD in TAD Closure Station (Dry Cavity, Dry Annulus) in the Preparation Area (cont'd)** **Cell: K182**

| Percentiles: | Forecast values |
|---|---|
| 0% | 9.8E-07 |
| 10% | 3.7E-06 |
| 20% | 4.6E-06 |
| 30% | 5.3E-06 |
| 40% | 6.0E-06 |
| 50% | 6.8E-06 |
| 60% | 7.6E-06 |
| 70% | 8.6E-06 |
| 80% | 9.9E-06 |
| 90% | 1.2E-05 |
| 100% | 3.8E-05 |

**Forecast: Localized Fire Threatens STC/TAD in TAD Closure Station (Dry Cavity, Wet Annulus) in the Preparation Area** **Cell: M183**

Summary:

Entire range is from 1.1E-06 to 4.3E-05
Base case is 7.7E-06
After 10,000 trials, the std. error of the mean is 4.3E-08




| Statistics: | Forecast values |
|---|---|
| Trials | 10,000 |
| Mean | 8.6E-06 |
| Median | 7.6E-06 |
| Mode | --- |
| Standard Deviation | 4.3E-06 |
| Variance | 1.9E-11 |
| Skewness | 1.61 |
| Kurtosis | 7.41 |
| Coeff. of Variability | 0.5060 |
| Minimum | 1.1E-06 |
| Maximum | 4.3E-05 |
| Range Width | 4.2E-05 |
| Mean Std. Error | 4.3E-08 |

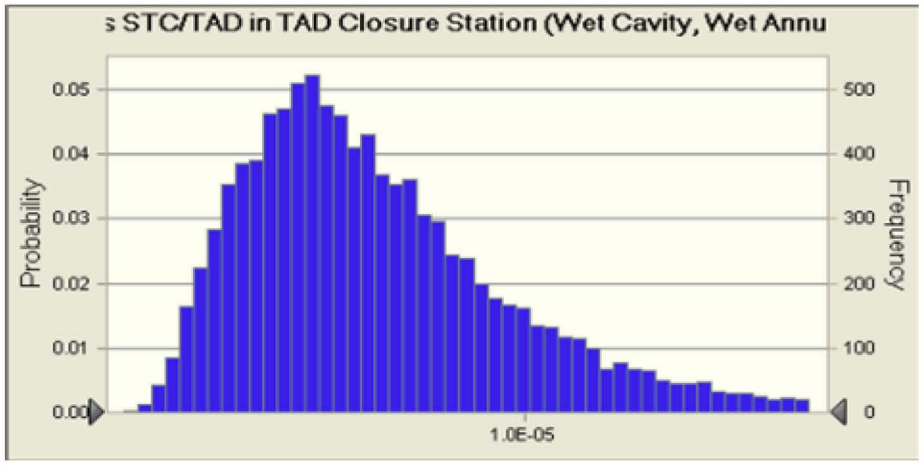
**Forecast: Localized Fire Threatens STC/TAD in TAD Closure Station (Dry Cavity, Wet Annulus) in the Preparation Area (cont'd)** **Cell: M183**

| Percentiles: | Forecast values |
|---|---|
| 0% | 1.1E-06 |
| 10% | 4.1E-06 |
| 20% | 5.1E-06 |
| 30% | 6.0E-06 |
| 40% | 6.7E-06 |
| 50% | 7.6E-06 |
| 60% | 8.6E-06 |
| 70% | 9.8E-06 |
| 80% | 1.1E-05 |
| 90% | 1.4E-05 |
| 100% | 4.3E-05 |

**Forecast: Localized Fire Threatens STC/TAD in TAD Closure Station (Wet Cavity, Wet Annulus) in the Preparation Area** **Cell: O184**

Summary:

Entire range is from 8.8E-07 to 3.4E-05
Base case is 6.1E-06
After 10,000 trials, the std. error of the mean is 3.4E-08




| Statistics: | Forecast values |
|---|---|
| Trials | 10,000 |
| Mean | 6.8E-06 |
| Median | 6.1E-06 |
| Mode | --- |
| Standard Deviation | 3.4E-06 |
| Variance | 1.2E-11 |
| Skewness | 1.61 |
| Kurtosis | 7.40 |
| Coeff. of Variability | 0.5050 |
| Minimum | 8.8E-07 |
| Maximum | 3.4E-05 |
| Range Width | 3.4E-05 |
| Mean Std. Error | 3.4E-08 |

