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Methodology and Calculations for the Assignment of Waste Groups for the Large Underground Waste Storage Tanks at the Hanford Site

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Abstract: This document categories each of the large waste storage tanks into one of several categories based on each tank's waste and characteristics. These waste group assignments reflect a tank's propensity to retain a significant volume of flammable gases and the potential of the waste to release retained gas by a buoyant displacement gas release event.

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Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

CH2MHILL
Hanford Group, Inc.

Richland, Washington

Contractor for the U.S. Department of Energy
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Methodology and Calculations for the Assignment of Waste Groups for the Large Underground Waste Storage Tanks at the Hanford Site

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Hedengren, D. C.

EXECUTIVE SUMMARY

The Hanford Site contains 177 large (28 double-shell tanks and 149 single-shell tanks) underground radioactive-waste storage tanks that are categorized into one of three waste groups (A, B, and C) based on their waste and tank characteristics. These waste group assignments reflect a tank's propensity to retain a significant volume of flammable gases and the potential of the waste to release retained gas by a buoyant displacement gas release event. These waste categories replace the current four waste tank facility groups. Current assignments of facility groups depend on whether the waste in each of these tanks is postulated to present a hazard from large or small gas release events and whether they are spontaneous or induced. Assignments of waste groups to tank wastes in the 177 double-shell tanks and single-shell tanks, as reported in this document, are based on three criteria.

The first criterion estimates the ability of the wetted solids in a tank to retain sufficient flammable gases that if all of the gases were released instantaneously into the tank headspace, would the headspace flammable gas concentration equal or exceed 100% of the lower flammability limit. If all of the retained gas in a tank's wetted solids were instantaneously released into the tank's headspace and resulted in a flammable gas mixture below 100% of the lower flammability limit, the tank is classified as a waste group "C" tank. This assignment is independent of whatever gas release mechanisms the tank may exhibit including buoyant displacement gas release events. In other words, a waste group "C" tank is not expected to reach 100% of the lower flammability limit from the total instantaneous release of all of the gas retained in its wetted solids.

The second criterion considers whether there is sufficient supernate on top of the saturated solids such that gas-bearing solids have the potential energy required to break up the material and release gas. Tanks that are not waste group C tanks that do not have sufficient supernate on top of solids (energy ratio <3.0) are assigned to waste group "B." Tanks that are not waste group "C" tanks that do have sufficient supernate on top of solids (energy ratio $\geq$3.0), but that pass the third criterion (buoyancy ratio <1.0, see below) are also assigned to waste group "B."

The third criterion addresses tanks that are not waste group "C" double-shell tanks that have sufficient supernate on top of solids (energy ratio $\geq$3.0). For these DSTs, the third criterion considers whether the saturated solids can retain sufficient gas to exceed neutral buoyancy relative to the supernatant layer. If neutral buoyancy can be exceeded (buoyancy ratio $\geq$1.0), that double-shell tank is assigned to waste group "A." Sensitivity studies of waste group assignments were also performed for the cases of water and caustic additions to the waste tanks and the special cases of the addition of waste to some of the tanks.

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LIST OF TERMS

BBI	*Best Basis Inventory*
BDGRE	buoyant displacement gas release event
BR	Calculated Buoyancy Ratio, which is the average saturated settled solids layer gas fraction divided by the neutral buoyancy gas fraction. This ratio predicts whether there is sufficient gas build up in the saturated settled solids layer in a DST to make gobs of waste buoyant and produce BDGREs
DST	double-shell tank
ER	Calculated Energy Ratio, which is the ratio of buoyant potential energy of the gas bearing gobs to the energy required to yield the waste and release gas from those gobs participating in buoyant displacements.
GRE	gas release event
PNNL	Pacific Northwest National Laboratory
RGS	Retained Gas Sampler
SACS	*Surveillance Analysis Computer System*
SpG_L*H_S	product of the specific gravity of the liquid layer and the height in inches of the sediment or settled solids layer
SST	single-shell tank

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1.0 INTRODUCTION

Waste stored within tank farm double-shell tanks (DST) and single-shell tanks (SST) generates flammable gas (principally hydrogen) to varying degrees depending on the type, amount, geometry, and condition of the waste. The waste generates hydrogen through the radiolysis of water, thermolytic decomposition of organic compounds, and corrosion of a tank's carbon steel walls. Radiolysis and thermolytic decomposition also generate ammonia. Nonflammable gases, which act as dilutents (such as nitrous oxide), are also produced. Additional flammable gases (e.g., methane) are generated by chemical reactions between various degradation products of organic chemicals present in the tanks. Volatile and semivolatile organic chemicals in tanks also produce organic vapors. The generated gases in tank waste are either released continuously to the tank headspace or are retained in the waste matrix. Retained gas may be released in a spontaneous or induced gas release event (GRE) that can significantly increase the flammable gas concentration in tank headspace as described in RPP-7771, *Flammable Gas Safety Issue Resolution.* Appendices A through J provide supporting information.

1.1 GAS RETENTION IN SINGLE-SHELL TANKS AND DOUBLE-SHELL TANKS

Studies have shown that some tanks store significant volumes of gas in their waste. Free gas can accumulate in submerged solids, which are wetted. Convective fluid layers of waste do not retain significant amounts of insoluble gases (e.g., hydrogen and methane) because bubbles rise through liquid waste as fast as they are generated. Soluble gases (primarily ammonia) are also dissolved in liquid waste; however, evaporation of dissolved ammonia is pronounced only when a free liquid surface is freshly exposed or agitated.

Direct measurements of retained gas are not available for most tanks. Estimates of the amount of retained gas stored in each DST and SST were made based on two indirect methods provided in WHC-SD-WM-ER-526, *Evaluation of Hanford Tanks for Trapped Gas.* Only 58 of the 177 SSTs and DSTs were determined to have trapped gas by the barometric pressure effect method and, of these, only 20 to 25 tanks, including six DSTs (241-AN-103, 241-AN-104, 241-AN-105, 241-AW-101, 241-SY-101, and 241-SY-103) stored relatively large volumes of gas. (Note that gas retention in DST 241-SY-101 has since been remediated leaving only five DSTs with relatively large volumes of stored gas.) About 50 tanks have so little waste that gas retention is of little concern when released and mixed in the headspace because of the large headspace dilution factor. However, both of the indirect methods include significant uncertainties, as described in WHC-SD-WM-ER-594, *Evaluation of Recommendation for Addition of Tanks to the Flammable Gas Watch List.*

Uncertainties arise because the models are simplified and approximate the physical condition of the waste in all DSTs and SSTs and because the data used lacks the precision necessary to make estimates of the retained gas. Therefore, given the uncertainty in the methods and data, a conservative assumption is that all the DSTs and SSTs retain gas in their solid layers, and the retained gas amounts have previously not been specified for "evaluation basis" accidents. Current estimates of retained gas used in this document are based on the void fraction in the wetted solids of each tank considered. The bases for these void fractions are the void fraction

instrument measurements in selected tanks and waste similarities in the other tanks as described in SNL-000198, *Flammable Gas Safety Analysis Data Review*.

1.2 GAS RELEASE EVENTS

Gases released from the waste in a DST or SST in a nearly continuous manner can be managed effectively by ventilation. However, it is much more difficult to manage when a significant amount of the gas retained within waste is released relatively rapidly in a buoyant displacement gas release event (BDGRE). The BDGREs were observed in six of the DSTs (241-AN-103, 241-AN-104, 241-AN-105, 241-AW-101, 241-SY-101, and 241-SY-103). Data regarding the physics of GRE in the tanks is provided in Pacific Northwest National Laboratory (PNNL) PNNL-11296, *In Situ Rheology and Gas Volume in Hanford Double-Shell Waste Tanks* and PNNL-11536, *Gas Retention and Release Behavior in Double-Shell Waste Tanks*. The most recent estimations of released gas volumes are found in RPP-6655, *Data Observations on Double-Shell Flammable Gas Watchlist Tank Behavior*. The large GREs that occurred in DST 241-SY-101 before they were mitigated by the mixer pump, and then remediated by transfers and dilution, were unique in size and frequency. The largest release was the12/4/91 GRE of 130 to 260 m^3 of gas, or 35 to 70% of its retained gas inventory, RPP-6517, *Evaluation of Hanford High-Level Waste Tank 241-SY-101* and RPP-6655. The observed frequency of GREs in 241-SY-101, prior to remediation, was every 80 to 150 days, RPP-6517. In contrast, the maximum gas release volumes and corresponding percent of total retained gas released for the other five GRE DSTs during the five year period from 1995 through 1999 per RPP-6655 were: DST 241-AN-105 (29 m^3 and 26%), 241-SY-103 (21 m^3 and 16%), 241-AW-101 (19 m^3 and 20%), 241-AN-104 (19 m^3 and 14%), and 241-AN-103 (4.6 m^3 and 2%). None of the gas releases in the DSTs, other than DST 241-SY-101 prior to remediation, have been large enough to create flammable mixtures after mixing in the tank headspace as described in RPP-6517 and RPP-7771.

The ongoing study of gas retention behavior of SST waste forms has narrowed the number of plausible spontaneous release mechanisms to a few possibilities that are capable of only small releases (less than 10 m^3 compared with 100 to 200 m^3 in DST 241-SY-101) and is discussed in HNF-SP-1193, *Flammable Gas Project Topical Report*. Observation of a number of the most active flammable-gas-retaining SSTs indicates that no large BDGREs are occurring and that only a few SSTs experience small spontaneous GREs. The typical spontaneous GRE in an SST has a small release volume of tens of cubic feet of hydrogen and no release in the SSTs has been observed with the "classic" BDGRE properties as described in RPP-7771 and RPP-7249, *Data and Observations of Single-Shell Flammable Gas Watch List Tank Behavior*.

1.3 WASTE GROUPS FOR SINGLE-SHELL TANKS AND DOUBLE-SHELL TANKS

Waste group assignments have been developed to replace the existing Facility Group designations for the 177 DSTs and SSTs for application of flammable gas controls. The SST and DST groupings are based on waste tank characteristics and the propensity of the waste to experience a large BDGRE. Waste group selection criteria were developed based on both

empirical data and analytical concepts with the objective of identifying and separating waste tanks into groups that posed similar GRE risks.

The SSTs and DSTs are assigned to one of three groups based on the following:

- **Waste Group A**: Includes DSTs that have a propensity to undergo a large BDGRE and have sufficient retained gas to achieve 100% of the lower flammability limit (LFL) if all of their respective retained gas were released instantaneously. The selection criteria for this waste group are that DSTs have sufficient retained gas and satisfy the two other selection criteria pertaining to a propensity for BDGREs (discussed in the next section).

- **Waste Group B**: Includes tanks that do not have a propensity for a large BDGRE, but have sufficient retained gas to achieve 100% LFL if all of their respective retained gas were released instantaneously. Given the level of retained gas, these tanks may experience increases in headspace flammable gas concentrations during operations that induce disturbances in the solid portion of the waste.

- **Waste Group C**: All DSTs and SSTs not included in waste groups A or B (i.e., those that do not have sufficient retained gas to achieve 100% LFL if all of their respective retained gas were released).

2.0 WASTE GROUP SELECTION CRITERIA

2.1 CRITERIA USED TO ASSIGN TANKS TO A WASTE GROUP

The waste parameters or combinations of waste parameters that are used to assign individual SSTs and DSTs to waste groups are as follows.

- **Retained Gas Volume**: Wetted settled solids depth and gas volume fraction distribution can be used to determine whether there is sufficient retained gas in the waste to cause the tank headspace to become flammable if the gas was all released at once. The sediment gas volume fraction may be determined using gas fraction data, assigned conservative bounding values, or conservatively calculated as the neutral buoyancy gas fraction (for tanks with liquid-over-sediment waste configuration). This calculation can be used as a quick screen for determining whether a tank poses a potential GRE hazard. This criterion determines whether a flammable mixture of gases can be achieved in the tank's headspace if all of the tank's retained gas were released instantaneously. In other words, is the volume of retained gas in the waste of a tank, adjusted to tank headspace pressure and temperature, less than the minimum volume of gas at these same conditions and composition required to create a flammable mixture in the tank's headspace? If there is less retained gas than that required to achieve a flammable mixture in the tank's headspace, then flammable conditions cannot be reached. As a result, the tank is classified as a waste group C tank independent of the method the gas is released. Equations (1), (2), and (3) are used to make these calculations relating to retained gas volume criterion.

Retained Gas Volume Criterion: $VG_{WNCL} < VG_{LFL}$

$$VG_{WNCL} = H_{WNCL} * VF_{WNCL} * A * \left(\frac{P_{WNCL}}{1\text{atm.}}\right) * \left(\frac{T_{VS}}{T_{WNCL}}\right) \quad (1)$$

where:

$$P_{WNCL} = 1\text{atm} + \left(\frac{9.806\frac{\text{m}}{\text{sec}^2}}{101{,}325\frac{\text{Pa}}{\text{atm.}}}\right) * \{\rho_{CL} * [H_{CL} + H_C] + [0.5 * \rho_{WNCL} * (2 * H_{TNCL} - H_{WNCL})]\} \quad (2)$$

$$VG_{LFL} = V_{VS} * \left(\frac{F_{LFL} * \left(1 - \frac{F_{CH4}}{\%LFL_{CH4}} - \frac{F_{NH3}}{\%LFL_{NH3}}\right)}{F_{WNCL}}\right) \quad (3)$$

where:

A	=	cross sectional area of the tank (m^2)
F_{CH4}	=	methane concentration in the headspace following gas release (volume %)
F_{LFL}	=	hydrogen concentrations at 100% LFL (4.0 volume %)
F_{NH3}	=	ammonia concentration in the headspace following gas release (volume %)
F_{WNCL}	=	retained hydrogen gas concentration in the saturated settled solids layer (volume %)
H_C	=	height of the crust layer (m)
H_{CL}	=	height of the liquid (convective) layer (m)
H_{TNCL}	=	height of total settled solids (non-convective) layer (m)
H_{WNCL}	=	height of liquid saturated (wetted) non-convective layer (m)
P_{WNCL}	=	calculated representative retained gas pressure in saturated settled solids layer (atm)
T_{VS}	=	representative temperature of headspace of waste tank (K)
T_{WNCL}	=	representative temperature of wetted settled solids layer (K)
V_{VS}	=	volume of headspace of waste tank (m^3)
VF_{WNCL}	=	representative void fraction in saturated settled solids layer
VG_{LFL}	=	calculated volume of gas from saturated settled solids layer required to produce 100% LFL in headspace of waste tank (m^3)
VG_{WNCL}	=	calculated volume of gas retained in the saturated settled solids layer (m^3)
$\%LFL_{CH4}$	=	methane concentration at 100% LFL (5.0 volume %)
$\%LFL_{NH3}$	=	ammonia concentration at 100% LFL (15.0 volume %)
ρ_{CL}	=	density of convective layer (kg/m^3)
ρ_{WNCL}	=	density of wetted non-convective layer (kg/m^3).

- **Energy Ratio**: The presence of a significant supernatant layer introduces the possibility of BDGREs. The supernatant layer depth can be utilized as a criterion for determining susceptibility to BDGREs by using a term called "energy ratio" as described in PNNL-11391, *Gas Retention and Release Behavior in Hanford Single-Shell Waste Tanks.* The waste in tanks with supernatant layers below an energy ratio threshold of about 3 is not expected to contain sufficient energy to release gas during a buoyant displacement event. For typical tank conditions, this requires a supernatant liquid depth that exceeds about 1 to 2 m for buoyant displacements with limited gas releases, and over 3 m of supernatant for significant gas releases.

  If a tank's waste fails the criterion "retained gas volume criterion," the "energy ratio criterion" is applied. The process of gas release from a gob undergoing buoyant displacement requires that sufficient energy be released to disrupt the waste surrounding the bubbles to allow them to escape as the gob reaches the waste surface. The amount of energy available is directly proportional to the depth of the supernate through which the gob rises. The energy ratio is the ratio of the buoyant potential energy of the gas-bearing gobs to the energy required to yield the waste and release gas from those gobs participating in buoyant displacements. The depth of the convective layer above a non-convective layer in a tank's waste determines whether most of the gas retained in gobs from the wetted non-convective layer will be released. The release of gas is related to the kinetic energy gobs received as they rise through the convective waste layer. This energy ratio criterion for buoyant displacement gas releases is described in PNNL-13781, *Effects of Globally Waste-Disturbing Activities on Gas Generation, Retention, and Release in Hanford Waste Tanks.*

  Equations (4) and (5) are used to make energy ratio calculations. If the energy ratio for the waste in a DST or SST, which does not meet the criterion to be first classified as a waste group C tank, is not less than 3, then that tank is classified as a waste group B tank. The DSTs that fail both the retained gas volume criterion and the energy ratio criterion are examined for tendencies to have spontaneous BDGREs. The criterion comparison value of three accounts for the energy needed to overcome the yield stress, plus a factor to account for energy lost through other processes during the gas release. Based on experimental observations and tank behavior, some gas can be released when the energy ratio exceeds 3, and release of a large fraction of stored gas occurs when the energy ratio exceeds 5.

  Only saltcake/saltslurry tanks have exhibited BDGRE behavior. For reasons given in Section 2.4, Application of Data to Sludge Tanks, the energy ratio is considered valid for both saltcake/saltslurry and sludge tanks.

<u>Energy Ratio Criterion</u>: **ER < 3**

$$ER = \left(\frac{NB_{WNCL} * \gamma * 101325 \frac{Pa}{atm.}}{(1 - NB_{WNCL}) * \tau_{WNCL} * 1} \right) * \left(\left(1 + \frac{1}{\gamma} \right) * \ln(1 + \gamma) - 1 \right) \quad (4)$$

where:

$$\gamma = \left(\frac{\rho_{CL} * H_{CL}}{1\,\text{atm.}} \right) * \left(\frac{9.806 \frac{\text{m}}{\text{sec}^2}}{101325 \frac{\text{Pa}}{\text{atm.}}} \right) \tag{5}$$

where:

atm.	=	atmosphere
ER	=	energy ratio, the ratio of the buoyant potential energy of the gas-bearing gobs to the energy required to yield the waste and release gas from those gobs participating in buoyant displacements
F_{WNCL}	=	retained hydrogen gas concentration in the saturated settled solids layer
H_{CL}		height of the liquid (convective) layer
NB_{WNCL}	=	calculated or measured neutral buoyancy of saturated settled solids layer relative to the convective layer on top of it (calculated neutral buoyancy is one minus the ratio of convective layer density to wetted non-convective layer density)
Pa	=	Pascal
ρ_{CL}	=	density of convective layer
γ	=	calculated ratio of pressure head of convective layer in a waste tank to the headspace pressure, which is assumed to be one atmosphere
τ_{WNCL}	=	representative yield stress of wetted non-convective layer (Pa).

- **Buoyancy Ratio**: This is a semi-empirical relation presented in PNNL-13337, *Preventing Buoyant Displacement Gas Release Events in Hanford Double-Shell Waste Tanks*, which estimates the average waste gas fraction based on a balance of gas generation and background release. The buoyancy ratio (BR) represents the average saturated settled solids (non-convective) layer gas fraction divided by the neutral buoyancy gas fraction. This physically based buoyancy model was developed from the theory of bubble transport. This model predicts whether there is sufficient gas build up in the saturated settled solids layer in a DST to make gobs of waste buoyant and produce BDGREs (PNNL 13337). If the average void fraction in the saturated settled solids layer of waste is less than the neutral buoyant void fraction, a BDGRE cannot occur. Conversely, an average void fraction greater than the neutral buoyant void fraction predicts that BDGREs will occur prior to reaching steady state. The ratio of average steady-state void fraction to neutral buoyant void fraction for the case of constant nucleation is given by Equation (6). The constant in the numerator of the first factor is adjusted so that the minimum BR for DSTs experiencing BDGREs is 1.00. In this report, DST 241-AN-103 is used to calculate the constant.

  The BR includes as input parameters the layer depths and densities making up the average specific gravity of the waste and the Estey criterion as described in WHC-SD-WM-TI-755, *An Analysis of Parameters Describing Gas Retention/Release Behavior in Double Shell Tank Waste*. However, it also includes the other terms that model the underlying physics of BDGRE behavior (PNNL-13337). In application, this model accurately separates the known BDGRE and non-BDGRE tanks with current data. For these reasons, the BR is considered the best discriminator for BDGRE behavior. Use of the other criteria along with the BR does not improve the overall accuracy of the

prediction. The DSTs that fail both the retained gas volume criterion and the energy ratio criterion and that fail the buoyancy ratio criterion are classified as waste group A tanks (failure in this instance indicates that the given waste criteria was not met, causing the tank to be classified as a member of the more hazardous waste tank group). The BR is not calculated for SSTs. Because there is very little supernatant liquid in the SSTs, the BR criteria that the tanks have a deep layer (greater than 1 m) of supernatant liquid are not met.

<u>Buoyancy Ratio Criterion:</u> **BR < 1.00**

$$BR = \left(\frac{CF}{\rho_{WNCL} - \rho_{CL}}\right) * \left(\frac{G_{WNCL} * T_{WNCL}}{F_{WNCL} * \left(101325 \frac{Pa}{atm.}\right) * P_{WNCL}}\right)^{\frac{1}{3}} * H_{WNCL}^{2} \qquad (7)$$

where:

BR	=	buoyancy ratio, the average saturated settled solids layer gas fraction divided by the neutral buoyancy gas fraction. This ratio predicts whether there is sufficient gas build up in the saturated settled solids layer in a DST to make gobs of waste buoyant and produces BDGREs
CF	=	calibration factor (set to 1334.3 for this analysis)
F_{WNCL}	=	retained hydrogen gas concentration in the saturated settled solids layer
G_{WNCL}	=	hydrogen generation rate in saturated settled solids layer (moles/m^3/day).
H_{WNCL}	=	height of liquid saturated (wetted) non-convective layer
P_{WNCL}	=	calculated representative retained gas pressure in saturated settled solids layer
T_{WNCL}	=	representative temperature of wetted settled solids layer

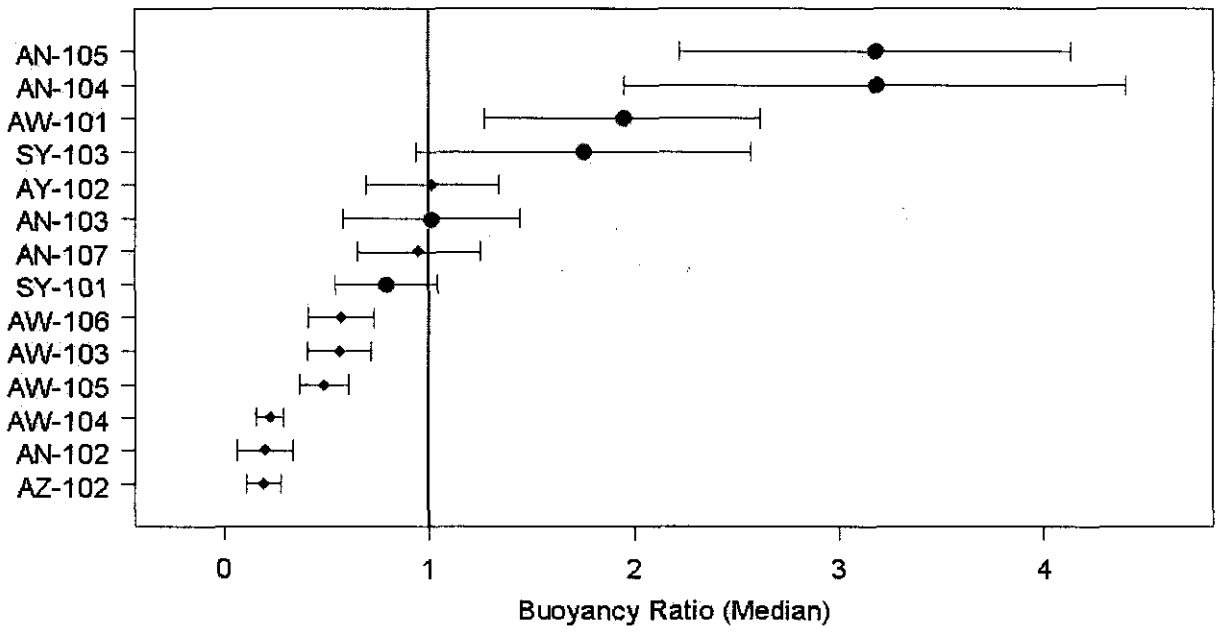
2.2 SELECTION OF BUOYANCY RATIO CALIBRATION FACTOR

The BR was developed to describe the relationship between DSTs that historically exhibited BDGRE behavior. It was found that tanks exhibiting BDGRE behavior have a relationship between the average "saturated settled solids layer gas fraction" and the "neutral buoyancy gas fraction" that is greater than the ratio of these values determined for tanks that never exhibited BDGREs. This BR is used to predict whether there is sufficient gas build up in the saturated settled solids layer in a DST to make gobs of waste buoyant and produce BDGREs. It was determined that tanks with documented BDGREs would have BRs greater than 1 (where the calibration factor was set such that the lowest BR for a tank exhibiting BDGRE behavior would be unity) (PNNL 13337). In the past, the BR calibration was set using mean values of the properties or other measurements for the specific tank and its waste.

2.2.1 Determining the BDGRE Tank with the Minimum Buoyancy Ratio

When calibrating the BR, the first step is to determine which tanks exhibit BDGRE behavior. Historically, the tanks are DSTs 241-AN-103, 241-AN-104, 241-AN-105, 241-AW-101, 241-SY-101, and 241-SY-103. The relationship of the BRs for the BDGRE tanks and closely related tanks are illustrated in Figure 1. In this evaluation, the median values of the BR calculation were used and as a result DST 241-AN-103 has the minimum BR.

Figure 1. Comparison of Buoyancy Ratios.



DSTs 241-AN-107, 241-AY-102, and 241-SY-101 are the closest tanks to having a BR equal to 1, but do not fall within the region of tanks that exhibit BDGREs.

In Figure 1 the circles indicate tanks that exhibit BDGREs, and the diamonds indicate tanks that do not have BDGREs, but are close to the BDGRE conditions. The vertical separation does not have any meaning and is included to improve clarity.

However, over the past several years, three GREs were observed in DST 241-AN-107 (HNF-SD-WM-TI-797), which were large enough to suggest that they were BDGREs, and if so, then the tank would be classified as a BDGRE tank. Also concluding in October 2000, DST 241-SY-101 waste was diluted and partially transferred to DST 241-AY-102. Following the conclusion of DST 241-SY-101 remediation, RPP-6517 was released, which found that the properties of the remaining waste in the tank would not exhibit BDGRE behavior (Figure 1). Due to the uncertainty of the properties for these two tanks, and the uncertainty to which tank the BR calibration factor should be calibrated for, additional studies were required to evaluate these two tanks. This uncertainty was caused by recent GREs from DST 241-AN-107, which needs to be evaluated to determine if they were BDGREs, and by the short time period (6 months)

between the ending of the remediation operations and the evaluation provided in RPP-6517. Because an additional 1.5 years have passed since the evaluation provided in RPP-6517, it was useful to reevaluate gas retention in DST 241-SY-101.

2.2.1.1 Additional Evaluation of DST 241-AN-107. As reported in TWS02.025, *Investigation of Gas Retention and Release Issues in Tanks AN-107 and SY-101 Supporting Waste Group Determination* (Appendix H):

> "Application of the Buoyant Displacement Gas Release Event (BDGRE) predictive indicators has[sic] historically shown that tank 241-AN-107 was close to exhibiting BDGRE behavior (Meyer and Stewart 2001 and Johnson et al. 2000). Since the predictive model of BDGRE behavior is based on the group of tanks exhibiting this behavior, inclusion of DST 241-AN-107 in the group has the potential to affect the waste group determinations for the remaining tanks. The three gas release events observed recently in tank 241-AN-107 (McCain 2001) were investigated in detail to determine if the tank indeed belongs in the BDGRE group. The retained gas volume in AN-107 was also evaluated."

The TWS02.025 evaluation (Appendix H) found that two of the three GREs were the result of a calibration or intrusive pumping activities. The third GRE was determined to be a small GRE that did not have the characteristics of a BDGRE. Therefore, DST 241-AN-107 is not considered to be a BDGRE tank.

The retained gas volume may be estimated using changes in the waste surface level in response to barometric pressure changes. The barometric pressure effect model is described in RPP-6655, Appendix B. The model estimates the retained gas volume based on the response of the waste surface level to fluctuations in the barometric pressure due to compression and expansion of stored gas.

Report TWS02.025 (Appendix H) found that there was a correlation between atmospheric pressure and the surface level in DST 241-AN-107. At the 95% confidence level, it is estimated that the in situ retained gas volume in the tank is 2,100 ft^3 at 2 atmospheres of pressure (4,200 ft^3 at atmospheric pressure). The truncation of the distribution is defined by 0 and 4,000 ft^3, where 4,000 ft^3 is the volume of gas retained at the neutral buoyancy void fraction for the waste.

In conclusion, TWS02-025 did not find any indication that BDGREs have occurred in DST 241-AN-107; however, there is sufficient retained gas in the tank to allow the waste surface to react proportionally with changes in barometric pressure and for a determination to be made of the volume of retained gas in the sediment.

2.2.1.2 Additional Evaluation of DST 241-SY-101. As reported in TWS02.025 (Appendix H), the potential for large BDGREs in DST 241-SY-101 (PNNL-11536) was eliminated by a series of waste transfers and water dilutions in 1999 and 2000 (RPP-6517). However, like DST 241-AN-107, DST 241-SY-101 in its new configuration is relatively close (in terms of the BDGRE predictive indicators) to the group of tanks exhibiting BDGREs. The last evaluation of its waste configuration was done in August 2000 (RPP-6517). DST 241-SY-101 data were updated by an investigation of potential gas retention and a refinement of the sediment layer depth (a significant parameter for identifying the potential of BDGRE behavior).

The barometric pressure effect model was once again used to estimate the retained gas volume based on the response of the waste surface level to fluctuations in the barometric pressure due to compression and expansion of retained gas. For DST 241-SY-101, no significant correlation was found between atmospheric pressure and surface level fluctuations. This can be attributed to a low void fraction, a layer of "scum" on the waste surface that inhibits surface movement, or the masking effect of evaporation. If there is no correlation between the atmospheric pressure and surface level fluctuations (and the waste surface is free to move) the retained gas volume is determined to be less than 1,000 ft^3.

The waste level in DST 241-SY-101 rose 2 in. from October 2000 to March 2002 after correction for evaporation. This corresponds to an increase in retained gas of 750 ft^3 at in situ conditions (1,500 ft^3 at atmospheric pressure). Because the operations in DST 241-SY-101 performed during the transfer and dilution activities would have degassed the waste, it is assumed that the current retained gas inventory is 750 ft^3 at in situ conditions. An additional observation of note is that there appears to be no additional retained gas accumulation from January 2002 through March 2002 indicating that steady-state gas releases now equal the gas generation rate.

In addition, TWS02.025 reports that the current sediment or non-convective layer depth is 90 in. This evaluation is based on information from temperature profiles, and neutron and gamma scans. This is a reduction in the non-convective layer depth since the time of RPP-6517, evidence of continuing compaction of the non-convective layer supporting the above finding that the retained gas volume is small compared to the pre-mitigation retained gas volume.

2.3 EXPLANATION OF HOW CRITERIA ARE USED

First the retained gas criterion is applied. If there is not enough retained gas in the waste to allow the tank headspace to reach 100% of the Lower Flammability Limit (LFL), the tank "passes" and is classified as a C tank. No further calculations are performed. If there is sufficient retained gas in the waste to allow the tank headspace to reach 100% of the LFL, the tank "fails". The energy ratio criterion is used next. The retained gas criterion determines either that a tank is a C tank (passes criterion) or it is an A/B tank and the next criterion must be used.

The energy ratio criterion is the ratio of the buoyant potential energy for gas-bearing gobs to the energy required to yield the waste and release gas from those gobs participating in buoyant displacements. If the ratio is less than 3, the tank "passes" the criterion, the tank is classified as a B tank and no further calculations are performed. If the energy ratio is equal to or greater than 3, the buoyancy ratio criterion is applied. Failing the energy ratio criterion does not make a tank a BDGRE tank. It only says that there is enough buoyant potential energy to support a BDGRE if all the other factors are present. A tank that fails the energy ratio criterion is still an A/B tank and the next criterion is used.

The buoyancy ratio criteria separates the A and B tanks. This criteria predicts whether there is sufficient gas build up in the saturated settled solids layer in a DST to make gobs of waste buoyant and produce BDGREs. If the answer is yes, the tank "fails" and is classified as an A tank. If the answer is no, the tank passes and is classified as a B tank.

2.4 APPLICATION OF DATA TO SLUDGE TANKS

In 1996 PNNL-11391 reported the results of investigations into the gas retention and release behavior of SSTs. It was reported that given the proper configuration of the materials in the tank a buoyant displacement was possible in sludge-type materials. In practical experience at Hanford, BDGREs have been observed in tanks containing saltcake/salt slurry wastes.

The findings were based on bench-scale experiments using Bentonite clay as a simulant for SST sludge materials. The tank used in the experiments was 27 cm in diameter. In the experiment, gases retained in the solids and driving the BDGREs were generated relatively quickly using the decomposition of hydrogen peroxide. The bench-scale observations were then used to develop the energy ratio criterion, which was found to be applicable to tanks with a significant supernatant layer, a layer greater than 1 meter in depth. When the energy ratio was applied to Hanford DST waste, it was found to be a good predictor of the energetics of the buoyant displacements.

As it turns out, the only Hanford tanks with the propensity to exhibit BDGRE behavior are tanks containing saltcake/salt slurry wastes. Because the Hanford tanks containing sludge materials have not historically warranted additional investigation in their behavior with respect to flammable gas retention and release, there is very little data pertaining to these tanks. It has not been demonstrated that the BDGRE prediction criteria, the energy ratio and the buoyancy ratio, apply to the sludge tanks. However, because the original experiments from which the theory of buoyant displacements was developed used sludge simulants, it is assumed that applying the energy criteria and buoyancy ratio will provide a conservative estimation of the propensity of the sludge wastes to exhibit BDGRE behavior.

Recently, DST-241-AW-106, a sludge tank, was evaluated to determine if its supernatant layer could be replaced with a deep supernatant layer (6.46 m vs. 0.55 m prior to transfer) with a specific gravity of 1.47 (vs. 1.32 prior to transfer) (7G600-SAB-03-008). Using the criteria presented in this document, it was found that DST 241-AW-106 would not retain sufficient gas at the new conditions to pose a flammable gas hazard due to spontaneous gas releases. The tank's past behavior and a prediction of the void fraction within the waste using the Barometric Pressure Effect (BPE) model verifies that the sludge does not retain sufficient gas to be a hazard. Based on the results of the evaluation shown in Table 1, the tank would remain a waste group C tank.

Table 1. Results of the Evaluation of DST 241-AW-106 Post-Transfer Conditions*.

Post Transfer	%A	%B	%C	Buoyancy Ratio (minimum)	Buoyancy Ratio (mean)	Buoyancy Ratio (95% CL)	Energy Ratio (mean)	Energy Ratio (95% CL)
AW-106	1.0	0.3	98.6	0.38	1.38	4.03	1.27	50.2

Note:
Source: 7G600-SAB-03-008, 2003, "Analysis of Waste Transfer to Double-Shell Tank 241-AW-106," CH2M HILL Hanford Group, Inc., Richland, Washington.

2.5 OTHER CRITERIA RELATED TO SELECTION CRITERIA

Two additional criteria were traditionally used to discriminate BDGRE tanks: the Estey and the Specific Gravity Criteria. The Estey criteria, provided in WHC-SD-WM-TI-755, is an empirical relation developed as a discriminator for tanks with BDGRE behavior. It is defined by the product of the specific gravity of the liquid layer and the height in inches of the sediment or settled solids layer (hereafter denoted SpG_L*H_S). Historically, a limit of 150 in. has been used to differentiate between BDGRE and non-BDGRE tanks (PNNL-13337 and RPP-6517). The Specific Gravity Criteria was developed to differential BDGRE tanks based on specific gravity. Typically, BDGRE tanks have specific gravities greater than 1.4.

Report WHC-SD-WM-TI-755 states that no BDGREs were recorded in those tanks with SpG_L*H_S less than 150 in., and that all tanks that exhibit BDGREs have SpG_L*H_S greater than 230-in. (crust thickness is included in the height of the sediment). The input data and results are included in Table 2. The limit for BDGRE tanks considering only the sediment layer depth (not including the crust) is 193 in. (DST 241-AW-101). Note also that the highest actual value in non-BDGRE tanks is 141 in. (DSTs 241-AW-104 and 241-AW-106).

The input data for the current analysis is given in Table 3 and illustrated in Figure 2. The limit for BDGRE tanks is now 162 in. (DST 241-AW-101), while the highest mean value in non-BDGRE tanks is 140 in. (DST 241-AW-103). In Figure 2, the filled circles indicate tanks that exhibit BDGREs, and the open circles indicate tanks that do not have BDGREs, but are close to the BDGRE conditions.

As a result of this analysis it was determined that recalibration of the Estey criteria limit provided in WHC-SD-WM-TI-755 is not possible (highest non-BDGRE tank value is equivalent to original analysis) and the Estey criteria is no longer a good discriminator. The uncertainty of the results (due to property uncertainties) produces overlap between BDGRE and non-BDGRE tanks at the 95% confidence level, therefore providing no clear discrimination of behavior. This is especially true when the value of the SpG_L*H_S for DST 241-AW-103 is 159 in. at a 95% confidence level. This change in the value for SpG_L*H_S for DST 241-AW-103 came about with the filling of the tank with additional supernate to the tank operating level of 400 in. There has been no corresponding change in the behavior of the tank.

Table 2. Estey Criteria Inputs and Results*.

Tank	H_S (in)	H_C (in)	SpG_L	SpG_L*H_S (in)	$SpG_L*(H_S+H_C)$ (in)	Average
AN-101	0	0	1.24	0	0	0
AN-102	32	0	1.39	44	44	44
AN-103	150	51	1.6	240	322	281
AN-104	180	55	1.46	263	343	303
AN-105	204	2	1.43	292	295	293
AN-106	6	0	1.19	7	7	7
AN-107	49	0	1.4	69	69	69
AP-101	0	0	0.99	0	0	0
AP-102	0	0	1.2	0	0	0
AP-103	0	0	1	0	0	0
AP-104	0	0	1.03	0	0	0
AP-105	56	0	1.33	74	74	74
AP-106	0	0	1	0	0	0
AP-107	0	0	1.01	0	0	0
AP-108	0	0	0.99	0	0	0
AW-101	125	51	1.54	193	271	232
AW-102	20	0	1.16	23	23	23
AW-103	132	0	1.04	137	137	137
AW-104	142	0	0.99	141	141	141
AW-105	108	0	1.01	109	109	109
AW-106	108	0	1.31	141	141	141
AY-101	30	0	1.09	33	33	33
AY-102	12	0	1	12	12	12
AZ-101	13	0	1.2	16	16	16
AZ-102	35	0	1.1	39	39	39
SY-101	220	47	1.49	328	398	363
SY-102	26	0	1.03	27	27	27
SY-103	140	24	1.47	206	241	223

Notes:

BDGRE = buoyant displacement gas release event.

BDGRE tanks are denoted in **Bold**.

*WHC-SD-WM-TI-755, 1996, *An Analysis of Parameters Describing Gas Retention/Release Behavior in Double-Shell Tank Waste*, Rev. 0, Westinghouse Hanford Company, Richland, Washington.

Table 3. Estey Criteria Inputs and Results (Mean Values).

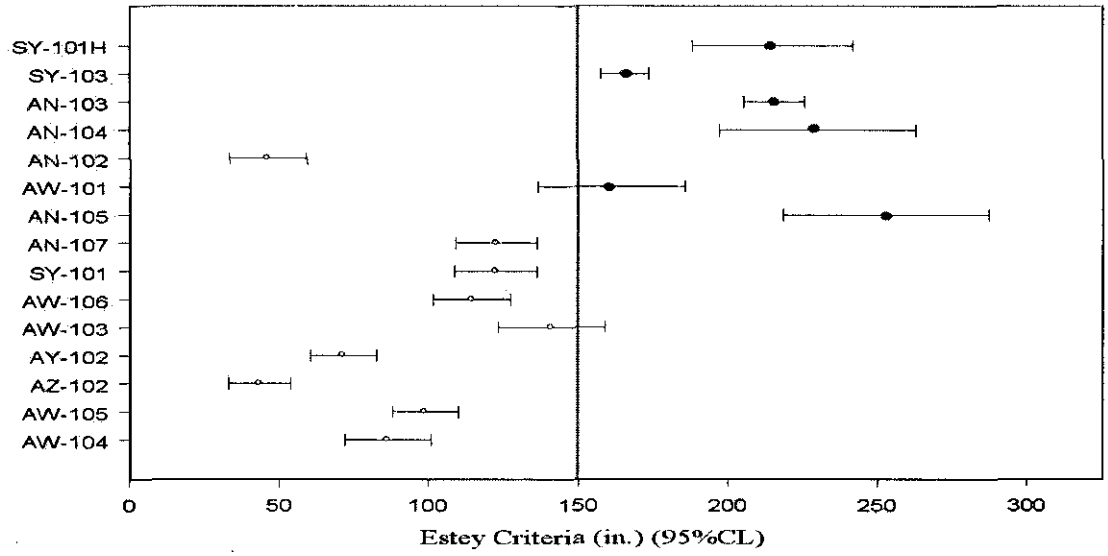
Tank	H_S (in)	H_C (in)	SpG_L	$SpG_L * H_S$ (in)
AN-101	0	92	1.17	0
AN-102	32	362	1.43	46
AN-103	149	164	1.45	216
AN-104	159	207	1.44	230
AN-105	177	215	1.43	253
AN-106	6	8	1.18	7
AN-107	90	288	1.37	123
AP-101	0	404	1.31	0
AP-102	0	395	1.20	0
AP-103	0	102	1.31	0
AP-104	0	403	1.25	0
AP-105	32	380	1.35	44
AP-106	0	226	1.26	0
AP-107	0	356	1.25	0
AP-108	0	280	1.25	0
AW-101	113	234	1.43	161
AW-102	11	20	1.01	11
AW-103	114	286	1.24	141
AW-104	81	34	1.07	87
AW-105	93	62	1.07	99
AW-106	87	22	1.32	115
AY-101	30	39	1.22	36
AY-102	62	186	1.15	71
AZ-101	19	334	1.24	23
AZ-102	38	324	1.14	43
SY-101	90	341	1.36	122
SY-102	26	350	1.25	32
SY-103	113	148	1.47	166

Notes:

BDGRE = buoyant displacement gas release event.

BDGRE Tanks are Denoted in **Bold**.

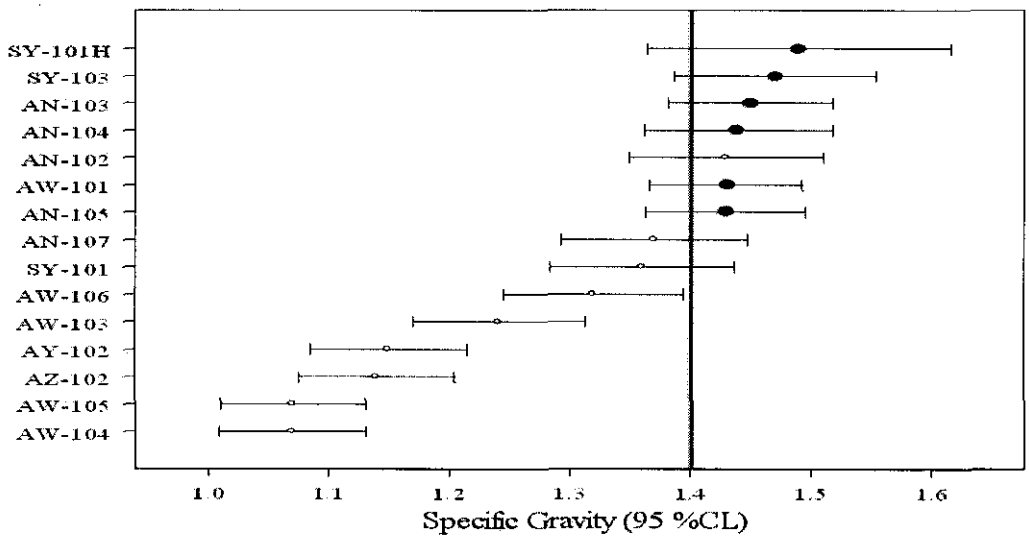
Figure 2. Comparison of the Estey Criteria for Selected Double-Shell Tanks.



Note: SY-101H refers to the historic (pre-remediation) condition of DST 241-SY-101

The Specific Gravity Criteria historically was developed to indicate that BDGREs only occur in tanks with liquid specific gravities greater than 1.4. As shown in Figure 3, all BDGRE tanks have liquid specific gravities greater than 1.4, but several tanks without BDGREs also have tanks in the same range of liquid specific gravities. As a result, the Specific Gravity Criterion is of little value.

Figure 3. Comparison of Specific Gravity for Selected Double-Shell Tanks.



Note: SY-101H refers to the historic (pre-remediation) condition of DST 241-SY-101

In Figure 3, the circles indicate tanks that exhibit BDGREs, and the squares indicate tanks that do not have BDGREs, but are close to the BDGRE conditions based on recent tank analyses.

3.0 CALCULATIONAL METHODOLOGY

Data on tank wastes is available from a variety of sources. Regardless of the database where data is extracted, tank waste information has a degree of uncertainty associated with its value. The size of property or measurement uncertainty is affected by a number of factors, such as the heterogeneous nature of the waste, uncertainties due to the analysis methodology and measuring devices, and incomplete or missing data. In order to account for this uncertainty in data, the values used in this study have been assigned distributions that reflect the uncertainty in the estimation of the various tank waste information. To perform the calculations necessary to utilize data expressed as distributions, a statistical method known as the Monte Carlo methodology was utilized in this study.

3.1 MONTE CARLO METHODOLOGY

The Monte Carlo Methodology is a statistical calculation method. In this method, parameters expressed as distributions are sampled repeatedly and the single-point calculation is run many times to produce a result that is a distribution that accounts for the ranges of all of the individual data parameters. In the Monte Carlo analysis, the analyst selects a number of simulation runs to perform 'n'. A random number table is produced, which allows the calculation to select 'n' discrete values from a given input distribution. These values are then used in 'sampled' order to perform the calculation. This process is repeated for each distribution in the calculation. After this selection is completed 'n' values have been selected from each distribution. If 'n' is sufficiently large, the frequency of the selected values mirrors the frequency of the values in the original distribution. The 'sampled' values are then used in order of their selection (not in numerical order) in the single-point calculation. The results of the 'n' single-point calculations form a distribution that will reflect the combined uncertainties from the original data.

This evaluation includes distributions for 13 parameters to account for uncertainty in waste measurements, waste properties, and retained gas volumes and compositions. Each analysis is performed with 5,000 trials. This involves 5,000 randomly sampled values from each distribution for a total of 65,000 data points. These values are then combined in the order they are sampled and are used in the model calculation to create a population of results with 5,000 answers that are combined to produce the result distributions. If the number of runs selected is large enough, the results of the Monte Carlo simulation can be rerun many times with different sets of randomly selected values and the resulting distribution will vary within limits acceptable to the analysis. To test the stability or reproducibility of the model SST 241-U-106 was selected for evaluation. SST 241-U-106 is the tank closest to the boundary between waste groups B and C.

The stability test checks the operation of the model using different "seed" numbers for the random number generation algorithm. This study ran the SST 241-U-106 model 50 times, with

5,000 trials per run. Fifty runs equates to 250,000 trials using 3,250,000 data points. The initial analysis (5,000 trials) for tank U-106 gave a confidence level of 94.5 that the tank is a waste group C tank. The stability test gave a mean value of the confidence level of 94.44 and a median value of 94.43. This is not a significant variance and confirms that 5,000 trials is adequate. Table 4 presents the results of the 50 trial stability tests for this tank. Based on the stability test, 47 times the SST 241-U-106 would be classified as a waste group B tank, three times the tank would initially be classified as a waste group C tank. In all cases, the waste addition sensitivity test classified the tank as a waste group B tank.

Table 4. Stability Test Results.

Tank	SST 241-U-106
Value tracked	Confidence level tank is a waste group C tank
Reported value (run #1)	94.5 (this value is less than the 95 required to classify this tank as a waste group c tank)
Number of repetitions	50
Number of trials per repetition	5,000
Mean	94.44
Median	94.43
Standard deviation	0.37
Minimum	93.6
Maximum	95.2

Note:
SST = single-shell tank.

Based on the results presented in Table 4 and because of the conservatisms built into the assumption that 100% of the gas is released simultaneously, it is not expected that there is a misclassification of any of the waste group C tanks and no additional evaluation is required.

3.2 APPLICATION OF CRYSTAL BALL[1]

Crystal Ball is an EXCEL[2] add-in, which performs the data sampling and handling for the Monte Carlo simulation. Appropriate distributions are selected and defined as assumptions in the Crystal Ball analysis. The model-calculated results of interest are determined and defined as forecast values. The number of runs and random number seed value (optional) is also selected to control the selection of random numbers and termination of the program. Crystal Ball will generate a table of random numbers sufficiently large to randomly sample all distributions once for each run. The number of random numbers in the table is the product of the number of distributions times the number of runs. Crystal Ball will then sample each distribution based on its random number and perform the model calculation once for each run. The individual run results are kept and a product or forecast distribution is calculated at the completion of the

[1] Crystal Ball is a trademark of Decisioneering, Inc., Denver, Colorado.

[2] EXCEL is a trademark of Microsoft Corporation, Redmond, Washington.

simulation. Crystal Ball can graphically display the forecast distributions as the runs are performed and then produces a report as desired.

4.0 SOURCES OF INPUT DATA AND HIERARCHY

The BBI database is the preferred database for waste characterization information. This database is used whenever possible to help keep consistency between various engineering documents produced by Hanford Site contractors. For this evaluation, the BBI database was queried on November 15, 2001. This data is the same data used in the preparation of RPP-5926, *Steady-State Flammable Gas Release Rate Calculation and Lower Flammability Level Evaluation for Hanford Tank Waste*. Data not available in the BBI, such as vapor data, were obtained from other sources as described below. All data used in these analyses are presented in Appendix A, Tables A-1 through A-7. All data sources documented in Appendix B, Tables B-1 through B-7 provide the data sources on an individual data point basis. Table B-8 provides the key to the references. A summary of the input data required for this evaluation and the primary source for that information is presented in Table 5.

4.1 POINT VALUES

The November 15, 2001, BBI database is the default source of data for the waste and tank characteristic information. The information obtained from the BBI database includes the waste layer depth information and the layer waste density information. The hydrogen generation rates, waste temperatures, and headspace temperatures were obtained from RPP-5926. Another primary source of temperature data is the *Surveillance Analysis Computer System* (SACS). Uncertainty information on the BBI data was obtained from an email to S. A. Barker (Wilmarth 2002) (Appendix I). In future releases of the BBI, the uncertainty data will be included and may be used as a primary source. Data pertaining to the tanks that display buoyant displacement behavior were obtained from RPP-6655. Updates of waste characteristics for these tanks can be obtained from the BBI database. However, the time the sample was taken for analysis in relationship to the BDGRE event can affect the results of the analysis. Retained gas volumes may be reduced in BDGRE tanks following a BDGRE, where the property data can cause misleading results in a waste tank grouping evaluation. Tank dimensions are based on updated tank volume calculations presented in 74B40-99-116, *Tank Volume Adjustments* (Appendix F).

Table 5. Data Source Summary Table.

Variable	Variable type	Primary source of information
Total non-convective waste depth (m)	Distribution	Ref 6
Wetted non-convective waste depth (m)	Distribution	Ref 6
Convective waste depth (m)	Distribution	Ref 6
Crust depth (m)	Distribution	Ref 7
Non-convective waste density (kg/m^3)	Distribution	Ref 6
Convective waste density (kg/m^3)	Distribution	Ref 6
Non-convective waste average temperature (K)	Single point value	Ref 5
Tank headspace average temperature (K)	Single point value	Ref 5
Tank type group	Single point value	Ref 2
Total tank volume (m^3)	Single point value	Ref 2
Tank operating capacity (m)	Single point value	Ref 2
Tank headspace volume (m^3)	Single point value	Ref 2
Dish type	Single point value	Ref 2
Dish height (m)	Single point value	Ref 2
Dish volume (kL)	Single point value	Ref 2
Tank capacity (kL/m)	Single point value	Ref 2
Void fraction or maximum wetted solids void fraction (%)	Distribution	Ref 3
Non-convective waste yield stress dist (Pa)	Distribution	Ref 4
Headspace gas ratio CH_4 dist	Distribution	Ref 3
Headspace gas ratio N_2O dist	Distribution	Ref 3
Retained gas composition N_2 (%)	Distribution	Ref 3
Retained gas composition NH_3 (%)	Distribution	Ref 3
Hydrogen generation rate in non-convective waste (moles/m^3/day)	Distribution	Ref 5
Cross sectional area of tank (m^2)	Single point value	Ref 2

Notes:

Ref 2, 74B40-99-116, 1999, *Tank Volume Adjustments*, CH2MHILL Hanford Group, Inc., Richland, Washington.

Ref 3, HNF-SD-WM-TI-806, 2000, *Gas Release Event Safety Analysis Tool Relational Database For Hanford Tanks*, CH2MHILL Hanford Group, Inc., Richland, Washington.

Ref 4, Wells, B. E., Jan 24, 2002, Personal Email to S. A. Barker, Pacific Northwest National Laboratory, Richland, Washington.

Ref 5, RPP-5926, *Steady-State Flammable Gas Release Rate Calculation and Lower Flammability Level Evaluation for Hanford Tank Waste*, Rev 2, CH2MHILL Hanford Group, Inc., Richland, Washington.

Ref 6, CHG, 2001a, Best Basis Inventory, [database accessed November 15, 2001], internet address: http://twins.pnl.gov:8001.

Ref 7, RPP-6655, 2000, *Data Observations On Double-Shell Flammable Gas Watchlist Tank Behavior*, Rev 0, CH2MHILL Hanford Group, Inc., Richland, Washington.

4.2 DISTRIBUTIONS

A number of important waste characterization properties was needed to properly determine the classification of the tanks. For characterization information that is not included in the BBI database, or for information with values that are uncertain, the information is expressed as distributions. Gas composition data and void fraction information is not available in the BBI database and data distributions from retained gas sampler results were used from HNF-SD-WM-TI-806, *Gas Release Event Safety Analysis Tool Relational Database For Hanford Tanks*. Information from HNF-SD-WM-TI-806 also reports the results of a statistical evaluation that estimates a distribution for the void fraction and retained gas composition for tanks where no data is available. PNNL reported yield stress for five tanks (DSTs 241-AN-103, 241-AN-104, 241-AN-105, 241-AW-101, 241-SY-103, and 241-SY-101 [pre-mitigation]) based on in situ ball rheometer testing (RPP-6655). A suitable distribution for yield stress based on

this data was suggested by PNNL (Appendix G). Finally, due to the recent activities in DSTs 241-AN-107 and 241-SY-101, the void fractions were reevaluated for this analysis. The results of this evaluation are reported in TWS02.025 (Appendix H).

5.0 RESULTS OF CALCULATIONS

An evaluation of the SSTs and DSTs at the Hanford Site has been completed using the methodology presented in Section 3.0, the data presented in Appendices A and B, and the model presented in Appendices C, D, and E. Each tank was evaluated based on the waste conditions on November 15, 2001, except for SST 241-A-101, which is being saltwell pumped. SST 241-A-101 was base-lined as of February 28, 2002. Three conditions were then evaluated for each tank:

- Base condition as of the selected data date (AS IS case)
- Base case with an addition of 10,000 gal of water (10,000-gal water addition case)
- Base case with an addition of 10,000 gal of caustic (10,000-gal caustic addition case).

The last two cases were performed to determine if any tanks changed classification as the result of the addition of modest amounts of water or caustic. These two cases demonstrate what can happen to the tank classification during normal operations as the result of a number of water flushes over time, or if caustic is added to the water flush in order to condition the water. An additional constraint was placed on the tanks relating to these additions. Near-full tanks were not allowed to exceed the tank operating limit for waste volume.

In addition, DSTs that have significant capacity available for waste transfers, were evaluated at the current conditions and at the operating capacity of the tank. For this evaluation, it was assumed that the selected tanks were filled to the tank operating capacity with liquids with the same composition as the supernatant currently present in the tank evaluated.

Appendix E contains a sample output file from the program. The sample output contains the Monte Carlo results for all variables that were tracked, the input distributions (or assumptions) for the given tank, and a table summarizing key variables that were used to verify proper operation of the model (this table is located at the top of the file so that the user did not have to search the 130+ pages of output for the desired results). A compact disk is available from the authors that contain the complete set of output files, as well as the model.

5.1 WASTE GROUP ASSIGNMENTS

The methodology used in this waste classification evaluation indicates that if the tank exhibits class C behavior at the 95% confidence level (the 95% confidence level can also be expressed as 95% of the trials), the waste tank is classified as waste group C. If the tank waste exhibits class C behavior at less than the 95% confidence level, but exhibits combined class C and class B behavior at more than 95% confidence level, the tank is then classified as a waste group B tank. For all remaining tanks, those that exhibit class A behavior, over more than 5% of the trials are placed in waste group A.

A confidence level of 95% was chosen for the selection criteria prior to the start of the evaluation in order not to pre-suppose the result of this analysis. Selecting a confidence level is necessary when performing a Monte Carlo analysis because the property distribution used (especially the lognormal distributions) can insert unrealistic property values at the tail of the distribution. By selecting a decision point at the 95% confidence level, the effect of the individual distribution tails is minimized and a realistic estimate of the true result can be obtained. The possibility of making a non-conservative waste group assignment is reduced by the problem definition, which states that 100% of the gas is released instantaneously, a very conservative assumption. Past experience with all tanks, indicates that the largest observed gas release is on the order of 70% of the retained gas. Except for releases from DST 241-SY-101 (pre-remediation) the largest gas release was 26% (mean estimate of the largest release for DST 241-AN-105).

This classification strategy can be demonstrated using examples from Table 6.

- DST 241-AN-101 exhibits class C characteristics for 100% of the trials – it is classified in waste group C.

- DST 241-AN-102 exhibits class C characteristics for 98.9% of the trials, and class B characteristics for 1.1% of the trials – it is classified in waste group C.

- DST 241-AW-101 exhibits class C characteristics for 97.7% of the trials and class A characteristics for 2.3% of the trials – it is classified in waste group C.

- DST 241-AN-107 exhibits class C characteristics for 90.3% of the trials, class B characteristics for 6.2% of the trials, and class A characteristics for 3.5% of the trials - because it exhibits class B and C characteristics for 96.5% of the trials, it is classified in waste group B.

- DST 241-AW-103 exhibits class C characteristics for 35.1% of the trials, class B characteristics for 64.5% of the trials, and class A characteristics for 0.4% of the trials – because it exhibits class B and C characteristics for 99.6% of the trials, it is classified in waste group B.

- DST 241-AN-103 exhibits class C characteristics for 0.0% of the trials, class B characteristics for 47.9% of the trials, and class A characteristics for 52.1% of the trials – it is classified in waste group A.

- DST 241-AN-104 exhibits class C characteristics for 8.7% of the trials, class B characteristics for 0.0% of the trials, and class A characteristics for 91.3% of the trials – it is classified in waste group A.

