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Waste Staging Risk Reduction Assessment

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
Office of River Protection under Contract DE-AC27-99RL14047

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Waste Staging Risk Reduction Assessment

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Vista Engineering Technologies, LLC

January 2003

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Waste Staging Risk Reduction Assessment

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Abstract: This engineering study identifies proposed metrics and weighting factors for identifying and ranking single-shell tanks (SSTs) as candidates for receipt of wastes from other SSTs for staging purposes, i.e., as an interim step in transfer of waste to double-shell tanks. This study then applies that methodology along with tank waste compatibility and other considerations to assess the relative risk reduction benefits associated with staging waste within SST farms.

Waste Staging Risk Reduction Assessment

Vista Engineering Technologies, LLC, Project No. VET-1155

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EXECUTIVE SUMMARY

Temporary use of sound single-shell tanks (SSTs) for interim staging of waste would assist in expediting the Hanford Site's overall cleanup strategy. The presently available storage volume in the double-shell tanks, planned for interim staging of wastes, is significantly less than the volume of wastes stored in the single-shell tanks; accordingly, transfer of waste from leaking or leak-prone SSTs into sound single-shell tanks would reduce the risk of leakage and provide for storage capacity until closure can be completed.

To assess the risk of using single-shell tanks for interim storage, the analysis described in this report developed a methodology for ranking the single-shell tanks in terms of their likely leak integrity and utility for interim storage. This methodology was then applied to the SSTs together with a strategy for combining the risk of tank leakage with other factors associated with the single-shell tank retrieval sequence to rank the tanks and identify candidates for use as interim storage tanks.

In the first part of this work, a relative risk reduction assessment was undertaken to determine if any of the single-shell tanks could be employed as interim storage tanks. Risk reduction would occur by moving existing wastes from tanks having less liquid integrity and utility to tanks having greater liquid integrity and utility. A multiplicative weighting method was developed that assigned weight values to attributes of the SSTs, and then that methodology was applied to each tank, and the tanks were ranked by score, and by tank farm and score. The results of the multiplicative weighting showed that there were eight single-shell tanks in the C-, U-, S-, and SX- tank farms that can be considered for use as interim storage tanks; these tanks scored in the 95th percentile of the rankings. There were an additional 13 tanks in the S-, TX-, T-, BX, B-, and U-farms that scored somewhat lower in the rankings but might be considered for interim storage use. Tanks scoring low in the ranking may pose significant risk and should be considered for retrieval on a priority basis.

After ranking the SSTs, a risk reduction strategy was applied to the data. In this strategy, the farm-by-farm risk reduction was estimated for transferring wastes from the poorer tanks to the better tanks. This strategic assessment showed that a significant reduction in risk can be achieved by using some SSTs as interim storage tanks to contain waste transferred from poorer tanks. The strategy shown was geared to reduce the overall risk factor, but additional constraints (e.g., number of receiver tanks) can be applied to better integrate with other planning efforts and cost-benefit analyses.

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LIST OF TERMS

BBI	best basis inventory
CF	corrosivity factor
CHG	CH2M Hill Hanford Group, Inc.
CoC	constituents of concern
DST	double-shell tank
GWR	groundwater risk
ILL	interstitial liquid level
LOW	liquid observation well
RRA	risk reduction assessment
SCC	stress corrosion cracking
SST	single-shell tank

1.0 INTRODUCTION

This report summarizes an investigation of the potential for using one or more of Hanford's single-shell tanks (SSTs) for interim staging of tank wastes until those wastes can be retrieved and treated for disposal. The temporary use of sound SSTs would expedite Hanford's overall retrieval strategy because the presently available storage volume in the double-shell tanks (DSTs), planned for interim staging of wastes, is significantly less than the volume of wastes stored in the SSTs. Many of the SSTs contain or may contain drainable liquids (even those that have been stabilized) and many may lack the integrity to continue to contain wastes over a prolonged period. Since there is limited DST storage available, and since it is of significant interest to prevent any further leakage from the SSTs, transferring wastes currently stored in SSTs of uncertain or poor integrity to SSTs of known or likely good integrity would be advantageous.

The focus of the work described here is on the leak integrity (the ability to retain waste) of the SSTs, not structural integrity *per se*. This is because the SSTs are considered to be structurally sound; that is, they are unlikely to mechanically fail, rupture, or collapse. Leak soundness and the structural integrity of SSTs were evaluated in FY 2002 to satisfy Hanford Federal Facility Agreement and Consent Order Milestone M-23-24 [CHG 2002]. Based on the CH2M Hill Hanford Group (CHG) report, the SSTs as a group were concluded to have adequate structural integrity to prevent collapse or structural failure, but were considered "not fit for use per 40 CFR 265.191" [Rasmussen 2002]. Past experience indicates that the SSTs can leak, however, and such an event could result in—depending upon the contents of the tank and the leakage rate (or volume)—a significant insult to the environment.

This work makes a preliminary identification of those SSTs that could provide interim staging capability based on their potential to retain liquid and other factors (e.g., available leak detection instrumentation, riser availability, etc.). By "inverting" the tank rankings determined here, this work also makes a preliminary identification of those tanks that are more likely to leak. A preliminary estimate of the overall risk reduction gained by moving waste from higher-risk tanks to lower-risk tanks has been prepared. This estimate is based on intra-farm transfers only (i.e., no inter-farm or cross-site transfers have been analyzed, although they are possible and supported by this work). The risk reduction benefits are provided on both a tank and tank farm basis.

The work described in this report was undertaken in two discrete steps. The first step was to develop a methodology for ranking the SSTs in terms of their likely leak integrity and utility for interim storage. The second step was to apply this methodology to the SSTs and then develop and apply a strategy for combining the risk of tank leakage with other factors associated with the SST retrieval sequence to rank the tanks and identify candidates for use as interim storage tanks. This second step also makes a preliminary estimate of the risk reduction benefits achieved by moving the wastes from high-risk tanks to lower-risk tanks within each tank farm. While the liquid used to mobilize and transfer the wastes from one SST to another SST was considered in this work, the inherent risk of the transfer itself was not included in this work.

The second section of this report provides background information related to the SSTs. The third section of the report describes the risk-ranking methodology used to initiate the assessment.

Section 4 discusses the application of this methodology. Section 5 of this report describes the calculation of risk reduction. Section 6 describes the staging analysis used to reduce the overall risk on a farm-by-farm basis and results. Section 7 summarizes the results of the staging findings from this work.

2.0 BACKGROUND

Hanford's SSTs were constructed and put in service between 1944 and 1966 [Julyk 1999] to store the liquid radioactive wastes resulting from plutonium and uranium processing. During this period, 149 SSTs were constructed. Sixteen of these underground tanks are of 55,000 gallon capacity, most were between 500,000 and 750,000 gallon capacity, and twenty-five are 1,000,000 gallon tanks. The 100-series SSTs (e.g., U-101) have a diameter of 75 feet; the 200-series SSTs (e.g., U-201) have a diameter of 20 feet. The essential construction of these tanks was a reinforced concrete outer shell with a 0.25-in.-thick carbon steel inner liner, with a bituminous coating between the steel liner and the concrete shell. All of the tanks were built with dished bottoms, except for those in the A and AX farms; those tanks had flat bottoms [Anderson 1990]. Figure 1 illustrates the construction of a typical 100-series tank with a capacity of 530,000 gallons. The larger tanks are of similar construction, but have a greater depth.

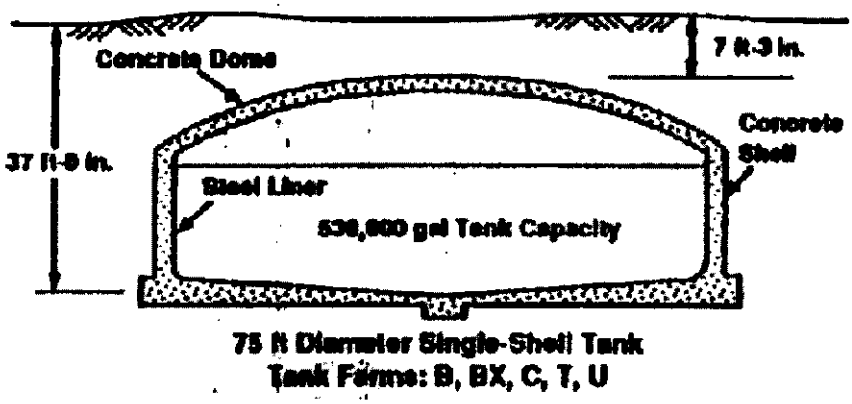

Figure 1. Typical Construction of Hanford 530,000 gallon Single-Shell Tank (SST)

The SSTs were built in twelve waste storage tank farms. Table 1 summarizes some of the construction details of the SSTs.

Table 1. Single-Shell Waste Storage Tanks at Hanford [Anderson, 1990]

Farm	Steel Type*	ASTM Class*	Tanks per Farm	Capacity/ Tank (gal)	Capacity/ Farm (gal)	Year Constructed
A	Plate	A283-46T	6	1,000,000	6,000,000	1954-55
AX	Boiler	A201-61T	4	1,000,000	4,000,000	1963-64
B	Structural	A7-39	4	55,000	220,000	1943-44
			12	530,000	6,360,000	
BX	Structural	A7-39	12	530,000	6,360,000	1946-47
BY	Flange		12	750,000	9,000,000	1948-49
C	Structural	A7-39	4	55,000	220,000	1943-44
			12	530,000	6,360,000	
S	Plate	A283-46T	12	750,000	9,000,000	1950-51
SX	Plate	A283-46T	15	1,000,000	15,000,000	1953-54
T	Structural	A7-39	4	55,000	220,000	1943-44
TX	Flange		18	750,000	13,500,000	1947-48
TY	Plate	A283-46T	6	750,000	4,500,000	1951-52
U	Structural	A7-39	4	55,000	220,000	1943-44
			12	530,000	6,360,000	

* [Anantatmula1994]

2.1 STRUCTURAL INTEGRITY

The structural integrity of the SSTs can be inferred from their fundamental design—particularly the concrete encasement. Previous calculations demonstrate the SSTs have an ample margin for tolerating operational loads and withstanding credible accident scenarios [Ramble 1983; Han 1996a, 1996b]. The most critical factor in assessing the structural integrity of the SSTs is dome loading. Dome load limits for the SSTs are controlled through *Tank Farms Technical Safety Requirements*, HNF-SD-WM-TSR-006, Administrative Control 5.16, *Load Lifting and Dome Load Controls*, and HNF-IP-1266, Administrative Control Procedures, Section 5.16B, *Dome Loading Controls*. Based on Han's analysis, it is not expected that the SSTs will collapse during interim storage, stabilization or retrieval operations as long as the dome loading limits are observed [HNF-3018].

2.2 LEAK SOUNDNESS

Since 1959, 67 tanks have been declared leakers or assumed leakers. Table 2 shows some of the 1990 data on "confirmed" leaking tanks, including the quantity of waste leaked from the tanks. Tank age does not seem to be a significant contributor to the tank leak history.

Table 2. Underground Waste Storage Tank Leak Experience [Anderson 1990]

Tank	Mo-Year Leak Suspected	Mo-Year Leak Confirmed	Estimated Volume Released (Gal)
A-104	4-1975	4-1975	500-2,000
A-105	Summer 1963	11-1963	<500*
BX-102	2-1970	2-1971	70,000
BX-108	7-1973	2-1974	2,500
BY-103	7-1969	7-1973	<500*
BY-108	3-1971	3-1972	<500*
T-106	5-1073	6-1973	115,000
U-101	11-1959	11-1959	30,000
U-104	5-1956	1958	55,000
U-110	7-1975	7-1975	5,000 – 6,000
TY-103	5-1973	6-1973	3,000
TY-105	9-1960	9-1960	35,000
TY-106	7-1959	8-1959	20,000
SX-107	3-1964	3-1964	<500*
SX-108	12-1962	12-1962	2,400
SX-109	1-1965	2-1965	<500*
SX-111	5-1974	5-1974	500 – 2,000
SX-112	1-1969	Early 1969	30,000
SX-113	6-1958	11-1962	15,000
SX-115	2-1965	3-1965	50,000

*Anderson (1990) describes release as "small"; this is interpreted as "<500 gal", as used here.

Since the first leaks were discovered in TY-106 and U-101 in 1959, the definition of a leaking tank has been inconsistent. Anecdotal information indicates that in some cases a leak was inferred on the basis of partial or inconclusive data, rather than on the basis of quantitative measurement. As a result, not all tanks declared to be leaking or suspected of leaking may be leaking or have actually leaked. For purposes of the analysis described below, it is assumed that the tanks described in Table 2 are confirmed leakers; the leak status of tanks assigned since 1990 will be maintained as "suspected leakers" or "presumed sound".

Over the past several decades, improvements in leak detection capability have been developed and employed to identify leaks or conditions requiring special operating control actions. The first tank farms included groundwater wells and a few dry wells for monitoring purposes. However, these were limited in number. In December 1958, a prototype horizontal lateral system was installed under SX-113 as a means of confirming a suspected leaking condition. Leak detection in these wells and laterals is accomplished by inserting neutron and gamma detection probes into them and examining the data for anomalous radiation levels or changes in radiation levels. This method of detecting leaks proved to be successful and similar systems were subsequently installed beneath all the aging waste tanks in the SX- and A-farms during 1961. At this time additional dry wells were also installed. A later improvement in leak detection was the incorporation of drain channels and sump collection wells in the AX tank design.

The waste tanks are equipped with liquid level measurement devices of various types which provide an indication of changes in the liquid level (or volume) in the tank. Depending on the tank, these devices include the manual tape, in which a stick was used to measure the liquid level, and the manual ENRAF, FIC, and Auto ENRAF gauges, in which a sensor was lowered to the waste surface and the liquid level was determined from the length of line reeled out. The manual methods are slow and cumbersome with resulting sampling intervals measured in weeks or months. The automatic methods allow frequent (i.e., hourly) sampling with computerized data logging of the measured levels. Tanks that have been stabilized (i.e., the pumpable liquid has been removed[1]) do not benefit from a liquid level gauge because the extant liquid is dispersed within the particle voids of the sludge and saltcake and does not form a distinct surface layer.

In addition to direct measurement of the liquid surface, internal radiological liquid level measurement methods are deployed in most of the tanks. These are neutron and gamma detectors, referred to as interstitial liquid level (ILL) instruments. These devices are deployed in the liquid observation wells (LOWs) found in most of the SSTs.

A liquid level trend analysis for 69 SSTs was performed in 1998 [HNF-3018]. This analysis examined the changes in surface or interstitial liquid level in the SSTs over a 4-year period, for those SSTs having sufficient liquid level and functioning instrumentation to allow the analysis. Examination of the rate of change of volume over time revealed that 39 SSTs had a *volume rate* statistically determined to be 0 gal/hr (implying sound, non-leaking tanks) and another 9 tanks had a volume rate that was statistically positive (implying a gain in volume over time); these 9 tanks can also be considered sound, in that inflows to the tanks are not coming from external ground water entering the tank and they are not losing liquid to the ground. Table 3 lists the tanks demonstrated to be sound [HNF-3018]. This liquid level trend analysis shows that sound tanks remain that may be used for the staging of wastes from other SSTs.

[1] "Drainable" liquids may remain in the tanks, including those that have been stabilized.

Table 3. Sound SSTs Determined from Statistical Analysis of Four-Year Level Trends [HNF-3018]

Analysis-Inferred Integrity	Tank IDs
Volume Rate = 0 gal/hr	A-101, B-102, B-104, BX-104, BX-105, BY-101, BY-102, BY-104, BY-109, BY-110, BY-112, C-103, C-106, S-101, S-103, S-105, S-108, S-109, S-110, S-111, SX-101, SX-102, SX-103, SX-105, SX-106, T-102, T-104, T-110, T-112, TX-101, TX-102, TX-106, TX-109, TX-118, U-102, U-103, U-107, U-108, U-109
Positive Volume Rate	BX-103, S-102, S-106, S-107, S-112, TX-111, TX-112, U-105, U-109

2.3 TANK COMPATIBILITY WITH WASTE TYPE AND TEMPERATURE

A direct cause-and-effect relationship for the failures of the SSTs is difficult to determine because of the different types of wastes handled, the different thermal conditions prevalent, the small number of leaks confirmed and verified, and the lack of direct inspection. Of the several theories regarding failure mechanisms (including stress corrosion cracking, pitting, uniform corrosion, and mechanical tearing of the liner), stress corrosion cracking (SCC) is the most plausible cause of leakage from the tanks [Anantatmula 1994]. SCC can occur when the tank's carbon steel liner is exposed to aqueous solutions containing sodium hydroxide and sodium nitrate. Cracks form in and near the welds in the tank's sidewall and bottom in the weld "heat-affected zones"—a region whose width is typically two to three times the thickness of the base material—where an accumulation of residual stresses was introduced during welding as the tanks were constructed. The Hanford SSTs were not stress-relieved following construction.

A common tool for assessing SSC in the SSTs is the *corrosivity factor* (CF), which is defined as the ratio of the molar concentrations of nitrate to nitrite-plus-hydroxide (i.e., $NO_3/(OH+NO_2)$). A 1994 report examined the CF in the Hanford SSTs as a function of waste type [Anantatmula 1994]. Table 4 lists the Hanford waste types and the calculated CF. The utilization of the tanks allowed that mixed waste types were common in most of the tanks. The known mixture of waste types in each of the tanks was used to prepare the weighted CF for the tanks. The result is displayed in Table 5, which shows the CFs calculated for the tanks, by waste type(s), and includes the percentage of tanks with those waste groupings that have leaked (or are presumed to have leaked). (Table 5 is based upon data from 1994.)

Table 4. Corrosivity Factors for Primary Waste Types [Anantatmula 1994]

Waste Type	Waste Type Acronym	Corrosivity Factor (CF)
Reduction Oxidation	REDOX	6.5
	HS	1.6
Second-Cycle Decontamination	2C	5
Organic Solvent Wash	OWW	1
First-Cycle Decontamination	1C	2.8
Evaporator Bottoms	EB	30.3
Tributyl Phosphate	TBP	81.7
Cladding Waste	CW	0.1
Complex Concentrate	CCPLX	1.4
Double-Shell Slurry Feed	DSSF	0.5
Lanthanum Fluoride Decontamination	224	1.8
Non-Complexed	NCPLX	1.5
Strontium Sludge	SS	0.04

Table 5. Waste Groupings and Weighted Corrosivity Factor [WHC 1994]

Waste Type(s)	Tanks	CF	% Leaker
TBP,EB-ITS	BY-109, BY-102	67.7	0
CW, TBP	C-102, C-105	24.5	0
SS, TBP	C-103, C-106	24.5	0
EB, CW	U-105, U-107, U-108, U-109	21.2	0
CW	U-201, U-202, U-203	0.05	0
EB, TBP	TX-108, TX-118	45.7	0
REDOX, EB	S-101, S-102, S-103, S-105, S-106, S-107, S-108, S-109, S-110, S-111, S-112, SX-101, SX-102, SX-104, SX-105, SX-106, TX-102, TX-104, TX-105, TX-106, TX-107	13.7	14
EB, REDOX	U-102, U-103, U-106, U-111, TX-115	23.2	20
IC, EB	B-107, B-108, B-109, BX-112	11.0	25
DSSF, NCPLX	A-101, A-102, A-103, AX-101	0.8	25
2C, 224	T-110, T-111, T-112	4.0	33
224	B-201, B-202, B-203, B-204, T-201, T-202, T-203, T-204	1.8	38
Ungrouped	A-104, A-105, A-106, AX-104, B-104, BX-109, C-104, C-107, SX-103, T-109, T-104, TX-101, TX-103, TX-112, TY-101, U-110, U-112, U-204	0.9-5	39
TBP, 1C	C-108, C-109, C-111, C-112, T-107	35.8	40
TBP, CW	BX-101, BX-102, BX-103, BX-104, BX-105, BX-106, C-101	57.2	43
TBP, EB	BY-101, BY-103, BY-104, BY-105, BY-106, BY-107, BY-108, BY-110, BY-111, BY-112	45.5	50
CCPLX, DSSF	AX-102, AX-103	1.1	50
1C, CW	T-105, T-106	1.9	50
1C, TBP	B-106, BX-107, BX-108, C-110, T-108	26.4	60
CW, EB	B-101, B-102, B-103	9.1	67
CW, MIX	T-101, T-102, T-103	0.1	67
EB, 1C	B-105, TX-109, TX-110, TX-111, TX-113, TX-114, TX-116, TX-117, TY-102	22.0	75
REDOX	S-104, SX-107, SX-108, SX-109, SX-112, SX-115, U-101	6.5	100
HS	C-201, C-202, C-203, C-204	1.6	100
2C	B-110, B-111, B-112	5.0	100
REDOX, REDOX-IX	SX-110, SX-111, SX-114	6.1	100
1C, EB-ITS	BX-110, BX-111	12.4	100
TBP	TY-105, TY-106	81.7	100
TBP, 1C	TY-103, TY-104	58.0	100
REDOX, DIA	SX-113, U-104	4.6	100

Temperature is also important in initiating SCC. A critical temperature of 122 °F was discovered to be a threshold above which nitrate-assisted SCC would occur at accelerated rates [Ondrejcin 1978]. This suggests that the hottest tanks may have experienced the greatest corrosion.

Table 6 combines some of the data from the earlier tables and shows the type of steel construction, the waste type(s), the leak volume, and the peak temperatures [Julyk 1999] for the confirmed leakers. This table suggests that the vast number of leaking tanks share a combination of plate steel construction, REDOX wastes, and high temperatures; tanks with these properties should be unlikely candidates for interim storage.

Table 6. Attributes of Confirmed Leaking SSTs

Tank	Type Steel	Type Waste	Peak Temperature (°F)
A-104	Plate	Ungrouped	399
A-105	Plate	Ungrouped	325
BX-102	Structural	TBP, CW	83
BX-108	Structural	IC, TBP	90
BY-103	Flange	TBP-F, EB-ITS	137
BY-108	Flange	TBP-F, EB-ITS	154
T-106	Structural	IC, CW	93
U-101	Structural	REDOX	92
U-104	Structural	REDOX, DIA	78
U-110	Structural	Ungrouped	140
TY-103	Plate	TBP, IC-F	86
TY-105	Plate	TBP	112
TY-106	Plate	TBP	106
SX-107	Plate	REDOX	390
SX-108	Plate	REDOX	320
SX-109	Plate	REDOX	295
SX-111	Plate	REDOX, REDOX-IX	320
SX-112	Plate	REDOX	315
SX-113	Plate	REDOX, DIA	255
SX-115	Plate	REDOX	260

In *Single-Shell Tank Sluicing History and Failure Frequency* [HNF-3018], the tanks were grouped into one of five categories, depending on the waste corrosivity and temperature experienced by each tank. That grouping is reproduced below in Table 7.

Table 7. Tank Groupings According to Category. [HNF-3018]

Category	Characteristics	Number of Tanks
I	Benign waste type, low temperature, good to moderate corrosivity factor, constant service history, consistent surface level.	12
II	Inconsistent liquid level, benign waste type, elevated temperature, good to moderate corrosivity factor, consistent service history, listed as sound, may or may not have been stabilized.	20
III	Inconsistent liquid level or aggressive waste types, elevated temperature, good to moderate corrosivity factor, inconsistent service history, listed as sound, may or may not have been stabilized.	50
IV	Listed as "assumed leaker", leaked less than 50,000 gal, may or may not have been stabilized.	62
V	Listed as "assumed leaker", leaked more than 50,000 gal.	5

3.0 METHODOLOGY FOR RANKING TANKS

In attempting to identify SSTs that are candidates for interim storage, it is necessary to select and weight the various attributes of each tank that can be used to score each tank, and then compare and rank the resulting scores. One way to accomplish this is to use a multiplicative scoring method. In this method, each attribute that contributes to a tank's integrity and utility for interim storage is identified and then assigned a range of weight values that measure the contribution. The score is calculated as the arithmetic product of the weights. This method has the advantage that an obviously unsuitable tank—such as a confirmed leaker—can be eliminated from consideration by assigning it a weight value of zero. In this case, even if a leaking tank's other attributes were all positive, the resulting score would be zero.

The multiplicative scoring method provides a graded assessment of the SSTs in terms of their potential utility for interim storage, described in terms of a tank's current status and integrity and the infrastructure existing to support leak monitoring during the interim storage period and to facilitate retrieval. The multiplicative method depends upon three elements: 1) quantifiable parameters, 2) an ordered list of the importance of each parameter, and 3) the value or range of values assigned to the weights. These elements are discussed below.

3.1 QUANTIFIABLE PARAMETERS.

Based upon the information in Section 2, the following observations can be made regarding the Hanford SSTs:

1) The SSTs are structurally sound and not likely to fail, rupture, or collapse.
2) Many tanks have been confirmed as leakers, many are suspected of being leakers, and many appear to be sound and not leaking.
3) The mostly likely cause for leaking tanks is SCC.
4) Aggressive wastes and high waste temperatures appear to contribute to the leak problem.
5) Some tanks are equipped with automated and more-capable leak detection instruments; others utilize manual methods. All tanks have external dry wells that can be used for radiological monitoring.
6) The SSTs have different ventilation and riser access. These attributes make monitoring a tank easier or more difficult, depending on the existing configuration and availability.

Using this information, together with other available information, four parameters can be established that can be quantified, i.e., given some value. These parameters include:

1) *Leaker Status*. A tank that is known to leak should be eliminated from consideration for interim storage, while a tank that is known or presumed to be sound and non-leaking should be given consideration. Tanks that are only "assumed leakers" should be evaluated together with their other attributes.
2) *Tank-Waste Compatibility*. The type of steel used to construct the tank, the waste type(s) stored in the tank, and the temperature history of tanks appear to be significantly related to the current liquid integrity of the tanks. Tanks having a history of storing aggressive wastes and/or high-heat loads in certain steels should be ranked lower than tanks with

(relatively) benign wastes and low temperatures (This should not be confused with concerns regarding storage of compatible waste types discussed later in this report).

3) *Liquid Level Trend.* The long-term stability of the liquid level in a tank (supernatant or interstitial liquids) is an indicator of the integrity of the tank, at least at the liquid's current level in the tank. Tanks with stable liquid levels should be considered for interim storage, while those with negative volume rates should be given less consideration.
4) *Fraction of Leakers Within a Farm.* Tank farms with a higher overall incidence of leaking tanks may have fundamental construction differences, or service experience, that make them more likely to leak. Tanks in these farms should be given lesser consideration than tanks in farms with a smaller fraction of leakers.

Besides these four liquid integrity parameters, additional parameters can be included that relate to the risk of leaking the current contents of a tank and the utility of a tank for leak monitoring and retrieval. These parameters include:

5) *Groundwater Risk.* Tanks containing a larger number of curies and larger quantities of the Constituents of Concern (CoCs) to groundwater represent a greater threat to the environment than lower-activity tanks or tanks with smaller quantities of CoCs. CoCs used in this analysis are long-lived mobile radionuclides, specifically ^{14}C, ^{79}Se, ^{99}Tc, ^{129}I and ^{238}U [Hohl, et al. 2001]. Accordingly, tanks whose contents pose a high groundwater risk should be given lesser consideration for interim storage than tanks containing materials with a lower groundwater risk. Chemical constituents (e.g., NO_2^-, NO_3^-, and CrO_4^-) also contribute to groundwater risk. These were not included in the ranking used in this analysis in the interest of simplicity.
6) *Riser Access.* The ability to readily instrument an SST for leak monitoring and operate it for staging purposes is proportional to the number and diameter of risers on that tank. If risers are placed at a variety of locations around the tank and if they have sufficient diameters to make them useful for instrumentation and operating equipment, that tank is more useful than a tank with fewer risers or risers of smaller diameters.
7) *External Monitoring Wells.* Like the risers, existing monitoring wells reduce the infrastructure burden necessary to operate a tank for interim storage. Tanks with a larger number of external monitoring wells are better suited for interim storage than tanks with fewer wells, because ex-tank (radiological) leak detection methods can easily be deployed to monitor any change in the external environment surrounding and (in some cases) beneath the tanks.
8) *Internal Level Monitoring Instruments.* Tanks with more sophisticated, automated-measurement and recording liquid leveling devices are better suited for interim storage than tanks using manual-reading methods or those requiring at-tank operators to obtain data. This is because the automated methods are more reliable, more accurate, and reduce the overall costs of operating the tank.
9) *Ventilation.* It is expected that any tank operated as an interim storage tank will require a ventilation system to prevent airborne releases of radionuclides. Tanks with existing ventilation systems are thus better candidates for interim storage than tanks with no ventilation.

The list of parameters described above may not be an exhaustive list of the factors that can be used to assess the potential of a tank for use as an interim storage tank, but it deals with the more obvious factors. The next section describes the weights applied to these factors to allow their use in the multiplicative weighting method.

3.2 WEIGHTS AND RANGES OF PARAMETERS

Each of the parameters described above can be quantified, or assigned some value. The approach selected in this assessment was to use a simple assignment of weighting values that correspond to a priority-ranked list of importance to an assessment, where the range of the values was also weighted to the importance of the parameter. This approach is subjective; since it is subjective there is considerable room for alternative values and weights.

The assessment described below uses one set of values and ranges. A weight value of unity (i.e., 1) is a neutral place-holder—it neither increases nor decreases a tank's relative score because, in the product, a value of 1 does not change the result. A parameter value of less than 1 indicates attributes that are less desirable in terms of using that tank for interim storage. A value greater than 1 indicates positive attributes for that tank. The greater the difference from 1, the more or less desirable the tank is for interim storage, relative to that parameter.

3.2.1 Leaker Status

This parameter is fundamental to the assessment and has been assigned a corresponding influence over the scoring. The maximum weight is 3 and the minimum is 0, for a range of 3. The weights are assigned to the tanks as follows: confirmed leaker, 0; suspected leaker, 0.5; presumed sound, 1.5, confirmed sound, 3.

3.2.2 Tank-Waste Compatibility

This parameter describes the effect of aggressive waste types and high waste temperatures on the various steel inner liners. The maximum weight is 2 and the minimum is 0, for a range of 2. The weights, derived from Table 7, are assigned as follows: Category V, 0; Category IV, 0.5; Category III, 1; Category II, 1.5; and Category I, 2. Again, this should not be confused with concerns regarding storage of compatible waste types (i.e., taking care not to stage incompatible waste types) discussed later in this report.

3.2.3 Liquid Level Trend

This parameter describes a tank's demonstrated liquid integrity and has a range of 1, with values from 0.5 to 1.5. For tanks that show a significant negative volume rate, the parameter value is 0.5; for tanks with a (statistically) zero volume rate, the parameter value is 1; for tanks with a positive volume rate the parameter value is 1.5. While a liquid level trend assessment was performed for the SSTs in [HNF-3018], this report was flawed in that some of the tanks were analyzed using defective data. Since a re-assessment of liquid integrity of the SSTs was beyond the scope of this work, a value of 1 was assigned to this parameter for all of the SSTs.

3.2.4 Groundwater Risk

Section 3.1 of *Single-Shell Tank Retrieval Sequence and Double-Shell Tank Space Evaluation* [Hohl, et al. 2001] defines groundwater risk (GWR) as millirem per milliliter of the long-lived mobile radionuclides in the waste. In this assessment, the GWR is "binned" into three ranges based on one-third areas of the risk histogram. The staging risk assessment parameter values, with a total range of 1.0, are defined as follows: If the published GWR is greater than 3.2×10^9 (i.e., in the upper third of the risk histogram), the multiplicative weight value is 0.5. If the published GWR is less than 1.3×10^9 (i.e., in the lower third of the risk histogram) the weight value is 1.5. If the GWR is in the middle third of the histogram, a weight value of 1.0 is assigned.

3.2.5 Fraction of Leakers Within a Farm

This parameter is defined as the number of confirmed or suspected leakers in a tank farm divided by the total number of tanks in the farm. The parameter has a range of 0.9, with values from 0.5 to 1.4. For a given tank, if the leak fraction in that farm is more than 2/3 (67%), a value of 0.5 is assigned to that tank; for a leak fraction less than 1/3, a value of 1.4 is assigned; for leak fractions between 1/3 and 2/3, a value of 1 is assigned.

3.2.6 Riser Availability

The riser availability weight factors were determined from the number of risers on a tank and the size (i.e.., diameters) of the risers. Each tank has one or more risers ranging in diameter from 2.5 inches to 36 inches [Gibbons 2002]. The weighting value used for each tank was calculated as the sum of the products of the number of risers with a particular diameter with the diameter of risers, normalized to a maximum value of 1.4 and based on a three-part division of the statistical distribution of the product values. Table 8 illustrates the raw scoring data for Tank A-101.

Table 8. Riser Availability Score Example

Size (in.)	2.5	3	4	6	7.5	8	10	12	14	16	18	20	24	26	34	36	Total
# Risers			9			3		4			3	1					21
Product			36			24		48			54	20					**188**

Based upon the data for all SSTs, a box plot (Figure 2) was prepared to identify the distribution of scores to establish the normalization. From this plot, product values in the lower quartile (values below 77) were assigned a weight value of 0.5. Product values in the upper quartile (values above 136) were assigned a weight value of 1.4. All other "in between" products were assigned a weight value of 1.0. In the example of A-101, with many risers of various diameters, the riser availability weight factor was 1.4.