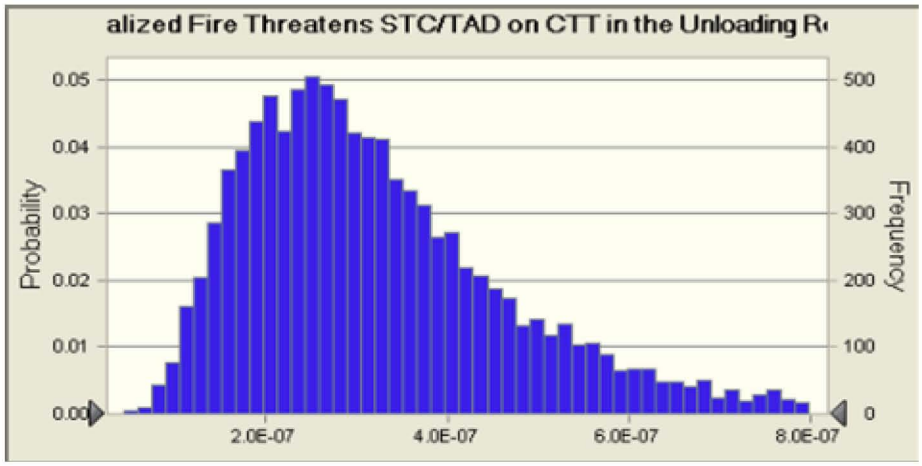
**Forecast: Localized Fire Threatens STC/TAD in TAD Closure Station (Wet Cavity, Wet Annulus) in the Preparation Area (cont'd)** **Cell: O184**

| Percentiles: | Forecast values |
|---|---|
| 0% | 8.8E-07 |
| 10% | 3.3E-06 |
| 20% | 4.1E-06 |
| 30% | 4.8E-06 |
| 40% | 5.4E-06 |
| 50% | 6.1E-06 |
| 60% | 6.9E-06 |
| 70% | 7.8E-06 |
| 80% | 9.1E-06 |
| 90% | 1.1E-05 |
| 100% | 3.4E-05 |

**Forecast: Localized Fire Threatens STC/TAD on CTT in the Unloading Room** **Cell: O113**

Summary:

Entire range is from 4.4E-08 to 1.7E-06
Base case is 3.0E-07
After 10,000 trials, the std. error of the mean is 1.7E-09




| Statistics: | Forecast values |
|---|---|
| Trials | 10,000 |
| Mean | 3.3E-07 |
| Median | 3.0E-07 |
| Mode | --- |
| Standard Deviation | 1.7E-07 |
| Variance | 2.8E-14 |
| Skewness | 1.59 |
| Kurtosis | 7.36 |
| Coeff. of Variability | 0.5035 |
| Minimum | 4.4E-08 |
| Maximum | 1.7E-06 |
| Range Width | 1.6E-06 |
| Mean Std. Error | 1.7E-09 |

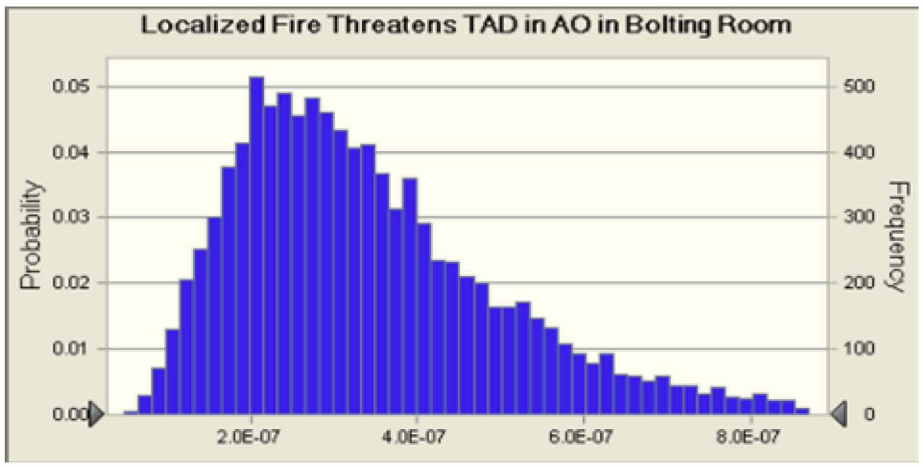
**Forecast: Localized Fire Threatens STC/TAD on CTT in the Unloading Room (cont'd)** **Cell: O113**