Table 6. Determination of Classification. (4 sheets)

As Is	Type	Category A (%)	Category B (%)	Category C (%)	"As Is" Condition
241-AN-101	DST	0.0	0.0	100.0	C
241-AN-102	DST	0.0	1.1	98.9	C
241-AN-103	DST	52.1	47.9	0.0	A
241-AN-104	DST	91.3	0.0	8.7	A
241-AN-105	DST	97.8	0.0	2.2	A
241-AN-106	DST	0.0	0.0	100.0	C
241-AN-107	DST	3.5	6.2	90.3	B
241-AP-101	DST	0.0	0.0	100.0	C
241-AP-102	DST	0.0	0.0	100.0	C
241-AP-103	DST	0.0	0.0	100.0	C
241-AP-104	DST	0.0	0.0	100.0	C
241-AP-105	DST	0.0	8.6	91.4	B
241-AP-106	DST	0.0	0.0	100.0	C
241-AP-107	DST	0.0	0.0	100.0	C
241-AP-108	DST	0.0	0.0	100.0	C
241-AW-101	DST	2.3	0.0	97.7	C
241-AW-102	DST	0.0	0.0	100.0	C
241-AW-103	DST	0.4	64.5	35.1	B
241-AW-104	DST	0.0	0.0	100.0	C
241-AW-105	DST	0.0	0.1	99.9	C
241-AW-106	DST	0.0	0.0	100.0	C
241-AY-101	DST	0.0	0.0	100.0	C
241-AY-102	DST	0.0	0.1	99.9	C
241-AZ-101	DST	0.0	0.1	99.9	C
241-AZ-102	DST	0.0	1.1	98.9	C
241-SY-101	DST	0.0	0.0	100.0	C
241-SY-102	DST	0.0	0.4	99.6	C
241-SY-103	DST	3.9	0.3	95.8	C
241-A-101	SST	NA	92.4	7.6	B
241-A-102	SST	NA	0.0	100.0	C
241-A-103	SST	NA	1.7	98.3	C
241-A-104	SST	NA	0.0	100.0	C
241-A-105	SST	NA	0.0	100.0	C
241-A-106	SST	NA	0.0	100.0	C
241-AX-101	SST	NA	80.7	19.3	B
241-AX-102	SST	NA	0.0	100.0	C
241-AX-103	SST	NA	0.0	100.0	C
241-AX-104	SST	NA	0.0	100.0	C
241-B-101	SST	NA	0.0	100.0	C
241-B-102	SST	NA	0.0	100.0	C
241-B-103	SST	NA	0.0	100.0	C
241-B-104	SST	NA	5.7	94.3	B
241-B-105	SST	NA	46.8	53.2	B
241-B-106	SST	NA	0.4	99.6	C
241-B-107	SST	NA	2.5	97.5	C

Table 6. Determination of Classification. (4 sheets)

As Is	Type	Category A (%)	Category B (%)	Category C (%)	"As Is" Condition
241-B-108	SST	NA	0.0	100.0	C
241-B-109	SST	NA	0.2	99.8	C
241-B-110	SST	NA	2.3	97.7	C
241-B-111	SST	NA	1.7	98.3	C
241-B-112	SST	NA	0.1	99.9	C
241-B-201	SST	NA	9.0	91.0	B
241-B-202	SST	NA	7.7	92.3	B
241-B-203	SST	NA	42.6	57.4	B
241-B-204	SST	NA	40.7	59.3	B
241-BX-101	SST	NA	0.0	100.0	C
241-BX-102	SST	NA	0.2	99.8	C
241-BX103	SST	NA	0.1	99.9	C
241-BX-104	SST	NA	0.3	99.7	C
241-BX-105	SST	NA	0.0	100.0	C
241-BX-106	SST	NA	0.0	100.0	C
241-BX-107	SST	NA	4.3	95.7	C
241-BX-108	SST	NA	0.0	100.0	C
241-BX-109	SST	NA	1.0	99.0	C
241-BX-110	SST	NA	17.9	82.1	B
241-BX-111	SST	NA	1.0	99.0	C
241-BX-112	SST	NA	0.7	99.3	C
241-BY-101	SST	NA	52.0	48.0	B
241-BY-102	SST	NA	19.3	80.7	B
241-BY-103	SST	NA	51.9	48.1	B
241-BY-104	SST	NA	24.4	75.6	B
241-BY-105	SST	NA	81.1	18.9	B
241-BY-106	SST	NA	86.2	13.8	B
241-BY-107	SST	NA	5.9	94.1	B
241-BY-108	SST	NA	3.5	96.5	C
241-BY-109	SST	NA	24.3	75.7	B
241-BY-110	SST	NA	28.4	71.6	B
241-BY-111	SST	NA	8.3	91.7	B
241-BY-112	SST	NA	0.1	99.9	C
241-C-101	SST	NA	0.0	100.0	C
241-C-102	SST	NA	2.8	97.2	C
241-C-103	SST	NA	0.0	100.0	C
241-C-104	SST	NA	1.6	98.4	C
241-C-105	SST	NA	0.0	100.0	C
241-C-106	SST	NA	0.0	100.0	C
241-C-107	SST	NA	1.2	98.8	C
241-C-108	SST	NA	0.0	100.0	C
241-C-109	SST	NA	0.0	100.0	C
241-C-110	SST	NA	0.2	99.8	C
241-C-111	SST	NA	0.0	100.0	C
241-C-112	SST	NA	0.0	100.0	C
241-C-201	SST	NA	0.0	100.0	C

Table 6. Determination of Classification. (4 sheets)

As Is	Type	Category A (%)	Category B (%)	Category C (%)	"As Is" Condition
241-C-202	SST	NA	0.0	100.0	C
241-C-203	SST	NA	0.0	100.0	C
241-C-204	SST	NA	0.0	100.0	C
241-S-101	SST	NA	63.3	36.7	B
241-S-102	SST	NA	10.7	89.3	B
241-S-103	SST	NA	10.9	89.1	B
241-S-104	SST	NA	0.9	99.1	C
241-S-105	SST	NA	10.8	89.2	B
241-S-106	SST	NA	24.9	75.1	B
241-S-107	SST	NA	2.7	97.3	C
241-S-108	SST	NA	34.3	65.7	B
241-S-109	SST	NA	29.4	70.6	B
241-S-110	SST	NA	50.0	50.0	B
241-S-111	SST	NA	93.9	6.1	B
241-S-112	SST	NA	68.5	31.5	B
241-SX-101	SST	NA	35.6	64.4	B
241-SX-102	SST	NA	67.5	32.5	B
241-SX-103	SST	NA	7.0	93.0	B
241-SX-104	SST	NA	23.6	76.4	B
241-SX-105	SST	NA	10.4	89.6	B
241-SX-106	SST	NA	0.0	100.0	C
241-SX-107	SST	NA	0.0	100.0	C
241-SX-108	SST	NA	0.0	100.0	C
241-SX-109	SST	NA	3.5	96.5	C
241-SX-110	SST	NA	0.0	100.0	C
241-SX-111	SST	NA	0.0	100.0	C
241-SX-112	SST	NA	0.0	100.0	C
241-SX-113	SST	NA	0.0	100.0	C
241-SX-114	SST	NA	0.0	100.0	C
241-SX-115	SST	NA	0.0	100.0	C
241-T-101	SST	NA	0.0	100.0	C
241-T-102	SST	NA	0.0	100.0	C
241-T-103	SST	NA	0.0	100.0	C
241-T-104	SST	NA	2.7	97.3	C
241-T-105	SST	NA	0.0	100.0	C
241-T-106	SST	NA	0.0	100.0	C
241-T-107	SST	NA	0.2	99.8	C
241-T-108	SST	NA	0.0	100.0	C
241-T-109	SST	NA	0.0	100.0	C
241-T-110	SST	NA	5.6	94.4	B
241-T-111	SST	NA	9.1	90.9	B
241-T-112	SST	NA	0.0	100.0	C
241-T-201	SST	NA	7.8	92.2	B
241-T-202	SST	NA	3.1	96.9	C
241-T-203	SST	NA	15.1	84.9	B
241-T-204	SST	NA	15.1	84.9	B

Table 6. Determination of Classification. (4 sheets)

As Is	Type	Category A (%)	Category B (%)	Category C (%)	"As Is" Condition
241-TX-101	SST	NA	0.0	100.0	C
241-TX-102	SST	NA	0.8	99.2	C
241-TX-103	SST	NA	0.1	99.9	C
241-TX-104	SST	NA	0.0	100.0	C
241-TX-105	SST	NA	88.9	11.1	B
241-TX-106	SST	NA	28.5	71.5	B
241-TX-107	SST	NA	0.0	100.0	C
241-TX-108	SST	NA	0.0	100.0	C
241-TX-109	SST	NA	2.3	97.7	C
241-TX-110	SST	NA	18.9	81.1	B
241-TX-111	SST	NA	15.0	85.0	B
241-TX-112	SST	NA	84.7	15.3	B
241-TX-113	SST	NA	59.3	40.7	B
241-TX-114	SST	NA	46.3	53.7	B
241-TX-115	SST	NA	65.5	34.5	B
241-TX-116	SST	NA	90.2	9.8	B
241-TX-117	SST	NA	9.1	90.9	B
241-TX-118	SST	NA	8.9	91.1	B
241-TY-101	SST	NA	0.0	100.0	C
241-TY-102	SST	NA	0.0	100.0	C
241-TY-103	SST	NA	0.0	100.0	C
241-TY-104	SST	NA	0.0	100.0	C
241-TY-105	SST	NA	0.3	99.7	C
241-TY-106	SST	NA	0.0	100.0	C
241-U-101	SST	NA	0.0	100.0	C
241-U-102	SST	NA	24.7	75.3	B
241-U-103	SST	NA	0.7	99.3	C
241-U-104	SST	NA	0.1	99.9	C
241-U-105	SST	NA	59.3	40.7	B
241-U-106	SST	NA	5.5	94.5	B
241-U-107	SST	NA	73.7	26.3	B
241-U-108	SST	NA	86.8	13.2	B
241-U-109	SST	NA	0.7	99.3	C
241-U-110	SST	NA	0.3	99.7	C
241-U-111	SST	NA	63.3	36.7	B
241-U-112	SST	NA	0.0	100.0	C
241-U-201	SST	NA	0.0	100.0	C
241-U-202	SST	NA	0.0	100.0	C
241-U-203	SST	NA	0.0	100.0	C
241-U-204	SST	NA	0.0	100.0	C

Notes:
DST = double-shell tank.
NA = not applicable.
SST = single-shell tank.

The following DSTs either exhibit BDGRE behavior or have waste properties similar to tanks exhibiting BDGRE behavior based on the calculated values of the Energy Ratio and/or Buoyancy Ratio. DSTs 241-AN-103, 241-AN-104, and 241-AN-105 exhibit BDGRE behavior and are waste group B tanks. DSTs 241-SY-103 and 241-AW-101, have properties and observations which indicate BDGRE releases probably occur within the tanks, but have too little retained gas for the headspace to reach 100 %LFL if 100% of the retained gas was released instantaneously and as a result are waste group C tanks. DSTs 241-AY-102 and 241-SY-101 have too little waste or too low a gas retention rate and are classified as waste group C tanks. DSTs 241-AN-107 and 241-AW-103 have sufficient retained gas to exceed the class C criteria, but meet the 95% confidence limit criteria for the sum of class C and B trials and are placed in waste group B. It should be noted that historically only DSTs 241-AN-103, 241-AN-104, 241-AN-105, 241-AW-101, 241-SY-101 (pre-mitigation), and 241-SY-103 have documented BDGRE behavior (RPP-6655).

5.1.1 Double-Shell Tanks

As seen in Table 7, 22 of the 28 DSTs are classified as waste group C tanks. That is, even if 100% of the retained gas is released from these tanks, the headspace flammable gas concentration will not exceed 100% LFL. This includes DSTs 241-SY-101, 241-SY-103, and 241-AW-101. Three DSTs, 241-AN-107, 241-AP-108, and 241-AW-103, are classified as waste group B tanks, and the headspace flammable gas concentration can exceed 100% LFL if 100% of the retained gas is released instantaneously, but do not exhibit BDGRE behavior. The three remaining DSTs, 241-AN-103, 241-AN-104, and 241-AN-105, have exhibited BDGRE behavior, and based on this evaluation are classified as waste group A tanks.

In all cases, additional liquids up to 10,000-gal water or caustic can be added to the DSTs during routine operations without affecting the waste groupings as summarized in Table 7.

Additional evaluations were performed where tanks that are currently not very full, are filled to the operating limit with liquid waste matching the supernatant already present in the tank. Table 8 presents the results of those evaluations. Upon filling the tanks, there was no change in waste classification, except for DSTs 241-AW-104 and 241-AW-106. These two tanks would be changed from waste classification C to waste classification B upon filling to the operating limit. This change would be attributed to the effect of a smaller headspace for dilution of released gas. The decrease in volume causes the headspace to exceed 100% LFL for enough trials and the result of the evaluation is that these tanks are waste group B at the 95% confidence level.

Table 7. Waste Group Assignments for Double-Shell Tanks.

Tank	Type	"As Is" condition	10,000 gal H_2O addition	10,000 gal caustic addition	Tank	Type	"As Is" condition	10,000 gal H_2O addition	10,000 gal caustic addition
241-AN-101	DST	C	C	C	241-AW-101	DST	C	C	C
241-AN-102	DST	C	C	C	241-AW-102	DST	C	C	C
241-AN-103	DST	A	A	A	241-AW-103	DST	B	B	B
241-AN-104	DST	A	A	A	241-AW-104	DST	C	C	C
241-AN-105	DST	A	A	A	241-AW-105	DST	C	C	C
241-AN-106	DST	C	C	C	241-AW-106	DST	C	C	C
241-AN-107	DST	B	B	B	241-AY-101	DST	C	C	C
241-AP-101	DST	C	C	C	241-AY-102	DST	C	C	C
241-AP-102	DST	C	C	C	241-AZ-101	DST	C	C	C
241-AP-103	DST	C	C	C	241-AZ-102	DST	C	C	C
241-AP-104	DST	C	C	C	241-SY-101	DST	C	C	C
241-AP-105	DST	B	B	B	241-SY-102	DST	C	C	C
241-AP-106	DST	C	C	C	241-SY-103	DST	C	C	C
241-AP-107	DST	C	C	C					
241-AP-108	DST	C	C	C					

Note:
DST = double-shell tank.

Table 8. Waste Group Assignments for Selected Double-Shell Tanks after Filling to Operating Limit.

Tank	Type	Filled Tank Condition	Tank	Type	Filled Tank Condition
241-AN-106	DST	C	241-AW-102	DST	C
241-AP-103	DST	C	241-AW-104	DST	B
241-AP-106	DST	C	241-AW-106	DST	B
241-AP-107	DST	C	241-AY-101	DST	C
241-AP-108	DST	C			

Note:
DST = double-shell tank.

5.1.2 Single-Shell Tanks

As provided in Table 9, 93 of the 149 SSTs are classified as waste group C tanks. That is, even if 100% of the retained gas is released from these tanks, the headspace flammable gas concentration will not exceed 100% LFL. Fifty-six tanks are classified as waste group B tanks, and the headspace flammable gas concentration can exceed 100% LFL if 100% of the retained gas is released instantaneously, but do not exhibit BDGRE behavior. None of the SSTs have tank/waste configurations that support BDGREs and none of the SSTs which could reach 100% LFL in the headspace have energy ratios >1, therefore, the BDGRE calculation is not applicable.

Table 9. Waste Group Assignments for Single-Shell Tanks. (2 sheets)

Tank	Type	"As Is" condition	10,000 gal H_2O addition	10,000 gal caustic addition	Tank	Type	"As Is" condition	10,000 gal H_2O addition	10,000 gal caustic addition
241-A-101	SST	B	B	B	241-S-110	SST	B	B	B
241-A-102	SST	C	C	C	241-S-111	SST	B	B	B
241-A-103	SST	C	C	C	241-S-112	SST	B	B	B
241-A-104	SST	C	C	C	241-SX-101	SST	B	B	B
241-A-105	SST	C	C	C	241-SX-102	SST	B	B	B
241-A-106	SST	C	C	C	241-SX-103	SST	B	B	B
241-AX-101	SST	B	B	B	241-SX-104	SST	B	B	B
241-AX-102	SST	C	C	C	241-SX-105	SST	B	B	B
241-AX-103	SST	C	C	C	241-SX-106	SST	C	C	C
241-AX-104	SST	C	C	C	241-SX-107	SST	C	C	C
241-B-101	SST	C	C	C	241-SX-108	SST	C	C	C
241-B-102	SST	C	C	C	241-SX-109	SST	C	C	C
241-B-103	SST	C	C	C	241-SX-110	SST	C	C	C
241-B-104	SST	B	B	B	241-SX-111	SST	C	C	C
241-B-105	SST	B	B	B	241-SX-112	SST	C	C	C
241-B-106	SST	C	C	C	241-SX-113	SST	C	C	C
241-B-107	SST	C	C	C	241-SX-114	SST	C	C	C
241-B-108	SST	C	C	C	241-SX-115	SST	C	C	C
241-B-109	SST	C	C	C	241-T-101	SST	C	C	C
241-B-110	SST	C	C	C	241-T-102	SST	C	C	C
241-B-111	SST	C	C	C	241-T-103	SST	C	C	C
241-B-112	SST	C	C	C	241-T-104	SST	C	C	C
241-B-201	SST	B	B	B	241-T-105	SST	C	C	C
241-B-202	SST	B	B	B	241-T-106	SST	C	C	C
241-B-203[1]	SST	B	B	B	241-T-107	SST	C	C	C
241-B-204[1]	SST	B	B	B	241-T-108	SST	C	C	C
241-BX-101	SST	C	C	C	241-T-109	SST	C	C	C
241-BX-102	SST	C	C	C	241-T-110	SST	B	B	B
241-BX103	SST	C	C	C	241-T-111	SST	B	B	B
241-BX-104	SST	C	C	C	241-T-112	SST	C	C	C
241-BX-105	SST	C	C	C	241-T-201	SST	B	B	B
241-BX-106	SST	C	C	C	241-T-202	SST	C	C	C
241-BX-107	SST	C	C	C	241-T-203	SST	B	B	B
241-BX-108	SST	C	C	C	241-T-204	SST	B	B	B
241-BX-109	SST	C	C	C	241-TX-101	SST	C	C	C
241-BX-110	SST	B	B	B	241-TX-102	SST	C	C	C
241-BX-111	SST	C	C	C	241-TX-103	SST	C	C	C
241-BX-112	SST	C	C	C	241-TX-104	SST	C	C	C
241-BY-101	SST	B	B	B	241-TX-105	SST	B	B	B
241-BY-102	SST	B	B	B	241-TX-106	SST	B	B	B
241-BY-103	SST	B	B	B	241-TX-107	SST	C	C	C
241-BY-104	SST	B	B	B	241-TX-108	SST	C	C	C
241-BY-105	SST	B	B	B	241-TX-109	SST	C	C	C
241-BY-106	SST	B	B	B	241-TX-110	SST	B	B	B
241-BY-107	SST	B	B	B	241-TX-111	SST	B	B	B
241-BY-108	SST	C	C	C	241-TX-112	SST	B	B	B
241-BY-109	SST	B	B	B	241-TX-113	SST	B	B	B
241-BY-110	SST	B	B	B	241-TX-114	SST	B	B	B
241-BY-111	SST	B	B	B	241-TX-115	SST	B	B	B
241-BY-112	SST	C	C	C	241-TX-116	SST	B	B	B
241-C-101	SST	C	C	C	241-TX-117	SST	B	B	B
241-C-102	SST	C	C	C	241-TX-118	SST	B	B	B
241-C-103	SST	C	C	C	241-TY-101	SST	C	C	C
241-C-104	SST	C	C	C	241-TY-102	SST	C	C	C

Table 9. Waste Group Assignments for Single-Shell Tanks. (2 sheets)

Tank	Type	"As Is" condition	10,000 gal H_2O addition	10,000 gal caustic addition	Tank	Type	"As Is" condition	10,000 gal H_2O addition	10,000 gal caustic addition
241-C-105	SST	C	C	C	241-TY-103	SST	C	C	C
241-C-106	SST	C	C	C	241-TY-104	SST	C	C	C
241-C-107	SST	C	C	C	241-TY-105	SST	C	C	C
241-C-108	SST	C	C	C	241-TY-106	SST	C	C	C
241-C-109	SST	C	C	C	241-U-101	SST	C	C	C
241-C-110	SST	C	C	C	241-U-102	SST	B	B	B
241-C-111	SST	C	C	C	241-U-103	SST	C	C	C
241-C-112	SST	C	C	C	241-U-104	SST	C	C	C
241-C-201	SST	C	C	C	241-U-105	SST	B	B	B
241-C-202	SST	C	C	C	241-U-106	SST	B	B	B
241-C-203	SST	C	C	C	241-U-107	SST	B	B	B
241-C-204	SST	C	C	C	241-U-108	SST	B	B	B
241-S-101	SST	B	B	B	241-U-109	SST	C	C	C
241-S-102	SST	B	B	B	241-U-110	SST	C	C	C
241-S-103	SST	B	B	B	241-U-111	SST	B	B	B
241-S-104	SST	C	C	C	241-U-112	SST	C	C	C
241-S-105	SST	B	B	B	241-U-201	SST	C	C	C
241-S-106	SST	B	B	B	241-U-202	SST	C	C	C
241-S-107	SST	C	C	C	241-U-203	SST	C	C	C
241-S-108	SST	B	B	B	241-U-204	SST	C	C	C
241-S-109	SST	B	B	B					

Notes:
SST = single-shell tank.
[1]Tanks where only 3,000 gal of water or caustic are added.

In all cases, additional liquids up to 10,000-gal water or caustic (less if the operating limit is exceeded) can be added to the SSTs, if additions were authorized, without affecting the waste groupings.

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APPENDIX A

INPUT DATA

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Table A-1. Input Data. (7 sheets)

1	2	3	4	5	6	7	8	9	10
Tank	**Tank type**	**Total waste depth (m)**	**Total waste depth uncertainty (m)**	**Total non-convective waste depth (m)**	**Total non-convective waste depth uncertainty (m)**	**Total non-convective waste depth lower bound (m)**	**Wetted non-convective waste depth (m)**	**Wetted non-convective waste depth uncertainty (m)**	**Wetted non-convective waste depth lower bound (m)**
A-101	SST	7.72	0.165	3.40	0.241	0.010	3.40	0.241	0.010
A-102	SST	0.36	0.165	0.34	0.165	0.010	0.34	0.165	0.010
A-103	SST	3.42	0.165	3.38	0.241	0.010	3.38	0.241	0.010
A-104	SST	0.26	0.165	0.26	0.165	0.010	0.26	0.165	0.010
A-105	SST	0.00	0.165	0.00	0.165	0.000	0.05	0.165	0.010
A-106	SST	0.73	0.241	0.73	0.241	0.010	0.73	0.241	0.010
AN-101	DST	2.33	0.006	0.00	0.000	0.000	0.00	0.000	0.000
AN-102	DST	10.01	0.165	0.82	0.165	0.010	0.82	0.165	0.010
AN-103	DST	8.84	0.180	3.78	0.070	0.010	3.78	0.070	0.010
AN-104	DST	9.73	0.410	4.05	0.400	0.010	4.05	0.400	0.010
AN-105	DST	10.41	0.430	4.50	0.420	0.010	4.50	0.420	0.010
AN-106	DST	0.35	0.165	0.16	0.165	0.010	0.16	0.165	0.010
AN-107	DST	9.60	0.165	2.28	0.165	0.010	2.28	0.165	0.010
AP-101	DST	10.27	0.006	0.00	0.000	0.000	0.00	0.000	0.000
AP-102	DST	10.04	0.006	0.00	0.000	0.000	0.00	0.000	0.000
AP-103	DST	2.60	0.006	0.00	0.000	0.000	0.00	0.000	0.000
AP-104	DST	10.23	0.006	0.00	0.000	0.000	0.00	0.000	0.000
AP-105	DST	10.47	0.165	0.82	0.165	0.010	0.82	0.165	0.010
AP-106	DST	5.75	0.006	0.00	0.000	0.000	0.00	0.000	0.000
AP-107	DST	9.03	0.006	0.00	0.000	0.000	0.00	0.000	0.000
AP-108	DST	7.11	0.006	0.00	0.000	0.000	0.00	0.000	0.000
AW-101	DST	9.60	0.370	2.86	0.300	0.010	2.86	0.300	0.010
AW-102	DST	0.78	0.165	0.28	0.165	0.010	0.28	0.165	0.010
AW-103	DST	10.16	0.165	2.88	0.241	0.010	2.88	0.241	0.010
AW-104	DST	2.91	0.165	2.05	0.241	0.010	2.05	0.241	0.010
AW-105	DST	3.94	0.165	2.35	0.165	0.010	2.35	0.165	0.010
AW-106	DST	2.76	0.165	2.20	0.165	0.010	2.20	0.165	0.010

Table A-1. Input Data. (7 sheets)

1	2	3	4	5	6	7	8	9	10
Tank	**Tank type**	**Total waste depth (m)**	**Total waste depth uncertainty (m)**	**Total non-convective waste depth (m)**	**Total non-convective waste depth uncertainty (m)**	**Total non-convective waste depth lower bound (m)**	**Wetted non-convective waste depth (m)**	**Wetted non-convective waste depth uncertainty (m)**	**Wetted non-convective waste depth lower bound (m)**
AX-101	SST	6.58	0.165	3.72	0.241	0.010	3.31	0.241	0.010
AX-102	SST	0.28	0.241	0.28	0.241	0.010	0.28	0.241	0.010
AX-103	SST	1.00	0.241	1.00	0.241	0.010	1.00	0.241	0.010
AX-104	SST	0.07	0.165	0.07	0.165	0.010	0.07	0.165	0.010
AY-101	DST	1.75	0.165	0.76	0.165	0.010	0.76	0.165	0.010
AY-102	DST	6.30	0.165	1.57	0.165	0.010	1.57	0.165	0.010
AZ-101	DST	8.97	0.165	0.48	0.165	0.010	0.48	0.165	0.010
AZ-102	DST	9.20	0.165	0.97	0.165	0.010	0.97	0.165	0.010
B-101	SST	1.00	0.241	1.00	0.241	0.010	1.00	0.241	0.010
B-102	SST	0.29	0.165	0.26	0.165	0.010	0.26	0.165	0.010
B-103	SST	0.51	0.241	0.51	0.241	0.010	0.51	0.241	0.010
B-104	SST	3.45	0.241	3.45	0.241	0.010	3.45	0.241	0.010
B-105	SST	2.68	0.241	2.68	0.241	0.010	2.68	0.241	0.010
B-106	SST	1.12	0.165	1.12	0.165	0.010	1.12	0.165	0.010
B-107	SST	1.49	0.241	1.49	0.241	0.010	1.49	0.241	0.010
B-108	SST	0.85	0.241	0.85	0.241	0.010	0.85	0.241	0.010
B-109	SST	1.15	0.241	1.15	0.241	0.010	1.15	0.241	0.010
B-110	SST	2.25	0.165	2.25	0.165	0.010	2.25	0.165	0.010
B-111	SST	2.22	0.165	2.22	0.165	0.010	2.22	0.165	0.010
B-112	SST	0.32	0.165	0.29	0.241	0.010	0.29	0.241	0.010
B-201	SST	3.94	0.165	3.94	0.165	0.010	3.94	0.165	0.010
B-202	SST	3.80	0.165	3.80	0.165	0.010	3.80	0.165	0.010
B-203	SST	6.61	0.165	6.61	0.165	0.010	6.61	0.165	0.010
B-204	SST	6.47	0.165	6.47	0.165	0.010	6.47	0.165	0.010
BX-101	SST	0.44	0.165	0.44	0.165	0.010	0.44	0.165	0.010
BX-102	SST	1.03	0.165	1.03	0.165	0.010	1.03	0.165	0.010
BX-103	SST	0.67	0.165	0.57	0.165	0.010	0.57	0.165	0.010

Table A-1. Input Data. (7 sheets)

1	2	3	4	5	6	7	8	9	10
Tank	**Tank type**	**Total waste depth (m)**	**Total waste depth uncertainty (m)**	**Total non-convective waste depth (m)**	**Total non-convective waste depth uncertainty (m)**	**Total non-convective waste depth lower bound (m)**	**Wetted non-convective waste depth (m)**	**Wetted non-convective waste depth uncertainty (m)**	**Wetted non-convective waste depth lower bound (m)**
BX-104	SST	0.92	0.165	0.90	0.165	0.010	0.90	0.165	0.010
BX-105	SST	0.66	0.165	0.62	0.165	0.010	0.62	0.165	0.010
BX-106	SST	0.35	0.165	0.35	0.165	0.010	0.35	0.165	0.010
BX-107	SST	3.20	0.165	3.20	0.165	0.010	3.20	0.165	0.010
BX-108	SST	0.29	0.165	0.29	0.165	0.010	0.29	0.165	0.010
BX-109	SST	1.78	0.165	1.78	0.165	0.010	1.78	0.165	0.010
BX-110	SST	1.89	0.165	1.88	0.241	0.010	1.88	0.241	0.010
BX-111	SST	1.74	0.241	1.74	0.241	0.010	1.09	0.241	0.010
BX-112	SST	1.52	0.165	1.50	0.165	0.010	1.50	0.165	0.010
BY-101	SST	3.41	0.241	3.41	0.241	0.010	3.41	0.241	0.010
BY-102	SST	2.55	0.241	2.55	0.241	0.010	2.55	0.241	0.010
BY-103	SST	3.84	0.241	3.84	0.241	0.010	3.02	0.241	0.010
BY-104	SST	3.30	0.241	3.30	0.241	0.010	2.29	0.241	0.010
BY-105	SST	4.64	0.241	4.64	0.241	0.010	4.64	0.241	0.010
BY-106	SST	5.18	0.241	5.18	0.241	0.010	5.18	0.241	0.010
BY-107	SST	2.50	0.241	2.50	0.241	0.010	1.78	0.241	0.010
BY-108	SST	2.05	0.241	2.05	0.241	0.010	2.05	0.241	0.010
BY-109	SST	2.55	0.241	2.55	0.241	0.010	2.55	0.241	0.010
BY-110	SST	3.37	0.241	3.37	0.241	0.010	2.49	0.241	0.010
BY-111	SST	2.79	0.241	2.79	0.241	0.010	1.78	0.241	0.010
BY-112	SST	2.64	0.241	2.64	0.241	0.010	0.74	0.241	0.010
C-101	SST	0.81	0.165	0.81	0.165	0.010	0.81	0.165	0.010
C-102	SST	2.91	0.165	2.91	0.165	0.010	2.91	0.165	0.010
C-103	SST	1.83	0.165	1.15	0.165	0.010	1.15	0.165	0.010
C-104	SST	2.39	0.165	2.39	0.165	0.010	2.39	0.165	0.010
C-105	SST	1.22	0.165	1.22	0.165	0.010	1.22	0.165	0.010
C-106	SST	0.34	0.165	0.06	0.165	0.010	0.06	0.165	0.010

Table A-1. Input Data. (7 sheets)

1	2	3	4	5	6	7	8	9	10
Tank	**Tank type**	**Total waste depth (m)**	**Total waste depth uncertainty (m)**	**Total non-convective waste depth (m)**	**Total non-convective waste depth uncertainty (m)**	**Total non-convective waste depth lower bound (m)**	**Wetted non-convective waste depth (m)**	**Wetted non-convective waste depth uncertainty (m)**	**Wetted non-convective waste depth lower bound (m)**
C-107	SST	2.29	0.165	2.29	0.165	0.010	2.29	0.165	0.010
C-108	SST	0.61	0.165	0.61	0.165	0.010	0.61	0.165	0.010
C-109	SST	0.58	0.165	0.58	0.165	0.010	0.58	0.165	0.010
C-110	SST	1.63	0.165	1.63	0.165	0.010	1.63	0.165	0.010
C-111	SST	0.53	0.165	0.53	0.165	0.010	0.53	0.165	0.010
C-112	SST	0.96	0.165	0.96	0.165	0.010	0.96	0.165	0.010
C-201	SST	0.14	0.165	0.14	0.165	0.010	0.14	0.165	0.010
C-202	SST	0.14	0.165	0.14	0.165	0.010	0.14	0.165	0.010
C-203	SST	0.34	0.165	0.34	0.165	0.010	0.34	0.165	0.010
C-204	SST	0.34	0.165	0.34	0.165	0.010	0.34	0.165	0.010
S-101	SST	3.91	0.241	3.91	0.241	0.010	3.91	0.241	0.010
S-102	SST	4.12	0.241	4.12	0.241	0.010	3.04	0.241	0.010
S-103	SST	2.19	0.165	2.18	0.241	0.010	2.18	0.241	0.010
S-104	SST	2.66	0.241	2.66	0.241	0.010	2.66	0.241	0.010
S-105	SST	3.74	0.241	3.74	0.241	0.010	1.37	0.241	0.010
S-106	SST	4.20	0.241	4.20	0.241	0.010	1.19	0.241	0.010
S-107	SST	3.47	0.165	3.34	0.241	0.010	3.34	0.241	0.010
S-108	SST	5.07	0.241	5.07	0.241	0.010	1.55	0.241	0.010
S-109	SST	4.91	0.241	4.91	0.241	0.010	1.47	0.241	0.010
S-110	SST	3.59	0.241	3.59	0.241	0.010	3.28	0.241	0.010
S-111	SST	4.99	0.165	4.55	0.241	0.010	3.86	0.241	0.010
S-112	SST	4.75	0.241	4.75	0.241	0.010	3.18	0.241	0.010
SX-101	SST	3.93	0.241	3.93	0.241	0.010	3.05	0.241	0.010
SX-102	SST	4.67	0.241	4.67	0.241	0.010	4.67	0.241	0.010
SX-103	SST	4.70	0.241	4.70	0.241	0.010	1.42	0.241	0.010
SX-104	SST	4.11	0.241	4.11	0.241	0.010	2.41	0.241	0.010
SX-105	SST	3.49	0.241	3.49	0.241	0.010	2.16	0.241	0.010

Table A-1. Input Data. (7 sheets)

1	2	3	4	5	6	7	8	9	10
Tank	**Tank type**	**Total waste depth (m)**	**Total waste depth uncertainty (m)**	**Total non-convective waste depth (m)**	**Total non-convective waste depth uncertainty (m)**	**Total non-convective waste depth lower bound (m)**	**Wetted non-convective waste depth (m)**	**Wetted non-convective waste depth uncertainty (m)**	**Wetted non-convective waste depth lower bound (m)**
SX-106	SST	3.66	0.241	3.66	0.241	0.010	1.93	0.241	0.010
SX-107	SST	0.87	0.241	0.87	0.241	0.010	0.87	0.241	0.010
SX-108	SST	0.67	0.165	0.67	0.165	0.010	0.67	0.165	0.010
SX-109	SST	2.22	0.241	2.22	0.241	0.010	2.22	0.241	0.010
SX-110	SST	0.52	0.241	0.52	0.241	0.010	0.52	0.241	0.010
SX-111	SST	1.06	0.241	1.06	0.241	0.010	1.06	0.241	0.010
SX-112	SST	0.69	0.241	0.69	0.241	0.010	0.69	0.241	0.010
SX-113	SST	0.17	0.165	0.17	0.165	0.010	0.17	0.165	0.010
SX-114	SST	1.45	0.241	1.45	0.241	0.010	1.45	0.241	0.010
SX-115	SST	0.03	0.165	0.03	0.165	0.010	0.03	0.165	0.010
SY-101	DST	8.94	0.165	2.29	0.165	0.010	2.29	0.165	0.010
SY-102	DST	9.54	0.165	0.66	0.165	0.010	0.66	0.165	0.010
SY-103	DST	6.83	0.140	2.86	0.030	0.010	2.86	0.030	0.010
T-101	SST	0.92	0.241	0.92	0.241	0.010	0.92	0.241	0.010
T-102	SST	0.29	0.165	0.18	0.165	0.010	0.18	0.165	0.010
T-103	SST	0.25	0.165	0.21	0.165	0.010	0.21	0.165	0.010
T-104	SST	2.92	0.165	2.92	0.165	0.010	2.72	0.165	0.010
T-105	SST	0.90	0.165	0.90	0.165	0.010	0.90	0.165	0.010
T-106	SST	0.20	0.165	0.20	0.165	0.010	0.20	0.165	0.010
T-107	SST	1.60	0.165	1.60	0.165	0.010	1.60	0.165	0.010
T-108	SST	0.15	0.241	0.15	0.241	0.010	0.15	0.241	0.010
T-109	SST	0.57	0.241	0.57	0.241	0.010	0.57	0.241	0.010
T-110	SST	3.40	0.165	3.40	0.165	0.010	3.40	0.165	0.010
T-111	SST	4.12	0.165	4.12	0.165	0.010	4.12	0.165	0.010
T-112	SST	0.55	0.165	0.55	0.165	0.010	0.55	0.165	0.010
T-201	SST	3.77	0.165	3.77	0.165	0.010	3.77	0.165	0.010
T-202	SST	2.77	0.165	2.77	0.165	0.010	2.77	0.165	0.010

Table A-1. Input Data. (7 sheets)

1	2	3	4	5	6	7	8	9	10
Tank	**Tank type**	**Total waste depth (m)**	**Total waste depth uncertainty (m)**	**Total non-convective waste depth (m)**	**Total non-convective waste depth uncertainty (m)**	**Total non-convective waste depth lower bound (m)**	**Wetted non-convective waste depth (m)**	**Wetted non-convective waste depth uncertainty (m)**	**Wetted non-convective waste depth lower bound (m)**
T-203	SST	4.79	0.165	4.79	0.165	0.010	4.79	0.165	0.010
T-204	SST	4.79	0.165	4.79	0.165	0.010	4.79	0.165	0.010
TX-101	SST	0.84	0.241	0.84	0.241	0.010	0.84	0.241	0.010
TX-102	SST	2.00	0.241	2.00	0.241	0.010	1.40	0.241	0.010
TX-103	SST	1.34	0.241	1.34	0.241	0.010	1.34	0.241	0.010
TX-104	SST	0.62	0.241	0.62	0.241	0.010	0.62	0.241	0.010
TX-105	SST	5.31	0.241	5.31	0.241	0.010	5.31	0.241	0.010
TX-106	SST	3.21	0.241	3.21	0.241	0.010	2.41	0.241	0.010
TX-107	SST	0.27	0.241	0.27	0.241	0.010	0.27	0.241	0.010
TX-108	SST	1.19	0.241	1.19	0.241	0.010	1.19	0.241	0.010
TX-109	SST	3.35	0.165	3.35	0.165	0.010	3.20	0.165	0.010
TX-110	SST	4.31	0.241	4.31	0.241	0.010	1.47	0.241	0.010
TX-111	SST	3.37	0.241	3.37	0.241	0.010	1.78	0.241	0.010
TX-112	SST	5.84	0.241	5.84	0.241	0.010	3.30	0.241	0.010
TX-113	SST	5.89	0.241	5.89	0.241	0.010	1.83	0.241	0.010
TX-114	SST	4.91	0.241	4.91	0.241	0.010	1.96	0.241	0.010
TX-115	SST	5.11	0.241	5.11	0.241	0.010	2.54	0.241	0.010
TX-116	SST	5.50	0.241	5.50	0.241	0.010	5.50	0.241	0.010
TX-117	SST	4.43	0.241	4.43	0.241	0.010	1.10	0.241	0.010
TX-118	SST	2.36	0.241	2.36	0.241	0.010	2.03	0.241	0.010
TY-101	SST	1.09	0.241	1.09	0.241	0.010	1.09	0.241	0.010
TY-102	SST	0.64	0.241	0.64	0.241	0.010	0.64	0.241	0.010
TY-103	SST	1.43	0.241	1.43	0.241	0.010	1.43	0.241	0.010
TY-104	SST	0.41	0.165	0.40	0.165	0.010	0.40	0.165	0.010
TY-105	SST	2.13	0.165	2.13	0.165	0.010	2.13	0.165	0.010
TY-106	SST	0.15	0.165	0.15	0.165	0.010	0.15	0.165	0.010
U-101	SST	0.22	0.165	0.22	0.165	0.010	0.22	0.165	0.010

Table A-1. Input Data. (7 sheets)

1	2	3	4	5	6	7	8	9	10
Tank	**Tank type**	**Total waste depth (m)**	**Total waste depth uncertainty (m)**	**Total non-convective waste depth (m)**	**Total non-convective waste depth uncertainty (m)**	**Total non-convective waste depth lower bound (m)**	**Wetted non-convective waste depth (m)**	**Wetted non-convective waste depth uncertainty (m)**	**Wetted non-convective waste depth lower bound (m)**
U-102	SST	2.70	0.241	2.70	0.241	0.010	1.78	0.241	0.010
U-103	SST	3.84	0.241	3.84	0.241	0.010	1.52	0.241	0.010
U-104	SST	1.13	0.165	1.13	0.165	0.010	1.13	0.165	0.010
U-105	SST	3.26	0.241	3.26	0.241	0.010	2.62	0.241	0.010
U-106	SST	1.57	0.165	1.55	0.165	0.010	1.55	0.165	0.010
U-107	SST	3.46	0.241	3.46	0.241	0.010	3.46	0.241	0.010
U-108	SST	4.10	0.241	4.10	0.241	0.010	4.10	0.241	0.010
U-109	SST	3.80	0.241	3.80	0.241	0.010	2.03	0.241	0.010
U-110	SST	1.62	0.165	1.62	0.165	0.010	1.62	0.165	0.010
U-111	SST	3.14	0.241	3.14	0.241	0.010	3.14	0.241	0.010
U-112	SST	0.42	0.165	0.42	0.165	0.010	0.42	0.165	0.010
U-201	SST	0.51	0.165	0.51	0.165	0.010	0.51	0.165	0.010
U-202	SST	0.45	0.165	0.45	0.165	0.010	0.45	0.165	0.010
U-203	SST	0.45	0.165	0.45	0.165	0.010	0.45	0.165	0.010
U-204	SST	0.38	0.165	0.38	0.165	0.010	0.38	0.165	0.010

Table A-2. Input Data. (7 sheets)

	11	12	13	14	15	16	17	18	19
Tank	**Convective waste depth (m)**	**Convective waste depth uncertainty (m)**	**Crust depth (m)**	**Non-convective waste density (kg/m^3)**	**Non-convective waste density std dev (kg/m^3)**	**Non-convective waste density minimum (kg/m^3)**	**Non-convective waste density maximum (kg/m^3)**	**Convective waste density (kg/m^3)**	**Convective waste density std dev (kg/m^3)**
A-101	4.32	0.165	0.00	1678	0	1566	1790	1,490	0.0
A-102	0.02	0.165	0.00	1667	0	1556	1778	1,570	0.0
A-103	0.04	0.165	0.00	1375	0	1283	1466	1,450	0.0
A-104	0.00	0.000	0.00	1640	0	1531	1749	1,000	0.0
A-105	0.00	0.000	0.00	1540	0	1437	1643	1,000	0.0
A-106	0.00	0.000	0.00	1550	0	1447	1653	1,000	0.0
AN-101	2.33	0.006	0.00	1100	0	1027	1173	1,170	0.0
AN-102	9.19	0.165	0.00	1560	0	1456	1664	1,430	0.0
AN-103	4.17	0.180	0.89	1737	110	1517	1957	1,450	47.0
AN-104	5.27	0.410	0.41	1579	50	1479	1679	1,440	54.0
AN-105	5.46	0.430	0.45	1572	40	1492	1652	1,430	45.0
AN-106	0.19	0.165	0.00	1580	0	1475	1685	1,180	0.0
AN-107	7.32	0.165	0.00	1560	0	1456	1664	1,370	0.0
AP-101	10.27	0.006	0.00	1100	0	1027	1173	1,310	0.0
AP-102	10.04	0.006	0.00	1100	0	1027	1173	1,200	0.0
AP-103	2.60	0.006	0.00	1100	0	1027	1173	1,310	0.0
AP-104	10.23	0.006	0.00	1100	0	1027	1173	1,250	0.0
AP-105	9.65	0.165	0.00	1580	0	1475	1685	1,350	0.0
AP-106	5.75	0.006	0.00	1100	0	1027	1173	1,260	0.0
AP-107	9.03	0.006	0.00	1100	0	1027	1173	1,250	0.0
AP-108	7.11	0.006	0.00	1100	0	1027	1173	1,250	0.0
AW-101	5.94	0.370	0.80	1553	40	1473	1633	1,430	43.0
AW-102	0.51	0.165	0.00	1490	0	1391	1589	1,010	0.0
AW-103	7.28	0.165	0.00	1498	0	1398	1598	1,240	0.0
AW-104	0.86	0.165	0.00	1490	0	1391	1590	1,070	0.0
AW-105	1.59	0.165	0.00	1306	0	1219	1393	1,070	0.0
AW-106	0.55	0.165	0.00	1580	0	1475	1685	1,320	0.0

Table A-2. Input Data. (7 sheets)

	11	12	13	14	15	16	17	18	19
Tank	**Convective waste depth (m)**	**Convective waste depth *uncertainty* (m)**	**Crust depth (m)**	**Non-convective *waste density* (kg/m^3)**	**Non-convective waste density *std dev* (kg/m^3)**	**Non-convective waste *density* minimum (kg/m^3)**	**Non-convective waste density *maximum* (kg/m^3)**	**Convective waste density (kg/m^3)**	**Convective waste density *std dev* (kg/m^3)**
AX-101	2.87	0.165	0.00	1677	0	1565	1789	1,530	0.0
AX-102	0.00	0.000	0.00	1524	0	1423	1626	1,000	0.0
AX-103	0.00	0.000	0.00	1622	0	1513	1730	1,000	0.0
AX-104	0.00	0.000	0.00	1800	0	1680	1920	1,000	0.0
AY-101	0.99	0.165	0.00	1522	0	1421	1624	1,220	0.0
AY-102	4.73	0.165	0.00	1397	0	1304	1491	1,150	0.0
AZ-101	8.49	0.165	0.00	1620	0	1512	1728	1,240	0.0
AZ-102	8.23	0.165	0.00	1380	0	1288	1472	1,140	0.0
B-101	0.00	0.000	0.00	1489	0	1390	1588	1,000	0.0
B-102	0.04	0.165	0.00	1613	0	1505	1720	1,190	0.0
B-103	0.00	0.000	0.00	1613	0	1505	1720	1,000	0.0
B-104	0.00	0.000	0.00	1356	0	1265	1446	1,000	0.0
B-105	0.00	0.000	0.00	1672	0	1560	1783	1,000	0.0
B-106	0.00	0.000	0.00	1381	0	1289	1473	1,190	0.0
B-107	0.00	0.000	0.00	1626	0	1518	1735	1,000	0.0
B-108	0.00	0.000	0.00	1674	0	1562	1785	1,000	0.0
B-109	0.00	0.000	0.00	1769	0	1651	1887	1,000	0.0
B-110	0.00	0.000	0.00	1360	0	1269	1451	1,010	0.0
B-111	0.00	0.000	0.00	1190	0	1111	1269	1,010	0.0
B-112	0.03	0.165	0.00	1465	0	1368	1563	1,010	0.0
B-201	0.00	0.000	0.00	1260	0	1176	1344	1,000	0.0
B-202	0.00	0.000	0.00	1220	0	1139	1301	1,000	0.0
B-203	0.00	0.000	0.00	1190	0	1111	1269	1,000	0.0
B-204	0.00	0.000	0.00	1190	0	1111	1269	1,000	0.0
BX-101	0.00	0.000	0.00	1658	0	1547	1768	1,000	0.0
BX-102	0.00	0.000	0.00	1280	0	1194	1365	1,000	0.0
BX-103	0.10	0.165	0.00	1644	0	1534	1753	1,110	0.0

Table A-2. Input Data. (7 sheets)

	11	12	13	14	15	16	17	18	19
Tank	**Convective waste depth (m)**	**Convective waste depth uncertainty (m)**	**Crust depth (m)**	**Non-convective waste density (kg/m^3)**	**Non-convective waste density std dev (kg/m^3)**	**Non-convective waste density minimum (kg/m^3)**	**Non-convective waste density maximum (kg/m^3)**	**Convective waste density (kg/m^3)**	**Convective waste density std dev (kg/m^3)**
BX-104	0.03	0.165	0.00	1680	0	1568	1792	1,280	0.0
BX-105	0.04	0.165	0.00	1638	0	1529	1747	1,290	0.0
BX-106	0.00	0.000	0.00	1690	0	1577	1803	1,000	0.0
BX-107	0.00	0.000	0.00	1440	0	1344	1536	1,000	0.0
BX-108	0.00	0.000	0.00	1478	0	1380	1577	1,000	0.0
BX-109	0.00	0.000	0.00	1520	0	1419	1621	1,000	0.0
BX-110	0.01	0.165	0.00	1733	0	1617	1848	1,440	0.0
BX-111	0.00	0.000	0.00	1443	0	1347	1539	1,000	0.0
BX-112	0.01	0.165	0.00	1310	0	1223	1397	1,180	0.0
BY-101	0.00	0.000	0.00	1804	0	1684	1924	1,000	0.0
BY-102	0.00	0.000	0.00	1571	0	1467	1676	1,000	0.0
BY-103	0.00	0.000	0.00	1636	0	1527	1745	1,000	0.0
BY-104	0.00	0.000	0.00	1701	0	1587	1814	1,000	0.0
BY-105	0.00	0.000	0.00	1765	0	1647	1883	1,000	0.0
BY-106	0.00	0.000	0.00	1597	0	1491	1704	1,000	0.0
BY-107	0.00	0.000	0.00	1686	0	1573	1798	1,000	0.0
BY-108	0.00	0.000	0.00	1485	0	1386	1584	1,000	0.0
BY-109	0.00	0.000	0.00	1705	0	1592	1819	1,000	0.0
BY-110	0.00	0.000	0.00	1569	0	1464	1673	1,000	0.0
BY-111	0.00	0.000	0.00	1683	0	1571	1796	1,000	0.0
BY-112	0.00	0.000	0.00	1741	0	1625	1857	1,000	0.0
C-101	0.00	0.000	0.00	1498	0	1398	1597	1,000	0.0
C-102	0.00	0.000	0.00	1663	0	1552	1773	1,000	0.0
C-103	0.67	0.165	0.00	1490	0	1391	1589	1,110	0.0
C-104	0.00	0.000	0.00	1690	0	1577	1803	1,000	0.0
C-105	0.00	0.000	0.00	1550	0	1447	1653	1,000	0.0
C-106	0.28	0.165	0.00	1520	0	1419	1621	1,130	0.0

Table A-2. Input Data. (7 sheets)

	11	12	13	14	15	16	17	18	19
Tank	**Convective waste depth (m)**	**Convective waste depth uncertainty (m)**	**Crust depth (m)**	**Non-convective waste density (kg/m^3)**	**Non-convective waste density std dev (kg/m^3)**	**Non-convective waste density minimum (kg/m^3)**	**Non-convective waste density maximum (kg/m^3)**	**Convective waste density (kg/m^3)**	**Convective waste density std dev (kg/m^3)**
C-107	0.00	0.000	0.00	1410	0	1316	1503	1,000	0.0
C-108	0.00	0.000	0.00	1450	0	1353	1547	1,000	0.0
C-109	0.00	0.000	0.00	1444	0	1347	1540	1,000	0.0
C-110	0.00	0.000	0.00	1340	0	1251	1429	1,100	0.0
C-111	0.00	0.000	0.00	1440	0	1344	1536	1,000	0.0
C-112	0.00	0.000	0.00	1600	0	1493	1707	1,000	0.0
C-201	0.00	0.000	0.00	1500	0	1400	1600	1,000	0.0
C-202	0.00	0.000	0.00	1500	0	1400	1600	1,000	0.0
C-203	0.00	0.000	0.00	1500	0	1400	1600	1,000	0.0
C-204	0.00	0.000	0.00	1500	0	1400	1600	1,000	0.0
S-101	0.00	0.000	0.00	1626	0	1517	1734	1,000	0.0
S-102	0.00	0.000	0.00	1585	0	1479	1690	1,000	0.0
S-103	0.01	0.165	0.00	1586	0	1481	1692	1,450	0.0
S-104	0.00	0.000	0.00	1656	0	1545	1766	1,000	0.0
S-105	0.00	0.000	0.00	1648	0	1539	1758	1,000	0.0
S-106	0.00	0.000	0.00	1722	0	1607	1837	1,000	0.0
S-107	0.13	0.165	0.00	1779	0	1660	1898	1,310	0.0
S-108	0.00	0.000	0.00	1651	0	1541	1761	1,000	0.0
S-109	0.00	0.000	0.00	1657	0	1546	1767	1,000	0.0
S-110	0.00	0.000	0.00	1658	0	1547	1768	1,000	0.0
S-111	0.44	0.165	0.00	1545	0	1442	1648	1,450	0.0
S-112	0.00	0.000	0.00	1648	0	1538	1758	1,000	0.0
SX-101	0.00	0.000	0.00	1655	0	1545	1765	1,000	0.0
SX-102	0.00	0.000	0.00	1662	0	1551	1773	1,000	0.0
SX-103	0.00	0.000	0.00	1716	0	1601	1830	1,000	0.0
SX-104	0.00	0.000	0.00	1675	0	1563	1787	1,000	0.0
SX-105	0.00	0.000	0.00	1625	0	1516	1733	1,000	0.0

Table A-2. Input Data. (7 sheets)

	11	12	13	14	15	16	17	18	19
Tank	**Convective waste depth (m)**	**Convective waste depth uncertainty (m)**	**Crust depth (m)**	**Non-convective waste density (kg/m^3)**	**Non-convective waste density std dev (kg/m^3)**	**Non-convective waste density minimum (kg/m^3)**	**Non-convective waste density maximum (kg/m^3)**	**Convective waste density (kg/m^3)**	**Convective waste density std dev (kg/m^3)**
SX-106	0.00	0.000	0.00	1578	0	1473	1683	1,000	0.0
SX-107	0.00	0.000	0.00	1734	0	1618	1849	1,000	0.0
SX-108	0.00	0.000	0.00	1750	0	1633	1867	1,000	0.0
SX-109	0.00	0.000	0.00	1727	0	1612	1842	1,000	0.0
SX-110	0.00	0.000	0.00	1735	0	1620	1851	1,000	0.0
SX-111	0.00	0.000	0.00	1717	0	1603	1831	1,000	0.0
SX-112	0.00	0.000	0.00	1725	0	1610	1840	1,000	0.0
SX-113	0.00	0.000	0.00	1060	0	989	1131	1,000	0.0
SX-114	0.00	0.000	0.00	1678	0	1567	1790	1,000	0.0
SX-115	0.00	0.000	0.00	1750	0	1633	1867	1,000	0.0
SY-101	6.65	0.165	0.00	1520	0	1419	1621	1,360	0.0
SY-102	8.88	0.165	0.00	1440	0	1344	1536	1,250	0.0
SY-103	3.89	0.140	0.08	1600	0	1493	1707	1,470	0.0
T-101	0.00	0.000	0.00	1620	0	1512	1728	1,000	0.0
T-102	0.12	0.165	0.00	1789	0	1670	1908	1,140	0.0
T-103	0.04	0.165	0.00	1694	0	1581	1806	1,181	0.0
T-104	0.00	0.000	0.00	1290	0	1204	1376	1,000	0.0
T-105	0.00	0.000	0.00	1460	0	1362	1557	1,000	0.0
T-106	0.00	0.000	0.00	1523	0	1421	1624	1,000	0.0
T-107	0.00	0.000	0.00	1460	0	1363	1557	1,000	0.0
T-108	0.00	0.000	0.00	1442	0	1346	1538	1,000	0.0
T-109	0.00	0.000	0.00	1457	0	1360	1554	1,000	0.0
T-110	0.00	0.000	0.00	1268	0	1184	1353	1,050	0.0
T-111	0.00	0.000	0.00	1240	0	1157	1323	1,000	0.0
T-112	0.00	0.000	0.00	1280	0	1195	1365	1,100	0.0
T-201	0.00	0.000	0.00	1313	0	1225	1401	1,058	0.0
T-202	0.00	0.000	0.00	1240	0	1157	1323	1,000	0.0

Table A-2. Input Data. (7 sheets)

	11	12	13	14	15	16	17	18	19
Tank	**Convective waste depth (m)**	**Convective waste depth uncertainty (m)**	**Crust depth (m)**	**Non-convective waste density (kg/m^3)**	**Non-convective waste density std dev (kg/m^3)**	**Non-convective waste density minimum (kg/m^3)**	**Non-convective waste density maximum (kg/m^3)**	**Convective waste density (kg/m^3)**	**Convective waste density std dev (kg/m^3)**
T-203	0.00	0.000	0.00	1215	0	1134	1296	1,000	0.0
T-204	0.00	0.000	0.00	1210	0	1129	1291	1,000	0.0
TX-101	0.00	0.000	0.00	1726	0	1611	1842	1,000	0.0
TX-102	0.00	0.000	0.00	1642	0	1532	1751	1,000	0.0
TX-103	0.00	0.000	0.00	1641	0	1532	1751	1,000	0.0
TX-104	0.00	0.000	0.00	1737	0	1621	1852	1,440	0.0
TX-105	0.00	0.000	0.00	1662	0	1551	1773	1,000	0.0
TX-106	0.00	0.000	0.00	1648	0	1538	1758	1,000	0.0
TX-107	0.00	0.000	0.00	1629	0	1520	1737	1,000	0.0
TX-108	0.00	0.000	0.00	1651	0	1541	1761	1,000	0.0
TX-109	0.00	0.000	0.00	1410	0	1316	1504	1,000	0.0
TX-110	0.00	0.000	0.00	1646	0	1536	1755	1,000	0.0
TX-111	0.00	0.000	0.00	1638	0	1528	1747	1,000	0.0
TX-112	0.00	0.000	0.00	1655	0	1545	1766	1,000	0.0
TX-113	0.00	0.000	0.00	1630	0	1522	1739	1,000	0.0
TX-114	0.00	0.000	0.00	1644	0	1534	1753	1,000	0.0
TX-115	0.00	0.000	0.00	1658	0	1547	1768	1,000	0.0
TX-116	0.00	0.000	0.00	1571	0	1466	1675	1,000	0.0
TX-117	0.00	0.000	0.00	1580	0	1475	1685	1,000	0.0
TX-118	0.00	0.000	0.00	1686	0	1573	1798	1,000	0.0
TY-101	0.00	0.000	0.00	1638	0	1529	1747	1,000	0.0
TY-102	0.00	0.000	0.00	1740	0	1624	1856	1,000	0.0
TY-103	0.00	0.000	0.00	1685	0	1573	1797	1,000	0.0
TY-104	0.01	0.165	0.00	1690	0	1577	1803	1,180	0.0
TY-105	0.00	0.000	0.00	1530	0	1428	1632	1,000	0.0
TY-106	0.00	0.000	0.00	1370	0	1279	1461	1,000	0.0
U-101	0.00	0.000	0.00	1750	0	1633	1867	1,000	0.0

Table A-2. Input Data. (7 sheets)

	11	12	13	14	15	16	17	18	19
Tank	**Convective waste depth (m)**	**Convective waste depth uncertainty (m)**	**Crust depth (m)**	**Non-convective waste density (kg/m^3)**	**Non-convective waste density std dev (kg/m^3)**	**Non-convective waste density minimum (kg/m^3)**	**Non-convective waste density maximum (kg/m^3)**	**Convective waste density (kg/m^3)**	**Convective waste density std dev (kg/m^3)**
U-102	0.00	0.000	0.00	1680	0	1568	1792	1,000	0.0
U-103	0.00	0.000	0.00	1702	0	1588	1815	1,440	0.0
U-104	0.00	0.000	0.00	1375	0	1284	1467	1,000	0.0
U-105	0.00	0.000	0.00	1670	0	1559	1781	1,000	0.0
U-106	0.01	0.165	0.00	1550	0	1446	1653	1,340	0.0
U-107	0.00	0.000	0.00	1673	0	1561	1785	1,000	0.0
U-108	0.00	0.000	0.00	1648	0	1538	1758	1,000	0.0
U-109	0.00	0.000	0.00	1655	0	1544	1765	1,000	0.0
U-110	0.00	0.000	0.00	1660	0	1549	1770	1,000	0.0
U-111	0.00	0.000	0.00	1560	0	1456	1664	1,000	0.0
U-112	0.00	0.000	0.00	1737	0	1621	1853	1,000	0.0
U-201	0.00	0.000	0.00	1620	0	1512	1728	1,220	0.0
U-202	0.00	0.000	0.00	1620	0	1512	1728	1,220	0.0
U-203	0.00	0.000	0.00	1620	0	1512	1728	1,220	0.0
U-204	0.00	0.000	0.00	1620	0	1512	1728	1,220	0.0

Table A-3. Input Data. (6 sheets)

	20	21	22	23	24	25	26	27	28	29	30
Tank	Convective waste density minimum (kg/m^3)	Convective waste density maximum (kg/m^3)	Non-convective waste average temperature (^{o}K)	Tank vapor space average temperature (^{o}K)	Tank type group	Total tank volume (m^3)	Tank operating capacity (m)	Dish type	Dish height (m)	Dish volume (kL)	Tank capacity (kL/m)
A-101	1,391	1,589	335	313	a	4,784	9.2	flat	0.000	0.00	410
A-102	1,465	1,675	306	305	a	4,784	9.2	flat	0.000	0.00	410
A-103	1,353	1,547	323	308	a	4,784	9.2	flat	0.000	0.00	410
A-104	933	1,067	349	307	a	4,784	9.2	flat	0.000	0.00	410
A-105	933	1,067	273	273	a	4,784	9.2	flat	0.000	0.00	410
A-106	933	1,067	328	318	a	4,784	9.2	flat	0.000	0.00	410
AN-101	1,092	1,248	273	298	an	5,337	10.7	flat	0.000	0.00	410
AN-102	1,335	1,525	306	305	an	5,337	10.7	flat	0.000	0.00	410
AN-103	1,356	1,544	314	304	an	5,337	10.7	flat	0.000	0.00	410
AN-104	1,332	1,548	314	306	an	5,337	10.7	flat	0.000	0.00	410
AN-105	1,340	1,520	311	305	an	5,337	10.7	flat	0.000	0.00	410
AN-106	1,101	1,259	295	296	an	5,337	10.7	flat	0.000	0.00	410
AN-107	1,279	1,461	305	302	an	5,337	10.7	flat	0.000	0.00	410
AP-101	1,223	1,397	296	296	ap	5,337	10.7	flat	0.000	0.00	410
AP-102	1,120	1,280	297	297	ap	5,337	10.7	flat	0.000	0.00	410
AP-103	1,223	1,397	297	297	ap	5,337	10.7	flat	0.000	0.00	410
AP-104	1,167	1,333	298	298	ap	5,337	10.7	flat	0.000	0.00	410
AP-105	1,260	1,440	298	292	ap	5,337	10.7	flat	0.000	0.00	410
AP-106	1,176	1,344	298	298	ap	5,337	10.7	flat	0.000	0.00	410
AP-107	1,167	1,333	273	299	ap	5,337	10.7	flat	0.000	0.00	410
AP-108	1,167	1,333	296	297	ap	5,337	10.7	flat	0.000	0.00	410
AW-101	1,344	1,516	311	303	aw	5,337	10.7	flat	0.000	0.00	410
AW-102	943	1,077	297	296	aw	5,337	10.7	flat	0.000	0.00	410
AW-103	1,157	1,323	297	299	aw	5,337	10.7	flat	0.000	0.00	410
AW-104	999	1,141	300	295	aw	5,337	10.7	flat	0.000	0.00	410
AW-105	999	1,141	293	294	aw	5,337	10.7	flat	0.000	0.00	410
AW-106	1,232	1,408	315	307	aw	5,337	10.7	flat	0.000	0.00	410
AX-101	1,428	1,632	327	310	ax	4,784	9.2	flat	0.000	0.00	410
AX-102	933	1,067	297	299	ax	4,784	9.2	flat	0.000	0.00	410
AX-103	933	1,067	316	307	ax	4,784	9.2	flat	0.000	0.00	410

Table A-3. Input Data. (6 sheets)

	20	21	22	23	24	25	26	27	28	29	30
Tank	Convective waste density minimum (kg/m^3)	Convective waste density maximum (kg/m^3)	Non-convective waste average temperature (^{o}K)	Tank vapor space average temperature (^{o}K)	Tank type group	Total tank volume (m^3)	Tank operating capacity (m)	Dish type	Dish height (m)	Dish volume (kL)	Tank capacity (kL/m)
AX-104	933	1,067	305	305	ax	4,784	9.2	flat	0.000	0.00	410
AY-101	1,139	1,301	316	314	ay	5,337	9.2	flat	0.000	0.00	410
AY-102	1,073	1,227	345	317	ay	5,337	9.2	flat	0.000	0.00	410
AZ-101	1,157	1,323	348	337	az	5,337	9.2	flat	0.000	0.00	410
AZ-102	1,064	1,216	345	319	az	5,337	9.2	flat	0.000	0.00	410
B-101	933	1,067	312	304	b	3,239	4.9	dished	0.305	47.32	410
B-102	1,111	1,269	291	294	b	3,239	4.9	dished	0.305	47.32	410
B-103	933	1,067	290	293	b	3,239	4.9	dished	0.305	47.32	410
B-104	933	1,067	293	292	b	3,239	4.9	dished	0.305	47.32	410
B-105	933	1,067	291	292	b	3,239	4.9	dished	0.305	47.32	410
B-106	1,111	1,269	291	292	b	3,239	4.9	dished	0.305	47.32	410
B-107	933	1,067	289	289	b	3,239	4.9	dished	0.305	47.32	410
B-108	933	1,067	291	292	b	3,239	4.9	dished	0.305	47.32	410
B-109	933	1,067	291	292	b	3,239	4.9	dished	0.305	47.32	410
B-110	943	1,077	295	294	b	3,239	4.9	dished	0.305	47.32	410
B-111	943	1,077	297	297	b	3,239	4.9	dished	0.305	47.32	410
B-112	943	1,077	290	292	b	3,239	4.9	dished	0.305	47.32	410
B-201	933	1,067	290	291	b2	231	7.1	dished	0.152	2.23	29
B-202	933	1,067	294	294	b2	231	7.1	dished	0.152	2.23	29
B-203	933	1,067	291	285	b2	231	7.1	dished	0.152	2.23	29
B-204	933	1,067	291	292	b2	231	7.1	dished	0.152	2.23	29
BX-101	933	1,067	296	296	bx	3,239	4.9	dished	0.305	47.32	410
BX-102	933	1,067	293	294	bx	3,239	4.9	dished	0.305	47.32	410
BX-103	1,036	1,184	294	295	bx	3,239	4.9	dished	0.305	47.32	410
BX-104	1,195	1,365	303	298	bx	3,239	4.9	dished	0.305	47.32	410
BX-105	1,204	1,376	293	294	bx	3,239	4.9	dished	0.305	47.32	410
BX-106	933	1,067	294	294	bx	3,239	4.9	dished	0.305	47.32	410
BX-107	933	1,067	294	295	bx	3,239	4.9	dished	0.305	47.32	410
BX-108	933	1,067	293	293	bx	3,239	4.9	dished	0.305	47.32	410
BX-109	933	1,067	295	295	bx	3,239	4.9	dished	0.305	47.32	410

Table A-3. Input Data. (6 sheets)