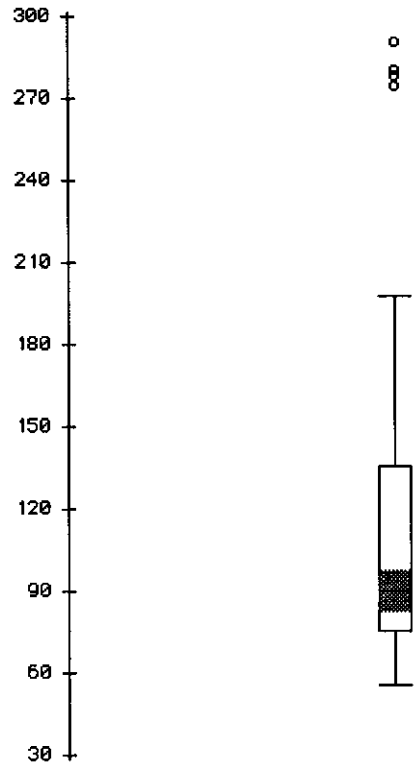

Figure 2. Riser Scores Box Plot (Vertical Axis Shows Riser Availability Values)

3.2.7 External Drywells

As described above, the ability to monitor a tank for leaks is a positive attribute when considering a tank for interim storage. While a valuable attribute, it is not as important as parameters such as the leak status and tank-waste compatibility. As a result, the maximum weight value assigned to this parameter is 1.3, with a range of 0.8; that is, from 0.5 to 1.3. Tanks with no external drywells are assigned a weight of 0.5; tanks with more than 3 dry wells are assigned a weight of 1.3; tanks with 1 to 3 drywells are assigned a weight value of 1.0.

3.2.8 Internal Liquid Level Monitoring Instrumentation

Internal liquid leveling, whether by radiological methods such as the ILL neutron or gamma probes inserted in the LOWs or by direct liquid level measurement systems such as the ENRAF or FIC gauges, directly contribute to leak monitoring. The type of instrument (if any) in a tank is important because it directly relates to the accuracy or fidelity of the measurement. For this assessment, the internal monitoring parameter has a range of 0.7, with a maximum weight value of 1.2. For tanks with only an ILL capability, a weight value of 1 is assigned. For tanks with no level monitoring capability (or only manual methods) a weight value of 0.5 is assigned. For tanks with FIC or ENRAF instruments, a value of 1.2 is assigned.

3.2.9 Ventilation

For this parameter, a two-bin weight is used, with a total range of 0.4 and a maximum of 1.2. Tanks with active ventilation systems are given a weight value of 1.2. Tanks with passive ventilation are given a weight value of 0.8.

3.3 SENSITIVITY/UNCERTAINTY

The multiplicative approach identifies and eliminates obviously poor candidates, owing to the continued influence of a low score. The factors having the higher range (e.g., leaker status) have more influence than those with a lower range (e.g., ventilation). The scores having the highest range (3) have over five times the influence as the factor having the lowest range (0.4). The scores are most sensitive to the leaker status and corrosion category factors.

Sources of uncertainty in the analysis are a function of the data used to develop the ratings in each factor. In general, most of the factors use objective data sources (e.g., level measurements, leaker status). Factors are used comparatively to illustrate better and worse choices in the staging strategy. Additional work to resolve the uncertainty associated with staging strategy development and implementation is necessary.

3.4 SUMMARY OF RANKING METHODOLOGY

Table 9 summarizes the weights assigned to the parameters selected for this risk reduction assessment (RRA). The relative ranking of the parameters indicates the relative importance of the parameters insofar as waste staging and interim storage. This is reflected in the range of the weighting values and the minimum and maximum value of the weights. Since the assessment will be made in terms of the product of the values assigned, the greater the range of the parameter, the more "power" the value has to affect the assessed usability of a tank. As indicated above, these values are subjective and open for different interpretation.

Table 9. Multiplicative Weight Value Summary

Parameter	Weight Range	No. of bins	Minimum weight	Maximum weight
Leaker status	3.0	4	0.0	3.0
Tank-waste compatibility	2.0	5	0.0	2.0
Liquid level trend*	1.0	3	0.5	1.5
Ground water risk	1.0	3	0.5	1.5
Fraction of leakers within farm	0.9	3	0.5	1.4
Riser availability	0.9	3	0.5	1.4
No. external drywells	0.8	3	0.5	1.3
Internal liquid level measuring	0.7	3	0.5	1.2
Ventilation	0.4	2	0.8	1.2

* A value of 1.0 was assigned to all SSTs in this study.

To the extent that a tank had all of the best attributes, the multiplicative method would generate a maximum score of 49.5 for that tank; this score would indicate a tank whose attributes suggest that the tank is a positive candidate for use as an interim storage tank. Lesser scores indicate lesser desirability for interim storage use. A minimum possible score of zero would indicate that

the tank is unusable and unfit for interim storage of the wastes. The converse of the scoring can also be considered: a tank with a low score should be considered for retrieval sooner than a tank with a higher score.

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4.0 APPLICATION OF METHODOLOGY TO SSTS

Application of the methodology entails collecting the needed information for each SST, assigning the weight values as appropriate to the tank, multiplying the weight values to obtain a score for each tank, and then sorting the tanks in relation to the calculated scores. Appendix A lists all of the SSTs, together with the parameters used for this assessment. The non-shaded columns in the appendix show the various attributes of each tank; the shaded columns show the weight values assigned to the various attributes for the purposes of this assessment. The product of the weights — the score for each tank — is shown at the extreme right side of the table in the appendix. Appendix B shows a listing of the SSTs, sorted by RRA score and by tank farm. Appendix D shows the RRA scores for each tank grouped by tank farm.

Figure 3 graphs the scores resulting from this assessment for all 149 SSTs, in a descending order of ranking. The figure shows that the highest RRA score achieved was about 17.7 (Tank C-106), with many tanks scoring less than 2. Ignoring potential issues associated with waste transfers between SST farms, or between 200E and 200W Areas, tanks shown at the left side of Figure 3 could be considered candidates for receipt of waste from tanks shown at the right side of Figure 3. Figures 4 and 5 show graphs of the scores sorted by tank for the 200 East Area (A, AX, B, BX, BY, and C) and 200 West Area (S, SX, T, TX, TY, and U) SST farms, respectively. If cross-site transfers for waste staging purposes were precluded, but transfers between farms were allowed, then tanks shown in the upper portions of either Figure 4 or Figure 5 could be considered prime candidates for receipt of waste from tanks shown in the lower portions of the same figure. If waste transfers between SST farms were precluded, but inter-farm transfers for waste staging purposes were allowed, then tanks shown with a higher score within a farm could be considered candidates for receipt of waste from tanks shown with lower scores, as depicted in Figures 4 and 5.

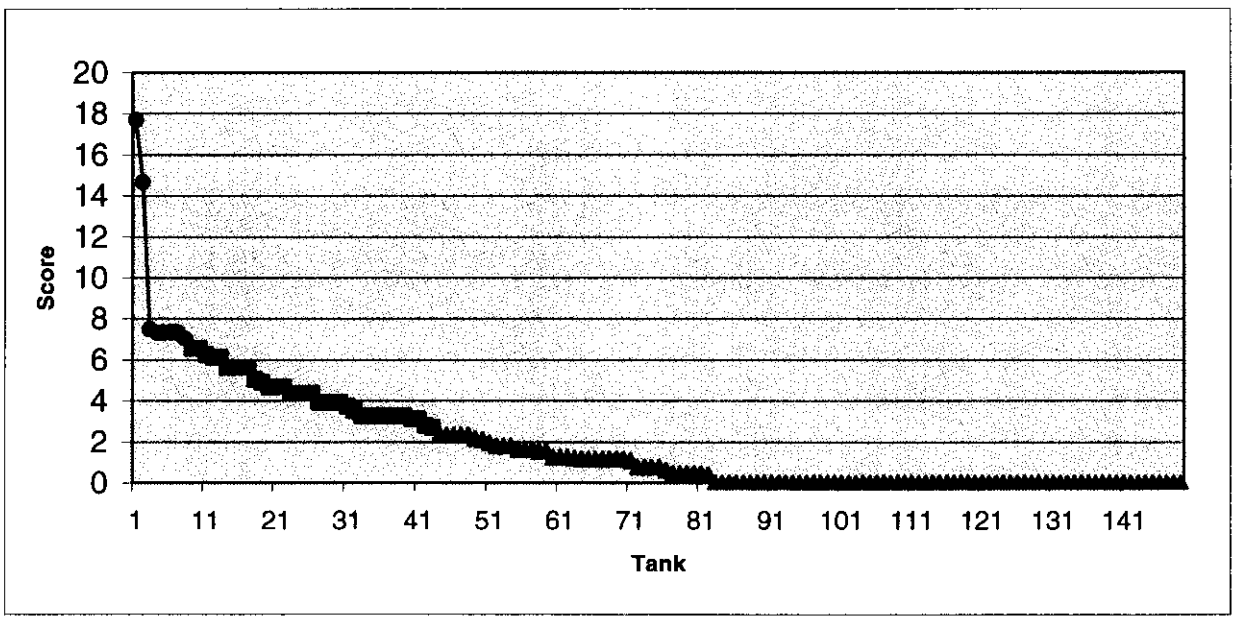

Figure 3. RRA Scores in Decreasing Order

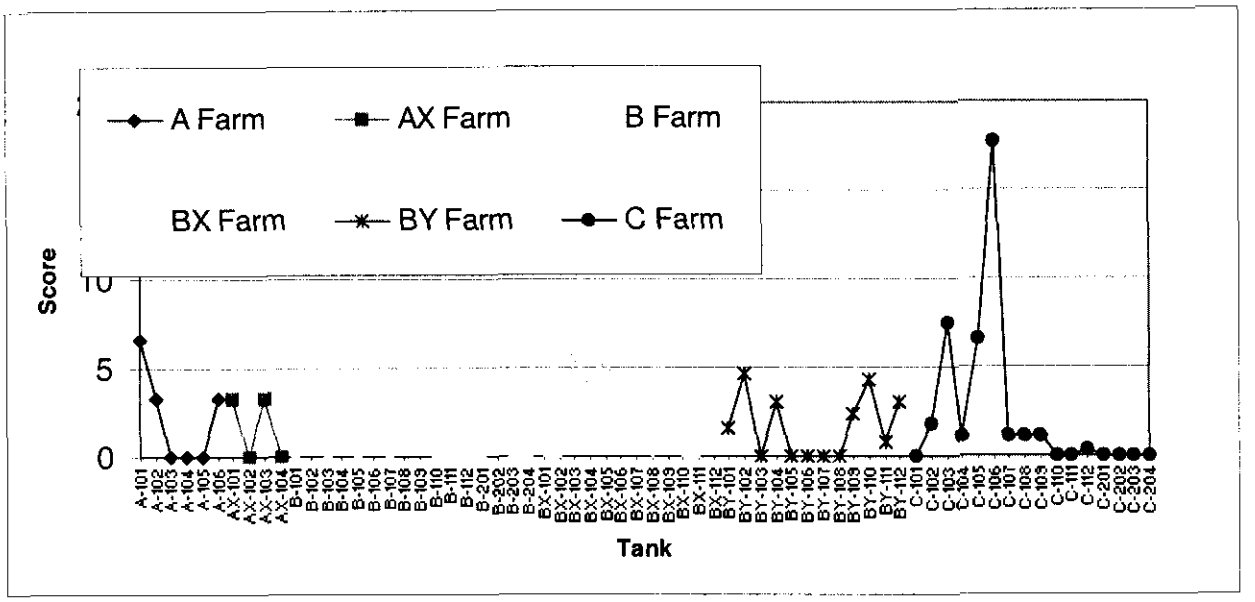

Figure 4. 200 East Area RRA Scores

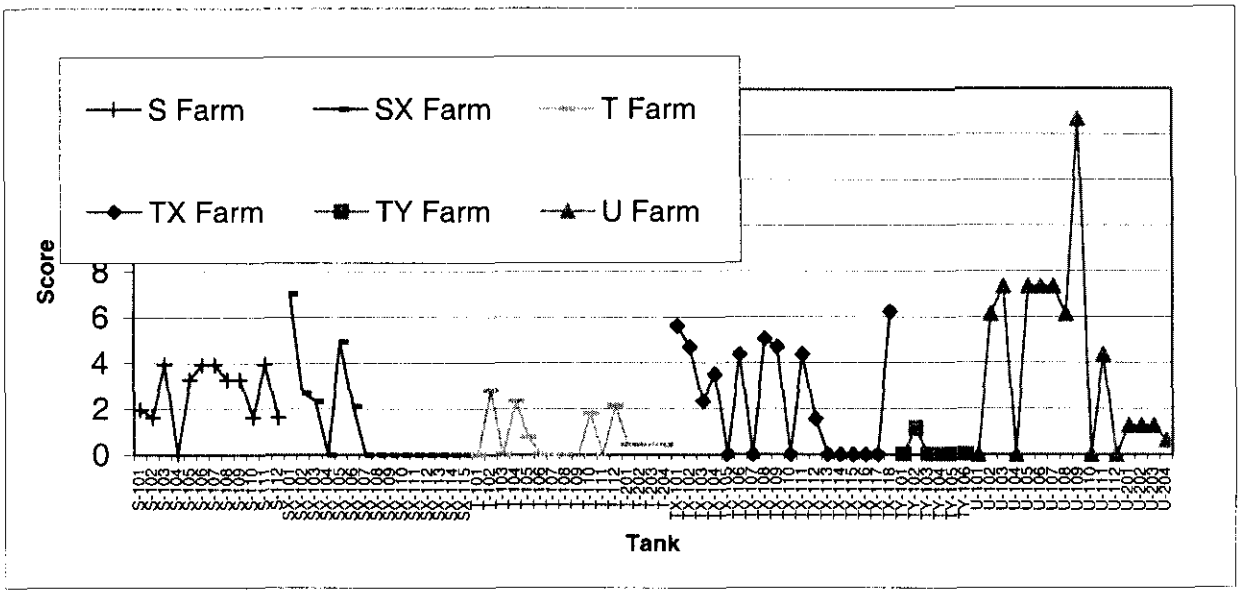

Figure 5. 200 West Area RRA Scores

To distinguish the tanks that may be suitable for interim storage, the scores resulting from this analysis were used to construct a histogram that shows the distribution of scores. This histogram is shown in Figure 6. The histogram (shown as the column plot) shows that there are 67 tanks in the score = 0 to 1 range, 11 tanks in the 1 to 2 range, with fewer and fewer tanks at the higher scores. A cumulative distribution is also shown as the line plot in Figure 6. The cumulative distribution can be divided into three regions representing the 68th and 95th percentile ranks. The 68th percentile occurs at a score of about 2.5; that is, 68% of the tanks achieved a score of less than 2.5 (see the scale on the right side of Figure 6). The 95th percentile occurs at a score of about 7 and can be used to designate tanks that can be considered for interim storage (a score of about 7 or more). The cumulative histogram also shows the scores for tanks that should not be

considered for interim storage (scores less than 2.5) and those that fall in-between (scores between 2 and 7).

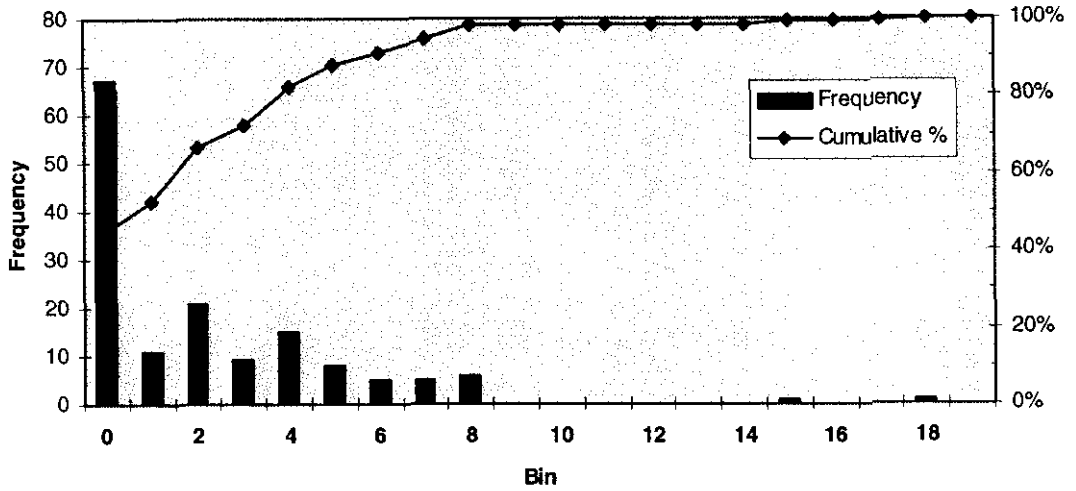

Figure 6. Histogram and Cumulative Distribution of RRA Scores

Eight tanks scored in the top 95% percentile: C-106, U-109, C-103, U-103, U-105, U-106, U-107, and SX-101. C-106 and U-107 are the subject of retrieval demonstration or proof-of-concept tests. This leaves six tanks with the top RRA scores as candidates for interim storage: U-109, C-103, U-103, U-105, U-106, and SX-101.

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5.0 RISK REDUCTION CALCULATION

This section assesses the potential benefits associated with staging within a farm, i.e., from lower-ranked tanks within a farm to higher-ranked tanks (or single tank) within the same farm. Only relative risk benefits gained from transferring from lower-ranked tanks into higher-risk tanks have been described. Benefits supporting broader initiatives, e.g., tank closure or segregation of similar waste types for processing, have not been described.

The tank's RRA scores are used together with other information to formulate and apply a strategy to reduce the overall risk of a leak within each tank farm. This is accomplished by staging the wastes within each SST farm by retrieving from the lower-ranked tanks into higher-ranked tank(s) within each farm, and then re-calculating the resulting risk.

In Section 4, the RRA scores ranked the tanks in terms of their likelihood for current and future liquid integrity and for their utility as staging tanks. In that scoring, a higher score indicated more positive attributes than a lower score, thus making that tank a better candidate for interim storage than a lower-scoring tank. In this section of the report, the risk is calculated using the tank scores; in this, a lowered risk is the objective; that is, a lower risk is better than a higher risk.

In this section of the report, four basic assumptions are made. The first three assumptions are:

1) A closed tank will retain a heel of 2 Kgal of waste for the 100-series tanks, and 1 Kgal of waste for the 200-series tanks.
2) A tank that is closed will reduce that tank's risk by 90% of its current risk.
3) Waste removed from a high-risk tank and transferred to a lower-risk tank reduces the overall combined risk associated with those tanks.

While the details of each tank will vary, these assumptions are conservative. It is likely that when a tank is closed, the actual values of remaining waste will be less than the assumed value, and that the actual risk reduction will be greater than 90%. The fourth assumption is:

4) A dilution factor of 1.1 is used for the net retrieval volumes; that is, retrieving 100 Kgal of waste from one tank will result in 110 Kgal of waste increase in the staging tank. The actual water requirements are likely to exceed 10% during the retrieval. The 1.1 dilution factor assumes that the bulk of the retrieval water is evaporated or otherwise separately disposed.

The risk identified in this report should not be confused or represented as a risk assessment.

5.1 NORMALIZATION OF RRA SCORES

The first step in developing a risk reduction strategy is to re-normalize the RRA scores determined in Section 4. This is accomplished by calculating the risk category for each tank as:

$$\text{Risk Category} = \text{sigma}/(\text{RRA score}) \qquad (1)$$

where sigma is the 1-standard-deviation value of the RRA score distribution shown in Figure 6 and RRA score is a tank's score determined in Section 4. The rationale for this normalization is that it segregates the tanks into two groups: those with greater risk (risk category greater than 1.0) and those with less risk (risk category less than 1.0). The choice of the 1-sigma value (2.53) is subjective but, as shown below, it allows somewhat more freedom for selecting staging candidates than a more restrictive choice. A 2-sigma value (7.4) for the normalization would significantly restrict the number of viable staging tanks. While this could be done, the purpose of this strategy development was to show the potential for the method, not to define the staging tanks.

Since eq. (1) is undefined for RRA scores = 0, tanks with an RRA score of 0 have been uniformly assigned a risk category score of 20. This value was selected to emphasize the risk associated with a tank that is obviously poor and represents a tank that is more likely to have lower leak integrity (e.g., known leakers). This value is approximately three times the highest risk category calculated from eq. (1).

5.2 CALCULATION OF RISK FACTOR

The risk factor for each tank is calculated as:

$$\text{Risk Factor} = (\text{risk category}) \times (\text{current waste volume}). \quad (2)$$

This factor describes the current risk associated with each tank in terms of its suitability (or lack thereof) for interim storage and the contents of the tank. A tank with poor liquid integrity and infrastructure but containing large volumes of waste poses a greater current risk than a tank with good liquid integrity and infrastructure containing lesser volumes of waste.

To illustrate the risk factor, consider the 241-A tank farm, which is composed of six, 1,000,000-gallon tanks. Table 10 shows the current waste volume in the tanks, the RRA score, and the risk category and risk factor determined from the expressions above. Table 10 suggests that A-103 has far more risk with its current wastes than, say, A-102 or A-106. The sections below will describe how this risk factor is used to consolidate wastes and reduce the overall tank farm risk.

Table 10. Example of risk calculations for A-Farm SSTs

Tank	Current Volume (Kgal)	RRA Score	Risk Category	Risk Factor
A-101	877	6.55	0.39	339
A-102	41	3.28	0.77	32
A-103	371	0.00	20.00	7420
A-104	28	0.00	20.00	560
A-105	37	0.00	20.00	740
A-106	125	3.28	0.77	97

Appendix B provides a listing of all SSTs showing the RRA score and risk category for each tank.

6.0 STAGING ANALYSIS

Using the RRA, risk category, and risk factor data, each tank farm was analyzed to identify a staging strategy that would reduce the risk of the tank farm. Additionally, some tank characteristics were carried as part of the analysis to support decisions regarding implementation of staging.

The example staging strategy included here illustrates how staging can be employed. More thorough analysis is required prior to implementing any staging strategy as it may support a larger goal (e.g., tank closure). The staging strategy presented here is designed to illustrate reduced risk resulting from the staging of waste in fewer, lower-risk SSTs (sound, or presumed sound tanks) as compared to the storage of waste in more and higher-risk SSTs (e.g., known or assumed leaking tanks).

6.1 TANK CHARACTERISTICS

The staging analysis includes several characteristics to illustrate the as-staged configuration of the tank farm. Tank volume (including the supernatant, sludge, and saltcake fractions) is included along with a subset of the best-basis inventory. Waste constituents were selected based on their impact to related activities including risk assessment (e.g., technetium-99) and waste treatment (e.g., sodium). Future staging analyses can use the tank characteristic information to help support a disposition strategy for staged waste (e.g., supplemental treatment). The constituents are shown in Table 11.

Table 11. Inventory Included in Staging Analysis

Constituent	Symbol	Units
Americium-241	Am^{241}	Curies
Carbon-14	C^{14}	Curies
Chloride	Cl	Kilograms
Cesium-137	Cs^{137}	Curies
Chromium	Cr	Kilograms
Fluoride	F	Kilograms
Iodine-129	I^{129}	Curies
Sodium	Na	Kilograms
Nitrate	NO_3	Kilograms
Nitrite	NO_2	Kilograms
Phosphate	PO_4	Kilograms
Plutonium-239	Pu^{239}	Curies
Plutonum-240	Pu^{240}	Curies
Strontium-90	Sr^{90}	Curies
Sulfate	SO_4	Kilograms
Technetium-99	Tc^{99}	Curies
Total Organic Carbon	TOC	Kilograms
Uranium-232	U^{232}	Curies
Uranium-233	U^{233}	Curies
Uranium-234	U^{234}	Curies
Uranium-235	U^{235}	Curies
Uranium-236	U^{236}	Curies
Uranium-238	U^{238}	Curies
Total Uranium	U Total	Kilograms
Zirconium	Zr	Kilograms

6.2 COMPATIBILITY

Waste compatibility considerations are included in the staging analysis. Fowler [1995] describes the decision rules for waste transfers at tank farms based on the waste type of the source and receiver tanks. Historical mixing operations adhering to these rules have not resulted in adverse effects. Table 12 was used to ensure staged wastes are compatible. Row-column entries without an "X" should not be mixed.

Table 12. Compatibility Matrix for Tank Wastes [Fowler 1995]

Source Waste Type	Receiver Waste Type: DN	DSSF	DC	CC	NCRW Solids	PFP Solids	NCAW	CP
DN	X	X	X	X	X	X	X	X
DSSF	X	X						
DC			X	X*				
CC			X*	X				
NCRW Solids	X				X	X		
PFP Solids	X				X	X		
NCAW							X	
CP								X

DN – Dilute non-complexant waste
DSSF – Double-shell slurry feed
DC – Dilute complexant waste
CC – Concentrated complexant waste
PD – PUREX neutralized cladding removal waste
PT – TRU solids fraction from PFP plant operations
NCAW – Aging waste from PUREX
CP – Concentrated phosphate waste

Notes:
1. X indicates waste type mixing which has occurred historically without adverse effects.
2. * - Adding CC to DC is permitted but would not ordinarily be done. The volume of combined waste which would need to be evaporated would be increased, resulting in increased evaporation costs.

Source: Fowler [1995], Figure 3-2

6.3 STAGING METHODOLOGY

The staging analysis shown in Appendix C was designed to show that a significant reduction in risk can be achieved by using some SSTs as interim storage tanks to contain waste transferred from poorer tanks. The following rules were applied in the staging analysis:

1) Tanks with the highest risk factor are the first to be staged. This is to maximize the amount of risk reduction for the available space.
2) Receiver tanks are selected based on RRA score. This prioritizes the use of the most sound storage tanks.
3) The number of transfers should be minimized. This supports implementation of staging and helps to reduce operational complexity and cost.
4) Wastes that are not compatible (per Table 12) should not be mixed.
5) The number of tanks emptied (to a residual of 2 Kgal or less) should be maximized.

These rules allow for some engineering judgment and flexibility. For example, if the first tank to be staged would require more volume than the preferred receiver tank, the second best receiver tank could be used to avoid a second transfer.

In the case of Rule 5, where a significant risk reduction could be realized, tanks that are not suitable for staging have been utilized to better illustrate the benefit of staging. This is appropriate as this analysis does not incorporate the benefit of a receiver tank over time. A more extensive analysis to show the re-use of a staging tank as part of an overall strategy to stage waste for treatment is necessary to otherwise illustrate this benefit.

6.4 STAGING EXAMPLE

The 241-A tank farm is a good example to illustrate how the methodology rules are applied. The staging analysis is shown in Table 13, with the omission of the inventory data (e.g., ^{99}Tc).

Table 13. Staging Example: 241-A Tank Farm

BEFORE STAGING										AFTER STAGING									
TANK	RRA	Risk Category (1s/RRA)	Risk Factor	Type	Capacity (Kgal)	Waste Volume (Kgal)	Supernatant Volume (Kgal)	Sludge Volume (Kgal)	Saltcake Volume (Kgal)	NEW Risk Category	NEW Risk Factor	Staging Tank	Split (Kgal)	Transfers	Waste Volume (Kgal)	New/Old Volume	Supernatant Volume (Kgal)	Sludge Volume (Kgal)	Saltcake Volume (Kgal)
241-A Tank Farm																			
A-101	6.55	0.39	339	DSSF	1000	877	494	3	380	0.39	365	RECEIVER			944	1.1	494	70	380
A-102	3.28	0.77	32	DSSF	1000	41	4	15	22	0.77	345	RECEIVER			447	10.9	9	415	22
A-103	0.00	20.00	7420	DSSF	1000	371	5	366	0	2.00	4	A-102		1	2	0.0	0	2	0
A-104	0.00	20.00	560	DN	1000	28	0	28	0	2.00	4	A-101		1	2	0.1	0	2	0
A-105	0.00	20.00	740	DN	1000	37	0	37	0	2.00	4	A-101		1	2	0.1	0	2	0
A-106	3.28	0.77	97	CP	1000	125	0	125	0	0.77	97	NO ACTION			125	1.0	0	125	0
241-A TOTALS			**9187**		**6000**	**1479**	**503**	**574**	**402**		**818**			**3**	**1522**		**503**	**617**	**402**

The staging for the 241-A tank farm was developed as follows:

1) The tanks to be staged in priority order were identified as: A-103, A-105, A-104, and A-106. The priority was based on their risk factor values.
2) The preferred receiver tanks (in order) were identified as: A-101, A-102, and A-106. This priority was based on their RRA scores.
3) Based on 1) and 2), A-103 should be staged into A-101. However, the volume available is insufficient. Therefore, A-103 was staged into A-102 to avoid the extra transfer required to distribute the waste between A-101 and A-102. There are no waste compatibility concerns (DSSF waste into DSSF waste).
4) Tank A-105 and A-104 are staged into A-101. There are no compatibility concerns (DSSF and DN wastes into DSSF waste).
5) Tank A-106 was not staged due to compatibility concerns (no receiver in 241-A Tank Farm for CP waste)

Staging results in a considerable reduction in risk category and risk factor for A-103, A-105, and A-106. Alternatively, a bias toward minimizing the tanks designated as receivers could result in A-103, A-105, and A-104 being staged into A-102. This would save transfers and the investment in upgrading two receiver tanks, but would use a less desirable receiver tank (i.e., staging in A-102 vs. A-101). Staging could be implemented across tank farms (e.g., consolidate 241-A tank farm waste into a receiver in 241-AX tank farm). This consideration was not included as part of this analysis, but should be considered as part staging in future efforts.

6.5 STAGING RESULTS

Appendix C contains the staging analysis based on the approach described in Section 6. Summary information from the analysis is shown in Table 14. Figure 7 is a pie chart showing the relative contribution of each farm to the total risk factor reduction. Figure 8 is a bar chart comparing the before staging and after staging risk factors for each tank farm.