| Percentiles: | Forecast values |
|---|---|
| 0% | 4.4E-08 |
| 10% | 1.6E-07 |
| 20% | 2.0E-07 |
| 30% | 2.3E-07 |
| 40% | 2.6E-07 |
| 50% | 3.0E-07 |
| 60% | 3.3E-07 |
| 70% | 3.8E-07 |
| 80% | 4.4E-07 |
| 90% | 5.4E-07 |
| 100% | 1.7E-06 |

**Forecast: Localized Fire Threatens TAD in AO in Bolting Room** **Cell: K213**

Summary:

Entire range is from 4.8E-08 to 1.7E-06
Base case is 3.1E-07
After 10,000 trials, the std. error of the mean is 1.8E-09




| Statistics: | Forecast values |
|---|---|
| Trials | 10,000 |
| Mean | 3.5E-07 |
| Median | 3.1E-07 |
| Mode | --- |
| Standard Deviation | 1.8E-07 |
| Variance | 3.4E-14 |
| Skewness | 1.57 |
| Kurtosis | 6.98 |
| Coeff. of Variability | 0.5229 |
| Minimum | 4.8E-08 |
| Maximum | 1.7E-06 |
| Range Width | 1.7E-06 |
| Mean Std. Error | 1.8E-09 |

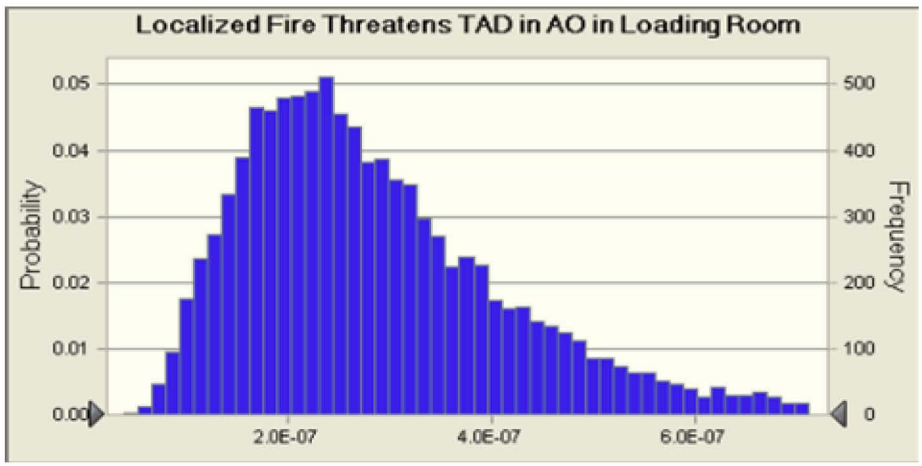
**Forecast: Localized Fire Threatens TAD in AO in Bolting Room (cont'd)** **Cell: K213**

| Percentiles: | Forecast values |
|---|---|
| 0% | 4.8E-08 |
| 10% | 1.7E-07 |
| 20% | 2.1E-07 |
| 30% | 2.4E-07 |
| 40% | 2.8E-07 |
| 50% | 3.1E-07 |
| 60% | 3.5E-07 |
| 70% | 4.0E-07 |
| 80% | 4.7E-07 |
| 90% | 5.8E-07 |
| 100% | 1.7E-06 |

**Forecast: Localized Fire Threatens TAD in AO in Loading Room** **Cell: K201**

Summary:

Entire range is from 3.9E-08 to 1.4E-06
Base case is 2.6E-07
After 10,000 trials, the std. error of the mean is 1.5E-09




| Statistics: | Forecast values |
|---|---|
| Trials | 10,000 |
| Mean | 2.9E-07 |
| Median | 2.6E-07 |
| Mode | --- |
| Standard Deviation | 1.5E-07 |
| Variance | 2.2E-14 |
| Skewness | 1.56 |
| Kurtosis | 7.05 |
| Coeff. of Variability | 0.5074 |
| Minimum | 3.9E-08 |
| Maximum | 1.4E-06 |
| Range Width | 1.4E-06 |
| Mean Std. Error | 1.5E-09 |