	20	21	22	23	24	25	26	27	28	29	30
Tank	Convective waste density minimum (kg/m^3)	Convective waste density maximum (kg/m^3)	Non-convective waste average temperature (°K)	Tank vapor space average temperature (°K)	Tank type group	Total tank volume (m^3)	Tank operating capacity (m)	Dish type	Dish height (m)	Dish volume (kL)	Tank capacity (kL/m)
BX-110	1,344	1,536	293	294	bx	3,239	4.9	dished	0.305	47.32	410
BX-111	933	1,067	293	293	bx	3,239	4.9	dished	0.305	47.32	410
BX-112	1,101	1,259	292	293	bx	3,239	4.9	dished	0.305	47.32	410
BY-101	933	1,067	300	298	by	4,134	7.0	dished	0.305	47.32	410
BY-102	933	1,067	295	295	by	4,134	7.0	dished	0.305	47.32	410
BY-103	933	1,067	299	299	by	4,134	7.0	dished	0.305	47.32	410
BY-104	933	1,067	323	301	by	4,134	7.0	dished	0.305	47.32	410
BY-105	933	1,067	316	313	by	4,134	7.0	dished	0.305	47.32	410
BY-106	933	1,067	323	298	by	4,134	7.0	dished	0.305	47.32	410
BY-107	933	1,067	311	301	by	4,134	7.0	dished	0.305	47.32	410
BY-108	933	1,067	318	302	by	4,134	7.0	dished	0.305	47.32	410
BY-109	933	1,067	292	290	by	4,134	7.0	dished	0.305	47.32	410
BY-110	933	1,067	318	299	by	4,134	7.0	dished	0.305	47.32	410
BY-111	933	1,067	303	298	by	4,134	7.0	dished	0.305	47.32	410
BY-112	933	1,067	305	298	by	4,134	7.0	dished	0.305	47.32	410
C-101	933	1,067	305	306	c	3,239	4.9	dished	0.305	47.32	410
C-102	933	1,067	302	300	c	3,239	4.9	dished	0.305	47.32	410
C-103	1,036	1,184	319	312	c	3,239	4.9	dished	0.305	47.32	410
C-104	933	1,067	309	307	c	3,239	4.9	dished	0.305	47.32	410
C-105	933	1,067	317	313	c	3,239	4.9	dished	0.305	47.32	410
C-106	1,055	1,205	303	302	c	3,239	4.9	dished	0.305	47.32	410
C-107	933	1,067	321	317	c	3,239	4.9	dished	0.305	47.32	410
C-108	933	1,067	299	299	c	3,239	4.9	dished	0.305	47.32	410
C-109	933	1,067	300	300	c	3,239	4.9	dished	0.305	47.32	410
C-110	1,027	1,173	294	296	c	3,239	4.9	dished	0.305	47.32	410
C-111	933	1,067	298	299	c	3,239	4.9	dished	0.305	47.32	410
C-112	933	1,067	301	301	c	3,239	4.9	dished	0.305	47.32	410
C-201	933	1,067	289	292	c2	231	7.1	dished	0.152	2.23	29
C-202	933	1,067	289	291	c2	231	7.1	dished	0.152	2.23	29
C-203	933	1,067	288	291	c2	231	7.1	dished	0.152	2.23	29

Table A-3. Input Data. (6 sheets)

	20	21	22	23	24	25	26	27	28	29	30
Tank	**Convective waste density minimum (kg/m^3)**	**Convective waste density maximum (kg/m^3)**	**Non-convective waste average temperature (^oK)**	**Tank vapor space average temperature (^oK)**	**Tank type group**	**Total tank volume (m^3)**	**Tank operating capacity (m)**	**Dish type**	**Dish height (m)**	**Dish volume (kL)**	**Tank capacity (kL/m)**
C-204	933	1,067	291	289	c2	231	7.1	dished	0.152	2.23	29
S-101	933	1,067	319	307	s	4,134	7.0	dished	0.305	47.32	410
S-102	933	1,067	311	302	s	4,134	7.0	dished	0.305	47.32	410
S-103	1,353	1,547	301	299	s	4,134	7.0	dished	0.305	47.32	410
S-104	933	1,067	313	305	s	4,134	7.0	dished	0.305	47.32	410
S-105	933	1,067	299	298	s	4,134	7.0	dished	0.305	47.32	410
S-106	933	1,067	298	296	s	4,134	7.0	dished	0.305	47.32	410
S-107	1,223	1,397	313	302	s	4,134	7.0	dished	0.305	47.32	410
S-108	933	1,067	301	299	s	4,134	7.0	dished	0.305	47.32	410
S-109	933	1,067	302	298	s	4,134	7.0	dished	0.305	47.32	410
S-110	933	1,067	317	302	s	4,134	7.0	dished	0.305	47.32	410
S-111	1,353	1,547	305	299	s	4,134	7.0	dished	0.305	47.32	410
S-112	933	1,067	309	298	s	4,134	7.0	dished	0.305	47.32	410
SX-101	933	1,067	330	310	sx	4,831	9.2	dished	0.305	70.03	410
SX-102	933	1,067	333	308	sx	4,831	9.2	dished	0.305	70.03	410
SX-103	933	1,067	343	308	sx	4,831	9.2	dished	0.305	70.03	410
SX-104	933	1,067	333	307	sx	4,831	9.2	dished	0.305	70.03	410
SX-105	933	1,067	348	310	sx	4,831	9.2	dished	0.305	70.03	410
SX-106	933	1,067	310	305	sx	4,831	9.2	dished	0.305	70.03	410
SX-107	933	1,067	348	323	sx	4,831	9.2	dished	0.305	70.03	410
SX-108	933	1,067	358	331	sx	4,831	9.2	dished	0.305	70.03	410
SX-109	933	1,067	330	321	sx	4,831	9.2	dished	0.305	70.03	410
SX-110	933	1,067	347	337	sx	4,831	9.2	dished	0.305	70.03	410
SX-111	933	1,067	358	329	sx	4,831	9.2	dished	0.305	70.03	410
SX-112	933	1,067	339	324	sx	4,831	9.2	dished	0.305	70.03	410
SX-113	933	1,067	301	301	sx	4,831	9.2	dished	0.305	70.03	410
SX-114	933	1,067	353	325	sx	4,831	9.2	dished	0.305	70.03	410
SX-115	933	1,067	299	298	sx	4,831	9.2	dished	0.305	70.03	410
SY-101	1,269	1,451	310	304	sy	5,337	10.7	flat	0.000	0.00	410
SY-102	1,167	1,333	314	314	sy	5,337	10.7	flat	0.000	0.00	410

Table A-3. Input Data. (6 sheets)

	20	21	22	23	24	25	26	27	28	29	30
Tank	Convective waste density minimum (kg/m^3)	Convective waste density maximum (kg/m^3)	Non-convective waste average temperature (°K)	Tank vapor space average temperature (°K)	Tank type group	Total tank volume (m^3)	Tank operating capacity (m)	Dish type	Dish height (m)	Dish volume (kL)	Tank capacity (kL/m)
SY-103	1,372	1,568	308	304	sy	5,337	10.7	flat	0.000	0.00	410
T-101	933	1,067	295	295	t	3,239	4.9	dished	0.305	47.32	410
T-102	1,064	1,216	291	291	t	3,239	4.9	dished	0.305	47.32	410
T-103	1,103	1,260	292	293	t	3,239	4.9	dished	0.305	47.32	410
T-104	933	1,067	293	294	t	3,239	4.9	dished	0.305	47.32	410
T-105	933	1,067	290	289	t	3,239	4.9	dished	0.305	47.32	410
T-106	933	1,067	293	294	t	3,239	4.9	dished	0.305	47.32	410
T-107	933	1,067	294	295	t	3,239	4.9	dished	0.305	47.32	410
T-108	933	1,067	289	295	t	3,239	4.9	dished	0.305	47.32	410
T-109	933	1,067	292	293	t	3,239	4.9	dished	0.305	47.32	410
T-110	980	1,120	292	294	t	3,239	4.9	dished	0.305	47.32	410
T-111	933	1,067	294	296	t	3,239	4.9	dished	0.305	47.32	410
T-112	1,027	1,173	292	294	t	3,239	4.9	dished	0.305	47.32	410
T-201	987	1,128	292	293	t2	231	7.1	dished	0.152	2.23	29
T-202	933	1,067	291	293	t2	231	7.1	dished	0.152	2.23	29
T-203	933	1,067	292	293	t2	231	7.1	dished	0.152	2.23	29
T-204	933	1,067	292	293	t2	231	7.1	dished	0.152	2.23	29
TX-101	933	1,067	298	297	tx	4,134	7.0	dished	0.305	47.32	410
TX-102	933	1,067	301	300	tx	4,134	7.0	dished	0.305	47.32	410
TX-103	933	1,067	295	295	tx	4,134	7.0	dished	0.305	47.32	410
TX-104	1,344	1,536	294	294	tx	4,134	7.0	dished	0.305	47.32	410
TX-105	933	1,067	309	297	tx	4,134	7.0	dished	0.305	47.32	410
TX-106	933	1,067	300	298	tx	4,134	7.0	dished	0.305	47.32	410
TX-107	933	1,067	295	295	tx	4,134	7.0	dished	0.305	47.32	410
TX-108	933	1,067	293	293	tx	4,134	7.0	dished	0.305	47.32	410
TX-109	933	1,067	297	295	tx	4,134	7.0	dished	0.305	47.32	410
TX-110	933	1,067	301	295	tx	4,134	7.0	dished	0.305	47.32	410
TX-111	933	1,067	300	296	tx	4,134	7.0	dished	0.305	47.32	410
TX-112	933	1,067	296	294	tx	4,134	7.0	dished	0.305	47.32	410
TX-113	933	1,067	296	295	tx	4,134	7.0	dished	0.305	47.32	410

Table A-3. Input Data. (6 sheets)

	20	21	22	23	24	25	26	27	28	29	30
Tank	Convective waste density minimum (kg/m^3)	Convective waste density maximum (kg/m^3)	Non-convective waste average temperature (°K)	Tank vapor space average temperature (°K)	Tank type group	Total tank volume (m^3)	Tank operating capacity (m)	Dish type	Dish height (m)	Dish volume (kL)	Tank capacity (kL/m)
TX-114	933	1,067	294	291	tx	4,134	7.0	dished	0.305	47.32	410
TX-115	933	1,067	295	294	tx	4,134	7.0	dished	0.305	47.32	410
TX-116	933	1,067	294	293	tx	4,134	7.0	dished	0.305	47.32	410
TX-117	933	1,067	294	293	tx	4,134	7.0	dished	0.305	47.32	410
TX-118	933	1,067	297	296	tx	4,134	7.0	dished	0.305	47.32	410
TY-101	933	1,067	293	294	ty	4,134	7.0	dished	0.305	47.32	410
TY-102	933	1,067	289	292	ty	4,134	7.0	dished	0.305	47.32	410
TY-103	933	1,067	303	295	ty	4,134	7.0	dished	0.305	47.32	410
TY-104	1,101	1,259	293	293	ty	4,134	7.0	dished	0.305	47.32	410
TY-105	933	1,067	299	296	ty	4,134	7.0	dished	0.305	47.32	410
TY-106	933	1,067	289	292	ty	4,134	7.0	dished	0.305	47.32	410
U-101	933	1,067	292	295	u	3,239	4.9	dished	0.305	47.32	410
U-102	933	1,067	304	302	u	3,239	4.9	dished	0.305	47.32	410
U-103	1,344	1,536	304	302	u	3,239	4.9	dished	0.305	47.32	410
U-104	933	1,067	301	298	u	3,239	4.9	dished	0.305	47.32	410
U-105	933	1,067	305	302	u	3,239	4.9	dished	0.305	47.32	410
U-106	1,251	1,429	301	300	u	3,239	4.9	dished	0.305	47.32	410
U-107	933	1,067	299	298	u	3,239	4.9	dished	0.305	47.32	410
U-108	933	1,067	303	300	u	3,239	4.9	dished	0.305	47.32	410
U-109	933	1,067	303	303	u	3,239	4.9	dished	0.305	47.32	410
U-110	933	1,067	299	299	u	3,239	4.9	dished	0.305	47.32	410
U-111	933	1,067	300	299	u	3,239	4.9	dished	0.305	47.32	410
U-112	933	1,067	294	294	u	3,239	4.9	dished	0.305	47.32	410
U-201	1,139	1,301	292	293	u2	231	7.1	dished	0.152	2.23	29
U-202	1,139	1,301	292	292	u2	231	7.1	dished	0.152	2.23	29
U-203	1,139	1,301	291	292	u2	231	7.1	dished	0.152	2.23	29
U-204	1,139	1,301	291	292	u2	231	7.1	dished	0.152	2.23	29

Table A-4. Input Data. (7 sheets)

	31	32	33	34	35	36	37	38	39
Tank	Void fraction or maximum wetted solids void fraction mean (%)	Void fraction or maximum wetted solids void fraction uncertainty (%)	Void fraction or maximum wetted solids void fraction minimum (%)	Void fraction or maximum wetted solids void fraction maximum (%)	Void fraction or maximum wetted solids void fraction distribution type	Non-convective waste yield stress minimum (Pa)	Non-convective waste yield stress maximum (Pa)	Non-convective waste yield stress distribution type	Headspace gas ratio CH_4 distribution ID
A-101	15.030	6.21	0.10	40.00	Normal	50	350	uniform	0.0211
A-102	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
A-103	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
A-104	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
A-105	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
A-106	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
AN-101	1.773	0.44	0.01	2.72	LogNorm	50	250	uniform	-9096
AN-102	1.773	0.44	0.01	2.72	LogNorm	50	250	uniform	-9096
AN-103	11.000	0.70	0.10	20.00	Normal	50	250	uniform	0.085
AN-104	6.600	0.80	0.10	20.00	Normal	50	250	uniform	0.0595
AN-105	4.400	0.90	0.10	20.00	Normal	50	250	uniform	0.0216
AN-106	15.030	6.21	0.10	40.00	Normal	50	250	uniform	-9096
AN-107	0.425	2.59	0.01	12.18	LogNorm	50	250	uniform	-9096
AP-101	-	-	-	-	0.0000	50	500	uniform	-9096
AP-102	-	-	-	-	0.0000	50	500	uniform	-9096
AP-103	-	-	-	-	0.0000	50	500	uniform	-9096
AP-104	-	-	-	-	0.0000	50	500	uniform	-9096
AP-105	1.773	0.44	0.01	2.72	LogNorm	50	500	uniform	-9096
AP-106	-	-	-	-	0.0000	50	500	uniform	-9096
AP-107	-	-	-	-	0.0000	50	500	uniform	-9096
AP-108	-	-	-	-	0.0000	50	500	uniform	-9096
AW-101	3.800	0.40	0.10	20.00	Normal	50	250	uniform	0.21
AW-102	1.773	0.44	0.01	2.72	LogNorm	50	250	uniform	-9096
AW-103	1.773	0.44	0.01	2.72	LogNorm	50	500	uniform	-9096
AW-104	1.773	0.44	0.01	2.72	LogNorm	50	250	uniform	-9096
AW-105	1.773	0.44	0.01	2.72	LogNorm	50	500	uniform	-9096
AW-106	15.030	6.21	0.10	40.00	Normal	50	250	uniform	-9096

Table A-4. Input Data. (7 sheets)

	31	32	33	34	35	36	37	38	39
Tank	Void fraction or maximum wetted solids void fraction mean (%)	Void fraction or maximum wetted solids void fraction uncertainty (%)	Void fraction or maximum wetted solids void fraction minimum (%)	Void fraction or maximum wetted solids void fraction maximum (%)	Void fraction or maximum wetted solids void fraction distribution type	Non-convective waste yield stress minimum (Pa)	Non-convective waste yield stress maximum (Pa)	Non-convective waste yield stress distribution type	Headspace gas ratio CH_4 distribution ID
AX-101	15.030	6.21	0.10	40.00	Normal	50	350	uniform	0.0573
AX-102	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
AX-103	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
AX-104	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
AY-101	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
AY-102	1.773	0.44	0.01	2.72	LogNorm	50	500	uniform	-9096
AZ-101	1.773	0.44	0.01	2.72	LogNorm	50	500	uniform	-9096
AZ-102	1.773	0.44	0.01	2.72	LogNorm	50	500	uniform	-9096
B-101	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
B-102	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
B-103	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
B-104	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
B-105	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
B-106	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
B-107	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
B-108	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
B-109	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
B-110	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
B-111	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
B-112	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
B-201	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
B-202	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
B-203	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
B-204	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
BX-101	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
BX-102	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
BX-103	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096

Table A-4. Input Data. (7 sheets)

	31	32	33	34	35	36	37	38	39
Tank	Void fraction or maximum wetted solids void fraction mean (%)	Void fraction or maximum wetted solids void fraction uncertainty (%)	Void fraction or maximum wetted solids void fraction minimum (%)	Void fraction or maximum wetted solids void fraction maximum (%)	Void fraction or maximum wetted solids void fraction distribution type	Non-convective waste yield stress minimum (Pa)	Non-convective waste yield stress maximum (Pa)	Non-convective waste yield stress distribution type	Headspace gas ratio CH_4 distribution ID
BX-104	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
BX-105	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
BX-106	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
BX-107	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
BX-108	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
BX-109	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
BX-110	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
BX-111	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
BX-112	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
BY-101	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
BY-102	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
BY-103	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
BY-104	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
BY-105	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
BY-106	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
BY-107	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
BY-108	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
BY-109	15.030	6.21	0.10	40.00	Normal	50	350	uniform	0.084
BY-110	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
BY-111	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
BY-112	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
C-101	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
C-102	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
C-103	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
C-104	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
C-105	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
C-106	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096

Table A-4. Input Data. (7 sheets)

	31	32	33	34	35	36	37	38	39
Tank	Void fraction or maximum wetted solids void fraction mean (%)	Void fraction or maximum wetted solids void fraction uncertainty (%)	Void fraction or maximum wetted solids void fraction minimum (%)	Void fraction or maximum wetted solids void fraction maximum (%)	Void fraction or maximum wetted solids void fraction distribution type	Non-convective waste yield stress minimum (Pa)	Non-convective waste yield stress maximum (Pa)	Non-convective waste yield stress distribution type	Headspace gas ratio CH_4 distribution ID
C-107	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
C-108	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
C-109	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
C-110	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
C-111	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
C-112	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
C-201	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
C-202	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
C-203	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
C-204	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
S-101	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
S-102	15.030	6.21	0.10	40.00	Normal	50	350	uniform	0.024
S-103	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
S-104	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
S-105	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
S-106	15.030	6.21	0.10	40.00	Normal	50	350	uniform	0.0127
S-107	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
S-108	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
S-109	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
S-110	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
S-111	15.030	6.21	0.10	40.00	Normal	50	350	uniform	0.0102
S-112	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
SX-101	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
SX-102	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
SX-103	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
SX-104	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
SX-105	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096

Table A-4. Input Data. (7 sheets)

	31	32	33	34	35	36	37	38	39
Tank	Void fraction or maximum wetted solids void fraction mean (%)	Void fraction or maximum wetted solids void fraction uncertainty (%)	Void fraction or maximum wetted solids void fraction minimum (%)	Void fraction or maximum wetted solids void fraction maximum (%)	Void fraction or maximum wetted solids void fraction distribution type	Non-convective waste yield stress minimum (Pa)	Non-convective waste yield stress maximum (Pa)	Non-convective waste yield stress distribution type	Headspace gas ratio CH_4 distribution ID
SX-106	1.773	0.44	0.10	2.72	LogNorm	50	350	uniform	0.0168
SX-107	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
SX-108	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
SX-109	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
SX-110	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
SX-111	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
SX-112	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
SX-113	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
SX-114	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
SX-115	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
SY-101	1.556	1.38	0.10	#REF!	LogNorm	50	250	uniform	0.0877
SY-102	1.773	0.44	0.10	2.72	LogNorm	50	500	uniform	-9096
SY-103	7.000	1.90	0.10	20.00	Normal	50	250	uniform	-9096
T-101	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
T-102	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
T-103	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
T-104	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
T-105	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
T-106	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
T-107	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
T-108	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
T-109	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
T-110	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
T-111	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
T-112	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
T-201	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
T-202	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096

Table A-4. Input Data. (7 sheets)

	31	32	33	34	35	36	37	38	39
Tank	Void fraction or maximum wetted solids void fraction mean (%)	Void fraction or maximum wetted solids void fraction uncertainty (%)	Void fraction or maximum wetted solids void fraction minimum (%)	Void fraction or maximum wetted solids void fraction maximum (%)	Void fraction or maximum wetted solids void fraction distribution type	Non-convective waste yield stress minimum (Pa)	Non-convective waste yield stress maximum (Pa)	Non-convective waste yield stress distribution type	Headspace gas ratio CH_4 distribution ID
T-203	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
T-204	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
TX-101	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
TX-102	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
TX-103	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
TX-104	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
TX-105	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
TX-106	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
TX-107	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
TX-108	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
TX-109	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
TX-110	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
TX-111	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
TX-112	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
TX-113	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
TX-114	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
TX-115	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
TX-116	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
TX-117	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
TX-118	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
TY-101	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
TY-102	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
TY-103	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
TY-104	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
TY-105	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
TY-106	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
U-101	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096

Table A-4. Input Data. (7 sheets)

	31	32	33	34	35	36	37	38	39
Tank	**Void fraction or maximum wetted solids void fraction mean (%)**	**Void fraction or maximum wetted solids void fraction uncertainty (%)**	**Void fraction or maximum wetted solids void fraction minimum (%)**	**Void fraction or maximum wetted solids void fraction maximum (%)**	**Void fraction or maximum wetted solids void fraction distribution type**	**Non-convective waste yield stress minimum (Pa)**	**Non-convective waste yield stress maximum (Pa)**	**Non-convective waste yield stress distribution type**	**Headspace gas ratio CH_4 distribution ID**
U-102	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
U-103	15.030	6.21	0.10	40.00	Normal	50	350	uniform	0.0728
U-104	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
U-105	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
U-106	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
U-107	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
U-108	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
U-109	15.030	6.21	0.10	40.00	Normal	50	350	uniform	0.0621
U-110	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
U-111	15.030	6.21	0.10	40.00	Normal	50	350	uniform	-9096
U-112	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
U-201	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
U-202	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
U-203	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096
U-204	0.078	1.42	0.10	3.28	LogNorm	50	500	uniform	-9096

Table A-5. Input Data (7 sheets)

	40	41	42	43	44	45	46	47	48	49
Tank	**Headspace gas ratio CH_4 mean**	**Headspace gas ratio CH_4 std dev**	**Headspace gas ratio CH_4 minimum**	**Headspace gas ratio CH_4 maximum**	**Headspace gas ratio CH_4 distribution type**	**Headspace gas ratio N_2O distribution ID**	**Headspace gas ratio N_2O mean**	**Headspace gas ratio N_2O std dev**	**Headspace gas ratio N_2O minimum**	**Headspace gas ratio N_2O maximum**
A-101	0.014	0.003	0.0001	0.4	Normal	0.08	0.08	0.02	0.0001	0.7
A-102	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
A-103	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
A-104	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
A-105	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
A-106	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
AN-101	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
AN-102	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
AN-103	0.015	0.004	0.0001	0.4	Normal	0.06	0.06	0.02	0.0001	0.7
AN-104	0.039	0.016	0.0001	0.4	Normal	0.32	0.32	0.09	0.0001	0.7
AN-105	0.021	0.006	0.0001	0.4	Normal	0.18	0.18	0.04	0.0001	0.7
AN-106	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
AN-107	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
AP-101	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
AP-102	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
AP-103	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
AP-104	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
AP-105	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
AP-106	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
AP-107	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
AP-108	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
AW-101	0.127	0.030	0.0001	0.4	Normal	0.15	0.15	0.04	0.0001	0.7
AW-102	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
AW-103	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
AW-104	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
AW-105	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
AW-106	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7

Table A-5. Input Data (7 sheets)

	40	41	42	43	44	45	46	47	48	49
Tank	**Headspace gas ratio CH_4 mean**	**Headspace gas ratio CH_4 std dev**	**Headspace gas ratio CH_4 minimum**	**Headspace gas ratio CH_4 maximum**	**Headspace gas ratio CH_4 distribution type**	**Headspace gas ratio N_2O distribution ID**	**Headspace gas ratio N_2O mean**	**Headspace gas ratio N_2O std dev**	**Headspace gas ratio N_2O minimum**	**Headspace gas ratio N_2O maximum**
AX-101	0.040	0.016	0.0001	0.4	Normal	0.15	0.15	0.03	0.0001	0.7
AX-102	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
AX-103	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
AX-104	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
AY-101	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
AY-102	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
AZ-101	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
AZ-102	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
B-101	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
B-102	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
B-103	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
B-104	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
B-105	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
B-106	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
B-107	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
B-108	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
B-109	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
B-110	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
B-111	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
B-112	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
B-201	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
B-202	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
B-203	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
B-204	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
BX-101	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
BX-102	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
BX-103	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7

Table A-5. Input Data (7 sheets)

	40	41	42	43	44	45	46	47	48	49
Tank	**Headspace gas ratio CH_4 mean**	**Headspace gas ratio CH_4 std dev**	**Headspace gas ratio CH_4 minimum**	**Headspace gas ratio CH_4 maximum**	**Headspace gas ratio CH_4 distribution type**	**Headspace gas ratio N_2O distribution ID**	**Headspace gas ratio N_2O mean**	**Headspace gas ratio N_2O std dev**	**Headspace gas ratio N_2O minimum**	**Headspace gas ratio N_2O maximum**
BX-104	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
BX-105	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
BX-106	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
BX-107	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
BX-108	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
BX-109	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
BX-110	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
BX-111	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
BX-112	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
BY-101	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
BY-102	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
BY-103	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
BY-104	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
BY-105	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
BY-106	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
BY-107	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
BY-108	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
BY-109	0.060	0.017	0.0001	0.4	Normal	0.25	0.25	0.06	0.0001	0.7
BY-110	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
BY-111	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
BY-112	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
C-101	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
C-102	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
C-103	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
C-104	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
C-105	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
C-106	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7

Table A-5. Input Data (7 sheets)

	40	41	42	43	44	45	46	47	48	49
Tank	**Headspace gas ratio CH_4 mean**	**Headspace gas ratio CH_4 std dev**	**Headspace gas ratio CH_4 minimum**	**Headspace gas ratio CH_4 maximum**	**Headspace gas ratio CH_4 distribution type**	**Headspace gas ratio N_2O distribution ID**	**Headspace gas ratio N_2O mean**	**Headspace gas ratio N_2O std dev**	**Headspace gas ratio N_2O minimum**	**Headspace gas ratio N_2O maximum**
C-107	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
C-108	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
C-109	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
C-110	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
C-111	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
C-112	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
C-201	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
C-202	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
C-203	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
C-204	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
S-101	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
S-102	0.018	0.004	0.0001	0.4	Normal	0.49	0.49	0.06	0.0001	0.7
S-103	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
S-104	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
S-105	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
S-106	0.015	0.007	0.0001	0.4	Normal	0.14	0.14	0.03	0.0001	0.7
S-107	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
S-108	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
S-109	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
S-110	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
S-111	0.011	0.004	0.0001	0.4	Normal	0.14	0.14	0.05	0.0001	0.7
S-112	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
SX-101	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
SX-102	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
SX-103	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
SX-104	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
SX-105	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7

Table A-5. Input Data (7 sheets)

	40	41	42	43	44	45	46	47	48	49
Tank	**Headspace gas ratio CH_4 mean**	**Headspace gas ratio CH_4 std dev**	**Headspace gas ratio CH_4 minimum**	**Headspace gas ratio CH_4 maximum**	**Headspace gas ratio CH_4 distribution type**	**Headspace gas ratio N_2O distribution ID**	**Headspace gas ratio N_2O mean**	**Headspace gas ratio N_2O std dev**	**Headspace gas ratio N_2O minimum**	**Headspace gas ratio N_2O maximum**
SX-106	0.018	0.004	0.0001	0.4	Normal	0.31	0.31	0.05	0.0001	0.7
SX-107	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
SX-108	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
SX-109	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
SX-110	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
SX-111	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
SX-112	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
SX-113	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
SX-114	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
SX-115	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
SY-101	0.017	0.004	0.0001	0.4	Normal	0.31	0.31	0.05	0.0001	0.7
SY-102	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
SY-103	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
T-101	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
T-102	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
T-103	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
T-104	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
T-105	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
T-106	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
T-107	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
T-108	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
T-109	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
T-110	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
T-111	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
T-112	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
T-201	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
T-202	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7

Table A-5. Input Data (7 sheets)

	40	41	42	43	44	45	46	47	48	49
Tank	**Headspace gas ratio CH_4 mean**	**Headspace gas ratio CH_4 std dev**	**Headspace gas ratio CH_4 minimum**	**Headspace gas ratio CH_4 maximum**	**Headspace gas ratio CH_4 distribution type**	**Headspace gas ratio N_2O distribution ID**	**Headspace gas ratio N_2O mean**	**Headspace gas ratio N_2O std dev**	**Headspace gas ratio N_2O minimum**	**Headspace gas ratio N_2O maximum**
T-203	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
T-204	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
TX-101	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
TX-102	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
TX-103	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
TX-104	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
TX-105	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
TX-106	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
TX-107	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
TX-108	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
TX-109	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
TX-110	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
TX-111	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
TX-112	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
TX-113	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
TX-114	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
TX-115	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
TX-116	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
TX-117	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
TX-118	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
TY-101	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
TY-102	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
TY-103	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
TY-104	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
TY-105	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
TY-106	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
U-101	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7

Table A-5. Input Data (7 sheets)

	40	41	42	43	44	45	46	47	48	49
Tank	**Headspace gas ratio CH_4 mean**	**Headspace gas ratio CH_4 std dev**	**Headspace gas ratio CH_4 minimum**	**Headspace gas ratio CH_4 maximum**	**Headspace gas ratio CH_4 distribution type**	**Headspace gas ratio N_2O distribution ID**	**Headspace gas ratio N_2O mean**	**Headspace gas ratio N_2O std dev**	**Headspace gas ratio N_2O minimum**	**Headspace gas ratio N_2O maximum**
U-102	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
U-103	0.044	0.009	0.0001	0.4	Normal	0.62	0.62	0.03	0.0001	0.7
U-104	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
U-105	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
U-106	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
U-107	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
U-108	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
U-109	0.043	0.015	0.0001	0.4	Normal	0.49	0.49	0.08	0.0001	0.7
U-110	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
U-111	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
U-112	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
U-201	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
U-202	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
U-203	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7
U-204	-2.120	1.490	0.0001	0.4	LogNorm	-9,097	-1.28	0.90	0.0001	0.7

Table A-6. Input Data. (7 sheets)

	50	51	52	53	54	55	56	57	58
Tank	Headspace gas ratio N_2O distribution type	Retained gas composition N_2 (%) distribution ID	Retained gas composition N_2 mean (%)	Retained gas composition N_2 std dev (%)	Retained gas composition N_2 minimum (%)	Retained gas composition N_2 maximum (%)	Retained gas composition N_2 distribution type	Retained gas composition NH_3 distribution ID	Retained gas composition NH_3 mean (%)
A-101	Normal	19.40	17.72	12.35	0.0001	76	Normal	3.41	4.92
A-102	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
A-103	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
A-104	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
A-105	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
A-106	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
AN-101	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
AN-102	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
AN-103	Normal	28.27	32.38	12.89	0.0001	76	Normal	0.71	1.01
AN-104	Normal	29.07	28.43	13.45	0.0001	76	Normal	1.13	1.67
AN-105	Normal	22.54	23.65	9.89	0.0001	76	Normal	0.49	0.74
AN-106	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
AN-107	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
AP-101	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
AP-102	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
AP-103	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
AP-104	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
AP-105	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
AP-106	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
AP-107	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
AP-108	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
AW-101	Normal	53.73	55.28	5.85	0.0001	76	Normal	0.60	0.98
AW-102	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
AW-103	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
AW-104	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
AW-105	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
AW-106	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25

Table A-6. Input Data. (7 sheets)

	50	51	52	53	54	55	56	57	58
Tank	Headspace gas ratio N_2O distribution type	Retained gas composition N_2 (%) distribution ID	Retained gas composition N_2 mean (%)	Retained gas composition N_2 std dev (%)	Retained gas composition N_2 minimum (%)	Retained gas composition N_2 maximum (%)	Retained gas composition N_2 distribution type	Retained gas composition NH_3 distribution ID	Retained gas composition NH_3 mean (%)
AX-101	Normal	16.59	16.61	10.66	0.0001	76	Normal	6.81	7.94
AX-102	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
AX-103	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
AX-104	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
AY-101	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
AY-102	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
AZ-101	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
AZ-102	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
B-101	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
B-102	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
B-103	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
B-104	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
B-105	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
B-106	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
B-107	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
B-108	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
B-109	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
B-110	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
B-111	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
B-112	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
B-201	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
B-202	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
B-203	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
B-204	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
BX-101	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
BX-102	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
BX-103	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25

Table A-6. Input Data. (7 sheets)

	50	51	52	53	54	55	56	57	58
Tank	Headspace gas ratio N_2O distribution type	Retained gas composition N_2 (%) distribution ID	Retained gas composition N_2 mean (%)	Retained gas composition N_2 std dev (%)	Retained gas composition N_2 minimum (%)	Retained gas composition N_2 maximum (%)	Retained gas composition N_2 distribution type	Retained gas composition NH_3 distribution ID	Retained gas composition NH_3 mean (%)
BX-104	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
BX-105	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
BX-106	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
BX-107	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
BX-108	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
BX-109	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
BX-110	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
BX-111	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
BX-112	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
BY-101	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
BY-102	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
BY-103	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
BY-104	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
BY-105	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
BY-106	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
BY-107	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
BY-108	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
BY-109	Normal	27.88	28.24	10.30	0.0001	76	Normal	0.21	0.29
BY-110	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
BY-111	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
BY-112	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
C-101	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
C-102	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
C-103	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
C-104	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
C-105	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
C-106	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25

Table A-6. Input Data. (7 sheets)

	50	51	52	53	54	55	56	57	58
Tank	Headspace gas ratio N_2O distribution type	Retained gas composition N_2 (%) distribution ID	Retained gas composition N_2 mean (%)	Retained gas composition N_2 std dev (%)	Retained gas composition N_2 minimum (%)	Retained gas composition N_2 maximum (%)	Retained gas composition N_2 distribution type	Retained gas composition NH_3 distribution ID	Retained gas composition NH_3 mean (%)
C-107	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
C-108	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
C-109	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
C-110	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
C-111	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
C-112	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
C-201	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
C-202	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
C-203	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
C-204	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
S-101	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
S-102	Normal	30.72	31.94	7.43	0.0001	76	Normal	2.85	0.93
S-103	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
S-104	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
S-105	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
S-106	Normal	24.94	24.78	9.90	0.0001	76	Normal	0.34	0.48
S-107	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
S-108	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
S-109	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
S-110	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
S-111	Normal	19.67	19.72	17.55	0.0001	76	Normal	0.83	0.96
S-112	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
SX-101	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
SX-102	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
SX-103	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
SX-104	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
SX-105	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25

Table A-6. Input Data. (7 sheets)

	50	51	52	53	54	55	56	57	58
Tank	Headspace gas ratio N_2O distribution type	Retained gas composition N_2 (%) distribution ID	Retained gas composition N_2 mean (%)	Retained gas composition N_2 std dev (%)	Retained gas composition N_2 minimum (%)	Retained gas composition N_2 maximum (%)	Retained gas composition N_2 distribution type	Retained gas composition NH_3 distribution ID	Retained gas composition NH_3 mean (%)
SX-106	Normal	20.26	18.89	9.22	0.0001	76	Normal	3.19	4.47
SX-107	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
SX-108	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
SX-109	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
SX-110	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
SX-111	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
SX-112	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
SX-113	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
SX-114	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
SX-115	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
SY-101	Normal	32.30	18.76	9.36	0.0001	76	Normal	9.52	4.45
SY-102	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
SY-103	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
T-101	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
T-102	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
T-103	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
T-104	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
T-105	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
T-106	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
T-107	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
T-108	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
T-109	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
T-110	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
T-111	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
T-112	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
T-201	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
T-202	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25

Table A-6. Input Data. (7 sheets)

	50	51	52	53	54	55	56	57	58
Tank	Headspace gas ratio N_2O distribution type	Retained gas composition N_2 (%) distribution ID	Retained gas composition N_2 mean (%)	Retained gas composition N_2 std dev (%)	Retained gas composition N_2 minimum (%)	Retained gas composition N_2 maximum (%)	Retained gas composition N_2 distribution type	Retained gas composition NH_3 distribution ID	Retained gas composition NH_3 mean (%)
T-203	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
T-204	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
TX-101	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
TX-102	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
TX-103	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
TX-104	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
TX-105	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
TX-106	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
TX-107	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
TX-108	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
TX-109	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
TX-110	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
TX-111	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
TX-112	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
TX-113	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
TX-114	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
TX-115	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
TX-116	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
TX-117	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
TX-118	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
TY-101	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
TY-102	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
TY-103	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
TY-104	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
TY-105	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
TY-106	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
U-101	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25

Table A-6. Input Data. (7 sheets)

	50	51	52	53	54	55	56	57	58
Tank	**Headspace gas ratio N_2O distribution type**	**Retained gas composition N_2 (%) distribution ID**	**Retained gas composition N_2 mean (%)**	**Retained gas composition N_2 std dev (%)**	**Retained gas composition N_2 minimum (%)**	**Retained gas composition N_2 maximum (%)**	**Retained gas composition N_2 distribution type**	**Retained gas composition NH_3 distribution ID**	**Retained gas composition NH_3 mean (%)**
U-102	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
U-103	Normal	36.16	36.22	4.91	0.0001	76	Normal	1.29	0.72
U-104	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
U-105	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
U-106	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
U-107	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
U-108	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
U-109	Normal	45.14	46.01	8.11	0.0001	76	Normal	0.64	0.89
U-110	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
U-111	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
U-112	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
U-201	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
U-202	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
U-203	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25
U-204	LogNorm	-9095	29.2	20.37	0.0001	76	Normal	-9,094	0.25

Table A-7. Input Data. (7 sheets)

	59	60	61	62	63	64
Tank	**Retained gas composition NH_3 std dev (%)**	**Retained gas composition NH_3 minimum (%)**	**Retained gas composition NH_3 maximum (%)**	**Retained gas composition NH_3 distribution type**	**Hydrogen generation rate in non-convective waste (moles/m^3/day)**	**Hydrogen generation rate in non-convective waste uncertainty (moles/m^3/day)**
A-101	2.63	0.00	19.00	Normal	6.03E-03	3.01E-03
A-102	0.00	0.01	18.32	ContLin	8.38E-03	4.19E-03
A-103	0.00	0.01	18.32	ContLin	4.43E-03	2.22E-03
A-104	0.00	0.01	18.32	ContLin	7.04E-02	3.52E-02
A-105	0.00	0.01	18.32	ContLin	1.00E-06	5.00E-07
A-106	0.00	0.01	18.32	ContLin	1.28E-02	6.42E-03
AN-101	0.00	0.01	18.32	ContLin	0.00E+00	0.00E+00
AN-102	0.00	0.01	18.32	ContLin	6.63E-03	3.32E-03
AN-103	0.56	0.00	19.00	Normal	1.36E-03	6.81E-04
AN-104	0.93	0.00	19.00	Normal	2.21E-03	1.11E-03
AN-105	0.39	0.00	19.00	Normal	1.84E-03	9.21E-04
AN-106	0.00	0.01	18.32	ContLin	7.32E-03	3.66E-03
AN-107	0.00	0.01	18.32	ContLin	4.67E-03	2.34E-03
AP-101	0.00	0.01	18.32	ContLin	0.00E+00	0.00E+00
AP-102	0.00	0.01	18.32	ContLin	0.00E+00	0.00E+00
AP-103	0.00	0.01	18.32	ContLin	0.00E+00	0.00E+00
AP-104	0.00	0.01	18.32	ContLin	0.00E+00	0.00E+00
AP-105	0.00	0.01	18.32	ContLin	1.72E-03	8.61E-04
AP-106	0.00	0.01	18.32	ContLin	0.00E+00	0.00E+00
AP-107	0.00	0.01	18.32	ContLin	0.00E+00	0.00E+00
AP-108	0.00	0.01	18.32	ContLin	0.00E+00	0.00E+00
AW-101	0.55	0.00	19.00	Normal	2.15E-03	1.07E-03
AW-102	0.00	0.01	18.32	ContLin	6.32E-03	3.16E-03
AW-103	0.00	0.01	18.32	ContLin	6.33E-04	3.17E-04
AW-104	0.00	0.01	18.32	ContLin	7.76E-04	3.88E-04
AW-105	0.00	0.01	18.32	ContLin	6.85E-04	3.42E-04
AW-106	0.00	0.01	18.32	ContLin	1.79E-03	8.93E-04

Table A-7. Input Data. (7 sheets)

	59	60	61	62	63	64
Tank	**Retained gas composition NH_3 std dev (%)**	**Retained gas composition NH_3 minimum (%)**	**Retained gas composition NH_3 maximum (%)**	**Retained gas composition NH_3 distribution type**	**Hydrogen generation rate in non-convective waste (moles/m^3/day)**	**Hydrogen generation rate in non-convective waste uncertainty (moles/m^3/day)**
AX-101	3.78	0.00	19.00	Normal	4.40E-03	2.20E-03
AX-102	0.00	0.01	18.32	ContLin	1.15E-02	5.75E-03
AX-103	0.00	0.01	18.32	ContLin	1.28E-02	6.42E-03
AX-104	0.00	0.01	18.32	ContLin	3.74E-02	1.87E-02
AY-101	0.00	0.01	18.32	ContLin	3.68E-03	1.84E-03
AY-102	0.00	0.01	18.32	ContLin	7.54E-02	3.77E-02
AZ-101	0.00	0.01	18.32	ContLin	2.19E-02	1.09E-02
AZ-102	0.00	0.01	18.32	ContLin	1.15E-02	5.75E-03
B-101	0.00	0.01	18.32	ContLin	2.96E-03	1.48E-03
B-102	0.00	0.01	18.32	ContLin	8.78E-03	4.39E-03
B-103	0.00	0.01	18.32	ContLin	4.61E-03	2.30E-03
B-104	0.00	0.01	18.32	ContLin	1.03E-03	5.13E-04
B-105	0.00	0.01	18.32	ContLin	1.19E-03	5.96E-04
B-106	0.00	0.01	18.32	ContLin	2.34E-03	1.17E-03
B-107	0.00	0.01	18.32	ContLin	1.88E-03	9.40E-04
B-108	0.00	0.01	18.32	ContLin	2.93E-03	1.47E-03
B-109	0.00	0.01	18.32	ContLin	2.44E-03	1.22E-03
B-110	0.00	0.01	18.32	ContLin	1.44E-03	7.22E-04
B-111	0.00	0.01	18.32	ContLin	1.63E-03	8.14E-04
B-112	0.00	0.01	18.32	ContLin	7.79E-03	3.89E-03
B-201	0.00	0.01	18.32	ContLin	1.98E-03	9.92E-04
B-202	0.00	0.01	18.32	ContLin	2.02E-03	1.01E-03
B-203	0.00	0.01	18.32	ContLin	1.75E-03	8.76E-04
B-204	0.00	0.01	18.32	ContLin	1.76E-03	8.79E-04
BX-101	0.00	0.01	18.32	ContLin	5.61E-03	2.80E-03
BX-102	0.00	0.01	18.32	ContLin	2.74E-03	1.37E-03
BX-103	0.00	0.01	18.32	ContLin	4.65E-03	2.32E-03

Table A-7. Input Data. (7 sheets)

	59	60	61	62	63	64
Tank	Retained gas composition NH_3 std dev (%)	Retained gas composition NH_3 minimum (%)	Retained gas composition NH_3 maximum (%)	Retained gas composition NH_3 distribution type	Hydrogen generation rate in non-convective waste (moles/m^3/day)	Hydrogen generation rate in non-convective waste uncertainty (moles/m^3/day)
BX-104	0.00	0.01	18.32	ContLin	3.01E-03	1.51E-03
BX-105	0.00	0.01	18.32	ContLin	3.96E-03	1.98E-03
BX-106	0.00	0.01	18.32	ContLin	6.75E-03	3.37E-03
BX-107	0.00	0.01	18.32	ContLin	1.09E-03	5.46E-04
BX-108	0.00	0.01	18.32	ContLin	7.93E-03	3.96E-03
BX-109	0.00	0.01	18.32	ContLin	1.70E-03	8.50E-04
BX-110	0.00	0.01	18.32	ContLin	1.65E-03	8.25E-04
BX-111	0.00	0.01	18.32	ContLin	1.63E-03	8.16E-04
BX-112	0.00	0.01	18.32	ContLin	1.83E-03	9.17E-04
BY-101	0.00	0.01	18.32	ContLin	1.29E-03	6.44E-04
BY-102	0.00	0.01	18.32	ContLin	1.26E-03	6.30E-04
BY-103	0.00	0.01	18.32	ContLin	1.02E-03	5.08E-04
BY-104	0.00	0.01	18.32	ContLin	1.74E-03	8.69E-04
BY-105	0.00	0.01	18.32	ContLin	1.17E-03	5.84E-04
BY-106	0.00	0.01	18.32	ContLin	1.72E-03	8.61E-04
BY-107	0.00	0.01	18.32	ContLin	2.11E-03	1.05E-03
BY-108	0.00	0.01	18.32	ContLin	2.02E-03	1.01E-03
BY-109	0.15	0.00	19.00	Normal	1.28E-03	6.40E-04
BY-110	0.00	0.01	18.32	ContLin	2.63E-03	1.31E-03
BY-111	0.00	0.01	18.32	ContLin	1.17E-03	5.87E-04
BY-112	0.00	0.01	18.32	ContLin	1.23E-03	6.16E-04
C-101	0.00	0.01	18.32	ContLin	3.35E-03	1.68E-03
C-102	0.00	0.01	18.32	ContLin	1.29E-03	6.44E-04
C-103	0.00	0.01	18.32	ContLin	1.20E-02	6.01E-03
C-104	0.00	0.01	18.32	ContLin	2.05E-03	1.02E-03
C-105	0.00	0.01	18.32	ContLin	2.57E-03	1.29E-03
C-106	0.00	0.01	18.32	ContLin	5.64E-02	2.82E-02

Table A-7. Input Data. (7 sheets)

	59	60	61	62	63	64
Tank	**Retained gas composition NH_3 std dev (%)**	**Retained gas composition NH_3 minimum (%)**	**Retained gas composition NH_3 maximum (%)**	**Retained gas composition NH_3 distribution type**	**Hydrogen generation rate in non-convective waste (moles/m^3/day)**	**Hydrogen generation rate in non-convective waste uncertainty (moles/m^3/day)**
C-107	0.00	0.01	18.32	ContLin	2.90E-03	1.45E-03
C-108	0.00	0.01	18.32	ContLin	4.07E-03	2.04E-03
C-109	0.00	0.01	18.32	ContLin	4.66E-03	2.33E-03
C-110	0.00	0.01	18.32	ContLin	1.71E-03	8.57E-04
C-111	0.00	0.01	18.32	ContLin	5.26E-03	2.63E-03
C-112	0.00	0.01	18.32	ContLin	3.48E-03	1.74E-03
C-201	0.00	0.01	18.32	ContLin	1.73E-02	8.65E-03
C-202	0.00	0.01	18.32	ContLin	1.73E-02	8.63E-03
C-203	0.00	0.01	18.32	ContLin	7.79E-03	3.89E-03
C-204	0.00	0.01	18.32	ContLin	7.79E-03	3.89E-03
S-101	0.00	0.01	18.32	ContLin	1.59E-03	7.93E-04
S-102	0.48	0.00	19.00	Normal	1.64E-03	8.19E-04
S-103	0.00	0.01	18.32	ContLin	1.63E-03	8.16E-04
S-104	0.00	0.01	18.32	ContLin	1.35E-03	6.75E-04
S-105	0.00	0.01	18.32	ContLin	1.10E-03	5.49E-04
S-106	0.26	0.00	19.00	Normal	9.80E-04	4.90E-04
S-107	0.00	0.01	18.32	ContLin	1.22E-03	6.10E-04
S-108	0.00	0.01	18.32	ContLin	8.32E-04	4.16E-04
S-109	0.00	0.01	18.32	ContLin	8.39E-04	4.19E-04
S-110	0.00	0.01	18.32	ContLin	1.29E-03	6.45E-04
S-111	0.47	0.00	19.00	Normal	1.12E-03	5.62E-04
S-112	0.00	0.01	18.32	ContLin	2.18E-03	1.09E-03
SX-101	0.00	0.01	18.32	ContLin	1.45E-03	7.23E-04
SX-102	0.00	0.01	18.32	ContLin	3.44E-03	1.72E-03
SX-103	0.00	0.01	18.32	ContLin	1.23E-02	6.17E-03
SX-104	0.00	0.01	18.32	ContLin	3.72E-03	1.86E-03
SX-105	0.00	0.01	18.32	ContLin	2.12E-02	1.06E-02

Table A-7. Input Data. (7 sheets)

	59	60	61	62	63	64
Tank	**Retained gas composition NH_3 std dev (%)**	**Retained gas composition NH_3 minimum (%)**	**Retained gas composition NH_3 maximum (%)**	**Retained gas composition NH_3 distribution type**	**Hydrogen generation rate in non-convective waste (moles/m^3/day)**	**Hydrogen generation rate in non-convective waste uncertainty (moles/m^3/day)**
SX-106	2.36	0.00	19.00	Normal	1.51E-03	7.56E-04
SX-107	0.00	0.01	18.32	ContLin	3.62E-03	1.81E-03
SX-108	0.00	0.01	18.32	ContLin	5.03E-03	2.52E-03
SX-109	0.00	0.01	18.32	ContLin	6.89E-03	3.45E-03
SX-110	0.00	0.01	18.32	ContLin	1.31E-02	6.55E-03
SX-111	0.00	0.01	18.32	ContLin	3.93E-03	1.97E-03
SX-112	0.00	0.01	18.32	ContLin	3.94E-03	1.97E-03
SX-113	0.00	0.01	18.32	ContLin	1.30E-02	6.51E-03
SX-114	0.00	0.01	18.32	ContLin	2.80E-03	1.40E-03
SX-115	0.00	0.01	18.32	ContLin	7.27E-02	3.63E-02
SY-101	2.37	0.00	19.00	Normal	1.95E-03	9.74E-04
SY-102	0.00	0.01	18.32	ContLin	2.21E-03	1.10E-03
SY-103	0.00	0.01	18.32	ContLin	1.93E-03	9.65E-04
T-101	0.00	0.01	18.32	ContLin	2.99E-03	1.50E-03
T-102	0.00	0.01	18.32	ContLin	1.28E-02	6.41E-03
T-103	0.00	0.01	18.32	ContLin	1.09E-02	5.45E-03
T-104	0.00	0.01	18.32	ContLin	1.15E-03	5.73E-04
T-105	0.00	0.01	18.32	ContLin	2.84E-03	1.42E-03
T-106	0.00	0.01	18.32	ContLin	1.13E-02	5.63E-03
T-107	0.00	0.01	18.32	ContLin	1.80E-03	9.02E-04
T-108	0.00	0.01	18.32	ContLin	1.52E-02	7.61E-03
T-109	0.00	0.01	18.32	ContLin	4.17E-03	2.09E-03
T-110	0.00	0.01	18.32	ContLin	1.09E-03	5.46E-04
T-111	0.00	0.01	18.32	ContLin	9.34E-04	4.67E-04
T-112	0.00	0.01	18.32	ContLin	4.33E-03	2.16E-03
T-201	0.00	0.01	18.32	ContLin	2.00E-03	9.99E-04
T-202	0.00	0.01	18.32	ContLin	2.23E-03	1.11E-03

Table A-7. Input Data. (7 sheets)

	59	60	61	62	63	64
Tank	**Retained gas composition NH_3 std dev (%)**	**Retained gas composition NH_3 minimum (%)**	**Retained gas composition NH_3 maximum (%)**	**Retained gas composition NH_3 distribution type**	**Hydrogen generation rate in non-convective waste (moles/m^3/day)**	**Hydrogen generation rate in non-convective waste uncertainty (moles/m^3/day)**
T-203	0.00	0.01	18.32	ContLin	1.90E-03	9.48E-04
T-204	0.00	0.01	18.32	ContLin	1.90E-03	9.50E-04
TX-101	0.00	0.01	18.32	ContLin	3.75E-03	1.87E-03
TX-102	0.00	0.01	18.32	ContLin	1.62E-03	8.11E-04
TX-103	0.00	0.01	18.32	ContLin	2.14E-03	1.07E-03
TX-104	0.00	0.01	18.32	ContLin	4.07E-03	2.03E-03
TX-105	0.00	0.01	18.32	ContLin	9.13E-04	4.57E-04
TX-106	0.00	0.01	18.32	ContLin	1.25E-03	6.24E-04
TX-107	0.00	0.01	18.32	ContLin	8.50E-03	4.25E-03
TX-108	0.00	0.01	18.32	ContLin	2.25E-03	1.13E-03
TX-109	0.00	0.01	18.32	ContLin	1.06E-03	5.31E-04
TX-110	0.00	0.01	18.32	ContLin	9.51E-04	4.76E-04
TX-111	0.00	0.01	18.32	ContLin	1.09E-03	5.45E-04
TX-112	0.00	0.01	18.32	ContLin	8.08E-04	4.04E-04
TX-113	0.00	0.01	18.32	ContLin	7.84E-04	3.92E-04
TX-114	0.00	0.01	18.32	ContLin	8.35E-04	4.18E-04
TX-115	0.00	0.01	18.32	ContLin	8.41E-04	4.20E-04
TX-116	0.00	0.01	18.32	ContLin	7.76E-04	3.88E-04
TX-117	0.00	0.01	18.32	ContLin	8.71E-04	4.36E-04
TX-118	0.00	0.01	18.32	ContLin	1.49E-03	7.46E-04
TY-101	0.00	0.01	18.32	ContLin	2.37E-03	1.19E-03
TY-102	0.00	0.01	18.32	ContLin	3.85E-03	1.93E-03
TY-103	0.00	0.01	18.32	ContLin	2.39E-03	1.20E-03
TY-104	0.00	0.01	18.32	ContLin	5.91E-03	2.95E-03
TY-105	0.00	0.01	18.32	ContLin	1.50E-03	7.48E-04
TY-106	0.00	0.01	18.32	ContLin	1.48E-02	7.39E-03
U-101	0.00	0.01	18.32	ContLin	1.06E-02	5.29E-03

Table A-7. Input Data. (7 sheets)

	59	60	61	62	63	64
Tank	**Retained gas composition NH_3 std dev (%)**	**Retained gas composition NH_3 minimum (%)**	**Retained gas composition NH_3 maximum (%)**	**Retained gas composition NH_3 distribution type**	**Hydrogen generation rate in non-convective waste (moles/m^3/day)**	**Hydrogen generation rate in non-convective waste uncertainty (moles/m^3/day)**
U-102	0.00	0.01	18.32	ContLin	2.17E-03	1.08E-03
U-103	0.39	0.00	19.00	Normal	2.11E-03	1.05E-03
U-104	0.00	0.01	18.32	ContLin	2.83E-03	1.42E-03
U-105	0.00	0.01	18.32	ContLin	1.84E-03	9.21E-04
U-106	0.00	0.01	18.32	ContLin	3.99E-03	1.99E-03
U-107	0.00	0.01	18.32	ContLin	1.14E-03	5.69E-04
U-108	0.00	0.01	18.32	ContLin	1.41E-03	7.05E-04
U-109	0.45	0.00	19.00	Normal	1.48E-03	7.42E-04
U-110	0.00	0.01	18.32	ContLin	1.84E-03	9.19E-04
U-111	0.00	0.01	18.32	ContLin	1.34E-03	6.71E-04
U-112	0.00	0.01	18.32	ContLin	5.65E-03	2.82E-03
U-201	0.00	0.01	18.32	ContLin	5.65E-03	2.82E-03
U-202	0.00	0.01	18.32	ContLin	6.30E-03	3.15E-03
U-203	0.00	0.01	18.32	ContLin	6.30E-03	3.15E-03
U-204	0.00	0.01	18.32	ContLin	7.18E-03	3.59E-03

APPENDIX B

INPUT DATA SOURCE

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Table B-1. Input Data Sources (7 pages)
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Tank #	Tank Type	Total waste depth	Total waste depth uncertainty	Total non-convective waste depth	Total non-convective waste depth uncertainty	Total non-convective waste depth lower bound	Wetted non-convective waste depth	Wetted non-convective waste depth uncertainty	Wetted non-convective waste depth lower bound
A-101	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
A-102	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
A-103	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
A-104	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
A-105	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
A-106	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
AN-101	DST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
AN-102	DST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
AN-103	DST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
AN-104	DST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
AN-105	DST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
AN-106	DST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
AN-107	DST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
AP-101	DST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
AP-102	DST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
AP-103	DST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
AP-104	DST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
AP-105	DST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
AP-106	DST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
AP-107	DST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
AP-108	DST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
AW-101	DST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
AW-102	DST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
AW-103	DST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
AW-104	DST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
AW-105	DST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
AW-106	DST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption

Table B-1. Input Data Sources (7 pages)
(References Presented in Table B-8)

Tank #	Tank Type	Total waste depth	Total waste depth uncertainty	Total non-convective waste depth	Total non-convective waste depth uncertainty	Total non-convective waste depth lower bound	Wetted non-convective waste depth	Wetted non-convective waste depth uncertainty	Wetted non-convective waste depth lower bound
AX-101	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
AX-102	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
AX-103	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
AX-104	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
AY-101	DST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
AY-102	DST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
AZ-101	DST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
AZ-102	DST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
B-101	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
B-102	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
B-103	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
B-104	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
B-105	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
B-106	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
B-107	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
B-108	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
B-109	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
B-110	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
B-111	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
B-112	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
B-201	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
B-202	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
B-203	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
B-204	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
BX-101	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
BX-102	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
BX-103	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption

Table B-1. Input Data Sources (7 pages)
(References Presented in Table B-8)

Tank #	Tank Type	Total waste depth	Total waste depth uncertainty	Total non-convective waste depth	Total non-convective waste depth uncertainty	Total non-convective waste depth lower bound	Wetted non-convective waste depth	Wetted non-convective waste depth uncertainty	Wetted non-convective waste depth lower bound
BX-104	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
BX-105	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
BX-106	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
BX-107	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
BX-108	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
BX-109	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
BX-110	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
BX-111	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
BX-112	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
BY-101	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
BY-102	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
BY-103	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
BY-104	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
BY-105	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
BY-106	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
BY-107	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
BY-108	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
BY-109	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
BY-110	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
BY-111	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
BY-112	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
C-101	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
C-102	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
C-103	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
C-104	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
C-105	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
C-106	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption

Table B-1. Input Data Sources (7 pages)
(References Presented in Table B-8)

Tank #	Tank Type	Total waste depth	Total waste depth uncertainty	Total non-convective waste depth	Total non-convective waste depth uncertainty	Total non-convective waste depth lower bound	Wetted non-convective waste depth	Wetted non-convective waste depth uncertainty	Wetted non-convective waste depth lower bound
C-107	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
C-108	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
C-109	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
C-110	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
C-111	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
C-112	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
C-201	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
C-202	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
C-203	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
C-204	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
S-101	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
S-102	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
S-103	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
S-104	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
S-105	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
S-106	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
S-107	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
S-108	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
S-109	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
S-110	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
S-111	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
S-112	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
SX-101	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
SX-102	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
SX-103	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
SX-104	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
SX-105	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption

Table B-1. Input Data Sources (7 pages)
(References Presented in Table B-8)

Tank #	Tank Type	Total waste depth	Total waste depth uncertainty	Total non-convective waste depth	Total non-convective waste depth uncertainty	Total non-convective waste depth lower bound	Wetted non-convective waste depth	Wetted non-convective waste depth uncertainty	Wetted non-convective waste depth lower bound
SX-106	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
SX-107	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
SX-108	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
SX-109	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
SX-110	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
SX-111	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
SX-112	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
SX-113	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
SX-114	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
SX-115	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
SY-101	DST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
SY-102	DST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
SY-103	DST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
T-101	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
T-102	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
T-103	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
T-104	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
T-105	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
T-106	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
T-107	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
T-108	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
T-109	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
T-110	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
T-111	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
T-112	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
T-201	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
T-202	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption

Table B-1. Input Data Sources (7 pages)
(References Presented in Table B-8)

Tank #	Tank Type	Total waste depth	Total waste depth uncertainty	Total non-convective waste depth	Total non-convective waste depth uncertainty	Total non-convective waste depth lower bound	Wetted non-convective waste depth	Wetted non-convective waste depth uncertainty	Wetted non-convective waste depth lower bound
T-203	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
T-204	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
TX-101	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
TX-102	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
TX-103	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
TX-104	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
TX-105	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
TX-106	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
TX-107	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
TX-108	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
TX-109	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
TX-110	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
TX-111	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
TX-112	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
TX-113	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
TX-114	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
TX-115	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
TX-116	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
TX-117	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
TX-118	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
TY-101	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
TY-102	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
TY-103	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
TY-104	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
TY-105	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
TY-106	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
U-101	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption

Table B-1. Input Data Sources (7 pages)
(References Presented in Table B-8)

Tank #	Tank Type	Total waste depth	Total waste depth uncertainty	Total non-convective waste depth	Total non-convective waste depth uncertainty	Total non-convective waste depth lower bound	Wetted non-convective waste depth	Wetted non-convective waste depth uncertainty	Wetted non-convective waste depth lower bound
U-102	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
U-103	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
U-104	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
U-105	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
U-106	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
U-107	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
U-108	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
U-109	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
U-110	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
U-111	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
U-112	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
U-201	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
U-202	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
U-203	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption
U-204	SST	Calc	Ref 1	Ref 6	Ref 1	Boundary Assumption	Ref 6	Ref 1	Boundary Assumption

Table B-2. Input Data Sources (7 pages)
(References Presented in Table B-8)

	11	12	13	14	15	16	17	18	19
Tank	**Convective waste depth**	**Convective waste depth uncertainty**	**Crust depth**	**Non-convective waste density**	**Non-convective waste density std dev**	**Non-convective waste density minimum**	**Non-convective waste density maximum**	**Convective waste density**	**Convective waste density std dev**
A-101	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
A-102	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
A-103	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
A-104	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
A-105	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
A-106	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
AN-101	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
AN-102	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
AN-103	Ref 6	Ref 1	Ref 7	Ref 6	Ref 7	calc	calc	Ref 6	Ref 7
AN-104	Ref 6	Ref 1	Ref 7	Ref 6	Ref 7	calc	calc	Ref 6	Ref 7
AN-105	Ref 6	Ref 1	Ref 7	Ref 6	Ref 7	calc	calc	Ref 6	Ref 7
AN-106	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
AN-107	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
AP-101	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
AP-102	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
AP-103	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
AP-104	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
AP-105	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
AP-106	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
AP-107	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
AP-108	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
AW-101	Ref 6	Ref 1	Ref 7	Ref 6	Ref 7	calc	calc	Ref 6	Ref 7
AW-102	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
AW-103	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
AW-104	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
AW-105	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
AW-106	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na

Table B-2. Input Data Sources (7 pages)
(References Presented in Table B-8)

	11	12	13	14	15	16	17	18	19
Tank	**Convective waste depth**	**Convective waste depth uncertainty**	**Crust depth**	**Non-convective waste density**	**Non-convective waste density std dev**	**Non-convective waste density minimum**	**Non-convective waste density maximum**	**Convective waste density**	**Convective waste density std dev**
AX-101	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
AX-102	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
AX-103	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
AX-104	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
AY-101	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
AY-102	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
AZ-101	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
AZ-102	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
B-101	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
B-102	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
B-103	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
B-104	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
B-105	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
B-106	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
B-107	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
B-108	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
B-109	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
B-110	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
B-111	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
B-112	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
B-201	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
B-202	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
B-203	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
B-204	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
BX-101	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
BX-102	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
BX-103	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na

Table B-2. Input Data Sources (7 pages)
(References Presented in Table B-8)

	11	12	13	14	15	16	17	18	19
Tank	**Convective waste depth**	**Convective waste depth uncertainty**	**Crust depth**	**Non-convective waste density**	**Non-convective waste density std dev**	**Non-convective waste density minimum**	**Non-convective waste density maximum**	**Convective waste density**	**Convective waste density std dev**
BX-104	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
BX-105	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
BX-106	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
BX-107	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
BX-108	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
BX-109	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
BX-110	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
BX-111	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
BX-112	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
BY-101	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
BY-102	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
BY-103	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
BY-104	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
BY-105	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
BY-106	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
BY-107	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
BY-108	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
BY-109	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
BY-110	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
BY-111	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
BY-112	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
C-101	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
C-102	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
C-103	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
C-104	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
C-105	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
C-106	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na