Table 14. Summary of Staging Results

Tank Farm	BEFORE STAGING						AFTER STAGING					COMPARISON			
	Risk Factor	Capacity (Kgal)	Waste Volume (Kgal)	Supernatant Volume (Kgal)	Sludge Volume (Kgal)	Saltcake Volume (Kgal)	Transfers	Waste Volume (Kgal)	Supernatant Volume (Kgal)	Sludge Volume (Kgal)	Saltcake Volume (Kgal)	NEW Risk Factor	(Before - After) Risk Factor	Risk Factor Reduction	Net Volume Increase (Kgal)
241-A	9187	6000	1479	503	574	402	3	1522	503	617	402	818	8369	91%	43
241-AX	1358	4000	812	364	26	422	0	812	364	26	422	1358	0	0%	0
241-B	24376	6580	1909	15	1211	683	12	2037	16	1295	726	3137	21239	87%	128
241-BX	12549	6360	1490	24	1259	207	8	1599	25	1347	227	1123	11426	91%	109
241-BY	42491	9096	4387	0	754	3633	8	4407	0	769	3640	4781	37710	89%	20
241-C	9374	6580	1784	126	1658	0	10	1839	126	1713	0	2323	7051	75%	55
241-S	10707	9096	5116	76	1184	3856	1	5145	76	1213	3856	5038	5669	53%	29
241-SX	29602	15000	3726	134	927	2665	10	3862	134	1000	2728	3240	26362	89%	136
241-T	19398	6580	1877	29	1703	145	12	1984	30	1795	159	2244	17154	88%	107
241-TX	84628	13644	6810	9	697	6104	17	6812	9	698	6105	4096	80533	95%	2
241-TY	11638	4548	639	0	529	110	5	696	0	581	115	1502	10136	87%	57
241-U	8717	6580	3231	71	537	2623	9	3302	72	573	2657	1129	7588	87%	71
TOTAL	**264025**	**94064**	**33260**	**1351**	**11059**	**20850**	**95**	**34018**	**1355**	**11627**	**21037**	**30789**	**233236**		**758**

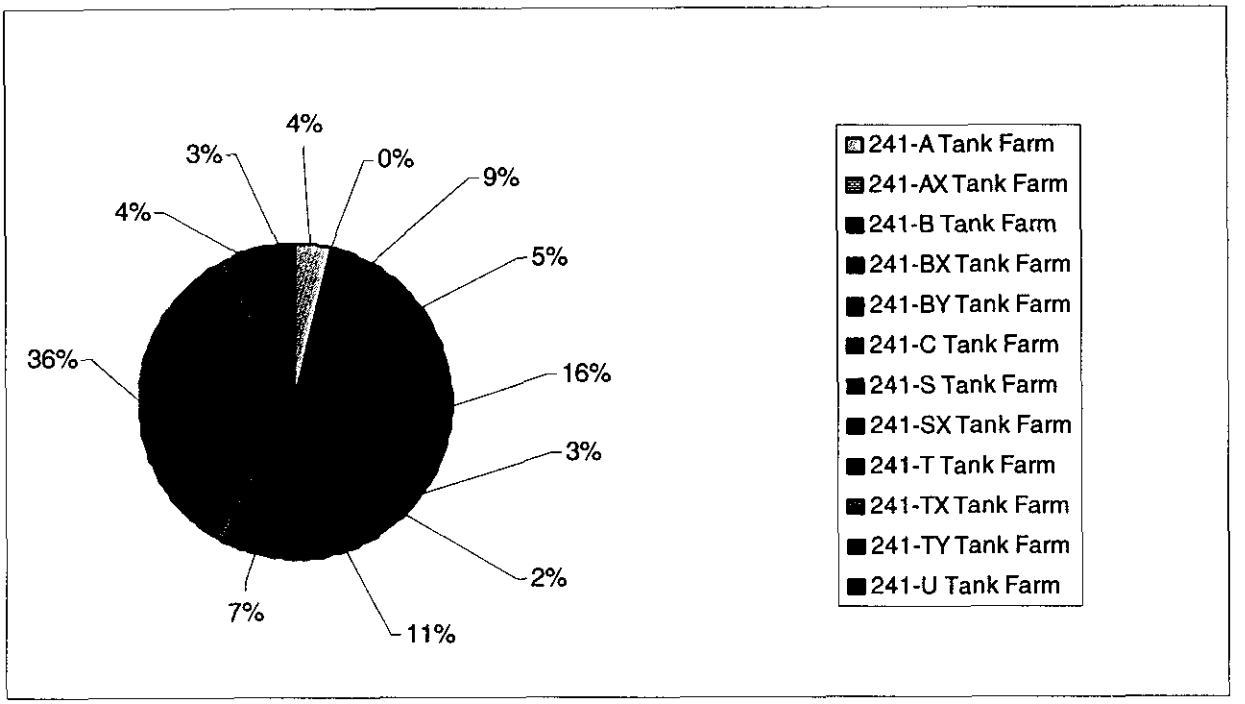

Figure 7. Risk Factor Reduction Contribution by Tank Farm

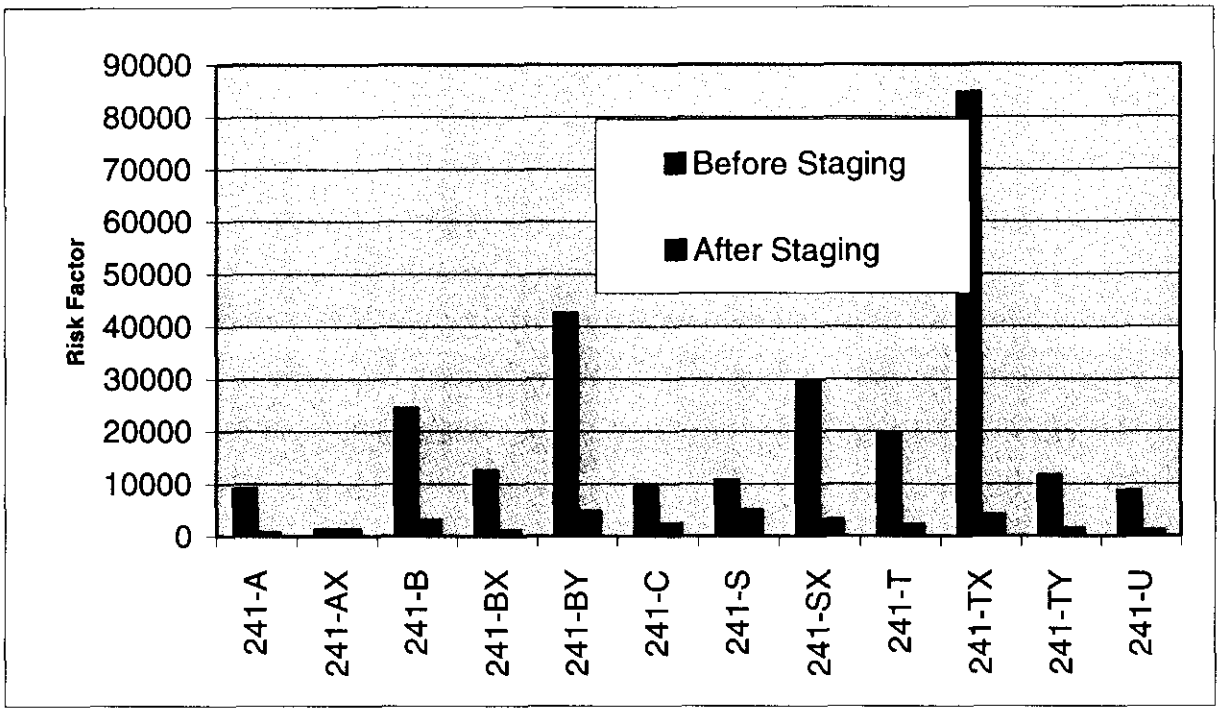

Figure 8. Risk Factor Reduction by Tank Farm

In general, the results of this staging methodology can be viewed as positive. The risk factor reduction across the tank farms is 88%. In 11 of 12 tank farms, staging provided at least a 50% reduction in risk factor, with most being well above 85%. There is an increase in volume (758

Kgal). This should be acceptable considering that the waste has been staged in a lower-risk tank and the overall contribution is relatively small (less than 2.5% of the final volume). These results should be considered optimistic (i.e., resulting in a higher risk factor reduction), considering the use of over 40 receiver tanks, some with lower than desirable RRA scores. A staging strategy that seeks to minimize the number of staging tanks and includes the re-use of those tanks over time may better illustrate a more feasible strategy for implementation.

Specific results of the staging analysis warrant discussion. As shown in Figure 8, the 241-AX tank farm yielded no risk factor reduction. The staging approach did not enable any staging due to incompatible source and receiver tank wastes. The 241-B tank farm only provided risk factor reduction through the use of three less suitable tanks (RRA scores of 1.17-1.80). Staging waste in the 241-BY tank farm and 241-TX tank farm is feasible; however, additional transfers are required due to the distributed quantity of staging space and high volume tanks to be staged. Staging of waste in the 241-TY tank farm can only be accomplished through the use of TY-102, which is a less suitable tank for receiving. The selection of a different staging methodology (e.g., the use of inter-farm transfers) would mitigate most of the specific results mentioned above.

From the data presented in Figures 4 and 5, it appears that there are at least a few potentially suitable tanks in each of the 200 Area quadrants to enable staging on a large scale if inter-farm transfers are acceptable.

6.6 STAGING INFRASTRUCTURE AND INVESTMENTS

Prior to designating a tank as a receiver for staging purposes, some upgrades and/or examination of the tank will be required. Examples include:

- Characterization to facilitate staging and retrieval;
- Investigation of tank integrity and analysis to predict the useful staging life and an integrated tank integrity management program;
- Leak detection, mitigation and monitoring systems;
- Transfer systems (e.g., pipelines and pits) for staging and to support delivery of waste from the staged tank;
- Ventilation upgrades;
- Integration into existing tank farm monitoring systems.

Additional surveillance, maintenance, and assessments would likely be required for the newly-designated receiver tanks. Additionally, if inter-farm staging were to be implemented, infrastructure to transfer waste between tank farms would be required.

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7.0 CONCLUSIONS AND RECOMMENDATIONS

A risk reduction assessment was undertaken to determine if any of the SSTs could be employed as interim storage tanks. Risk reduction would occur by moving existing wastes from tanks having less liquid integrity and utility to tanks having greater liquid integrity and utility. A multiplicative weighting method was developed that assigned weight values to attributes of the SSTs, and then that methodology was applied to each tank, and the tanks were ranked by score, and by tank farm and score. The results of the multiplicative weighting showed that there were eight SSTs in the C-, U-, S-, and SX- tank farms that can be considered for use as interim storage tanks; these tanks scored in the 95th percentile. There were an additional 13 tanks in the S-, TX-, T-, BX, B-, and U-farms that might be considered for interim storage use. Tanks scoring low in the ranking may pose significant risk and should be considered for retrieval on a priority basis.

After ranking the SSTs, a risk reduction strategy was applied to the data. In this strategy, the farm-by-farm risk reduction was estimated for transferring wastes from the poorer tanks to the better tanks. This strategic assessment showed that a significant reduction in risk can be achieved by using some SSTs as interim storage tanks to contain waste transferred from poorer tanks. The strategy shown was geared to reduce risk factor, but additional constraints (e.g., number of receiver tanks) can be applied to better integrate with other planning efforts and cost-benefit analyses.

This report alone does not provide an entirely defensible basis to determine the suitability of a tank for staging. However, this report does provide a template and methodology to support planning and further investigation into staging. While this assessment is subjective, it uses data published by the Hanford Site and applies that data in a reasoned manner. Further investigation regarding staging should include:

a) Further development of the methodology established in this report. This should include the use of group decision techniques to adding, deleting, and adjusting the attributes and weight values and ranges described in this report. This could be followed by additional analysis to determine the effect on tank ranking by varying the weights and ranges for the parameters selected. This could also include inter-farm staging options. Lastly, more recent and detailed information (e.g., the vadose zone program) should be evaluated for inclusion in this methodology.
b) Performance of a level trend analysis of the SST data to determine the long-term volume rate of the supernatant and interstitial liquids, and incorporation of the findings from that analysis into the methodology described here.
c) Preparation of a more detailed analysis of data and techniques that can be used to support the decision to use a sound SST for staging. This could include a more rigorous analysis of a candidate tank's operating history, review of data relevant to the tank's integrity (e.g., concrete core samples), and assessment of the staging approach as affected by retrieval technology selection.
d) Development of an implementation plan for use in implementing the staging approach on tank farms selected by CHG. The implementation plans would be focused on achieving a more specific outcome (e.g., staging of all transuranic waste for supplemental treatment). Work would include more thorough analysis of the process considerations, equipment, and infrastructure required for implementation.

e) Preparation of a cost-risk-benefit analysis to support the waste staging approach. This includes a comparison of the as-planned condition vs. the consolidated approach. This analysis will use the best available data (e.g., CHG baseline data, Retrieval Performance Evaluation analyses, and so on).

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APPENDIX A: RRA Scoring

Risk Reduction Assessment
References:

D. Douglas & D. Giovanini / VET August 2002, Modified by J. Cruz, D. Douglas/VET November 2002

(1) HNF-4712, Rev 0
(2) HNF-3018, Rev 0
(3) HNF-4872, Rev A
(4) TWINS Data as of 6/30/01
(5) WHC-SD-RE-TI-053, REV.9 (Spreadsheet Provided by PW Gibbons, NHC, 11/2002)

Calculated standard deviations 1σ = 2.53
2σ = 7
RRA Score Adjustment for Risk Factor Calculations = 20

Tank	[Farm]	Location [E or W]	In-Service Date (1)	Out-of-Service (1)	Tank Volume Capacity (1) [kgal]	Currnet Contents Volume (4) [kgal]	Supernatant (4) [kgal]	Sludge (4) [kgal]	Salt Cake (4) [kgal]	Drainable Liquid (4) [kgal]	Integrity (1) [S or L]	Integrity Risk Factor	# Tanks in Farm (3)	# Leakers In Farm (1)	Ratio of Leakers in Farm Risk Factor	GW Risk [mrem/mL]	GW Risk Factor	Liquid Level Trend [-, 0, +]	Liquid Level Trend Risk Factor	Internal Level Instruments (2)	Internal Level Instruments Risk Factor	External Dry Wells (1)	External Dry Well Risk Factor	Ventilation (1) [A or P]	Ventilation Risk Factor
A-101	A	E	1956	1980	1000	877	494	3	380	590	S	3	6	3	1	3.66E+08	1.5	0	1	ILL	1.0	10	1.3	P	0.5
A-102	A	E	1956	1980	1000	41	4	15	22	12	S	3	6	3	1	7.42E+08	1.5	0	1	NONE	0.5	7	1.3	P	0.8
A-103	A	E	1956	1980	1000	371	5	366	0	50	L	0	6	3	1	2.02E+09	1.0	0	1	ENRAF	1.2	7	1.3	P	0.8
A-104	A	E	1959	1975	1000	28	0	28	0	4	L	0	6	3	1	1.02E+08	1.5	0	1	NONE	0.5	7	1.3	P	0.8
A-105	A	E	1962	1963	1000	37	0	37	0	0	L	0	6	3	1	6.98E+08	1.5	0	1	NONE	0.5	7	1.3	P	0.8
A-106	A	E	1957	1980	1000	125	0	125	0	9	S	3	6	3	1	1.13E+09	1.5	0	1	NONE	0.5	7	1.3	P	0.8
AX-101	AX	E	1965	1980	1000	662	364	3	295	438	S	3	4	2	1	2.25E+08	1.5	0	1	NONE	0.5	8	1.3	P	0.8
AX-102	AX	E	1966	1980	1000	30	0	7	23	7	L	0	4	2	1	3.29E+08	1.5	0	1	MT	1.0	10	1.3	P	0.8
AX-103	AX	E	1965	1980	1000	112	0	8	104	23	S	3	4	2	1	1.17E+09	1.5	0	1	NONE	0.5	6	1.3	P	0.8
AX-104	AX	E	1966	1974	1000	8	0	8	0	1	L	0	4	2	1	7.05E+08	1.5	0	1	ENRAF	1.2	7	1.3	P	0.8
B-101	B	E	1945	1974	530	113	0	0	113	24	L	0	16	10	1	1.07E+09	1.5	0	1	NONE	0.5	5	1.3	P	0.8
B-102	B	E	1945	1978	530	32	4	0	28	11	S	3	16	10	1	1.18E+08	1.5	0	1	ENRAF	1.2	6	1.3	P	0.8
B-103	B	E	1945	1977	530	59	0	0	59	11	L	0	16	10	1	1.63E+08	1.5	0	1	NONE	0.5	3	1.0	P	0.8
B-104	B	E	1945	1972	530	371	1	309	61	46	S	3	16	10	1	3.67E+08	1.5	0	1	ILL	1.0	2	1.0	P	0.8
B-105	B	E	1945	1977	530	158	0	28	130	20	L	0	16	10	1	2.04E+08	1.5	0	1	ILL	1.0	1	1.0	P	0.8
B-106	B	E	1945	1977	530	117	1	0	116	26	S	3	16	10	1	7.09E+08	1.5	0	1	NONE	0.5	4	1.3	P	0.8
B-107	B	E	1945	1969	530	165	1	93	71	23	L	0	16	10	1	3.40E+08	1.5	0	1	NONE	0.5	5	1.3	P	0.8
B-108	B	E	1945	1977	530	94	0	53	41	15	S	3	16	10	1	3.64E+08	1.5	0	1	NONE	0.5	5	1.3	P	0.8
B-109	B	E	1945	1977	530	127	0	63	64	21	S	3	16	10	1	1.68E+09	1.0	0	1	NONE	0.5	5	1.3	P	0.8
B-110	B	E	1945	1971	530	246	1	245	0	28	L	0	16	10	1	2.27E+08	1.5	0	1	ILL	1.0	4	1.3	P	0.8
B-111	B	E	1945	1976	530	237	1	236	0	24	L	0	16	10	1	9.57E+08	1.5	0	1	FIC	1.2	1	1.0	P	0.8
B-112	B	E	1945	1977	530	33	3	30	0	7	L	0	16	10	1	8.40E+07	1.5	0	1	ENRAF	1.2	5	1.3	P	0.8
B-201	B	E	1952	1971	55	29	1	28	0	5	L	0	16	10	1	4.15E+06	1.5	0	1	NONE	0.5	0	0.5	P	0.8
B-202	B	E	1952	1977	55	27	0	27	0	4	S	3	16	10	1	3.80E+06	1.5	0	1	NONE	0.5	0	0.5	P	0.8
B-203	B	E	1952	1977	55	51	1	50	0	6	L	0	16	10	1	4.20E+06	1.5	0	1	NONE	0.5	0	0.5	P	0.8
B-204	B	E	1952	1977	55	50	1	49	0	6	L	0	16	10	1	1.37E+06	1.5	0	1	NONE	0.5	0	0.5	P	0.8
BX-101	BX	E	1948	1972	530	43	1	42	0	5	L	0	12	5	1	1.08E+09	1.5	0	1	NONE	0.5	2	1.0	P	0.8
BX-102	BX	E	1948	1971	530	96	0	96	0	0	L	0	12	5	1	1.24E+08	1.5	0	1	NONE	0.5	6	1.3	P	0.8
BX-103	BX	E	1948	1977	530	71	9	62	0	13	S	3	12	5	1	2.94E+08	1.5	0	1	ENRAF	1.2	5	1.3	P	0.8
BX-104	BX	E	1949	1980	530	93	3	90	0	7	S	3	12	5	1	2.50E+09	1.0	0	1	ENRAF	1.2	6	1.3	P	0.8
BX-105	BX	E	1949	1980	530	51	5	46	0	9	S	3	12	5	1	2.19E+08	1.5	0	1	ENRAF	1.2	6	1.3	P	0.8
BX-106	BX	E	1949	1971	530	38	0	38	0	4	S	3	12	5	1	1.64E+08	1.5	0	1	NONE	0.5	4	1.3	P	0.8
BX-107	BX	E	1948	1977	530	345	1	344	0	37	S	3	12	5	1	1.36E+09	1.0	0	1	NONE	0.5	2	1.0	P	0.8
BX-108	BX	E	1949	1974	530	26	0	26	0	4	L	0	12	5	1	2.00E+08	1.5	0	1	NONE	0.5	7	1.3	P	0.8
BX-109	BX	E	1950	1974	530	193	0	193	0	25	S	3	12	5	1	1.70E+09	1.0	0	1	NONE	0.5	4	1.3	P	0.8
BX-110	BX	E	1949	1977	530	207	3	133	71	31	L	0	12	5	1	1.14E+09	1.5	0	1	ENRAF	1.2	5	1.3	P	0.8
BX-111	BX	E	1950	1977	530	162	1	25	136	6	L	0	12	5	1	1.04E+09	1.5	0	1	NONE	0.5	6	1.3	P	0.8
BX-112	BX	E	1950	1977	530	165	1	164	0	10	S	3	12	5	1	9.71E+07	1.5	0	1	NONE	0.5	5	1.3	P	0.8
BY-101	BY	E	1950	1971	758	387	0	109	278	28	S	3	12	5	1	3.56E+09	0.5	0	1	ILL	1.0	5	1.3	P	0.8
BY-102	BY	E	1950	1977	758	277	0	0	277	40	S	3	12	5	1	2.37E+09	1.0	0	1	ILL	1.0	5	1.3	P	0.8
BY-103	BY	E	1950	1973	758	400	0	9	391	58	L	0	12	5	1	2.97E+09	1.0	0	1	ILL	1.0	8	1.3	P	0.8
BY-104	BY	E	1951	1977	758	326	0	150	176	40	S	3	12	5	1	2.42E+09	1.0	0	1	ILL	1.0	5	1.3	P	0.8
BY-105	BY	E	1951	1974	758	503	0	48	455	121	L	0	12	5	1	1.96E+09	1.0	0	1	ILL	1.0	3	1.0	P	0.8
BY-106	BY	E	1950	1977	758	562	0	84	478	132	L	0	12	5	1	3.93E+09	0.5	0	1	ILL	1.0	5	1.3	P	0.8
BY-107	BY	E	1950	1974	758	266	0	40	226	39	L	0	12	5	1	1.88E+09	1.0	0	1	ILL	1.0	6	1.3	P	0.8
BY-108	BY	E	1951	1972	758	228	0	154	74	33	L	0	12	5	1	1.63E+09	1.0	0	1	NONE	0.5	7	1.3	P	0.8
BY-109	BY	E	1950	1979	758	290	0	57	233	31	S	3	12	5	1	3.98E+09	0.5	0	1	ILL	1.0	6	1.3	P	0.8
BY-110	BY	E	1951	1979	758	398	0	103	295	21	S	3	12	5	1	2.84E+09	1.0	0	1	ILL	1.0	4	1.3	P	0.8
BY-111	BY	E	1951	1977	758	459	0	0	459	14	S	3	12	5	1	5.57E+09	0.5	0	1	NONE	0.5	4	1.3	P	0.8
BY-112	BY	E	1951	1978	758	291	0	0	291	24	S	3	12	5	1	2.96E+09	1.0	0	1	ILL	1.0	7	1.3	P	0.8
C-101	C	E	1946	1970	530	88	0	88	0	4	L	0	16	7	1	8.15E+08	1.5	0	1	NONE	0.5	4	1.3	P	0.8
C-102	C	E	1946	1976	530	316	0	316	0	62	S	3	16	7	1	1.24E+07	1.5	0	1	NONE	0.5	0	0.5	P	0.8
C-103	C	E	1946	1979	530	198	79	119	0	97	S	3	16	7	1	1.63E+09	1.0	0	1	ENRAF	1.2	5	1.3	P	0.8
C-104	C	E	1946	1980	530	263	0	263	0	0	S	3	16	7	1	5.40E+09	0.5	0	1	NONE	0.5	7	1.3	P	0.8
C-105	C	E	1946	1979	530	132	0	132	0	20	S	3	16	7	1	1.30E+09	1.0	0	1	NONE	0.5	4	1.3	A	1.2
C-106	C	E	1946	1979	530	48	42	6	0	42	S	3	16	7	1	2.63E+08	1.5	0	1	ENRAF	1.2	6	1.3	A	1.2
C-107	C	E	1946	1978	530	257	0	257	0	30	S	3	16	7	1	1.21E+09	1.5	0	1	NONE	0.5	7	1.3	P	0.8
C-108	C	E	1946	1976	530	66	0	66	0	4	S	3	16	7	1	1.85E+07	1.5	0	1	NONE	0.5	8	1.3	P	0.8
C-109	C	E	1946	1976	530	66	4	62	0	8	S	3	16	7	1	5.73E+08	1.5	0	1	NONE	0.5	6	1.3	P	0.8
C-110	C	E	1946	1976	530	178	1	177	0	38	L	0	16	7	1	4.88E+08	1.5	0	1	NONE	0.5	4	1.3	P	0.8
C-111	C	E	1946	1978	530	57	0	57	0	4	L	0	16	7	1	4.04E+08	1.5	0	1	NONE	0.5	5	1.3	P	0.8

Tank	CoC [Ci]	Integrity Category (2)	Integrity Category Risk Factor	Corrosion Factor (2)	Peak Temp (1) [F]	Riser Availability Risk Factor	Total # risers	Riser Diameter (Inches) (5) 2.5	3	4	6	7.5	8	10	12	14	16	18	20	24	26	34	36	Summation of (Riser Size x Number of Risers)	RRA SCORE	Risk Category (1σ/RRA) SCORE	Current Risk Factor (Risk Category x Current Volume) SCORE
A-101	9.92E+02	3	1	0.77	399	1.4	21			9	1		3		4			3	1					188	6.6	0.39	338.6
A-102	4.31E+01	3	1	0.77	420	1.4	19			7	2		2	2	5				1					156	3.3	0.77	31.7
A-103	2.50E+02	4	0.5	0.77	300	1	17			8			3		5				1					136	0.0	20.00	7420.0
A-104	1.01E+01	4	0.5	0	430	1	20	4		8			3		4				1					134	0.0	20.00	560.0
A-105	6.97E+01	5	0	0	325	1.4	23			14			3		6									152	0.0	20.00	740.0
A-106	1.16E+02	3	1	0	594	1.4	19			6	4		3		5				1					152	3.3	0.77	96.5
AX-101	8.05E+02	3	1	0.77	260	1.4	36			11	14	3			5		1		1			1		281	3.3	0.77	511.3
AX-102	3.35E+01	4	0.5	1.1	250	1.4	35			11	14	3			3		1		1			2		291	0.0	20.00	600.0
AX-103	1.53E+02	3	1	1.1	330	1.4	34			11	14	3			2		1		1			2		279	3.3	0.77	86.5
AX-104	9.59E+01	4	0.5	0	320	1.4	36			14	14	3			2				1			2		275	0.0	20.00	160.0
B-101	1.19E+01	4	0.5	9.12	137	1	11			5					5								1	116	0.0	20.00	2260.0
B-102	1.70E+00	3	1	9.12	108	1	10			4					5								1	112	5.6	0.45	14.4
B-103	2.05E+00	4	0.5	9.12	83	1	10			4					5								1	112	0.0	20.00	1180.0
B-104	4.20E+00	3	1	0	122	0.5	9			4					5									76	1.8	1.41	521.5
B-105	4.61E+00	4	0.5	22	107	1	11			6					5									84	0.0	20.00	3160.0
B-106	6.96E+00	3	1	26.4	86	0.5	9			4					5									76	1.2	2.16	253.0
B-107	1.96E+01	4	0.5	11	124	0.5	9			5					4									68	0.0	20.00	3300.0
B-108	3.58E+00	3	1	11	105	0.5	9			4					5									76	1.2	2.16	203.3
B-109	5.02E+01	3	1	11	105	0.5	9			4					5									76	0.8	3.24	411.9
B-110	2.27E+01	4	0.5	5	121	1	10			5					5									80	0.0	20.00	4920.0
B-111	1.24E+02	4	0.5	5	98	0.5	9			4					5									76	0.0	20.00	4740.0
B-112	1.08E+01	4	0.5	5	101	0.5	9			4					5									76	0.0	20.00	660.0
B-201	3.24E-01	4	0.5	1.8	112	0.5	8			4					4									64	0.0	20.00	580.0
B-202	3.29E-02	3	1	1.8	74	0.5	8			4					4									64	0.5	5.62	151.8
B-203	3.25E-02	4	0.5	1.8	110	0.5	8			4					4									64	0.0	20.00	1020.0
B-204	1.21E-02	4	0.5	1.8	220	0.5	8			4					4									64	0.0	20.00	1000.0
BX-101	1.73E+01	4	0.5	57.2	86	1	10			4					4								2	136	0.0	20.00	860.0
BX-102	6.77E+00	5	0	57.2	83	1.4	11			4					4			1					2	154	0.0	20.00	1920.0
BX-103	1.77E+01	3	1	57.2	99	1	10			4					4								2	136	5.6	0.45	32.0
BX-104	4.22E+01	3	1	57.2	124	1	10			4					5								1	112	3.7	0.68	62.8
BX-105	1.33E+01	3	1	57.2	126	1	10			4					5								1	112	5.6	0.45	23.0
BX-106	9.72E+00	3	1	57.2	115	1	10			4					5								1	112	2.3	1.08	41.1
BX-107	7.59E+01	3	1	26.4	88	1	10			5					5									80	1.2	2.11	727.4
BX-108	6.16E+00	4	0.5	26.4	90	0.5	9			4					5									76	0.0	20.00	520.0
BX-109	1.37E+01	3	1	0	77	0.5	9			4					5									76	0.8	3.24	626.0
BX-110	4.40E+01	4	0.5	12.4	104	0.5	9			4					5									76	0.0	20.00	4140.0
BX-111	1.18E+02	4	0.5	12.4	111	0.5	9			4					5									76	0.0	20.00	3240.0
BX-112	2.55E+00	3	1	11	90	0.5	9			4					5									76	1.2	2.16	356.8
BY-101	3.13E+02	3	1	45.5	115	1	13			6					6			1						114	1.6	1.62	627.6
BY-102	2.75E+02	2	1.5	67.7	155	1	12			5					7									104	4.7	0.54	149.7
BY-103	3.43E+02	4	0.5	45.5	137	1.4	21			8	1				6	5		1						198	0.0	20.00	8000.0
BY-104	2.28E+02	3	1	45.5	237	1	11			6					4			1						90	3.1	0.81	264.4
BY-105	1.53E+02	4	0.5	45.5	180	1.4	16			7	1				5	1		2						144	0.0	20.00	10060.0
BY-106	4.66E+02	4	0.5	45.5	199	1.4	16			4					9			3						178	0.0	20.00	11240.0
BY-107	1.57E+02	4	0.5	45.5	125	1.4	16			4					9			3						178	0.0	20.00	5320.0
BY-108	1.29E+02	4	0.5	45.5	154	1.4	15			5					9			1						146	0.0	20.00	4560.0
BY-109	2.57E+02	2	1.5	67.7	138	1	13			6					7									108	2.3	1.08	313.5
BY-110	2.24E+02	3	1	45.5	205	1.4	15			4					10			1						154	4.4	0.58	230.5
BY-111	4.16E+02	3	1	45.5	124	1	14			5	2				7									116	0.8	3.24	1488.8
BY-112	2.86E+02	3	1	45.5	163	1	19			11	3				5									122	3.1	0.81	236.0
C-101	4.44E+01	4	0.5	57.2	112	1	10			4					5								1	112	0.0	20.00	1760.0
C-102	1.06E+01	1	2	24.5	106	1	10			4					4						1		1	126	1.8	1.41	444.2
C-103	2.16E+02	1	2	24.5	168	1	10			4					4						1		1	126	7.5	0.34	66.9
C-104	1.58E+02	3	1	0	195	1.4	12			5					5						1		1	142	1.1	2.32	609.3
C-105	9.00E+01	1	2	24.5	156	1.4	11			4					5						1		1	138	6.6	0.39	51.0
C-106	3.00E+01	2	1.5	24.5	216	1.4	12			5					5						1		1	142	17.7	0.14	6.9
C-107	1.11E+02	3	1	0.85	168	0.5	9			4					5									76	1.2	2.16	555.7
C-108	6.41E-01	3	1	35.8	99	0.5	9			4					5									76	1.2	2.16	142.7
C-109	3.32E+01	3	1	35.8	160	0.5	9			4					5									76	1.2	2.16	142.7
C-110	3.57E+01	4	0.5	26.4	118	0.5	9			4					5									76	0.0	20.00	3560.0
C-111	3.14E+00	4	0.5	35.8	190	0.5	9			4					5									76	0.0	20.00	1140.0

Tank	[Farm]	Location [E or W]	In-Service Date (1)	Out-of-Service (1)	Tank Volume Capacity (1) [kgal]	Currnet Contents Volume (4) [kgal]	Supernatant (4) [kgal]	Sludge (4) [kgal]	Salt Cake (4) [kgal]	Drainable Liquid (4) [kgal]	Integrity (1) [S or L]	Integrity Risk Factor	# Tanks in Farm (3)	# Leakers In Farm (1)	Ratio of Leakers In Farm Risk Factor
C-112	C	E	1946	1978	530	104	0	104	0	6	S	3	16	7	1
C-201	C	E	1947	1977	55	2	0	2	0	0	L	0	16	7	1
C-202	C	E	1947	1977	55	1	0	1	0	0	L	0	16	7	1
C-203	C	E	1947	1977	55	5	0	5	0	0	L	0	16	7	1
C-204	C	E	1947	1977	55	3	0	3	0	0	L	0	16	7	1
S-101	S	W	1953	1980	758	427	12	211	204	95	S	3	12	1	1.4
S-102	S	W	1953	1980	758	492	0	105	387	93	S	3	12	1	1.4
S-103	S	W	1953	1980	758	237	1	9	227	46	S	3	12	1	1.4
S-104	S	W	1953	1968	758	294	1	293	0	35	L	0	12	1	1.4
S-105	S	W	1953	1980	758	456	0	2	454	42	S	3	12	1	1.4
S-106	S	W	1953	1979	758	455	0	0	455	26	S	3	12	1	1.4
S-107	S	W	1952	1980	758	376	14	293	69	75	S	3	12	1	1.4
S-108	S	W	1952	1979	758	432	0	5	427	0	S	3	12	1	1.4
S-109	S	W	1952	1979	758	533	0	13	520	16	S	3	12	1	1.4
S-110	S	W	1952	1979	758	390	0	131	259	30	S	3	12	1	1.4
S-111	S	W	1952	1972	758	501	48	116	337	130	S	3	12	1	1.4
S-112	S	W	1952	1974	758	523	0	6	517	81	S	3	12	1	1.4
SX-101	SX	W	1954	1980	1000	429	0	0	429	93	S	3	15	10	1
SX-102	SX	W	1954	1980	1000	514	134	0	380	229	S	3	15	10	1
SX-103	SX	W	1954	1980	1000	518	0	115	403	31	S	3	15	10	1
SX-104	SX	W	1955	1980	1000	446	0	136	310	48	L	0	15	10	1
SX-105	SX	W	1955	1980	1000	484	0	65	419	0	S	3	15	10	1
SX-106	SX	W	1954	1980	1000	397	0	0	397	37	S	3	15	10	1
SX-107	SX	W	1956	1964	1000	102	0	85	17	0	L	0	15	10	1
SX-108	SX	W	1955	1962	1000	87	0	87	0	0	L	0	15	10	1
SX-109	SX	W	1955	1965	1000	249	0	60	189	0	L	0	15	10	1
SX-110	SX	W	1960	1976	1000	62	0	62	0	0	L	0	15	10	1
SX-111	SX	W	1956	1974	1000	122	0	122	0	8	L	0	15	10	1
SX-112	SX	W	1956	1969	1000	108	0	108	0	6	L	0	15	10	1
SX-113	SX	W	1958	1958	1000	31	0	31	0	0	L	0	15	10	1
SX-114	SX	W	1956	1972	1000	165	0	44	121	0	L	0	15	10	1
SX-115	SX	W	1958	1965	1000	12	0	12	0	0	L	0	15	10	1
T-101	TX	W	1945	1979	530	102	1	37	64	21	L	0	16	7	1
T-102	T	W	1945	1976	530	32	13	19	0	16	S	3	16	7	1
T-103	T	W	1945	1974	530	27	4	23	0	7	L	0	16	7	1
T-104	T	W	1945	1974	530	317	0	317	0	31	S	3	16	7	1
T-105	T	W	1945	1976	530	98	0	98	0	5	S	3	16	7	1
T-106	T	W	1945	1973	530	21	2	19	0	2	L	0	16	7	1
T-107	T	W	1945	1976	530	173	0	173	0	34	L	0	16	7	1
T-108	T	W	1945	1974	530	44	0	21	23	5	L	0	16	7	1
T-109	T	W	1945	1974	530	58	0	0	58	10	L	0	16	7	1
T-110	T	W	1945	1976	530	369	1	368	0	48	S	3	16	7	1
T-111	TX	W	1945	1974	530	446	0	446	0	38	L	0	16	7	1
T-112	T	W	1945	1977	530	67	7	60	0	11	S	3	16	7	1
T-201	T	W	1952	1976	55	29	1	28	0	5	S	3	16	7	1
T-202	T	W	1952	1976	55	21	0	21	0	3	S	3	16	7	1
T-203	T	W	1952	1976	55	35	0	35	0	5	S	3	16	7	1
T-204	T	W	1952	1976	55	38	0	38	0	5	S	3	16	7	1
TX-101	TX	W	1949	1980	758	87	3	74	10	11	S	3	18	8	1
TX-102	TX	W	1950	1977	758	217	0	0	217	27	S	3	18	8	1
TX-103	TX	W	1950	1980	758	157	0	0	157	18	S	3	18	8	1
TX-104	TX	W	1950	1977	758	65	5	23	37	14	S	3	18	8	1
TX-105	TX	W	1951	1977	758	609	0	0	609	25	L	0	18	8	1
TX-106	TX	W	1951	1977	758	341	0	0	341	37	S	3	18	8	1
TX-107	TX	W	1950	1977	758	36	1	8	27	7	L	0	18	8	1
TX-108	TX	W	1950	1977	758	134	0	6	128	8	S	3	18	8	1
TX-109	TX	W	1950	1977	758	384	0	384	0	6	S	3	18	8	1
TX-110	TX	W	1950	1977	758	462	0	37	425	14	L	0	18	8	1
TX-111	TX	W	1949	1977	758	370	0	43	327	10	S	3	18	8	1
TX-112	TX	W	1950	1974	758	649	0	0	649	26	S	3	18	8	1
TX-113	TX	W	1950	1971	758	653	0	0	653	30	L	0	18	8	1
TX-114	TX	W	1951	1971	758	535	0	4	531	17	L	0	18	8	1
TX-115	TX	W	1951	1977	758	568	0	0	568	25	L	0	18	8	1
TX-116	TX	W	1951	1969	758	631	0	68	563	21	L	0	18	8	1
TX-117	TX	W	1951	1969	758	626	0	29	597	10	L	0	18	8	1
TX-118	TX	W	1951	1980	758	286	0	21	265	0	S	3	18	8	1
TY-101	TY	W	1953	1973	758	118	0	72	46	2	L	0	6	5	0.5
TY-102	TY	W	1953	1979	758	64	0	0	64	12	S	3	6	5	0.5