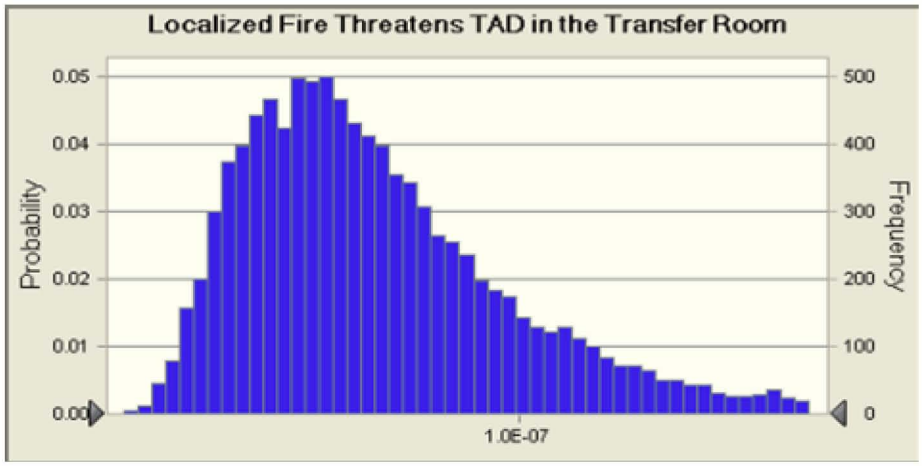
**Forecast: Localized Fire Threatens TAD in AO in Loading Room (cont'd)** **Cell: K201**

| Percentiles: | Forecast values |
|---|---|
| 0% | 3.9E-08 |
| 10% | 1.4E-07 |
| 20% | 1.7E-07 |
| 30% | 2.0E-07 |
| 40% | 2.3E-07 |
| 50% | 2.6E-07 |
| 60% | 3.0E-07 |
| 70% | 3.4E-07 |
| 80% | 3.9E-07 |
| 90% | 4.8E-07 |
| 100% | 1.4E-06 |

**Forecast: Localized Fire Threatens TAD in the Transfer Room** **Cell: M131**

Summary:

Entire range is from 9.1E-09 to 3.5E-07
Base case is 6.2E-08
After 10,000 trials, the std. error of the mean is 3.5E-10




| Statistics: | Forecast values |
|---|---|
| Trials | 10,000 |
| Mean | 6.9E-08 |
| Median | 6.2E-08 |
| Mode | --- |
| Standard Deviation | 3.5E-08 |
| Variance | 1.2E-15 |
| Skewness | 1.59 |
| Kurtosis | 7.38 |
| Coeff. of Variability | 0.5045 |
| Minimum | 9.1E-09 |
| Maximum | 3.5E-07 |
| Range Width | 3.5E-07 |
| Mean Std. Error | 3.5E-10 |

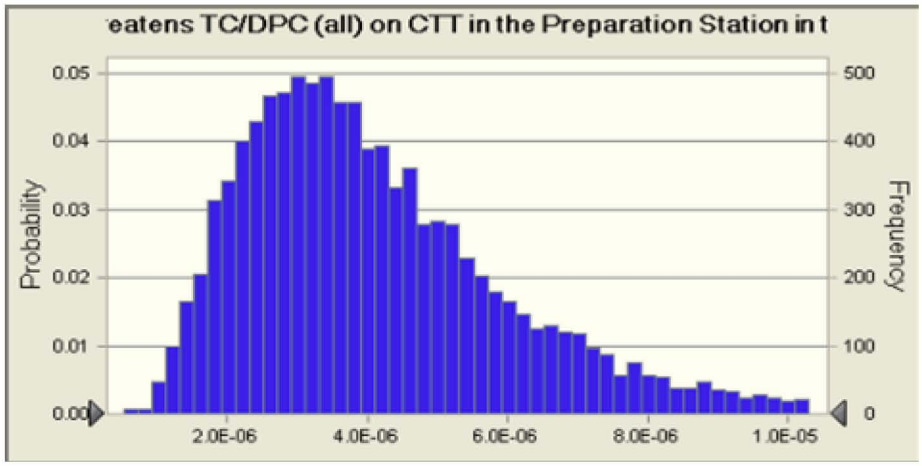
**Forecast: Localized Fire Threatens TAD in the Transfer Room (cont'd)** **Cell: M131**