Table B-2. Input Data Sources (7 pages)
(References Presented in Table B-8)

	11	12	13	14	15	16	17	18	19
Tank	**Convective waste depth**	**Convective waste depth uncertainty**	**Crust depth**	**Non-convective waste density**	**Non-convective waste density std dev**	**Non-convective waste density minimum**	**Non-convective waste density maximum**	**Convective waste density**	**Convective waste density std dev**
C-107	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
C-108	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
C-109	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
C-110	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
C-111	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
C-112	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
C-201	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
C-202	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
C-203	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
C-204	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
S-101	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
S-102	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
S-103	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
S-104	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
S-105	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
S-106	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
S-107	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
S-108	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
S-109	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
S-110	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
S-111	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
S-112	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
SX-101	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
SX-102	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
SX-103	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
SX-104	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
SX-105	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na

Table B-2. Input Data Sources (7 pages)
(References Presented in Table B-8)

	11	12	13	14	15	16	17	18	19
Tank	**Convective waste depth**	**Convective waste depth uncertainty**	**Crust depth**	**Non-convective waste density**	**Non-convective waste density std dev**	**Non-convective waste density minimum**	**Non-convective waste density maximum**	**Convective waste density**	**Convective waste density std dev**
SX-106	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
SX-107	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
SX-108	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
SX-109	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
SX-110	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
SX-111	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
SX-112	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
SX-113	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
SX-114	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
SX-115	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
SY-101	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
SY-102	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
SY-103	Ref 6	Ref 1	Ref 7	Ref 6	Ref 7	calc	calc	Ref 6	Ref 7
T-101	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
T-102	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
T-103	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
T-104	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
T-105	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
T-106	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
T-107	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
T-108	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
T-109	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
T-110	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
T-111	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
T-112	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
T-201	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
T-202	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na

Table B-2. Input Data Sources (7 pages)
(References Presented in Table B-8)

	11	12	13	14	15	16	17	18	19
Tank	**Convective waste depth**	**Convective waste depth uncertainty**	**Crust depth**	**Non-convective waste density**	**Non-convective waste density std dev**	**Non-convective waste density minimum**	**Non-convective waste density maximum**	**Convective waste density**	**Convective waste density std dev**
T-203	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
T-204	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
TX-101	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
TX-102	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
TX-103	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
TX-104	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
TX-105	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
TX-106	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
TX-107	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
TX-108	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
TX-109	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
TX-110	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
TX-111	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
TX-112	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
TX-113	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
TX-114	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
TX-115	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
TX-116	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
TX-117	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
TX-118	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
TY-101	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
TY-102	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
TY-103	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
TY-104	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
TY-105	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
TY-106	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
U-101	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na

Table B-2. Input Data Sources (7 pages)
(References Presented in Table B-8)

	11	12	13	14	15	16	17	18	19
Tank	**Convective waste depth**	**Convective waste depth uncertainty**	**Crust depth**	**Non-convective waste density**	**Non-convective waste density std dev**	**Non-convective waste density minimum**	**Non-convective waste density maximum**	**Convective waste density**	**Convective waste density std dev**
U-102	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
U-103	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
U-104	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
U-105	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
U-106	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
U-107	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
U-108	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
U-109	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
U-110	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
U-111	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
U-112	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
U-201	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
U-202	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
U-203	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na
U-204	Ref 6	Ref 1	na	Ref 6	na	calc	calc	Ref 6	na

Table B-3. Input Data Sources (6 sheets)
(*References Presented in Table B-8*)

	20	21	22	23	24	25	26	27	28	29	30
Tank	**Convective waste density minimum**	**Convective waste density maximum**	**Non-convective waste average temperature**	**Tank vapor space average temperature**	**Tank type group**	**Total tank volume**	**Tank operating capacity**	**Dish type**	**Dish height**	**Dish volume**	**Tank capacity**
A-101	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
A-102	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
A-103	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
A-104	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
A-105	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
A-106	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
AN-101	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
AN-102	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
AN-103	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
AN-104	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
AN-105	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
AN-106	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
AN-107	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
AP-101	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
AP-102	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
AP-103	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
AP-104	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
AP-105	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
AP-106	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
AP-107	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
AP-108	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
AW-101	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
AW-102	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
AW-103	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
AW-104	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
AW-105	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
AW-106	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
AX-101	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
AX-102	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
AX-103	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2

Table B-3. Input Data Sources (6 sheets)
(References Presented in Table B-8)

	20	21	22	23	24	25	26	27	28	29	30
Tank	**Convective waste density minimum**	**Convective waste density maximum**	**Non-convective waste average temperature**	**Tank vapor space average temperature**	**Tank type group**	**Total tank volume**	**Tank operating capacity**	**Dish type**	**Dish height**	**Dish volume**	**Tank capacity**
AX-104	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
AY-101	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
AY-102	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
AZ-101	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
AZ-102	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
B-101	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
B-102	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
B-103	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
B-104	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
B-105	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
B-106	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
B-107	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
B-108	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
B-109	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
B-110	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
B-111	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
B-112	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
B-201	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
B-202	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
B-203	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
B-204	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
BX-101	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
BX-102	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
BX-103	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
BX-104	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
BX-105	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
BX-106	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
BX-107	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
BX-108	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
BX-109	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2

Table B-3. Input Data Sources (6 sheets)
(References Presented in Table B-8)

	20	21	22	23	24	25	26	27	28	29	30
Tank	**Convective waste density minimum**	**Convective waste density maximum**	**Non-convective waste average temperature**	**Tank vapor space average temperature**	**Tank type group**	**Total tank volume**	**Tank operating capacity**	**Dish type**	**Dish height**	**Dish volume**	**Tank capacity**
BX-110	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
BX-111	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
BX-112	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
BY-101	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
BY-102	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
BY-103	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
BY-104	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
BY-105	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
BY-106	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
BY-107	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
BY-108	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
BY-109	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
BY-110	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
BY-111	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
BY-112	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
C-101	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
C-102	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
C-103	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
C-104	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
C-105	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
C-106	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
C-107	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
C-108	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
C-109	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
C-110	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
C-111	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
C-112	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
C-201	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
C-202	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
C-203	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2

Table B-3. Input Data Sources (6 sheets)
(References Presented in Table B-8)

	20	21	22	23	24	25	26	27	28	29	30
Tank	**Convective waste density minimum**	**Convective waste density maximum**	**Non-convective waste average temperature**	**Tank vapor space average temperature**	**Tank type group**	**Total tank volume**	**Tank operating capacity**	**Dish type**	**Dish height**	**Dish volume**	**Tank capacity**
C-204	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
S-101	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
S-102	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
S-103	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
S-104	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
S-105	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
S-106	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
S-107	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
S-108	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
S-109	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
S-110	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
S-111	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
S-112	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
SX-101	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
SX-102	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
SX-103	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
SX-104	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
SX-105	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
SX-106	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
SX-107	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
SX-108	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
SX-109	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
SX-110	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
SX-111	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
SX-112	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
SX-113	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
SX-114	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
SX-115	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
SY-101	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
SY-102	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2

Table B-3. Input Data Sources (6 sheets)
(References Presented in Table B-8)

	20	21	22	23	24	25	26	27	28	29	30
Tank	**Convective waste density minimum**	**Convective waste density maximum**	**Non-convective waste average temperature**	**Tank vapor space average temperature**	**Tank type group**	**Total tank volume**	**Tank operating capacity**	**Dish type**	**Dish height**	**Dish volume**	**Tank capacity**
SY-103	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
T-101	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
T-102	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
T-103	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
T-104	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
T-105	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
T-106	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
T-107	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
T-108	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
T-109	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
T-110	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
T-111	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
T-112	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
T-201	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
T-202	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
T-203	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
T-204	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
TX-101	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
TX-102	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
TX-103	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
TX-104	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
TX-105	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
TX-106	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
TX-107	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
TX-108	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
TX-109	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
TX-110	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
TX-111	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
TX-112	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
TX-113	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2

Table B-3. Input Data Sources (6 sheets)
(References Presented in Table B-8)

	20	21	22	23	24	25	26	27	28	29	30
Tank	**Convective waste density minimum**	**Convective waste density maximum**	**Non-convective waste average temperature**	**Tank vapor space average temperature**	**Tank type group**	**Total tank volume**	**Tank operating capacity**	**Dish type**	**Dish height**	**Dish volume**	**Tank capacity**
TX-114	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
TX-115	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
TX-116	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
TX-117	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
TX-118	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
TY-101	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
TY-102	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
TY-103	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
TY-104	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
TY-105	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
TY-106	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
U-101	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
U-102	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
U-103	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
U-104	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
U-105	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
U-106	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
U-107	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
U-108	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
U-109	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
U-110	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
U-111	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
U-112	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
U-201	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
U-202	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
U-203	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2
U-204	calc	calc	Ref 5	Ref 5	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2	Ref 2

Table B-4. Input Data Sources (8 pages)
(References Presented in Table B-8)

	31	32	33	34	35	36	37	38	39
Tank	**Void fraction or maximum wetted solids void fraction**	**Void fraction or maximum wetted solids void fraction mean**	**Void fraction or maximum wetted solids void fraction uncertainty**	**Void fraction or maximum wetted solids void fraction minimum**	**Void fraction or maximum wetted solids void fraction maximum**	**Non-convective waste yield stress minimum**	**Non-convective waste yield stress maximum**	**Non-convective waste yield stress distribution type**	**Headspace gas ratio CH_4 distribution ID**
A-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
A-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
A-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
A-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
A-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
A-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
AN-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
AN-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
AN-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
AN-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
AN-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
AN-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
AN-107	Ref 8	Ref 8	Ref 8	Ref 8	Ref 8	Ref 4	Ref 4	Ref 4	Ref 3
AP-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
AP-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
AP-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
AP-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
AP-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
AP-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
AP-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
AP-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
AW-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
AW-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
AW-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3

Table B-4. Input Data Sources (8 pages)
(References Presented in Table B-8)

	31	32	33	34	35	36	37	38	39
Tank	**Void fraction or maximum wetted solids void fraction**	**Void fraction or maximum wetted solids void fraction mean**	**Void fraction or maximum wetted solids void fraction uncertainty**	**Void fraction or maximum wetted solids void fraction minimum**	**Void fraction or maximum wetted solids void fraction maximum**	**Non-convective waste yield stress minimum**	**Non-convective waste yield stress maximum**	**Non-convective waste yield stress distribution type**	**Headspace gas ratio CH_4 distribution ID**
AW-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
AW-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
AW-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
AX-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
AX-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
AX-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
AX-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
AY-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
AY-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
AZ-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
AZ-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
B-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
B-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
B-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
B-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
B-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
B-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
B-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
B-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
B-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
B-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
B-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
B-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
B-201	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3

Table B-4. Input Data Sources (8 pages)
(References Presented in Table B-8)

	31	32	33	34	35	36	37	38	39
Tank	**Void fraction or maximum wetted solids void fraction**	**Void fraction or maximum wetted solids void fraction mean**	**Void fraction or maximum wetted solids void fraction uncertainty**	**Void fraction or maximum wetted solids void fraction minimum**	**Void fraction or maximum wetted solids void fraction maximum**	**Non-convective waste yield stress minimum**	**Non-convective waste yield stress maximum**	**Non-convective waste yield stress distribution type**	**Headspace gas ratio CH_4 distribution ID**
B-202	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
B-203	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
B-204	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
BX-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
BX-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
BX-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
BX-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
BX-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
BX-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
BX-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
BX-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
BX-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
BX-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
BX-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
BX-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
BY-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
BY-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
BY-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
BY-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
BY-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
BY-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
BY-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
BY-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
BY-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3

Table B-4. Input Data Sources (8 pages)
(References Presented in Table B-8)

	31	32	33	34	35	36	37	38	39
Tank	**Void fraction or maximum wetted solids void fraction**	**Void fraction or maximum wetted solids void fraction mean**	**Void fraction or maximum wetted solids void fraction uncertainty**	**Void fraction or maximum wetted solids void fraction minimum**	**Void fraction or maximum wetted solids void fraction maximum**	**Non-convective waste yield stress minimum**	**Non-convective waste yield stress maximum**	**Non-convective waste yield stress distribution type**	**Headspace gas ratio CH_4 distribution ID**
BY-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
BY-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
BY-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
C-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
C-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
C-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
C-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
C-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
C-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
C-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
C-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
C-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
C-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
C-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
C-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
C-201	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
C-202	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
C-203	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
C-204	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
S-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
S-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
S-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
S-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
S-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3

Table B-4. Input Data Sources (8 pages)
(References Presented in Table B-8)

	31	32	33	34	35	36	37	38	39
Tank	**Void fraction or maximum wetted solids void fraction**	**Void fraction or maximum wetted solids void fraction mean**	**Void fraction or maximum wetted solids void fraction uncertainty**	**Void fraction or maximum wetted solids void fraction minimum**	**Void fraction or maximum wetted solids void fraction maximum**	**Non-convective waste yield stress minimum**	**Non-convective waste yield stress maximum**	**Non-convective waste yield stress distribution type**	**Headspace gas ratio CH_4 distribution ID**
S-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
S-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
S-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
S-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
S-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
S-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
S-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
SX-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
SX-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
SX-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
SX-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
SX-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
SX-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
SX-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
SX-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
SX-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
SX-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
SX-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
SX-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
SX-113	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
SX-114	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
SX-115	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
SY-101	Ref 8	Ref 8	Ref 8	Ref 8	Ref 8	Ref 4	Ref 4	Ref 4	Ref 3
SY-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3

Table B-4. Input Data Sources (8 pages)
(References Presented in Table B-8)

	31	32	33	34	35	36	37	38	39
Tank	**Void fraction *or maximum* wetted solids void fraction**	**Void fraction or maximum wetted solids void fraction mean**	**Void fraction or maximum wetted solids void fraction uncertainty**	**Void fraction or maximum wetted solids void fraction minimum**	**Void fraction or maximum wetted solids void fraction maximum**	**Non-convective waste yield stress minimum**	**Non-convective waste yield stress maximum**	**Non-convective waste yield stress distribution type**	**Headspace gas ratio CH_4 distribution ID**
SY-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
T-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
T-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
T-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
T-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
T-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
T-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
T-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
T-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
T-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
T-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
T-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
T-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
T-201	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
T-202	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
T-203	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
T-204	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
TX-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
TX-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
TX-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
TX-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
TX-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
TX-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
TX-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3

Table B-4. Input Data Sources (8 pages)
(References Presented in Table B-8)

	31	32	33	34	35	36	37	38	39
Tank	***Void fraction* or maximum wetted solids void fraction**	**Void fraction or maximum wetted solids void fraction mean**	**Void fraction or maximum wetted solids void fraction uncertainty**	**Void fraction or maximum wetted solids void fraction minimum**	**Void fraction or maximum wetted solids void fraction maximum**	**Non-convective waste yield stress minimum**	**Non-convective waste yield stress maximum**	**Non-convective waste yield stress distribution type**	**Headspace gas ratio CH_4 distribution ID**
TX-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
TX-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
TX-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
TX-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
TX-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
TX-113	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
TX-114	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
TX-115	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
TX-116	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
TX-117	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
TX-118	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
TY-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
TY-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
TY-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
TY-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
TY-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
TY-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
U-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
U-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
U-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
U-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
U-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
U-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
U-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3

Table B-4. Input Data Sources (8 pages)
(References Presented in Table B-8)

	31	32	33	34	35	36	37	38	39
Tank	**Void fraction or maximum wetted solids void fraction**	**Void fraction or maximum wetted solids void fraction mean**	**Void fraction or maximum wetted solids void fraction uncertainty**	**Void fraction or maximum wetted solids void fraction minimum**	**Void fraction or maximum wetted solids void fraction maximum**	**Non-convective waste yield stress minimum**	**Non-convective waste yield stress maximum**	**Non-convective waste yield stress distribution type**	**Headspace gas ratio CH_4 distribution ID**
U-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
U-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
U-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
U-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
U-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
U-201	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
U-202	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
U-203	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3
U-204	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 4	Ref 4	Ref 4	Ref 3

Table B-5. Input Data Sources (7 pages)
(References Presented in Table B-8)

	40	41	42	43	44	45	46	47	48	49
Tank	**Headspace gas ratio CH_4 mean**	**Headspace gas ratio CH_4 std dev**	**Headspace gas ratio CH_4 minimum**	**Headspace gas ratio CH_4 maximum**	**Headspace gas ratio CH_4 distribution type**	**Headspace gas ratio N_2O distribution ID**	**Headspace gas ratio N_2O mean**	**Headspace gas ratio N_2O std dev**	**Headspace gas ratio N_2O minimum**	**Headspace gas ratio N_2O maximum**
A-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
A-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
A-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
A-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
A-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
A-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AN-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AN-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AN-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AN-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AN-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AN-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AN-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AP-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AP-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AP-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AP-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AP-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AP-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AP-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AP-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AW-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AW-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AW-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AW-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AW-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AW-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3

Table B-5. Input Data Sources (7 pages)
(References Presented in Table B-8)

	40	41	42	43	44	45	46	47	48	49
Tank	**Headspace gas ratio CH_4 mean**	**Headspace gas ratio CH_4 std dev**	**Headspace gas ratio CH_4 minimum**	**Headspace gas ratio CH_4 maximum**	**Headspace gas ratio CH_4 distribution type**	**Headspace gas ratio N_2O distribution ID**	**Headspace gas ratio N_2O mean**	**Headspace gas ratio N_2O std dev**	**Headspace gas ratio N_2O minimum**	**Headspace gas ratio N_2O maximum**
AX-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AX-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AX-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AX-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AY-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AY-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AZ-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AZ-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
B-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
B-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
B-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
B-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
B-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
B-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
B-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
B-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
B-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
B-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
B-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
B-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
B-201	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
B-202	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
B-203	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
B-204	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BX-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BX-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BX-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3

Table B-5. Input Data Sources (7 pages)
(References Presented in Table B-8)

	40	41	42	43	44	45	46	47	48	49
Tank	**Headspace gas ratio CH_4 mean**	**Headspace gas ratio CH_4 std dev**	**Headspace gas ratio CH_4 minimum**	**Headspace gas ratio CH_4 maximum**	**Headspace gas ratio CH_4 distribution type**	**Headspace gas ratio N_2O distribution ID**	**Headspace gas ratio N_2O mean**	**Headspace gas ratio N_2O std dev**	**Headspace gas ratio N_2O minimum**	**Headspace gas ratio N_2O maximum**
BX-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BX-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BX-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BX-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BX-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BX-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BX-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BX-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BX-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BY-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BY-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BY-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BY-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BY-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BY-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BY-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BY-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BY-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BY-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BY-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BY-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
C-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
C-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
C-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
C-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
C-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
C-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3

Table B-5. Input Data Sources (7 pages)
(References Presented in Table B-8)

	40	41	42	43	44	45	46	47	48	49
Tank	**Headspace gas ratio CH_4 mean**	**Headspace gas ratio CH_4 std dev**	**Headspace gas ratio CH_4 minimum**	**Headspace gas ratio CH_4 maximum**	**Headspace gas ratio CH_4 distribution type**	**Headspace gas ratio N_2O distribution ID**	**Headspace gas ratio N_2O mean**	**Headspace gas ratio N_2O std dev**	**Headspace gas ratio N_2O minimum**	**Headspace gas ratio N_2O maximum**
C-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
C-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
C-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
C-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
C-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
C-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
C-201	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
C-202	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
C-203	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
C-204	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
S-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
S-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
S-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
S-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
S-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
S-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
S-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
S-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
S-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
S-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
S-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
S-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SX-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SX-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SX-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SX-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SX-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3

Table B-5. Input Data Sources (7 pages)
(References Presented in Table B-8)

	40	41	42	43	44	45	46	47	48	49
Tank	**Headspace gas ratio CH_4 mean**	**Headspace gas ratio CH_4 std dev**	**Headspace gas ratio CH_4 minimum**	**Headspace gas ratio CH_4 maximum**	**Headspace gas ratio CH_4 distribution type**	**Headspace gas ratio N_2O distribution ID**	**Headspace gas ratio N_2O mean**	**Headspace gas ratio N_2O std dev**	**Headspace gas ratio N_2O minimum**	**Headspace gas ratio N_2O maximum**
SX-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SX-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SX-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SX-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SX-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SX-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SX-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SX-113	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SX-114	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SX-115	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SY-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SY-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SY-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
T-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
T-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
T-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
T-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
T-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
T-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
T-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
T-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
T-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
T-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
T-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
T-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
T-201	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
T-202	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3

Table B-5. Input Data Sources (7 pages)
(References Presented in Table B-8)

	40	41	42	43	44	45	46	47	48	49
Tank	**Headspace gas ratio CH_4 mean**	**Headspace gas ratio CH_4 std dev**	**Headspace gas ratio CH_4 minimum**	**Headspace gas ratio CH_4 maximum**	**Headspace gas ratio CH_4 distribution type**	**Headspace gas ratio N_2O distribution ID**	**Headspace gas ratio N_2O mean**	**Headspace gas ratio N_2O std dev**	**Headspace gas ratio N_2O minimum**	**Headspace gas ratio N_2O maximum**
T-203	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
T-204	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-113	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-114	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-115	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-116	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-117	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-118	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TY-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TY-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TY-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TY-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TY-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TY-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
U-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3

Table B-5. Input Data Sources (7 pages)
(References Presented in Table B-8)

	40	41	42	43	44	45	46	47	48	49
Tank	**Headspace gas ratio CH_4 mean**	**Headspace gas ratio CH_4 std dev**	**Headspace gas ratio CH_4 minimum**	**Headspace gas ratio CH_4 maximum**	**Headspace gas ratio CH_4 distribution type**	**Headspace gas ratio N_2O distribution ID**	**Headspace gas ratio N_2O mean**	**Headspace gas ratio N_2O std dev**	**Headspace gas ratio N_2O minimum**	**Headspace gas ratio N_2O maximum**
U-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
U-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
U-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
U-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
U-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
U-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
U-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
U-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
U-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
U-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
U-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
U-201	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
U-202	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
U-203	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
U-204	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3

Table B-6. Input Data Sources (8 pages)
(References Presented in Table B-8)

	50	51	52	53	54	55	56	57	58
Tank	**Headspace gas ratio N_2O distribution type**	**Retained gas composition N_2 distribution ID**	**Retained gas composition N_2 mean**	**Retained gas composition N_2 std dev**	**Retained gas composition N_2 minimum**	**Retained gas composition N_2 maximum**	**Retained gas composition N_2 distribution type**	**Retained gas composition NH_3 distribution ID**	**Retained gas composition NH_3 mean**
A-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
A-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
A-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
A-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
A-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
A-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AN-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AN-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AN-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AN-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AN-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AN-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AN-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AP-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AP-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AP-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AP-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AP-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AP-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AP-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AP-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AW-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AW-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AW-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3

Table B-6. Input Data Sources (8 pages)
(References Presented in Table B-8)

	50	51	52	53	54	55	56	57	58
Tank	**Headspace gas ratio N_2O distribution type**	**Retained gas composition N_2 distribution ID**	**Retained gas composition N_2 mean**	**Retained gas composition N_2 std dev**	**Retained gas composition N_2 minimum**	**Retained gas composition N_2 maximum**	**Retained gas composition N_2 distribution type**	**Retained gas composition NH_3 distribution ID**	**Retained gas composition NH_3 mean**
AW-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AW-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AW-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AX-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AX-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AX-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AX-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AY-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AY-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AZ-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
AZ-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
B-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
B-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
B-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
B-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
B-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
B-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
B-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
B-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
B-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
B-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
B-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
B-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
B-201	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3

Table B-6. Input Data Sources (8 pages)
(References Presented in Table B-8)

	50	51	52	53	54	55	56	57	58
Tank	**Headspace gas ratio N_2O distribution type**	**Retained gas composition N_2 distribution *ID***	**Retained gas composition N_2 mean**	**Retained gas composition N_2 std dev**	**Retained gas composition N_2 minimum**	**Retained gas composition N_2 maximum**	**Retained gas composition N_2 distribution type**	**Retained gas composition NH_3 distribution *ID***	**Retained gas composition NH_3 mean**
B-202	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
B-203	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
B-204	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BX-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BX-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BX-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BX-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BX-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BX-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BX-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BX-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BX-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BX-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BX-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BX-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BY-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BY-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BY-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BY-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BY-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BY-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BY-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BY-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BY-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3

Table B-6. Input Data Sources (8 pages)
(References Presented in Table B-8)

	50	51	52	53	54	55	56	57	58
Tank	**Headspace gas ratio N_2O distribution type**	**Retained gas composition N_2 distribution ID**	**Retained gas composition N_2 mean**	**Retained gas composition N_2 std dev**	**Retained gas composition N_2 minimum**	**Retained gas composition N_2 maximum**	**Retained gas composition N_2 distribution type**	**Retained gas composition NH_3 distribution ID**	**Retained gas composition NH_3 mean**
BY-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BY-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
BY-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
C-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
C-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
C-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
C-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
C-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
C-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
C-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
C-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
C-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
C-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
C-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
C-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
C-201	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
C-202	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
C-203	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
C-204	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
S-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
S-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
S-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
S-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
S-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3

Table B-6. Input Data Sources (8 pages)
(References Presented in Table B-8)

	50	51	52	53	54	55	56	57	58
Tank	**Headspace gas ratio N_2O distribution type**	**Retained gas composition N_2 distribution ID**	**Retained gas composition N_2 mean**	**Retained gas composition N_2 std dev**	**Retained gas composition N_2 minimum**	**Retained gas composition N_2 maximum**	**Retained gas composition N_2 distribution type**	**Retained gas composition NH_3 distribution ID**	**Retained gas composition NH_3 mean**
S-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
S-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
S-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
S-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
S-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
S-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
S-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SX-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SX-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SX-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SX-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SX-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SX-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SX-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SX-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SX-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SX-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SX-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SX-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SX-113	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SX-114	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SX-115	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SY-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
SY-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3

Table B-6. Input Data Sources (8 pages)
(References Presented in Table B-8)

	50	51	52	53	54	55	56	57	58
Tank	**Headspace gas ratio N_2O distribution type**	**Retained gas composition N_2 distribution ID**	**Retained gas composition N_2 mean**	**Retained gas composition N_2 std dev**	**Retained gas composition N_2 minimum**	**Retained gas composition N_2 maximum**	**Retained gas composition N_2 distribution type**	**Retained gas composition NH_3 distribution ID**	**Retained gas composition NH_3 mean**
SY-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
T-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
T-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
T-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
T-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
T-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
T-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
T-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
T-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
T-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
T-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
T-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
T-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
T-201	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
T-202	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
T-203	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
T-204	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3

Table B-6. Input Data Sources (8 pages)
(References Presented in Table B-8)

	50	51	52	53	54	55	56	57	58
Tank	**Headspace gas ratio N_2O distribution type**	**Retained gas composition N_2 distribution ID**	**Retained gas composition N_2 mean**	**Retained gas composition N_2 std dev**	**Retained gas composition N_2 minimum**	**Retained gas composition N_2 maximum**	**Retained gas composition N_2 distribution type**	**Retained gas composition NH_3 distribution ID**	**Retained gas composition NH_3 mean**
TX-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-113	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-114	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-115	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-116	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-117	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TX-118	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TY-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TY-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TY-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TY-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TY-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
TY-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
U-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
U-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
U-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
U-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
U-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
U-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
U-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3

Table B-6. Input Data Sources (8 pages)
(References Presented in Table B-8)

	50	51	52	53	54	55	56	57	58
Tank	**Headspace gas ratio N_2O distribution type**	**Retained gas composition N_2 distribution ID**	**Retained gas composition N_2 mean**	**Retained gas composition N_2 std dev**	**Retained gas composition N_2 minimum**	**Retained gas composition N_2 maximum**	**Retained gas composition N_2 distribution type**	**Retained gas composition NH_3 distribution ID**	**Retained gas composition NH_3 mean**
U-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
U-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
U-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
U-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
U-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
U-201	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
U-202	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
U-203	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3
U-204	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3	Ref 3

Table B-7. Input Data Sources (7 pages)
(References Presented in Table B-8)

	59	60	61	62	63	64
Tank	**Retained gas composition NH_3 std dev**	**Retained gas composition NH_3 minimum**	**Retained gas composition NH_3 maximum**	**Retained gas composition NH_3 distribution type**	**Hydrogen generation rate in non-convective waste**	**Hydrogen generation rate in non-convective waste uncertainty**
A-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
A-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
A-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
A-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
A-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
A-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
AN-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
AN-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
AN-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
AN-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
AN-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
AN-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
AN-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
AP-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
AP-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
AP-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
AP-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
AP-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
AP-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
AP-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
AP-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
AW-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
AW-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
AW-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
AW-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
AW-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
AW-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc

Table B-7. Input Data Sources (7 pages)
(References Presented in Table B-8)

	59	60	61	62	63	64
Tank	**Retained gas composition NH_3 std dev**	**Retained gas composition NH_3 minimum**	**Retained gas composition NH_3 maximum**	**Retained gas composition NH_3 distribution type**	**Hydrogen generation rate in non-convective waste**	**Hydrogen generation rate in non-convective waste uncertainty**
AX-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
AX-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
AX-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
AX-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
AY-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
AY-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
AZ-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
AZ-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
B-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
B-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
B-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
B-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
B-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
B-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
B-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
B-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
B-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
B-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
B-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
B-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
B-201	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
B-202	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
B-203	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
B-204	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
BX-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
BX-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
BX-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc

Table B-7. Input Data Sources (7 pages)
(References Presented in Table B-8)

	59	60	61	62	63	64
Tank	**Retained gas composition NH_3 std dev**	**Retained gas composition NH_3 minimum**	**Retained gas composition NH_3 maximum**	**Retained gas composition NH_3 distribution type**	**Hydrogen generation rate in non-convective waste**	**Hydrogen generation rate in non-convective waste uncertainty**
BX-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
BX-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
BX-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
BX-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
BX-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
BX-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
BX-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
BX-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
BX-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
BY-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
BY-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
BY-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
BY-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
BY-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
BY-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
BY-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
BY-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
BY-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
BY-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
BY-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
BY-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
C-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
C-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
C-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
C-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
C-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
C-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc

Table B-7. Input Data Sources (7 pages)
(References Presented in Table B-8)

	59	60	61	62	63	64
Tank	**Retained gas composition NH_3 std dev**	**Retained gas composition NH_3 minimum**	**Retained gas composition NH_3 maximum**	**Retained gas composition NH_3 distribution type**	**Hydrogen generation rate in non-convective waste**	**Hydrogen generation rate in non-convective waste uncertainty**
C-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
C-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
C-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
C-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
C-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
C-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
C-201	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
C-202	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
C-203	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
C-204	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
S-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
S-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
S-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
S-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
S-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
S-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
S-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
S-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
S-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
S-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
S-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
S-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
SX-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
SX-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
SX-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
SX-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
SX-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc

Table B-7. Input Data Sources (7 pages)
(References Presented in Table B-8)

	59	60	61	62	63	64
Tank	**Retained gas composition NH_3 std dev**	**Retained gas composition NH_3 minimum**	**Retained gas composition NH_3 maximum**	**Retained gas composition NH_3 distribution type**	**Hydrogen generation rate in non-convective waste**	**Hydrogen generation rate in non-convective waste uncertainty**
SX-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
SX-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
SX-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
SX-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
SX-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
SX-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
SX-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
SX-113	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
SX-114	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
SX-115	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
SY-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
SY-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
SY-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
T-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
T-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
T-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
T-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
T-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
T-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
T-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
T-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
T-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
T-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
T-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
T-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
T-201	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
T-202	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc

Table B-7. Input Data Sources (7 pages)
(References Presented in Table B-8)

	59	60	61	62	63	64
Tank	**Retained gas composition NH_3 std dev**	**Retained gas composition NH_3 minimum**	**Retained gas composition NH_3 maximum**	**Retained gas composition NH_3 distribution type**	**Hydrogen generation rate in non-convective waste**	**Hydrogen generation rate in non-convective waste uncertainty**
T-203	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
T-204	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
TX-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
TX-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
TX-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
TX-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
TX-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
TX-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
TX-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
TX-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
TX-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
TX-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
TX-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
TX-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
TX-113	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
TX-114	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
TX-115	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
TX-116	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
TX-117	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
TX-118	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
TY-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
TY-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
TY-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
TY-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
TY-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
TY-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
U-101	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc

Table B-7. Input Data Sources (7 pages)
(References Presented in Table B-8)

	59	60	61	62	63	64
Tank	**Retained gas composition NH_3 std dev**	**Retained gas composition NH_3 minimum**	**Retained gas composition NH_3 maximum**	**Retained gas composition NH_3 distribution type**	**Hydrogen generation rate in non-convective waste**	**Hydrogen generation rate in non-convective waste uncertainty**
U-102	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
U-103	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
U-104	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
U-105	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
U-106	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
U-107	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
U-108	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
U-109	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
U-110	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
U-111	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
U-112	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
U-201	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
U-202	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
U-203	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc
U-204	Ref 3	Ref 3	Ref 3	Ref 3	Ref 5	Calc

Table B-8. Input Data Source Key.

Boundary Assumption	Assumed value to constrain lognormal distribution so that minimums do not go less than zero or greater than 6 sigma. Required due to nature of lognormal distributions.
Calc	Calculated value
na	Not applicable
Ref 1	Willmarth, S. L., Jan 16, 2002, Personal Email to S. A. Barker, CH2MHILL Hanford Group, Inc., Richland, WA.
Ref 2	Hendershot, R., 1999, "Tank Volume Adjustments", 74B40-99-116, CH2MHILL Hanford Group, Inc., Richland, WA.
Ref 3	Moore, D. J., S. A. Barker, W. B. Barton, and M. J. Kufahl (Meier and Associates, Inc., 2000, "Gas Release Event Safety Analysis Tool Relational Database For Hanford Tanks", HNF-SD-WM-TI-806, CH2MHILL Hanford Group, Inc., Richland, WA.
Ref 4	Wells, B. E., Jan 24, 2002, Personal Email to S. A. Barker, Pacific Northwest National Laboratory, Richland, WA
Ref 5	Hu, T. A., and S. A. Barker, 2002, "Steady-State Flammble Gas Release Rate Calculation and Lower Flammability Level Evaluation for Hanford Tank Waste", RPP-5926, Rev 2, CH2MHILL Hanford Group, Inc., Richland, WA.
Ref 6	CHG, 2001a, Best Basis Inventory, [database accessed November 15, 2001], internet address: http://twins.pnl.gov:8001.
Ref 7	Hedengren, D. C., K. M. Hodgson, W. B. Barton, C. W. Stewart (PNNL), J. M. Cuta (PNNL), and B. E. Wells (PNNL), 2000, "Data Observations On Double-Shell Flammable Gas Watchlist Tank Behavior", RPP-6655, Rev 0, CH2MHILL Hanford Group, Inc., Richland, WA.
Ref 8	Wells, B. E., 2002b, "*Investigation of Gas Retention and Release Issues in Tanks AN-107 and SY-101 Supporting Waste Group Determination*", TWS02.025, Pacific Northwest National Laboratory, Richland, Washington.

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APPENDIX C

CALCULATION MODEL

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Table C-1. Spreadsheet Printout (33 pages)
"!!Waste Groups-Draft-04-21-02-rev-35-mean v f data annotated temp Print version 0.xls"

	A	B	C	D	E	F	G	H	I
2						**Program Version Date:**		**4/22/2002 11:49**	
3						"=IF(OR(G8>G20,G85>G20,G164>G20),"Warning: Tank Operating Capacity Exceeded","")		"= IF (OR (G8 > G20, G95 > G20, G165 > G20) , "Warning: Tank Operating Capacity Exceeded", "")	
4						Porosity (fraction)	0.4	"0.4	
5						Over Tank Limit Forecast	0	"=IF (OR (G7>G19, G83>G19, G161>G19), 1, 0)	**Mean**
6	1					Tank ID	**SY-102**	"SY - 102	
7	2					Tank Type	DST	"=VLOOKUP (G5, InData, $A6)	
8	3					Total Waste Depth (m)	9.54	"=G8 + G10 + G11	0.165
9	5	6	7			Total Non-Convective Waste Depth (m)	0.66	"= + W8	0.66
10	8	9	10			Wetted Non-Convective Waste Depth (m)	0.66	"=IF (I10>0.001, G8, IF (ZA101R1>ZA120R1, ZA120R1, ZA101R1))	0.66
11	11	12				Convective Waste Depth (m)	8.88	"= + W10	
12	13					Crust Depth (m)	0.00	"= + I11	0.00
13	14	15	16	17		Non-Convective Waste Density (kg/m^3)	1,440	"=IF (G15<0.5, ZA125R1, ZA121R1)	1,440.00
14	18	19	20	21		Convective Waste Density (kg/m^3)	1,250.00	"=IF (G15<0.5, IF (G12 - ZA126R1<W3, G12 - W3, ZA126R1), IF (G12 - ZA122R1<W3, G12 - W3, ZA122R1))	1,250.00
15	22					Non-Convective Waste Ave Temp (K)	314	"=VLOOKUP (G5, InData, $A14)	
16						Simulation Count	1	"= + W16	
17	23					Tank Vapor Space Ave Temp (K)	314	"=VLOOKUP (G5, InData, $A16)	
18	24					Tank Type Group	sy	"=VLOOKUP (G5, InData, $A17)	
19	25					Total Tank Volume (m^3)	5,337	"=VLOOKUP (G5, InData, $A18)	
20	26					Tank Operating Capacity (m)	10.72	"=VLOOKUP (G5, InData, $A19)	
21						Tank Vapor Space Volume (m3)	1,430	"= + G18 - G25	

Table C-1. Spreadsheet Printout (33 pages)
"!!Waste Groups-Draft-04-21-02-rev-35-mean v f data annotated temp Print version 0.xls"

	A	B	C	D	E	F	G	H	I
22	27					dish type	flat	"=VLOOKUP (G5, InData, $A21)	
23	28					Dish Height (m)	0.0000	"=VLOOKUP (G5, InData, $A22)	
24	29					Dish Volume (kL)	-	"=VLOOKUP (G5, InData, $A23)	
25	30					Tank Capacity (kL/m)	409.79	"=VLOOKUP (G5, InData, $A24)	
26						Total Waste Volume (m^3)	3,907.90	"=IF (G7>G22, G23 + (G7 - G22) *G24, + G23*G7 / G22)	
27	31	32	33	34	35	Void Fraction (Dimensionless)	1.7733	"=IF (Q26="normal", + W26, + W27)	1.77
28						Neutral Buoyancy Void Fraction (na)	1.32E-01	"=IF (G12>0, 1 - (G13 / G12), 1 - (G13 / G13 - 0.000001))	
29	36	37	38			Non-Convective Waste Yield Stress (Pa)	50.00	"= + W28	
30						Ave Gas Pressure in NCL Waste (atm)	2.12	"=IF (OR (G5="A - 101", G5="AX - 101"), 1 + (9.806 / 101325) * ((G13* (0.001)) + (0.5*G12* (2*G8 - G9))), 1 + (9.806 / 101325) * ((G13* (G10 + G11)) + (0.5*G12* (2*G8 - G9))))	
31	40	41	42	43	44	headspace Gas Ratio CH4	-2.12	"=IF (Q30="normal", + W30, + W31)	(2.12)
32	46	47	48	49	50	headspace Gas Ratio N2O	-1.28	"=IF (Q31="normal", + W32, + W33)	(1.28)
33	52	53	54	55	56	retained Gas Composition N2	29.2000	"= + W34	29.20
34	58	59	60	61	62	retained Gas Composition NH3 (%)	15	"=IF (Q33="normal", + W36, + W37)	0.25
35						CH4 Term	-0.679487179	"= + G30 / (1 - G30)	
36						N2O Term	-0.561403509	"= + G31 / (1 - G31)	
37						Retained [H2] Calc'd (%)	396.93888	"= (100 - (G32 + G33)) / (1 + G34 + G34*G35 + G35)	
38						Retained [CH4] Calc'd (%)	-269.71488	"= + G36*G34	
39						Retained [N2O] Calc'd (%)	-71.424	"= + (G36 + G37) *G35	100.00
40	63	64				HGR in NCL Waste (moles/m^3/day)	2.21E-03	"= + W40	2.21E-03
41						Tank ID	SY-102	"= + G5	
42	65					Cross Sectional Area of Tank (m^2)	410.43	"=VLOOKUP (G5, InData, $A41)	

Table C-1. Spreadsheet Printout (33 pages)
"!!Waste Groups-Draft-04-21-02-rev-35-mean v f data annotated temp Print version 0.xls"

	A	B	C	D	E	F	G	H	I
43						Discounted H2 Fraction for 100% LFL (na)	0.054852262	"=0.04* (1 - G51 / 0.05 - G52 / 0.15)	
44						Vol Gas Released (m3)	10	"=G9*G26 / 100*G41* (G29 / 1) * (G16 / G14)	
45						Gas Release for LFL (m3)	19.89407981	"=G46* (G42 / (G36 / 100))	
46						Wnd Depth Criterion	1.970364841	"= + G44 / G43	
47						Vol Headspace After Release (m3)	1,440	"=IF (G10>2, + G20 + G43, G20)	
48						Vol H2 Released (m3)	40.1	"= + G43*G36 / 100	
49						Vol CH4 Released (m3)	(27.23)	"= + G43*G37 / 100	
50						Vol NH3 Released (m3)	1.51	"= + G43*G33 / 100	
51						Headspace [H2] (%)	2.78%	"= + G47 / G$46	
52						Headspace [CH4] (%)	-1.89%	"= + G48 / G$46	
53						Headspace [NH3] (%)	0.11%	"= + G49 / G$46	
54						Headspace [H2] (%LFL)	69.60%	"= + G50 / 0.04	
55						Headspace [CH4] (%LFL)	-37.83%	"= + G51 / 0.05	
56						Headspace [NH3] (%LFL)	0.70%	"= + G52 / 0.15	
57						Headspace Flam Gas Conc (%LFL)	32.4659%	"= + G50 / 0.04 + G51 / 0.05 + G52 / 0.15	
58						Waste Category	3	"=IF (G56<1, 3, IF (G10<0.01, 2, IF (G60<3, 2, IF (G63<1, 2, 1))))	
59						Tank ID	SY-102	""= + G5	
60						Gamma for Energy Ratio Calc (na)	1.07	"=IF (OR (G5="A - 101", G5="AX - 101"), G13*9.806*0.001 / 101325, IF (G10>0, G13*9.806*G10 / 101325, 0.000000001))	
61						Energy Ratio (Dimensionless)	135.28160	"=G27*G59*101325 / (1 - G27) / G28* ((1 + 1 / G59) *LN (1 + G59) - 1)	
62						Waste Ave Specific Gravity (na)	1.26	"= (G12*G8 + G13*G10) / G7 / 1000	
63						"Specific Gravity (CL)" X "NCL Depth" (in)	32.25	"= (G13 / 1000) * (G9*39.37)	

Table C-1. Spreadsheet Printout (33 pages)
"!!Waste Groups-Draft-04-21-02-rev-35-mean v f data annotated temp Print version 0.xls"

	A	B	C	D	E	F	G	H	I
64						Buoyancy Ratio (Dimensionless)	0.028	"= (+ W2) / (G12 - G13) * (((G39 / (G36 / 100)) *G14 / (G29*101325)) ^ (1 / 3)) *G9*G9	
65									
66									
67									
68						**Water Addition Case**			
69									
70	1					Tank ID	**SY-102**	"= + G5	
71	2					Tank Type	DST	"=VLOOKUP (G5, InData, $A70)	
72						WA - Liquid Added (gallons)	10,000	"10000	
73						WA - Liquid Density (kg/m3)	1,250.00	"= + G13	
74						WA - Liquid added (kL)	37.85	"= + G71*0.003785411784	
75						WA - Void Fraction	0.017733	"= + G26 / 100	
76						WA - Possible change in height of wetted solids (m)	0.16	"= (+ G73 / G24) / (1 - G3) / (1 - G74)	
77						WA - Total Non-Convective Waste Depth (m)	0.86	"= + G8	
78						WA - Wetted Non-Convective Waste Depth Before WA (m)	0.66	"= + G9	
79						WA - Convective Waste Depth (m)	8.88	"= + G10	
80						WA - Revised Wetted Non-Convective Waste Depth (m)	0.66	"=IF (G77 + G75>G76, G76, G77 + G75)	
81						WA - Liquid remaining after wetting solids (kL)	37.85	"= + G73 - (G79 - G77) *G75	11211.04202
82						WA - Liquid remaining after wetting solids (m)	0.092	"= + G80 / G24	
83						WA - Revised Convective Waste Depth (m)	8.97	"= + G78 + G81	
84	3					WA - Total Waste Depth (m)	9.63	"=G84 + G86 + G87	

Table C-1. Spreadsheet Printout (33 pages)
"!!Waste Groups-Draft-04-21-02-rev-35-mean v f data annotated temp Print version 0.xls"

	A	B	C	D	E	F	G	H	I
85	5	6	7			WA - Total Non-Convective Waste Depth (m)	0.66	"= + G8	0.66
86	8	9	10			WA - Wetted Non-Convective Waste Depth (m)	0.66	"= + G79	0.66
87	11	12				WA - Convective Waste Depth (m)	8.97	"= + G82	8.88
88	13					WA - Crust Depth (m)	0.00	"= + I87	0.00
89	14	15	16	17		WA - Non-Convective Waste Density (kg/m3)	1,440	"= + G12	1,440.00
90	18	19	20	21		WA - Convective Waste Density (kg/m3)	1,250	"= + G13	1,250.00
91	22					WA - Non-Convective Waste Ave Temp (K)	314	"=VLOOKUP (G5, InData, $A90)	
92	23					WA - Tank Vapor Space Ave Temp (K)	314	"=VLOOKUP (G5, InData, $A91)	
93	24					WA - Tank Type Group	sy	"=VLOOKUP (G5, InData, $A92)	
94	25					WA - Total Tank Volume (m3)	5,337	"=VLOOKUP (G5, InData, $A93)	
95	26					Tank Operating Capacity (m)	10.72	"=VLOOKUP (G5, InData, $A94)	
96						WA - Tank Vapor Space Volume (m3)	1,392	"= + G93 - G100	
97	27					WA - dish type	flat	"=VLOOKUP (G5, InData, $A96)	
98	28					WA - Dish Height (m)	0.0000	"=VLOOKUP (G5, InData, $A97)	
99	29					WA - Dish Volume (kL)	-	"=VLOOKUP (G5, InData, $A98)	
100	30					WA - Tank Capacity (kL/m)	409.79	"=VLOOKUP (G5, InData, $A99)	
101						WA - Total Waste Volume (m3)	3,945.76	"=IF (G83>G97, G98 + (G83 - G97) *G99, + G98*G83 / G97)	
102	31	32	33	34	35	WA - Void Fraction (Dimensionless)	1.7733	"= + G26	1.77
103						WA - Neutral Buoyancy Void Fraction (na)	0.13	"=IF (G88>0, 1 - (G89 / G88), 1 - (G89 / G89 - 0.000001))	
104	36	37	38			WA - Non-Convective Waste Yield Stress (Pa)	50.00	"= + G28	
105						WA - Ave Gas Pressure in NCL Waste (atm)	2.13	"=IF (OR (G69="A - 101", G69="ax - 101"), 1 + (9.806 / 101325) * ((G89* (0.001)) + (0.5*G88* (2*G84 - G85))), 1 + (9.806 / 101325) * ((G89* (G86 + G87)) + (0.5*G88* (2*G84 - G85))))	

Table C-1. Spreadsheet Printout (33 pages)
"!!Waste Groups-Draft-04-21-02-rev-35-mean v f data annotated temp Print version 0.xls"

	A	B	C	D	E	F	G	H	I
106	40	41	42	43	44	WA - headspace Gas Ratio CH4	-2.12	"= + G30	(2.12)
107	46	47	48	49	50	WA - headspace Gas Ratio N2O	-1.28	"= + G31	(1.28)
108	52	53	54	55	56	WA - retained Gas Composition N2	29.2	"= + G32	29.20
109	58	59	60	61	62	WA - retained Gas Composition NH3 (%)	15	"= + G33	0.25
110						WA - CH4 Term	-0.679487179	"= + G34	
111						WA - N2O Term	-0.561403509	"= + G35	
112						WA - Retained [H2] Calc'd (%)	396.93888	"= + G36	
113						WA - Retained [CH4] Calc'd (%)	-269.71488	"= + G37	
114						WA - Retained [N2O] Calc'd (%)	-71.424	"= + G38	
115	63	64				WA - HGR in NCL Waste (moles/m3/day)	2.21E-03	"= + G39	2.21E-03
116						WA - Tank ID	SY-102	"= + G5	
117	65					WA - Cross Sectional Area of Tank (m2)	410.43	"=VLOOKUP (G5, InData, $A116)	
118						WA - Discounted H2 Fraction for 100% LFL (na)	0.054930549	"=0.04* (1 - G126 / 0.05 - G127 / 0.15)	
119						WA - Vol Gas Released (m3)	10	"=G85*G101 / 100*G116* (G104 / 1) * (G91 / G90)	
120						WA - Gas Release for LFL (m3)	19.3994	"=G121* (G117 / (G111 / 100))	
121						WA - Wncl Depth Criterion	1.911292315	"= + G119 / G118	
122						WA - Vol Headspace After Release (m3)	1.402	"=IF (G70="DST", + G95 + G118, G95)	
123						WA - Vol H2 Released (m3)	40.3	"= + G118*G111 / 100	
124						WA - Vol CH4 Released (m3)	(27.38)	"= + G118*G112 / 100	
125						WA - Vol NH3 Released (m3)	1.52	"= + G118*G108 / 100	
126						WA - Headspace [H2] (%)	2.80%	"= + G122 / G$46	

Table C-1. Spreadsheet Printout (33 pages)
"!!Waste Groups-Draft-04-21-02-rev-35-mean v f data annotated temp Print version 0.xls"

	A	B	C	D	E	F	G	H	I
127						WA - Headspace [CH4] (%)	-1.90%	"= + G123 / G$46	
128						WA - Headspace [NH3] (%)	0.11%	"= + G124 / G$46	
129						WA - Headspace [H2] (%LFL)	0.699634263	"= + G125 / 0.04	
130						WA - Headspace [CH4] (%LFL)	-0.38031401	"= + G126 / 0.05	
131						WA - Headspace [NH3] (%LFL)	0.007050297	"= + G127 / 0.15	
132						WA - Headspace Flam Gas Conc (%LFL)	33%	"= + G125 / 0.04 + G126 / 0.05 + G127 / 0.15	
133						WA - Waste Category	3	"=IF (G131<1, 3, IF (G86<0.01, 2, IF (G135<3, 2, IF (G138<1, 2, 1))))	
134						WA - Tank ID	SY-102	"= + G5	
135						WA - Gamma for Energy Ratio Calc (na)	1.09	"=IF (OR (G69="A - 101", G69="AX - 101"), G89*9.806*0.001 / 101325, IF (G86>0, G89*9.806*G86 / 101325, 0.000000001))	
136						WA - Energy Ratio (Dimensionless)	137.80236	"=G102*G134*101325 / (1 - G102) / G103* ((1 + 1 / G134) *LN (1 + G134) - 1)	
137						WA - Waste Ave Specific Gravity (na)	1.26	"= (G88*G84 + G89*G86) / G83 / 1000	
138						WA - "Specific Gravity (CL)" X "NCL Depth" (in)	32.25	"= (G89 / 1000) * (G85*39.37)	
139						WA - Buoyancy Ratio (Dimensionless)	0.028	"= + W2 / (G88 - G89) * (((I114 / (G111 / 100)) *G90 / (G104*101325)) ^ (1 / 3)) *G85*G85	
140									
141									
142									
143						**Caustic Addition Case**			
144									
145									
146									
147									

Table C-1. Spreadsheet Printout (33 pages)
"!!Waste Groups-Draft-04-21-02-rev-35-mean v f data annotated temp Print version 0.xls"

	A	B	C	D	E	F	G	H	I
148	1					Tank ID	**SY-102**	'= + G5	
149	2					Tank Type	DST	'=VLOOKUP (G5, InData, $A148)	
150						CA - Liquid Added (gallons)	10,000	'10000	
151						CA - Liquid Density (kg/m3)	1,525	'1525	
152						CA - Liquid added (kL)	37.85	'= + G149*0.003785411784	
153						CA - Void Fraction	0.017733	'= + G26 / 100	
154						CA - Possible change in height of wetted solids (m)	0.16	'= (+ G151 / G24) / (1 - G3) / (1 - G152)	
155						CA - Total Non-Convective Waste Depth (m)	0.66	'= + G8	
156						CA - Wetted Non-Convective Waste Depth Before WA (m)	0.66	'= + G9	
157						CA - Convective Waste Depth (m)	8.88	'= + G10	
158						CA - Revised Wetted Non-Convective Waste Depth (m)	0.66	'=IF (G155 + G153>G154, G154, G155 + G153)	
159						CA - Liquid remaining after wetting solids (kL)	37.85	'= + G151 - (G157 - G155) *G153	
160						CA - Liquid remaining after wetting solids (m)	0.092	'= + G158 / G24	
161						CA - Revised Convective Waste Depth (m)	8.97	'= + G156 + G159	
162	3					CA - Total Waste Depth (m)	9.63	'=G162 + G164 + G165	0.165
163	5	6	7			CA - Total Non-Convective Waste Depth (m)	0.66	'= + G8	0.66
164	8	9	10			CA - Wetted Non-Convective Waste Depth (m)	0.66	'= + G157	0.66
165	11	12				CA - Convective Waste Depth (m)	8.97	'= + G160	8.88
166	13					CA - Crust Depth (m)	0.00	'= + I165	0.00
167	14	15	16	17		CA - Non-Convective Waste Density (kg/m3)	1,440	'= + G12	1,440.00
168	18	19	20	21		CA - Convective Waste Density (kg/m3)	1,157.18	'=IF (G15<0.5, IF (G12 - ZA127R1<W3, G12 - W3, ZA127R1), IF (G12 - ZA123R1<W3, G12 - W3, ZA123R1))	1,253

Table C-1. Spreadsheet Printout (33 pages)
"!!Waste Groups-Draft-04-21-02-rev-35-mean v f data annotated temp Print version 0.xls"

	A	B	C	D	E	F	G	H	I
169	22					CA - Non-Convective Waste Ave Temp (K)	314	"=VLOOKUP (G5, InData, $A168)	
170	23					CA - Tank Vapor Space Ave Temp (K)	314	"VLOOKUP (G5, InData, $A169)	
171	24					CA - Tank Type Group	sy	"=VLOOKUP (G5, InData, $A170)	
172	25					CA - Total Tank Volume (m3)	5,337	"=VLOOKUP (G5, InData, $A171)	
173	26					Tank Operating Capacity (m)	10.72	"=VLOOKUP (G5, InData, $A172)	
174						CA - Tank Vapor Space Volume (m3)	1,392	"= + G171 - G178	
175	27					CA - dish type	flat	"=VLOOKUP (G5, InData, $A174)	
176	28					CA - Dish Height (m)	0.0000	"=VLOOKUP (G5, InData, $A175)	
177	29					CA - Dish Volume (kL)	-	"=VLOOKUP (G5, InData, $A176)	
178	30					CA - Tank Capacity (kL/m)	409.79	"=VLOOKUP (G5, InData, $A177)	
179						CA - Total Waste Volume (m3)	3,945.76	"=IF (G161>G175, G176 + (G161 - G175) *G177, + G176*G161 / G175)	
180	31	32	33	34	35	CA - Void Fraction (Dimensionless)	1.7733	"=IF (+ G26>O179, O179, G26)	1.77
181						CA - Neutral Buoyancy Void Fraction (na)	0.1964	"=IF (G166>0, 1 - (G167 / G166), 1 - (G167 / G167 - 0.000001))	
182	36	37	38			CA - Non-Convective Waste Yield Stress (Pa)	50.00	"= + G28	
183						CA - Ave Gas Pressure in NCL Waste (atm)	2.05	"=IF (OR (G147= A - 101 , G147=8X - 101), 1 + (9.806 / 101325) * ((G167* (0.001)) + (0.5*G166* (2*G162 - G163))), 1 + (9.806 / 101325) * ((G167* (G164 + G165)) + (0.5*G166* (2*G162 - G163)))	
184	40	41	42	43	44	CA - headspace Gas Ratio CH4	-2.12	"= + G30	(2.12)
185	46	47	48	49	50	CA - headspace Gas Ratio N2O	-1.28	"= + G31	(1.28)
186	52	53	54	55	56	CA - retained Gas Composition N2	29.2	"= + G32	29.20
187	58	59	60	61	62	CA - retained Gas Composition NH3 (%)	15	"= + G33	0.25
188						CA - CH4 Term	-0.679487179	"= + G183 / (1 - G183)	
189						CA - N2O Term	-0.561403509	"= + G184 / (1 - G184)	

Table C-1. Spreadsheet Printout (33 pages)
"!!Waste Groups-Draft-04-21-02-rev-35-mean v f data annotated temp Print version 0.xls"

	A	B	C	D	E	F	G	H	I
190						CA - Retained [H2] Calc'd (%)	396.93888	"= + G36	
191						CA - Retained [CH4] Calc'd (%)	-269.71488	"= + G37	
192						CA - Retained [N2O] Calc'd (%)	-71.424	"= + G38	
193	63	64				CA - HGR in NCL Waste (moles/m3/day)	2.21E-03	"= + W40	0.00
194						CA - Tank ID	SY-102	"= + G5	
195	65					CA - Cross Sectional Area of Tank (m2)	410.43	"=VLOOKUP (G5, InData, $A194)	
196						CA - Discounted H2 Fraction for 100% LFL (na)	0.054365832	"=0.04* (1 - G204 / 0.05 - G205 / 0.15)	
197						CA - Vol Gas Released (m3)	10	"=G163*G179 / 100*G194* (G182 / 1) * (G169 / G168)	
198						CA - Gas Release for LFL (m3)	19.1947	"=G199* (G195 / (G189 / 100))	
199						CA - Wncl Depth Criterion	10.71534753	"=IF (G147="DST", + G172 + G195, G172)	
200						CA - Vol Headspace After Release (m3)	1,401	"=IF (G148="DST", + G173 + G196, G173)	
201						CA - Vol H2 Released (m3)	36.8	"= + G196*G189 / 100	
202						CA - Vol CH4 Released (m3)	(26.34)	"= + G196*G190 / 100	
203						CA - Vol NH3 Released (m3)	1.46	"= + G196*G186 / 100	
204						CA - Headspace [H2] (%)	2.69%	"= + G200 / G$46	
205						CA - Headspace [CH4] (%)	-1.83%	"= + G201 / G$46	
206						CA - Headspace [NH3] (%)	0.10%	"= + G202 / G$46	
207						CA - Headspace [H2] (%LFL)	0.67317206	"= + G203 / 0.04	
208						CA - Headspace [CH4] (%LFL)	-0.365929428	"= + G204 / 0.05	
209						CA - Headspace [NH3] (%LFL)	0.006783634	"= + G205 / 0.15	
210						CA - Headspace Flam Gas Conc (%LFL)	31%	"= + G203 / 0.04 + G204 / 0.05 + G205 / 0.15	

Table C-1. Spreadsheet Printout (33 pages)
"!!Waste Groups-Draft-04-21-02-rev-35-mean v f data annotated temp Print version 0.xls"

	A	B	C	D	E	F	G	H	I
211						CA - Waste Category	3	"=IF (G209<1, 3, IF (G164<0.01, 2, IF (G213<3, 2, IF (G216<1, 2, 1))))	
212						CA - Tank ID	SY-102	"= + G5	
213						CA - Gamma for Energy Ratio Calc (na)	1.00	"=IF (OR (G147="A - 101", G147="AX - 101"), G167*9.806*0.001 / 101325, IF (G164>0, G167*9.806*G164 / 101325, 0.000000001))	
214						CA - Energy Ratio (Dimensionless)	193.01456	"=G180*G212*101325 / (1 - G180) / G181* ((1 + 1 / G212) *LN (1 + G212) - 1)	
215						CA - Waste Ave Specific Gravity (na)	1.18	"= (G166*G162 + G167*G164) / G161 / 1000	
216						CA - "Specific Gravity (CL)" X "NCL Depth" (in)	29.86	"= (G167 / 1000) * (G163*39.37)	
217						CA - Buoyancy Ratio (Dimensionless)	0.019	"= + W2 / (G166 - G167) * (((I192 / (G189 / 100)) *G168 / (G182*101325)) ^ (1 / 3)) *G163*G163	
218									

Table C-1. Spreadsheet Printout (33 pages)
"!!Waste Groups-Draft-04-21-02-rev-35-mean v f data annotated temp Print version 0.xls"

	J	K	L	M	N	O	P
2							
3							
4							
5		Uncertainty		Min		Max	
6							
7							
8	"=IF (I11>0.00001, K11, K9)						
9	"=VLOOKUP (G6, InData, $A9)	0.17	"= VLOOKUP (G6, InData, B9)	0.01	"= VLOOKUP (G6, InData, C9)	10.715	"= + G20
10	"=VLOOKUP (G6, InData, $A10)	0.17	"= VLOOKUP (G6, InData, B10)	0.01	"= VLOOKUP (G6, InData, C10)	10.715	"= + G20
11	"=VLOOKUP (G6, InData, $A11)	0.17	"= VLOOKUP (G6, InData, B11)	1.00E-09	"0.000000001	10.715	"= + G20
12	"=VLOOKUP (G6, InData, $A12)						
13	"=VLOOKUP (G6, InData, $A13)	7.20E+01	"= IF (VLOOKUP (G6, InData, B13) > 0, VLOOKUP (G6, InData, B13) , VLOOKUP (G6, InData, A13) *W1)	1,344.00	"= IF (VLOOKUP (G6, InData, C13) > 0, VLOOKUP (G6, InData, C13) , $I13 - 2*$K13)	1,536.00	"= IF (VLOOKUP (G6, InData, D13) > 0, VLOOKUP (G6, InData, D13) , $I13 + 2*$K13)
14	"=IF (VLOOKUP (G6, InData, $A14) >900, VLOOKUP ($G$6, InData, $A14) , 1000)	62.50	"= IF (VLOOKUP (G6, InData, B14) > 1, VLOOKUP (G6, InData, B14) , I14*W1)	1,166.67	"= IF (VLOOKUP (G6, InData, C14) > 1, VLOOKUP (G6, InData, C14) , $I14 - 2*$K14)	1,333.33	"= IF (VLOOKUP (G6, InData, D14) > 1, VLOOKUP (G6, InData, D14) , $I14 + 2*$K14)
15							
16	*Maximum Liquid Depth (TOE)*	*10.06*					
17							
18		in		m			
19	Input Depth in inches	420.00	TOE in Meters	10.67	Max Convective Depth Based on desired fill level	10.01	
20							
21	Calc'd Depth in inches	421.86	Input Depth in meters	10.72			

Table C-1. Spreadsheet Printout (33 pages)
"!!Waste Groups-Draft-04-21-02-rev-35-mean v f data annotated temp Print version 0.xls"