Tank	GW Risk [mrem/mL]	GW Risk Factor	Liquid Level Trend [-, 0, +]	Liquid Level Trend Risk Factor	Internal Level Instruments (2)	Internal Level Instruments Risk Factor	External Dry Wells (1)	External Dry Well Risk Factor	Ventilation (1) [A or P]	Ventilation Risk Factor	CoC [Ci]	Integrity Category (2)	Integrity Category Risk Factor	Corrosion Factor (2)	Peak Temp (1) [F]	Riser Availability Risk Factor	Total # risers
C-112	4.04E+09	0.5	0	1	NONE	0.5	4	1.3	P	0.8	1.09E+02	3	1	35.8	160	0.5	9
C-201	4.31E+05	1.5	0	1	NONE	0.5	0	0.5	P	0.8	3.02E-02	4	0.5	1.59	81	0.5	6
C-202	2.00E+05	1.5	0	1	NONE	0.5	0	0.5	P	0.8	1.04E-02	4	0.5	1.59	80	0.5	6
C-203	9.95E+05	1.5	0	1	NONE	0.5	0	0.5	P	0.8	8.90E-02	4	0.5	1.59	83	0.5	6
C-204	5.14E+05	1.5	0	1	NONE	0.5	0	0.5	P	0.8	4.91E-02	4	0.5	1.59	No Data	0.5	6
S-101	3.37E+09	0.5	0	1	ENRAF	1.2	5	1.3	P	0.8	2.74E+02	2	1.5	13.7	300	0.5	11
S-102	3.29E+09	0.5	0	1	ILL	1.0	5	1.3	P	0.8	4.82E+02	2	1.5	13.7	140	0.5	11
S-103	1.99E+09	1.0	0	1	ENRAF	1.2	7	1.3	P	0.8	2.29E+02	2	1.5	13.7	130	0.5	11
S-104	1.60E+09	1.0	0	1	ILL	1.0	4	1.3	P	0.8	5.52E+01	4	0.5	6.53	300	0.5	8
S-105	3.13E+09	1.0	0	1	ILL	1.0	7	1.3	P	0.8	3.49E+02	2	1.5	13.7	125	0.5	11
S-106	2.41E+09	1.0	0	1	ENRAF	1.2	6	1.3	P	0.8	2.81E+02	2	1.5	13.7	144	0.5	11
S-107	2.34E+09	1.0	0	1	ENRAF	1.2	6	1.3	P	0.8	1.22E+02	2	1.5	13.7	240	0.5	11
S-108	2.71E+09	1.0	0	1	ILL	1.0	6	1.3	P	0.8	3.07E+02	2	1.5	13.7	195	0.5	11
S-109	2.76E+09	1.0	0	1	ILL	1.0	5	1.3	P	0.8	4.25E+02	2	1.5	13.7	150	0.5	11
S-110	3.49E+09	0.5	0	1	ILL	1.0	7	1.3	P	0.8	3.29E+02	2	1.5	13.7	240	0.5	11
S-111	1.45E+09	1.0	0	1	ENRAF	1.2	5	1.3	P	0.8	3.84E+02	2	1.5	13.7	169	0.5	11
S-112	4.63E+09	0.5	0	1	ILL	1.0	5	1.3	P	0.8	5.57E+02	2	1.5	13.7	141	0.5	11
SX-101	1.57E+09	1.0	0	1	ILL	1.0	7	1.3	A	1.2	1.53E+02	2	1.5	13.7	320	1	16
SX-102	6.23E+09	0.5	0	1	ILL	1.0	3	1.0	A	1.2	7.22E+02	2	1.5	13.7	212	1	12
SX-103	6.45E+09	0.5	0	1	ILL	1.0	6	1.3	A	1.2	7.45E+02	3	1	4.87	225	1	12
SX-104	2.38E+09	1.0	0	1	ILL	1.0	6	1.3	A	1.2	2.36E+02	4	0.5	13.7	300	0.5	11
SX-105	7.66E+09	0.5	0	1	ILL	1.0	7	1.3	A	1.2	8.90E+02	2	1.5	13.7	330	1.4	19
SX-106	3.77E+09	0.5	0	1	ENRAF	1.2	6	1.3	A	1.2	4.38E+02	2	1.5	13.7	195	0.5	11
SX-107	3.52E+08	1.5	0	1	NONE	0.5	7	1.3	A	1.2	1.21E+01	4	0.5	6.53	390	1.4	21
SX-108	6.99E+08	1.5	0	1	NONE	0.5	6	1.3	A	1.2	1.36E+01	4	0.5	6.53	320	1.4	21
SX-109	1.04E+09	1.5	0	1	NONE	0.5	7	1.3	A	1.2	7.06E+01	4	0.5	6.53	295	1.4	20
SX-110	3.46E+08	1.5	0	1	NONE	0.5	8	1.3	A	1.2	2.05E+01	4	0.5	6.07	310	1.4	21
SX-111	5.99E+08	1.5	0	1	NONE	0.5	7	1.3	A	1.2	3.15E+01	4	0.5	6.07	320	1.4	20
SX-112	4.61E+08	1.5	0	1	NONE	0.5	7	1.3	A	1.2	2.03E+01	4	0.5	6.53	315	1.4	20
SX-113	6.81E+06	1.5	0	1	NONE	0.5	1	1.0	P	0.8	1.78E-01	4	0.5	4.57	255	1	10
SX-114	6.81E+08	1.5	0	1	NONE	0.5	7	1.3	A	1.2	4.55E+01	4	0.5	6.07	335	1.4	20
SX-115	7.99E+07	1.5	0	1	NONE	0.5	6	1.3	P	0.8	3.20E+00	5	0	6.53	260	1	9
T-101	1.85E+09	1.0	0	1	NONE	0.5	5	1.3	P	0.8	2.50E+01	4	0.5	0.1	103	1	10
T-102	5.97E+08	1.5	0	1	ENRAF	1.2	6	1.3	P	0.8	1.30E+01	3	1	0.1	94	0.5	9
T-103	8.22E+07	1.5	0	1	NONE	0.5	6	1.3	P	0.8	3.37E+00	4	0.5	0.1	96	0.5	9
T-104	1.36E+08	1.5	0	1	ILL	1.0	5	1.3	P	0.8	1.96E+00	3	1	2.75	90	0.5	9
T-105	1.38E+09	1.0	0	1	NONE	0.5	5	1.3	P	0.8	1.56E+02	3	1	1.94	93	0.5	9
T-106	4.34E+07	1.5	0	1	NONE	0.5	9	1.3	P	0.8	4.05E-01	5	0	1.94	93	0.5	9
T-107	2.48E+09	1.0	0	1	NONE	0.5	3	1.0	P	0.8	6.52E+01	4	0.5	35.8	114	0.5	9
T-108	4.05E+07	1.5	0	1	NONE	0.5	6	1.3	P	0.8	6.38E-01	4	0.5	26.4	90	0.5	9
T-109	2.48E+07	1.5	0	1	NONE	0.5	6	1.3	P	0.8	9.23E-01	4	0.5	0	91	0.5	9
T-110	1.26E+08	1.5	0	1	ILL	1.0	3	1.0	P	0.8	1.03E+00	3	1	4.04	91	0.5	9
T-111	8.49E+08	1.5	0	1	ILL	1.0	5	1.3	P	0.8	2.24E+01	4	0.5	4.04	98	0.5	9
T-112	1.04E+08	1.5	0	1	ENRAF	1.2	3	1.0	P	0.8	2.91E+00	3	1	4.04	87	0.5	9
T-201	1.01E+06	1.5	0	1	NONE	0.5	0	0.5	P	0.8	5.13E-02	3	1	1.8	81	0.5	8
T-202	1.13E+06	1.5	0	1	NONE	0.5	0	0.5	P	0.8	3.92E-02	3	1	1.8	73	0.5	8
T-203	1.25E+06	1.5	0	1	NONE	0.5	0	0.5	P	0.8	6.08E-02	3	1	1.8	79	0.5	8
T-204	1.35E+06	1.5	0	1	NONE	0.5	0	0.5	P	0.8	6.47E-02	3	1	1.8	77	0.5	8
TX-101	3.37E+08	1.5	0	1	ENRAF	1.2	5	1.3	P	0.8	1.60E+01	3	1	0	128	1	11
TX-102	1.36E+09	1.0	0	1	ILL	1.0	5	1.3	P	0.8	1.48E+02	2	1.5	13.7	136	1	15
TX-103	5.08E+08	1.5	0	1	NONE	0.5	6	1.3	P	0.8	5.16E+01	3	1	0	112	1	12
TX-104	2.93E+08	1.5	0	1	NONE	0.5	6	1.3	P	0.8	3.17E+01	2	1.5	13.7	128	1	13
TX-105	3.82E+09	0.5	0	1	NONE	0.5	6	1.3	P	0.8	4.16E+02	4	0.5	13.7	238	1	16
TX-106	2.29E+09	1.0	0	1	ILL	1.0	5	1.3	P	0.8	2.33E+02	3	1	13.7	138	1.4	17
TX-107	6.89E+07	1.5	0	1	NONE	0.5	7	1.3	P	0.8	3.96E+00	4	0.5	13.7	110	1	14
TX-108	6.72E+08	1.5	0	1	NONE	0.5	3	1.0	P	0.8	6.81E+01	1	2	45.7	116	1.4	17
TX-109	1.18E+09	1.5	0	1	ILL	1.0	5	1.3	P	0.8	1.14E+02	3	1	22	168	1	12
TX-110	2.39E+09	1.0	0	1	ILL	1.0	6	1.3	P	0.8	2.54E+02	4	0.5	22	153	1.4	17
TX-111	2.01E+09	1.0	0	1	ILL	1.0	5	1.3	P	0.8	2.13E+02	3	1	22	147	1.4	18
TX-112	3.95E+09	0.5	0	1	ILL	1.0	6	1.3	P	0.8	4.33E+02	3	1	0	112	1	14
TX-113	5.77E+09	0.5	0	1	ILL	1.0	3	1.0	P	0.8	6.52E+02	4	0.5	22	120	1	14
TX-114	2.95E+09	1.0	0	1	ILL	1.0	3	1.0	P	0.8	3.19E+02	4	0.5	22	102	1	15
TX-115	3.56E+09	0.5	0	1	ILL	1.0	6	1.3	P	0.8	3.92E+02	4	0.5	23.2	123	1	12
TX-116	2.25E+09	1.0	0	1	NONE	0.5	3	1.0	P	0.8	2.38E+02	4	0.5	22	117	1	14
TX-117	1.97E+09	1.0	0	1	ILL	1.0	6	1.3	P	0.8	2.03E+02	4	0.5	22	191	1	11
TX-118	1.61E+09	1.0	0	1	ILL	1.0	7	1.3	P	0.8	1.78E+02	1	2	45.7	118	1	16
TY-101	2.36E+08	1.5	0	1	NONE	0.5	3	1.0	P	0.8	7.23E+00	4	0.5	0	83	1	13
TY-102	2.12E+07	1.5	0	1	NONE	0.5	5	1.3	P	0.8	8.64E-01	3	1	22	82	1	12

Tank	Riser Diameter (Inches) (5) 2.5	3	4	6	7.5	8	10	12	14	16	18	20	24	26	34	36	Summation of (Riser Size x Number of Risers)	RRA SCORE	Risk Category (1σ/RRA) SCORE	Current Risk Factor (Risk Category x Current Volume SCORE
C-112			4					5									76	0.4	6.49	674.7
C-201			2					4									56	0.0	20.00	40.0
C-202			2					4									56	0.0	20.00	20.0
C-203			2					4									56	0.0	20.00	100.0
C-204			2					4									56	0.0	20.00	60.0
S-101			7					4									76	2.0	1.29	549.6
S-102			7					4									76	1.6	1.54	759.9
S-103			7					4									76	3.9	0.64	152.5
S-104			4					4									64	0.0	20.00	5880.0
S-105			7					4									76	3.3	0.77	352.2
S-106			7					4									76	3.9	0.64	292.8
S-107			7					4									76	3.9	0.64	242.0
S-108			7					4									76	3.3	0.77	333.6
S-109			7					4									76	3.3	0.77	411.6
S-110			7					4									76	1.6	1.54	602.4
S-111			7					4									76	3.9	0.64	322.4
S-112			7					4									76	1.6	1.54	807.8
SX-101		1	6	1		1	1	6									123	7.0	0.36	154.6
SX-102			7					5									88	2.7	0.94	481.6
SX-103			7					5									88	2.3	1.08	560.1
SX-104			7					4									76	0.0	20.00	8920.0
SX-105	2		9					4		4							153	4.9	0.51	249.2
SX-106			7					4									76	2.1	1.20	476.9
SX-107	8		4	1				6			2						150	0.0	20.00	2040.0
SX-108	8		4					7			2						156	0.0	20.00	1740.0
SX-109	8		4					6				1	1				152	0.0	20.00	4980.0
SX-110	8		4	1				7				1					146	0.0	20.00	1240.0
SX-111	8		4					7				1					140	0.0	20.00	2440.0
SX-112	8		4					7				1					140	0.0	20.00	2160.0
SX-113			4	1				4					1				94	0.0	20.00	620.0
SX-114	8		4					6				1	1				152	0.0	20.00	3300.0
SX-115			4					4					1				88	0.0	20.00	240.0
T-101			4					6									88	0.0	20.00	2040.0
T-102			4					5									76	2.8	0.90	28.8
T-103			4					5									76	0.0	20.00	540.0
T-104			4					5									76	2.3	1.08	342.7
T-105			4					5									76	0.8	3.24	317.9
T-106			4					5									76	0.0	20.00	420.0
T-107			4					5									76	0.0	20.00	3460.0
T-108			4					5									76	0.0	20.00	880.0
T-109			4					5									76	0.0	20.00	1160.0
T-110			4					5									76	1.8	1.41	518.7
T-111			4					5									76	0.0	20.00	8920.0
T-112			4					5									76	2.2	1.17	78.5
T-201			4					4									64	0.5	5.62	163.0
T-202			4					4									64	0.5	5.62	118.1
T-203			4					4									64	0.5	5.62	196.8
T-204			4					4									64	0.5	5.62	213.6
TX-101			6					5									84	5.6	0.45	39.2
TX-102			8					5			2						128	4.7	0.54	117.3
TX-103			7					4			1						94	2.3	1.08	169.7
TX-104			6	1				4	2								106	3.5	0.72	46.9
TX-105			9					4	1		2						134	0.0	20.00	12180.0
TX-106			9					4	3		1						144	4.4	0.58	197.5
TX-107			7					6			1						118	0.0	20.00	720.0
TX-108			9					7			1						138	5.0	0.50	67.3
TX-109			7					4			1						94	4.7	0.54	207.6
TX-110			9					3	3		2						150	0.0	20.00	9240.0
TX-111			9					4	3		2						162	4.4	0.58	214.3
TX-112			8					3	1		2						118	1.6	1.62	1052.5
TX-113			6					4	3		1						132	0.0	20.00	13060.0
TX-114			8					3	3		1						128	0.0	20.00	10700.0
TX-115			7					3	1		1						96	0.0	20.00	11360.0
TX-116			7					5		1	1						122	0.0	20.00	12620.0
TX-117			6					4			1						90	0.0	20.00	12520.0
TX-118			9					7									120	6.2	0.41	116.0
TY-101			6					6			1						114	0.0	20.00	2360.0
TY-102			6					5			1						102	1.2	2.16	138.4

Tank	[Farm]	Location [E or W]	In-Service Date (1)	Out-of-Service (1)	Tank Volume Capacity (1) [kgal]	Currnet Contents Volume (4) [kgal]	Supernatant (4) [kgal]	Sludge (4) [kgal]	Salt Cake (4) [kgal]	Drainable Liquid (4) [kgal]	Integrity (1) [S or L]	Integrity Risk Factor	# Tanks in Farm (3)	# Leakers in Farm (1)	Ratio of Leakers in Farm Risk Factor	GW Risk [mrem/mL]	GW Risk Factor	Liquid Level Trend [-, 0, +]	Liquid Level Trend Risk Factor	Internal Level Instruments (2)	Internal Level Instruments Risk Factor	External Dry Wells (1)	External Dry Well Risk Factor	Ventilation (1) [A or P]	Ventilation Risk Factor	CoC [Ci]	Integrity Category (2)	Integrity Category Risk Factor	Corrosion Factor (2)	Peak Temp (1) [F]	Riser Availability Risk Factor	Total # risers	Riser Diameter (Inches) (5) 2.5	3	4	6	7.5	8	10	12	14	16	18	20	24	26	34	36	Summation of (Riser Size x Number of Risers)	RRA SCORE	Risk Category (1σ/RRA) SCORE	Current Risk Factor (Risk Category x Current Volume) SCORE
TY-103	TY	W	1953	1976	758	162	0	162	0	20	L	0	6	5	0.5	1.93E+09	1.0	0	1	ILL	1.0	3	1.0	P	0.8	3.11E+01	4	0.5	58	86	1	13			6	1				6									102	0.0	20.00	3240.0
TY-104	TY	W	1953	1974	758	43	0	43	0	4	L	0	6	5	0.5	6.14E+08	1.5	0	1	ENRAF	1.2	5	1.3	P	0.8	1.39E+01	4	0.5	58	114	1	11			6					5									84	0.0	20.00	860.0
TY-105	TY	W	1953	1960	758	231	0	231	0	12	L	0	6	5	0.5	1.05E+09	1.5	0	1	NONE	0.5	1	1.0	P	0.8	5.00E+01	4	0.5	81.7	112	0.5	10			6					4									72	0.0	20.00	4620.0
TY-106	TY	W	1953	1977	758	21	0	21	0	3	L	0	6	5	0.5	1.45E+08	1.5	0	1	NONE	0.5	5	1.3	P	0.8	1.13E+01	4	0.5	81.7	106	0.5	8			4					4									64	0.0	20.00	420.0
U-101	U	W	1946	1960	530	25	3	22	0	6	L	0	16	4	1.4	6.47E+07	1.5	0	1	MT	1.0	2	1.0	P	0.8	8.66E-01	4	0.5	6.53	92	1	10			4					4								2	136	0.0	20.00	500.0
U-102	U	W	1946	1979	530	293	0	43	250	21	S	3	16	4	1.4	1.90E+09	1.0	0	1	ILL	1.0	6	1.3	P	0.8	2.62E+02	3	1	23.2	134	1.4	13			6					5								2	156	6.1	0.41	121.2
U-103	U	W	1947	1978	530	418	1	13	404	34	S	3	16	4	1.4	1.83E+09	1.0	0	1	ENRAF	1.2	5	1.3	P	0.8	2.04E+02	3	1	23.2	132	1.4	12			6					4								2	144	7.3	0.34	144.1
U-104	U	W	1947	1951	530	122	0	79	43	0	L	0	16	4	1.4	4.55E+08	1.5	0	1	NONE	0.5	4	1.3	P	0.8	3.87E+01	5	0	4.57	78	1	10			4					4								2	136	0.0	20.00	2440.0
U-105	U	W	1947	1978	530	353	0	32	321	44	S	3	16	4	1.4	4.85E+09	0.5	0	1	ENRAF	1.2	5	1.3	P	0.8	4.11E+02	1	2	21.2	146	1.4	13			7					4								2	148	7.3	0.34	121.7
U-106	U	W	1948	1977	530	172	2	0	170	38	S	3	16	4	1.4	2.97E+09	1.0	0	1	ENRAF	1.2	4	1.3	P	0.8	3.41E+02	3	1	23.2	122	1.4	13			7					4								2	148	7.3	0.34	59.3
U-107	U	W	1948	1980	530	408	33	15	360	125	S	3	16	4	1.4	5.32E+09	0.5	0	1	ENRAF	1.2	4	1.3	P	0.8	1.10E+03	1	2	21.2	122	1.4	14			7					5								2	160	7.3	0.34	140.7
U-108	U	W	1949	1979	530	468	24	29	415	132	S	3	16	4	1.4	5.59E+09	0.5	0	1	ILL	1.0	4	1.3	P	0.8	6.24E+02	1	2	21.2	130	1.4	14			7					5								2	160	6.1	0.41	193.6
U-109	U	W	1949	1978	530	392	0	35	357	54	S	3	16	4	1.4	1.90E+09	1.0	0	1	ENRAF	1.2	4	1.3	P	0.8	3.17E+02	1	2	21.2	120	1.4	15			8					5								2	164	14.7	0.17	67.6
U-110	U	W	1946	1975	530	186	0	186	0	18	L	0	16	4	1.4	1.13E+09	1.5	0	1	NONE	0.5	5	1.3	P	0.8	1.54E+01	4	0.5	0	140	1	12			7					5									88	0.0	20.00	3720.0
U-111	U	W	1947	1980	530	329	0	26	303	80	S	3	16	4	1.4	1.97E+09	1.0	0	1	ILL	1.0	5	1.3	P	0.8	2.70E+02	3	1	23.2	130	1	12			7					5									88	4.4	0.58	190.6
U-112	U	W	1947	1970	530	49	4	45	0	8	L	0	16	4	1.4	2.27E+08	1.5	0	1	NONE	0.5	5	1.3	P	0.8	2.18E+00	4	0.5	0	160	0.5	9			4					5									76	0.0	20.00	980.0
U-201	U	W	1956	1977	55	5	1	4	0	2	S	3	16	4	1.4	2.92E+06	1.5	0	1	NONE	0.5	0	0.5	P	0.8	3.44E-02	1	2	0.05	78	0.5	8			4					4									64	1.3	2.01	10.0
U-202	U	W	1956	1977	55	5	1	4	0	2	S	3	16	4	1.4	2.81E+06	1.5	0	1	NONE	0.5	0	0.5	P	0.8	3.35E-02	1	2	0.05	67	0.5	8			4					4									64	1.3	2.01	10.0
U-203	U	W	1956	1977	55	3	1	2	0	1	S	3	16	4	1.4	3.07E+06	1.5	0	1	NONE	0.5	0	0.5	P	0.8	2.15E-01	1	2	0.05	82	0.5	8			4					4									64	1.3	2.01	6.0
U-204	U	W	1954	1977	55	3	1	2	0	1	S	3	16	4	1.4	1.38E+06	1.5	0	1	NONE	0.5	0	0.5	P	0.8	1.66E-02	3	1	0	77	0.5	8			4					4									64	0.6	4.02	12.0
												EJC			EJC		EJC		EJC		EJC		EJC		EJC			EJC																								

Notes:
1. RRA Scores of "0" are carried as 20 through subsequent calculations for "Risk Category and Risk Factor RRA Score Adjustment for Risk Factor Calculations"
2. 42" Riser information removed (most are Manholes below grade)
3. Many of the large risers listed have been fitted with one or more smaller risers
4. 36" risers [Listed as 42" near side in B, BX,C,T, and U] WHC-SD-RE-TI-053 Rev 9
5. Scores, Risk Categories, Standard Deviations, and Risk Factors from the RRA Scoring Spreadsheet are exported to the Staging Analysis Spreadsheet.

APPENDIX B: RRA Score Tables

Standard Deviation from RRA Scoring = 2.53 1σ

7.00 2σ

Risk Factor for RRA = 0 Tanks = 20

TANK	RRA	Risk Category (1s/RRA)		TANK	RRA	Risk Category (1s/RRA)
C-106	**17.69**	0.14	1	A-101	**6.55**	0.39
U-109	**14.68**	0.17	2	A-102	**3.28**	0.77
C-103	**7.49**	0.34	3	A-103	**0.00**	20.00
U-103	**7.34**	0.34	4	A-104	**0.00**	20.00
U-105	**7.34**	0.34	5	A-105	**0.00**	20.00
U-106	**7.34**	0.34	6	A-106	**3.28**	0.77
U-107	**7.34**	0.34	7	AX-101	**3.28**	0.77
SX-101	**7.02**	0.36	8	AX-102	**0.00**	20.00
A-101	**6.55**	0.39	9	AX-103	**3.28**	0.77
C-105	**6.55**	0.39	10	AX-104	**0.00**	20.00
TX-118	**6.24**	0.41	11	B-101	**0.00**	20.00
U-102	**6.12**	0.41	12	B-102	**5.62**	0.45
U-108	**6.12**	0.41	13	B-103	**0.00**	20.00
B-102	**5.62**	0.45	14	B-104	**1.80**	1.41
BX-103	**5.62**	0.45	15	B-105	**0.00**	20.00
BX-105	**5.62**	0.45	16	B-106	**1.17**	2.16
TX-101	**5.62**	0.45	17	B-107	**0.00**	20.00
TX-108	**5.04**	0.50	18	B-108	**1.17**	2.16
SX-105	**4.91**	0.51	19	B-109	**0.78**	3.24
BY-102	**4.68**	0.54	20	B-110	**0.00**	20.00
TX-102	**4.68**	0.54	21	B-111	**0.00**	20.00
TX-109	**4.68**	0.54	22	B-112	**0.00**	20.00
BY-110	**4.37**	0.58	23	B-201	**0.00**	20.00
TX-106	**4.37**	0.58	24	B-202	**0.45**	5.62
TX-111	**4.37**	0.58	25	B-203	**0.00**	20.00
U-111	**4.37**	0.58	26	B-204	**0.00**	20.00
S-103	**3.93**	0.64	27	BX-101	**0.00**	20.00
S-106	**3.93**	0.64	28	BX-102	**0.00**	20.00
S-107	**3.93**	0.64	29	BX-103	**5.62**	0.45
S-111	**3.93**	0.64	30	BX-104	**3.74**	0.68
BX-104	**3.74**	0.68	31	BX-105	**5.62**	0.45
TX-104	**3.51**	0.72	32	BX-106	**2.34**	1.08
A-102	**3.28**	0.77	33	BX-107	**1.20**	2.11
A-106	**3.28**	0.77	34	BX-108	**0.00**	20.00
AX-101	**3.28**	0.77	35	BX-109	**0.78**	3.24
AX-103	**3.28**	0.77	36	BX-110	**0.00**	20.00
S-105	**3.28**	0.77	37	BX-111	**0.00**	20.00
S-108	**3.28**	0.77	38	BX-112	**1.17**	2.16

Standard Deviation from RRA Scoring = 2.53 1σ

7.00 2σ

Risk Factor for RRA = 0 Tanks = 20

TANK	RRA	Risk Category (1s/RRA)		TANK	RRA	Risk Category (1s/RRA)
S-109	**3.28**	0.77	39	BY-101	**1.56**	1.62
BY-104	**3.12**	0.81	40	BY-102	**4.68**	0.54
BY-112	**3.12**	0.81	41	BY-103	**0.00**	20.00
T-102	**2.81**	0.90	42	BY-104	**3.12**	0.81
SX-102	**2.70**	0.94	43	BY-105	**0.00**	20.00
BX-106	**2.34**	1.08	44	BY-106	**0.00**	20.00
BY-109	**2.34**	1.08	45	BY-107	**0.00**	20.00
SX-103	**2.34**	1.08	46	BY-108	**0.00**	20.00
T-104	**2.34**	1.08	47	BY-109	**2.34**	1.08
TX-103	**2.34**	1.08	48	BY-110	**4.37**	0.58
T-112	**2.16**	1.17	49	BY-111	**0.78**	3.24
SX-106	**2.11**	1.20	50	BY-112	**3.12**	0.81
S-101	**1.97**	1.29	51	C-101	**0.00**	20.00
B-104	**1.80**	1.41	52	C-102	**1.80**	1.41
C-102	**1.80**	1.41	53	C-103	**7.49**	0.34
T-110	**1.80**	1.41	54	C-104	**1.09**	2.32
S-102	**1.64**	1.54	55	C-105	**6.55**	0.39
S-110	**1.64**	1.54	56	C-106	**17.69**	0.14
S-112	**1.64**	1.54	57	C-107	**1.17**	2.16
BY-101	**1.56**	1.62	58	C-108	**1.17**	2.16
TX-112	**1.56**	1.62	59	C-109	**1.17**	2.16
U-201	**1.26**	2.01	60	C-110	**0.00**	20.00
U-202	**1.26**	2.01	61	C-111	**0.00**	20.00
U-203	**1.26**	2.01	62	C-112	**0.39**	6.49
BX-107	**1.20**	2.11	63	C-201	**0.00**	20.00
B-106	**1.17**	2.16	64	C-202	**0.00**	20.00
B-108	**1.17**	2.16	65	C-203	**0.00**	20.00
BX-112	**1.17**	2.16	66	C-204	**0.00**	20.00
C-107	**1.17**	2.16	67	S-101	**1.97**	1.29
C-108	**1.17**	2.16	68	S-102	**1.64**	1.54
C-109	**1.17**	2.16	69	S-103	**3.93**	0.64
TY-102	**1.17**	2.16	70	S-104	**0.00**	20.00
C-104	**1.09**	2.32	71	S-105	**3.28**	0.77
B-109	**0.78**	3.24	72	S-106	**3.93**	0.64
BX-109	**0.78**	3.24	73	S-107	**3.93**	0.64
BY-111	**0.78**	3.24	74	S-108	**3.28**	0.77
T-105	**0.78**	3.24	75	S-109	**3.28**	0.77
U-204	**0.63**	4.02	76	S-110	**1.64**	1.54