| Percentiles: | Forecast values |
|---|---|
| 0% | 9.1E-09 |
| 10% | 3.3E-08 |
| 20% | 4.1E-08 |
| 30% | 4.8E-08 |
| 40% | 5.5E-08 |
| 50% | 6.2E-08 |
| 60% | 6.9E-08 |
| 70% | 7.9E-08 |
| 80% | 9.2E-08 |
| 90% | 1.1E-07 |
| 100% | 3.5E-07 |

**Forecast: Localized Fire Threatens TC/DPC (all) on CTT in the Preparation Station Cell: K93**

Summary:

Entire range is from 5.3E-07 to 2.1E-05
Base case is 3.8E-06
After 10,000 trials, the std. error of the mean is 2.2E-08




| Statistics: | Forecast values |
|---|---|
| Trials | 10,000 |
| Mean | 4.2E-06 |
| Median | 3.8E-06 |
| Mode | --- |
| Standard Deviation | 2.2E-06 |
| Variance | 4.7E-12 |
| Skewness | 1.61 |
| Kurtosis | 7.43 |
| Coeff. of Variability | 0.5118 |
| Minimum | 5.3E-07 |
| Maximum | 2.1E-05 |
| Range Width | 2.1E-05 |
| Mean Std. Error | 2.2E-08 |

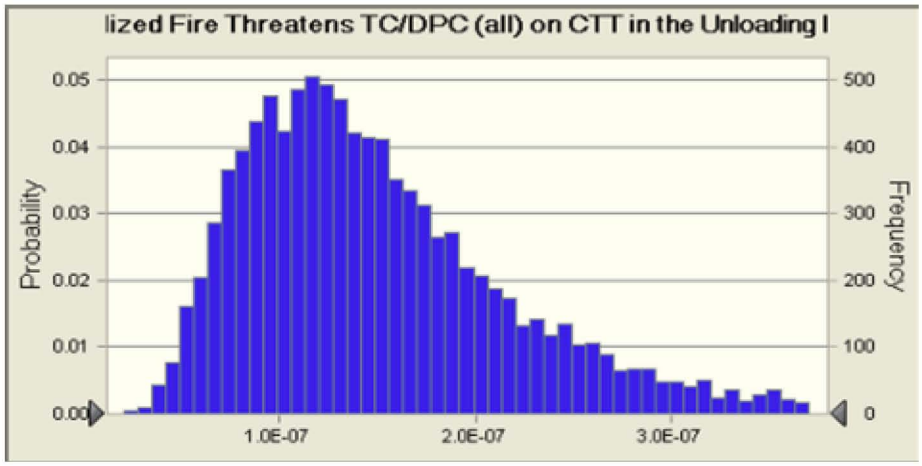
**Forecast: Localized Fire Threatens TC/DPC (all) on CTT in the Preparation Station Cell: K93**

| Percentiles: | Forecast values |
|---|---|
| 0% | 5.3E-07 |
| 10% | 2.0E-06 |
| 20% | 2.5E-06 |
| 30% | 2.9E-06 |
| 40% | 3.3E-06 |
| 50% | 3.8E-06 |
| 60% | 4.3E-06 |
| 70% | 4.8E-06 |
| 80% | 5.6E-06 |
| 90% | 7.0E-06 |
| 100% | 2.1E-05 |

**Forecast: Localized Fire Threatens TC/DPC (all) on CTT in the Unloading Room Cell: K111**

Summary:

Entire range is from 2.0E-08 to 7.8E-07
Base case is 1.4E-07
After 10,000 trials, the std. error of the mean is 7.7E-10




| Statistics: | Forecast values |
|---|---|
| Trials | 10,000 |
| Mean | 1.5E-07 |
| Median | 1.4E-07 |
| Mode | --- |
| Standard Deviation | 7.7E-08 |
| Variance | 6.0E-15 |
| Skewness | 1.59 |
| Kurtosis | 7.36 |
| Coeff. of Variability | 0.5035 |
| Minimum | 2.0E-08 |
| Maximum | 7.8E-07 |
| Range Width | 7.6E-07 |
| Mean Std. Error | 7.7E-10 |

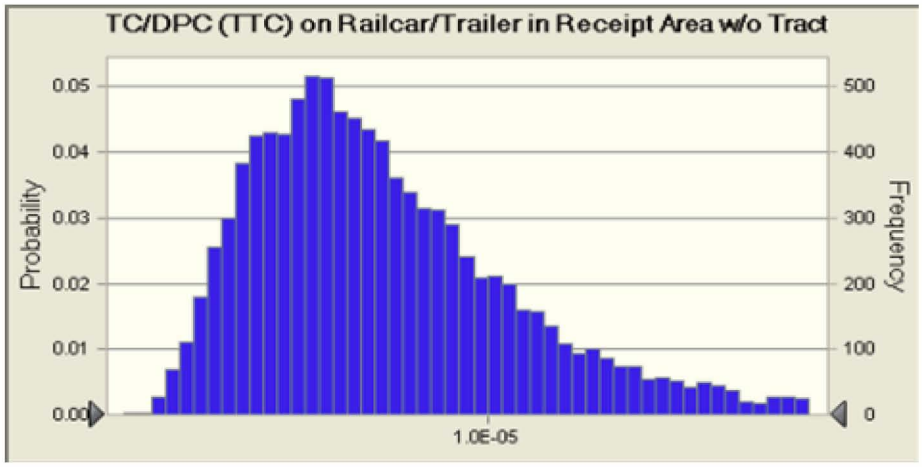
**Forecast: Localized Fire Threatens TC/DPC (all) on CTT in the Unloading Room (c Cell: K111**

| Percentiles: | Forecast values |
|---|---|
| 0% | 2.0E-08 |
| 10% | 7.5E-08 |
| 20% | 9.2E-08 |
| 30% | 1.1E-07 |
| 40% | 1.2E-07 |
| 50% | 1.4E-07 |
| 60% | 1.5E-07 |
| 70% | 1.8E-07 |
| 80% | 2.0E-07 |
| 90% | 2.5E-07 |
| 100% | 7.8E-07 |

**Forecast: Localized Fire Threatens TC/DPC (TTC) on Railcar/Trailer in Receipt Area w/o Tractor/SPM (No Diesel Present)** **Cell: M47**

Summary:

Entire range is from 8.9E-07 to 3.6E-05
Base case is 6.8E-06
After 10,000 trials, the std. error of the mean is 3.7E-08




| Statistics: | Forecast values |
|---|---|
| Trials | 10,000 |
| Mean | 7.6E-06 |
| Median | 6.8E-06 |
| Mode | --- |
| Standard Deviation | 3.7E-06 |
| Variance | 1.4E-11 |
| Skewness | 1.53 |
| Kurtosis | 6.87 |
| Coeff. of Variability | 0.4918 |
| Minimum | 8.9E-07 |
| Maximum | 3.6E-05 |
| Range Width | 3.5E-05 |
| Mean Std. Error | 3.7E-08 |

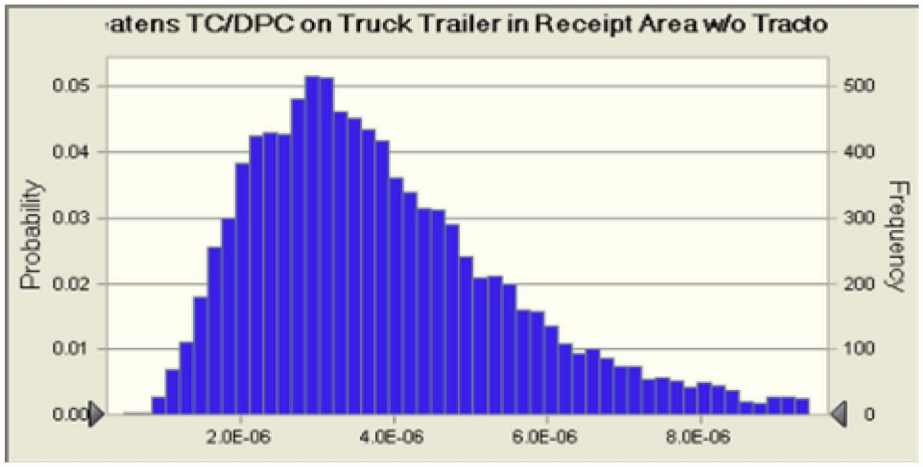
**Forecast: Localized Fire Threatens TC/DPC (TTC) on Railcar/Trailer in Receipt Area w/o Tractor/SPM (No Diesel Present) (cont'd)** **Cell: M47**