	J	K	L	M	N	O	P
22							
23							
24							
25							
26							
27	"=VLOOKUP (G6, InData, $A27)	0.44	"= VLOOKUP (G6, InData, $B27)	0.10	"= VLOOKUP (G6, InData, $C27)	13.19	"= IF ($G37= "dST", IF (G28 > 0.02, + G28*100, VLOOKUP (G6, InData, $D27)) , VLOOKUP ($G$6, InData, $D27))
28							
29				50.00	"= VLOOKUP (G6, InData, $A29)	500.00	"= VLOOKUP (G6, InData, $B29)
30							
31	"=VLOOKUP (G6, InData, $A31)	1.4900	"= VLOOKUP (G6, InData, $B31)	0.0001	"= VLOOKUP (G6, InData, $C31)	0.40	"= VLOOKUP (G6, InData, $D31)
32	"=VLOOKUP (G6, InData, $A32)	0.90	"= VLOOKUP (G6, InData, $B32)	0.00	"= VLOOKUP (G6, InData, $C32)	0.70	"= VLOOKUP (G6, InData, $D32)
33	"=VLOOKUP (G6, InData, $A33)	20.37	"= VLOOKUP (G6, InData, $B33)	0.00	"= VLOOKUP (G6, InData, $C33)	76.00	"= VLOOKUP (G6, InData, $D33)
34	"=VLOOKUP (G6, InData, $A34)	-	"= VLOOKUP (G6, InData, $B34)	0.01	"= VLOOKUP (G6, InData, $C34)	18.32	"= VLOOKUP (G6, InData, $D34)
35							
36							
37							
38				x	x		
39	"= + G39 + G38 + G37 + G34 + G33						
40	"=VLOOKUP (G6, InData, $A40)	1.10E-03	"= VLOOKUP (G6, InData, $B40)				
41							
42							

Table C-1. Spreadsheet Printout (33 pages)
"!!Waste Groups-Draft-04-21-02-rev-35-mean v f data annotated temp Print version 0.xls"

	J	K	L	M	N	O	P
43							
44							
45							
46							
47							
48							
49							
50							
51							
52							
53							
54							
55							
56							
57							
58							
59							
60							
61							
62							
63							

Table C-1. Spreadsheet Printout (33 pages)
"!!Waste Groups-Draft-04-21-02-rev-35-mean v f data annotated temp Print version 0.xls"

	J	K	L	M	N	O	P
64							
65							
66							
67							
68				X	X		
69							
70							
71							
72							
73							
74							
75							
76							
77							
78							
79							
80							
81	"= (+ G88 - (+ G85 - G96)) / G84*G73						
82							
83							
84		0.165	"=IF (J88>0.00001, L88, L86)				

Table C-1. Spreadsheet Printout (33 pages)
"!!Waste Groups-Draft-04-21-02-rev-35-mean v f data annotated temp Print version 0.xls"

	J	K	L	M	N	O	P
85	"=VLOOKUP (G6, InData, $A86)	0.17	"= VLOOKUP (G6, InData, B86)	0.01	"= VLOOKUP (G6, InData, C86)	11.000	"11
86	"=VLOOKUP (G6, InData, $A87)	0.17	"= VLOOKUP (G6, InData, B87)	0.01	"= VLOOKUP (G6, InData, C87)	11.000	"11
87	"=VLOOKUP (G6, InData, $A88)	0.17	"= VLOOKUP (G6, InData, B88)	1.00E-09	"0.000000001	11.000	"11
88	"=VLOOKUP (G6, InData, $A89)		"		"		"
89	"=VLOOKUP (G6, InData, $A90)	1,440.00	"= VLOOKUP (G6, InData, $A90)	1,344.00	"= IF (VLOOKUP (G6, InData, C90) > 0, VLOOKUP (G6, InData, C90) , $I90 - 2*$K90)	1,536.00	#NAME?
90	"=IF (VLOOKUP (G6, InData, $A91) >900, VLOOKUP ($G$6, InData, $A91) , 1000)	62.50	"= IF (VLOOKUP (G6, InData, B91) > 1, VLOOKUP (G6, InData, B91) , I91*0.05)	1,166.67	"= IF (VLOOKUP (G6, InData, C91) > 1, VLOOKUP (G6, InData, C91) , $I91 - 2*$K91)	1,333.33	#NAME?
91							
92							
93							
94							
95							
96							
97							
98							
99							
100							
101							
102	"=VLOOKUP (G6, InData, $A103)	0.44	"= VLOOKUP (G6, InData, $B103)	0.10	"= VLOOKUP (G6, InData, $C103)	13.19	"= IF (G7= "dST", IF (G104 > 0.02, + G104*100, VLOOKUP (G6, InData, $D103)) , VLOOKUP ($G$6, InData, $D103))
103							
104				50.00	"= VLOOKUP (G6, InData, $A105)	500.00	"= VLOOKUP (G6, InData, $B105)
105							

Table C-1. Spreadsheet Printout (33 pages)
"!!Waste Groups-Draft-04-21-02-rev-35-mean v f data annotated temp Print version 0.xls"

	J	K	L	M	N	O	P
106	'=VLOOKUP (G6, InData, $A107)	1.49	'= VLOOKUP (G6, InData, $B107)	0.00	'= VLOOKUP (G6, InData, $C107)	0.40	'= VLOOKUP (G6, InData, $D107)
107	'=VLOOKUP (G6, InData, $A108)	0.90	'= VLOOKUP (G6, InData, $B108)	0.00	'= VLOOKUP (G6, InData, $C108)	0.70	'= VLOOKUP (G6, InData, $D108)
108	'=VLOOKUP (G6, InData, $A109)	20.37	'= VLOOKUP (G6, InData, $B109)	0.00	'= VLOOKUP (G6, InData, $C109)	76.00	'= VLOOKUP (G6, InData, $D109)
109	'=VLOOKUP (G6, InData, $A110)	-	'= VLOOKUP (G6, InData, $B110)	0.01	'= VLOOKUP (G6, InData, $C110)	18.32	'= VLOOKUP (G6, InData, $D110)
110							
111							
112							
113							
114							
115	'=VLOOKUP (G6, InData, $A116)	1.10E-03	'= VLOOKUP (G6, InData, $B116)				
116							
117							
118							
119							
120							
121							
122							
123							
124							
125							
126							

Table C-1. Spreadsheet Printout (33 pages)
"!!Waste Groups-Draft-04-21-02-rev-35-mean v f data annotated temp Print version 0.xls"

	J	K	L	M	N	O	P
127							
128							
129							
130							
131							
132							
133							
134							
135							
136							
137							
138							
139							
140							
141							
142							
143							
144							
145							
146							
147							

Table C-1. Spreadsheet Printout (33 pages)
"!!Waste Groups-Draft-04-21-02-rev-35-mean v f data annotated temp Print version 0.xls"

	J	K	L	M	N	O	P
148							
149							
150							
151							
152							
153							
154							
155							
156							
157							
158							
159							
160							
161							
162	"=IF (I167>0.00001, K167, K165)						
163	"=VLOOKUP (G6, InData, $A165)	0.17	"= VLOOKUP (G6, InData, B165)	0.01	"= VLOOKUP (G6, InData, C165)	11.000	"11
164	"=VLOOKUP (G6, InData, $A166)	0.17	"= VLOOKUP (G6, InData, B166)	0.01	"= VLOOKUP (G6, InData, C166)	11.000	"11
165	"=VLOOKUP (G6, InData, $A167)	0.17	"= VLOOKUP (G6, InData, B167)	1.00E-09	"0.000000001	11.000	"11
166	"=VLOOKUP (G6, InData, $A168)						
167	"=VLOOKUP (G6, InData, $A169)	72.00	"= IF (VLOOKUP (G6, InData, B169) > 0, VLOOKUP (G6, InData, B169) , VLOOKUP (G6, InData, A169) "0.05)	1,344.00	"= IF (VLOOKUP (G6, InData, C169) > 0, VLOOKUP (G6, InData, C169) , $I169 - 2*$K169)	1,536.00	"= IF (VLOOKUP (G6, InData, D169) > 0, VLOOKUP (G6, InData, D169) , $I169 + 2*$K169)
168	"=(G11 G14 + G152"0.000009222948438635"G153) / (G11 + G152"0.000009222948438635)	62.6413286	"= IF (VLOOKUP (G6, InData, B170) > 0, VLOOKUP (G6, InData, B170) , I170*W1)	1,127.54	"= IF (I170 > 900, + I170 - 2*K170, 900)	1,378.11	"= IF (I170 > 900, + I170 + 2*K170, 1100)

Table C-1. Spreadsheet Printout (33 pages)
"!!Waste Groups-Draft-04-21-02-rev-35-mean v f data annotated temp Print version 0.xls"

	J	K	L	M	N	O	P
169							
170							
171							
172							
173							
174							
175							
176							
177							
178							
179							
180	"=VLOOKUP (G6, InData, $A182)	0.44	"= VLOOKUP (G6, InData, $B182)	0.10	"= VLOOKUP (G6, InData, $C182)	19.64	"= IF (G7= "dST", IF (G183 > 0.02, + G183*100, VLOOKUP (G8, InData, $D182)) , VLOOKUP ($G$8, InData, $D182))
181							
182				50.00	"= VLOOKUP (G6, InData, $A184)	500.00	"= VLOOKUP (G6, InData, $B184)
183							
184	"=VLOOKUP (G6, InData, $A186)	1.49	"= VLOOKUP (G6, InData, $B186)	0.00	"= VLOOKUP (G6, InData, $C186)	0.40	"= VLOOKUP (G6, InData, $D186)
185	"=VLOOKUP (G6, InData, $A187)	0.90	"= VLOOKUP (G6, InData, $B187)	0.00	"= VLOOKUP (G6, InData, $C187)	0.70	"= VLOOKUP (G6, InData, $D187)
186	"=VLOOKUP (G6, InData, $A188)	20.37	"= VLOOKUP (G6, InData, $B188)	0.00	"= VLOOKUP (G6, InData, $C188)	76.00	"= VLOOKUP (G6, InData, $D188)
187	"=VLOOKUP (G6, InData, $A189)	-	"= VLOOKUP (G6, InData, $B189)	0.01	"= VLOOKUP (G6, InData, $C189)	18.32	"= VLOOKUP (G6, InData, $D189)
188							
189							

Table C-1. Spreadsheet Printout (33 pages)
"!!Waste Groups-Draft-04-21-02-rev-35-mean v f data annotated temp Print version 0.xls"

	J	K	L	M	N	O	P
190							
191							
192							
193	"=VLOOKUP (G6, InData, $A195)	0.00	"= VLOOKUP (G6, InData, $A195)				
194							
195							
196							
197							
198							
199							
200							
201							
202							
203							
204							
205							
206							
207							
208							
209							
210							

Table C-1. Spreadsheet Printout (33 pages)
"!!Waste Groups-Draft-04-21-02-rev-35-mean v f data annotated temp Print version 0.xls"

	J	K	L	M	N	O	P
211							
212							
213							
214							
215							
216							
217							
218							

Table C-1. Spreadsheet Printout (33 pages)
"!!Waste Groups-Draft-04-21-02-rev-35-mean v f data annotated temp Print version 0.xls"

	Q	R	S	T	U	V	W	X	Y	Z
2						[redacted]		AN-103	AN-107	
3										
4						Density Constraint (kg/m³) =	1			
5	Dist Type						187			
6				Distribution	Calculated	Description	Mean	St Dev	truncate	truncate
7				Type	Value				low	high
8										
9	Normal	*Normal		Normal	0.66	Total Non-Convective Waste Depth (m)	0.655406	0.17	0.01	10.72
10	Normal	*Normal		Normal	0.66	Wetted Non-Convective Waste Depth (m)	0.655406	0.17	0.01	10.72
11	Normal	*Normal		Normal	8.88	Convective Waste Depth (m)	8.88087	0.17	0.00	10.72
12	Normal	*Normal		Normal	0.00	Crust Depth (m)	0	0.00	0.00	0.00
13	Normal	*Normal		Normal	1,440.00	Non-Convective Waste Density - High (kg/m³)	1.44E+03	72.00	1,440.00	1,536.00
14	Normal	*Normal		Normal	1,440.00	Non-Convective Waste Density - Low (kg/m³)	1.44E+03	72.00	1,344.00	1,440.00
15				Normal	1,250.00	Convective Waste Density - High (kg/m³)	1.25E+03	62.50	1,250.00	1,333.33
16				Normal	1,250.00	Convective Waste Density - Low (kg/m³)	1.25E+03	62.50	1,166.67	1,250.00
17				Uniform	0.5	Random Number 0 to 1	0.5		0	1
18										
19										
20										
21										

Table C-1. Spreadsheet Printout (33 pages)
"!!Waste Groups-Draft-04-21-02-rev-35-mean v f data annotated temp Print version 0.xls"

	Q	R	S	T	U	V	W	X	Y	Z
22										
23										
24										
25										
26										
27	LogNorm	"= VLOOKUP (G6, InData, $E29)		Normal	15.00	Void Fraction (na) (Normal)	15.0000	6.2000	0.0000	20.0000
28				LogNormal	1.7733	Void Fraction (na) (LogNormal)	1.7733	0.4354	0.1000	13.1944
29	uniform			uniform	50.00	Non-Convective Waste Yield Stress (Pa)	50.0000		50	500
30										
31	LogNorm	"= VLOOKUP (G6, InData, $E34)		Normal	15.00	headspace Gas Ratio CH4 (Normal)	1.50E+01	6.2000	0.0000	20.0000
32	LogNorm	"= VLOOKUP (G6, InData, $E36)		LogNormal	-2.12	headspace Gas Ratio CH4 (LogNorm)	-2.1200	1.4900	0.0001	0.4000
33	Normal	"= VLOOKUP (G6, InData, $E38)		Normal	15.00	headspace Gas Ratio N2O (Normal)	1.50E+01	6.2000	0.0000	20.0000
34	ContLin	"= VLOOKUP (G6, InData, $E40)		LogNormal	-1.28	headspace Gas Ratio N2O (LogNorm)	-1.2800	0.9000	0.0001	0.7000
35				Normal	29.20	retained Gas Composition N2	29.2000	20.3700	0.0001	76.0000
36										
37				Normal	15.00	retained Gas Composition NH3 (%) (Normal)	15.0000	6.2000	0.0000	20.0000
38				ContLin	15.00	retained Gas Composition NH3 (%) (contLin)	15.0000		w14:y68	
39									x11..x65	
40									x11..y65	
41				Normal	2.21E-03	HGR in NCL Waste (moles/m³/day)	2.21E-03	0.00	1.10E-03	0.0044158
42										

Table C-1. Spreadsheet Printout (33 pages)
"!!Waste Groups-Draft-04-21-02-rev-35-mean v f data annotated temp Print version 0.xls"

	Q	R	S	T	U	V	W	X	Y	Z
43										
44										
45										
46										
47										
48										
49										
50										
51										
52										
53										
54										
55										
56						Wncl Depth Criterion		1		
57										
58										
59										
60										
61										
62										
63										

Table C-1. Spreadsheet Printout (33 pages)
"!!Waste Groups-Draft-04-21-02-rev-35-mean v f data annotated temp Print version 0.xls"

	Q	R	S	T	U	V	W	X	Y	Z
64										
65										
66										
67						Headspace FG Criterion		1		
68										
69										
70										
71										
72										
73										
74										
75										
76										
77										
78										
79										
80										
81										
82						coversion factor (gallons to m)		9.22295E-06		
83						coversion factor (inches to m)		0.0254		
84										

Table C-1. Spreadsheet Printout (33 pages)
"!!Waste Groups-Draft-04-21-02-rev-35-mean v f data annotated temp Print version 0.xls"

	Q	R	S	T	U	V	W	X	Y	Z
85	Normal	"Normal								
86	Normal	"Normal								
87	Normal	"Normal								
88	Normal	"Normal								
89	Normal	"Normal								
90	Normal	"Normal								
91										
92										
93										
94										
95										
96										
97										
98										
99										
100										
101										
102	LogNorm	"= VLOOKUP (G6, InData, $E116)								
103										
104	uniform	"= VLOOKUP (G6, InData, $C118)								
105										

Table C-1. Spreadsheet Printout (33 pages)
"!!Waste Groups-Draft-04-21-02-rev-35-mean v f data annotated temp Print version 0.xls"

	Q	R	S	T	U	V	W	X	Y	Z
106	LogNorm	'= VLOOKUP (G6, InData, $E121)								
107	LogNorm	'= VLOOKUP (G6, InData, $E123)								
108	Normal	'= VLOOKUP (G6, InData, $E125)								
109	ConfLin	'= VLOOKUP (G6, InData, $E127)								
110										
111										
112										
113										
114										
115										
116										
117										
118										
119										
120										
121										
122										
123										
124										
125										
126										

Table C-1. Spreadsheet Printout (33 pages)
"!!Waste Groups-Draft-04-21-02-rev-35-mean v f data annotated temp Print version 0.xls"

	Q	R	S	T	U	V	W	X	Y	Z
127										
128										
129										
130										
131										
132										
133										
134										
135										
136										
137										
138										
139										
140										
141										
142										
143										
144										
145										
146										
147										

Table C-1. Spreadsheet Printout (33 pages)
"!!Waste Groups-Draft-04-21-02-rev-35-mean v f data annotated temp Print version 0.xls"

	Q	R	S	T	U	V	W	X	Y	Z
148										
149										
150										
151										
152										
153										
154										
155										
156										
157										
158										
159										
160										
161										
162										
163	Normal	*Normal								
164	Normal	*Normal								
165	Normal	*Normal								
166	Normal	*Normal								
167	Normal	*Normal		Normal	1,252.83	CA - Convective Waste Density - High (kg/m^3)	1.16E+03	62.64	1,252.83	1,378.11
168	Normal	*Normal		Normal	1,252.83	CA - Convective Waste Density - Low (kg/m^3)	1157.178	62.64	1,127.54	1,252.83

Table C-1. Spreadsheet Printout (33 pages)
"!!Waste Groups-Draft-04-21-02-rev-35-mean v f data annotated temp Print version 0.xls"

	O	R	S	T	U	V	W	X	Y	Z
169										
170										
171										
172										
173										
174										
175										
176										
177										
178										
179										
180	LogNorm	"= VLOOKUP ($G36, InData, $E206)								
181										
182	uniform	"= VLOOKUP ($G36, InData, $C206)								
183										
184	LogNorm	"= VLOOKUP ($G36, InData, $E211)								
185	LogNorm	"= VLOOKUP ($G36, InData, $E213)								
186	Normal	"= VLOOKUP ($G36, InData, $E215)								
187	ContLin	"= VLOOKUP ($G36, InData, $E217)								
188										
189										

Table C-1. Spreadsheet Printout (33 pages)
"!!Waste Groups-Draft-04-21-02-rev-35-mean v f data annotated temp Print version 0.xls"

	Q	R	S	T	U	V	W	X	Y	Z
190										
191										
192										
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Table C-1. Spreadsheet Printout (33 pages)
"!!Waste Groups-Draft-04-21-02-rev-35-mean v f data annotated temp Print version 0.xls"

	Q	R	S	T	U	V	W	X	Y	Z
211										
212										
213										
214										
215										
216										
217										
218										

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APPENDIX D

CALCULATION INSTRUCTIONS

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Instructions for the Monte Carlo Evaluation -- Tab MC

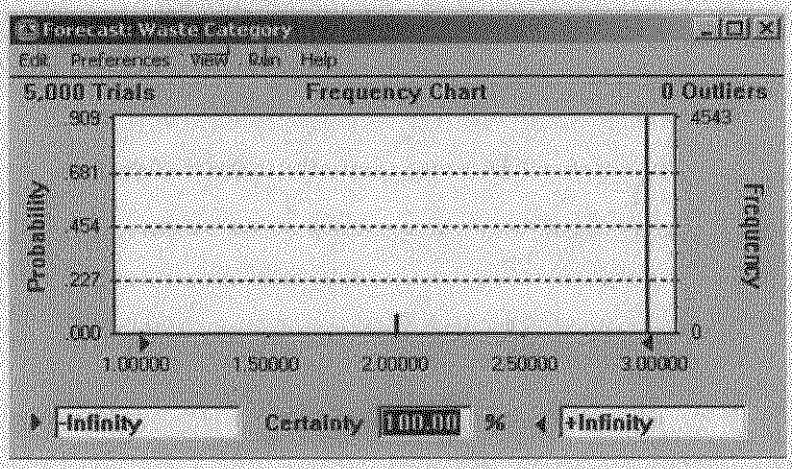
by: **SA Barker**

Step	Instruction
1	Update any data for tank on Tab "Data"
2	Enter Tank ID in cell "G6"
3	If required, Update Waste Porosity in cell "G4"
4	If required, Update Sensitivity analysis for Water Addition "Volume" in cell "G83"
5	If required, Update Sensitivity analysis for Caustic Addition "Volume" in cell "G173"
6	If required, Update Sensitivity analysis for Caustic Addition "Density" in cell "G174"
7	Copy range "O9..O48" to cell "Q9", **use special paste "values only"!!**
8	Clear Previous Crystal Ball Simulation. Use icon or the menu sequence "Run", "Reset"
9	Run Crystal Ball, 5000 iterations
10	Create the Crystal Ball Report (use the Icon or from the menu "Run" "Create Report".
11	Copy cells "K3..AF27" from "" to the newly created report in cell "K3"
12	Enter tank ID in cell "K6" in new report
13	From the Crystal Ball Graph "Forecast: Waste Category"...

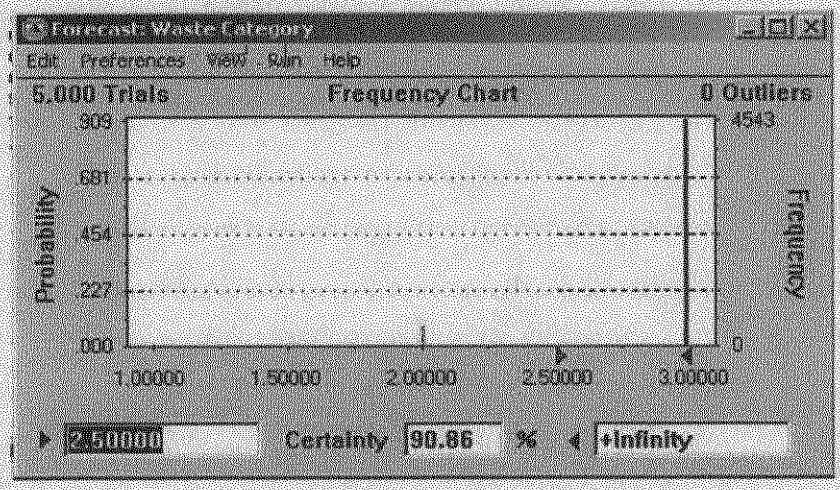
If you have problems finding the report you can use the following procedure to find it...

"Run", "Forecast Windows", "Close All Forecasts"

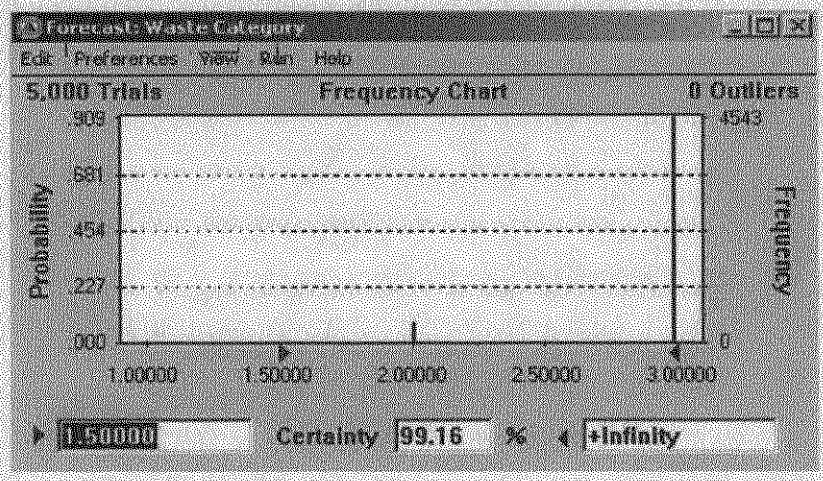
"Run", "Forecast Windows", Select the appropriate forecast(s) in the scrolling window on the left, then select "Opens Selected Forecasts".



enter 2.5 in the "CB Results graph" lower left cell and press <Enter>.



The certainty, 90.86 in this case, is now the Percent of runs for this tank that were classified as class "C". Enter this number in the Monte Carlo Report spreadsheet in cell "N26". Next enter 1.5 in the "CB Results graph" lower left cell and press <Enter>.

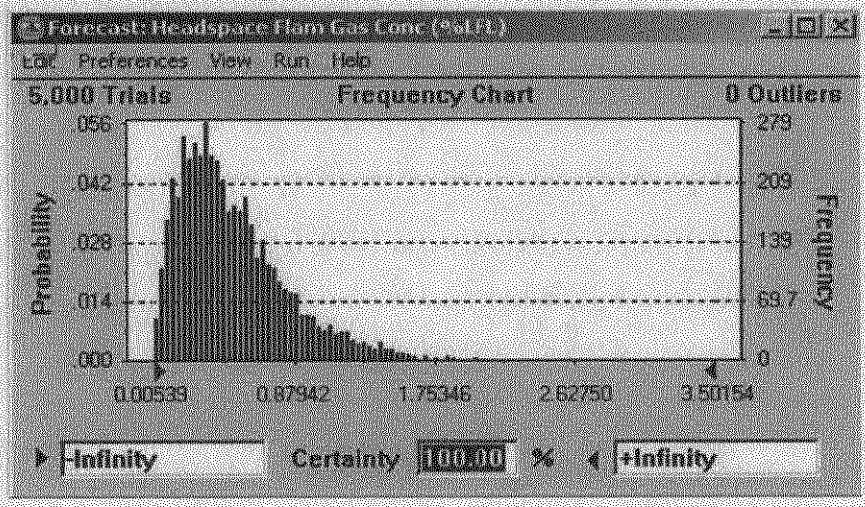


The certainty, 99.16 in this case, is now the Percent of runs for this tank that were classified as class "C" or "B". Enter this number in the Monte Carlo Report spreadsheet in cell "M26". Use a formula structured as follows --

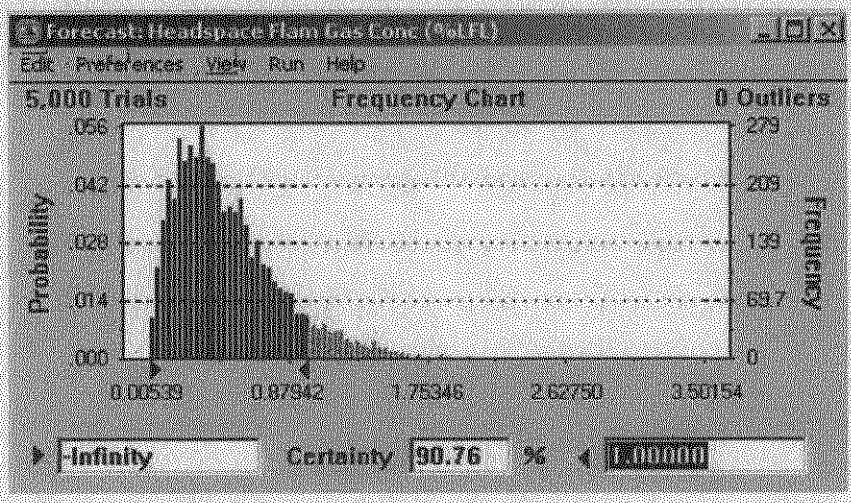
=99.16 - N26

This will calculate the Percent of runs for this tank that were classified as class "B". The formula in cell "L26" will now automatically calculate the Percent of runs for this tank that were classified as class "A", 0.84 in this case.

14 From the Crystal Ball Graph "Forecast: Headspace Flam Gas Conc"...

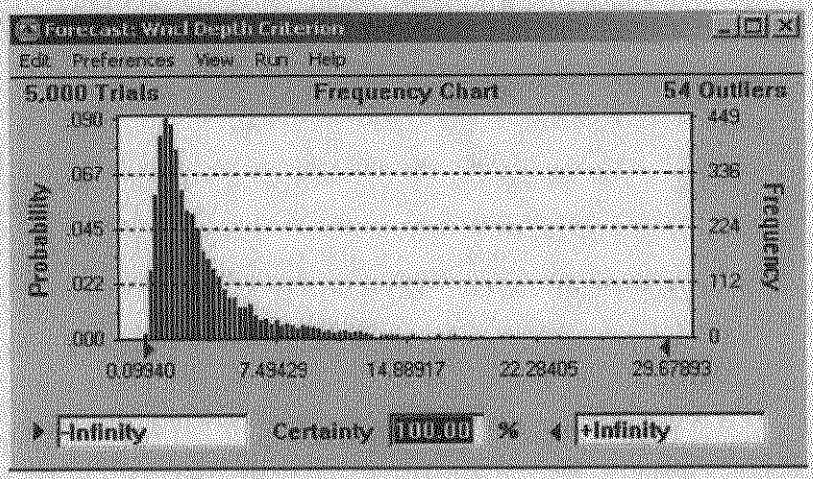


enter 1 in the "CB Results graph" lower right cell and press <Enter>.

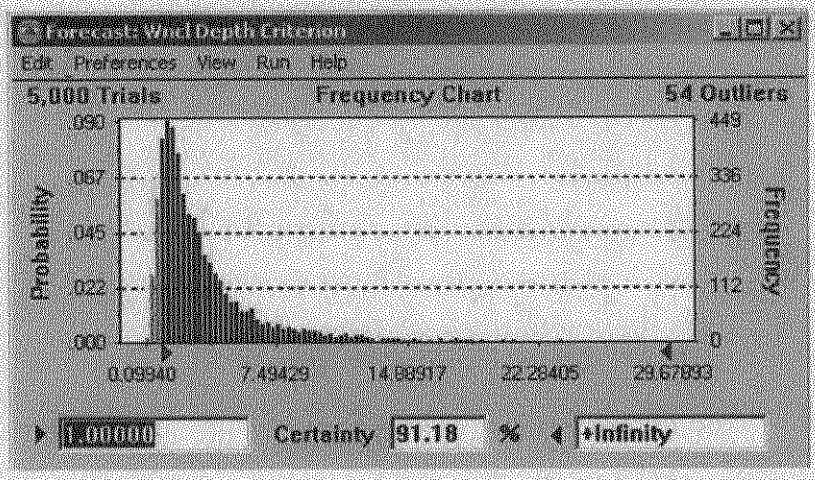


The certainty, 90.76 in this case, is now the Percent of runs for this tank that passed this criteria and are classified as class "C". Enter this number in the Monte Carlo Report spreadsheet in cell "W26".

15 From the Crystal Ball Graph "Forecast: Wncl Depth Criterion"...



enter 1 in the "CB Results graph" lower left cell and press <Enter>.



The certainty, 91.18 in this case, is now the Percent of runs for this tank that passed this criteria and are classified as class "C". Enter this number in the Monte Carlo Report spreadsheet in cell "V26".

16 Name, Save, and Close the Crystal Ball report

APPENDIX E

SAMPLE OUTPUT REPORT

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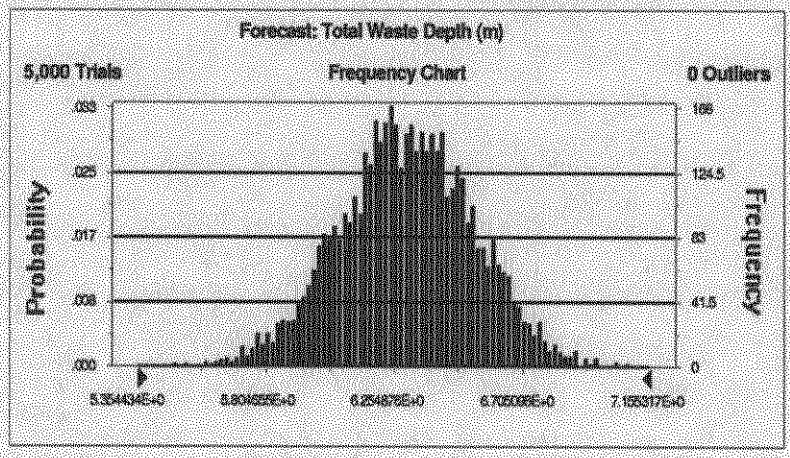
AY-102 mc report 020422 .xls

Crystal Ball Report
Simulation started on 4/22/02 at 15:52:51
Simulation stopped on 4/22/02 at 15:53:45

Forecast: Total Waste Depth (m) **Cell: G8**

Summary:
Display Range is from 5.354434E+0 to 7.155317E+0
Entire Range is from 5.354434E+0 to 7.155317E+0
After 5,000 Trials, the Std. Error of the Mean is 3.345002E-3

Statistics:	Value
Trials	5000
Mean	6.300378E+00
Median	6.301012E+00
Mode	---
Standard Deviation	2.365274E-01
Variance	5.594519E-02
Skewness	-3.872719E-02
Kurtosis	3.028611E+00
Coeff. of Variability	3.754177E-02
Range Minimum	5.354434E+00
Range Maximum	7.155317E+00
Range Width	1.800883E+00
Mean Std. Error	3.345002E-03



AY-102 mc report 020422 .xls

Forecast: Total Waste Depth (m) (cont'd) **Cell: G8**

Percentiles:

Percentile	Value
0.0%	5.354434E+00
2.5%	5.826376E+00
5.0%	5.911785E+00
50.0%	6.301012E+00
95.0%	6.681432E+00
97.5%	6.758512E+00
100.0%	7.155317E+00

End of Forecast

AY-102 mc report 020422 .xls

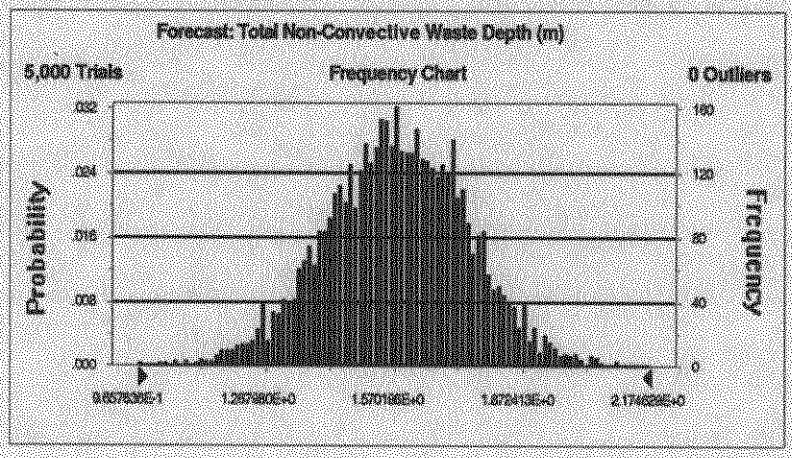
Forecast: Total Non-Convective Waste Depth (m) **Cell: G9**

Summary:

Display Range is from 9.657636E-1 to 2.174629E+0
Entire Range is from 9.657636E-1 to 2.174629E+0
After 5,000 Trials, the Std. Error of the Mean is 2.360737E-3

Statistics:

	Value
Trials	5000
Mean	1.577178E+00
Median	1.578034E+00
Mode	---
Standard Deviation	1.669293E-01
Variance	2.786540E-02
Skewness	-5.478491E-02
Kurtosis	3.028870E+00
Coeff. of Variability	1.058405E-01
Range Minimum	9.657636E-01
Range Maximum	2.174629E+00
Range Width	1.208866E+00
Mean Std. Error	2.360737E-03



AY-102 mc report 020422 .xls

Forecast: Total Non-Convective Waste Depth (m) (cont'd) **Cell: G9**

Percentiles:

Percentile	Value
0.0%	9.657636E-01
2.5%	1.248345E+00
5.0%	1.299586E+00
50.0%	1.578034E+00
95.0%	1.846985E+00
97.5%	1.898759E+00
100.0%	2.174629E+00

End of Forecast

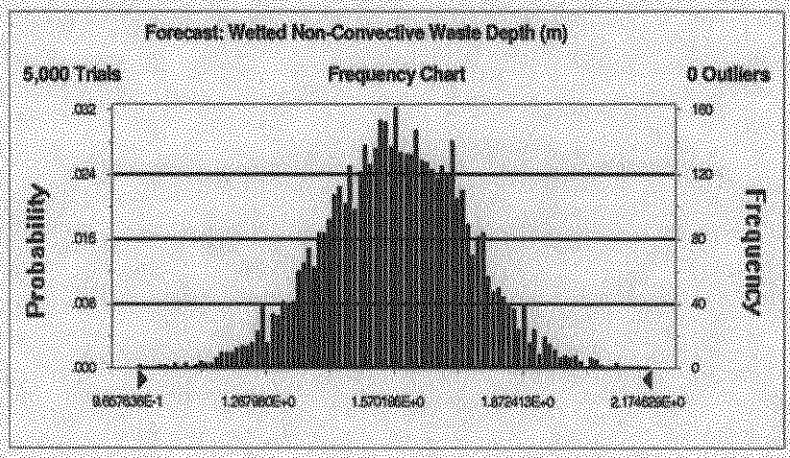
AY-102 mc report 020422 .xls

Forecast: Wetted Non-Convective Waste Depth (m) **Cell: G10**

Summary:

Display Range is from 9.657636E-1 to 2.174629E+0
Entire Range is from 9.657636E-1 to 2.174629E+0
After 5,000 Trials, the Std. Error of the Mean is 2.360737E-3

Statistics:	Value
Trials	5000
Mean	1.577178E+00
Median	1.578034E+00
Mode	---
Standard Deviation	1.669293E-01
Variance	2.786540E-02
Skewness	-5.478491E-02
Kurtosis	3.028870E+00
Coeff. of Variability	1.058405E-01
Range Minimum	9.657636E-01
Range Maximum	2.174629E+00
Range Width	1.208866E+00
Mean Std. Error	2.360737E-03



Forecast: Wetted Non-Convective Waste Depth (m) (cont'd) **Cell: G10**

Percentiles:

Percentile	Value
0.0%	9.657636E-01
2.5%	1.248345E+00
5.0%	1.299586E+00
50.0%	1.578034E+00
95.0%	1.846985E+00
97.5%	1.898759E+00
100.0%	2.174629E+00

End of Forecast

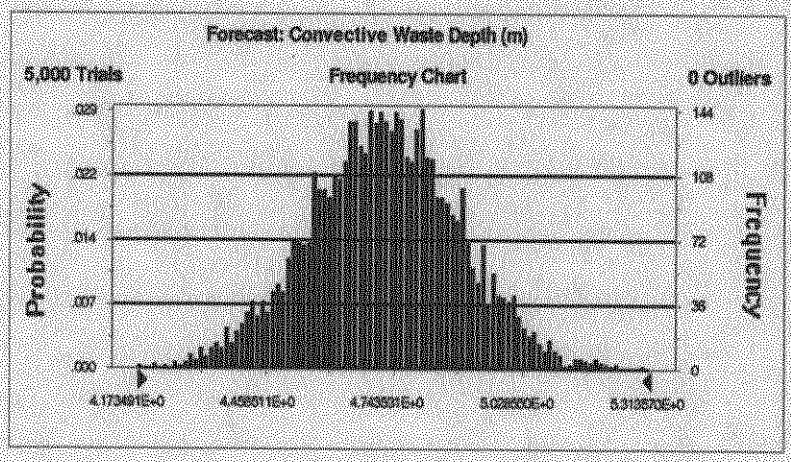
AY-102 mc report 020422 .xls

Forecast: Convective Waste Depth (m) **Cell: G11**

Summary:

Display Range is from 4.173491E+0 to 5.313570E+0
Entire Range is from 4.173491E+0 to 5.313570E+0
After 5,000 Trials, the Std. Error of the Mean is 2.369185E-3

Statistics:	Value
Trials	5000
Mean	4.723199E+00
Median	4.722643E+00
Mode	---
Standard Deviation	1.675267E-01
Variance	2.806519E-02
Skewness	3.149074E-02
Kurtosis	3.011388E+00
Coeff. of Variability	3.546890E-02
Range Minimum	4.173491E+00
Range Maximum	5.313570E+00
Range Width	1.140079E+00
Mean Std. Error	2.369185E-03



AY-102 mc report 020422 .xls

Forecast: Convective Waste Depth (m) (cont'd) **Cell: G11**

Percentiles:

Percentile	Value
0.0%	4.173491E+00
2.5%	4.391002E+00
5.0%	4.440742E+00
50.0%	4.722643E+00
95.0%	5.000140E+00
97.5%	5.051651E+00
100.0%	5.313570E+00

End of Forecast

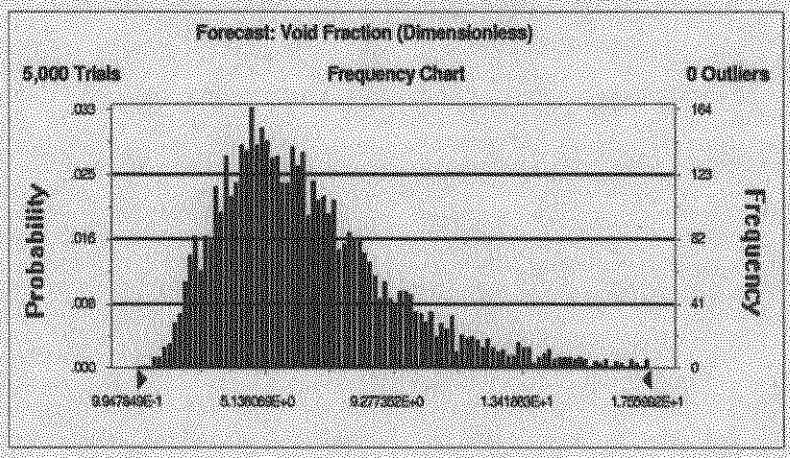
AY-102 mc report 020422 .xls

Forecast: Void Fraction (Dimensionless) **Cell: G27**

Summary:

Display Range is from 9.947849E-1 to 1.755992E+1
Entire Range is from 9.947849E-1 to 1.755992E+1
After 5,000 Trials, the Std. Error of the Mean is 3.919097E-2

Statistics:	Value
Trials	5000
Mean	6.460761E+00
Median	5.978227E+00
Mode	—
Standard Deviation	2.771220E+00
Variance	7.679661E+00
Skewness	1.024556E+00
Kurtosis	4.153574E+00
Coeff. of Variability	4.289309E-01
Range Minimum	9.947849E-01
Range Maximum	1.755992E+01
Range Width	1.656513E+01
Mean Std. Error	3.919097E-02



Forecast: Void Fraction (Dimensionless) (cont'd) **Cell: G27**

Percentiles:

Percentile	Value
0.0%	9.947849E-01
2.5%	2.550529E+00
5.0%	2.848612E+00
50.0%	5.978227E+00
95.0%	1.185415E+01
97.5%	1.354886E+01
100.0%	1.755992E+01

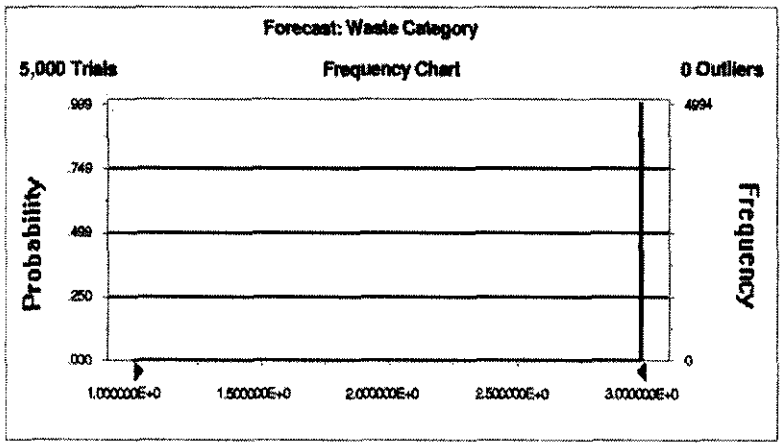
End of Forecast

AY-102 mc report 020422 .xls

Forecast: Waste Category **Cell: G59**

Summary:
Display Range is from 1.000000E+0 to 3.000000E+0
Entire Range is from 1.000000E+0 to 3.000000E+0
After 5,000 Trials, the Std. Error of the Mean is 6.925200E-4

Statistics:	Value
Trials	5000
Mean	2.998400E+00
Median	3.000000E+00
Mode	3.000000E+00
Standard Deviation	4.896856E-02
Variance	2.397920E-03
Skewness	-3.396694E+01
Kurtosis	1.247724E+03
Coeff. of Variability	1.633156E-02
Range Minimum	1.000000E+00
Range Maximum	3.000000E+00
Range Width	2.000000E+00
Mean Std. Error	6.925200E-04



Forecast: Waste Category (cont'd) **Cell: G59**

Percentiles:

Percentile	Value
0.0%	1.000000E+00
2.5%	3.000000E+00
5.0%	3.000000E+00
50.0%	3.000000E+00
95.0%	3.000000E+00
97.5%	3.000000E+00
100.0%	3.000000E+00

End of Forecast

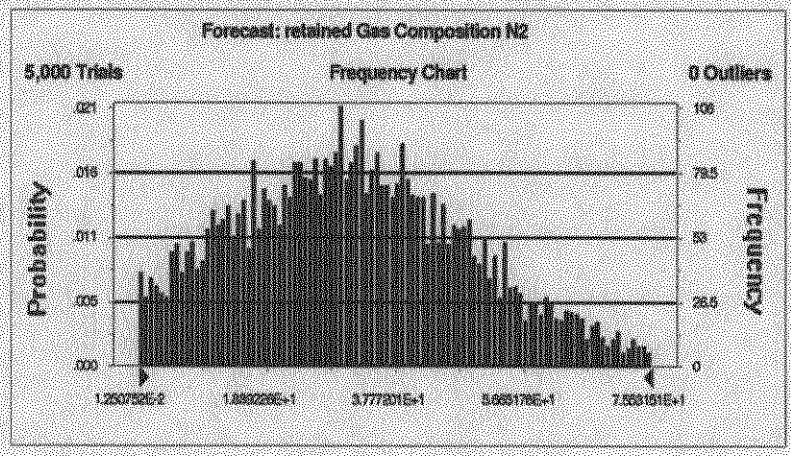
AY-102 mc report 020422 .xls

Forecast: retained Gas Composition N2 **Cell: G33**

Summary:

Display Range is from 1.250752E-2 to 7.553151E+1
Entire Range is from 1.250752E-2 to 7.553151E+1
After 5,000 Trials, the Std. Error of the Mean is 2.372139E-1

Statistics:	Value
Trials	5000
Mean	3.170035E+01
Median	3.097721E+01
Mode	---
Standard Deviation	1.677356E+01
Variance	2.813522E+02
Skewness	2.511286E-01
Kurtosis	2.437281E+00
Coeff. of Variability	5.291285E-01
Range Minimum	1.250752E-02
Range Maximum	7.553151E+01
Range Width	7.551901E+01
Mean Std. Error	2.372139E-01



AY-102 mc report 020422 .xls

Forecast: retained Gas Composition N2 (cont'd) **Cell: G33**

Percentiles:

Percentile	Value
0.0%	1.250752E-02
2.5%	2.807148E+00
5.0%	5.539169E+00
50.0%	3.097721E+01
95.0%	6.146840E+01
97.5%	6.648151E+01
100.0%	7.553151E+01

End of Forecast

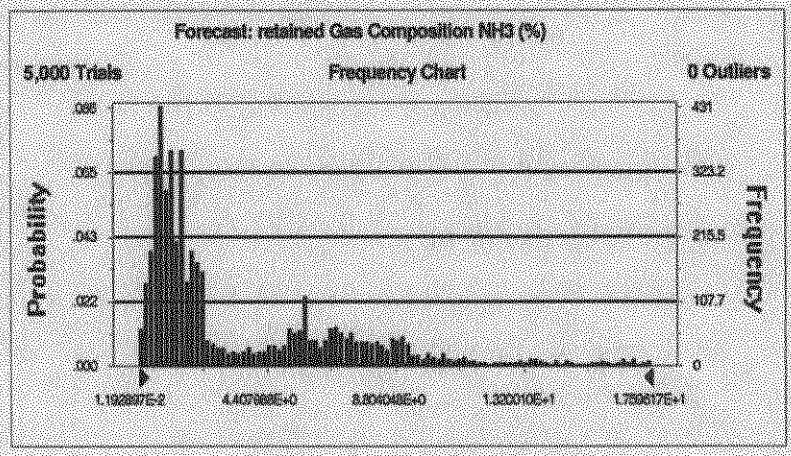
AY-102 mc report 020422 .xls

Forecast: retained Gas Composition NH3 (%) **Cell: G34**

Summary:

Display Range is from 1.192897E-2 to 1.759617E+1
Entire Range is from 1.192897E-2 to 1.759617E+1
After 5,000 Trials, the Std. Error of the Mean is 5.106011E-2

Statistics:	Value
Trials	5000
Mean	3.535408E+00
Median	1.760154E+00
Mode	---
Standard Deviation	3.610495E+00
Variance	1.303567E+01
Skewness	1.450594E+00
Kurtosis	4.687957E+00
Coeff. of Variability	1.021238E+00
Range Minimum	1.192897E-02
Range Maximum	1.759617E+01
Range Width	1.758424E+01
Mean Std. Error	5.106011E-02



Forecast: retained Gas Composition NH3 (%) (cont'd) **Cell: G34**

Percentiles:

Percentile	Value
0.0%	1.192897E-02
2.5%	3.164551E-01
5.0%	4.069008E-01
50.0%	1.760154E+00
95.0%	1.049286E+01
97.5%	1.353502E+01
100.0%	1.759617E+01

End of Forecast

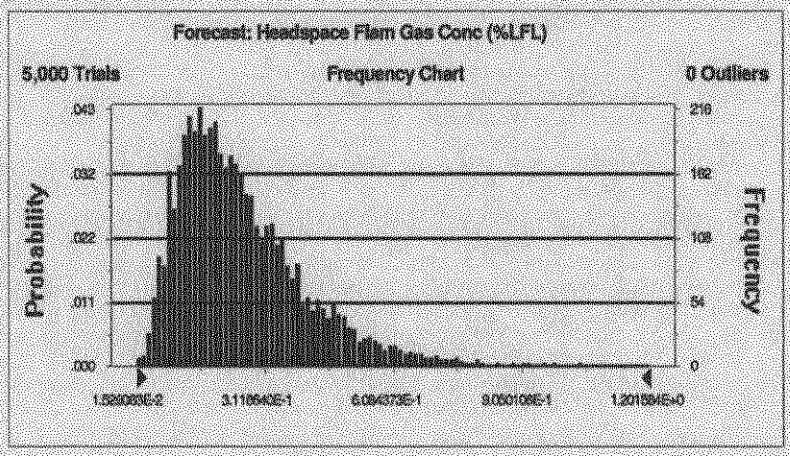
AY-102 mc report 020422 .xls

Forecast: Headspace Flam Gas Conc (%LFL) **Cell: G58**

Summary:

Display Range is from 1.529063E-2 to 1.201584E+0
Entire Range is from 1.529063E-2 to 1.201584E+0
After 5,000 Trials, the Std. Error of the Mean is 2.130271E-3

Statistics:	Value
Trials	5000
Mean	2.615282E-01
Median	2.292450E-01
Mode	---
Standard Deviation	1.506329E-01
Variance	2.269026E-02
Skewness	1.357656E+00
Kurtosis	5.698608E+00
Coeff. of Variability	5.759719E-01
Range Minimum	1.529064E-02
Range Maximum	1.201584E+00
Range Width	1.186293E+00
Mean Std. Error	2.130271E-03



Forecast: Headspace Flam Gas Conc (%LFL) (cont'd) **Cell: G58**

Percentiles:

Percentile	Value
0.0%	1.529064E-02
2.5%	6.608034E-02
5.0%	8.350796E-02
50.0%	2.292450E-01
95.0%	5.508396E-01
97.5%	6.430139E-01
100.0%	1.201584E+00

End of Forecast

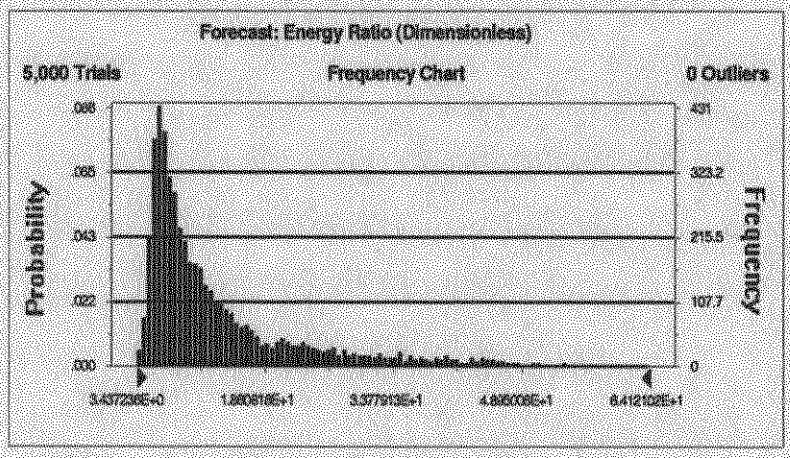
AY-102 mc report 020422 .xls

Forecast: Energy Ratio (Dimensionless) **Cell: G62**

Summary:

Display Range is from 3.437236E+0 to 6.412102E+1
Entire Range is from 3.437236E+0 to 6.412102E+1
After 5,000 Trials, the Std. Error of the Mean is 1.392594E-1

Statistics:	Value
Trials	5000
Mean	1.315303E+01
Median	9.352151E+00
Mode	---
Standard Deviation	9.847124E+00
Variance	9.696586E+01
Skewness	1.931530E+00
Kurtosis	6.617107E+00
Coeff. of Variability	7.486581E-01
Range Minimum	3.437236E+00
Range Maximum	6.412102E+01
Range Width	6.068379E+01
Mean Std. Error	1.392594E-01



Forecast: Energy Ratio (Dimensionless) (cont'd) **Cell: G62**

Percentiles:

Percentile	Value
0.0%	3.437236E+00
2.5%	4.750552E+00
5.0%	5.104291E+00
50.0%	9.352151E+00
95.0%	3.603891E+01
97.5%	4.290956E+01
100.0%	6.412102E+01

End of Forecast

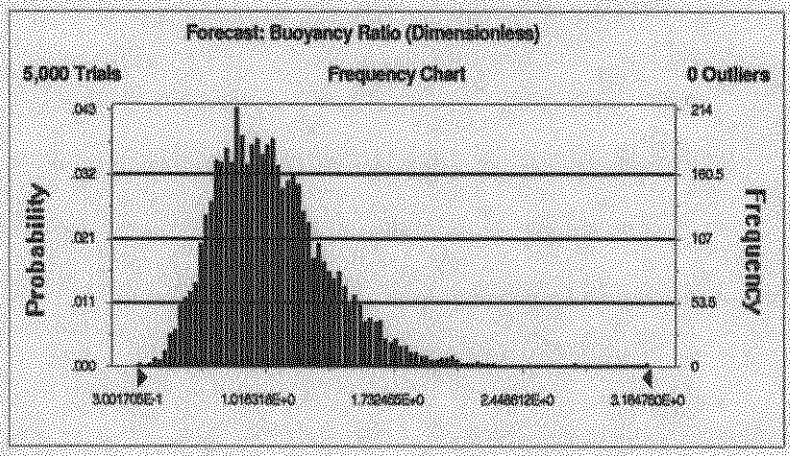
AY-102 mc report 020422 .xls

Forecast: Buoyancy Ratio (Dimensionless) **Cell: G65**

Summary:

Display Range is from 3.001705E-1 to 3.164760E+0
Entire Range is from 3.001705E-1 to 3.164760E+0
After 5,000 Trials, the Std. Error of the Mean is 4.599121E-3

Statistics:	Value
Trials	5000
Mean	1.057492E+00
Median	1.015665E+00
Mode	---
Standard Deviation	3.252069E-01
Variance	1.057595E-01
Skewness	9.270969E-01
Kurtosis	4.743387E+00
Coeff. of Variability	3.075266E-01
Range Minimum	3.001705E-01
Range Maximum	3.164760E+00
Range Width	2.864589E+00
Mean Std. Error	4.599121E-03



Forecast: Buoyancy Ratio (Dimensionless) (cont'd) **Cell: G65**

Percentiles:

Percentile	Value
0.0%	3.001705E-01
2.5%	5.491175E-01
5.0%	6.125733E-01
50.0%	1.015665E+00
95.0%	1.646889E+00
97.5%	1.795880E+00
100.0%	3.164760E+00

End of Forecast

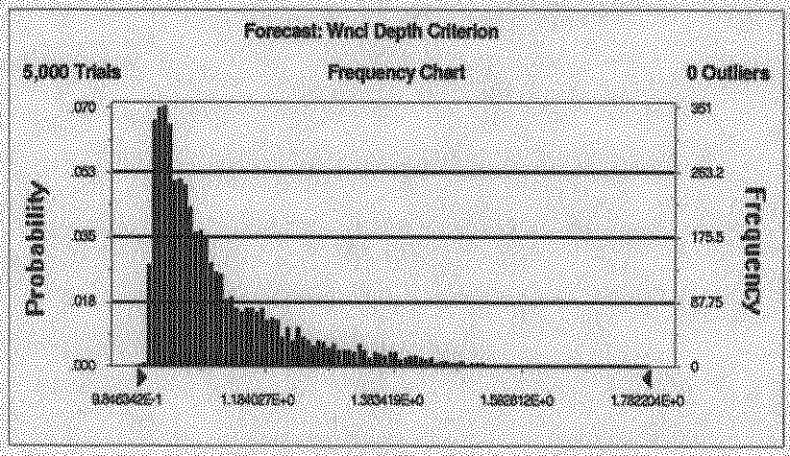
AY-102 mc report 020422 .xls

Forecast: Wncl Depth Criterion **Cell: G47**

Summary:

Display Range is from 9.846342E-1 to 1.782204E+0
Entire Range is from 9.846342E-1 to 1.782204E+0
After 5,000 Trials, the Std. Error of the Mean is 1.491397E-3

Statistics:	Value
Trials	5000
Mean	1.110450E+00
Median	1.074405E+00
Mode	---
Standard Deviation	1.054577E-01
Variance	1.112133E-02
Skewness	1.657017E+00
Kurtosis	6.009730E+00
Coeff. of Variability	9.496841E-02
Range Minimum	9.846342E-01
Range Maximum	1.782204E+00
Range Width	7.975700E-01
Mean Std. Error	1.491397E-03



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Forecast: Wncl Depth Criterion (cont'd) **Cell: G47**

Percentiles:

Percentile	Value
0.0%	9.846342E-01
2.5%	1.007996E+00
5.0%	1.011118E+00
50.0%	1.074405E+00
95.0%	1.337881E+00
97.5%	1.399655E+00
100.0%	1.782204E+00

End of Forecast

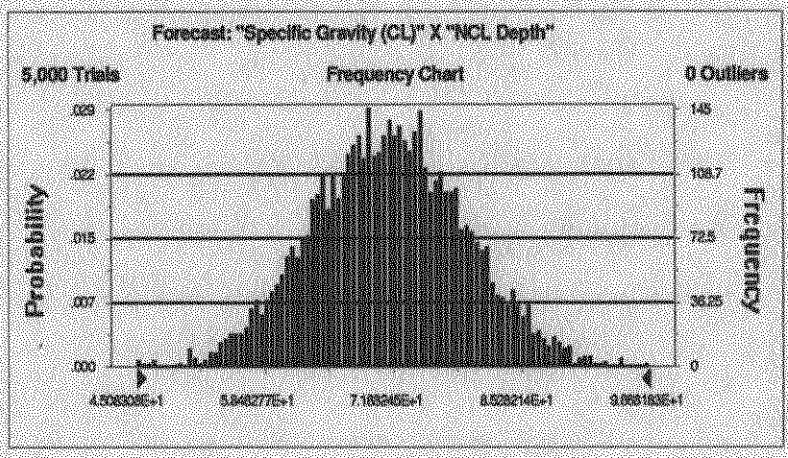
AY-102 mc report 020422 .xls

Forecast: "Specific Gravity (CL)" X "NCL Depth" **Cell: G64**

Summary:

Display Range is from 4.508308E+1 to 9.868183E+1
Entire Range is from 4.508308E+1 to 9.868183E+1
After 5,000 Trials, the Std. Error of the Mean is 1.130690E-1

Statistics:	Value
Trials	5000
Mean	7.142483E+01
Median	7.144392E+01
Mode	---
Standard Deviation	7.995192E+00
Variance	6.392309E+01
Skewness	2.356021E-03
Kurtosis	2.946095E+00
Coeff. of Variability	1.119386E-01
Range Minimum	4.508308E+01
Range Maximum	9.868183E+01
Range Width	5.359874E+01
Mean Std. Error	1.130691E-01



Forecast: "Specific Gravity (CL)" X "NCL Depth" (cont'd) **Cell: G64**

Percentiles:

Percentile	Value
0.0%	4.508308E+01
2.5%	5.589887E+01
5.0%	5.829549E+01
50.0%	7.144392E+01
95.0%	8.471224E+01
97.5%	8.699356E+01
100.0%	9.868183E+01

End of Forecast

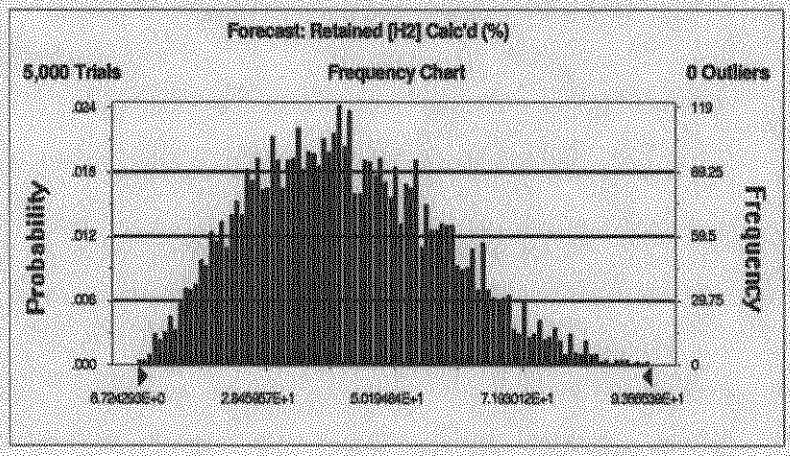
AY-102 mc report 020422 .xls

Forecast: Retained [H2] Calc'd (%) **Cell: G37**

Summary:

Display Range is from 6.724293E+0 to 9.366539E+1
Entire Range is from 6.724293E+0 to 9.366539E+1
After 5,000 Trials, the Std. Error of the Mean is 2.245526E-1

Statistics:	Value
Trials	5000
Mean	4.189702E+01
Median	4.097255E+01
Mode	---
Standard Deviation	1.587827E+01
Variance	2.521194E+02
Skewness	2.917192E-01
Kurtosis	2.542001E+00
Coeff. of Variability	3.789833E-01
Range Minimum	6.724293E+00
Range Maximum	9.366539E+01
Range Width	8.694110E+01
Mean Std. Error	2.245526E-01



AY-102 mc report 020422 .xls

Forecast: Retained [H2] Calc'd (%) (cont'd) **Cell: G37**

Percentiles:

Percentile	Value
0.0%	6.724293E+00
2.5%	1.493131E+01
5.0%	1.756688E+01
50.0%	4.097255E+01
95.0%	6.935769E+01
97.5%	7.483335E+01
100.0%	9.366539E+01

End of Forecast

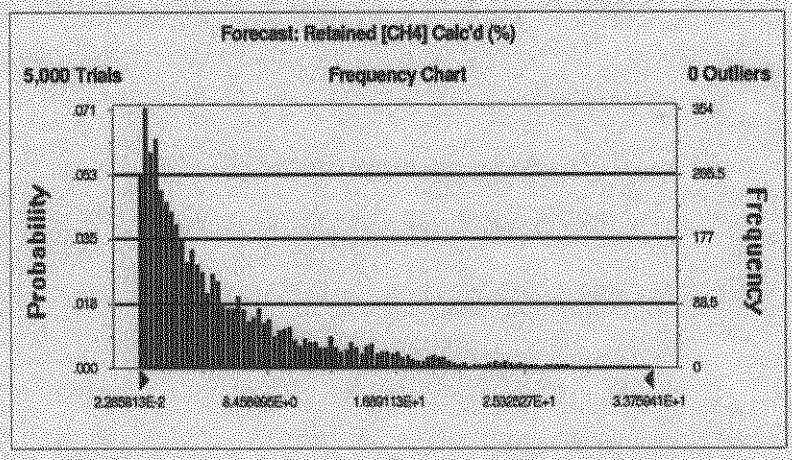
AY-102 mc report 020422 .xls

Forecast: Retained [CH4] Calc'd (%) **Cell: G38**

Summary:

Display Range is from 2.285813E-2 to 3.375941E+1
Entire Range is from 2.285813E-2 to 3.375941E+1
After 5,000 Trials, the Std. Error of the Mean is 7.773840E-2

Statistics:	Value
Trials	5000
Mean	5.467129E+00
Median	3.561370E+00
Mode	---
Standard Deviation	5.496935E+00
Variance	3.021629E+01
Skewness	1.596500E+00
Kurtosis	5.515036E+00
Coeff. of Variability	1.005452E+00
Range Minimum	2.285813E-02
Range Maximum	3.375941E+01
Range Width	3.373655E+01
Mean Std. Error	7.773840E-02



AY-102 mc report 020422 .xls

Forecast: Retained [CH4] Calc'd (%) (cont'd) **Cell: G38**

Percentiles:

Percentile	Value
0.0%	2.285813E-02
2.5%	2.263522E-01
5.0%	3.491497E-01
50.0%	3.561370E+00
95.0%	1.698324E+01
97.5%	2.013836E+01
100.0%	3.375941E+01

End of Forecast

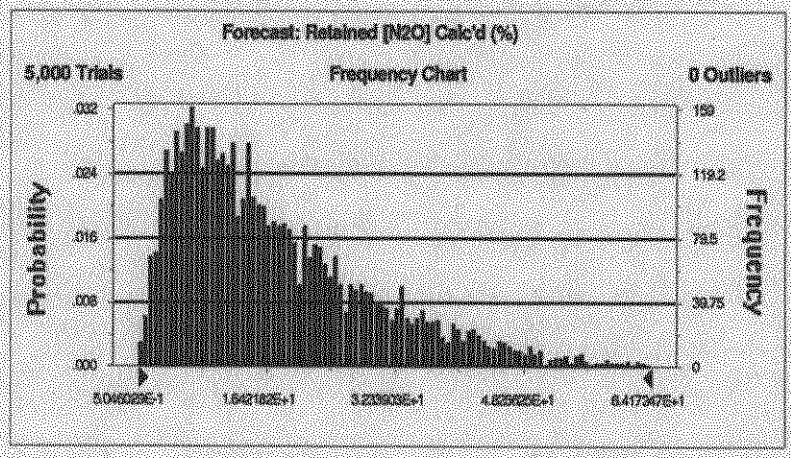
AY-102 mc report 020422 .xls

Forecast: Retained [N2O] Calc'd (%) **Cell: G39**

Summary:

Display Range is from 5.046029E-1 to 6.417347E+1
Entire Range is from 5.046029E-1 to 6.417347E+1
After 5,000 Trials, the Std. Error of the Mean is 1.694663E-1

Statistics:	Value
Trials	5000
Mean	1.740010E+01
Median	1.437389E+01
Mode	---
Standard Deviation	1.198307E+01
Variance	1.435941E+02
Skewness	1.053029E+00
Kurtosis	3.702945E+00
Coeff. of Variability	6.886786E-01
Range Minimum	5.046029E-01
Range Maximum	6.417347E+01
Range Width	6.366886E+01
Mean Std. Error	1.694663E-01



AY-102 mc report 020422 .xls

Forecast: Retained [N2O] Calc'd (%) (cont'd) **Cell: G39**

Percentiles:

Percentile	Value
0.0%	5.046029E-01
2.5%	2.511754E+00
5.0%	3.502906E+00
50.0%	1.437389E+01
95.0%	4.175480E+01
97.5%	4.678089E+01
100.0%	6.417347E+01

End of Forecast

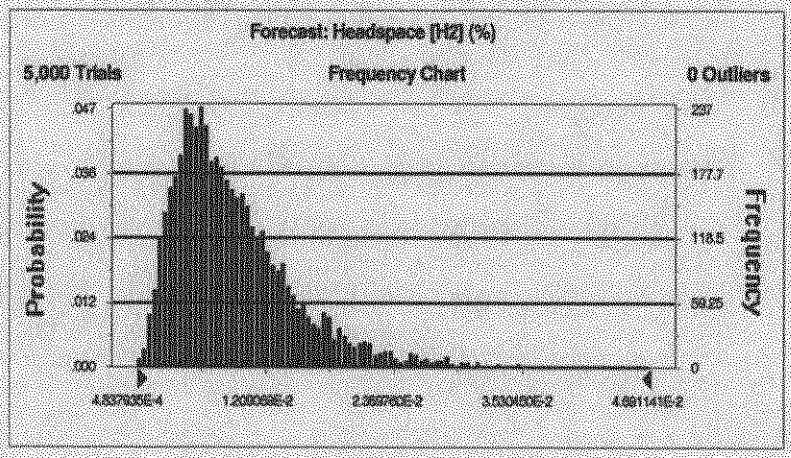
AY-102 mc report 020422 .xls

Forecast: Headspace [H2] (%) **Cell: G52**

Summary:

Display Range is from 4.837935E-4 to 4.691141E-2
Entire Range is from 4.837935E-4 to 4.691141E-2
After 5,000 Trials, the Std. Error of the Mean is 7.830735E-5

Statistics:	Value
Trials	5000
Mean	9.279357E-03
Median	8.036897E-03
Mode	---
Standard Deviation	5.537166E-03
Variance	3.066021E-05
Skewness	1.420917E+00
Kurtosis	6.007092E+00
Coeff. of Variability	5.967187E-01
Range Minimum	4.837935E-04
Range Maximum	4.691141E-02
Range Width	4.642761E-02
Mean Std. Error	7.830735E-05



AY-102 mc report 020422 .xls

Forecast: Headspace [H2] (%) (cont'd) **Cell: G52**

Percentiles:

Percentile	Value
0.0%	4.837935E-04
2.5%	2.208415E-03
5.0%	2.771539E-03
50.0%	8.036897E-03
95.0%	2.004220E-02
97.5%	2.334778E-02
100.0%	4.691141E-02

End of Forecast

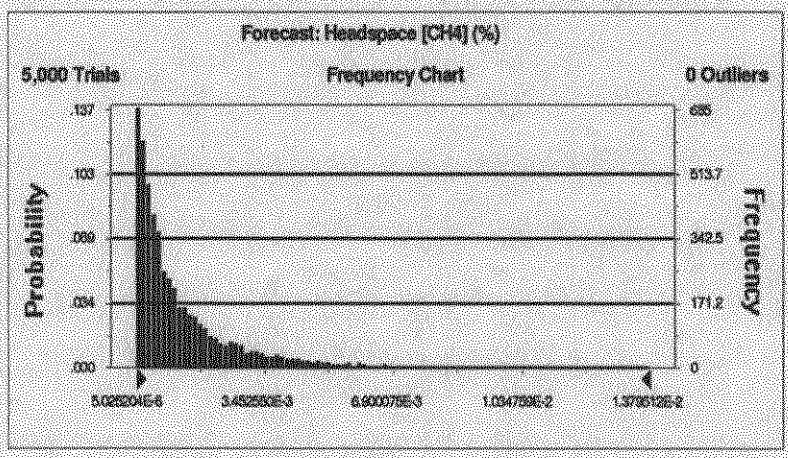
AY-102 mc report 020422 .xls

Forecast: Headspace [CH4] (%) **Cell: G53**

Summary:

Display Range is from 5.025204E-6 to 1.379512E-2
Entire Range is from 5.025204E-6 to 1.379512E-2
After 5,000 Trials, the Std. Error of the Mean is 2.023842E-5

Statistics:	Value
Trials	5000
Mean	1.213631E-03
Median	6.896263E-04
Mode	---
Standard Deviation	1.431073E-03
Variance	2.047969E-06
Skewness	2.512413E+00
Kurtosis	1.237447E+01
Coeff. of Variability	1.179166E+00
Range Minimum	5.025204E-06
Range Maximum	1.379512E-02
Range Width	1.379010E-02
Mean Std. Error	2.023842E-05



AY-102 mc report 020422 .xls

Forecast: Headspace [CH4] (%) (cont'd) **Cell: G53**

Percentiles:

Percentile	Value
0.0%	5.025204E-06
2.5%	4.145406E-05
5.0%	6.447876E-05
50.0%	6.896263E-04
95.0%	4.098967E-03
97.5%	5.139785E-03
100.0%	1.379512E-02

End of Forecast

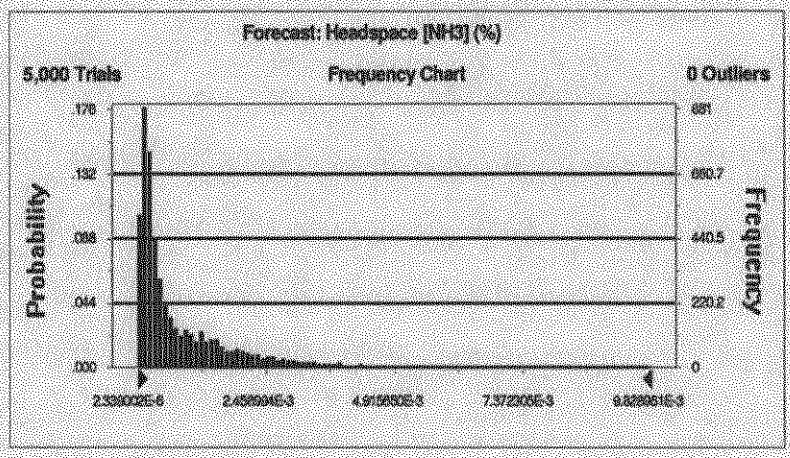
AY-102 mc report 020422 .xls

Forecast: Headspace [NH3] (%) **Cell: G54**

Summary:

Display Range is from 2.339002E-6 to 9.828961E-3
Entire Range is from 2.339002E-6 to 9.828961E-3
After 5,000 Trials, the Std. Error of the Mean is 1.338044E-5

Statistics:	Value
Trials	5000
Mean	7.907445E-04
Median	3.762830E-04
Mode	---
Standard Deviation	9.461406E-04
Variance	8.951821E-07
Skewness	2.364881E+00
Kurtosis	1.107627E+01
Coeff. of Variability	1.196519E+00
Range Minimum	2.339002E-06
Range Maximum	9.828961E-03
Range Width	9.826622E-03
Mean Std. Error	1.338045E-05



AY-102 mc report 020422 .xls

Forecast: Headspace [NH3] (%) (cont'd) **Cell: G54**

Percentiles:

Percentile	Value
0.0%	2.339002E-06
2.5%	5.158267E-05
5.0%	6.982449E-05
50.0%	3.762830E-04
95.0%	2.724365E-03
97.5%	3.329183E-03
100.0%	9.828961E-03

End of Forecast

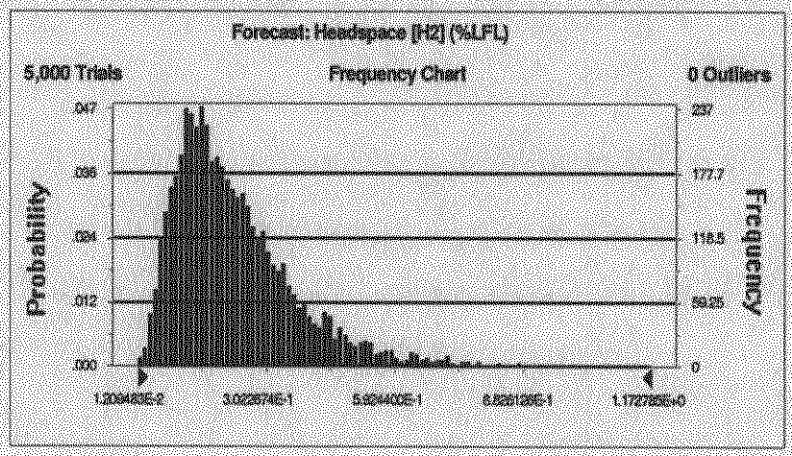
AY-102 mc report 020422 .xls

Forecast: Headspace [H2] (%LFL) **Cell: G55**

Summary:

Display Range is from 1.209483E-2 to 1.172785E+0
Entire Range is from 1.209483E-2 to 1.172785E+0
After 5,000 Trials, the Std. Error of the Mean is 1.957684E-3

Statistics:	Value
Trials	5000
Mean	2.319839E-01
Median	2.009224E-01
Mode	—
Standard Deviation	1.384291E-01
Variance	1.916263E-02
Skewness	1.420917E+00
Kurtosis	6.007092E+00
Coeff. of Variability	5.967187E-01
Range Minimum	1.209484E-02
Range Maximum	1.172785E+00
Range Width	1.160690E+00
Mean Std. Error	1.957684E-03



AY-102 mc report 020422 .xls

Forecast: Headspace [H2] (%LFL) (cont'd) **Cell: G55**

Percentiles:

Percentile	Value
0.0%	1.209484E-02
2.5%	5.521038E-02
5.0%	6.928848E-02
50.0%	2.009224E-01
95.0%	5.010549E-01
97.5%	5.836945E-01
100.0%	1.172785E+00

End of Forecast

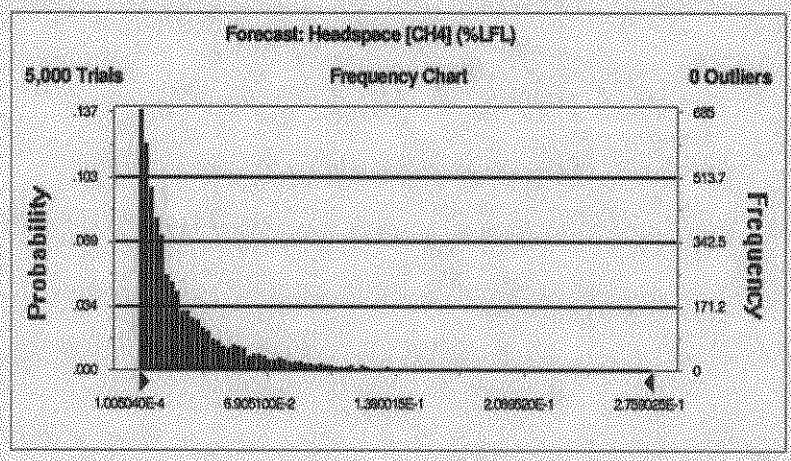
AY-102 mc report 020422 .xls

Forecast: Headspace [CH4] (%LFL) **Cell: G56**

Summary:

Display Range is from 1.005040E-4 to 2.759025E-1
Entire Range is from 1.005040E-4 to 2.759025E-1
After 5,000 Trials, the Std. Error of the Mean is 4.047685E-4

Statistics:	Value
Trials	5000
Mean	2.427263E-02
Median	1.379253E-02
Mode	---
Standard Deviation	2.862145E-02
Variance	8.191875E-04
Skewness	2.512413E+00
Kurtosis	1.237447E+01
Coeff. of Variability	1.179166E+00
Range Minimum	1.005041E-04
Range Maximum	2.759025E-01
Range Width	2.758020E-01
Mean Std. Error	4.047685E-04



AY-102 mc report 020422 .xls

Forecast: Headspace [CH4] (%LFL) (cont'd) **Cell: G56**

Percentiles:

Percentile	Value
0.0%	1.005041E-04
2.5%	8.290811E-04
5.0%	1.289575E-03
50.0%	1.379253E-02
95.0%	8.197934E-02
97.5%	1.027957E-01
100.0%	2.759025E-01

End of Forecast

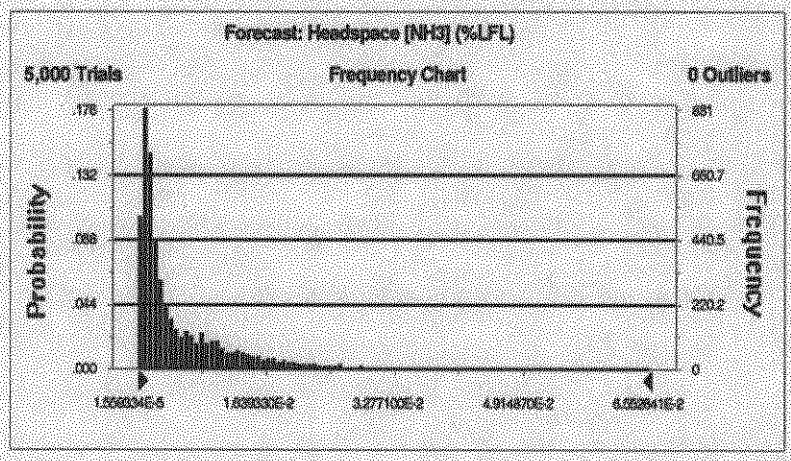
AY-102 mc report 020422 .xls

Forecast: Headspace [NH3] (%LFL) **Cell: G57**

Summary:

Display Range is from 1.559334E-5 to 6.552641E-2
Entire Range is from 1.559334E-5 to 6.552641E-2
After 5,000 Trials, the Std. Error of the Mean is 8.920299E-5

Statistics:	Value
Trials	5000
Mean	5.271630E-03
Median	2.508553E-03
Mode	---
Standard Deviation	6.307604E-03
Variance	3.978587E-05
Skewness	2.364881E+00
Kurtosis	1.107627E+01
Coeff. of Variability	1.196519E+00
Range Minimum	1.559334E-05
Range Maximum	6.552641E-02
Range Width	6.551081E-02
Mean Std. Error	8.920299E-05



AY-102 mc report 020422 .xls

Forecast: Headspace [NH3] (%LFL) (cont'd) **Cell: G57**

Percentiles:

Percentile	Value
0.0%	1.559334E-05
2.5%	3.438845E-04
5.0%	4.654966E-04
50.0%	2.508553E-03
95.0%	1.816243E-02
97.5%	2.219455E-02
100.0%	6.552641E-02

End of Forecast

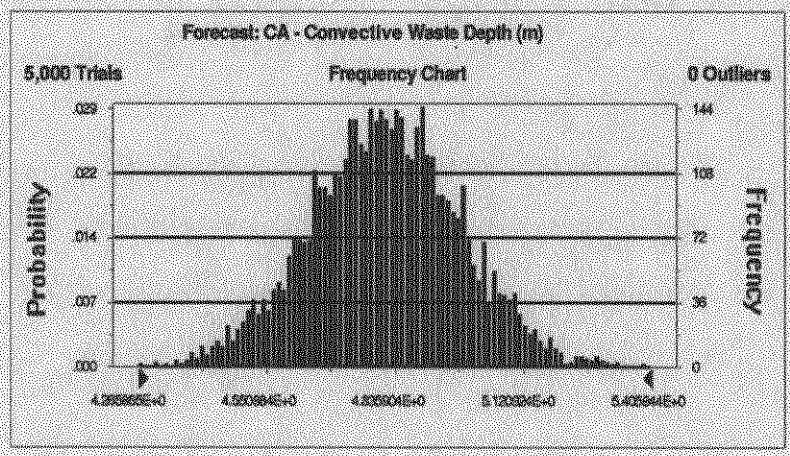
AY-102 mc report 020422 .xls

Forecast: CA - Convective Waste Depth (m) **Cell: G170**

Summary:

Display Range is from 4.265865E+0 to 5.405944E+0
Entire Range is from 4.265865E+0 to 5.405944E+0
After 5,000 Trials, the Std. Error of the Mean is 2.369185E-3

Statistics:	Value
Trials	5000
Mean	4.815573E+00
Median	4.815017E+00
Mode	---
Standard Deviation	1.675267E-01
Variance	2.806519E-02
Skewness	3.149074E-02
Kurtosis	3.011388E+00
Coeff. of Variability	3.478852E-02
Range Minimum	4.265865E+00
Range Maximum	5.405944E+00
Range Width	1.140079E+00
Mean Std. Error	2.369185E-03



AY-102 mc report 020422 .xls

Forecast: CA - Convective Waste Depth (m) (cont'd) **Cell: G170**

Percentiles:

Percentile	Value
0.0%	4.265865E+00
2.5%	4.483376E+00
5.0%	4.533116E+00
50.0%	4.815017E+00
95.0%	5.092513E+00
97.5%	5.144025E+00
100.0%	5.405944E+00

End of Forecast

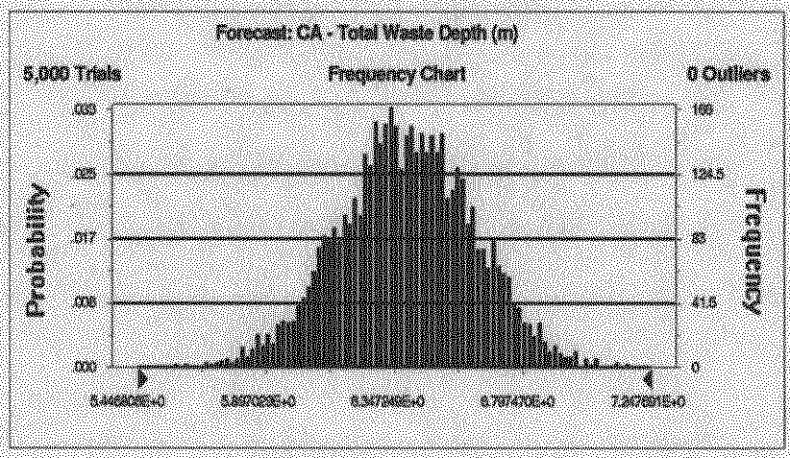
AY-102 mc report 020422 .xls

Forecast: CA - Total Waste Depth (m) **Cell: G167**

Summary:

Display Range is from 5.446808E+0 to 7.247691E+0
Entire Range is from 5.446808E+0 to 7.247691E+0
After 5,000 Trials, the Std. Error of the Mean is 3.345002E-3

Statistics:	Value
Trials	5000
Mean	6.392751E+00
Median	6.393386E+00
Mode	---
Standard Deviation	2.365274E-01
Variance	5.594519E-02
Skewness	-3.872719E-02
Kurtosis	3.028611E+00
Coeff. of Variability	3.699930E-02
Range Minimum	5.446808E+00
Range Maximum	7.247691E+00
Range Width	1.800883E+00
Mean Std. Error	3.345002E-03



Forecast: CA - Total Waste Depth (m) (cont'd) **Cell: G167**

Percentiles:

Percentile	Value
0.0%	5.446808E+00
2.5%	5.918750E+00
5.0%	6.004159E+00
50.0%	6.393386E+00
95.0%	6.773806E+00
97.5%	6.850885E+00
100.0%	7.247691E+00

End of Forecast

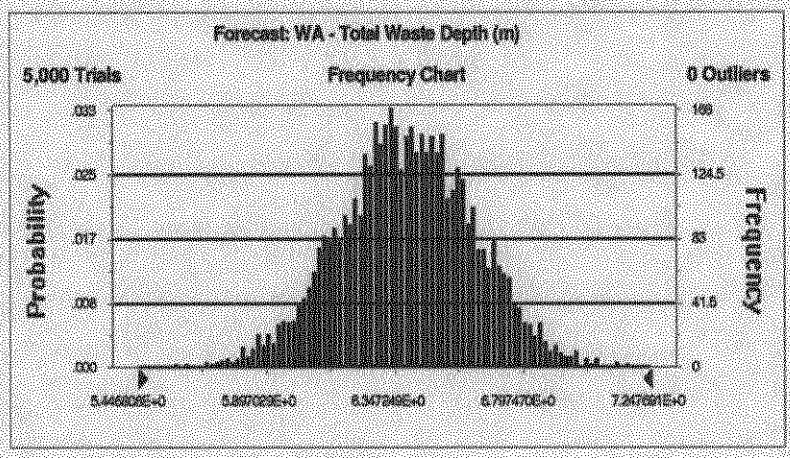
AY-102 mc report 020422 .xls

Forecast: WA - Total Waste Depth (m) **Cell: G85**

Summary:

Display Range is from 5.446808E+0 to 7.247691E+0
Entire Range is from 5.446808E+0 to 7.247691E+0
After 5,000 Trials, the Std. Error of the Mean is 3.345002E-3

Statistics:	Value
Trials	5000
Mean	6.392751E+00
Median	6.393386E+00
Mode	---
Standard Deviation	2.365274E-01
Variance	5.594519E-02
Skewness	-3.872719E-02
Kurtosis	3.028611E+00
Coeff. of Variability	3.699930E-02
Range Minimum	5.446808E+00
Range Maximum	7.247691E+00
Range Width	1.800883E+00
Mean Std. Error	3.345002E-03



Forecast: WA - Total Waste Depth (m) (cont'd) **Cell: G85**

Percentiles:

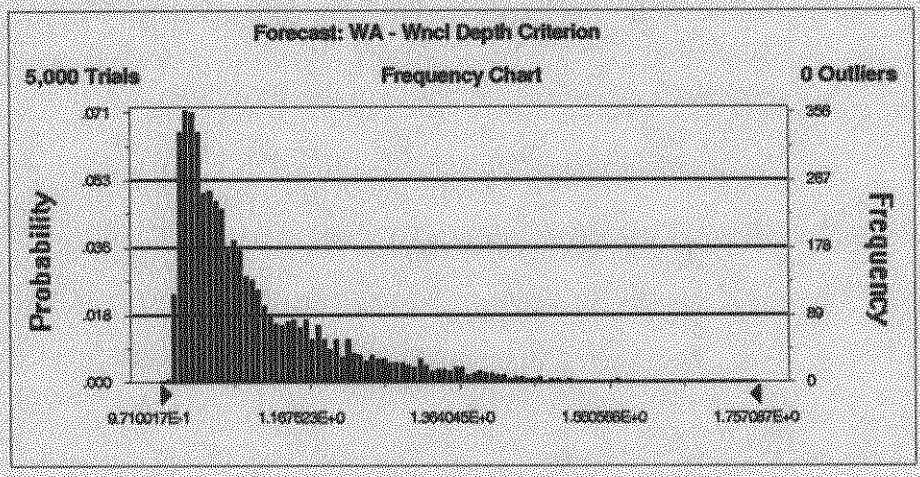
Percentile	Value
0.0%	5.446808E+00
2.5%	5.918750E+00
5.0%	6.004159E+00
50.0%	6.393386E+00
95.0%	6.773806E+00
97.5%	6.850885E+00
100.0%	7.247691E+00

End of Forecast

Forecast: WA - Wncl Depth Criterion **Cell: G126**

Summary:
Display Range is from 9.710017E-1 to 1.757087E+0
Entire Range is from 9.710017E-1 to 1.757087E+0
After 5,000 Trials, the Std. Error of the Mean is 1.469520E-3

Statistics:	Value
Trials	5000
Mean	1.095445E+00
Median	1.060035E+00
Mode	---
Standard Deviation	1.039108E-01
Variance	1.079745E-02
Skewness	1.658553E+00
Kurtosis	6.016762E+00
Coeff. of Variability	9.485710E-02
Range Minimum	9.710017E-01
Range Maximum	1.757087E+00
Range Width	7.860857E-01
Mean Std. Error	1.469520E-03



Forecast: WA - Wncl Depth Criterion (cont'd) **Cell: G126**

Percentiles:

Percentile	Value
0.0%	9.710017E-01
2.5%	9.946060E-01
5.0%	9.975495E-01
50.0%	1.060035E+00
95.0%	1.319456E+00
97.5%	1.379843E+00
100.0%	1.757087E+00

End of Forecast

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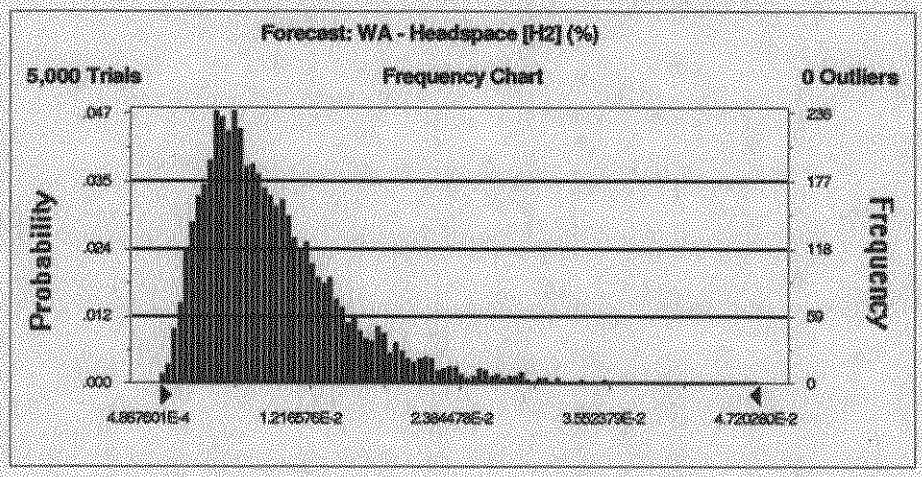
Forecast: WA - Headspace [H2] (%) **Cell: G131**

Summary:

Display Range is from 4.867601E-4 to 4.720280E-2
Entire Range is from 4.867601E-4 to 4.720280E-2
After 5,000 Trials, the Std. Error of the Mean is 7.879887E-5

Statistics:	Value
Trials	5000
Mean	9.337760E-03
Median	8.087794E-03
Mode	---
Standard Deviation	5.571921E-03
Variance	3.104631E-05
Skewness	1.420843E+00
Kurtosis	6.006610E+00
Coeff. of Variability	5.967085E-01
Range Minimum	4.867601E-04
Range Maximum	4.720280E-02
Range Width	4.671604E-02
Mean Std. Error	7.879887E-05



Forecast: WA - Headspace [H2] (%) (cont'd) **Cell: G131**

Percentiles:

Percentile	Value
0.0%	4.867601E-04
2.5%	2.221989E-03
5.0%	2.789253E-03
50.0%	8.087794E-03
95.0%	2.016615E-02
97.5%	2.349155E-02
100.0%	4.720280E-02

End of Forecast

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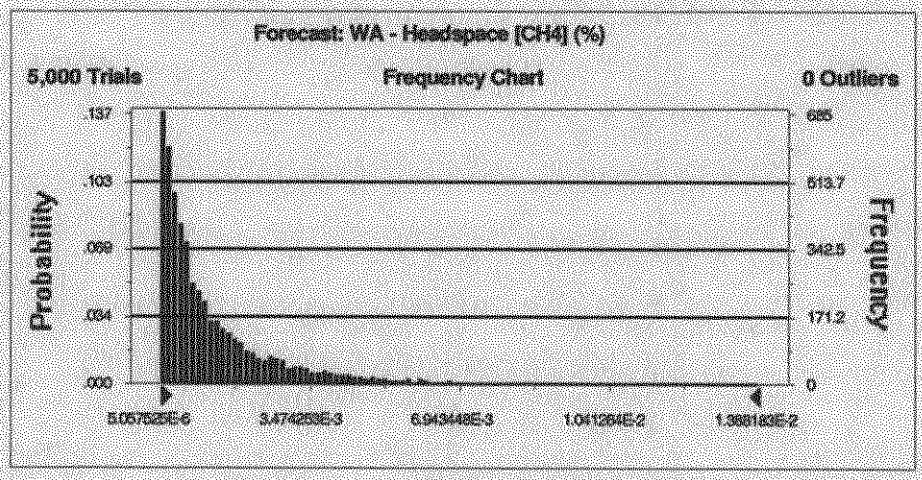
Forecast: WA - Headspace [CH4] (%) **Cell: G132**

Summary:

Display Range is from 5.057525E-6 to 1.388183E-2
Entire Range is from 5.057525E-6 to 1.388183E-2
After 5,000 Trials, the Std. Error of the Mean is 2.036573E-5

Statistics:	Value
Trials	5000
Mean	1.221269E-03
Median	6.940731E-04
Mode	---
Standard Deviation	1.440075E-03
Variance	2.073815E-06
Skewness	2.512444E+00
Kurtosis	1.237472E+01
Coeff. of Variability	1.179162E+00
Range Minimum	5.057525E-06
Range Maximum	1.388184E-02
Range Width	1.387678E-02
Mean Std. Error	2.036573E-05



Forecast: WA - Headspace [CH4] (%) (cont'd) **Cell: G132**

Percentiles:

Percentile	Value
0.0%	5.057525E-06
2.5%	4.171315E-05
5.0%	6.487739E-05
50.0%	6.940731E-04
95.0%	4.125120E-03
97.5%	5.173127E-03
100.0%	1.388184E-02

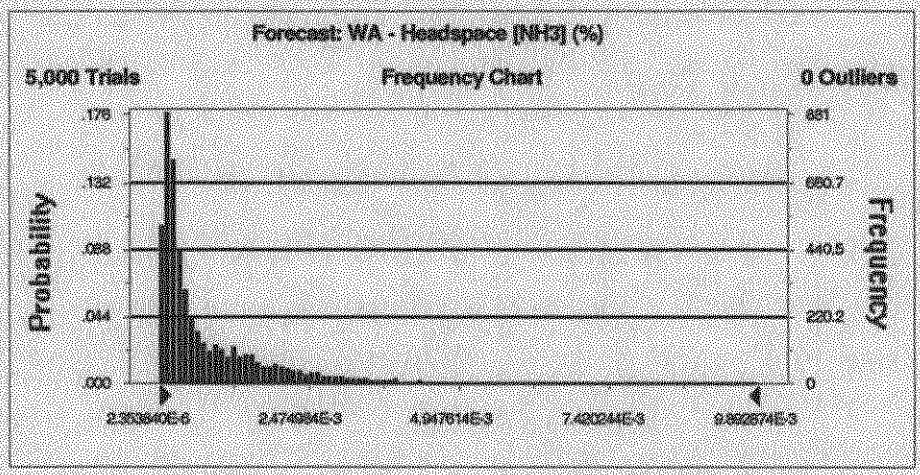
End of Forecast

Forecast: WA - Headspace [NH3] (%) **Cell: G133**

Summary:

Display Range is from 2.353840E-6 to 9.892874E-3
Entire Range is from 2.353840E-6 to 9.892874E-3
After 5,000 Trials, the Std. Error of the Mean is 1.346476E-5

Statistics:	Value
Trials	5000
Mean	7.957239E-04
Median	3.786606E-04
Mode	---
Standard Deviation	9.521024E-04
Variance	9.064990E-07
Skewness	2.364982E+00
Kurtosis	1.107765E+01
Coeff. of Variability	1.196524E+00
Range Minimum	2.353840E-06
Range Maximum	9.892874E-03
Range Width	9.890520E-03
Mean Std. Error	1.346476E-05



Forecast: WA - Headspace [NH3] (%) (cont'd) **Cell: G133**

Percentiles:

Percentile	Value
0.0%	2.353840E-06
2.5%	5.192769E-05
5.0%	7.027381E-05
50.0%	3.786606E-04
95.0%	2.741130E-03
97.5%	3.350719E-03
100.0%	9.892874E-03

End of Forecast

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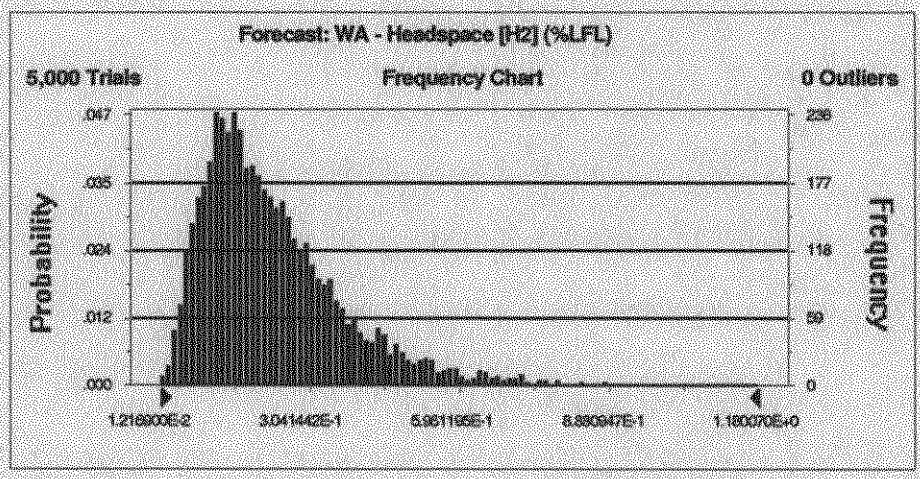
Forecast: WA - Headspace [H2] (%LFL) **Cell: G134**

Summary:

Display Range is from 1.216900E-2 to 1.180070E+0
Entire Range is from 1.216900E-2 to 1.180070E+0
After 5,000 Trials, the Std. Error of the Mean is 1.969972E-3

Statistics:	Value
Trials	5000
Mean	2.334440E-01
Median	2.021948E-01
Mode	---
Standard Deviation	1.392980E-01
Variance	1.940394E-02
Skewness	1.420843E+00
Kurtosis	6.006610E+00
Coeff. of Variability	5.967085E-01
Range Minimum	1.216900E-02
Range Maximum	1.180070E+00
Range Width	1.167901E+00
Mean Std. Error	1.969972E-03



Forecast: WA - Headspace [H2] (%LFL) (cont'd) **Cell: G134**

Percentiles:

Percentile	Value
0.0%	1.216900E-02
2.5%	5.554972E-02
5.0%	6.973134E-02
50.0%	2.021948E-01
95.0%	5.041537E-01
97.5%	5.872888E-01
100.0%	1.180070E+00

End of Forecast

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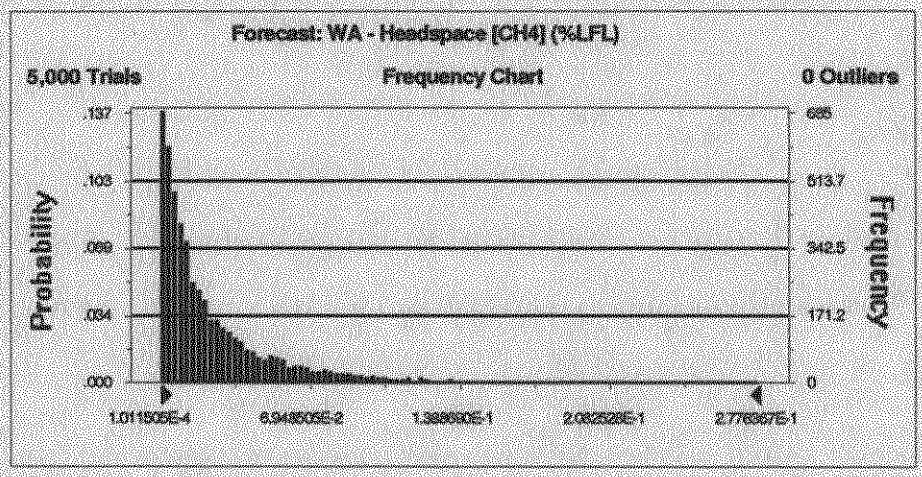
Forecast: WA - Headspace [CH4] (%LFL) **Cell: G135**

Summary:

Display Range is from 1.011505E-4 to 2.776367E-1
Entire Range is from 1.011505E-4 to 2.776367E-1
After 5,000 Trials, the Std. Error of the Mean is 4.073146E-4

Statistics:	Value
Trials	5000
Mean	2.442539E-02
Median	1.388146E-02
Mode	---
Standard Deviation	2.880149E-02
Variance	8.295259E-04
Skewness	2.512444E+00
Kurtosis	1.237472E+01
Coeff. of Variability	1.179162E+00
Range Minimum	1.011505E-04
Range Maximum	2.776367E-01
Range Width	2.775356E-01
Mean Std. Error	4.073146E-04



Forecast: WA - Headspace [CH4] (%LFL) (cont'd) **Cell: G135**

Percentiles:

Percentile	Value
0.0%	1.011505E-04
2.5%	8.342630E-04
5.0%	1.297548E-03
50.0%	1.388146E-02
95.0%	8.250241E-02
97.5%	1.034625E-01
100.0%	2.776367E-01

End of Forecast

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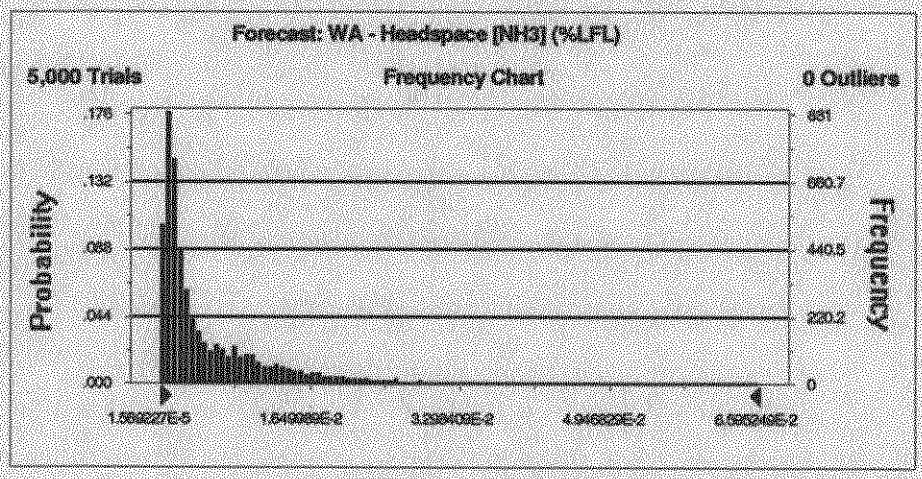
Forecast: WA - Headspace [NH3] (%LFL) **Cell: G136**

Summary:

Display Range is from 1.569227E-5 to 6.595249E-2
Entire Range is from 1.569227E-5 to 6.595249E-2
After 5,000 Trials, the Std. Error of the Mean is 8.976508E-5

Statistics:	Value
Trials	5000
Mean	5.304826E-03
Median	2.524404E-03
Mode	---
Standard Deviation	6.347350E-03
Variance	4.028885E-05
Skewness	2.364982E+00
Kurtosis	1.107765E+01
Coeff. of Variability	1.196524E+00
Range Minimum	1.569227E-05
Range Maximum	6.595249E-02
Range Width	6.593680E-02
Mean Std. Error	8.976508E-05



Forecast: WA - Headspace [NH3] (%LFL) (cont'd) **Cell: G136**

Percentiles:

Percentile	Value
0.0%	1.569227E-05
2.5%	3.461846E-04
5.0%	4.684921E-04
50.0%	2.524404E-03
95.0%	1.827420E-02
97.5%	2.233813E-02
100.0%	6.595249E-02

End of Forecast

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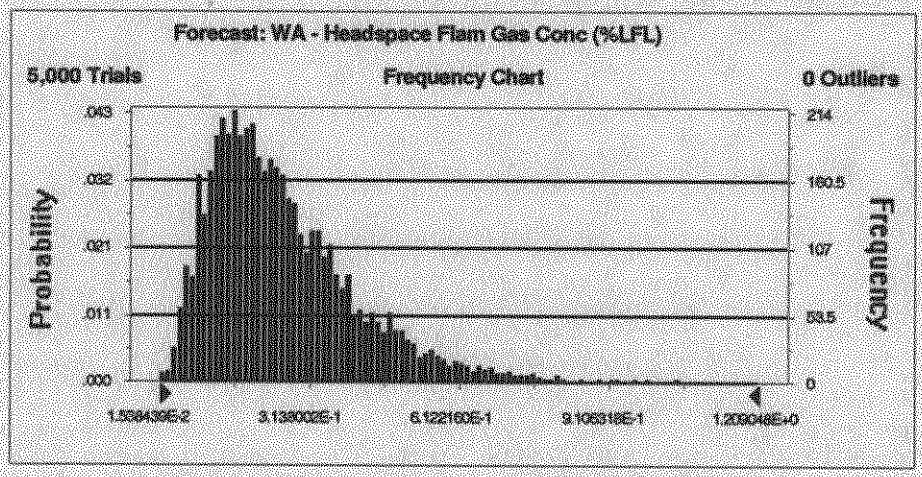
Forecast: WA - Headspace Flam Gas Conc (%LFL) **Cell: G137**

Summary:

Display Range is from 1.538439E-2 to 1.209048E+0
Entire Range is from 1.538439E-2 to 1.209048E+0
After 5,000 Trials, the Std. Error of the Mean is 2.143640E-3

Statistics:	Value
Trials	5000
Mean	2.631742E-01
Median	2.306730E-01
Mode	---
Standard Deviation	1.515783E-01
Variance	2.297597E-02
Skewness	1.357579E+00
Kurtosis	5.688105E+00
Coeff. of Variability	5.759617E-01
Range Minimum	1.538440E-02
Range Maximum	1.209048E+00
Range Width	1.193663E+00
Mean Std. Error	2.143640E-03



Forecast: WA - Headspace Flam Gas Conc (%LFL) (cont'd) **Cell: G137**

Percentiles:

Percentile	Value
0.0%	1.538440E-02
2.5%	6.650266E-02
5.0%	8.403103E-02
50.0%	2.306730E-01
95.0%	5.543411E-01
97.5%	6.471054E-01
100.0%	1.209048E+00

End of Forecast

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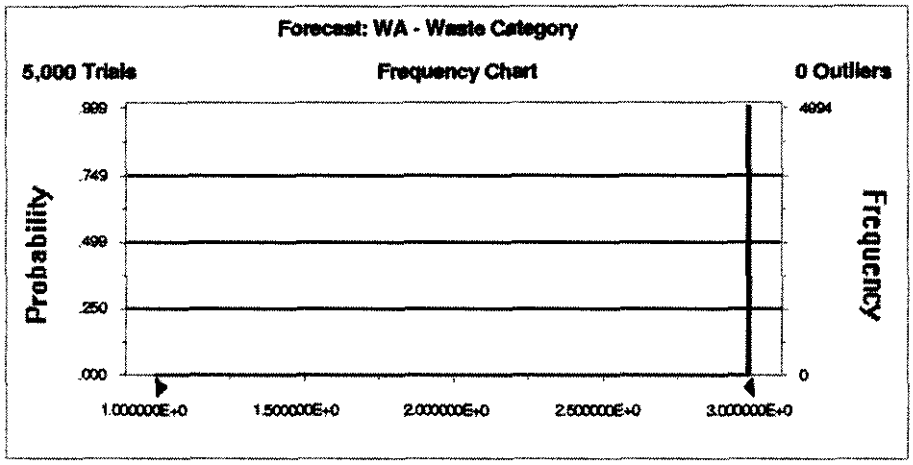
Forecast: WA - Waste Category **Cell: G138**

Summary:
Display Range is from 1.000000E+0 to 3.000000E+0
Entire Range is from 1.000000E+0 to 3.000000E+0
After 5,000 Trials, the Std. Error of the Mean is 6.925200E-4

Statistics:	Value
Trials	5000
Mean	2.998400E+00
Median	3.000000E+00
Mode	3.000000E+00
Standard Deviation	4.896856E-02
Variance	2.397920E-03
Skewness	-3.396694E+01
Kurtosis	1.247724E+03
Coeff. of Variability	1.633156E-02
Range Minimum	1.000000E+00
Range Maximum	3.000000E+00
Range Width	2.000000E+00
Mean Std. Error	6.925200E-04



Forecast: WA - Waste Category (cont'd) **Cell: G138**

Percentiles:

Percentile	Value
0.0%	1.000000E+00
2.5%	3.000000E+00
5.0%	3.000000E+00
50.0%	3.000000E+00
95.0%	3.000000E+00
97.5%	3.000000E+00
100.0%	3.000000E+00

End of Forecast

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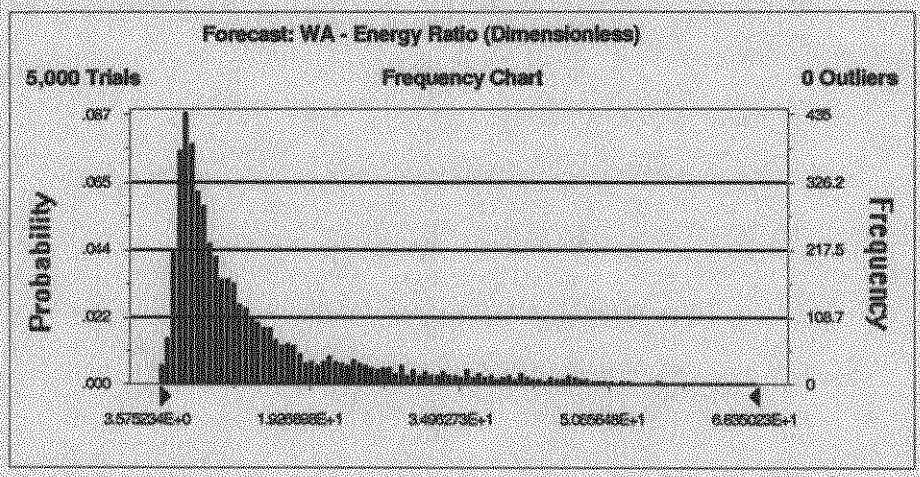
Forecast: WA - Energy Ratio (Dimensionless) **Cell: G141**

Summary:

Display Range is from 3.575234E+0 to 6.635023E+1
Entire Range is from 3.575234E+0 to 6.635023E+1
After 5,000 Trials, the Std. Error of the Mean is 1.443439E-1

Statistics:	Value
Trials	5000
Mean	1.363691E+01
Median	9.713406E+00
Mode	---
Standard Deviation	1.020666E+01
Variance	1.041758E+02
Skewness	1.930579E+00
Kurtosis	6.609519E+00
Coeff. of Variability	7.484582E-01
Range Minimum	3.575234E+00
Range Maximum	6.635023E+01
Range Width	6.277500E+01
Mean Std. Error	1.443439E-01



Forecast: WA - Energy Ratio (Dimensionless) (cont'd) **Cell: G141**

Percentiles:

Percentile	Value
0.0%	3.575234E+00
2.5%	4.931562E+00
5.0%	5.295935E+00
50.0%	9.713406E+00
95.0%	3.727649E+01
97.5%	4.450119E+01
100.0%	6.635023E+01

End of Forecast

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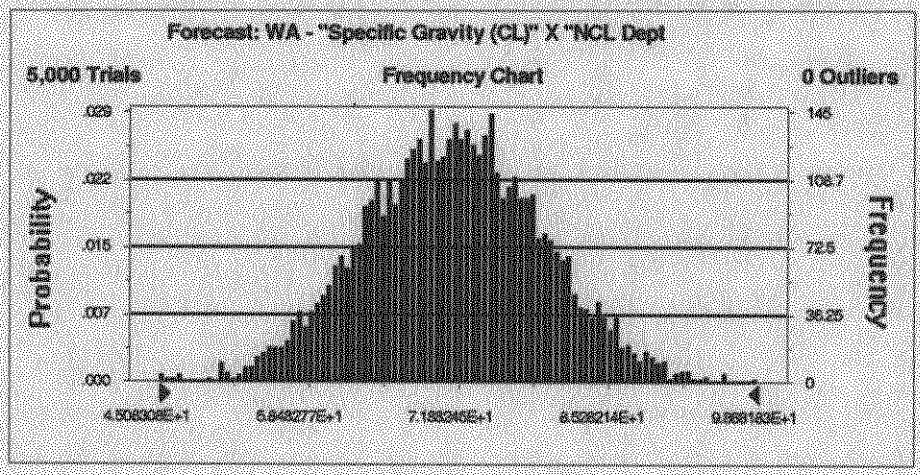
Forecast: WA - "Specific Gravity (CL)" X "NCL Dept **Cell: G143**

Summary:

Display Range is from 4.508308E+1 to 9.868183E+1
Entire Range is from 4.508308E+1 to 9.868183E+1
After 5,000 Trials, the Std. Error of the Mean is 1.130690E-1

Statistics:	Value
Trials	5000
Mean	7.142483E+01
Median	7.144392E+01
Mode	---
Standard Deviation	7.995192E+00
Variance	6.392309E+01
Skewness	2.356021E-03
Kurtosis	2.946095E+00
Coeff. of Variability	1.119386E-01
Range Minimum	4.508308E+01
Range Maximum	9.868183E+01
Range Width	5.359874E+01
Mean Std. Error	1.130691E-01



Forecast: WA - "Specific Gravity (CL)" X "NCL Dept (cont'd) **Cell: G143**

Percentiles:

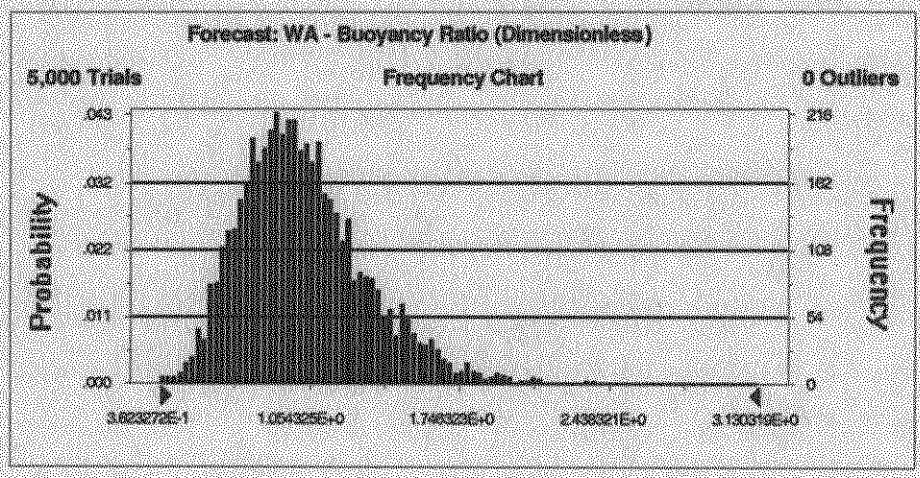
Percentile	Value
0.0%	4.508308E+01
2.5%	5.589887E+01
5.0%	5.829549E+01
50.0%	7.144392E+01
95.0%	8.471224E+01
97.5%	8.699356E+01
100.0%	9.868183E+01

End of Forecast

Forecast: WA - Buoyancy Ratio (Dimensionless) **Cell: G144**

Summary:
Display Range is from 3.623272E-1 to 3.130319E+0
Entire Range is from 3.623272E-1 to 3.130319E+0
After 5,000 Trials, the Std. Error of the Mean is 4.181049E-3

Statistics:	Value
Trials	5000
Mean	1.029170E+00
Median	9.888693E-01
Mode	---
Standard Deviation	2.956448E-01
Variance	8.740586E-02
Skewness	9.033716E-01
Kurtosis	4.671643E+00
Coeff. of Variability	2.872653E-01
Range Minimum	3.623272E-01
Range Maximum	3.130319E+00
Range Width	2.767992E+00
Mean Std. Error	4.181049E-03



Forecast: WA - Buoyancy Ratio (Dimensionless) (cont'd) **Cell: G144**

Percentiles:

Percentile	Value
0.0%	3.623272E-01
2.5%	5.689344E-01
5.0%	6.234351E-01
50.0%	9.888693E-01
95.0%	1.576214E+00
97.5%	1.706114E+00
100.0%	3.130319E+00

End of Forecast

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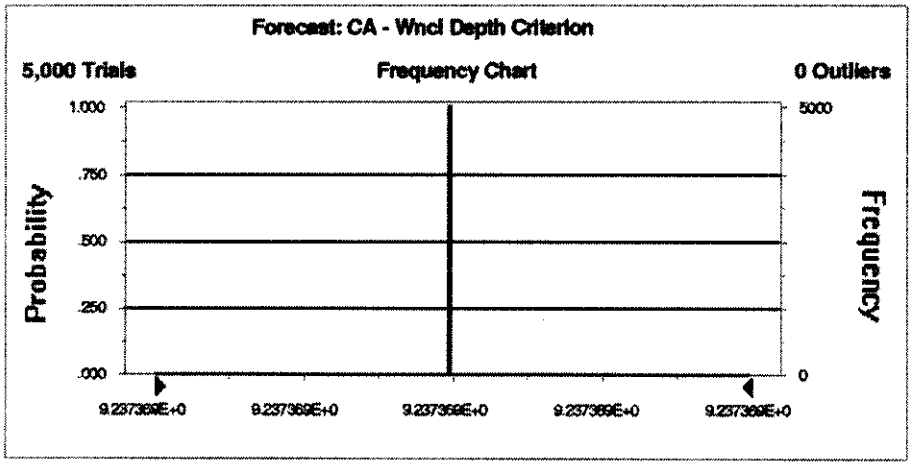
Forecast: CA - Wncl Depth Criterion **Cell: G208**

Summary:
Display Range is from 9.237369E+0 to 9.237369E+0
Entire Range is from 9.237369E+0 to 9.237369E+0
After 5,000 Trials, the Std. Error of the Mean is 1.730967E-9

Statistics:	Value
Trials	5000
Mean	9.237369E+00
Median	9.237369E+00
Mode	9.237369E+00
Standard Deviation	1.223979E-07
Variance	1.498124E-14
Skewness	0.000000E+00
Kurtosis	+Infinity
Coeff. of Variability	1.325030E-08
Range Minimum	9.237369E+00
Range Maximum	9.237369E+00
Range Width	0.000000E+00
Mean Std. Error	1.730967E-09



Forecast: CA - Wncl Depth Criterion (cont'd) **Cell: G208**

Percentiles:

Percentile	Value
0.0%	9.237369E+00
2.5%	9.237369E+00
5.0%	9.237369E+00
50.0%	9.237369E+00
95.0%	9.237369E+00
97.5%	9.237369E+00
100.0%	9.237369E+00

End of Forecast

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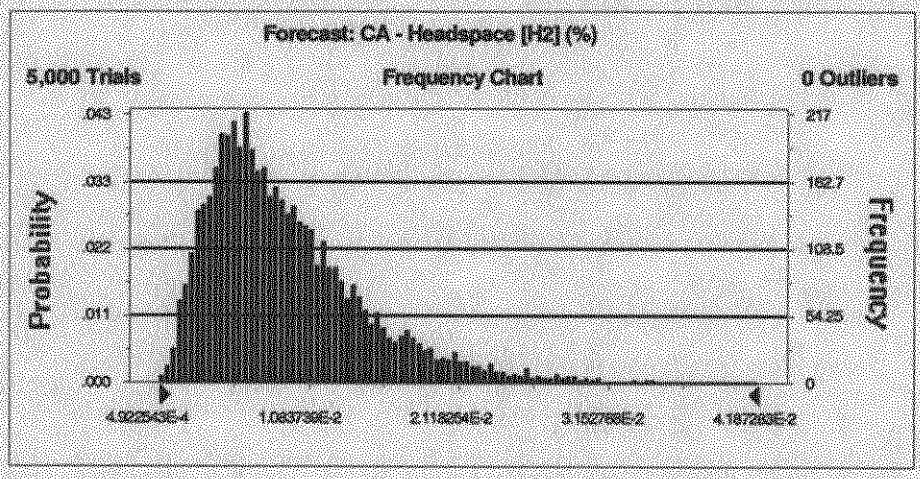
Forecast: CA - Headspace [H2] (%) **Cell: G213**

Summary:

Display Range is from 4.922543E-4 to 4.187283E-2
Entire Range is from 4.922543E-4 to 4.187283E-2
After 5,000 Trials, the Std. Error of the Mean is 7.860226E-5

Statistics:	Value
Trials	5000
Mean	9.349232E-03
Median	8.094384E-03
Mode	---
Standard Deviation	5.558019E-03
Variance	3.089157E-05
Skewness	1.383333E+00
Kurtosis	5.709296E+00
Coeff. of Variability	5.944894E-01
Range Minimum	4.922543E-04
Range Maximum	4.187283E-02
Range Width	4.138057E-02
Mean Std. Error	7.860226E-05



Forecast: CA - Headspace [H2] (%) (cont'd) **Cell: G213**

Percentiles:

Percentile	Value
0.0%	4.922543E-04
2.5%	2.241044E-03
5.0%	2.784441E-03
50.0%	8.094384E-03
95.0%	2.018946E-02
97.5%	2.341048E-02
100.0%	4.187283E-02

End of Forecast

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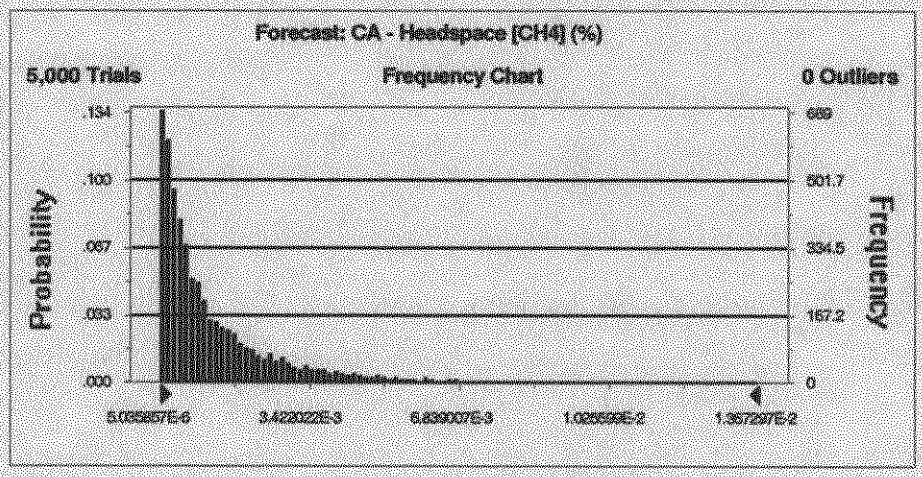
Forecast: CA - Headspace [CH4] (%) **Cell: G214**

Summary:

Display Range is from 5.035857E-6 to 1.367297E-2
Entire Range is from 5.035857E-6 to 1.367297E-2
After 5,000 Trials, the Std. Error of the Mean is 2.037750E-5

Statistics:	Value
Trials	5000
Mean	1.223026E-03
Median	6.939689E-04
Mode	---
Standard Deviation	1.440907E-03
Variance	2.076213E-06
Skewness	2.501828E+00
Kurtosis	1.225290E+01
Coeff. of Variability	1.178149E+00
Range Minimum	5.035857E-06
Range Maximum	1.367298E-02
Range Width	1.366794E-02
Mean Std. Error	2.037750E-05



Forecast: CA - Headspace [CH4] (%) (cont'd) **Cell: G214**

Percentiles:

Percentile	Value
0.0%	5.035857E-06
2.5%	4.156055E-05
5.0%	6.539297E-05
50.0%	6.939689E-04
95.0%	4.156556E-03
97.5%	5.179060E-03
100.0%	1.367298E-02

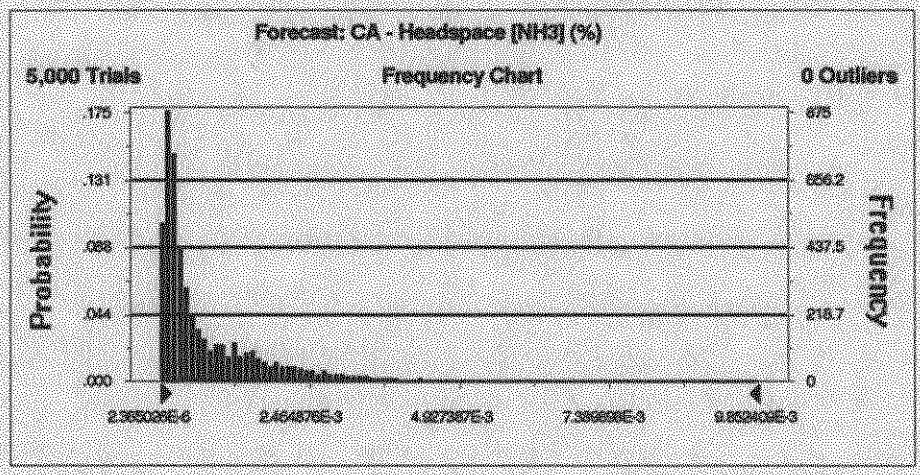
End of Forecast

Forecast: CA - Headspace [NH3] (%) **Cell: G215**

Summary:

Display Range is from 2.365026E-6 to 9.852409E-3
Entire Range is from 2.365026E-6 to 9.852409E-3
After 5,000 Trials, the Std. Error of the Mean is 1.345061E-5

Statistics:	Value
Trials	5000
Mean	7.965896E-04
Median	3.790426E-04
Mode	---
Standard Deviation	9.511024E-04
Variance	9.045958E-07
Skewness	2.341635E+00
Kurtosis	1.087740E+01
Coeff. of Variability	1.193968E+00
Range Minimum	2.365026E-06
Range Maximum	9.852409E-03
Range Width	9.850044E-03
Mean Std. Error	1.345062E-05



Forecast: CA - Headspace [NH3] (%) (cont'd) **Cell: G215**

Percentiles:

Percentile	Value
0.0%	2.365026E-06
2.5%	5.186734E-05
5.0%	7.042942E-05
50.0%	3.790426E-04
95.0%	2.727694E-03
97.5%	3.360722E-03
100.0%	9.852409E-03

End of Forecast

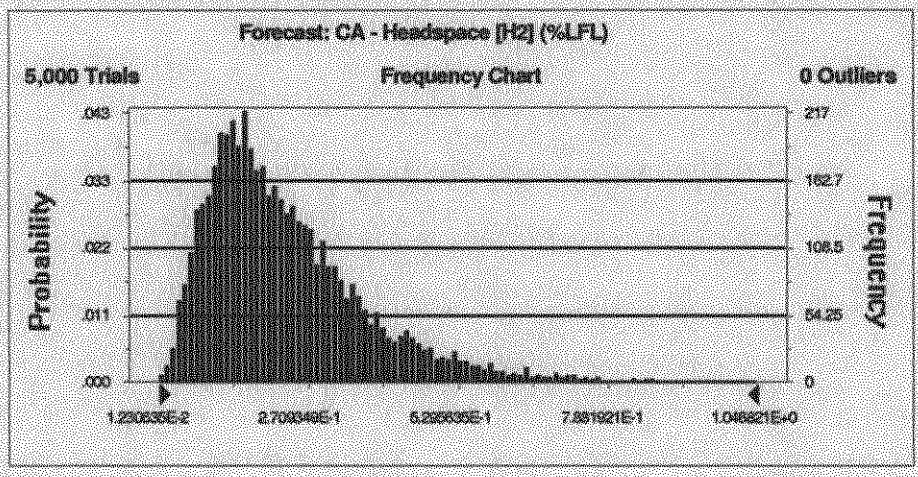
AY-102 mc report 020422 .xls

Forecast: CA - Headspace [H2] (%LFL) **Cell: G216**

Summary:

Display Range is from 1.230635E-2 to 1.046821E+0
Entire Range is from 1.230635E-2 to 1.046821E+0
After 5,000 Trials, the Std. Error of the Mean is 1.965056E-3

Statistics:	Value
Trials	5000
Mean	2.337308E-01
Median	2.023596E-01
Mode	---
Standard Deviation	1.389505E-01
Variance	1.930723E-02
Skewness	1.383333E+00
Kurtosis	5.709296E+00
Coeff. of Variability	5.944894E-01
Range Minimum	1.230636E-02
Range Maximum	1.046821E+00
Range Width	1.034514E+00
Mean Std. Error	1.965056E-03



Forecast: CA - Headspace [H2] (%LFL) (cont'd) **Cell: G216**

Percentiles:

Percentile	Value
0.0%	1.230636E-02
2.5%	5.602609E-02
5.0%	6.961102E-02
50.0%	2.023596E-01
95.0%	5.047364E-01
97.5%	5.852620E-01
100.0%	1.046821E+00

End of Forecast

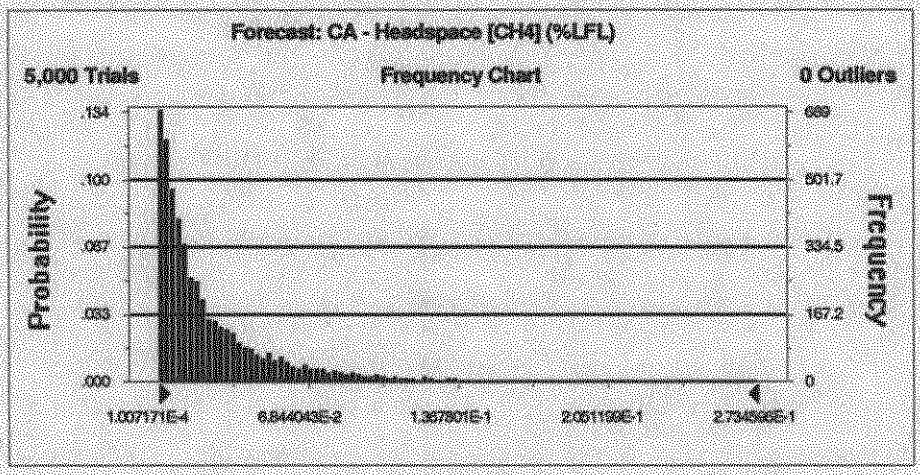
AY-102 mc report 020422 .xls

Forecast: CA - Headspace [CH4] (%LFL) **Cell: G217**

Summary:

Display Range is from 1.007171E-4 to 2.734596E-1
Entire Range is from 1.007171E-4 to 2.734596E-1
After 5,000 Trials, the Std. Error of the Mean is 4.075501E-4

Statistics:	Value
Trials	5000
Mean	2.446052E-02
Median	1.387938E-02
Mode	---
Standard Deviation	2.881814E-02
Variance	8.304853E-04
Skewness	2.501828E+00
Kurtosis	1.225290E+01
Coeff. of Variability	1.178149E+00
Range Minimum	1.007171E-04
Range Maximum	2.734596E-01
Range Width	2.733589E-01
Mean Std. Error	4.075501E-04



Forecast: CA - Headspace [CH4] (%LFL) (cont'd) **Cell: G217**

Percentiles:

Percentile	Value
0.0%	1.007171E-04
2.5%	8.312110E-04
5.0%	1.307859E-03
50.0%	1.387938E-02
95.0%	8.313112E-02
97.5%	1.035812E-01
100.0%	2.734596E-01

End of Forecast

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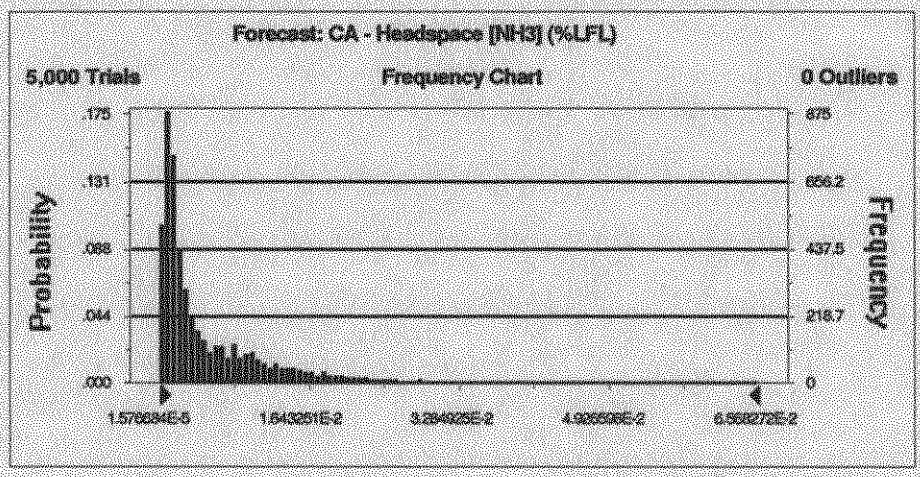
Forecast: CA - Headspace [NH3] (%LFL) **Cell: G218**

Summary:

Display Range is from 1.576684E-5 to 6.568272E-2
Entire Range is from 1.576684E-5 to 6.568272E-2
After 5,000 Trials, the Std. Error of the Mean is 8.967079E-5

Statistics:	Value
Trials	5000
Mean	5.310598E-03
Median	2.526951E-03
Mode	---
Standard Deviation	6.340683E-03
Variance	4.020426E-05
Skewness	2.341635E+00
Kurtosis	1.087740E+01
Coeff. of Variability	1.193968E+00
Range Minimum	1.576684E-05
Range Maximum	6.568272E-02
Range Width	6.566696E-02
Mean Std. Error	8.967079E-05



Forecast: CA - Headspace [NH3] (%LFL) (cont'd) **Cell: G218**

Percentiles:

Percentile	Value
0.0%	1.576684E-05
2.5%	3.457823E-04
5.0%	4.695295E-04
50.0%	2.526951E-03
95.0%	1.818463E-02
97.5%	2.240481E-02
100.0%	6.568272E-02

End of Forecast

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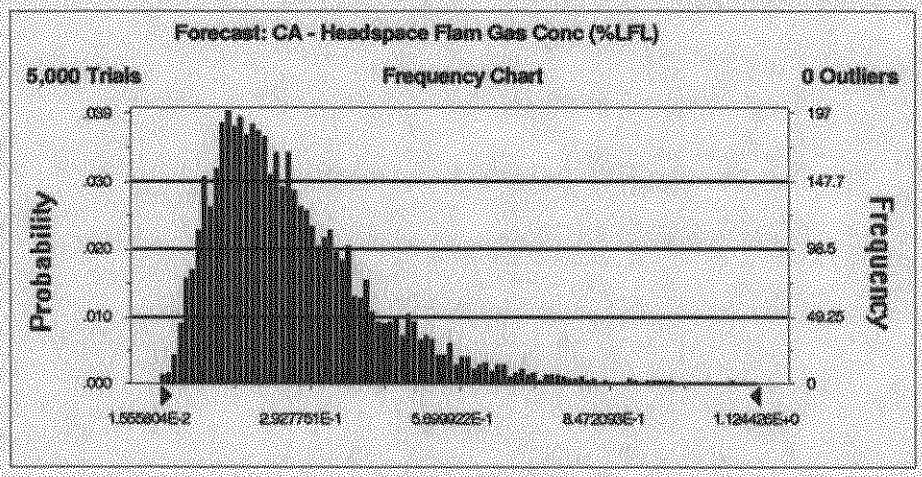
Forecast: CA - Headspace Flam Gas Conc (%LFL) **Cell: G219**

Summary:

Display Range is from 1.555804E-2 to 1.124426E+0
Entire Range is from 1.555804E-2 to 1.124426E+0
After 5,000 Trials, the Std. Error of the Mean is 2.138442E-3

Statistics:	Value
Trials	5000
Mean	2.635019E-01
Median	2.305714E-01
Mode	---
Standard Deviation	1.512107E-01
Variance	2.286467E-02
Skewness	1.324012E+00
Kurtosis	5.452573E+00
Coeff. of Variability	5.738504E-01
Range Minimum	1.555805E-02
Range Maximum	1.124426E+00
Range Width	1.108868E+00
Mean Std. Error	2.138442E-03



Forecast: CA - Headspace Flam Gas Conc (%LFL) (cont'd) **Cell: G219**

Percentiles:

Percentile	Value
0.0%	1.555805E-02
2.5%	6.642011E-02
5.0%	8.439511E-02
50.0%	2.305714E-01
95.0%	5.548213E-01
97.5%	6.436636E-01
100.0%	1.124426E+00

End of Forecast

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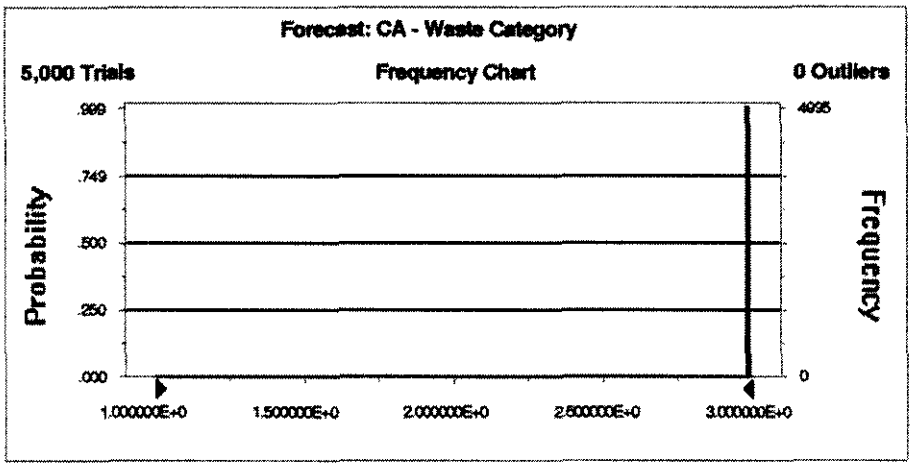
Forecast: CA - Waste Category **Cell: G220**

Summary:
Display Range is from 1.000000E+0 to 3.000000E+0
Entire Range is from 1.000000E+0 to 3.000000E+0
After 5,000 Trials, the Std. Error of the Mean is 8.940693E-4

Statistics:	Value
Trials	5000
Mean	2.998000E+00
Median	3.000000E+00
Mode	3.000000E+00
Standard Deviation	6.322024E-02
Variance	3.996799E-03
Skewness	-3.156585E+01
Kurtosis	9.976018E+02
Coeff. of Variability	2.108747E-02
Range Minimum	1.000000E+00
Range Maximum	3.000000E+00
Range Width	2.000000E+00
Mean Std. Error	8.940693E-04



Forecast: CA - Waste Category (cont'd) **Cell: G220**

Percentiles:

Percentile	Value
0.0%	1.000000E+00
2.5%	3.000000E+00
5.0%	3.000000E+00
50.0%	3.000000E+00
95.0%	3.000000E+00
97.5%	3.000000E+00
100.0%	3.000000E+00

End of Forecast

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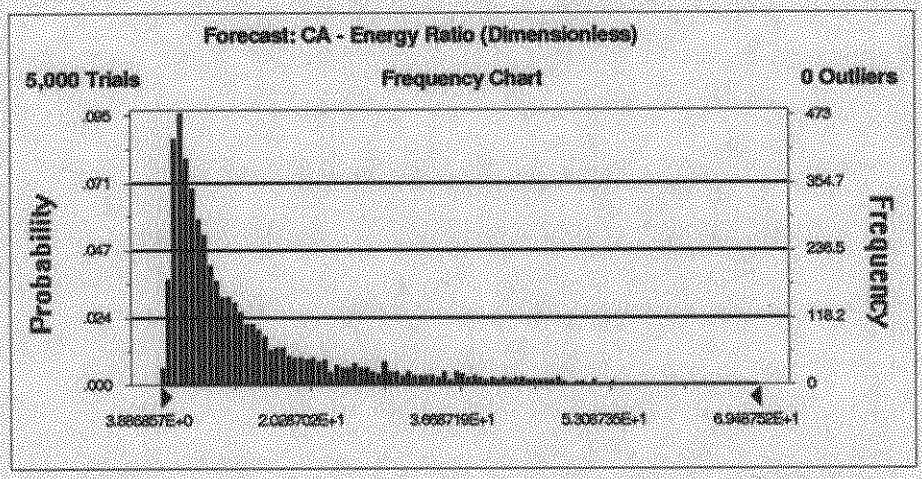
Forecast: CA - Energy Ratio (Dimensionless) **Cell: G223**

Summary:

Display Range is from 3.886857E+0 to 6.948752E+1
Entire Range is from 3.886857E+0 to 6.948752E+1
After 5,000 Trials, the Std. Error of the Mean is 1.384074E-1

Statistics:	Value
Trials	5000
Mean	1.326820E+01
Median	9.427645E+00
Mode	---
Standard Deviation	9.786883E+00
Variance	9.578309E+01
Skewness	1.898851E+00
Kurtosis	6.446816E+00
Coeff. of Variability	7.376198E-01
Range Minimum	3.886857E+00
Range Maximum	6.948752E+01
Range Width	6.560066E+01
Mean Std. Error	1.384074E-01



Forecast: CA - Energy Ratio (Dimensionless) (cont'd) **Cell: G223**

Percentiles:

Percentile	Value
0.0%	3.886857E+00
2.5%	4.958113E+00
5.0%	5.262880E+00
50.0%	9.427645E+00
95.0%	3.639449E+01
97.5%	4.248245E+01
100.0%	6.948752E+01

End of Forecast

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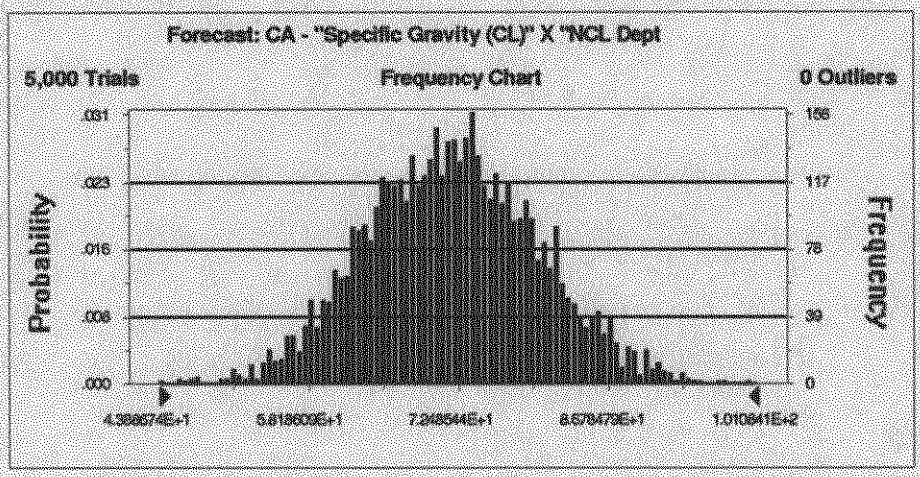
Forecast: CA - "Specific Gravity (CL)" X "NCL Dept **Cell: G225**

Summary:

Display Range is from 4.388674E+1 to 1.010841E+2
Entire Range is from 4.388674E+1 to 1.010841E+2
After 5,000 Trials, the Std. Error of the Mean is 1.170097E-1

Statistics:	Value
Trials	5000
Mean	7.188251E+01
Median	7.184758E+01
Mode	---
Standard Deviation	8.273836E+00
Variance	6.845636E+01
Skewness	5.187557E-02
Kurtosis	2.935636E+00
Coeff. of Variability	1.151022E-01
Range Minimum	4.388674E+01
Range Maximum	1.010841E+02
Range Width	5.719740E+01
Mean Std. Error	1.170097E-01



Forecast: CA - "Specific Gravity (CL)" X "NCL Dept (cont'd) **Cell: G225**

Percentiles:

Percentile	Value
0.0%	4.388674E+01
2.5%	5.616839E+01
5.0%	5.850138E+01
50.0%	7.184758E+01
95.0%	8.586644E+01
97.5%	8.823841E+01
100.0%	1.010841E+02

End of Forecast

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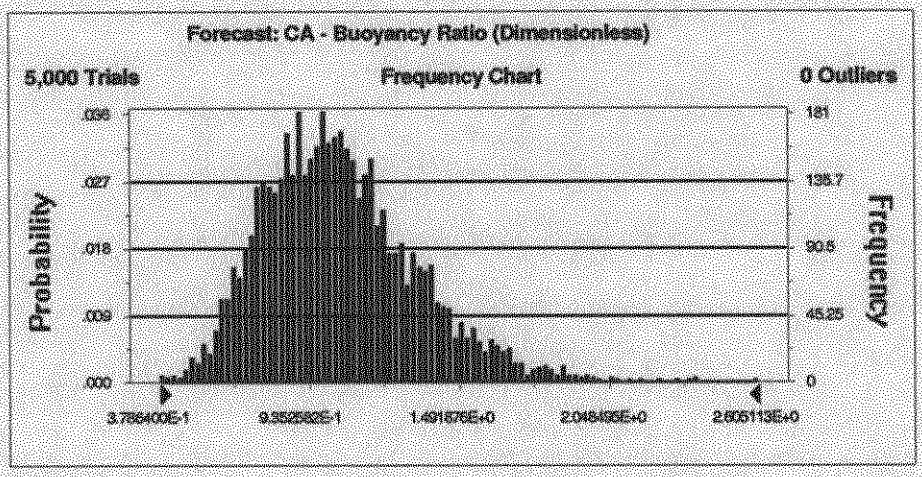
Forecast: CA - Buoyancy Ratio (Dimensionless) **Cell: G226**

Summary:

Display Range is from 3.786400E-1 to 2.605113E+0
Entire Range is from 3.786400E-1 to 2.605113E+0
After 5,000 Trials, the Std. Error of the Mean is 4.102137E-3

Statistics:	Value
Trials	5000
Mean	1.054339E+00
Median	1.022918E+00
Mode	---
Standard Deviation	2.900649E-01
Variance	8.413762E-02
Skewness	8.099364E-01
Kurtosis	4.270376E+00
Coeff. of Variability	2.751154E-01
Range Minimum	3.786400E-01
Range Maximum	2.605113E+00
Range Width	2.226473E+00
Mean Std. Error	4.102137E-03



Forecast: CA - Buoyancy Ratio (Dimensionless) (cont'd) **Cell: G226**

Percentiles:

Percentile	Value
0.0%	3.786400E-01
2.5%	5.948157E-01
5.0%	6.489091E-01
50.0%	1.022918E+00
95.0%	1.577409E+00
97.5%	1.702601E+00
100.0%	2.605113E+00

End of Forecast

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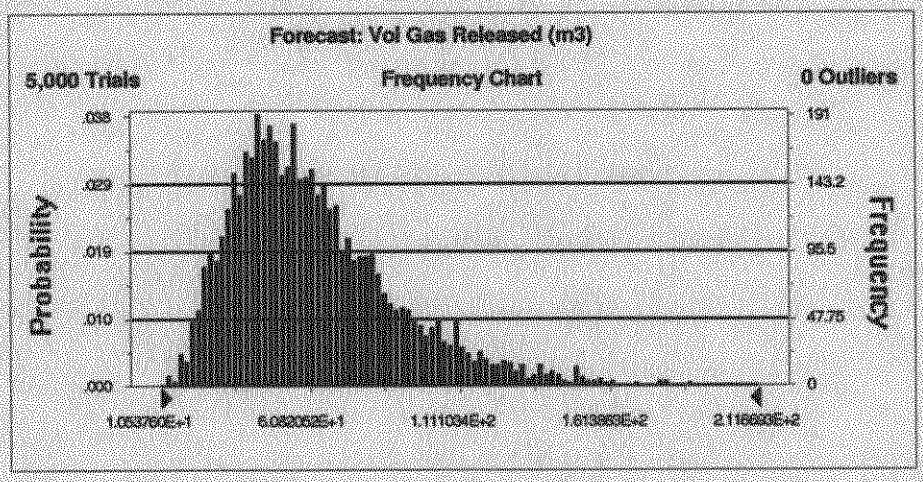
Forecast: Vol Gas Released (m3) **Cell: G45**

Summary:
Display Range is from 1.053760E+1 to 2.116693E+2
Entire Range is from 1.053760E+1 to 2.116693E+2
After 5,000 Trials, the Std. Error of the Mean is 3.953726E-1

Statistics:	Value
Trials	5000
Mean	6.269668E+01
Median	5.725527E+01
Mode	---
Standard Deviation	2.795707E+01
Variance	7.815976E+02
Skewness	1.093468E+00
Kurtosis	4.519956E+00
Coeff. of Variability	4.459098E-01
Range Minimum	1.053760E+01
Range Maximum	2.116693E+02
Range Width	2.011317E+02
Mean Std. Error	3.953726E-01



Forecast: Vol Gas Released (m3) (cont'd) **Cell: G45**

Percentiles:

Percentile	Value
0.0%	1.053760E+01
2.5%	2.371129E+01
5.0%	2.697521E+01
50.0%	5.725527E+01
95.0%	1.165428E+02
97.5%	1.315525E+02
100.0%	2.116693E+02

End of Forecast

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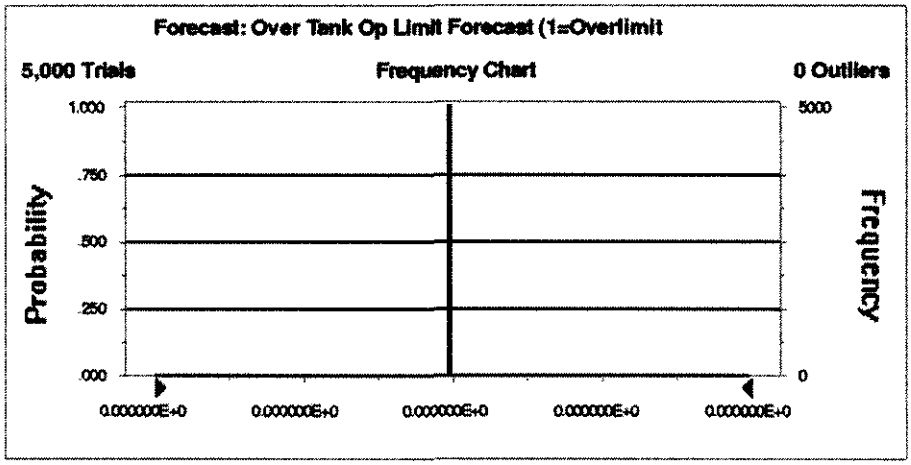
Forecast: Over Tank Op Limit Forecast (1=Overlimit **Cell: G5**

Summary:
Display Range is from 0.000000E+0 to 0.000000E+0
Entire Range is from 0.000000E+0 to 0.000000E+0
After 5,000 Trials, the Std. Error of the Mean is 0.000000E+0

Statistics:	Value
Trials	5000
Mean	0.000000E+00
Median	0.000000E+00
Mode	0.000000E+00
Standard Deviation	0.000000E+00
Variance	0.000000E+00
Skewness	0.000000E+00
Kurtosis	+Infinity
Coeff. of Variability	+Infinity
Range Minimum	0.000000E+00
Range Maximum	0.000000E+00
Range Width	0.000000E+00
Mean Std. Error	0.000000E+00



Forecast: Over Tank Op Limit Forecast (1=Overlimit (cont'd) **Cell: G5**

Percentiles:

Percentile	Value
0.0%	0.000000E+00
2.5%	0.000000E+00
5.0%	0.000000E+00
50.0%	0.000000E+00
95.0%	0.000000E+00
97.5%	0.000000E+00
100.0%	0.000000E+00

End of Forecast

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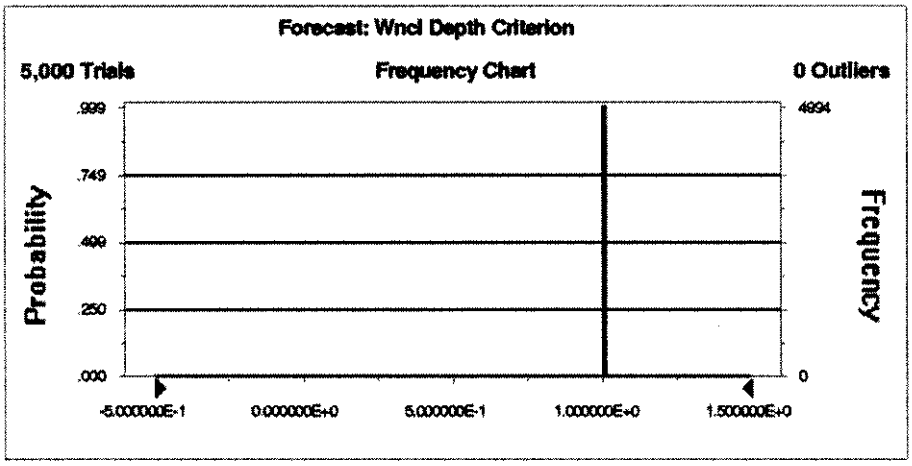
Forecast: Wncl Depth Criterion **Cell: X57**

Summary:
Display Range is from -5.000000E-1 to 1.500000E+0
Entire Range is from 0.000000E+0 to 1.000000E+0
After 5,000 Trials, the Std. Error of the Mean is 4.896529E-4

Statistics:	Value
Trials	5000
Mean	9.988000E-01
Median	1.000000E+00
Mode	1.000000E+00
Standard Deviation	3.462369E-02
Variance	1.198800E-03
Skewness	-2.880688E+01
Kurtosis	8.310020E+02
Coeff. of Variability	3.466529E-02
Range Minimum	0.000000E+00
Range Maximum	1.000000E+00
Range Width	1.000000E+00
Mean Std. Error	4.896529E-04



Forecast: Wncl Depth Criterion (cont'd) **Cell: X57**

Percentiles:

Percentile	Value
0.0%	0.000000E+00
2.5%	1.000000E+00
5.0%	1.000000E+00
50.0%	1.000000E+00
95.0%	1.000000E+00
97.5%	1.000000E+00
100.0%	1.000000E+00

End of Forecast

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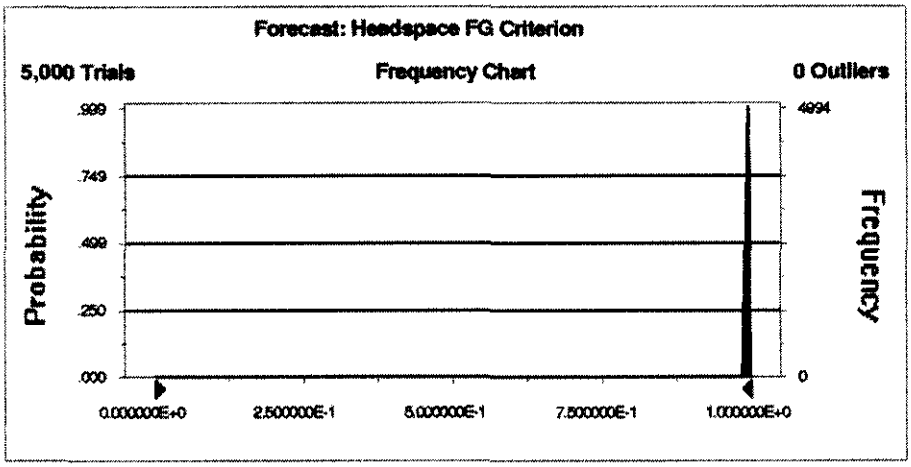
Forecast: Headspace FG Criterion **Cell: X68**

Summary:
Display Range is from 0.000000E+0 to 1.000000E+0
Entire Range is from 0.000000E+0 to 1.000000E+0
After 5,000 Trials, the Std. Error of the Mean is 4.896529E-4

Statistics:	Value
Trials	5000
Mean	9.988000E-01
Median	1.000000E+00
Mode	1.000000E+00
Standard Deviation	3.462369E-02
Variance	1.198800E-03
Skewness	-2.880688E+01
Kurtosis	8.310020E+02
Coeff. of Variability	3.466529E-02
Range Minimum	0.000000E+00
Range Maximum	1.000000E+00
Range Width	1.000000E+00
Mean Std. Error	4.896529E-04



Forecast: Headspace FG Criterion (cont'd) **Cell: X68**

Percentiles:

Percentile	Value
0.0%	0.000000E+00
2.5%	1.000000E+00
5.0%	1.000000E+00
50.0%	1.000000E+00
95.0%	1.000000E+00
97.5%	1.000000E+00
100.0%	1.000000E+00

End of Forecast

Forecast: Non-Convective Waste Density (kg/m3) (cont'd) **Cell: G13**

Percentiles:

Percentile	Value
0.0%	1.304341E+03
2.5%	1.312034E+03
5.0%	1.320065E+03
50.0%	1.397516E+03
95.0%	1.474211E+03
97.5%	1.481912E+03
100.0%	1.490593E+03

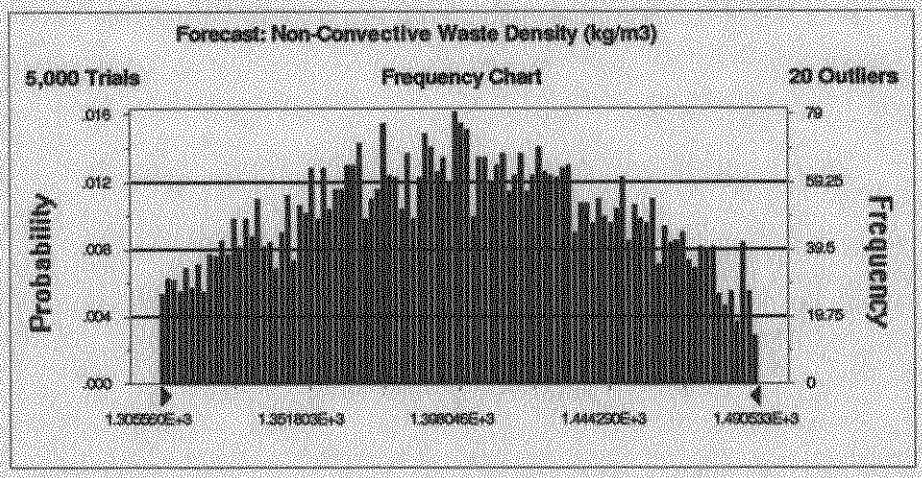
End of Forecast

Forecast: Non-Convective Waste Density (kg/m3) **Cell: G13**

Summary:

Display Range is from 1.305560E+3 to 1.490533E+3
Entire Range is from 1.304341E+3 to 1.490593E+3
After 5,000 Trials, the Std. Error of the Mean is 6.696106E-1

Statistics:	Value
Trials	5000
Mean	1.397261E+03
Median	1.397516E+03
Mode	---
Standard Deviation	4.734862E+01
Variance	2.241892E+03
Skewness	-8.646637E-03
Kurtosis	2.052051E+00
Coeff. of Variability	3.388674E-02
Range Minimum	1.304341E+03
Range Maximum	1.490593E+03
Range Width	1.862522E+02
Mean Std. Error	6.696106E-01



Forecast: Non-Convective Waste Density (kg/m3) (cont'd) **Cell: G13**

Percentiles:

Percentile	Value
0.0%	1.304341E+03
2.5%	1.312034E+03
5.0%	1.320065E+03
50.0%	1.397516E+03
95.0%	1.474211E+03
97.5%	1.481912E+03
100.0%	1.490593E+03

End of Forecast

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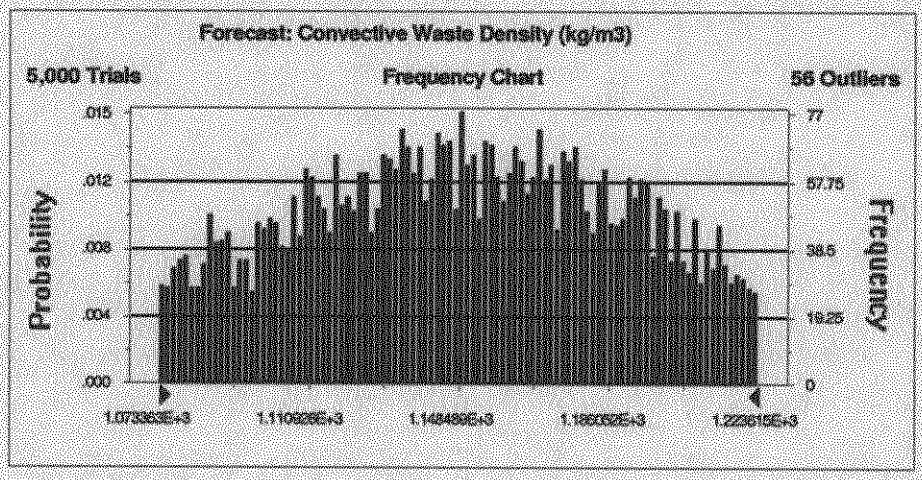
Forecast: Convective Waste Density (kg/m3) **Cell: G14**

Summary:

Display Range is from 1.073363E+3 to 1.223615E+3
Entire Range is from 1.073363E+3 to 1.226646E+3
After 5,000 Trials, the Std. Error of the Mean is 5.566191E-1

Statistics:

	Value
Trials	5000
Mean	1.150192E+03
Median	1.150186E+03
Mode	---
Standard Deviation	3.935892E+01
Variance	1.549124E+03
Skewness	-2.225238E-02
Kurtosis	2.048221E+00
Coeff. of Variability	3.421944E-02
Range Minimum	1.073363E+03
Range Maximum	1.226646E+03
Range Width	1.532830E+02
Mean Std. Error	5.566191E-01



Forecast: Convective Waste Density (kg/m3) (cont'd) **Cell: G14**

Percentiles:

Percentile	Value
0.0%	1.073363E+03
2.5%	1.079462E+03
5.0%	1.085453E+03
50.0%	1.150186E+03
95.0%	1.214205E+03
97.5%	1.219810E+03
100.0%	1.226646E+03

End of Forecast

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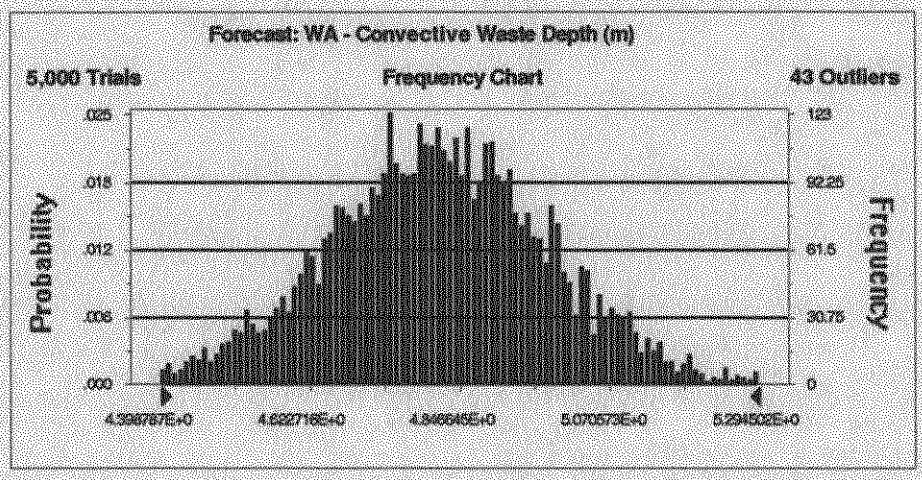
Forecast: WA - Convective Waste Depth (m) **Cell: G88**

Summary:

Display Range is from 4.398787E+0 to 5.294502E+0
Entire Range is from 4.265865E+0 to 5.405944E+0
After 5,000 Trials, the Std. Error of the Mean is 2.369185E-3

Statistics:	Value
Trials	5000
Mean	4.815573E+00
Median	4.815017E+00
Mode	---
Standard Deviation	1.675267E-01
Variance	2.806519E-02
Skewness	3.149074E-02
Kurtosis	3.011388E+00
Coeff. of Variability	3.478852E-02
Range Minimum	4.265865E+00
Range Maximum	5.405944E+00
Range Width	1.140079E+00
Mean Std. Error	2.369185E-03



Forecast: WA - Convective Waste Depth (m) (cont'd) **Cell: G88**

Percentiles:

Percentile	Value
0.0%	4.265865E+00
2.5%	4.483376E+00
5.0%	4.533116E+00
50.0%	4.815017E+00
95.0%	5.092513E+00
97.5%	5.144025E+00
100.0%	5.405944E+00

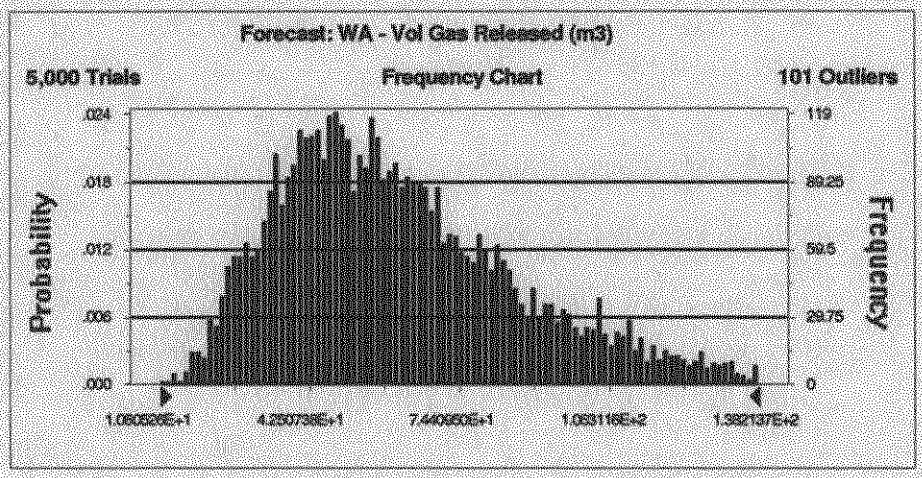
End of Forecast

Forecast: WA - Vol Gas Released (m3) **Cell: G124**

Summary:

Display Range is from 1.060526E+1 to 1.382137E+2
Entire Range is from 1.060526E+1 to 2.130097E+2
After 5,000 Trials, the Std. Error of the Mean is 3.978590E-1

Statistics:	Value
Trials	5000
Mean	6.309144E+01
Median	5.761847E+01
Mode	---
Standard Deviation	2.813288E+01
Variance	7.914590E+02
Skewness	1.093487E+00
Kurtosis	4.519982E+00
Coeff. of Variability	4.459065E-01
Range Minimum	1.060527E+01
Range Maximum	2.130097E+02
Range Width	2.024044E+02
Mean Std. Error	3.978590E-01



Forecast: WA - Vol Gas Released (m3) (cont'd) **Cell: G124**

Percentiles:

Percentile	Value
0.0%	1.060527E+01
2.5%	2.385391E+01
5.0%	2.714170E+01
50.0%	5.761847E+01
95.0%	1.173023E+02
97.5%	1.323711E+02
100.0%	2.130097E+02

End of Forecast

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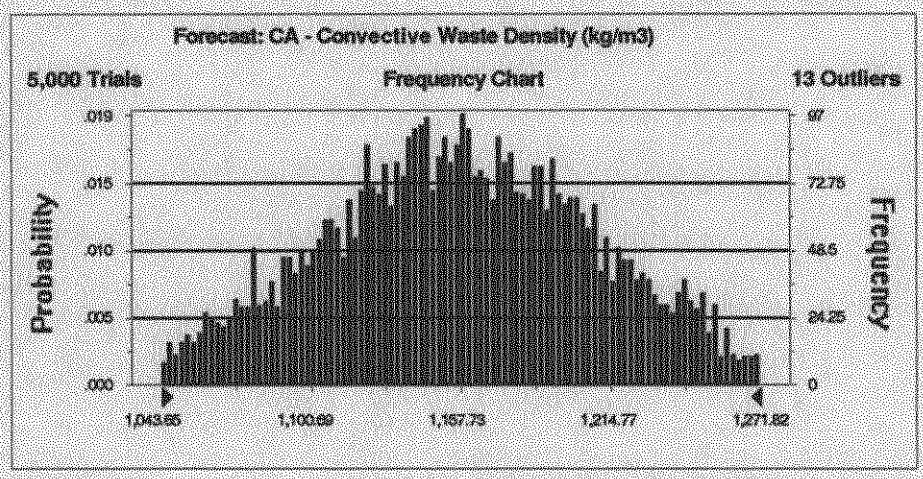
Forecast: CA - Convective Waste Density (kg/m3) **Cell: G173**

Summary:

Display Range is from 1,043.65 to 1,271.82
Entire Range is from 1,041.47 to 1,272.81
After 5,000 Trials, the Std. Error of the Mean is 0.71

Statistics:	Value
Trials	5000
Mean	1,157.58
Median	1,157.31
Mode	---
Standard Deviation	50.26
Variance	2,526.14
Skewness	-0.01
Kurtosis	2.38
Coeff. of Variability	0.04
Range Minimum	1,041.47
Range Maximum	1,272.81
Range Width	231.34
Mean Std. Error	0.71



Forecast: CA - Convective Waste Density (kg/m3) (cont'd) **Cell: G173**

Percentiles:

Percentile	Value
0.0%	1,041.47
2.5%	1,060.94
5.0%	1,072.65
50.0%	1,157.31
95.0%	1,242.81
97.5%	1,251.77
100.0%	1,272.81

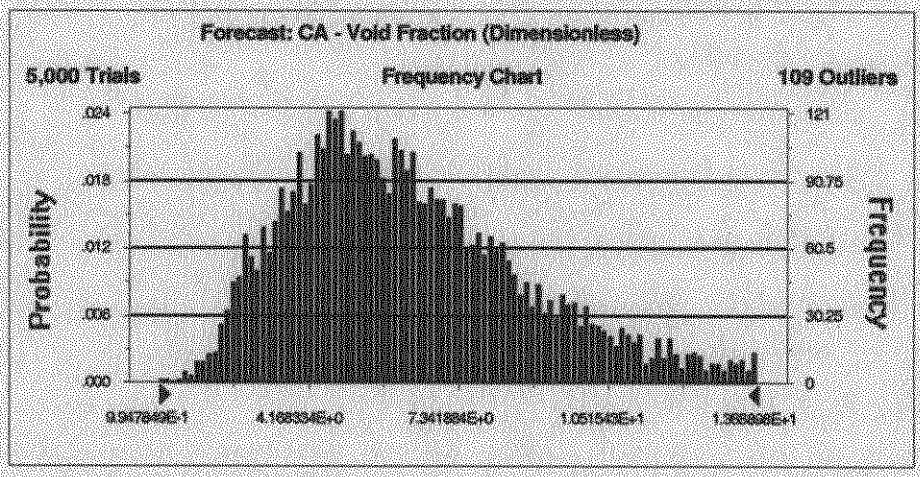
End of Forecast

Forecast: CA - Void Fraction (Dimensionless) **Cell: G186**

Summary:

Display Range is from 9.947849E-1 to 1.368898E+1
Entire Range is from 9.947849E-1 to 1.729489E+1
After 5,000 Trials, the Std. Error of the Mean is 3.896073E-2

Statistics:	Value
Trials	5000
Mean	6.455877E+00
Median	5.978227E+00
Mode	---
Standard Deviation	2.754940E+00
Variance	7.589693E+00
Skewness	9.879704E-01
Kurtosis	3.984608E+00
Coeff. of Variability	4.267336E-01
Range Minimum	9.947849E-01
Range Maximum	1.729489E+01
Range Width	1.630011E+01
Mean Std. Error	3.896073E-02



Forecast: CA - Void Fraction (Dimensionless) (cont'd) **Cell: G186**

Percentiles:

Percentile	Value
0.0%	9.947849E-01
2.5%	2.550529E+00
5.0%	2.848612E+00
50.0%	5.978227E+00
95.0%	1.185415E+01
97.5%	1.351590E+01
100.0%	1.729489E+01

End of Forecast

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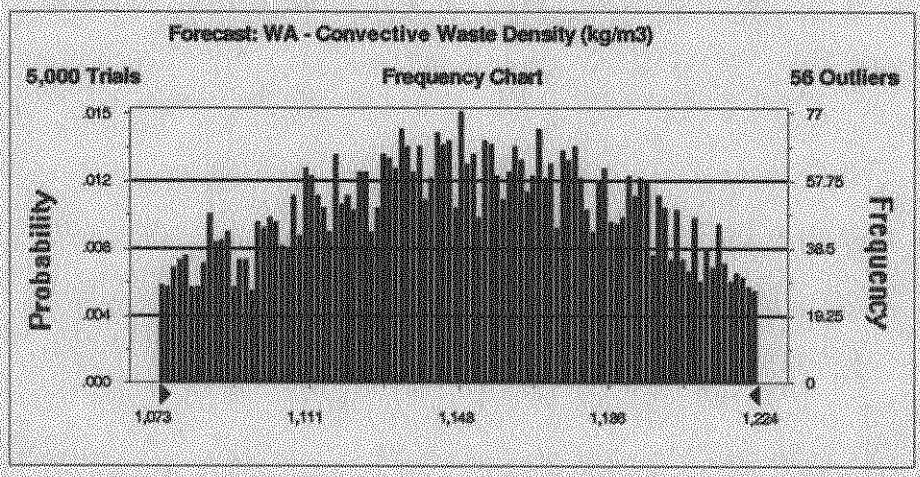
Forecast: WA - Convective Waste Density (kg/m3) **Cell: G91**

Summary:
Display Range is from 1,073 to 1,224
Entire Range is from 1,073 to 1,227
After 5,000 Trials, the Std. Error of the Mean is 1

Statistics:	Value
Trials	5000
Mean	1,150
Median	1,150
Mode	---
Standard Deviation	39
Variance	1,549
Skewness	-0.02
Kurtosis	2.05
Coeff. of Variability	0.03
Range Minimum	1,073
Range Maximum	1,227
Range Width	153
Mean Std. Error	0.56



Forecast: WA - Convective Waste Density (kg/m3) (cont'd) **Cell: G91**

Percentiles:

Percentile	Value
0.0%	1,073
2.5%	1,079
5.0%	1,085
50.0%	1,150
95.0%	1,214
97.5%	1,220
100.0%	1,227

End of Forecast

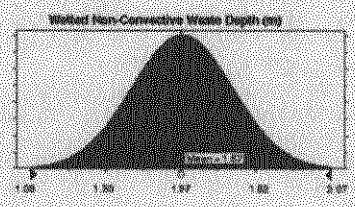
Assumptions

Assumption: Wetted Non-Convective Waste Depth (m) **Cell: W10**

Normal distribution with parameters:

Mean	1.57	(=W10)
Standard Dev.	0.17	(=X10)

Selected range is from 0.01(=Y10) to 9.24(=Z10)

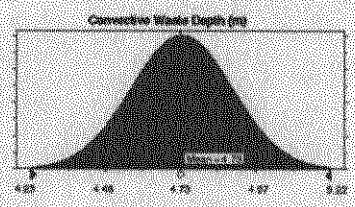


Assumption: Convective Waste Depth (m) **Cell: W11**

Normal distribution with parameters:

Mean	4.73	(=W11)
Standard Dev.	0.17	(=X11)

Selected range is from 0.00(=Y11) to 9.24(=Z11)



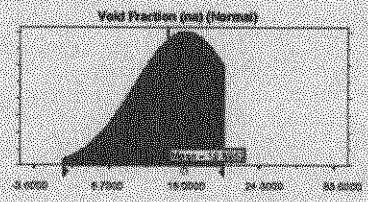
Assumption: Void Fraction (na) (Normal) **Cell: W27**

Normal distribution with parameters:

Mean	15.0000	(=W27)
Standard Dev.	6.2000	(=X27)

Selected range is from 0.0000(=Y27) to 20.0000(=Z27)

Assumption: Void Fraction (na) (Normal) (cont'd) **Cell: W27**

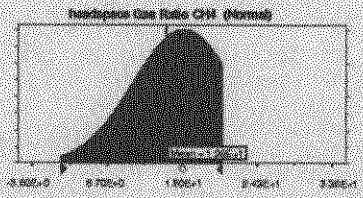


Assumption: headspace Gas Ratio CH4 (Normal) **Cell: W31**

Normal distribution with parameters:

Mean	1.50E+01	(=W31)
Standard Dev.	6.20E+00	(=X31)

Selected range is from 1.00E-8(=Y31) to 2.00E+1(=Z31)

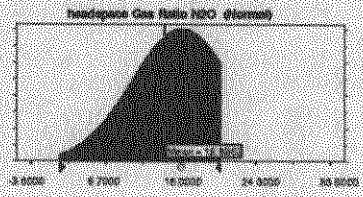


Assumption: headspace Gas Ratio N2O (Normal) **Cell: W33**

Normal distribution with parameters:

Mean	15.0000	(=W33)
Standard Dev.	6.2000	(=X33)

Selected range is from 0.0000(=Y33) to 20.0000(=Z33)

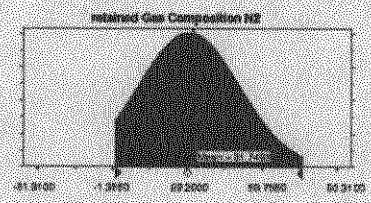


Assumption: retained Gas Composition N2 **Cell: W35**

Normal distribution with parameters:

Mean	29.2000	(=W35)
Standard Dev.	20.3700	(=X35)

Selected range is from 0.0001(=Y35) to 76.0000(=Z35)

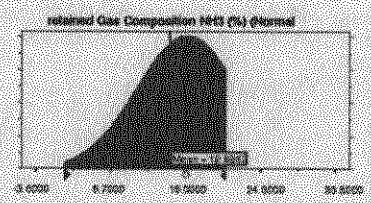


Assumption: retained Gas Composition NH3 (%) (Normal **Cell: W37**

Normal distribution with parameters:

Mean	15.0000	(=W37)
Standard Dev.	6.2000	(=X37)

Selected range is from 0.0000(=Y37) to 20.0000(=Z37)



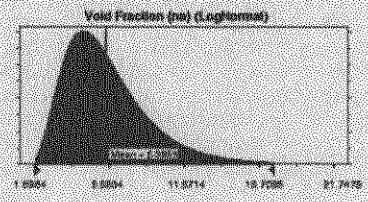
Assumption: Void Fraction (na) (LogNormal) **Cell: W28**

Lognormal distribution with parameters:

Log Mean	1.7733	(=W28)
Log Std. Dev.	0.4354	(=X28)

Selected range is from 0.0100(=Y28) to 17.7070(=Z28)

Assumption: Void Fraction (na) (LogNormal) (cont'd) **Cell: W28**

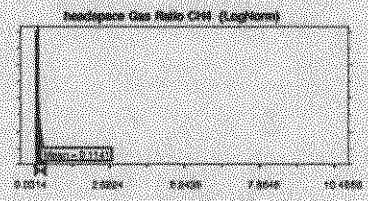


Assumption: headspace Gas Ratio CH4 (LogNorm) **Cell: W32**

Lognormal distribution with parameters:

Log Mean	-2.1200	(=W32)
Log Std. Dev.	1.4900	(=X32)

Selected range is from 0.0001(=Y32) to 0.4000(=Z32)

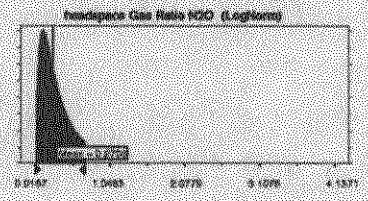


Assumption: headspace Gas Ratio N2O (LogNorm) **Cell: W34**

Lognormal distribution with parameters:

Log Mean	-1.2800	(=W34)
Log Std. Dev.	0.9000	(=X34)

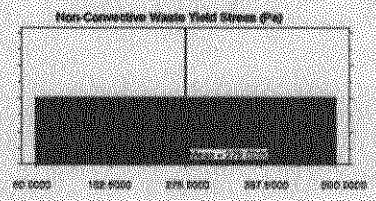
Selected range is from 0.0001(=Y34) to 0.7000(=Z34)



Assumption: Non-Convective Waste Yield Stress (Pa) **Cell: W29**

Uniform distribution with parameters:

Minimum	50.0000	(=Y29)
Maximum	500.0000	(=Z29)

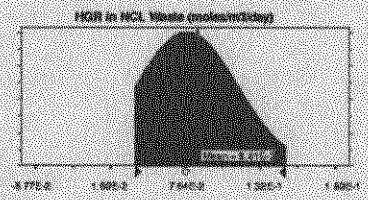


Assumption: HGR in NCL Waste (moles/m3/day) **Cell: W41**

Normal distribution with parameters:

Mean	7.54E-02	(=W41)
Standard Dev.	3.77E-02	(=X41)

Selected range is from 3.77E-2(=Y41) to 1.51E-1(=Z41)



Assumption: retained Gas Composition NH3 (%) (contLi **Cell: W38**

Custom distribution with parameters:

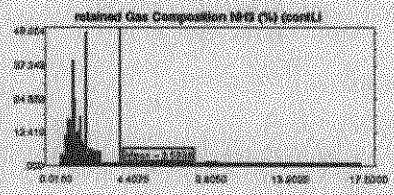
				Relative Prob.
Continuous range	0.0100	to	0.0311	0.02
Continuous range	0.0311	to	0.0695	0.04
Continuous range	0.0695	to	0.1171	0.06
Continuous range	0.1171	to	0.1370	0.07
Continuous range	0.1370	to	0.1920	0.09
Continuous range	0.1920	to	0.2343	0.11
Continuous range	0.2343	to	0.2963	0.13
Continuous range	0.2963	to	0.3346	0.15
Continuous range	0.3346	to	0.3492	0.17

Assumption: retained Gas Composition NH3 (%) (contLi (cont'd) **Cell: W38**

Continuous range	0.3492	to	0.3760	0.19
Continuous range	0.3760	to	0.3990	0.20
Continuous range	0.3990	to	0.4549	0.22
Continuous range	0.4549	to	0.4919	0.24
Continuous range	0.4919	to	0.5320	0.26
Continuous range	0.5320	to	0.5482	0.28
Continuous range	0.5482	to	0.5792	0.30
Continuous range	0.5792	to	0.5978	0.31
Continuous range	0.5978	to	0.6364	0.33
Continuous range	0.6364	to	0.6717	0.35
Continuous range	0.6717	to	0.7074	0.37
Continuous range	0.7074	to	0.7668	0.39
Continuous range	0.7668	to	0.7772	0.41
Continuous range	0.7772	to	0.8102	0.43
Continuous range	0.8102	to	0.8280	0.44
Continuous range	0.8280	to	0.8595	0.46
Continuous range	0.8595	to	0.9235	0.48
Continuous range	0.9235	to	0.9648	0.50
Continuous range	0.9648	to	1.0291	0.52
Continuous range	1.0291	to	1.0720	0.54
Continuous range	1.0720	to	1.1281	0.56
Continuous range	1.1281	to	1.1597	0.57
Continuous range	1.1597	to	1.2173	0.59
Continuous range	1.2173	to	1.2854	0.61
Continuous range	1.2854	to	1.3978	0.63
Continuous range	1.3978	to	1.4821	0.65
Continuous range	1.4821	to	1.4956	0.67
Continuous range	1.4956	to	1.5774	0.69
Continuous range	1.5774	to	1.7573	0.70
Continuous range	1.7573	to	1.8741	0.72
Continuous range	1.8741	to	2.0080	0.74
Continuous range	2.0080	to	2.1571	0.76
Continuous range	2.1571	to	2.3184	0.78
Continuous range	2.3184	to	3.0867	0.80
Continuous range	3.0867	to	4.1636	0.81
Continuous range	4.1636	to	4.9957	0.83
Continuous range	4.9957	to	5.6075	0.85
Continuous range	5.6075	to	5.8423	0.87
Continuous range	5.8423	to	6.5631	0.89
Continuous range	6.5631	to	7.0487	0.91
Continuous range	7.0487	to	7.7154	0.93
Continuous range	7.7154	to	8.5787	0.94
Continuous range	8.5787	to	9.2357	0.96
Continuous range	9.2357	to	11.5184	0.98

Assumption: retained Gas Composition NH3 (%) (contLi (cont'd) **Cell: W38**

Continuous range	11.5184	to	17.6000	1.00
Total Relative Probability				27.50

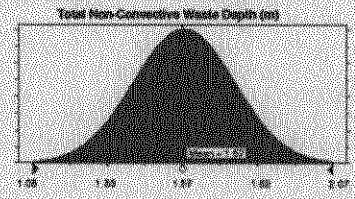


Assumption: Total Non-Convective Waste Depth (m) **Cell: W9**

Normal distribution with parameters:

Mean	1.57	(=W9)
Standard Dev.	0.17	(=X9)

Selected range is from 0.01(=Y9) to 9.24(=Z9)



Assumption: Non-Convective Waste Density (kg/m3) **Cell: W13**

Normal distribution with parameters:

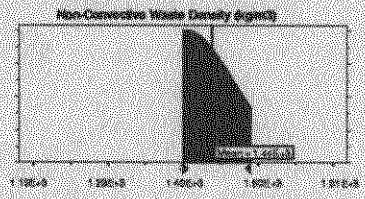
Mean	1.40E+03	(=W13)
Standard Dev.	6.99E+01	(=X13)

Selected range is from 1.40E+3(=Y13) to 1.49E+3(=Z13)

Correlated with:

Convective Waste Density (kg/m3)	(W15)	0.70
CA - Convective Waste Density (kg/m3)	(	0.70

Assumption: Non-Convective Waste Density (kg/m3) (cont'd) **Cell: W13**



Assumption: Convective Waste Density (kg/m3) **Cell: W15**

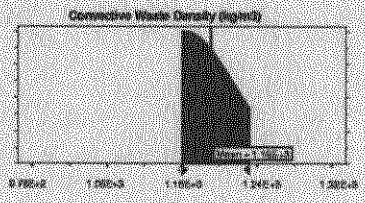
Normal distribution with parameters:

Mean	1.15E+03	(=W15)
Standard Dev.	5.75E+01	(=X15)

Selected range is from 1.15E+3(=Y15) to 1.23E+3(=Z15)

Correlated with:

Non-Convective Waste Density (kg/m3) (V 0.70



Assumption: CA - Convective Waste Density (kg/m3) **Cell: W172**

Normal distribution with parameters:

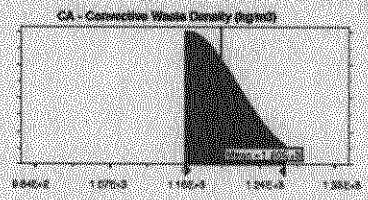
Mean	1.16E+03	(=W172)
Standard Dev.	5.79E+01	(=X172)

Selected range is from 1.16E+3(=Y172) to 1.27E+3(=Z172)

Correlated with:

Non-Convective Waste Density (kg/m3) (V 0.70

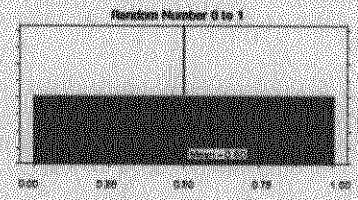
Assumption: CA - Convective Waste Density (kg/m3) (cont'd) **Cell: W172**



Assumption: Random Number 0 to 1 **Cell: W17**

Uniform distribution with parameters:

Minimum	0.00	(=Y17)
Maximum	1.00	(=Z17)



Assumption: Non-Convective Waste Density - Low (kg/m **Cell: W14**

Normal distribution with parameters:

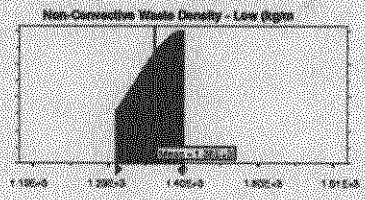
Mean	1.40E+03	(=W14)
Standard Dev.	6.99E+01	(=X14)

Selected range is from 1.30E+3(=Y14) to 1.40E+3(=Z14)

Correlated with:

CA - Convective Waste Density - Low (kg/ 0.70

Assumption: Non-Convective Waste Density - Low (kg/m (cont'd) **Cell: W14**

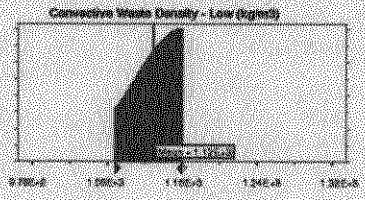


Assumption: Convective Waste Density - Low (kg/m3) **Cell: W16**

Normal distribution with parameters:

Mean	1.15E+03	(=W16)
Standard Dev.	5.75E+01	(=X16)

Selected range is from 1.07E+3(=Y16) to 1.15E+3(=Z16)



Assumption: CA - Convective Waste Density - Low (kg/ **Cell: W173**

Normal distribution with parameters:

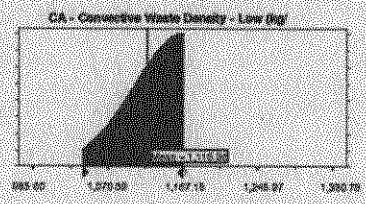
Mean	1,157.18	(=W173)
Standard Dev.	57.86	(=X173)

Selected range is from 1,041.46(=Y173) to 1,157.18(=Z173)

Correlated with:

Non-Convective Waste Density - Low (kg/r 0.70

Assumption: CA - Convective Waste Density - Low (kg/ (cont'd) **Cell: W173**



End of Assumptions

AY-102 mc report 020422 .xls

As Is	T. Waste Depth (m)	Tank Class (95% CI)	Tank Class (Mean #)	Tank Class (Min)	Tank Class (Max)	Void Fraction 95%CI	Void Fraction Median	Void Fraction Maximum
AY-102	6.3	C	3.00	A	C	0.119	0.060	0.176
	h15	h322	h285	h293	h294	h270	h232	h240

	WA	WA	WA	WA	WA	WA	WA	WA
Water Addition	T. Waste Depth (m)	Tank Class (95% CI)	Tank Class (Mean #)	Tank Class (Min)	Tank Class (Max)	Void Fraction 95%CI	Void Fraction Median	Void Fraction Maximum
AY-102	6.4	C	3.00	A	C	0.119	0.060	0.176
	h1311	h1834	h1797	h1805	h1806	h270	h232	h240

	CA	CA	CA	CA	CA	CA	CA	CA
Caustic Addition	T. Waste Depth (m)	Tank Class (95% CI)	Tank Class (Mean #)	Tank Class (Min)	Tank Class (Max)	Void Fraction 95%CI	Void Fraction Median	Void Fraction Maximum
AY-102	6.4	C	3.00	A	C	0.119	0.060	0.173
	h1257	h2482	h2445	h2453	h2454	h3186	h3148	h3156

As Is	%A	%B	%C	Estey Criteria (min)	Estey Criteria (95%CI)	Estey Criteria (max)	Buoyancy Ratio (min)	Buoyancy Ratio (Median)
AY-102	0.0	0.1	99.9	45	85	99	0.30	1.02
				h671	h702	H672	h563	h556

AY-102 mc report 020422 .xls

As Is	Rtn'd H2 Conc (%) Mean	HS H2 Conc (%) Mean	HS CH4 Conc (%)	HS NH3 Conc (%)	FG Conc (%LFL) 95%CI	FG Conc (%LFL) Median	Depth Crit Ratio 95%CI	Depth Crit Ratio Median
AY-102	41.9%	0.9%	0.12%	0.08%	55%	23%	1.338	1.074
	h717	h879	h933	h987	h486	h448	h648	h610

Water Addition	WA Rtn'd H2 Conc (%) Mean	WA HS H2 Conc (%) Mean	WA HS CH4 Conc (%)	WA HS NH3 Conc (%)	WA FG Conc (%LFL) 95%CI	WA FG Conc (%LFL) Median	WA Depth Crit Ratio 95%CI	WA Depth Crit Ratio Median
AY-102	41.9%	0.9%	0.12%	0.08%	55%	23%	1.319	1.060
	h717	h1419	h1473	h1527	h1782	h1744	h1404	h1366

Caustic Addition	CA Rtn'd H2 Conc (%) Mean	CA HS H2 Conc (%) Mean	CA HS CH4 Conc (%)	CA HS NH3 Conc (%)	CA FG Conc (%LFL) 95%CI	CA FG Conc (%LFL) Median	CA Depth Crit Ratio 95%CI	CA Depth Crit Ratio Median
AY-102	41.9%	0.9%	0.12%	0.08%	55%	23%	9.237	9.237
	h717	h2067	h2121	h2175	h2430	h2392	h2052	h2014

As Is	Buoyancy Ratio (max)	Energy Ratio (min)	Energy Ratio (max)	Wncl Depth Crit (Pass - >1)	%LFL Depth Criteria (Pass - <1)	AS IS	10,000 gal H2O Addition	10,000 gal Caustic Addition
AY-102	3.16	3.44	64.1	99.88	99.88	C	C	C
	h564	h509	h510			M6	M13	M20

AY-102 mc report 020422 .xls

As Is	Energy Ratio 95%CI	Energy Ratio Median	Estey Criterion 95%CI	Estey Criterion Median	Buoyancy Ratio 95%CI	Buoyancy Ratio Median
AY-102	36.039	9.352	84.712	71.444	1.647	1.016
	h540	h502	h702	h664	h594	h556

Water Addition	WA Energy Ratio 95%CI	WA Energy Ratio Median	WA Estey Criterion 95%CI	WA Estey Criterion Median	WA Buoyancy Ratio 95%CI	WA Buoyancy Ratio Median
AY-102	37.276	9.713	84.712	71.444	1.576	0.989
	h1890	h1852	h1944	h1906	h1998	h1960

Caustic Addition	CA Energy Ratio 95%CI	CA Energy Ratio Median	CA Estey Criterion 95%CI	CA Estey Criterion Median	CA Buoyancy Ratio 95%CI	CA Buoyancy Ratio Median
AY-102	36.394	9.428	85.866	71.848	1.577	1.023
	h2538	h2500	h2592	h2554	h2646	h2608

As Is	Tank Op Limit Exceeded?	Wncl Depth Crit (% Pass)	%LFL Depth Criteria (% Pass)	Bouyancy Ratio Factor	Rtn'd H2 Conc (%) (Median)	HS H2 Conc (%) (Median)
AY-102	No	99.88	99.88	1,334.3	41.0%	0.8%
	h2724				h718	h880

AY-102 mc report 020422 .xls

As Is	T. Waste Depth (m)	Tank Class (95% CI)	Tank Class (Mean #)	Tank Class (Min)	Tank Class (Max)	Void Fraction 95%CI	Void Fraction Median	Void Fraction Maximum
AY-102	6.3	C	3.00	A	C	0.119	0.060	0.176
	h15	h322	h285	h293	h294	h270	h232	h240

	WA	WA	WA	WA	WA	WA	WA	WA
Water Addition	T. Waste Depth (m)	Tank Class (95% CI)	Tank Class (Mean #)	Tank Class (Min)	Tank Class (Max)	Void Fraction 95%CI	Void Fraction Median	Void Fraction Maximum
AY-102	6.4	C	3.00	A	C	0.119	0.060	0.176
	h1311	h1834	h1797	h1805	h1806	h270	h232	h240

	CA	CA	CA	CA	CA	CA	CA	CA
Caustic Addition	T. Waste Depth (m)	Tank Class (95% CI)	Tank Class (Mean #)	Tank Class (Min)	Tank Class (Max)	Void Fraction 95%CI	Void Fraction Median	Void Fraction Maximum
AY-102	6.4	C	3.00	A	C	0.119	0.060	0.173
	h1257	h2482	h2445	h2453	h2454	h3186	h3148	h3156

As Is	%A	%B	%C	Estey Criteria (min)	Estey Criteria (95%CI)	Estey Criteria (max)	Buoyancy Ratio (min)	Buoyancy Ratio (Median)
AY-102	0.0	0.1	99.9	45	85	99	0.30	1.02
				h671	h702	H672	h563	h556

AY-102 mc report 020422 .xls

As Is	Rtn'd H2 Conc (%) Mean	HS H2 Conc (%) Mean	HS CH4 Conc (%)	HS NH3 Conc (%)	FG Conc (%LFL) 95%CI	FG Conc (%LFL) Median	Depth Crit Ratio 95%CI	Depth Crit Ratio Median
AY-102	41.9%	0.9%	0.12%	0.08%	55%	23%	1.338	1.074
	h717	h879	h933	h987	h486	h448	h648	h610

Water Addition	WA Rtn'd H2 Conc (%) Mean	WA HS H2 Conc (%) Mean	WA HS CH4 Conc (%)	WA HS NH3 Conc (%)	WA FG Conc (%LFL) 95%CI	WA FG Conc (%LFL) Median	WA Depth Crit Ratio 95%CI	WA Depth Crit Ratio Median
AY-102	41.9%	0.9%	0.12%	0.08%	55%	23%	1.319	1.060
	h717	h1419	h1473	h1527	h1782	h1744	h1404	h1366

Caustic Addition	CA Rtn'd H2 Conc (%) Mean	CA HS H2 Conc (%) Mean	CA HS CH4 Conc (%)	CA HS NH3 Conc (%)	CA FG Conc (%LFL) 95%CI	CA FG Conc (%LFL) Median	CA Depth Crit Ratio 95%CI	CA Depth Crit Ratio Median
AY-102	41.9%	0.9%	0.12%	0.08%	55%	23%	9.237	9.237
	h717	h2067	h2121	h2175	h2430	h2392	h2052	h2014

As Is	Buoyancy Ratio (max)	Energy Ratio (min)	Energy Ratio (max)	Wncl Depth Crit (Pass - >1)	%LFL Depth Criteria (Pass - <1)	AS IS	10,000 gal H2O Addition	10,000 gal Caustic Addition
AY-102	3.16	3.44	64.1	99.88	99.88	C	C	C
	h564	h509	h510			M6	M13	M20

AY-102 mc report 020422 .xls

As is	Energy Ratio 95%CI	Energy Ratio Median	Estey Criterion 95%CI	Estey Criterion Median	Buoyancy Ratio 95%CI	Buoyancy Ratio Median
AY-102	36.039	9.352	84.712	71.444	1.647	1.016
	h540	h502	h702	h664	h594	h556

Water Addition	WA Energy Ratio 95%CI	WA Energy Ratio Median	WA Estey Criterion 95%CI	WA Estey Criterion Median	WA Buoyancy Ratio 95%CI	WA Buoyancy Ratio Median
AY-102	37.276	9.713	84.712	71.444	1.576	0.989
	h1890	h1852	h1944	h1906	h1998	h1960

Caustic Addition	CA Energy Ratio 95%CI	CA Energy Ratio Median	CA Estey Criterion 95%CI	CA Estey Criterion Median	CA Buoyancy Ratio 95%CI	CA Buoyancy Ratio Median
AY-102	36.394	9.428	85.866	71.848	1.577	1.023
	h2538	h2500	h2592	h2554	h2646	h2608

As is	Tank Op Limit Exceeded?	Wncl Depth Crit (% Pass)	%LFL Depth Criteria (% Pass)	Bouyancy Ratio Factor	Rtn'd H2 Conc (%) (Median)	HS H2 Conc (%) (Median)
AY-102	No	99.88	99.88	1,334.3	41.0%	0.8%
	h2724				h718	h880

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APPENDIX F

HENDERSHOT, REED,
1999,
"*TANK VOLUME ADJUSTMENTS*",
7B40-99-116,
CH2MHILL HANFORD GROUP, INC.,
RICHLAND, WASHINGTON

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INTEROFFICE MEMO LOCKHEED MARTIN

From:	Inventory Control and Modeling	74B40-99-116
Phone:	373-3 R2-11	
Date:	August 16, 1999	
Subject:	Tank Volume Adjustments	

To:	K. M. Hodgson	R2-11
cc:	S. A. Barker	R2-11
	W. B. Barton	R2-11
	J. W. Cammann	R2-12
	R. Hendershot File	

Reference: Hill, Julian G. et al, July 1999, "An Assessment of the Uncertainty in the Waste Volume of the Hanford Site Single-Shell and Double-Shell Tanks", Pacific Northwest National Laboratory, Richland, Washington.

Attached are the results of calculations done to more accurately estimate the volume of tank waste at the Hanford site. These calculations were done in response to a report by PNNL stating that the current methods overestimate the waste volume by 460,000 gallons. Our calculations show that the overestimation is approximately ~~X~~ 540,000 gallons.

Attached are the results of our calculations.

If you need any additional information or have any questions please contact me at 372-2349

Reed Hendershot
Summer Engineer

74B40-99-116

ATTACHMENT

Tank Volume Adjustments

Consisting of 3 pages
including this cover sheet

Tank Volume Adjustments

Hendershot, R. J. and Plesha, M. A.
August 16, 1999

Due to recent concerns about the accuracy of waste volume calculations, a detailed analysis of all tank farms in the 200 area of the Hanford site was completed. As a result of this analysis it was found that the current simplifications in tank volume calculations could overestimate the total waste volume by more than 500,000 gallons. It is recommended that the more detailed volumetric calculations developed in this analysis be implemented in future waste volume calculations to correct for current systematic errors.

Method

The twenty-two different tank farms were divided into eight similar types. These divisions segment the tank farms based on physical similarities. It should be noted that the similarities do not include the tank height, since waste volume depends on the height of the waste from the bottom of the tank and not the void space above the waste (see page 3 of reference 1).

Tank Types

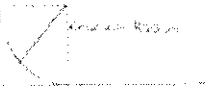
Tank Type	Number of Tanks	Tank Farms	Tank Radius (ft) *	Edge Type	Knuckle Radius (ft)	Bottom Type	Dish Depth (inches)
1	108	B, C, T, U -100 series; BX; BY; S; TX; TY	37.5	Knuckle	4	Dish	12
2	18	AN; AW; AZ; SY	37.48 *	Knuckle	1	Flat	
3	16	B, C, T, U - 200 series	10	Knuckle	3	Dish	6
4	15	SX	37.51	Square	0	Dish	14.88
5	8	AP	37.47 *	Knuckle	1	Flat	
6	6	A	37.51	Square	0	Flat	
7	4	AX	37.51	Knuckle	4-8 inches (nominal value of 6 inches used)	Flat	
8	2	AY	37.5	Knuckle	1	Flat	

*For tank types 2 and 5 the reported radius is an average over the height of the tank body

Knuckle Error

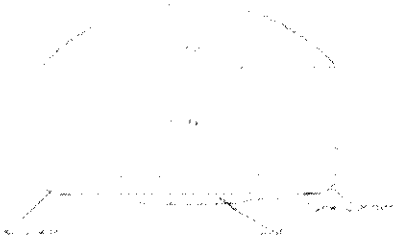
The largest contribution to overestimation in waste volume calculations is the analysis of the knuckle volume. The current method assumes that the bottom tank corner does not curve, but that it is square. In type 1 tanks where the knuckle radius is four feet, this method overestimates waste volume by 5,844 gallons per tank, assuming that the waste height is above the top of the knuckle. Since type 1 tanks are the most prevalent at Hanford (108 out of 177 tanks), this single error causes an overestimation in volume by 631,152 gallons. In the other tank types the effect is not as large.

Tank Corner



Dish Error

The next largest contribution to volumetric error is the value used for the dish volume. The largest dish error was found to be with type 4 tanks, where the previous volume of 18,500 gallons underestimated the actual



volume of 20,553 gallons by 2,053 gallons. Because of this dish error, type 4 tanks accounted for the largest underestimation in waste volume of any tank type.

Tank Radius Error

The smallest correction dealt with the tank radius. Current calculations assume that all tank radii except for type 3 tanks are 37.5 feet. The actual inside radii on the tank drawings differs slightly from the assumed values. This difference, however, can probably be neglected since the construction tolerances are larger than the differences in tank radii. It should be noted that when the different tank radii are accounted for, the total waste volume estimation for the Hanford site changes by less than 5,000 gallons (assuming an average waste height of 100 inches as suggested on page 6 in reference 1). For completeness, the table below does account for this correction.

Volume Adjustments (in gallons)

Tank Type	Current Knuckle Volume	Revised Knuckle Volume	Volume Change Due to Knuckle	Current Dish Volume	Revised Dish Volume	Volume Change Due to Dish	Actual Tank Radius (ft)	Volume change Due to Radius	Total Volume Change per Tank	Total Volume Change for Tank Type
1	131,861	126,017	-5,844	12,500	13,378	888	37.5	0	-4,966	-536,328
2	33,005	32,608	-396	0	0	0	37.48	-307	-704	-12,670
3	6,989	6,171	-818	590	323	-267	10	0	-1,085	-17,366
4	0		0	18,500	20,553	2,053	37.51	128	2,182	32,723
5	33,003	32,604	-400	0	0	0	37.47	-325	-725	-5,800
6	0		0	0	0	0	37.51	151	151	904
7	16,533	16,439	-94	0	0	0	37.51	142	47	189
8	33,048	32,672	-376	0	0	0	37.5	0	-376	-752

Decrease in Total Waste Volume for all Hanford tanks: **539,101** gallons

Conclusion

The proposed method of calculating waste volumes is more exact than the current method because it factors in tank specific geometry. By calculating waste volumes in this manner the total waste volume estimates for the Hanford site could decrease by over 500,000 gallons.

APPENDIX G

WELLS, B. E.,
JAN 24, 2002A,
PERSONAL EMAIL TO S. A. BARKER,
PACIFIC NORTHWEST NATIONAL LABORATORY,
RICHLAND, WASHINGTON.

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From: Wells, Beric E [Beric.Wells@pnl.gov]
Sent: Thursday, January 24, 2002 7:14 PM
To: Barker, Steven A
Subject: shear strength

Steve:

I spoke with Chuck later in the day...he does not like using the yield stress measurements for two reasons.

1. How well do they actually represent in situ conditions?

2. The models (Energy Ratio, Buoyancy Ratio) were developed from and calibrated to the six old FG1 tanks with BDGREs...yield stress < 250 Pa. Therefore, the applicability of the models is in question in the higher yield stress solids (bubbles change shape, movement physics, etc.)

Although the data (as correct or incorrect as they are) indicate high yield stress, it is more conservative to go with lower values, and the models may not be applicable with higher yield stress anyway. Chuck would probably be OK with 50 to 500 Pa uniform, maybe even only 50 to 400 Pa uniform.

I have enclosed a file of the TWINS yield stress for curiosities sake...

Beric

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APPENDIX H

WELLS, B. E., 2002B,
***"INVESTIGATION OF GAS RETENTION AND RELEASE ISSUES IN TANKS AN-107 AND SY-101 SUPPORTING WASTE GROUP DETERMINATION"*,**
TWS02.025,
PACIFIC NORTHWEST NATIONAL LABORATORY,
RICHLAND, WASHINGTON.

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TWS02.025

Investigation of Gas Retention and Release Issues in Tanks AN-107 and SY-101 Supporting Waste Group Determination

BE Wells

May 2002

Pacific Northwest National Laboratory
Richland, Washington

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Removed per E-mail instruction dated 3/24/03 - James Huckaby to William Cowley.
3/24/03

1.0 Introduction

A methodology has been developed to categorize Hanford waste tanks into waste groups based on the tank's estimated flammable gas inventory and the potential for that gas to be released by a buoyant displacement gas release event (BDGRE). In support of this categorization, the recent (2000-2002) observed gas release events in AN-107 and the retained gas volume in AN-107 and SY-101 were analyzed in detail. The current sediment depth in SY-101 is also investigated.

Application of the BDGRE predictive indicators has historically shown that AN-107 was close to exhibiting BDGRE behavior (Meyer and Stewart 2001, Johnson et al. 2000). Since the predictive model of BDGRE behavior is based on the group of tanks exhibiting this behavior, inclusion of AN-107 in the group has the potential to affect the waste group determinations for the remaining tanks. The three gas release events observed recently in AN-107 (McCain, 2001) were investigated in detail to determine if the tank indeed belongs in the BDGRE group. The retained gas volume in AN-107 was also evaluated.

The potential for large BDGREs in SY-101 (Meyer et al. 1997) was eliminated by a series of waste transfers and water dilutions in 1999 and 2000 (Johnson et al. 2000). However, like AN-107, SY-101 in its new configuration is relatively close to (in terms of the BDGRE predictive indicators) the group of tanks exhibiting BDGREs. The last evaluation of if its waste configuration was done in August 2000 (Johnson et al. 2000). SY-101 data were updated by an investigation of potential gas retention and refinement of the sediment layer depth (a significant parameter for identifying the potential of BDGRE behavior) to ensure that the tank is categorized correctly.

In Section 2, the analyses conducted on AN-107 are described, and Section 3 covers the evaluation of SY-101. The findings pertinent to waste group categorization are summarized in Section 4, and cited references are listed in Section 5.

2.0 AN-107 Analyses

Specific gas release behavior and gas retention issues in AN-107 are investigated as they pertain to waste group determination.

2.1 AN-107 Gas Release Events

Three gas release events have been reported in AN-107. These events occurred on April 30, 2000, January 28, 2001, and February 21, 2002, and were identified via monitoring of the headspace hydrogen concentration in the tank (McCain, 2001). The monitoring is performed by two Whittaker™ electrochemical cells in a standard hydrogen monitoring system (SHMS)-B, from which a daily reading is recorded. The SHMS was installed in February 1998. Tank operations (waste intrusive activities, caustic/water additions, instrument re-calibration, etc.) at the time of the reported gas release events and the nature of the events themselves were investigated to establish whether the events were potentially induced by waste disturbance, were artifacts of the instrumentation, or were indeed *spontaneous* BDGREs (Meyer and Stewart 2001).

Figure 1 is a plot of the hydrogen concentration and waste level around the time of the April 30, 2000 event. The release was very minor, having a maximum recorded hydrogen concentration of 290 ppm (baseline at this time was 110 ppm). No tank operations were identified to be associated with this release. The actual rise in hydrogen concentration in this event was very small (180 ppm), and occurred during a time of fluctuating concentration readings. The hydrogen concentration trend also does not show the typical BDGRE shape discussed in Hedengren et al. (2000) and the release is not reflected in the level history. Therefore, this event was not deemed to be evidence of BDGRE behavior in the tank.

Figure 2 shows the hydrogen concentration and waste level history during the January 28, 2001, event. A maximum hydrogen concentration of 470 ppm (130 ppm at "start" of event) was recorded. Although larger in magnitude than the April 2000 event, it is still relatively minor. Calibration work was being performed on the hydrogen monitoring system during this time, which may have caused a spurious hydrogen concentration elevation.[1] Additionally, it is apparent in Figure 2 that the hydrogen concentration trend does not show the typical BDGRE shape, taking approximately 20 days to return to the baseline concentration. Decay to baseline is typically on the order of a day to a few days in an actively ventilated tank (Hedengren et al. 2000). Again, there was no evidence of a gas release in the waste level history at the time of this event (Figure 2). Therefore, this event was also not deemed to be indicative of BDGRE behavior.

[1] Personal Communication with DC Hedengren, CH2M HILL Hanford Group, March 28,2002.

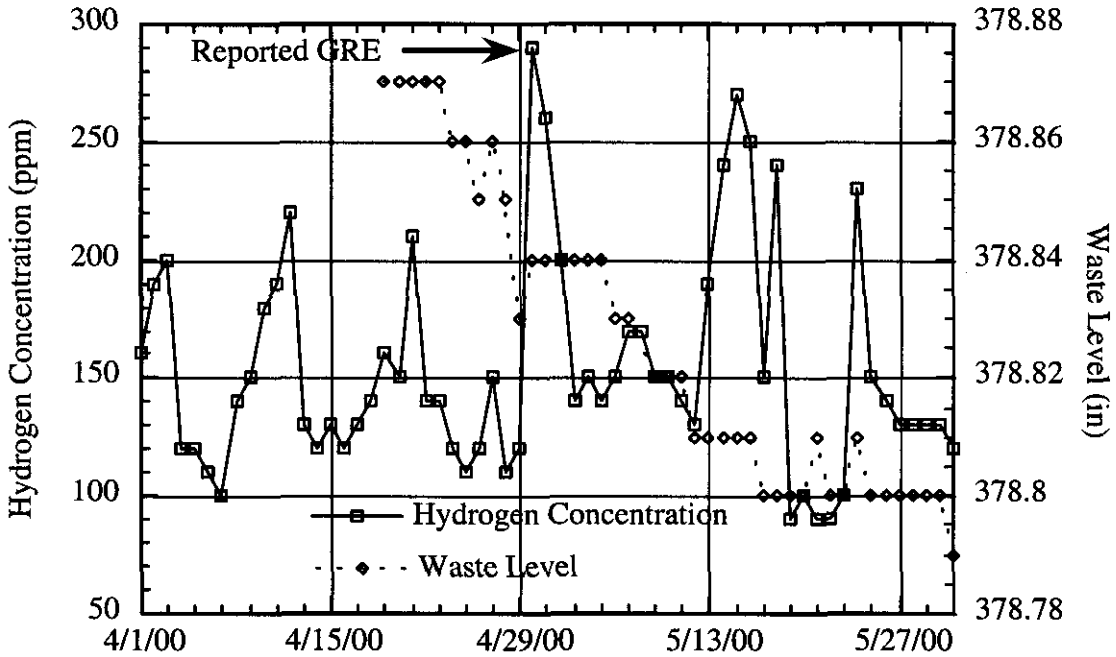

Figure 1. Hydrogen Concentration and Waste Level in AN-107, 4/1/00 to 5/31/00

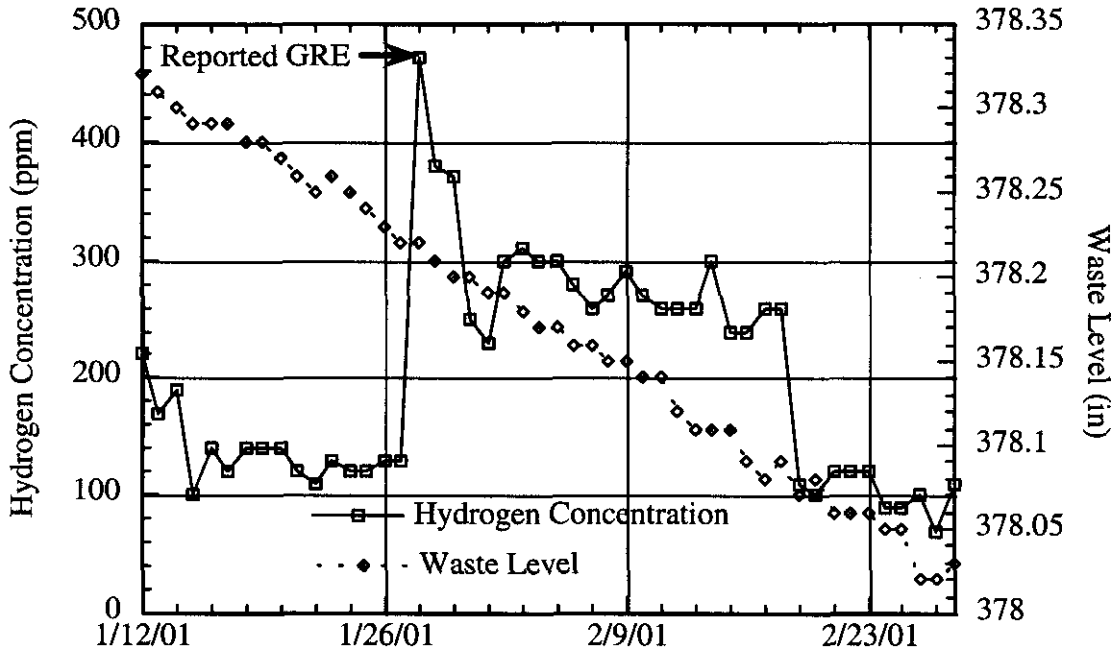

Figure 2. Hydrogen Concentration and Waste Level in AN-107, 1/12/01 to 2/28/01

The final reported event, on February 21, 2002, is illustrated in Figure 3. It also had a maximum recorded hydrogen concentration of 470 ppm. However, it also coincided with the start of the re-circulation pump in preparation for the caustic addition. The pump inlet was just above the sediment layer, and the pump outlet is near the top of the riser above the waste surface. The returned liquid is allowed to freely cascade back into the waste. The recorded release was likely the result of this process, and is therefore not considered indicative of spontaneous BDGRE activity in the tank. The caustic addition to the tank is reflected in the waste level increase beginning on February 21 (Figure 3).

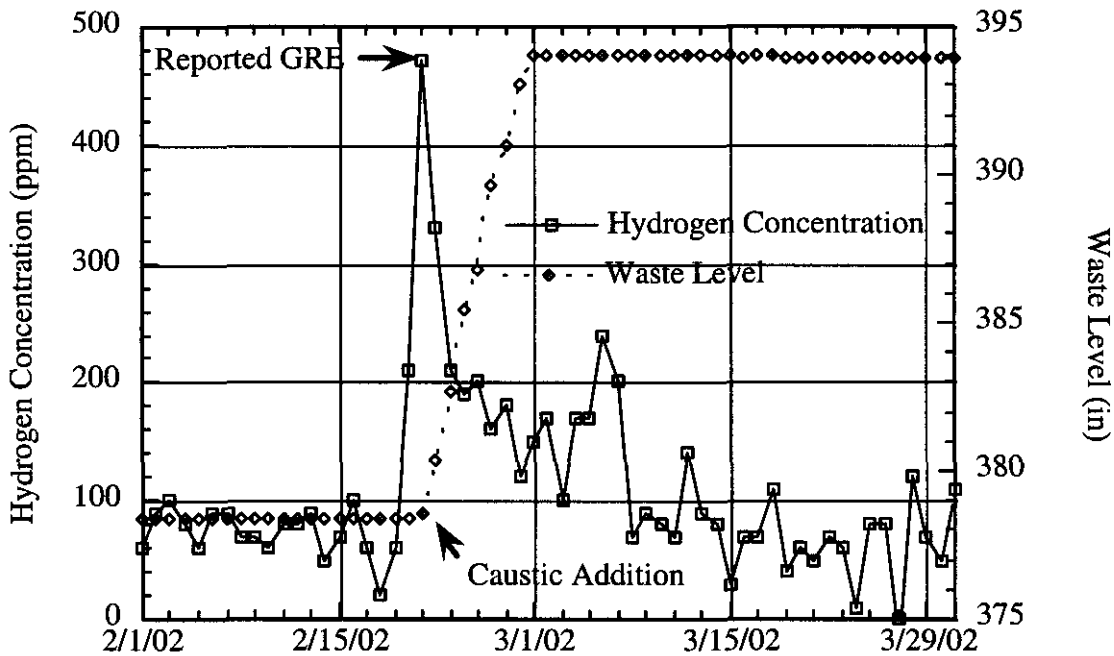

Figure 3. Hydrogen Concentration and Waste Level in AN-107, 2/1/02 to 3/31/02

To summarize, the indicators of BDGRE behavior (gas release signature and magnitude; level history) do not provide clear evidence to indicate that AN-107 is experiencing BDGREs. The one event that can be considered spontaneous was a very small release and the other two are explained by in-tank activities. The BDGRE predictive indicators should not be based on AN-107 (see Meyer and Stewart [2001] for explanation of BDGRE predictive indicator "calibration").

2.2 AN-107 Gas Retention

The retained gas volume may be estimated using changes in the waste surface level in response to barometric pressure changes. The Barometric Pressure Effect (BPE) model is described in Appendix B of Hedengren et al. (2000). The model estimates the retained gas volume based on the response of the waste surface level to fluctuations in the barometric pressure due to compression and expansion of stored gas.

As the model is relatively insensitive to small pressure fluctuations, we are most interested in the waste level response during the winter months when the pressure fluctuations are relatively large. To include two winter seasons, the waste level and barometric pressure correlation was evaluated from June 2000 through March 2002. A histogram of the estimated gas volume from the BPE model in AN-107 is shown in Figure 4. The histogram has been truncated to the physical limits of zero and 4,000 ft^3 imposed by setting the average gas volume fraction in the sediment layer to the neutral buoyancy gas fraction. The in-situ retained gas volume is estimated to be 2,100 ft^3 (4,200 scf for a pressure of 2 atm) at the 95% confidence level (CL) and zero at the median.

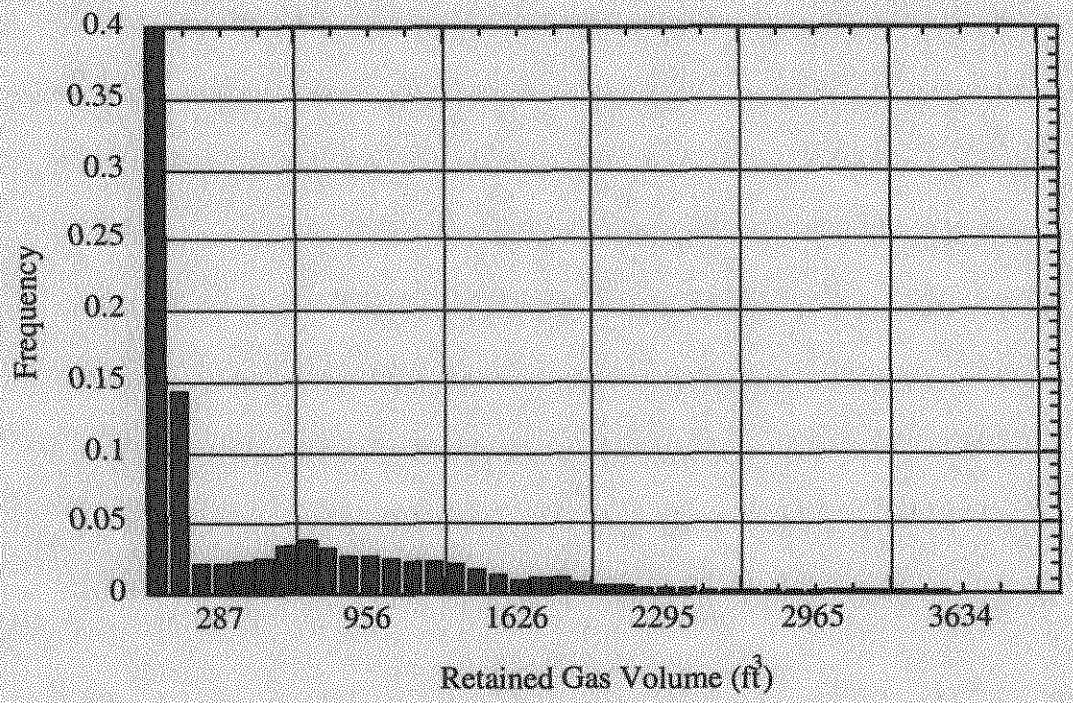

Figure 4. AN-107 Retained Gas Volume (truncated)

The retained gas volumes were also examined as a function of time; i.e. is the tank gaining or loosing gas volume with time? No correlation was identifiable.

3.0 SY-101 Analyses

The two main issues in SY-101 waste group classification were the retained gas inventory and the depth of the sediment layer, an influential parameter in the BDGRE indicator.

3.1 SY-101 Gas Retention

The retained gas volume in SY-101was evaluated using the BPE model as described for AN-107 above. The gas content in SY-101 was also estimated from the waste surface level history accounting for estimated water evaporation as discussed by Johnson et al. (2000).

The waste level and barometric pressure correlation for SY-101 from both of the Enraf™ level instruments was evaluated from June 2000 (post remediation) through March 2002. No meaningful correlation was found. The lack of correlation may be due to the difficulty of the BPE model in detecting a small retained gas volume (Hedengren et al. 2000), or may be a result of the floating "scum" layer (Johnson et al. 2000) affecting the waste surface measurement.

Evaporation of water from the waste can mask a level rise due to gas retention. The evaporation effect in SY-101 was calculated from the difference in specific humidity between the ambient air at the tank inlet and the exhaust air. The evaporation evaluation conducted by Johnson et al. (2000) five months after remediation indicated that gas retention was negligible. The analyses was extended to the present to confirm this was still the case. However, measurements required for this calculation (the tank dome pressure and exhaust air temperature, relative humidity, and flow rate) were not available after October 2000.

In the absence of these data, the exhaust humidity was estimated using the water vapor partial pressure in a concentrated salt solution derived from data for SY-101 simulants as presented in Stewart et al. (2002). The exhaust flow rate was held fixed at the last recorded data point. Using this approximate model, the waste level correction from Johnson et al. (2000) was extrapolated to March 2002. The new model with the alternate sources was "calibrated" to match the results of the "exact" model for the time period during which all data were available. The measured waste level and the corrected waste level trend with the evaporation effect removed are shown in Figure 6. A two-inch waste level rise is shown from October 2000 to March 2002. It is interesting to note that, beginning in January 2002, there has been no continued increase in the corrected waste level, indicating no further gas accumulation. The two-inch level rise corresponds to approximately 750 ft^3 of retained gas in-situ or 1,500 scf accounting for a gas pressure of 2 atm. This relatively minor retained gas volume supports the inability of the BPE model to find meaningful pressure-level correlations (see above).

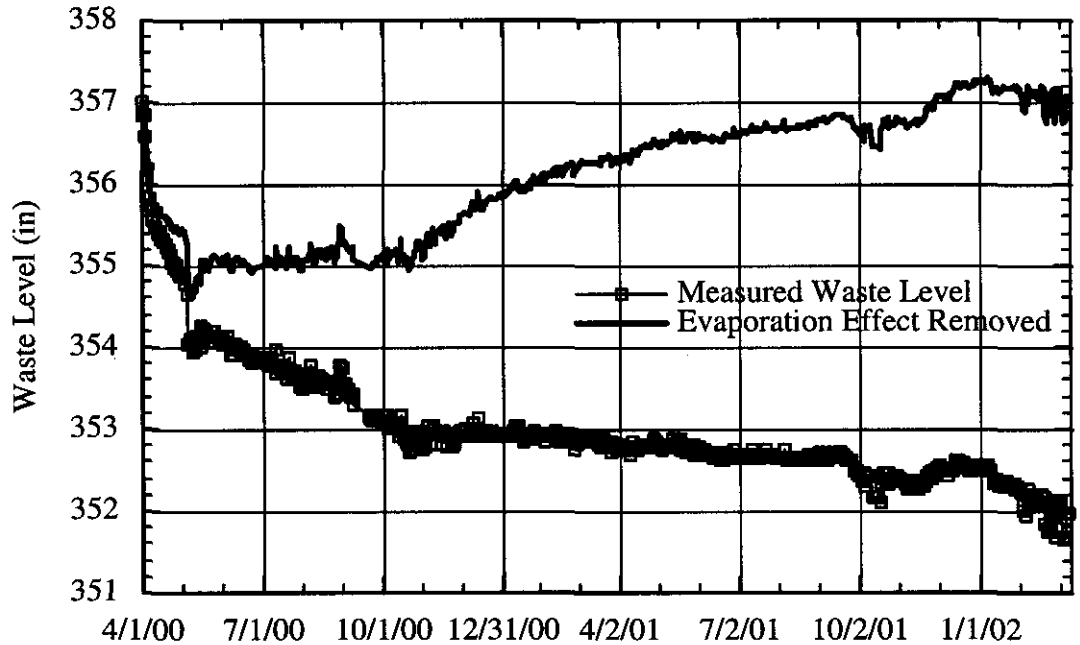

Figure 6. SY-101 Waste Level and Waste Level with Evaporation Effect Removed

3.2 SY-101 Sediment Depth

Determination of a tank's potential for BDGRE behavior is strongly affected by the sediment depth (Meyer and Stewart 2001). The sediment depth in SY-101 was re-examined for the waste group determination since the last evaluation in August 2000 was only five months after mixer pump operations and remediation activities. The available measurements for determining the sediment depth include the neutron and gamma scans and the waste temperature profiles from the multi-function instrument trees (MITs) (see Hedengren et al. [2000] for a detailed description of the waste characterization measurements).

The neutron/gamma logs were last recorded in risers 17B and 17C on June 14, 2001. It is apparent from both the neutron (Figure 7) and gamma (Figure 8) logs that the sediment layer was at or below 100 inches at each riser (the lower count below 100 inches indicates the presence of solids). The gamma log gives the more accurate representation, and indicates that the sediment depth was approximately 95 inches.

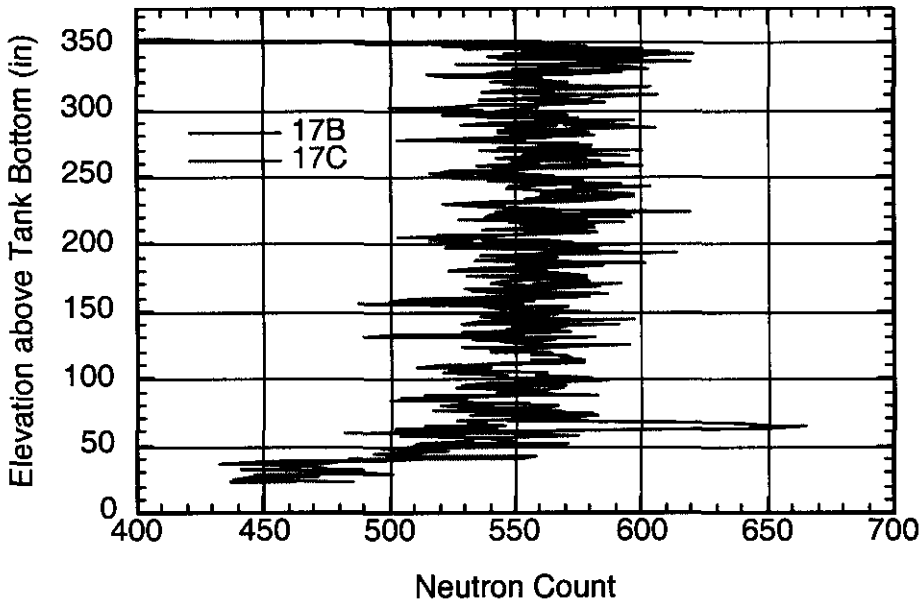

Figure 7. SY-101 Neutron Count Profile, 6/14/01

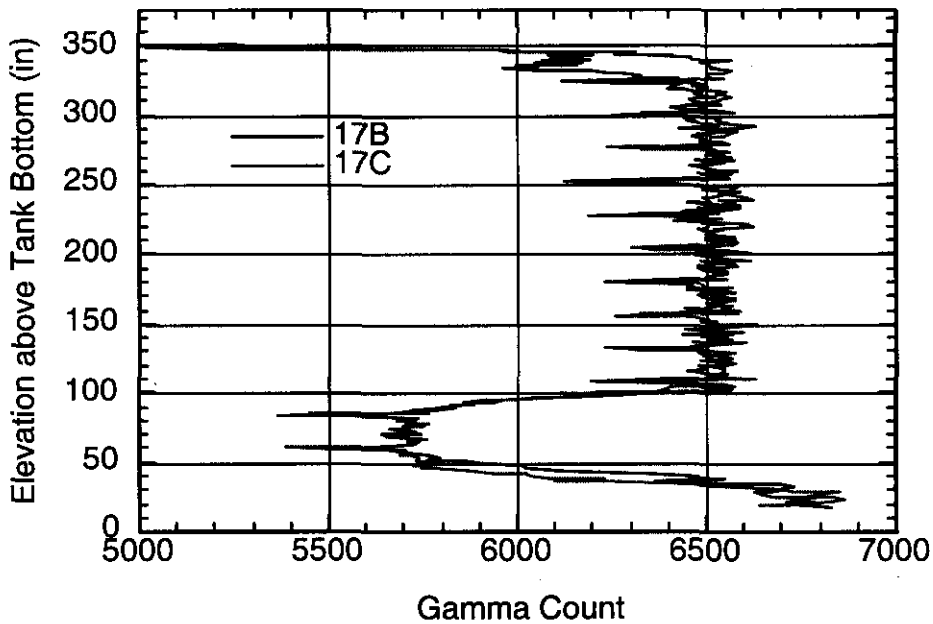

Figure 8. SY-101 Gamma Count Profile, 6/14/01

The waste temperature profiles from risers 17B and 17C, shown in Figures 9 and 10, clearly show the decrease in the settled solid layer height with time after the remediation. Each curve represents a single thermocouple at the specified elevation. The bold black line indicates the 100-inch thermocouple temperature. The upper "cluster" of temperatures represents the thermocouples exposed to the sediment layer; and the lower cluster represents thermocouples

measuring the supernatant liquid. Spikes and jumps in the data are instrumentation artifacts. Note the departure, from left to right on the plots, of subsequently lower thermocouples from the temperature range of the sediment layer into the temperature range of the supernatant liquid. This represents the effect decreasing sediment depth uncovering subsequent thermocouples. The 100-inch thermocouple registered the supernatant liquid temperature in October 2000. The 76-inch thermocouple began to depart from the sediment layer temperature in July 2000 but apparently has not been fully uncovered. The sediment depth is therefore somewhere between 100 and 76 inches.

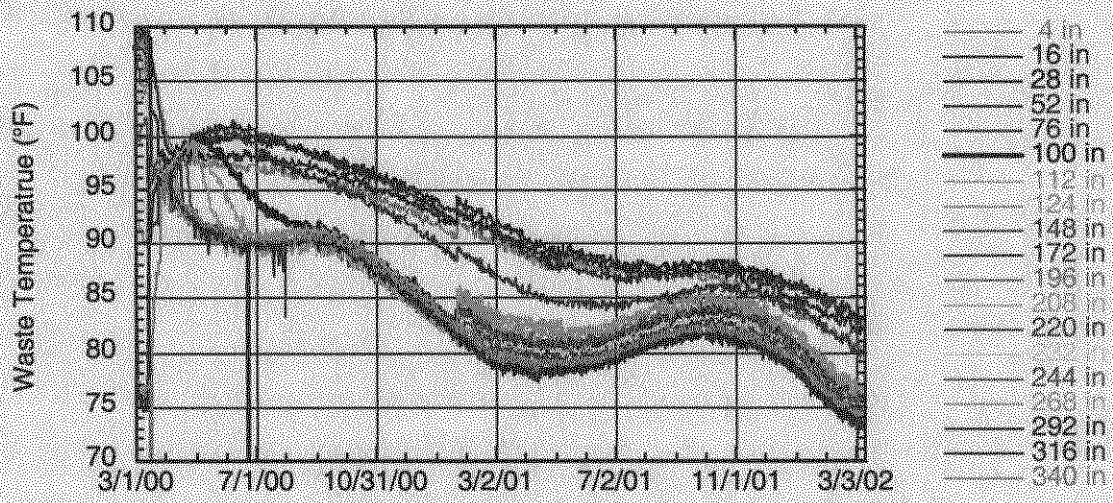

Figure 9. SY-101 Temperature Profile History in Riser 17B

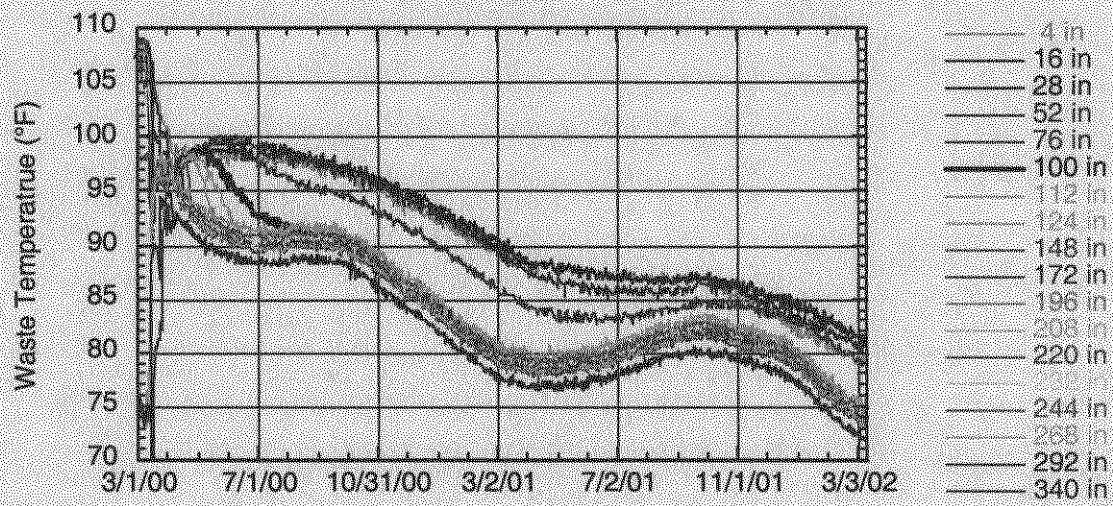

Figure 10. SY-101 Temperature Profile History in Riser 17C

As may be noted in Figures 9 and 10, there are vertical separations of 24 inches between the thermocouples in the region of interest. Validation probe scans, which provide temperature readings every six inches, were completed on April 4, 2002. The resulting

temperature profile is shown in Figure 11. Only the lower portion of the waste is shown in the figure. The sediment layer depth of over 100 inches indicated by the validation probe data in riser 17B is suspect as it does not agree with the thermocouple measurements on the same date. It is believed that either the elevation of the validation probe in 17B was in error, insufficient time was allowed for the probe to equilibrate at each elevation, or there was inadequate contact between the resistance temperature detector and the MIT wall. The validation probe data are consistent with thermocouple readings in 17C. By extrapolating the transition of the uniform supernatant liquid temperature and the sediment layer temperature trend from the April 4, 2002 validation probe scan in riser 17C (as depicted by the bold-dashed-lines in Figure 11), the sediment depth in SY-101 is currently 90 inches.

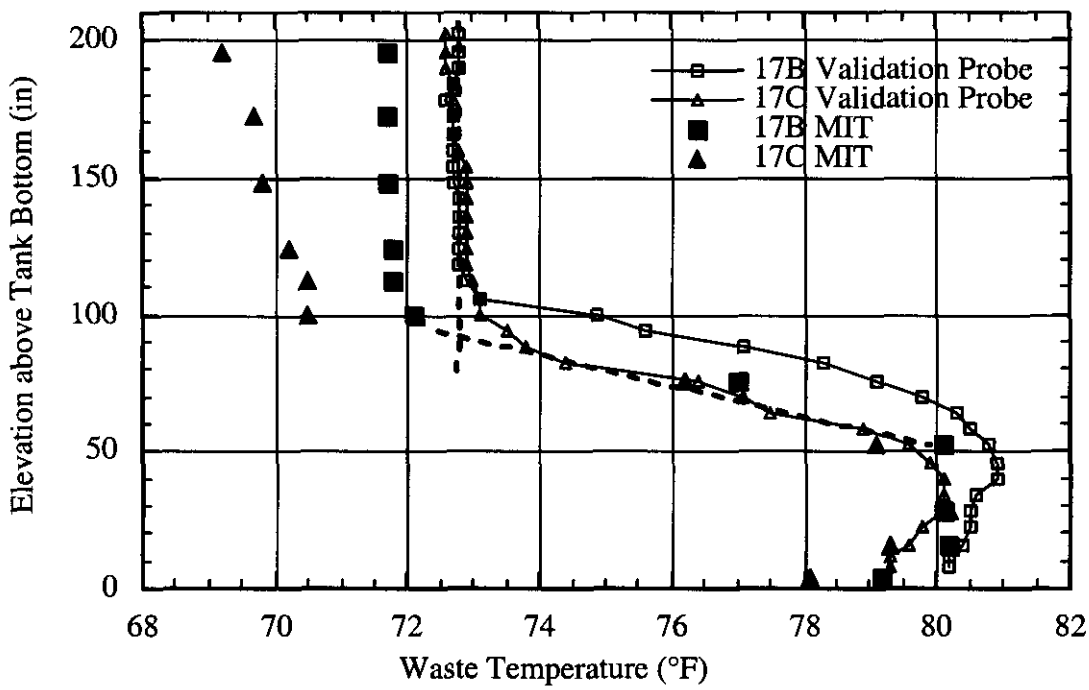

Figure 11. SY-101 Waste Temperature Profile, 4/4/02

4.0 Conclusions

It was determined that none of the three reported gas release events in AN-107 clearly represented a spontaneous BDGRE. Therefore, the BDGRE predictive indicators should not be based on AN-107. The in-situ retained gas volume in AN-107 was estimated to be 2,100 ft^3 at the 95% confidence level using the BPE model.

The in-situ retained gas volume in SY-101 estimated by removing the evaporation effect from the waste surface level is 750 ft^3. Based on the available measurements, the best estimate of the current sediment layer depth in SY-101 is 90 inches.

5.0 References

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APPENDIX I

WILLMARTH, S. L.,
JAN 16, 2002,
PERSONAL EMAIL TO S. A. BARKER,
CH2MHILL HANFORD GROUP, INC.,
RICHLAND, WASHINGTON.

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From: Wilmarth, Steven R
Sent: Wednesday, January 16, 2002 1:05 PM
To: Barker, Steven A
Subject: change to best basis volume uncertainty table
Steve,

The 6.0 inch values in the previous file I sent have been changed to 6.5 inches. See the attached files.

Steve W.

File: sludge-SD.doc January 15, 2002

Table cc. Sluge level measurements for ten tanks, units inches, S.D. is standard deviation. Data from TO-040-560, Rev. B-9, Tank Farm Sludge Level Readings.

Tank	Date	Riser No.	Sludge Level	S.D.	Count
241-AN-102	6/29/89	16A	39.25	6.63	3
	6/29/89	1B	32.25		
	6/29/89	1C	26.00		
241-AN-107	6/29/89	16C	46.10	2.78	3
	6/29/89	1C	51.65		
	6/29/89	1A	48.95		
241-AW-101	9/13/87	1B	25.88	9.81	2
	9/13/87	1C	NA		
	9/13/87	16A	NA		
	9/13/87	16C	NA		
	7/8/88	15B	12.00		
241-AW-102	10/20/94	22A	20.50	0.71	2
	10/20/94	22A	19.50		
241-AW-106	7/7/91	1B	99.88	14.71	3
	7/7/91	1C	NA		
	7/7/91	16A	95.50		
	7/7/91	16C	72.50		
	7/7/91	22A	NA		
241-AY-101	7/1/97	15B	39.50	0.88	6
	7/1/97	15J	39.00		
	7/1/97	15N	38.50		
	7/1/97	15R	38.00		
	7/1/97	15F	39.50		
	7/1/97	15C	40.50		
241-AY-102	10/29/88	15B	19.50	4.53	6
	10/29/88	15C	8.00		
	10/29/88	15F	6.50		
	10/29/88	15H	10.25		
	10/29/88	15J	12.00		
	10/29/88	15R	11.00		
241-SY-102	1/30/87	1A	NA	9.96	5
	1/30/87	1B	NA		
	1/30/87	1C	21.00		
	1/30/87	17A	NA		
	1/30/87	17B	NA		
	1/30/87	17C	18.00		
	1/30/87	23A	NA		
	5/12/87	1C	40.00		
	5/12/87	17C	32.00		
	5/12/87	17A	17.25		
241-AZ-101	1/23/89	24B	15.75	3.76	21
	1/23/89	24C	11.25		
	1/23/89	24D	23.00		
	1/23/89	24E	15.50		
	1/23/89	24F	13.00		
	1/23/89	24G	22.50		
	2/28/89	24B	15.50		
	2/28/89	24C	9.75		
	2/28/89	24D	22.50		
	2/28/89	24E	15.25		
	2/28/89	24F	13.00		
	2/28/89	24G	14.50		
	5/30/89	24B	15.50		
	5/30/89	24C	10.25		
	5/30/89	24D	NA		
	5/30/89	24E	14.75		
	5/30/89	24F	12.25		
	5/30/89	24G	15.25		
	12/26/89	24B	NA		
	12/26/89	24C	11.25		
	12/26/89	24D	NA		
	12/26/89	24E	15.25		
	12/26/89	24F	11.75		
	12/26/89	24G	14.75		
241-AZ-102	1/23/89	24C	19.25	7.80	20
	1/23/89	24D	33.25		
	1/23/89	24E	39.25		
	1/23/89	24F	38.75		
	1/23/89	24G	29.25		
	2/28/89	24C	20.25		
	2/28/89	24D	33.25		
	2/28/89	24E	40.75		
	2/28/89	24F	40.25		
	2/28/89	24G	28.25		
	5/30/89	24C	19.75		
	5/30/89	24D	32.75		
	5/30/89	24E	39.25		
	5/30/89	24F	39.25		
	5/30/89	24G	27.25		
	12/26/89	24C	19.75		
	12/26/89	24D	32.25		
	12/26/89	24E	39.25		
	12/26/89	24F	41.45		
	12/26/89	24G	27.95		

Number of Tanks	10	Pooled Variance	42.19
Number of Observations	71	Pooled Standard Deviation	*6.50*

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APPENDIX J

CHECKLIST FOR TECHNICAL PEER REVIEW

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CHECKLIST FOR TECHNICAL PEER REVIEW

Document Reviewed:

RPP-10006, Rev. 0, *Methodology and Calculations for the Assignment of Waste Groups for the Large Underground Waste Storage Tanks at the Hanford Site*

Scope of Review (e.g., document section or portion of calculation):

Yes	No	NA*		
[ ]	[ ]	[X]	1.	Previous reviews are complete and cover the analysis, up to the scope of this review, with no gaps.
[X]	[ ]	[ ]	2.	Problem is completely defined.
[X]	[ ]	[ ]	3.	Accident scenarios are developed in a clear and logical manner.
[X]	[ ]	[ ]	4.	Analytical and technical approaches and results are reasonable and appropriate.
[X]	[ ]	[ ]	5.	Necessary assumptions are reasonable, explicitly stated, and supported.
[X]	[ ]	[ ]	6.	Computer codes and data files are documented.
[X]	[ ]	[ ]	7.	Data used in calculations are explicitly stated.
[X]	[ ]	[ ]	8.	Bases for calculations, including assumptions and data, are consistent with the supported safety basis document (e.g., the Tank Farms Final Safety Analysis Report).
[X]	[ ]	[ ]	9.	Data were checked for consistency with original source information as applicable.
[X]	[ ]	[ ]	10.	For both qualitative and quantitative data, uncertainties are recognized and discussed, as appropriate.
[X]	[ ]	[ ]	11.	Mathematical derivations were checked including dimensional consistency of results.
[X]	[ ]	[ ]	12.	Models are appropriate and were used within their established range of validity or adequate justification was provided for use outside their established range of validity.
[X]	[ ]	[ ]	13.	Spreadsheet results and all hand calculations were verified.
[X]	[ ]	[ ]	14.	Calculations are sufficiently detailed such that a technically qualified person can understand the analysis without requiring outside information.
[X]	[ ]	[ ]	15.	Software input is correct and consistent with the document reviewed.
[X]	[ ]	[ ]	16.	Software output is consistent with the input and with the results reported in the document reviewed.
[X]	[ ]	[ ]	17.	Software verification and validation are addressed adequately.
[X]	[ ]	[ ]	18.	Limits/criteria/guidelines applied to the analysis results are appropriate and referenced. Limits/criteria/guidelines were checked against references.
[X]	[ ]	[ ]	19.	Safety margins are consistent with good engineering practices.
[X]	[ ]	[ ]	20.	Conclusions are consistent with analytical results and applicable limits.
[X]	[ ]	[ ]	21.	*Results and conclusions address all points in the purpose.*
[ ]	[ ]	[X]	22.	All references cited in the text, figures, and tables are contained in the reference list.
[ ]	[ ]	[X]	23.	Reference citations (e.g., title and number) are consistent between the text callout and the reference list.
[X]	[ ]	[ ]	24.	Only released (i.e., not draft) references are cited.
[X]	[ ]	[ ]	25.	Referenced documents are retrievable or otherwise available.
[X]	[ ]	[ ]	26.	The most recent version of each reference is cited, as appropriate.
[ ]	[ ]	[X]	27.	There are no duplicate citations in the reference list.

_____
Reviewer's Initials

[ ]	[ ]	[X]	28. Referenced documents are spelled out (title and number) the first time they are cited.
[ ]	[ ]	[X]	29. All acronyms are spelled out the first time they are used.
[ ]	[ ]	[X]	30. The Table of Contents is correct.
[ ]	[ ]	[X]	31. All figure, table, and section callouts are correct.
[X]	[ ]	[ ]	32. Unit conversions are correct and consistent.
[X]	[ ]	[ ]	33. The number of significant digits is appropriate and consistent.
[ ]	[ ]	[X]	34. Chemical reactions are correct and balanced.
[X]	[ ]	[ ]	35. All tables are formatted consistently and are free of blank cells.
[X]	[ ]	[ ]	36. The document is complete (pages, attachments, and appendices) and in the proper order.
[ ]	[ ]	[X]	37. The document is free of typographical errors.
[ ]	[ ]	[X]	38. The tables are internally consistent.
[ ]	[ ]	[X]	39. The document was prepared in accordance with HNF-2353, Section 4.3, Attachment B, "*Calculation Note Format and Preparation Instructions*".
[X]	[ ]	[ ]	**Concurrence**

Comments:

1. Rev. Ø

N/A 22, 23, 27-31, 37-39 -- Technical Editor

34. No chemical reactions in document.

Bert E. Wells [signature] 10/29/02

Reviewer (Printed Name and Signature) Date

* If No or NA is chosen, an explanation must be provided on this form.

CHECKLIST FOR TECHNICAL PEER REVIEW

Document Reviewed: RPP-10006, Rev.0

Scope of Review (e.g., document section or portion of calculation):

Yes	No	NA*	
[ ]	[ ]	[X]	1. Previous reviews are complete and cover the analysis, up to the scope of this review, with no gaps.
[ ]	[ ]	[X]	2. Problem is completely defined.
[ ]	[ ]	[X]	3. Accident scenarios are developed in a clear and logical manner.
[ ]	[ ]	[X]	4. Analytical and technical approaches and results are reasonable and appropriate. *(ORP QAPP criterion 2.8)*
[ ]	[ ]	[X]	5. Necessary assumptions are reasonable, explicitly stated, and supported. *(ORP QAPP criterion 2.2)*
[ ]	[ ]	[X]	6. Computer codes and data files are documented.
[ ]	[ ]	[X]	7. Data used in calculations are explicitly stated.
[ ]	[ ]	[X]	8. Bases for calculations, including assumptions and data, are consistent with the supported safety basis document (e.g., the Tank Farms Final Safety Analysis Report).
[ ]	[ ]	[X]	9. Data were checked for consistency with original source information as applicable. *(ORP QAPP criterion 2.9)*
[ ]	[ ]	[X]	10. For both qualitative and quantitative data, uncertainties are recognized and discussed, as appropriate. *(ORP QAPP criterion 2.17)*
[ ]	[ ]	[X]	11. Mathematical derivations were checked including dimensional consistency of results. *(ORP QAPP criterion 2.16)*
[ ]	[ ]	[X]	12. Models are appropriate and were used within their established range of validity or adequate justification was provided for use outside their established range of validity.
[ ]	[ ]	[X]	13. Spreadsheet results and all hand calculations were verified.
[ ]	[ ]	[X]	14. Calculations are sufficiently detailed such that a technically qualified person can understand the analysis without requiring outside information. *(ORP QAPP criterion 2.5)*
[ ]	[ ]	[X]	15. Software input is correct and consistent with the document reviewed.
[ ]	[ ]	[X]	16. Software output is consistent with the input and with the results reported in the document reviewed.
[ ]	[ ]	[X]	17. Software verification and validation are addressed adequately. *(ORP QAPP criterion 2.6)*
[ ]	[ ]	[X]	18. Limits/criteria/guidelines applied to the analysis results are appropriate and referenced. Limits/criteria/guidelines were checked against references. *(ORP QAPP criterion 2.9)*
[ ]	[ ]	[X]	19. Safety margins are consistent with good engineering practices.
[ ]	[ ]	[X]	20. Conclusions are consistent with analytical results and applicable limits.

[ ]	[ ]	[ ]	21. Results and conclusions address all points in the purpose. *(ORP QAPP criterion 2.3)*
[X]	[ ]	[ ]	22. All references cited in the text, figures, and tables are contained in the reference list.
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[X]	[ ]	[ ]	24. Only released (i.e., not draft) references are cited. *(ORP QAPP criterion 2.1)*
[X]	[ ]	[ ]	25. Referenced documents are retrievable or otherwise available.
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[X]	[ ]	[ ]	27. There are no duplicate citations in the reference list.
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[X]	[ ]	[ ]	29. All acronyms are spelled out the first time they are used.
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[ ]	[ ]	[X]	34. Chemical reactions are correct and balanced.
[X]	[ ]	[ ]	35. All tables are formatted consistently and are free of blank cells.
[X]	[ ]	[ ]	36. The document is complete (pages, attachments, and appendices) and in the proper order.
[X]	[ ]	[ ]	37. The document is free of typographical errors.
[X]	[ ]	[ ]	38. The tables are internally consistent.
[ ]	[ ]	[X]	39. The document was prepared in accordance with HNF-2353, Section 4.3, Attachment B, "Calculation Note Format and Preparation Instructions".
[ ]	**[ ]**	**[ ]**	**Concurrence**

CAROL J. LYNCH Carol J. Lynch 3-22-03

Reviewer (Printed Name and Signature) Date

RPP-10006, Rev.0

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