Standard Deviation from RRA Scoring = 2.53 1σ

7.00 2σ

Risk Factor for RRA = 0 Tanks = 20

TANK	RRA	Risk Category (1s/RRA)		TANK	RRA	Risk Category (1s/RRA)
B-202	**0.45**	5.62	77	S-111	**3.93**	0.64
T-201	**0.45**	5.62	78	S-112	**1.64**	1.54
T-202	**0.45**	5.62	79	SX-101	**7.02**	0.36
T-203	**0.45**	5.62	80	SX-102	**2.70**	0.94
T-204	**0.45**	5.62	81	SX-103	**2.34**	1.08
C-112	**0.39**	6.49	82	SX-104	**0.00**	20.00
A-103	**0.00**	20.00	83	SX-105	**4.91**	0.51
A-104	**0.00**	20.00	84	SX-106	**2.11**	1.20
A-105	**0.00**	20.00	85	SX-107	**0.00**	20.00
AX-102	**0.00**	20.00	86	SX-108	**0.00**	20.00
AX-104	**0.00**	20.00	87	SX-109	**0.00**	20.00
B-101	**0.00**	20.00	88	SX-110	**0.00**	20.00
B-103	**0.00**	20.00	89	SX-111	**0.00**	20.00
B-105	**0.00**	20.00	90	SX-112	**0.00**	20.00
B-107	**0.00**	20.00	91	SX-113	**0.00**	20.00
B-110	**0.00**	20.00	92	SX-114	**0.00**	20.00
B-111	**0.00**	20.00	93	SX-115	**0.00**	20.00
B-112	**0.00**	20.00	94	T-101	**0.00**	20.00
B-201	**0.00**	20.00	95	T-102	**2.81**	0.90
B-203	**0.00**	20.00	96	T-103	**0.00**	20.00
B-204	**0.00**	20.00	97	T-104	**2.34**	1.08
BX-101	**0.00**	20.00	98	T-105	**0.78**	3.24
BX-102	**0.00**	20.00	99	T-106	**0.00**	20.00
BX-108	**0.00**	20.00	100	T-107	**0.00**	20.00
BX-110	**0.00**	20.00	101	T-108	**0.00**	20.00
BX-111	**0.00**	20.00	102	T-109	**0.00**	20.00
BY-103	**0.00**	20.00	103	T-110	**1.80**	1.41
BY-105	**0.00**	20.00	104	T-111	**0.00**	20.00
BY-106	**0.00**	20.00	105	T-112	**2.16**	1.17
BY-107	**0.00**	20.00	106	T-201	**0.45**	5.62
BY-108	**0.00**	20.00	107	T-202	**0.45**	5.62
C-101	**0.00**	20.00	108	T-203	**0.45**	5.62
C-110	**0.00**	20.00	109	T-204	**0.45**	5.62
C-111	**0.00**	20.00	110	TX-101	**5.62**	0.45
C-201	**0.00**	20.00	111	TX-102	**4.68**	0.54
C-202	**0.00**	20.00	112	TX-103	**2.34**	1.08
C-203	**0.00**	20.00	113	TX-104	**3.51**	0.72
C-204	**0.00**	20.00	114	TX-105	**0.00**	20.00

Standard Deviation from RRA Scoring = 2.53 1σ

7.00 2σ

Risk Factor for RRA = 0 Tanks = 20

TANK	RRA	Risk Category (1s/RRA)		TANK	RRA	Risk Category (1s/RRA)
S-104	**0.00**	20.00	115	TX-106	**4.37**	0.58
SX-104	**0.00**	20.00	116	TX-107	**0.00**	20.00
SX-107	**0.00**	20.00	117	TX-108	**5.04**	0.50
SX-108	**0.00**	20.00	118	TX-109	**4.68**	0.54
SX-109	**0.00**	20.00	119	TX-110	**0.00**	20.00
SX-110	**0.00**	20.00	120	TX-111	**4.37**	0.58
SX-111	**0.00**	20.00	121	TX-112	**1.56**	1.62
SX-112	**0.00**	20.00	122	TX-113	**0.00**	20.00
SX-113	**0.00**	20.00	123	TX-114	**0.00**	20.00
SX-114	**0.00**	20.00	124	TX-115	**0.00**	20.00
SX-115	**0.00**	20.00	125	TX-116	**0.00**	20.00
T-101	**0.00**	20.00	126	TX-117	**0.00**	20.00
T-103	**0.00**	20.00	127	TX-118	**6.24**	0.41
T-106	**0.00**	20.00	128	TY-101	**0.00**	20.00
T-107	**0.00**	20.00	129	TY-102	**1.17**	2.16
T-108	**0.00**	20.00	130	TY-103	**0.00**	20.00
T-109	**0.00**	20.00	131	TY-104	**0.00**	20.00
T-111	**0.00**	20.00	132	TY-105	**0.00**	20.00
TX-105	**0.00**	20.00	133	TY-106	**0.00**	20.00
TX-107	**0.00**	20.00	134	U-101	**0.00**	20.00
TX-110	**0.00**	20.00	135	U-102	**6.12**	0.41
TX-113	**0.00**	20.00	136	U-103	**7.34**	0.34
TX-114	**0.00**	20.00	137	U-104	**0.00**	20.00
TX-115	**0.00**	20.00	138	U-105	**7.34**	0.34
TX-116	**0.00**	20.00	139	U-106	**7.34**	0.34
TX-117	**0.00**	20.00	140	U-107	**7.34**	0.34
TY-101	**0.00**	20.00	141	U-108	**6.12**	0.41
TY-103	**0.00**	20.00	142	U-109	**14.68**	0.17
TY-104	**0.00**	20.00	143	U-110	**0.00**	20.00
TY-105	**0.00**	20.00	144	U-111	**4.37**	0.58
TY-106	**0.00**	20.00	145	U-112	**0.00**	20.00
U-101	**0.00**	20.00	146	U-201	**1.26**	2.01
U-104	**0.00**	20.00	147	U-202	**1.26**	2.01
U-110	**0.00**	20.00	148	U-203	**1.26**	2.01
U-112	**0.00**	20.00	149	U-204	**0.63**	4.02

Tank-By-Tank Summation

APPENDIX C: Staging Analysis

REFERENCE DATA				
Residual Volume for 100 series tanks (kgal) =	2	Risk Category Adjustment for emptied tanks =	0.1	90% reduction in risk category
Residual Volume for 200 series tanks (kgal) =	1	Dilution Factor =	1.1	10% water addition for transfers
Risk Factor for RRA = 0 Tanks =	20	Calculated standard deviations =	2.53	1σ
TPA M-45 Tanks Highlighted in YELLOW			7.00	2σ

1σ	=	2.53
2σ	=	7.4

COLUMNS K-AL Contain the Before Staging Inventory Data and are HIDDEN

BEFORE STAGING / AFTER STAGING

TANK	RRA	Risk Category (1s/RRA)	Risk Factor	Type	Capacity (kgal)	Waste Volume (kgal)	Supernatant Volume (kgal)	Sludge Volume (kgal)	Saltcake Volume (kgal)	NEW Risk Category	NEW Risk Factor	Consolidation Tank	Split (kgal)	Transfers	Waste Volume (kgal)	New/Old Volume	Supernatant Volume (kgal)	Sludge Volume (kgal)	Saltcake Volume (kgal)
241-A Tank Farm																			
A-101	6.55	0.39	339	DSSF	1000	877	494	3	380	0.39	365	RECEIVER			944	1.1	494	70	380
A-102	3.28	0.77	32	DSSF	1000	41	4	15	22	0.77	345	RECEIVER			447	10.9	9	415	22
A-103	0.00	20.00	7420	DSSF	1000	371	5	366	0	2.00	4	A-102		1	2	0.0	0	2	0
A-104	0.00	20.00	560	DN	1000	28	0	28	0	2.00	4	A-101		1	2	0.1	0	2	0
A-105	0.00	20.00	740	DN	1000	37	0	37	0	2.00	4	A-101		1	2	0.1	0	2	0
A-106	3.28	0.77	97	CP	1000	125	0	125	0	0.77	97	NO ACTION			125	1.0	0	125	0
241-A TOTALS			9187		6000	1479	503	574	402		818			3	1522		503	617	402
241-AX Tank Farm																			
AX-101	3.28	0.77	511	DSSF	1000	662	364	3	295	0.77	511	NO ACTION			662	1.0	364	3	295
AX-102	0.00	20.00	600	CC	1000	30	0	7	23	20.00	600	NO ACTION			30	1.0	0	7	23
AX-103	3.28	0.77	86	CC	1000	112	0	8	104	0.77	86	NO ACTION			112	1.0	0	8	104
AX-104	0.00	20.00	160	DN	1000	8	0	8	0	20.00	160	NO ACTION			8	1.0	0	8	0
241-AX TOTALS			1358		4000	812	364	26	422	42	1358				812		364	26	422
241-B Tank Farm																			
B-101	0.00	20.00	2260	DN	530	113	0	0	113	2.00	4	B-106		1	2	0.0	0	0	2
B-102	5.62	0.45	14	DN	530	32	4	0	28	0.45	230	RECEIVER			511	16.0	7	398	105
B-103	0.00	20.00	1180	DN	530	59	0	0	59	2.00	4	B-106		1	2	0.0	0	0	2
B-104	1.80	1.41	521	DN	530	371	1	309	61	1.41	715	RECEIVER			509	1.4	1	377	130
B-105	0.00	20.00	3160	DN	530	158	0	28	130	2.00	4	B-108		1	2	0.0	0	0	2
B-106	1.17	2.16	253	DN	530	117	1	0	116	2.16	1024	RECEIVER			473	4.0	6	166	301
B-107	0.00	20.00	3300	DN	530	165	1	93	71	2.00	4	B-102		1	2	0.0	0	1	1
B-108	1.17	2.16	203	DN	530	94	0	53	41	2.16	1133	RECEIVER			524	5.6	1	341	182
B-109	0.78	3.24	412	DN	530	127	0	63	64	0.32	1	B-104		1	2	0.0	0	1	1
B-110	0.00	20.00	4920	DN	530	246	1	245	0	2.00	4	B-102		1	2	0.0	0	2	0
B-111	0.00	20.00	4740	DN	530	237	1	236	0	2.00	4	B-108		1	2	0.0	0	2	0
B-112	0.00	20.00	660	DN	530	33	3	30	0	2.00	4	B-106		1	2	0.1	0	2	0
B-201	0.00	20.00	580	DN	55	29	1	28	0	2.00	2	B-102		1	1	0.0	0	1	0
B-202	0.45	5.62	152	DN	55	27	0	27	0	0.56	1	B-108		1	1	0.0	0	1	0
B-203	0.00	20.00	1020	DN	55	51	1	50	0	2.00	2	B-106		1	1	0.0	0	1	0
B-204	0.00	20.00	1000	DN	55	50	1	49	0	2.00	2	B-106		1	1	0.0	0	1	0
TOTALS			24376		6580	1909	15	1211	683		3137			12	2037		16	1295	726
241-BX Tank Farm																			
BX-101	0.00	20.00	860	DN	530	43	1	42	0	2.00	4	BX-103		1	2	0.0	0	2	0
BX-102	0.00	20.00	1920	DN	530	96	0	96	0	2.00	4	BX-105		1	2	0.0	0	2	0
BX-103	5.62	0.45	32	DN	530	71	9	62	0	0.45	233	RECEIVER			518	7.3	14	278	225
BX-104	3.74	0.68	63	DN	530	93	3	90	0	0.68	318	RECEIVER			470	5.1	4	466	0
BX-105	5.62	0.45	23	DN	530	51	5	46	0	0.45	194	RECEIVER			431	8.4	5	426	0
BX-106	2.34	1.08	41	DN	530	38	0	38	0	0.11	0	BX-105		1	2	0.1	0	2	0
BX-107	1.20	2.11	727	DN	530	345	1	344	0	0.21	0	BX-104		1	2	0.0	0	2	0
BX-108	0.00	20.00	520	DN	530	26	0	26	0	2.00	4	BX-105		1	2	0.1	0	2	0
BX-109	0.78	3.24	626	DN	530	193	0	193	0	0.32	1	BX-105		1	2	0.0	0	2	0
BX-110	0.00	20.00	4140	DN	530	207	3	133	71	2.00	4	BX-103		1	2	0.0	0	1	1
BX-111	0.00	20.00	3240	DN	530	162	1	25	136	2.00	4	BX-103		1	2	0.0	0	0	2
BX-112	1.17	2.16	357	DN	530	165	1	164	0	2.16	357	NO ACTION			165	1.0	1	164	0
241-BX TOTALS			12549		6360	1490	24	1259	207		1123			8	1599		25	1347	227
241-BY Tank Farm																			
BY-101	1.56	1.62	628	DN	758	387	0	109	278	1.62	628	NO ACTION			387	1.0	0	109	278
BY-102	4.68	0.54	150	DN	758	277	0	0	277	0.54	410	RECEIVER			758	2.7	0	56	702
BY-103	0.00	20.00	8000	DN	758	400	0	9	391	2.00	4	SPLIT			2	0.0	0	0	2
												BY-104	*216*	*1*			*0*	*5*	*211*
												BY-112	*184*	*1*			*0*	*4*	*180*
BY-104	3.12	0.81	264	DN	758	326	0	150	176	0.81	615	RECEIVER			758	2.3	0	176	582
BY-105	0.00	20.00	10060	DN	758	503	0	48	455	2.00	4	SPLIT			2	0.0	0	0	2
												BY-102	*285*	*1*			*0*	*27*	*259*
												BY-104	*218*	*1*			*0*	*21*	*197*
BY-106	0.00	20.00	11240	DN	758	562	0	84	478	2.00	4	SPLIT			2	0.0	0	2	2
												BY-110	*363*	*1*			*0*	*54*	*309*
												BY-102	*189*	*1*			*0*	*30*	*169*
BY-107	0.00	20.00	5320	DN	758	266	0	40	226	2.00	4	BY-112		1	2	0.0	0	0	2
BY-108	0.00	20.00	4560	DN	758	228	0	154	74	2.00	4	BY-109		1	2	0.0	0	1	1
BY-109	2.34	1.08	314	DN	758	290	0	57	233	1.08	582	RECEIVER			539	1.9	0	225	314
BY-110	4.37	0.58	231	DN	758	398	0	103	295	0.58	439	RECEIVER			758	1.9	0	156	603
BY-111	0.78	3.24	1489	DN	758	459	0	0	459	3.24	1489	NO ACTION			459	1.0	0	0	459
BY-112	3.12	0.81	236	DN	758	291	0	0	291	0.81	598	RECEIVER			738	2.5	0	44	694
TOTALS			42491		9096	4387	0	754	3633		4781			8	4407		0	769	3640
241-C Tank Farm																			
C-101	0.00	20.00	1760	DN	530	88	0	88	0	2.00	4	C-105		1	2	0.0	0	2	0
C-102	1.80	1.41	444	DC	530	316	0	316	0	1.41	444	NO ACTION			316	1.0	0	316	0
C-103	7.49	0.34	67	DN	530	198	79	119	0	0.34	152	RECEIVER			451	2.3	83	368	0
C-104	1.09	2.32	609	CC	530	263	0	263	0	2.32	609	NO ACTION			263	1.0	0	263	0
C-105	6.55	0.39	51	DN	530	132	0	132	0	0.39	114	RECEIVER			295	2.2	0	295	0
C-106	17.69	0.14	7	DN	530	48	42	6	0	0.14	7	NO ACTION			48	1.0	42	6	0
C-107	1.17	2.16	556	DC	530	257	0	257	0	2.16	974	RECEIVER			451	1.8	1	450	0
C-108	1.17	2.16	143	DN	530	66	0	66	0	0.22	0	C-103		1	2	0.0	0	2	0
C-109	1.17	2.16	143	DN	530	66	4	62	0	0.22	0	C-103		1	2	0.0	0	2	0
C-110	0.00	20.00	3560	DC	530	178	1	177	0	2.00	4	C-107		1	2	0.0	0	2	0
C-111	0.00	20.00	1140	DN	530	57	0	57	0	2.00	4	C-105		1	2	0.0	0	2	0
C-112	0.39	6.49	675	DN	530	104	0	104	0	0.65	1	C-103		1	2	0.0	0	2	0
C-201	0.00	20.00	40	DN	55	2	0	2	0	2.00	2	C-105		1	1	0.5	0	1	0
C-202	0.00	20.00	20	E	55	1	0	1	0	2.00	2	C-105		1	1	1.0	0	1	0
C-203	0.00	20.00	100	DN	55	5	0	5	0	2.00	2	C-105		1	1	0.2	0	1	0
C-204	0.00	20.00	60	DN	55	3	0	3	0	2.00	2	C-105		1	1	0.3	0	1	0
241-C TOTALS			9374		6580	1784	126	1658	0		2323			10	1839		126	1713	0
241-S Tank Farm																			
S-101	1.97	1.29	550	DN	758	427	12	211	204	1.29	550	NO ACTION			427	1.0	12	211	204
S-102	1.64	1.54	760	DSSF	758	492	0	105	387	1.54	760	NO ACTION			492	1.0	0	105	387
S-103	3.93	0.64	153	DSSF	758	237	1	9	227	0.64	153	NO ACTION			237	1.0	1	9	227
S-104	0.00	20.00	5880	DN	758	294	1	293	0	2.00	4	S-107		1	2	0.0	0	2	0
S-105	3.28	0.77	352	DN	758	456	0	2	454	0.77	352	NO ACTION			456	1.0	0	2	454
S-106	3.93	0.64	293	DN	758	455	0	0	455	0.64	293	NO ACTION			455	1.0	0	0	455
S-107	3.93	0.64	242	DN	758	376	14	293	69	0.64	449	RECEIVER			697	1.9	15	613	69

TANK	241Am (Ci)	14C (Ci)	Cl (Ci)	137Cs (Ci)	Cr (kg)	F (kg)	129I (Ci)	Na (kg)	NO3 (kg)	NO2 (kg)	PO4 (kg)	239Pu (Ci)	240Pu (Ci)
A-101	4.6E+03	7.6E+01	1.5E+04	8.1E+05	9.1E+03	1.4E+03	7.7E-01	7.3E+05	4.6E+05	2.7E+05	2.4E+04	1.3E+03	2.3E+02
A-102	4.3E+02	5.7E+00	1.1E+04	3.5E+05	3.8E+03	2.2E+03	1.0E-01	4.1E+05	2.5E+05	1.7E+05	1.2E+04	5.3E+02	9.5E+01
A-103	9.9E-01	2.2E-02	5.4E+01	1.7E+03	1.2E+01	1.1E+01	3.3E-04	2.0E+03	1.2E+03	8.2E+02	5.7E+01	1.1E+00	1.8E-01
A-104	2.8E+01	1.0E-01	4.2E+00	4.7E+03	6.4E+00	9.6E-02	1.4E-03	1.0E+03	2.9E+01	2.2E+02	3.0E+01	6.0E+01	7.7E+00
A-105	2.2E+02	5.2E-01	4.2E+00	8.2E+03	2.8E+01	1.4E+00	7.1E-03	3.0E+03	7.7E+02	3.0E+01	4.3E+02	3.1E+01	6.0E+00
A-106	5.8E+02	5.2E-01	4.1E+03	6.9E+04	3.3E+03	1.4E+02	6.3E-02	7.9E+04	5.0E+04	4.2E+04	3.5E+04	1.1E+03	2.0E+02
241-A TOTALS	5.9E+03	8.3E+01	3.0E+04	1.2E+06	1.6E+04	3.7E+03	9.4E-01	1.2E+06	7.7E+05	4.8E+05	7.1E+04	3.0E+03	5.4E+02
AX-101	2.3E+02	4.6E+01	9.2E+03	4.5E+05	5.4E+03	1.4E+03	2.9E-01	4.8E+05	3.5E+05	1.8E+05	8.9E+03	2.0E+02	3.6E+01
AX-102	1.1E+02	2.8E+00	1.3E+02	4.1E+04	1.9E+02	3.6E+01	1.7E-02	2.6E+04	3.3E+04	5.4E+03	2.8E+02	2.4E+02	6.2E+01
AX-103	1.0E+03	1.3E+01	3.0E+03	1.1E+05	2.2E+03	8.2E+02	1.5E-01	1.1E+05	6.5E+04	5.3E+04	3.3E+03	9.5E+01	1.9E+01
AX-104	9.5E+02	2.1E+00	1.6E+01	5.3E+04	2.8E+01	5.1E+00	2.8E-02	2.2E+03	2.3E+03	1.1E+02	1.3E+02	2.8E+02	5.4E+01
241-AX TOTALS	2.3E+03	6.4E+01	1.2E+04	6.6E+05	7.9E+03	2.3E+03	4.8E-01	6.2E+05	4.4E+05	2.4E+05	1.3E+04	8.1E+02	1.7E+02
B-101	1.4E+01	2.0E-02	5.3E+00	1.8E+02	1.0E+01	2.8E+00	2.5E-04	2.0E+03	2.1E+03	5.9E+02	6.2E+01	6.3E+00	1.8E+00
B-102	2.0E+02	1.9E+00	3.2E+03	4.0E+04	1.9E+03	2.6E+04	4.9E-03	3.1E+05	4.2E+05	1.8E+04	1.5E+05	4.0E+02	4.4E+01
B-103	4.3E-02	4.2E-03	2.1E+01	1.8E+02	1.2E+01	1.3E+02	4.5E-05	2.0E+03	1.2E+03	1.0E+02	1.0E+03	1.9E+00	1.5E-01
B-104	2.1E+00	4.6E-01	5.0E+03	9.6E+04	2.3E+03	2.6E+04	4.6E-03	3.8E+05	6.4E+05	1.1E+04	1.2E+05	1.2E+02	1.2E+01
B-105	9.1E-02	5.2E-03	3.2E+01	3.9E+02	2.6E+01	2.9E+02	6.7E-05	4.1E+03	2.3E+03	1.8E+02	2.3E+03	5.6E-01	4.5E-02
B-106	7.8E+02	3.1E+00	2.8E+03	3.8E+04	3.3E+03	1.2E+04	3.6E-02	2.8E+05	3.3E+05	4.5E+04	8.8E+04	5.4E+02	1.2E+02
B-107	1.3E+00	4.0E-03	1.3E+01	2.8E+02	3.2E+00	2.5E+02	3.9E-05	1.8E+03	1.9E+03	4.2E+01	8.6E+02	2.0E+00	3.0E-01
B-108	9.9E+01	2.2E+00	4.2E+03	1.8E+05	3.3E+03	4.1E+04	4.5E-02	5.3E+05	3.1E+05	7.1E+04	2.8E+05	1.4E+02	1.9E+01
B-109	2.3E-02	2.7E-03	1.4E+01	2.4E+02	2.2E+01	3.1E+02	3.5E-05	2.5E+03	1.4E+03	8.9E+01	1.2E+03	4.7E-01	7.8E-02
B-110	7.4E-01	1.2E-02	1.3E+01	1.2E+02	8.3E+00	1.9E+01	6.8E-06	1.0E+03	1.9E+03	1.1E+02	5.1E+02	1.0E+00	1.1E-01
B-111	7.8E-01	1.5E-02	9.4E+00	1.2E+03	1.0E+01	1.4E+01	2.4E-04	8.0E+02	7.5E+02	4.1E+02	4.3E+02	7.6E-01	1.3E-01
B-112	4.2E-02	1.1E-01	2.1E+01	7.6E+02	2.3E+01	5.6E+01	1.2E-03	1.7E+03	1.9E+03	2.8E+02	3.6E+02	3.7E-02	5.0E-03
B-201	1.4E-01	7.6E-08	8.4E+00	7.3E-01	1.7E+01	3.0E+01	9.9E-08	1.7E+02	2.5E+02	4.4E+00	7.2E+01	3.8E+00	2.2E-01
B-202	3.3E-01	5.3E-06	4.3E+00	4.1E-01	1.4E+01	3.1E+01	6.9E-08	2.0E+02	3.1E+02	5.5E+00	5.6E+01	6.4E-01	1.1E-01
B-203	9.6E-03	4.8E-06	3.8E+00	1.5E-01	1.4E+01	3.4E+01	6.3E-08	1.3E+02	2.8E+02	3.3E+00	3.0E+01	8.7E-01	7.6E-02
B-204	1.2E-02	4.5E-06	2.9E+00	1.3E-01	1.5E+01	2.9E+01	5.9E-08	1.2E+02	2.2E+02	2.7E+00	3.2E+01	1.1E+00	9.4E-02
TOTALS	1.1E+03	7.9E+00	1.5E+04	3.6E+05	1.1E+04	1.1E+05	8.2E-02	1.5E+06	1.7E+06	1.5E+05	6.4E+05	1.2E+03	2.0E+02
BX-101	6.1E+00	1.2E-03	9.5E+00	3.0E+02	4.6E+00	1.5E+01	1.7E-05	7.6E+02	8.8E+02	1.9E+02	4.0E+02	5.7E+00	1.1E+00
BX-102	6.5E+00	4.4E-04	2.9E+00	1.5E+02	2.3E+00	8.7E+00	6.3E-06	2.2E+02	1.5E+02	7.2E+01	5.8E+01	7.7E+00	1.4E+00
BX-103	4.8E+02	4.0E+01	3.9E+03	1.6E+05	8.2E+03	1.5E+04	4.1E-01	5.5E+05	8.8E+05	4.6E+04	1.3E+05	9.1E+02	1.3E+02
BX-104	3.7E+02	6.9E-01	2.8E+03	6.9E+04	4.7E+03	1.8E+04	3.3E-02	2.3E+05	2.9E+05	3.0E+04	1.4E+05	2.9E+02	4.3E+01
BX-105	4.1E+02	9.5E-01	2.5E+03	5.8E+04	7.7E+03	1.8E+03	4.8E-03	2.4E+05	2.9E+05	4.0E+04	1.5E+05	5.2E+02	7.9E+01
BX-106	3.0E+00	1.7E-03	1.0E+01	7.0E+02	1.5E+02	8.3E+00	2.2E-05	1.9E+03	5.8E+02	2.3E+02	1.1E+03	3.7E+00	3.5E-01
BX-107	1.4E-01	3.0E-03	1.2E+01	1.6E+02	1.0E+01	1.0E+02	1.7E-05	1.1E+03	1.5E+03	6.9E+01	7.8E+02	5.6E-01	6.2E-02
BX-108	7.3E-03	3.6E-03	2.7E+01	2.9E+02	8.5E+00	7.7E+01	3.4E-05	2.3E+03	3.6E+03	3.3E+02	1.9E+03	9.0E-01	7.9E-02
BX-109	2.3E-03	1.3E-03	1.5E+01	1.3E+02	1.6E+00	0.0E+00	1.7E-05	1.2E+03	2.2E+03	2.1E+02	7.4E+02	1.7E-01	1.5E-02
BX-110	2.5E-01	1.7E-01	2.2E+01	7.1E+02	5.7E+01	9.2E+01	1.9E-03	2.6E+03	4.3E+03	1.9E+02	7.3E+02	5.6E-01	5.2E-02
BX-111	8.3E-02	2.7E-01	1.4E+01	9.5E+02	2.7E+01	5.9E+01	2.7E-03	3.0E+03	5.0E+03	2.2E+02	4.0E+02	1.9E-01	1.7E-02
BX-112	4.3E+01	1.6E-01	9.0E+02	3.5E+04	1.2E+03	1.1E+04	9.3E-04	6.8E+04	6.2E+04	2.2E+04	4.9E+04	9.9E+01	8.8E+00
241-BX TOTALS	1.3E+03	4.2E+01	1.0E+04	3.3E+05	2.2E+04	4.6E+04	4.5E-01	1.1E+06	1.5E+06	1.4E+05	4.7E+05	1.8E+03	2.6E+02
BY-101	5.2E+01	5.7E+01	1.0E+03	2.9E+05	4.3E+03	1.6E+04	5.4E-01	6.0E+05	8.6E+05	1.9E+04	2.3E+05	4.5E+01	4.1E+00
BY-102	1.5E+02	1.0E+02	8.2E+03	3.6E+05	4.9E+03	4.1E+04	1.1E+00	1.0E+06	1.3E+06	1.0E+05	6.8E+04	2.9E+02	4.7E+01
BY-103	3.9E-01	2.8E-01	1.2E+01	1.0E+03	3.0E+01	1.8E+02	2.8E-03	2.8E+03	2.8E+03	1.4E+02	4.2E+02	5.3E-01	9.4E-02
(split: BY-104)	*4.2E+01*	*3.1E+01*	*1.3E+03*	*1.1E+05*	*3.3E+03*	*1.7E+04*	*3.1E-01*	*3.1E+05*	*3.0E+05*	*1.5E+04*	*4.5E+04*	*5.7E+01*	*1.0E+01*
(split: BY-112)	*3.6E+01*	*2.7E+01*	*1.1E+03*	*8.4E+04*	*2.8E+03*	*1.5E+04*	*2.6E-01*	*2.6E+05*	*2.6E+05*	*1.3E+04*	*3.8E+04*	*4.9E+01*	*8.6E+00*
BY-104	1.9E+02	1.2E+02	8.8E+03	3.9E+05	1.2E+04	3.2E+04	1.1E+00	1.1E+06	1.4E+06	1.3E+05	9.3E+04	3.4E+02	5.5E+01
BY-105	6.9E-01	3.1E-01	1.4E+01	7.2E+02	7.7E+00	2.9E+01	3.0E-03	2.7E+03	5.4E+03	1.9E+02	1.7E+02	1.4E+00	2.2E-01
(split: BY-102)	*9.8E+01*	*4.4E+01*	*2.0E+03*	*1.0E+05*	*1.1E+03*	*4.1E+03*	*4.3E-01*	*3.9E+05*	*7.7E+05*	*2.7E+04*	*2.4E+04*	*2.0E+02*	*3.2E+01*
(split: BY-104)	*7.5E+01*	*3.3E+01*	*1.5E+03*	*7.8E+04*	*8.4E+02*	*3.1E+03*	*3.3E-01*	*3.0E+05*	*5.9E+05*	*2.0E+04*	*1.8E+04*	*1.5E+02*	*2.4E+01*
BY-106	1.2E-01	2.5E-01	2.4E+01	1.4E+03	8.5E+00	5.9E+01	2.5E-03	2.2E+03	3.3E+03	3.8E+02	7.7E+01	1.2E-01	1.5E-02
(split: BY-110)	*2.1E+01*	*4.5E+01*	*4.4E+03*	*2.5E+05*	*1.7E+03*	*1.1E+04*	*4.6E-01*	*4.0E+05*	*6.0E+05*	*6.9E+04*	*1.4E+04*	*2.1E+01*	*2.6E+00*
(split: BY-102)	*1.2E+01*	*2.5E+01*	*2.4E+03*	*1.4E+05*	*9.5E+02*	*5.9E+03*	*2.5E-01*	*2.2E+05*	*3.3E+05*	*3.8E+04*	*7.6E+03*	*1.2E+01*	*1.4E+00*
BY-107	1.1E-01	2.5E-01	3.5E+01	1.6E+03	4.8E+00	5.0E+01	2.5E-03	3.2E+03	2.4E+03	5.7E+02	1.6E+02	1.8E-01	2.6E-02
BY-108	2.2E-01	2.1E-01	1.9E+01	4.5E+02	3.4E+00	9.1E+01	2.2E-03	2.0E+03	2.0E+03	3.3E+02	2.5E+02	3.6E-01	4.8E-02
BY-109	5.6E+01	5.3E+01	4.9E+03	1.5E+05	2.8E+03	6.8E+04	5.5E-01	5.6E+05	3.6E+05	8.8E+04	1.1E+05	1.1E+02	1.7E+01
BY-110	9.2E+01	8.8E+01	9.8E+03	4.5E+05	9.2E+03	2.4E+04	8.6E-01	8.6E+05	8.4E+05	1.5E+05	4.7E+04	7.2E+01	9.2E+00
BY-111	5.2E+01	4.0E+01	2.4E+03	1.3E+05	4.0E+03	1.8E+04	3.8E-01	4.6E+05	2.7E+05	3.1E+04	5.0E+04	1.2E+02	2.0E+01
BY-112	8.6E+01	1.0E+02	8.8E+03	4.4E+05	3.6E+04	3.8E+04	1.0E+00	1.3E+06	7.2E+05	1.4E+05	8.3E+04	1.6E+02	2.6E+01
TOTALS	6.7E+02	5.6E+02	4.4E+04	2.2E+06	7.3E+04	2.4E+05	5.5E+00	5.9E+06	5.7E+06	6.6E+05	6.6E+05	1.1E+03	1.8E+02
C-101	1.9E-01	2.3E-03	1.2E+01	8.3E+02	6.8E+00	1.1E+01	3.0E-05	1.3E+03	1.4E+03	2.1E+02	7.7E+02	1.2E+01	2.0E+00
C-102	1.2E+03	2.8E-01	1.9E+03	3.0E+04	7.4E+02	4.1E+03	2.7E-03	1.1E+05	7.3E+04	1.7E+04	1.4E+04	3.4E+03	6.2E+02
C-103	3.6E+03	8.6E+00	1.7E+03	6.2E+05	1.2E+03	3.7E+03	7.4E-02	1.5E+05	7.1E+04	6.4E+04	9.5E+04	4.4E+03	6.7E+02
C-104	6.3E+03	1.9E+00	8.0E+02	9.6E+04	1.5E+03	3.5E+04	7.5E-01	1.8E+05	2.0E+04	3.7E+04	3.2E+03	5.5E+03	1.1E+03
C-105	1.4E+03	7.7E-01	1.2E+03	1.4E+05	7.9E+02	2.2E+03	9.6E-02	1.0E+05	8.6E+04	2.7E+04	5.6E+04	2.8E+03	4.2E+02
C-106	2.3E+02	5.7E-02	3.2E+01	1.8E+04	6.2E+01	1.7E+01	1.7E-02	1.2E+04	7.7E+01	1.5E+03	9.4E+02	7.6E+01	1.5E+01
C-107	6.8E+03	4.1E+00	1.8E+03	7.8E+04	1.3E+03	1.3E+04	4.9E-02	1.7E+05	1.4E+05	4.2E+04	1.1E+05	2.2E+03	4.0E+02
C-108	2.0E-01	4.0E-03	8.0E+00	2.5E+03	7.0E+00	4.7E+01	4.0E-05	1.0E+03	4.8E+02	2.6E+02	9.0E+02	9.7E-02	6.2E-03
C-109	1.4E+00	4.9E-04	8.4E+00	5.2E+03	3.6E+00	2.0E+01	6.1E-05	1.1E+03	5.5E+02	3.7E+02	7.6E+02	1.8E+00	3.1E-01
C-110	4.4E-01	3.7E-03	1.1E+01	1.6E+02	4.7E+00	7.6E+01	1.2E-05	8.5E+02	1.1E+03	7.3E+01	6.4E+02	7.6E-01	4.5E-02
C-111	7.5E+00	5.7E-03	9.5E+00	6.9E+02	3.0E+00	3.0E+01	7.1E-05	4.5E+02	6.1E+02	3.3E+02	6.4E+02	4.6E+00	5.1E-01
C-112	9.1E+00	6.9E-02	1.0E+01	5.5E+03	2.7E+00	8.2E+00	8.2E-05	9.6E+02	7.2E+02	5.3E+02	7.5E+02	1.6E+00	2.5E-01
C-201	1.1E+01	1.0E-03	1.7E+00	3.9E+01	1.1E+00	6.3E+00	1.4E-05	2.3E+02	1.1E+02	2.1E+01	5.0E+00	3.2E+01	5.4E+00
C-202	1.2E+01	2.1E-03	9.9E+00	8.2E+01	2.4E+00	2.3E+01	2.9E-05	4.6E+02	6.4E+02	2.1E+02	1.1E+01	3.4E+01	5.6E+00
C-203	1.2E+00	6.0E-04	2.6E+00	3.1E+01	9.1E-01	6.9E+00	1.1E-05	1.8E+02	1.7E+02	4.9E+01	4.1E+00	3.4E+00	5.6E-01
C-204	4.0E-02	8.6E-04	2.8E+00	3.4E+01	9.8E-01	7.4E+00	1.2E-05	2.0E+02	1.8E+02	5.3E+01	4.4E+00	1.2E-01	1.9E-02
241-C TOTALS	2.0E+04	1.6E+01	7.4E+03	9.9E+05	5.6E+03	5.8E+04	9.9E-01	7.2E+05	4.0E+05	1.9E+05	2.9E+05	1.8E+04	3.2E+03
S-101	1.2E+02	2.9E+01	1.0E+04	3.5E+05	1.6E+04	5.5E+02	4.1E-01	3.9E+05	4.0E+05	1.4E+05	1.1E+04	5.5E+02	8.0E+01
S-102	1.2E+02	4.8E+01	8.8E+03	2.6E+05	4.7E+03	6.7E+03	6.8E-01	3.6E+05	5.1E+05	8.8E+04	6.9E+04	1.2E+02	1.9E+01
S-103	1.2E+02	3.1E+01	7.4E+03	2.2E+05	5.7E+03	1.9E+03	4.3E-01	2.6E+05	3.3E+05	8.5E+04	2.3E+04	1.8E+02	2.9E+01
S-104	2.1E+00	2.3E-02	4.3E+01	5.6E+02	2.6E+01	3.5E+00	6.3E-04	1.5E+03	2.9E+03	3.1E+02	6.9E-01	2.4E+00	4.0E-01
S-105	1.6E+01	7.0E+01	3.2E+03	7.4E+04	2.7E+03	1.3E+03	6.8E-01	6.3E+05	1.4E+06	2.5E+04	1.0E+04	1.6E+01	2.3E+00
S-106	2.0E+01	5.9E+01	8.4E+03	2.9E+05	1.6E+04	6.3E+03	5.6E-01	6.0E+05	9.8E+05	7.8E+04	5.8E+04	5.3E+01	7.8E+00
S-107	3.7E+02	8.3E+00	1.2E+04	2.7E+05	1.2E+04	4.4E+04	1.6E-01	4.6E+05	5.7E+05	1.3E+05	2.4E+04	2.1E+03	3.7E+02