| Percentiles: | Forecast values |
|---|---|
| 0% | 8.9E-07 |
| 10% | 3.7E-06 |
| 20% | 4.6E-06 |
| 30% | 5.4E-06 |
| 40% | 6.0E-06 |
| 50% | 6.8E-06 |
| 60% | 7.6E-06 |
| 70% | 8.7E-06 |
| 80% | 1.0E-05 |
| 90% | 1.2E-05 |
| 100% | 3.6E-05 |

**Forecast: Localized Fire Threatens TC/DPC on Truck Trailer in Receipt Area w/o Tractor (No Diesel Present)** **Cell: O48**

Summary:

Entire range is from 4.7E-07 to 1.9E-05
Base case is 3.6E-06
After 10,000 trials, the std. error of the mean is 1.9E-08




| Statistics: | Forecast values |
|---|---|
| Trials | 10,000 |
| Mean | 4.0E-06 |
| Median | 3.6E-06 |
| Mode | --- |
| Standard Deviation | 1.9E-06 |
| Variance | 3.8E-12 |
| Skewness | 1.53 |
| Kurtosis | 6.87 |
| Coeff. of Variability | 0.4918 |
| Minimum | 4.7E-07 |
| Maximum | 1.9E-05 |
| Range Width | 1.8E-05 |
| Mean Std. Error | 1.9E-08 |

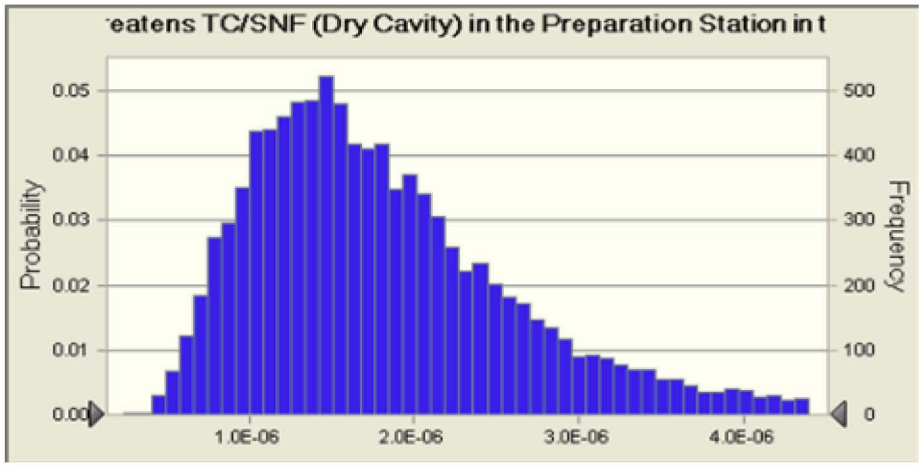
**Forecast: Localized Fire Threatens TC/DPC on Truck Trailer in Receipt Area w/o Tractor (No Diesel Present) (cont'd)** **Cell: O48**

| Percentiles: | Forecast values |
|---|---|
| 0% | 4.7E-07 |
| 10% | 2.0E-06 |
| 20% | 2.4E-06 |
| 30% | 2.8E-06 |
| 40% | 3.2E-06 |
| 50% | 3.6E-06 |
| 60% | 4.0E-06 |
| 70% | 4.5E-06 |
| 80% | 5.2E-06 |
| 90% | 6.5E-06 |
| 100% | 1.9E-05 |

**Forecast: Localized Fire Threatens TC/SNF (Dry Cavity) in the Preparation Station in the Preparation Area** **Cell: K70**