TANK	90Sr (Ci)	SO4 (kg)	99Tc (Ci)	TOC (kg)	232U (Ci)	233U (Ci)	234U (Ci)	235U (Ci)	236U (Ci)	238U (Ci)	UTOTAL (kg)	Zr (kg)
A-101	5.4E+06	6.9E+04	4.0E+02	1.9E+04	1.1E+00	4.6E+00	8.2E-01	3.2E-02	2.6E-02	7.3E-01	2.2E+03	1.1E+03
A-102	2.1E+05	3.6E+04	2.0E+02	1.7E+04	4.7E+00	1.9E+01	3.1E+00	1.2E-01	1.0E-01	2.7E+00	8.2E+03	3.6E+02
A-103	6.6E+02	1.7E+02	8.7E-01	7.5E+01	6.3E-03	2.6E-02	4.1E-03	1.6E-04	1.3E-04	3.6E-03	1.1E+01	1.5E+00
A-104	1.8E+05	6.3E+01	7.1E-01	0.0E+00	3.6E-04	1.5E-03	1.5E-03	6.1E-05	4.0E-05	1.4E-03	4.3E+00	2.0E+00
A-105	1.7E+05	4.0E+02	3.7E+00	0.0E+00	3.6E-09	9.1E-11	4.8E-05	2.0E-06	1.3E-06	4.6E-05	1.4E-01	5.3E+01
A-106	5.3E+05	2.3E+03	7.2E+01	4.3E+03	2.0E-01	8.4E-01	1.9E-01	7.7E-03	6.1E-03	1.7E-01	5.2E+02	7.8E+02
241-A TOTALS	6.5E+06	1.1E+05	6.7E+02	4.0E+04	6.1E+00	2.5E+01	4.1E+00	1.6E-01	1.3E-01	3.7E+00	1.1E+04	2.3E+03
AX-101	1.6E+05	5.3E+04	1.5E+02	1.1E+04	5.7E-01	2.3E+00	3.7E-01	1.5E-02	1.2E-02	3.3E-01	1.0E+03	5.5E+01
AX-102	2.3E+05	6.3E+02	8.8E+00	7.6E+03	3.1E-02	1.3E-01	2.6E-02	1.0E-03	8.5E-04	2.3E-02	7.0E+01	5.8E+00
AX-103	4.8E+05	1.1E+04	1.6E+02	4.4E+03	9.1E-02	9.2E-02	1.2E-01	3.6E-03	4.2E-03	8.3E-02	2.5E+02	2.2E+02
AX-104	2.2E+06	2.4E+02	9.4E+01	0.0E+00	4.3E-06	1.1E-07	5.7E-02	2.4E-03	1.6E-03	5.5E-02	1.7E+02	2.0E+02
241-AX TOTALS	3.1E+06	6.4E+04	4.1E+02	2.3E+04	6.9E-01	2.5E+00	5.8E-01	2.2E-02	1.9E-02	4.9E-01	1.5E+03	4.8E+02
B-101	1.7E+04	6.3E+02	1.3E-01	1.7E+01	2.2E-07	1.1E-08	1.1E-02	4.8E-04	1.0E-04	1.1E-02	3.3E+01	4.4E-01
B-102	2.3E+05	1.0E+05	3.8E+01	2.4E+03	1.2E-05	1.0E-05	8.0E-01	3.6E-02	5.5E-03	8.1E-01	2.4E+03	1.4E+02
B-103	4.6E+01	7.5E+02	2.4E-02	6.4E+00	2.1E-07	1.1E-08	1.2E-02	5.2E-04	1.0E-04	1.2E-02	3.6E+01	5.4E-01
B-104	4.2E+05	9.0E+04	2.2E+01	3.7E+03	3.3E-01	1.3E+00	4.0E+00	1.8E-01	5.4E-02	4.0E+00	1.2E+04	2.2E+02
B-105	8.3E+01	1.6E+03	5.4E-02	1.7E+01	2.7E-07	1.4E-08	1.4E-02	6.1E-04	1.3E-04	1.4E-02	4.2E+01	1.2E+00
B-106	9.8E+05	7.1E+04	2.5E+01	2.5E+03	6.5E-03	2.6E-02	3.1E+00	1.4E-01	2.9E-02	3.2E+00	9.5E+03	8.8E+01
B-107	1.5E+03	9.3E+02	2.0E-01	9.1E+00	1.1E-07	1.2E-07	7.6E-03	3.4E-04	4.8E-05	7.7E-03	2.3E+01	1.4E+00
B-108	2.3E+05	1.8E+05	1.3E+02	2.9E+03	2.6E-03	1.0E-02	1.5E+00	6.4E-02	1.3E-02	1.5E+00	4.4E+03	1.6E+02
B-109	6.0E+03	7.8E+02	1.9E-02	1.7E+01	5.2E-03	2.1E-02	4.5E-02	2.0E-03	7.0E-04	4.5E-02	1.3E+02	1.5E+00
B-110	8.5E+02	1.2E+02	1.7E-01	3.9E+00	9.6E-09	5.6E-10	7.0E-04	3.1E-05	5.1E-06	7.1E-04	2.1E+00	6.4E-02
B-111	1.9E+03	1.1E+02	1.0E+00	9.8E+00	2.2E-05	8.8E-05	5.9E-04	2.6E-05	7.0E-06	6.0E-04	1.8E+00	1.3E-01
B-112	3.1E+02	2.1E+02	6.4E-01	3.9E+01	2.9E-04	1.2E-03	9.8E-04	3.7E-05	2.9E-05	8.3E-04	2.5E+00	1.2E-01
B-201	9.2E+00	1.7E+00	5.2E-05	1.2E+01	4.3E-09	2.1E-10	2.6E-04	1.1E-05	2.7E-08	2.8E-04	7.8E-01	9.2E-02
B-202	1.6E+01	8.0E+00	2.6E-02	1.5E+01	5.4E-09	2.6E-10	7.1E-04	2.4E-05	7.6E-08	5.4E-04	1.6E+00	4.6E-03
B-203	6.7E+00	1.2E+00	3.3E-05	3.3E-01	5.0E-09	2.4E-10	2.7E-04	1.2E-05	2.3E-06	2.7E-04	8.1E-01	1.2E-02
B-204	6.3E+00	1.3E+00	3.1E-05	3.3E+00	4.6E-09	2.2E-10	2.4E-04	1.1E-05	2.1E-06	2.5E-04	7.4E-01	1.2E-02
TOTALS	1.9E+06	4.6E+05	2.1E+02	1.2E+04	3.4E-01	1.4E+00	9.5E+00	4.2E-01	1.0E-01	9.5E+00	2.9E+04	6.2E+02
BX-101	1.3E+04	8.7E+01	8.7E-03	9.1E+00	4.1E-04	1.7E-03	1.4E-02	6.2E-04	1.7E-04	1.4E-02	4.3E+01	1.6E+01
BX-102	7.2E+03	1.6E+01	3.3E-03	4.0E+00	2.3E-04	9.6E-04	1.3E-03	5.3E-05	3.9E-05	1.2E-03	3.7E+00	8.9E+00
BX-103	5.5E+05	2.4E+04	2.3E+02	7.9E+03	1.0E-01	4.1E-01	1.5E+00	6.6E-02	2.1E-02	1.5E+00	4.5E+03	7.2E+02
BX-104	1.4E+05	2.7E+04	9.3E+01	3.8E+03	7.1E-02	2.9E-01	1.4E+01	6.1E-01	9.8E-02	1.4E+01	4.1E+04	7.7E+02
BX-105	5.8E+05	3.0E+04	2.9E+01	2.8E+03	1.1E-02	4.5E-02	8.7E+00	3.9E-01	8.2E-02	8.8E+00	2.6E+04	7.2E+02
BX-106	1.7E+03	1.7E+01	5.8E-01	4.8E+01	8.4E-07	3.4E-08	2.5E-02	1.1E-03	3.3E-04	2.6E-02	7.7E+01	5.7E+00
BX-107	8.9E+01	1.5E+02	4.0E-01	6.6E+00	1.3E-07	6.8E-09	8.7E-03	3.4E-04	1.0E-04	7.7E-03	2.3E+01	1.5E+00
BX-108	2.3E+03	3.5E+02	2.1E-01	1.4E+01	9.8E-07	5.2E-08	5.6E-02	2.5E-03	4.8E-04	5.7E-02	1.7E+02	1.0E+00
BX-109	1.3E+03	2.2E+02	9.1E-03	8.1E+00	9.9E-07	5.2E-08	5.6E-02	2.5E-03	4.8E-04	5.7E-02	1.7E+02	0.0E+00
BX-110	1.6E+02	1.4E+02	1.1E+00	3.0E+01	4.7E-04	1.9E-03	5.5E-03	2.4E-04	8.0E-05	5.3E-03	1.6E+01	9.2E-01
BX-111	2.0E+02	6.0E+01	1.4E+00	1.4E+01	4.5E-04	1.9E-03	2.7E-03	1.1E-04	5.5E-05	2.5E-03	7.4E+00	3.4E-01
BX-112	5.2E+03	5.7E+03	1.7E+01	4.7E+02	4.6E-06	2.5E-07	2.8E-01	1.2E-02	2.3E-03	2.8E-01	8.4E+02	4.4E+01
241-BX TOTALS	1.3E+06	8.8E+04	3.7E+02	1.5E+04	1.8E-01	7.5E-01	2.4E+01	1.1E+00	2.1E-01	2.5E+01	7.3E+04	2.3E+03
BY-101	2.7E+05	7.0E+03	2.8E+02	6.4E+03	1.9E-01	7.6E-01	2.8E+00	1.2E-01	3.7E-02	2.8E+00	8.2E+03	4.3E+01
BY-102	1.7E+05	9.3E+04	3.6E+02	1.5E+04	2.1E-01	8.7E-01	2.8E+00	1.2E-01	4.0E-02	2.8E+00	8.3E+03	4.8E+01
BY-103	5.3E+02	2.1E+02	1.5E+00	1.6E+02	9.1E-04	3.7E-03	2.7E-03	9.9E-05	8.9E-05	2.2E-03	6.7E+00	6.3E-01
(split: BY-104)	*5.7E+04*	*2.2E+04*	*1.6E+02*	*1.7E+04*	*9.8E-02*	*4.0E-01*	*2.9E-01*	*1.1E-02*	*9.6E-03*	*2.4E-01*	*7.2E+02*	*6.8E+01*
(split: BY-112)	*4.8E+04*	*1.9E+04*	*1.3E+02*	*1.5E+04*	*8.4E-02*	*3.4E-01*	*2.5E-01*	*9.1E-03*	*8.1E-03*	*2.0E-01*	*6.1E+02*	*5.8E+01*
BY-104	4.9E+05	7.5E+04	4.6E+02	3.7E+04	3.6E-01	1.5E+00	5.0E+00	2.1E-01	6.9E-02	4.9E+00	1.5E+04	1.1E+02
BY-105	6.3E+02	8.7E+01	3.2E-01	3.4E+01	5.7E-04	2.3E-03	1.3E-02	5.5E-04	1.5E-04	1.3E-02	3.7E+01	1.1E-01
(split: BY-102)	*9.0E+04*	*1.2E+04*	*4.6E+01*	*4.9E+03*	*8.2E-02*	*3.3E-01*	*1.8E+00*	*7.8E-02*	*2.1E-02*	*1.8E+00*	*5.3E+03*	*1.5E+01*
(split: BY-104)	*6.9E+04*	*9.6E+03*	*3.5E+01*	*3.8E+03*	*6.2E-02*	*2.5E-01*	*1.4E+00*	*6.0E-02*	*1.6E-02*	*1.4E+00*	*4.1E+03*	*1.2E+01*
BY-106	5.2E+02	1.1E+02	1.3E+00	4.1E+01	2.2E-04	8.9E-04	7.4E-03	3.3E-04	7.9E-05	7.4E-03	2.2E+01	9.1E-02
(split: BY-110)	*9.5E+04*	*2.0E+04*	*2.4E+02*	*7.5E+03*	*3.9E-02*	*1.6E-01*	*1.3E+00*	*5.9E-02*	*1.4E-02*	*1.3E+00*	*4.0E+03*	*1.6E+01*
(split: BY-102)	*5.2E+04*	*1.1E+04*	*1.9E+02*	*4.1E+03*	*2.1E-02*	*8.8E-02*	*7.4E-01*	*3.3E-02*	*7.9E-03*	*7.4E-01*	*2.2E+03*	*9.0E+00*
BY-107	6.2E+02	2.0E+02	1.3E+00	4.8E+01	1.1E-03	4.7E-03	1.1E-02	4.9E-04	1.8E-04	1.1E-02	3.3E+01	8.3E-02
BY-108	1.2E+03	2.3E+02	1.1E+00	4.9E+01	6.1E-04	2.5E-03	3.3E-02	1.5E-03	3.3E-04	3.4E-02	1.0E+02	1.6E-01
BY-109	3.8E+05	1.3E+05	2.8E+02	1.5E+04	1.6E-01	6.5E-01	4.0E+00	1.8E-01	4.6E-02	4.0E+00	1.2E+04	9.4E+01
BY-110	2.7E+05	6.4E+04	4.5E+02	2.1E+04	2.9E-01	1.2E+00	4.8E+00	2.1E-01	6.3E-02	4.8E+00	1.4E+04	4.4E+01
BY-111	2.7E+04	6.7E+04	2.0E+02	1.1E+04	1.3E-01	5.2E-01	3.7E-01	1.4E-02	1.2E-02	3.1E-01	9.2E+02	2.7E+01
BY-112	1.8E+05	9.6E+04	5.1E+02	3.6E+04	3.6E-01	1.5E+00	2.5E+00	1.0E-01	4.7E-02	2.3E+00	7.0E+03	9.8E+01
TOTALS	1.8E+06	5.3E+05	2.5E+03	1.4E+05	1.7E+00	7.0E+00	2.2E+01	9.6E-01	3.1E-01	2.2E+01	6.6E+04	4.6E+02
C-101	6.5E+03	1.5E+02	1.6E-02	2.7E+01	2.7E-06	1.1E-07	7.1E-02	3.1E-03	1.0E-03	7.3E-02	2.2E+02	4.5E+00
C-102	5.9E+05	5.8E+03	1.3E+00	1.6E+03	2.3E-01	9.6E-01	2.7E+00	1.2E-01	4.5E-02	2.7E+00	8.2E+03	5.2E+03
C-103	3.9E+06	1.5E+04	1.3E+02	1.1E+04	1.9E-01	8.1E-01	1.1E+01	4.8E-01	1.5E-01	1.1E+01	3.4E+04	8.2E+03
C-104	4.8E+05	3.4E+03	5.8E+01	1.4E+04	1.9E+01	4.1E+02	2.1E+01	6.0E-01	6.8E-01	1.2E+01	3.6E+04	6.5E+04
C-105	1.6E+06	1.1E+04	8.5E+01	6.8E+03	3.2E-04	1.2E-05	7.6E+00	3.3E-01	1.2E-01	7.8E+00	2.3E+04	4.3E+02
C-106	2.8E+05	4.8E+02	3.1E+00	5.3E+02	5.3E-04	2.2E-03	4.3E-02	1.8E-03	7.7E-04	4.4E-02	1.3E+02	2.7E+00
C-107	2.2E+06	1.9E+04	6.9E+01	1.3E+03	5.5E-03	2.3E-02	1.2E+00	1.7E-01	9.3E-02	3.8E+00	1.1E+04	2.2E+02
C-108	2.6E+02	7.4E+01	1.8E-01	1.0E+01	1.7E-08	1.1E-09	1.5E-03	6.8E-05	9.8E-06	1.5E-03	4.6E+00	9.4E-01
C-109	7.6E+03	8.9E+01	9.8E-01	2.3E+01	1.7E-06	7.6E-08	4.4E-02	1.7E-03	6.3E-04	4.1E-02	1.2E+02	3.1E-01
C-110	4.2E+01	1.2E+02	3.6E-01	5.9E+00	8.1E-08	5.2E-09	7.3E-03	3.3E-04	4.7E-05	7.4E-03	2.2E+01	1.7E+00
C-111	3.1E+04	5.2E+01	9.5E-02	8.6E+00	1.7E-06	6.5E-08	4.9E-02	2.1E-03	6.5E-04	5.0E-02	1.5E+02	1.9E+00
C-112	1.2E+04	1.3E+02	1.2E+00	4.7E+01	2.8E-03	1.2E-02	1.5E-01	6.7E-03	1.9E-03	1.6E-01	4.6E+02	1.9E-01
C-201	2.1E+02	5.7E+00	7.1E-03	1.3E+02	2.1E-09	1.3E-10	1.9E-04	8.5E-06	1.2E-06	1.9E-04	5.7E-01	0.0E+00
C-202	4.3E+02	3.0E+01	1.5E-02	2.2E+02	2.6E-08	7.3E-10	4.0E-04	1.7E-05	9.3E-06	4.0E-04	1.2E+00	0.0E+00
C-203	1.6E+02	8.0E+00	5.6E-03	9.1E+01	1.7E-09	1.1E-10	1.6E-04	6.7E-06	9.5E-07	1.5E-04	4.5E-01	0.0E+00
C-204	1.8E+02	8.6E+00	6.0E-03	9.8E+01	1.8E-09	1.1E-10	1.6E-04	7.2E-06	1.0E-06	1.6E-04	4.9E-01	0.0E+00
241-C TOTALS	9.2E+06	5.6E+04	3.5E+02	3.6E+04	2.0E+01	4.1E+02	4.4E+01	1.7E+00	1.1E+00	3.8E+01	1.1E+05	7.9E+04
S-101	6.1E+05	1.6E+04	2.1E+02	5.3E+03	6.4E-01	2.6E+00	3.3E+00	1.4E-01	9.0E-02	3.1E+00	9.3E+03	4.7E+01
S-102	9.3E+04	8.9E+03	2.2E+02	7.9E+03	1.4E+00	5.8E+00	1.8E+00	7.4E-02	5.6E-02	1.7E+00	5.0E+03	3.7E+01
S-103	4.1E+04	1.4E+04	2.2E+02	6.1E+03	7.4E-02	3.0E-01	2.9E-01	1.2E-02	6.9E-03	2.8E-01	8.4E+02	3.2E+01
S-104	2.9E+03	1.4E+01	3.3E-01	1.2E+01	2.1E-04	8.6E-04	1.7E-02	6.7E-04	3.3E-04	1.6E-02	4.8E+01	3.7E-01
S-105	1.1E+04	2.0E+04	3.5E+02	3.6E+03	7.3E-02	3.0E-01	2.1E-01	8.6E-03	5.5E-03	2.0E-01	5.9E+02	2.1E+01
S-106	3.9E+04	2.1E+04	2.9E+02	6.3E+03	3.8E-02	1.6E-01	2.4E-01	9.9E-03	6.0E-03	2.3E-01	6.8E+02	1.9E+01
S-107	7.7E+05	5.3E+03	8.0E+01	5.8E+03	1.4E-01	5.6E-01	8.7E+00	3.8E-01	4.2E-01	8.1E+00	2.4E+04	3.4E+04

REFERENCE DATA					
Residual Volume for 100 series tanks (kgal) =	2	Risk Category Adjustment for emptied tanks =	0.1	90% reduction in risk category	
Residual Volume for 200 series tanks (kgal) =	1	Dilution Factor =	1.1	10% water addition for transfers	
Risk Factor for RRA = 0 Tanks =	20	Calculated standard deviations =	2.53	1σ	1σ = 2.53
TPA M-45 Tanks Highlighted in YELLOW			7.00	2σ	2σ = 7.4

COLUMNS K-AL Contain the Before Staging Inventory Data and are HIDDEN

	BEFORE STAGING									AFTER STAGING									
TANK	RRA	Risk Category (1s/RRA)	Risk Factor	Type	Capacity (kgal)	Waste Volume (kgal)	Supernatant Volume (kgal)	Sludge Volume (kgal)	Saltcake Volume (kgal)	NEW Risk Category	NEW Risk Factor	Consolidation Tank	Split (kgal)	Transfers	Waste Volume (kgal)	New/Old Volume	Supernatant Volume (kgal)	Sludge Volume (kgal)	Saltcake Volume (kgal)
S-106	3.28	0.77	334	DN	758	432	0	5	427	0.77	334	NO ACTION			432	1.0	0	5	427
S-109	3.28	0.77	412	DN	758	533	0	13	520	0.77	412	NO ACTION			533	1.0	0	13	520
S-110	1.64	1.54	602	DN	758	390	0	131	259	1.54	602	NO ACTION			390	1.0	0	131	259
S-111	3.93	0.64	322	DN	758	501	48	116	337	0.64	322	NO ACTION			501	1.0	48	116	337
S-112	1.64	1.54	808	DN	758	523	0	6	517	1.54	808	NO ACTION			523	1.0	0	6	517
241-S TOTALS			10707		9096	5116	76	1184	3856		5038			1	5145		76	1213	3856
241-SX Tank Farm																			
SX-101	7.02	0.36	155	DC	1000	429	0	0	429	0.36	155	NO ACTION			429	1.0	0	0	429
SX-102	2.70	0.94	482	DSSF	1000	514	134	0	380	0.94	939	RECEIVER			898	1.9	134	276	586
SX-103	2.34	1.08	560	DN	1000	518	0	115	403	1.08	1050	RECEIVER			971	1.9	0	418	553
SX-104	0.00	20.00	8920	DSSF	1000	446	0	136	310	2.00	4	SX-105		1	2	0.0	0	1	1
SX-105	4.91	0.51	249	DSSF	1000	484	0	65	419	0.51	506	RECEIVER			983	2.0	0	225	758
SX-106	2.11	1.20	477	DN	1000	397	0	0	397	1.20	556	RECEIVER			463	1.2	0	66	397
SX-107	0.00	20.00	2040	DN	1000	102	0	85	17	2.00	4	SX-103		1	2	0.0	0	2	0
SX-108	0.00	20.00	1740	DN	1000	87	0	87	0	2.00	4	SX-102		1	2	0.0	0	2	0
SX-109	0.00	20.00	4980	DN	1000	249	0	60	189	2.00	4	SX-102		1	2	0.0	0	0	2
SX-110	0.00	20.00	1240	DN	1000	62	0	62	0	2.00	4	SX-106		1	2	0.0	0	2	0
SX-111	0.00	20.00	2440	DN	1000	122	0	122	0	2.00	4	SX-103		1	2	0.0	0	2	0
SX-112	0.00	20.00	2160	DN	1000	108	0	108	0	2.00	4	SX-102		1	2	0.0	0	2	0
SX-113	0.00	20.00	620	DN	1000	31	0	31	0	2.00	4	SX-103		1	2	0.1	0	2	0
SX-114	0.00	20.00	3300	DN	1000	165	0	44	121	2.00	4	SX-103		1	2	0.0	0	1	1
SX-115	0.00	20.00	240	DN	1000	12	0	12	0	2.00	4	SX-105		1	2	0.2	0	2	0
TOTALS			29602		15000	3726	134	927	2665		3240			10	3862		134	1000	2728
241-T Tank Farm																			
T-101	0.00	20.00	2040	DN	530	102	1	37	64	2.00	4	T-112		1	2	0.0	0	1	1
T-102	2.81	0.90	29	DN	530	32	13	19	0	0.90	469	RECEIVER			520	16.3	13	507	0
T-103	0.00	20.00	540	DN	530	27	4	23	0	2.00	4	T-112		1	2	0.1	0	2	0
T-104	2.34	1.08	343	DN	530	317	0	317	0	1.08	546	RECEIVER			505	1.6	0	505	0
T-105	0.78	3.24	318	DN	530	98	0	98	0	0.32	1	T-112		1	2	0.0	0	2	0
T-106	0.00	20.00	420	DN	530	21	2	19	0	2.00	4	T-112		1	2	0.1	0	2	0
T-107	0.00	20.00	3460	DN	530	173	0	173	0	2.00	4	T-104		1	2	0.0	0	2	0
T-108	0.00	20.00	880	DN	530	44	0	21	23	2.00	4	T-112		1	2	0.0	0	1	1
T-109	0.00	20.00	1160	DN	530	58	0	0	58	2.00	4	T-112		1	2	0.0	0	0	2
T-110	1.80	1.41	519	DN	530	369	1	368	0	1.41	593	RECEIVER			422	1.1	2	420	0
T-111	0.00	20.00	8920	DN	530	446	0	446	0	2.00	4	T-102		1	2	0.0	0	2	0
T-112	2.16	1.17	78	DN	530	67	7	60	0	1.17	605	RECEIVER			517	7.7	14	348	155
T-201	0.45	5.62	163	DN	55	29	1	28	0	0.56	1	T-110		1	1	0.0	0	1	0
T-202	0.45	5.62	118	DN	55	21	0	21	0	0.56	1	T-110		1	1	0.0	0	1	0
T-203	0.45	5.62	197	DN	55	35	0	35	0	0.56	1	T-112		1	1	0.0	0	1	0
T-204	0.45	5.62	214	DN	55	38	0	38	0	0.56	1	T-112		1	1	0.0	0	1	0
TOTALS			19398		6580	1877	29	1703	145		2244			12	1984		30	1795	159
241-TX Tank Farm																			
TX-101	5.62	0.45	39	DN	758	87	3	74	10	0.45	341	RECEIVER			758	8.7	3	127	628
TX-102	4.68	0.54	117	DN	758	217	0	0	217	0.54	410	RECEIVER			758	3.5	0	6	752
TX-103	2.34	1.08	170	DN	758	157	0	0	157	1.08	791	RECEIVER			731	4.7	1	31	700
TX-104	3.51	0.72	47	DN	758	65	5	23	37	0.72	546	RECEIVER			758	11.7	5	41	712
TX-105	0.00	20.00	12190	DN	758	609	0	0	609	2.00	4	SPLIT			2	0.0	0	0	2
												TX-102	*405*	*1*			*0*	*0*	*405*
												TX-109	*204*	*1*			*0*	*0*	*204*
TX-106	4.37	0.58	198	DN	758	341	0	0	341	0.58	439	RECEIVER			758	2.2	0	0	758
TX-107	0.00	20.00	720	DN	758	36	1	8	27	2.00	4	TX-103		1	2	0.1	0	0	2
TX-108	5.04	0.50	67	DN	758	134	0	6	128	0.50	380	RECEIVER			758	5.7	0	43	714
TX-109	4.68	0.54	208	DN	758	384	0	384	0	0.54	410	RECEIVER			758	2.0	0	384	374
TX-110	0.00	20.00	9240	DN	758	462	0	37	425	2.00	4	SPLIT			2	0.0	0	0	2
												TX-104	*183*	*1*			*0*	*15*	*168*
												TX-103	*279*	*1*			*0*	*22*	*257*
TX-111	4.37	0.58	214	DN	758	370	0	43	327	0.58	439	RECEIVER			758	2.0	0	43	715
TX-112	1.56	1.62	1053	DN	758	649	0	0	649	0.16	0	SPLIT			2	0.0	0	0	2
												TX-111	*389*	*1*			*0*	*0*	*389*
												TX-103	*260*	*1*			*0*	*0*	*260*
TX-113	0.00	20.00	13060	DN	758	653	0	0	653	2.00	4	SPLIT			2	0.0	0	0	2
												TX-118	*473*	*1*			*0*	*0*	*473*
												TX-101	*180*	*1*			*0*	*0*	*180*
TX-114	0.00	20.00	10700	DN	758	535	0	4	531	2.00	4	SPLIT			2	0.0	0	0	2
												TX-106	*22*	*1*			*0*	*0*	*22*
												TX-104	*513*	*1*			*0*	*4*	*509*
TX-115	0.00	20.00	11360	DN	758	568	0	0	568	2.00	4	SPLIT			2	0.0	0	0	2
												TX-109	*171*	*1*			*0*	*0*	*171*
												TX-106	*397*	*1*			*0*	*0*	*397*
TX-116	0.00	20.00	12620	DN	758	631	0	68	563	2.00	4	SPLIT			2	0.0	0	0	2
												TX-101	*493*	*1*			*0*	*53*	*440*
												TX-108	*138*	*1*			*0*	*15*	*123*
TX-117	0.00	20.00	12520	DN	758	626	0	29	597	2.00	4	SPLIT			2	0.0	0	0	2
												TX-108	*488*	*1*			*0*	*23*	*465*
												TX-102	*138*	*1*			*0*	*6*	*132*
TX-118	6.24	0.41	116	DN	758	286	0	21	265	0.41	307	RECEIVER			758	2.6	0	21	737
TOTALS			84628		13644	6810	9	697	6104		4096			17	6812		9	698	6105
241-TY Tank Farm																			
TY-101	0.00	20.00	2360	DN	758	118	0	72	46	2.00	4	TY-102		1	2	0.0	0	1	1
TY-102	1.17	2.16	138	DN	758	64	0	0	64	2.16	1482	RECEIVER			686	10.7	0	572	114
TY-103	0.00	20.00	3240	DN	758	162	0	162	0	2.00	4	TY-102		1	2	0.0	0	2	0
TY-104	0.00	20.00	860	DN	758	43	0	43	0	2.00	4	TY-102		1	2	0.0	0	2	0
TY-105	0.00	20.00	4620	DN	758	231	0	231	0	2.00	4	TY-102		1	2	0.0	0	2	0
TY-106	0.00	20.00	420	DN	758	21	0	21	0	2.00	4	TY-102		1	2	0.1	0	2	0
TOTALS			11638		4548	639	0	529	110		1502			5	696		0	581	115
241-U Tank Farm																			
U-101	0.00	20.00	500	DN	530	25	3	22	0	2.00	4	U-109		1	2	0.1	0	2	0
U-102	6.12	0.41	121	DN	530	293	0	43	250	0.41	205	RECEIVER			495	1.7	0	245	250
U-103	7.34	0.34	144	DN	530	416	1	13	404	0.34	162	RECEIVER			470	1.1	5	60	404
U-104	0.00	20.00	2440	DN	530	122	0	79	43	2.00	4	U-109		1	2	0.0	0	1	1
U-105	7.34	0.34	122	DN	530	353	0	32	321	0.34	122	NO ACTION			353	1.0	0	32	321
U-106	7.34	0.34	59	DN	530	172	2	0	170	0.34	183	RECEIVER			530	3.1	2	28	499
U-107	7.34	0.34	141	DSSF	530	408	33	15	360	0.34	141	NO ACTION			408	1.0	33	15	360

TANK	241Am (Ci)	14C (Ci)	Cl (Ci)	137Cs (Ci)	Cr (kg)	F (kg)	129I (Ci)	Na (kg)	NO3 (kg)	NO2 (kg)	PO4 (kg)	239Pu (Ci)	240Pu (Ci)	90Sr (Ci)	SO4 (kg)	99Tc (Ci)	TOC (kg)	232U (Ci)	233U (Ci)	234U (Ci)	235U (Ci)	236U (Ci)	238U (Ci)	UTOTAL (kg)	Zr (kg)
S-106	2.7E+02	6.8E+01	1.4E+04	3.9E+05	1.7E+04	8.7E+03	6.2E-01	7.0E+05	9.2E+05	1.7E+05	8.9E+04	6.0E+02	9.9E+01	6.4E+04	4.7E+04	3.2E+02	1.4E+04	2.7E-01	1.1E+00	8.9E-01	3.7E-02	2.5E-02	8.4E-01	2.5E+03	1.1E+02
S-109	1.0E+01	6.5E+01	2.0E+03	4.8E+04	5.4E+03	8.2E+02	6.0E-01	7.7E+05	1.9E+06	2.3E+04	3.7E+04	8.1E+01	1.2E+01	6.1E+04	2.5E+04	3.1E+02	2.2E+03	1.8E-02	7.3E-02	1.9E-01	8.1E-03	3.7E-03	1.9E-01	5.7E+02	2.8E+01
S-110	9.4E+01	4.7E+01	4.6E+03	1.8E+06	1.3E+04	1.6E+03	4.6E-01	4.8E+05	9.0E+05	5.4E+04	1.0E+04	5.0E+02	7.3E+01	2.6E+05	2.3E+04	2.4E+02	5.5E+03	6.1E-01	2.5E+00	2.2E+00	9.3E-02	5.6E-02	2.1E+00	6.3E+03	4.9E+01
S-111	1.4E+01	4.3E+01	7.7E+03	3.1E+05	1.2E+04	2.9E+03	4.9E-01	4.2E+05	5.2E+05	8.4E+04	2.9E+04	3.3E+01	5.0E+00	4.8E+05	3.1E+04	2.6E+02	4.3E+03	6.2E-02	2.5E-01	1.8E-01	7.3E-03	4.9E-03	1.7E-01	5.0E+02	1.5E+01
S-112	7.2E+01	3.6E+01	7.9E+03	2.3E+05	1.7E+04	8.0E+02	8.4E-01	9.8E+05	1.4E+06	6.4E+04	2.0E+04	6.1E+01	9.4E+00	1.1E+05	1.3E+05	2.5E+02	6.1E+03	1.4E-01	5.6E-01	4.8E-01	2.0E-02	1.9E-02	4.5E-01	1.4E+03	2.7E+01
241-S TOTALS	1.2E+03	5.1E+02	8.5E+04	2.6E+06	1.2E+05	7.5E+04	5.9E+00	6.1E+06	9.8E+06	9.4E+05	3.8E+05	4.3E+03	7.1E+02	2.6E+06	3.4E+05	2.7E+03	6.7E+04	3.5E+00	1.4E+01	1.9E+01	7.9E-01	6.9E-01	1.7E+01	5.2E+04	3.4E+04
241-SX Tank Farm																									
SX-101	1.8E+02	2.7E+01	1.9E+04	3.1E+05	2.5E+04	6.6E+02	3.6E-01	5.1E+05	7.1E+05	6.9E+04	9.6E+03	6.6E+02	9.7E+01	6.5E+05	4.8E+03	1.9E+02	4.6E+03	2.9E-01	1.2E+00	1.4E+00	5.7E-02	5.2E-02	1.2E+00	3.7E+03	6.9E+01
SX-102	9.3E+02	6.6E+01	2.6E+04	7.9E+05	2.8E+04	2.1E+03	8.2E-01	9.8E+05	1.3E+06	3.3E+05	2.1E+04	1.8E+03	2.9E+02	2.2E+06	3.4E+04	4.3E+02	1.4E+04	5.4E-01	2.2E+00	3.7E+00	1.5E-01	1.1E-01	3.5E+00	1.0E+04	3.9E+02
SX-103	8.2E+02	6.8E+01	2.0E+04	6.6E+05	2.2E+04	2.6E+03	7.4E-01	9.6E+05	1.4E+06	2.7E+05	2.0E+04	1.3E+03	1.8E+02	1.2E+06	4.6E+04	4.0E+02	1.5E+04	1.6E-01	6.6E-01	3.2E+00	1.3E-01	7.9E-02	3.1E+00	9.2E+03	1.6E+02
SX-104	7.7E-01	1.6E-01	4.7E+01	1.3E+03	5.3E+01	2.3E+01	1.6E-03	2.1E+03	2.7E+03	5.8E+02	2.1E+02	4.5E+00	6.7E-01	2.4E+03	1.1E+02	8.3E-01	3.7E+01	6.4E-04	2.6E-03	8.7E-03	3.7E-04	1.8E-04	8.5E-03	2.6E+01	5.3E-01
SX-105	9.6E+02	7.1E+01	1.9E+04	5.3E+05	1.8E+04	5.7E+03	7.2E-01	8.6E+05	1.0E+06	2.7E+05	6.7E+04	1.8E+03	2.8E+02	1.0E+06	4.3E+04	3.7E+02	1.4E+04	4.8E-01	2.0E+00	2.4E+00	1.0E-01	5.5E-02	2.3E+00	7.0E+03	1.8E+02
SX-106	3.3E+02	5.7E+01	1.7E+04	3.7E+05	1.1E+04	1.5E+03	7.1E-01	4.9E+05	6.2E+05	1.8E+05	3.1E+04	4.1E+02	6.6E+01	1.4E+05	1.1E+04	3.7E+02	8.7E+03	1.3E-01	5.4E-01	7.4E-01	3.1E-02	1.9E-02	7.1E-01	2.1E+03	5.7E+01
SX-107	4.0E-01	2.6E-02	3.5E+01	1.0E+03	4.2E+01	1.2E+01	3.7E-04	1.4E+03	1.6E+03	4.8E+02	4.2E+01	8.3E+00	1.2E+00	5.7E+03	2.5E+01	2.0E-01	1.9E+01	7.5E-05	3.1E-04	1.6E-02	7.0E-04	3.0E-04	1.6E-02	4.9E+01	7.7E-01
SX-108	1.3E+01	1.9E-02	2.4E+01	2.0E+03	1.0E+02	4.8E+00	2.6E-04	2.0E+03	4.1E+03	1.7E+02	4.6E+00	1.9E+01	3.2E+00	3.1E+04	2.2E+01	1.3E-01	7.1E+00	1.1E-06	3.7E-08	2.0E-02	8.5E-04	5.7E-04	1.9E-02	5.7E+01	4.8E+00
SX-109	1.3E+00	6.0E-02	5.8E+01	1.1E+03	5.0E+01	4.9E+00	8.8E-04	2.1E+03	3.1E+03	4.4E+02	4.1E+01	3.3E+00	4.9E-01	8.2E+03	1.9E+01	4.6E-01	1.3E+01	4.8E-04	2.0E-03	1.4E-02	5.7E-04	4.5E-04	1.3E-02	3.8E+01	3.9E-01
SX-110	8.5E-01	4.1E-02	4.5E+01	9.9E+02	4.4E+01	8.1E+00	6.0E-04	1.7E+03	2.3E+03	4.3E+02	4.1E+01	5.4E+00	7.8E-01	4.2E+03	2.1E+01	3.2E-01	1.5E+01	2.9E-04	1.2E-03	1.5E-02	6.1E-04	3.7E-04	1.4E-02	4.2E+01	5.5E-01
SX-111	5.8E-01	3.8E-02	4.0E+01	1.1E+03	4.4E+01	1.0E+01	5.4E-04	1.6E+03	1.9E+03	4.9E+02	4.0E+01	6.9E+00	9.9E-01	4.9E+03	2.5E+01	2.9E-01	1.7E+01	1.6E-04	6.4E-04	1.5E-02	6.4E-04	3.2E-04	1.5E-02	4.5E+01	6.6E-01
SX-112	3.6E-01	2.4E-02	2.8E+01	7.9E+02	3.2E+01	8.5E+00	3.4E-04	1.1E+03	1.3E+03	3.6E+02	3.1E+01	5.6E+00	8.1E-01	3.9E+03	1.9E+01	1.8E-01	1.3E+01	8.5E-05	3.5E-04	1.2E-02	5.0E-04	2.3E-04	1.2E-02	3.5E+01	5.3E-01
SX-113	2.8E-01	5.2E-04	9.6E-01	2.0E+02	1.8E+00	4.7E-01	7.0E-06	4.9E+01	4.1E+01	1.5E+01	2.3E+00	4.6E-01	6.6E-02	4.4E+02	8.5E-01	8.8E-01	6.6E-01	3.8E-08	1.6E-09	9.3E-04	4.0E-05	1.5E-05	9.5E-04	2.8E+00	1.3E-01
SX-114	9.8E-01	6.3E-02	5.2E+01	1.3E+03	4.8E+01	4.9E+00	9.3E-04	1.9E+03	2.6E+03	5.0E+02	3.4E+01	3.3E+00	4.8E-01	2.9E+03	2.3E+01	4.9E-01	1.2E+01	3.4E-04	1.4E-03	1.2E-02	4.8E-04	3.5E-04	1.1E-02	3.2E+01	3.6E-01
SX-115	5.7E+01	6.5E-03	1.2E+01	3.8E+02	1.6E+01	5.9E+00	8.7E-05	1.0E+02	5.1E+02	8.6E+00	4.2E+01	7.1E+01	1.0E+01	6.1E+04	1.1E+01	4.5E-02	4.6E+00	2.9E-07	1.2E-08	7.1E-03	3.1E-04	1.1E-04	7.3E-03	2.2E+01	3.6E-01
TOTALS	3.3E+03	2.9E+02	1.0E+05	2.7E+06	1.1E+05	1.3E+04	3.4E+00	3.8E+06	5.1E+06	1.1E+06	1.5E+05	6.1E+03	9.3E+02	5.3E+06	1.4E+05	1.8E+03	5.6E+04	1.6E+00	6.6E+00	1.2E+01	4.6E-01	3.2E-01	1.1E+01	3.3E+04	8.6E+02
241-T Tank Farm																									
T-101	6.2E-01	1.5E-01	3.0E+01	9.1E+02	1.9E+01	2.3E+01	1.7E-03	1.7E+03	2.4E+03	3.2E+02	1.3E+02	1.6E+00	2.5E-01	2.1E+02	1.8E+02	9.0E-01	3.9E+01	7.6E-04	3.1E-03	9.3E-03	3.9E-04	2.2E-04	8.9E-03	2.7E+01	9.1E-01
T-102	1.2E+02	6.4E+00	1.9E+03	7.1E+03	3.7E+03	9.5E+03	1.5E-02	7.5E+04	1.3E+05	3.9E+03	6.4E+04	2.8E+02	2.4E+01	3.2E+04	7.3E+03	2.6E+01	7.3E+03	4.7E-03	1.9E-02	2.8E+00	1.3E-01	2.3E-02	2.9E+00	6.5E+03	7.5E+00
T-103	9.0E+00	2.9E-02	8.9E+00	3.5E+02	8.9E+00	1.6E+01	3.7E-04	5.6E+02	3.7E+02	1.8E+02	9.4E+01	1.1E+01	1.9E+00	9.9E+03	3.5E+01	1.9E-01	8.7E+00	3.2E-04	1.3E-03	1.9E-02	8.1E-04	2.5E-04	1.9E-02	5.6E+01	1.3E+01
T-104	4.1E+01	2.5E-01	1.6E+03	1.6E+04	1.8E+03	2.4E+04	3.0E-03	1.9E+05	1.6E+05	1.8E+04	1.8E+05	3.2E+02	3.5E+01	1.1E+05	1.8E+04	4.9E+01	1.8E+03	6.5E-02	2.7E-01	7.6E+00	3.3E-01	7.2E-02	7.5E+00	2.2E+04	1.6E+02
T-105	2.0E+00	3.7E-03	4.2E+00	5.8E+02	1.8E+01	5.4E+00	1.4E-05	8.1E+02	2.8E+02	3.6E+02	5.3E+01	2.2E+00	1.9E-01	9.1E+02	9.7E+01	7.1E-01	2.7E+01	2.4E-07	1.0E-08	8.0E-03	3.5E-04	1.1E-04	8.0E-03	2.4E+01	7.6E-01
T-106	2.2E-02	2.8E-03	1.5E+01	4.6E+02	1.5E+01	1.1E+02	1.9E-05	1.3E+03	1.3E+03	1.9E+02	7.6E+02	2.0E+00	3.0E-01	1.2E+02	1.3E+02	2.5E-01	1.6E+01	6.0E-07	2.5E-08	1.9E-02	8.1E-04	3.2E-04	1.8E-02	5.5E+01	2.5E+00
T-107	1.5E-01	2.1E-03	6.0E+00	1.9E+02	4.9E+00	1.3E+02	1.9E-05	1.1E+03	8.3E+02	1.3E+02	7.4E+02	1.5E+00	1.3E-01	1.3E+03	1.4E+02	5.6E-01	1.0E+01	7.6E-04	3.2E-03	8.1E-02	3.6E-03	7.7E-04	8.2E-02	2.5E+02	6.1E-01
T-108	4.8E-02	1.1E-03	4.9E+00	3.7E+01	1.3E+00	3.6E+01	1.2E-05	6.5E+02	1.1E+03	3.3E+01	3.4E+02	2.4E-01	2.1E-02	1.5E+01	2.8E+01	3.7E-02	7.9E-01	3.0E-08	1.6E-09	1.6E-03	7.3E-05	1.4E-05	1.7E-03	5.0E+00	2.0E-01
T-109	4.6E-03	2.9E-03	1.0E+01	4.5E+01	1.2E+00	1.7E+02	3.8E-05	2.0E+03	5.0E+02	4.2E+01	2.4E+03	1.1E-01	9.2E-03	3.7E+01	4.5E+01	2.0E-02	6.0E-03	3.2E-08	1.6E-09	1.6E-03	7.0E-05	1.5E-05	1.6E-03	4.8E+00	1.6E-01
T-110	1.4E+00	1.9E-02	1.3E+03	5.0E+04	2.4E+03	3.6E+03	2.4E-04	9.5E+04	1.3E+05	1.1E+04	3.7E+04	2.0E+02	1.6E+01	3.1E+04	1.2E+04	1.3E-01	1.7E+03	6.9E-06	4.1E-07	5.1E-01	2.3E-02	3.7E-03	5.2E-01	1.6E+03	8.9E+00
T-111	4.0E-01	6.0E-05	8.0E+00	1.0E+00	1.6E+01	4.2E+01	7.8E-07	3.0E+02	5.5E+02	7.0E+00	2.8E+02	1.2E+00	1.0E-01	4.1E+01	3.1E+01	7.4E-02	3.3E+01	1.8E-07	9.5E-09	1.1E-02	4.9E-04	8.8E-05	1.1E-02	3.3E+01	7.9E-03
T-112	2.4E+02	8.0E+00	2.7E+03	8.9E+04	4.1E+03	1.0E+04	9.4E-02	2.4E+05	2.1E+05	4.9E+04	9.8E+04	4.7E+02	6.0E+01	1.8E+05	2.0E+04	6.5E+01	3.9E+03	4.2E-02	1.7E-01	1.4E+00	6.1E-02	2.4E-02	1.4E+00	4.2E+03	2.7E+02
T-201	3.7E-02	7.4E-06	5.1E+00	1.5E-01	2.1E+01	2.5E+01	9.7E-08	1.4E+02	2.3E+02	2.1E+00	4.1E+01	3.4E+00	3.0E-01	3.9E-01	2.7E+00	5.1E-05	9.9E-01	4.1E-09	2.0E-10	2.2E-04	9.7E-06	1.9E-06	2.2E-04	6.6E-01	2.3E-02
T-202	9.9E-03	4.8E-06	3.1E+00	1.2E-01	1.5E+01	2.7E+01	6.2E-08	1.6E+02	2.8E+02	2.9E+00	3.0E+01	9.1E-01	8.0E-02	1.1E-02	6.5E+00	3.3E-05	1.7E+00	3.0E-09	1.5E-10	1.6E-04	7.1E-06	1.4E-06	1.6E-04	4.9E-01	9.6E-03
T-203	9.4E-03	5.0E-06	2.9E+00	8.2E-02	1.7E+01	3.0E+01	6.6E-08	1.7E+02	2.9E+02	1.6E+00	3.6E+01	8.8E-01	7.6E-02	1.2E-02	2.2E+00	3.5E-05	2.1E+00	3.0E-09	1.5E-10	1.6E-04	7.2E-06	1.4E-06	1.6E-04	4.9E-01	9.8E-03
T-204	6.1E-03	4.7E-06	3.0E+00	3.2E-02	2.0E+01	2.7E+01	6.2E-08	1.4E+02	2.5E+02	1.3E+00	3.6E+01	5.7E-01	4.9E-02	1.9E-02	1.6E+00	3.3E-05	1.4E+00	3.9E-09	1.9E-10	2.1E-04	9.2E-06	1.8E-06	2.1E-04	6.3E-01	1.3E-02
TOTALS	4.1E+02	1.5E+01	7.5E+03	1.6E+05	1.2E+04	4.8E+04	1.1E-01	6.2E+05	6.4E+05	8.2E+04	3.8E+05	1.3E+03	1.4E+02	3.7E+05	5.8E+04	1.8E+02	1.5E+04	1.1E-01	4.7E-01	1.2E+01	5.4E-01	1.2E-01	1.2E+01	3.7E+04	4.6E+02
241-TX Tank Farm																									
TX-101	2.6E+02	5.2E+01	8.7E+03	1.4E+05	3.5E+03	1.5E+04	5.9E-01	8.8E+05	1.7E+06	5.3E+04	7.0E+04	8.1E+02	1.3E+02	2.6E+05	1.3E+05	3.1E+02	7.4E+03	1.6E-01	6.7E-01	2.0E+00	8.6E-02	3.1E-02	2.0E+00	6.0E+03	1.2E+02
TX-102	3.7E+02	7.9E+01	1.4E+04	3.5E+05	7.5E+03	1.2E+04	8.8E-01	8.9E+05	1.4E+06	1.2E+05	9.2E+04	7.8E+02	1.3E+02	9.2E+04	1.0E+05	4.6E+02	1.6E+04	4.9E-01	2.0E+00	2.6E+00	1.1E-01	4.8E-02	2.5E+00	7.4E+03	1.0E+02
TX-103	6.3E+02	8.2E+01	1.5E+04	3.5E+05	7.8E+03	1.2E+04	9.0E-01	9.0E+05	1.5E+06	1.2E+05	8.2E+04	1.0E+03	1.6E+02	1.0E+05	1.1E+05	4.7E+02	1.6E+04	5.2E-01	2.1E+00	1.4E+00	6.0E-02	4.1E-02	1.3E+00	4.0E+03	1.2E+02
TX-104	4.3E+02	7.9E+01	1.5E+04	3.4E+05	8.1E+03	1.3E+04	8.7E-01	9.3E+05	1.6E+06	1.2E+05	1.1E+05	8.3E+02	1.3E+02	1.9E+05	1.0E+05	4.5E+02	1.5E+04	5.0E-01	2.0E+00	1.5E+00	6.3E-02	3.9E-02	1.4E+00	4.2E+03	1.2E+02
TX-105	1.1E+00	2.3E-01	4.0E+01	9.7E+02	2.1E+01	2.8E+01	2.5E-03	2.4E+03	4.0E+03	3.3E+02	1.8E+02	2.3E+00	3.7E-01	2.8E+02	2.9E+02	1.3E+00	4.4E+01	1.4E-03	5.9E-03	8.2E-03	3.5E-04	1.5E-04	7.9E-03	2.4E+01	3.0E-01
	2.2E+02	*4.6E+01*	*8.1E+03*	*2.0E+05*	*4.3E+03*	*5.7E+03*	*5.1E-01*	*4.9E+05*	*8.2E+05*	*6.8E+04*	*3.7E+04*	*4.7E+02*	*7.4E+01*	*5.3E+04*	*5.9E+04*	*2.6E+02*	*8.8E+03*	*2.9E-01*	*1.2E+00*	*1.7E+00*	*7.2E-02*	*3.0E-02*	*1.6E+00*	*4.8E+03*	*6.0E+01*
	1.1E+02	*2.3E+01*	*4.1E+03*	*9.8E+04*	*2.2E+03*	*2.9E+03*	*2.6E-01*	*2.5E+05*	*4.1E+05*	*3.4E+04*	*1.9E+04*	*2.3E+02*	*3.8E+01*	*2.7E+04*	*3.0E+04*	*1.3E+02*	*4.5E+03*	*1.5E-01*	*6.1E-01*	*8.3E-01*	*3.6E-02*	*1.5E-02*	*8.1E-01*	*2.4E+03*	*3.0E+01*
TX-106	4.2E+02	9.0E+01	1.6E+04	3.9E+05	8.5E+03	1.1E+04	1.0E+00	9.6E+05	1.6E+06	1.4E+05	7.6E+04	8.8E+02	1.4E+02	1.2E+05	1.2E+05	5.2E+02	1.8E+04	5.6E-01	2.3E+00	1.8E+00	7.4E-02	4.5E-02	1.7E+00	5.0E+03	1.1E+02
TX-107	1.5E+01	1.9E-01	4.5E+01	1.2E+03	2.8E+01	2.0E+01	2.3E-03	2.2E+03	3.4E+03	4.2E+02	1.3E+02	1.3E+01	2.1E+00	5.6E+02	2.1E+02	1.2E+00	3.9E+01	1.0E-03	4.2E-03	4.5E-03	1.8E-04	1.6E-04	4.0E-03	1.2E+01	2.3E-01
TX-108	2.3E+02	4.9E+01	9.6E+03	2.0E+05	4.2E+03	1.4E+04	5.4E-01	7.7E+05	1.2E+06	7.3E+04	1.5E+05	5.2E+02	8.1E+01	5.5E+04	8.4E+04	2.8E+02	9.4E+03	3.1E-01	1.3E+00	1.3E+00	5.7E-02	2.8E-02	1.3E+00	3.8E+03	7.7E+01
TX-109	2.8E+02	4.4E+01	9.6E+03	2.2E+05	5.6E+03	2.4E+04	4.8E-01	6.4E+05	9.9E+05	8.1E+04	1.7E+05	5.9E+02	8.3E+01	6.2E+04	8.0E+04	2.9E+02	9.5E+03	2.7E-01	1.1E+00	2.5E+00	1.1E-01	3.5E-02	2.4E+00	7.3E+03	3.1E+02
TX-110	1.1E+00	2.3E-01	4.0E+01	9.4E+02	2.2E+01	3.7E+01	2.5E-03	2.5E+03	4.2E+03	3.3E+02	2.4E+02	2.3E+00	3.7E-01	2.7E+02	3.0E+02	1.3E+00	4.3E+01	1.5E-03	6.1E-03	4.4E-03	1.8E-04	1.2E-04	4.1E-03	1.2E+01	4.0E-01
	1.0E+02	*2.1E+01*	*3.7E+03*	*8.6E+04*	*2.0E+03*	*3.3E+03*	*2.3E-01*	*2.9E+05*	*3.9E+05*	*3.0E+04*	*2.2E+04*	*2.1E+02*	*3.4E+01*	*2.5E+04*	*2.8E+04*	*1.2E+02*	*3.9E+03*	*1.4E-01*	*5.6E-01*	*4.0E-01*	*1.7E-02*	*1.1E-02*	*3.7E-01*	*1.1E+03*	*3.7E+01*
	1.6E+02	*3.2E+01*	*5.6E+03*	*1.3E+05*	*3.0E+03*	*5.1E+03*	*3.5E-01*	*3.5E+05*	*5.9E+05*	*4.6E+04*	*3.4E+04*	*3.2E+02*	*5.2E+01*	*3.8E+04*	*4.2E+04*	*1.8E+02*	*6.0E+03*	*2.1E-01*	*8.5E-01*	*6.1E-01*	*2.6E-02*	*1.6E-02*	*5.7E-01*	*1.7E+03*	*5.6E+01*
TX-111	4.1E+02	8.4E+01	1.5E+04	3.5E+05	7.9E+03	1.3E+04	9.2E-01	9.3E+05	1.6E+06	1.2E+05	9.3E+04	8.5E+02	1.4E+02	9.9E+04	1.1E+05	4.8E+02	1.6E+04	5.5E-01	2.2E+00	1.6E+00	6.5E-02	4.3E-02	1.5E+00	4.4E+03	1.4E+02
TX-112	1.1E+00	2.3E-01	4.0E+01	9.5E+02	2.1E+01	8.2E+01	2.5E-03	2.5E+03	4.2E+03	3.3E+02	2.3E+02	2.3E+00	3.7E-01	2.7E+02	3.0E+02	1.3E+00	4.4E+01	1.5E-03	6.0E-03	3.8E-03	1.6E-04	1.1E-04	3.5E-03	1.1E+01	2.9E-01
	2.1E+02	*4.5E+01*	*7.9E+03*	*1.8E+05*	*4.1E+03*	*6.2E+03*	*4.9E-01*	*4.9E+05*	*8.2E+05*	*6.5E+04*	*4.5E+04*	*4.4E+02*	*7.1E+01*	*5.2E+04*	*5.8E+04*	*2.5E+02*	*8.5E+03*	*2.9E-01*	*1.2E+00*	*7.4E-01*	*3.1E-02*	*2.2E-02*	*6.9E-01*	*2.1E+03*	*5.7E+01*
	1.4E+02	*3.0E+01*	*5.2E+03*	*1.2E+05*	*2.8E+03*	*4.1E+03*	*3.3E-01*	*3.3E+05*	*5.4E+05*	*4.3E+04*	*3.0E+04*	*2.9E+02*	*4.8E+01*	*3.5E+04*	*3.8E+04*	*1.7E+02*	*5.7E+03*	*1.9E-01*	*7.8E-01*	*5.0E-01*	*2.1E-02*	*1.5E-02*	*4.6E-01*	*1.4E+03*	*3.8E+01*
TX-113	9.7E-02	2.6E-01	6.0E+00	1.0E+02	5.0E+00	6.3E+01	2.8E-03	2.8E+03	5.1E+03	4.6E+01	3.9E+02	1.6E-01	1.8E-02	2.0E+01	6.8E+02	1.5E+00	4.8E+00	7.9E-05	3.2E-04	1.7E-03	7.5E-05	1.7E-05	1.7E-03	5.1E+00	3.2E-01
	2.3E+01	*6.0E+01*	*1.9E+03*	*2.4E+04*	*1.2E+03*	*1.5E+04*	*6.5E-01*	*6.6E+05*	*1.2E+06*	*1.1E+04*	*9.2E+04*	*4.2E+01*	*4.4E+00*	*4.6E+03*	*1.6E+05*	*3.5E+02*	*1.1E+03*	*1.9E-02*	*7.7E-02*	*4.0E-01*	*1.8E-02*	*4.0E-03*	*4.0E-01*	*1.2E+03*	*7.7E+01*
	8.7E+00	*2.3E+01*	*7.2E+02*	*9.3E+03*	*4.5E+02*	*5.7E+03*	*2.5E-01*	*2.5E+05*	*4.6E+05*	*4.1E+03*	*3.5E+04*	*1.6E+01*	*1.7E+00*	*1.8E+03*	*6.1E+04*	*1.3E+02*	*4.4E+02*	*7.1E-03*	*2.9E-02*	*1.5E-01*	*6.8E-03*	*1.5E-03*	*1.5E-01*	*4.6E+02*	*2.9E+01*
TX-114	1.0E+00	2.2E-01	3.9E+01	8.7E+02	2.0E+01	3.7E+01	2.3E-03	2.5E+03	4.1E+03	3.1E+02	3.2E+02	2.2E+00	3.5E-01	2.5E+02	3.0E+02	1.2E+00	4.0E+01	1.4E-03	5.8E-03	3.9E-03	1.6E-04	1.1E-04	3.6E-03	1.1E+01	3.0E-01
	1.2E+01	*2.4E+00*	*4.2E+02*	*9.6E+03*	*2.2E+02*	*4.1E+02*	*2.6E-02*	*2.8E+04*	*4.6E+04*	*3.4E+03*	*3.5E+03*	*2.4E+01*	*3.9E+00*	*2.8E+03*	*3.3E+03*	*1.3E+01*	*4.4E+02*	*1.6E-02*	*6.4E-02*	*4.2E-02*	*1.8E-03*	*1.2E-03*	*3.9E-02*	*1.2E+02*	*3.3E+00*
	2.7E+02	*5.5E+01*	*9.9E+03*	*2.2E+05*	*5.1E+03*	*9.5E+03*	*6.0E-01*	*6.5E+05*	*1.1E+06*	*8.0E+04*	*8.2E+04*	*5.6E+02*	*9.1E+01*	*6.5E+04*	*7.6E+04*	*3.1E+02*	*1.0E+04*	*3.6E-01*	*1.5E+00*	*9.9E-01*	*4.1E-02*	*2.8E-02*	*9.2E-01*	*2.8E+03*	*7.7E+01*
TX-115	1.1E+00	2.3E-01	4.1E+01	9.8E+02	2.2E+01	2.9E+01	2.6E-03	2.5E+03	4.2E+03	3.4E+02	2.0E+02	2.3E+00	3.7E-01	3.0E+02	3.0E+02	1.3E+00	4.5E+01	1.5E-03	6.1E-03	4.4E-03	1.8E-04	1.2E-04	4.1E-03	1.2E+01	2.9E-01
	9.5E+01	*2.0E+01*	*3.5E+03*	*8.4E+04*	*1.9E+03*	*2.5E+03*	*2.2E-01*	*2.1E+05*	*3.6E+05*	*2.9E+04*	*1.7E+04*	*1.9E+02*	*3.2E+01*	*2.5E+04*	*2.6E+04*	*1.1E+02*	*3.9E+03*	*1.3E-01*	*5.2E-01*	*3.8E-01*	*1.6E-02*	*1.0E-02*	*3.5E-01*	*1.1E+03*	*2.5E+01*
	2.2E+02	*4.6E+01*	*8.2E+03*	*2.0E+05*	*4.3E+03*	*5.7E+03*	*5.1E-01*	*5.0E+05*	*8.3E+05*	*6.8E+04*	*4.0E+04*	*4.5E+02*	*7.3E+01*	*5.9E+04*	*6.0E+04*	*2.6E+02*	*8.9E+03*	*3.0E-01*	*1.2E+00*	*8.7E-01*	*3.7E-02*	*2.3E-02*	*8.2E-01*	*2.5E+03*	*5.8E+01*
TX-116	4.8E-01	1.1E-01	2.6E+01	3.3E+02	5.0E+00	3.5E+01	1.3E-03	2.2E+03	4.5E+03	1.1E+02	1.3E+02	1.1E+00	1.7E-01	3.1E+01	2.8E+02	6.6E-01	2.3E+01	6.0E-04	2.5E-03	2.7E-03	1.1E-04	5.6E-05	2.6E-03	7.7E+00	2.1E-01
	1.2E+02	*2.7E+01*	*6.5E+03*	*8.1E+04*	*1.2E+03*	*8.7E+03*	*3.1E-01*	*5.5E+05*	*1.1E+06*	*2.7E+04*	*3.2E+04*	*2.8E+02*	*4.1E+01*	*7.6E+03*	*6.9E+04*	*1.6E+02*	*5.8E+03*	*1.5E-01*	*6.0E-01*	*6.6E-01*	*2.8E-02*	*1.4E-02*	*6.3E-01*	*1.9E+03*	*5.1E+01*
	3.3E+01	*7.5E+00*	*1.8E+03*	*2.3E+04*	*3.5E+02*	*2.4E+03*	*8.8E-02*	*1.5E+05*	*3.1E+05*	*7.6E+03*	*8.9E+03*	*7.9E+01*	*1.2E+01*	*2.1E+03*	*1.9E+04*	*4.5E+01*	*1.6E+03*	*4.1E-02*	*1.7E-01*	*1.8E-01*	*7.8E-03*	*3.8E-03*	*1.8E-01*	*5.3E+02*	*1.4E+01*
TX-117	5.3E-01	1.1E-01	2.1E+01	4.4E+02	1.0E+01	4.2E+01	1.2E-03	1.9E+03	2.7E+03	1.7E+02	5.1E+02	1.2E+00	1.9E-01	1.3E+02	1.9E+02	6.1E-01	2.0E+01	7.3E-04	3.0E-03	2.4E-03	1.0E-04	6.0E-05	2.3E-03	6.9E+00	1.8E-01
	1.3E+02	*2.7E+01*	*5.1E+03*	*1.1E+05*	*2.6E+03*	*1.0E+04*	*2.9E-01*	*4.5E+05*	*6.5E+05*	*4.2E+04*	*1.2E+05*	*3.0E+02*	*4.6E+01*	*3.2E+04*	*4.6E+04*	*1.5E+02*	*4.9E+03*	*1.8E-01*	*7.3E-01*	*5.9E-01*	*2.5E-02*	*1.5E-02*	*5.6E-01*	*1.7E+03*	*4.9E+01*
	3.7E+01	*7.6E+00*	*1.5E+03*	*3.0E+04*	*7.0E+02*	*2.9E+03*	*8.2E-02*	*1.3E+05*	*1.8E+05*	*1.2E+04*	*3.5E+04*	*8.4E+01*	*1.3E+01*	*8.9E+03*	*1.3E+04*	*4.2E+01*	*1.4E+03*	*5.0E-02*	*2.1E-01*	*1.7E-01*	*7.1E-03*	*4.2E-03*	*1.6E-01*	*4.8E+02*	*1.2E+01*
TX-118	1.2E+04	8.5E+01	4.3E+03	9.4E+04	7.9E+03	4.2E+04	9.4E-01	9.6E+05	1.3E+06	3.9E+04	3.4E+05	9.4E+03	1.5E+03	1.8E+05	1.7E+05	5.0E+02	1.6E+04	5.7E-01	2.3E+00	1.2E+00	4.9E-02	2.4E-02	1.1E+00	3.3E+03	1.4E+02
TOTALS	1.5E+04	6.5E+02	1.1E+05	2.4E+06	6.1E+04	1.8E+05	7.1E+00	7.9E+06	1.3E+07	8.8E+05	1.2E+06	1.8E+04	2.5E+03	1.2E+06	1.0E+06	3.8E+03	1.2E+05	3.9E+00	1.6E+01	1.6E+01	6.8E-01	3.4E-01	1.5E+01	4.6E+04	1.2E+03
241-TY Tank Farm																									
TY-101	1.6E-01	2.3E-03	9.5E+00	3.0E+00	1.0E+02	4.2E+01	3.1E-05	1.5E+03	1.8E+03	1.6E+02	9.6E+02	2.2E+00	2.1E-01	1.1E+02	6.9E+01	9.1E-02	8.2E+00	2.1E-07	1.0E-08	9.5E-03	4.2E-04	9.7E-05	9.7E-03	2.9E+01	4.8E+00
TY-102	4.5E+01	7.5E+00	6.2E+03	5.2E+04	7.8E+03	7.0E+03	1.3E-01	4.8E+05	6.9E+05	1.0E+05	3.2E+05	3.6E+02	3.6E+01	3.3E+05	5.0E+04	1.0E+02	5.4E+03	1.1E-01	4.4E-01	1.0E+01	4.6E-01	1.0E-01	1.1E+01	3.2E+04	6.1E+02
TY-103	2.7E-01	6.0E-02	1.7E+01	2.7E+02	1.3E+01	1.7E+01	7.2E-04	1.4E+03	1.8E+03	5.4E+02	9.3E+02	2.0E+00	2.1E-01	9.3E+02	1.2E+02	3.0E-01	1.8E+01	1.3E-03	5.3E-03	7.0E-02	3.1E-03	7.4E-04	7.1E-02	2.1E+02	2.8E+00
TY-104	4.4E-01	4.1E-02	9.2E+00	4.1E+02	1.8E+01	6.9E+01	2.8E-05	1.5E+03	1.7E+02	6.0E+02	1.0E+03	2.1E+00	2.1E-01	1.2E+03	6.8E+01	4.0E-01	8.2E+01	1.8E-06	9.0E-08	8.2E-02	3.6E-03	8.4E-04	8.3E-02	2.5E+02	2.3E+00
TY-105	3.7E-03	1.6E-03	1.7E+01	7.7E+01	1.5E+00	0.0E+00	4.0E-04	1.3E+03	2.1E+03	2.3E+02	1.4E+03	2.5E-01	2.1E-02	1.8E+03	2.3E+02	3.8E-01	9.4E+00	3.6E-07	1.9E-08	2.1E-02	9.2E-04	1.8E-04	2.1E-02	6.3E+01	0.0E+00
TY-106	4.1E-03	9.4E-03	1.2E+01	1.2E+02	1.2E+00	0.0E+00	3.9E-06	8.6E+02	1.4E+03	5.7E+01	4.8E+02	3.0E-01	2.6E-02	7.6E+02	1.4E+02	9.9E-01	1.9E+01	3.9E-07	2.1E-08	2.2E-02	9.8E-04	1.9E-04	2.2E-02	6.7E+01	5.2E+00
TOTALS	4.6E+01	7.6E+00	5.2E+03	5.3E+04	7.9E+03	7.2E+03	1.3E-01	4.9E+05	7.0E+05	1.0E+05	3.3E+05	3.7E+02	3.7E+01	3.3E+05	5.1E+04	1.0E+02	5.5E+03	1.1E-01	4.4E-01	1.1E+01	4.7E-01	1.1E-01	1.1E+01	3.2E+04	6.2E+02
241-U Tank Farm																									
U-101	2.8E-02	1.5E-02	2.8E+01	9.1E+02	3.9E+01	1.4E+01	2.1E-04	1.2E+03	1.2E+03	4.5E+02	4.3E+01	7.9E-01	4.7E-02	6.1E+03	2.5E+01	1.1E-01	2.0E+01	7.0E-07	2.8E-08	1.7E-02	7.3E-04	2.7E-04	1.7E-02	5.2E+01	8.6E-01
U-102	2.0E+02	3.3E+01	8.7E+03	2.9E+05	5.2E+03	6.0E+03	3.7E-01	3.9E+05	5.2E+05	9.8E+04	4.3E+04	5.7E+02	8.2E+01	4.0E+05	2.2E+04	2.0E+02	1.4E+04	7.4E-02	3.1E-01	5.7E+00	2.5E-01	9.4E-02	5.8E+00	1.7E+04	1.6E+02
U-103	1.7E+02	4.8E+01	9.9E+03	3.2E+05	6.7E+03	3.9E+03	5.0E-01	4.9E+05	5.2E+05	1.2E+05	5.4E+04	1.4E+02	2.4E+01	1.1E+05	3.1E+04	2.6E+02	1.9E+04	1.5E-01	6.0E-01	7.2E-01	3.1E-02	1.6E-02	7.0E-01	2.1E+03	9.3E+01
U-104	1.4E-01	2.4E-02	2.4E+01	6.2E+02	3.9E+01	4.4E+00	3.2E-04	9.5E+02	9.2E+02	3.3E+02	1.4E+01	3.0E+00	4.3E-01	2.1E+03	1.6E+01	1.7E-01	6.3E+00	2.3E-07	9.2E-09	5.5E-03	2.4E-04	8.7E-05	5.6E-03	1.7E+01	2.7E-01
U-105	8.8E+02	5.3E+01	9.4E+03	3.3E+05	5.3E+03	2.8E+03	7.0E-01	4.1E+05	6.4E+05	1.0E+05	2.6E+04	5.4E+02	9.1E+01	2.0E+04	3.7E+04	3.6E+02	4.0E+04	3.1E-01	1.3E+00	4.0E+00	1.8E-01	3.4E-02	4.0E+00	1.2E+04	7.4E+01
U-106	6.7E+02	6.0E+01	1.1E+04	4.5E+05	9.6E+03	4.0E+03	8.0E-01	5.2E+05	6.2E+05	1.5E+05	4.0E+04	5.9E+02	9.7E+01	1.2E+05	2.8E+04	4.1E+02	3.2E+04	1.5E-01	6.3E-01	6.0E-01	2.5E-02	1.4E-02	5.8E-01	1.7E+03	1.4E+02
U-107	1.0E+02	6.0E+01	9.2E+03	2.4E+05	6.3E+03	1.0E+03	9.9E-01	4.6E+05	7.5E+05	1.1E+05	8.3E+04	6.3E+02	9.1E+01	5.5E+03	6.2E+03	5.1E+02	4.3E+03	3.3E-02	1.4E-01	3.3E-01	1.4E-02	7.6E-03	3.2E-01	9.6E+02	3.0E+01