Summary:

Entire range is from 2.4E-07 to 9.3E-06
Base case is 1.7E-06
After 10,000 trials, the std. error of the mean is 9.1E-09




| Statistics: | Forecast values |
|---|---|
| Trials | 10,000 |
| Mean | 1.9E-06 |
| Median | 1.7E-06 |
| Mode | --- |
| Standard Deviation | 9.1E-07 |
| Variance | 8.2E-13 |
| Skewness | 1.54 |
| Kurtosis | 7.03 |
| Coeff. of Variability | 0.4874 |
| Minimum | 2.4E-07 |
| Maximum | 9.3E-06 |
| Range Width | 9.1E-06 |
| Mean Std. Error | 9.1E-09 |

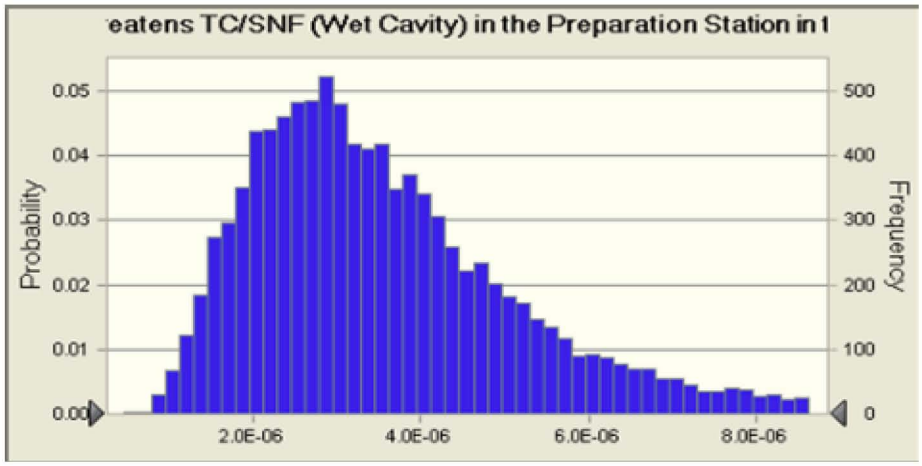
**Forecast: Localized Fire Threatens TC/SNF (Dry Cavity) in the Preparation Station in the Preparation Area (cont'd)** **Cell: K70**

| Percentiles: | Forecast values |
|---|---|
| 0% | 2.4E-07 |
| 10% | 9.2E-07 |
| 20% | 1.1E-06 |
| 30% | 1.3E-06 |
| 40% | 1.5E-06 |
| 50% | 1.7E-06 |
| 60% | 1.9E-06 |
| 70% | 2.1E-06 |
| 80% | 2.5E-06 |
| 90% | 3.0E-06 |
| 100% | 9.3E-06 |

**Forecast: Localized Fire Threatens TC/SNF (Wet Cavity) in the Preparation Station Cell: M71**

Summary:

Entire range is from 4.7E-07 to 1.8E-05
Base case is 3.3E-06
After 10,000 trials, the std. error of the mean is 1.8E-08




| Statistics: | Forecast values |
|---|---|
| Trials | 10,000 |
| Mean | 3.6E-06 |
| Median | 3.3E-06 |
| Mode | --- |
| Standard Deviation | 1.8E-06 |
| Variance | 3.2E-12 |
| Skewness | 1.54 |
| Kurtosis | 7.03 |
| Coeff. of Variability | 0.4874 |
| Minimum | 4.7E-07 |
| Maximum | 1.8E-05 |
| Range Width | 1.8E-05 |
| Mean Std. Error | 1.8E-08 |

**Forecast: Localized Fire Threatens TC/SNF (Wet Cavity) in the Preparation Station Cell: M71**

| Percentiles: | Forecast values |
|---|---|
| 0% | 4.7E-07 |
| 10% | 1.8E-06 |
| 20% | 2.2E-06 |
| 30% | 2.6E-06 |
| 40% | 2.9E-06 |
| 50% | 3.3E-06 |
| 60% | 3.7E-06 |
| 70% | 4.2E-06 |
| 80% | 4.8E-06 |
| 90% | 5.9E-06 |
| 100% | 1.8E-05 |