REFERENCE DATA:		
Residual Volume for 100 series tanks (kgal) =	2	
Residual Volume for 200 series tanks (kgal) =	1	
Risk Factor for RRA = 0 Tanks =	20	
TPA M-45 Tanks Highlighted in YELLOW		

Risk Category Adjustment for emptied tanks =	0.1	90% reduction in risk category
Dilution Factor =	1.1	10% water addition for transfers
Calculated standard deviations =	2.53	1σ
	7.00	2σ

1σ	=	2.53
2σ	=	7.4

COLUMNS K-AI. Contain the Before Staging Inventory Data and are HIDDEN

	BEFORE STAGING									AFTER STAGING																																						
TANK	RRA	Risk Category (w/RRA)	Risk Factor	Type	Capacity (kgal)	Waste Volume (kgal)	Supernatant Volume (kgal)	Sludge Volume (kgal)	Saltcake Volume (kgal)	NEW Risk Category	NEW Risk Factor	Consolidation Tank	Split (kgal)	Transfers	Waste Volume (kgal)	New/Old Volume	Supernatant Volume (kgal)	Sludge Volume (kgal)	Saltcake Volume (kgal)	241Am (Ci)	14C (Ci)	Cl (Ci)	137Cs (Ci)	Cr (kg)	F (kg)	129I (Ci)	Na (kg)	NO3 (kg)	NO2 (kg)	PO4 (kg)	239Pu (Ci)	240Pu (Ci)	90Sr (Ci)	SO4 (kg)	99Tc (Ci)	TOC (kg)	232U (Ci)	233U (Ci)	234U (Ci)	235U (Ci)	236U (Ci)	238U (Ci)	UTOTAL (kg)	Zr (kg)
U-106	6.12	0.41	194	DN	530	468	24	29	415	0.41	210	RECEIVER			507	1.1	30	61	415	2.6E+01	8.0E+01	1.2E+04	4.4E+05	9.5E+03	2.2E+03	8.6E-01	6.2E+05	7.0E+05	1.7E+05	2.4E+04	6.6E+02	1.1E+02	9.1E+04	3.4E+04	4.5E+02	1.4E+04	5.3E-02	2.2E-01	6.5E+00	2.5E-01	4.1E-01	4.7E+00	1.4E+04	3.6E+01
U-109	14.68	0.17	68	DN	530	262	0	35	357	0.17	90	RECEIVER			524	1.3	0	120	404	2.9E+01	4.2E+01	7.0E+03	2.5E+05	8.2E+03	3.8E+03	4.6E-01	4.0E+05	5.2E+05	1.0E+05	8.3E+04	2.2E+02	3.2E+01	1.4E+05	2.3E+04	2.4E+02	7.4E+03	9.2E-03	3.8E-02	4.3E-01	1.9E-02	6.3E-03	4.3E-01	1.3E+03	2.7E+01
U-110	0.00	20.00	3720	DN	530	165	0	186	0	2.00	4	U-102		1	2	0.0	0	2	0	9.6E-01	2.9E-03	1.4E+01	2.4E+02	5.8E+00	5.6E+01	1.1E-04	7.0E+02	4.4E+02	1.3E+02	2.9E+02	2.2E+00	2.9E-01	2.1E+03	1.3E+01	1.2E-01	1.3E+01	2.2E-05	8.9E-08	5.5E-02	2.4E-03	8.9E-04	5.6E-02	1.7E+02	1.4E+00
U-111	4.37	0.58	191	DSSF	530	329	0	26	303	0.08	0	U-106		1	4	0.0	0	0	4	2.2E+00	5.0E-01	1.0E+02	3.6E+03	9.2E+01	3.9E+01	7.1E-03	4.3E+03	5.2E+03	1.3E+03	4.0E+02	2.8E+00	4.3E-01	6.6E+02	2.4E+02	3.7E+00	1.0E+02	1.1E-03	4.5E-03	5.0E-03	2.1E-04	1.1E-04	4.9E-03	1.5E+01	5.8E-01
U-112	0.00	20.00	980	DN	530	49	4	45	0	2.00	4	U-103		1	2	0.0	0	2	0	9.8E-02	7.5E-03	7.5E+00	6.0E+02	5.2E+00	9.7E+01	9.6E-05	9.2E+02	7.4E+02	3.9E+01	7.3E+02	2.4E-01	2.2E-02	2.7E+03	4.4E+01	1.1E-01	1.6E+01	3.4E-07	1.4E-08	9.3E-03	4.0E-04	1.3E-04	9.4E-03	2.8E+01	1.4E+00
U-201	1.26	2.01	10	DN	55	5	1	4	0	0.20	0	U-106		1	1	0.2	0	1	0	6.6E-04	4.6E-04	2.9E+00	1.7E+02	4.3E+00	7.1E+00	8.3E-06	2.9E+02	1.7E+02	1.3E+02	2.4E+01	1.2E-02	1.6E-03	4.7E+01	4.4E+00	3.3E-03	5.9E+00	3.1E-07	1.2E-08	7.6E-03	3.2E-04	1.7E-04	7.4E-03	2.2E+01	7.7E-01
U-202	1.26	2.01	10	DN	55	5	1	4	0	0.20	0	U-106		1	1	0.2	0	1	0	6.4E-04	4.1E-04	2.5E+00	1.4E+02	3.7E+00	6.1E+00	5.6E-06	2.5E+02	1.5E+02	1.1E+02	2.1E+01	1.4E-02	2.0E-03	4.0E+01	3.8E+00	2.9E-03	5.0E+00	5.2E-09	2.1E-10	1.3E-04	5.5E-06	2.9E-06	1.2E-04	3.7E-01	6.6E-01
U-203	1.26	2.01	6	DN	55	3	1	2	0	0.20	0	U-108		1	1	0.3	0	1	0	1.2E-03	6.3E-04	3.7E+00	2.0E+02	5.2E+00	8.5E+00	8.7E-06	3.8E+02	2.3E+02	1.9E+02	2.9E+01	2.3E-02	3.2E-03	5.7E+01	5.8E+00	4.5E-03	5.6E-01	6.9E-09	2.7E-10	1.7E-04	7.1E-06	3.7E-06	1.6E-04	4.9E-01	9.1E-01
U-204	0.63	4.02	12	DN	55	3	1	2	0	0.40	0	U-108		1	1	0.3	0	1	0	3.1E-03	4.9E-04	3.4E+00	2.0E+02	1.6E+00	8.8E+00	6.7E-06	1.6E+02	1.9E+02	1.3E+02	1.6E+01	3.2E-01	4.5E-02	5.7E+01	3.5E+00	3.5E-03	2.9E+00	6.5E-08	3.4E-09	2.1E-03	8.9E-05	4.6E-05	2.0E-03	6.1E+00	2.2E-01
TOTALS			8717		6580	3231	71	537	2623	###	1.1E+01	1.1E+03	0.0E+00	#####	####	3.3E+03	1.2E+01	7.2E+01	5.7E+02	2.7E+03	2.1E+03	3.6E+02	6.7E+04	2.3E+06	5.1E+04	2.4E+04	4.7E+00	3.3E+06	4.3E+06	8.7E+05	3.4E+05	3.4E+03	5.3E+02	9.1E+05	1.8E+05	2.4E+03	1.3E+05	7.7E-01	3.2E+00	1.8E+01	7.7E-01	5.9E-01	1.7E+01	5.0E+04	5.7E+02
Columns K-AI are hidden (columns hold "pre staging" inventory data)															U-106	4																																

APPENDIX D: RRA Scores by Tank Farm

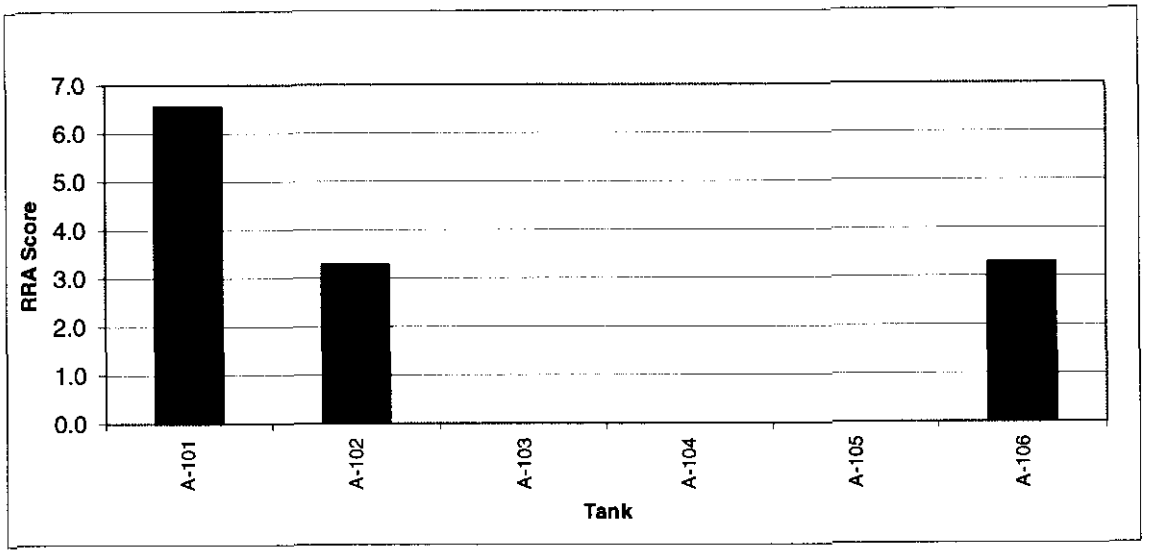

Figure D - 1. 241-A Tank Farm RRA Scores

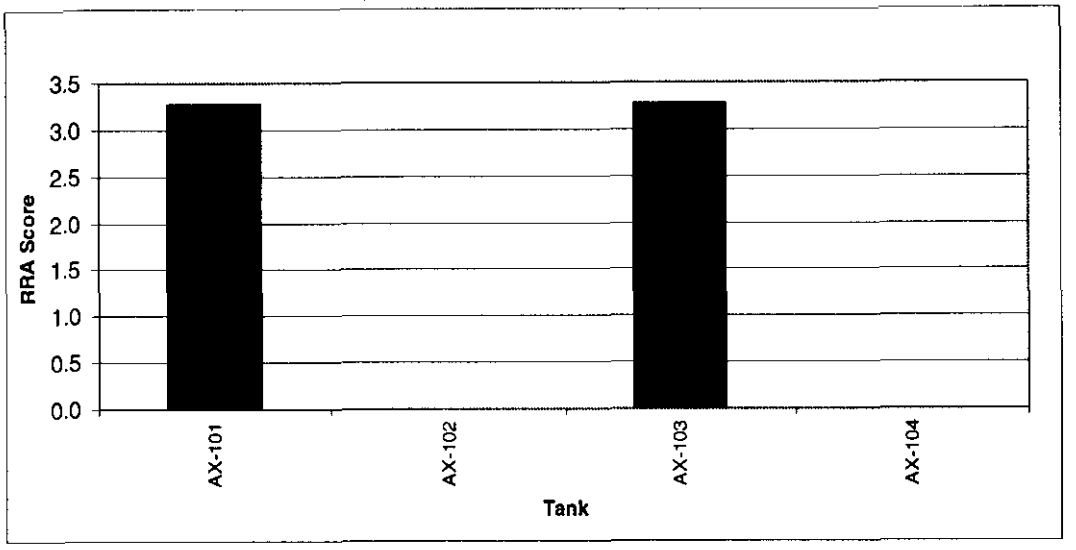

Figure D - 2. 241-AX Tank Farm RRA Scores

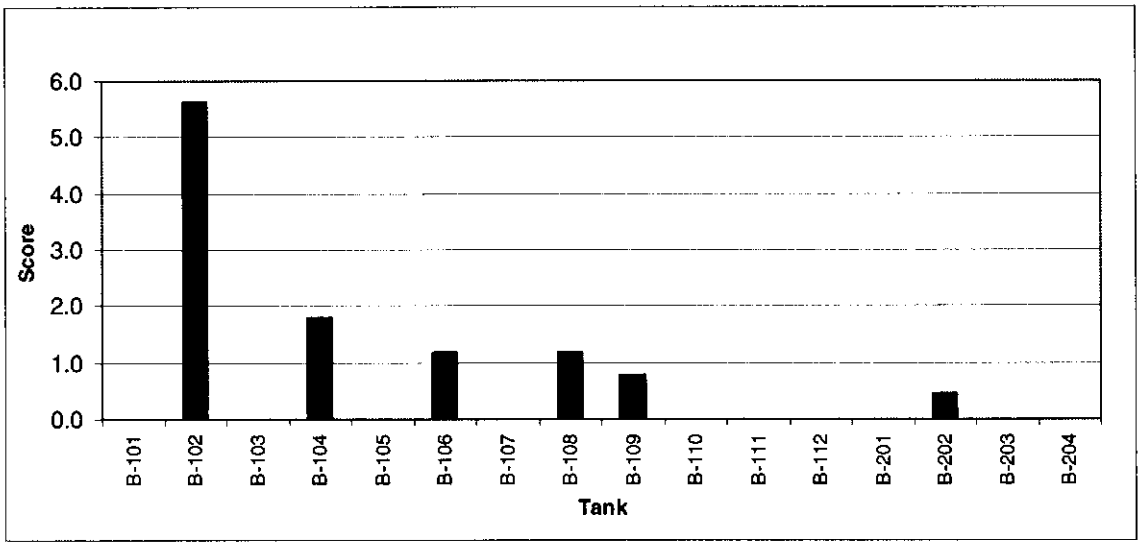

Figure D - 3. 241-B Tank Farm RRA Scores

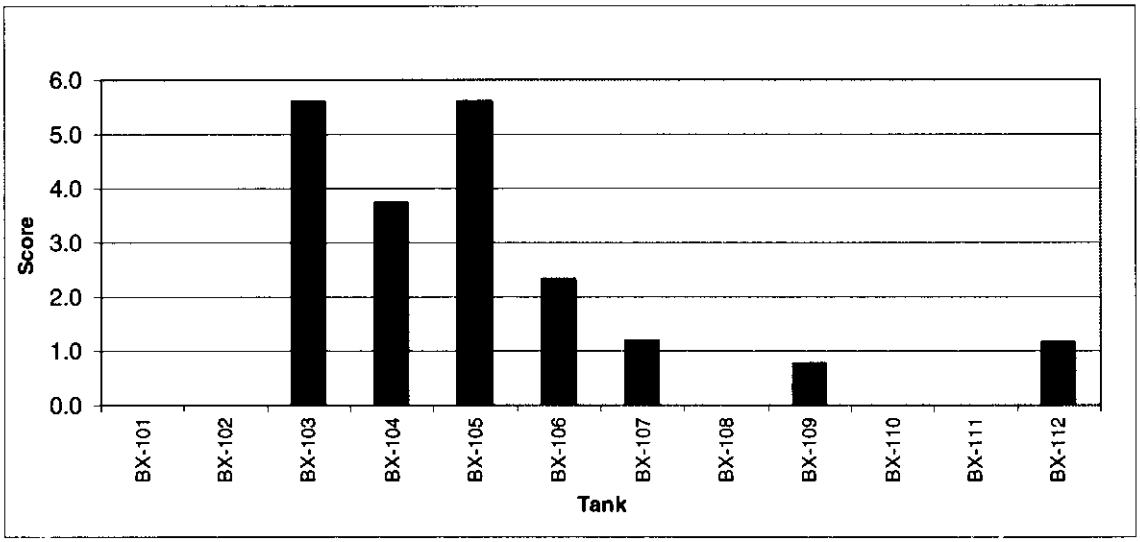

Figure D - 4. 241-BX Tank Farm RRA Scores

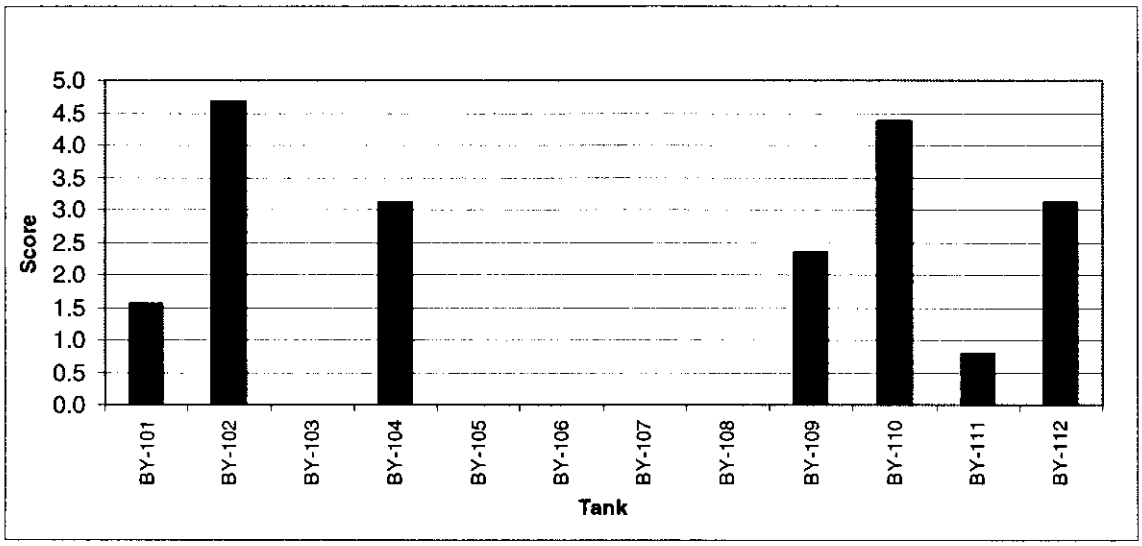

Figure D - 5. 241-BY Tank Farm RRA Scores

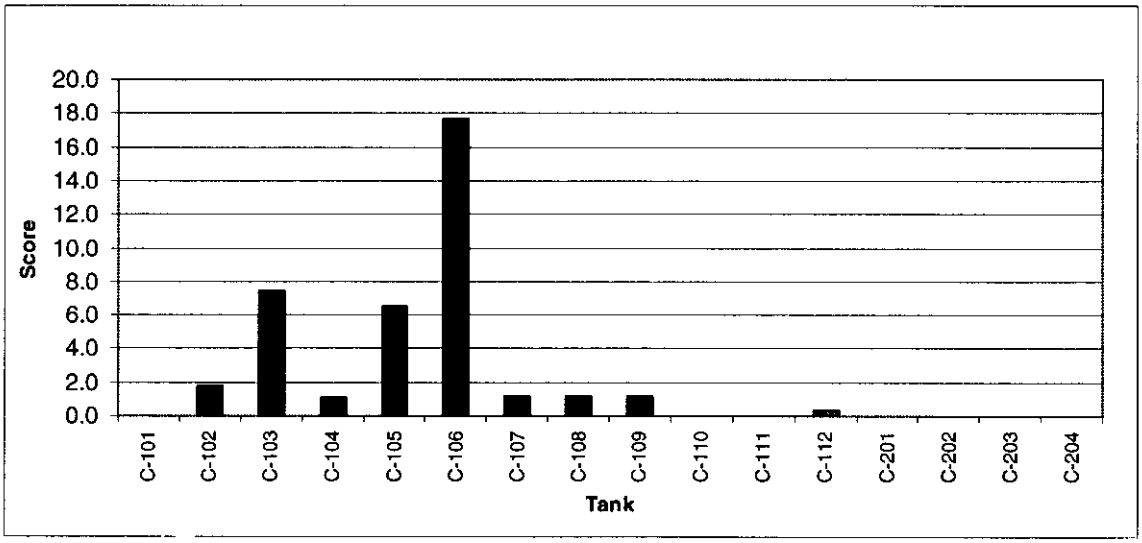

Figure D - 6. 241-C Tank Farm RRA Scores

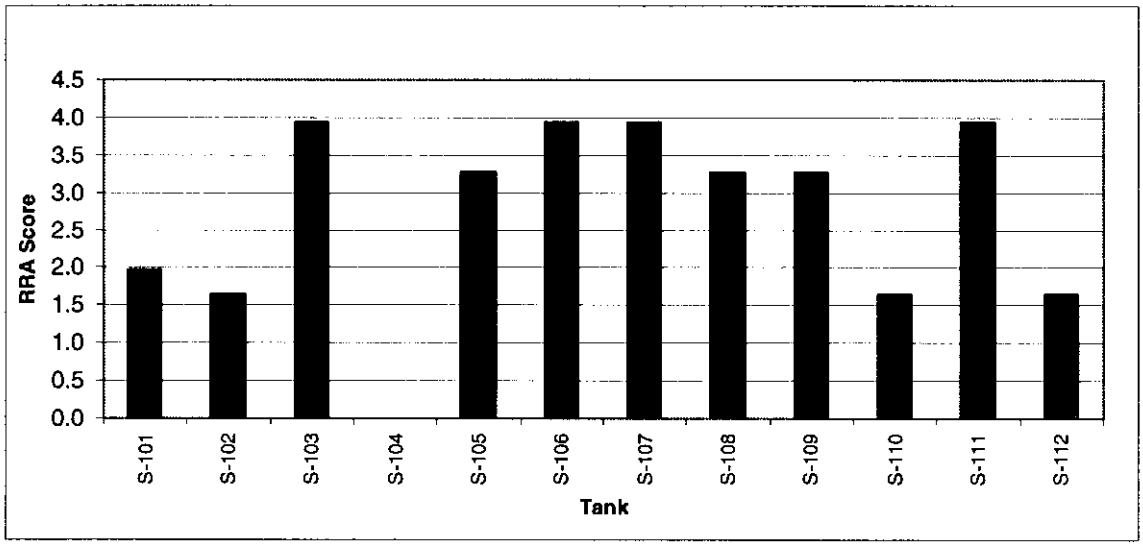

Figure D - 7. 241-S Tank Farm RRA Scores

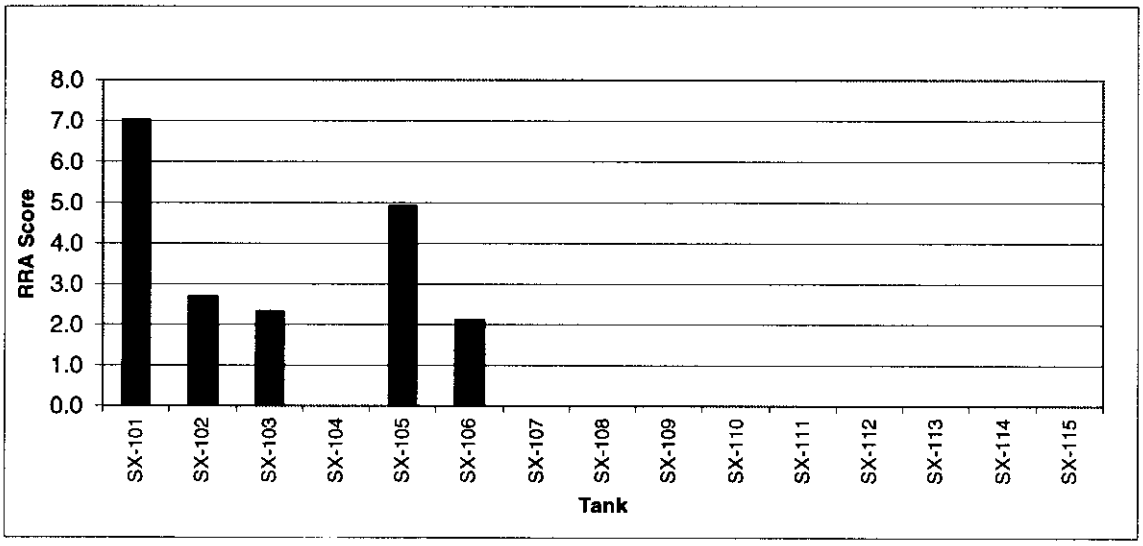

Figure D - 8. 241-SX Tank Farm RRA Scores

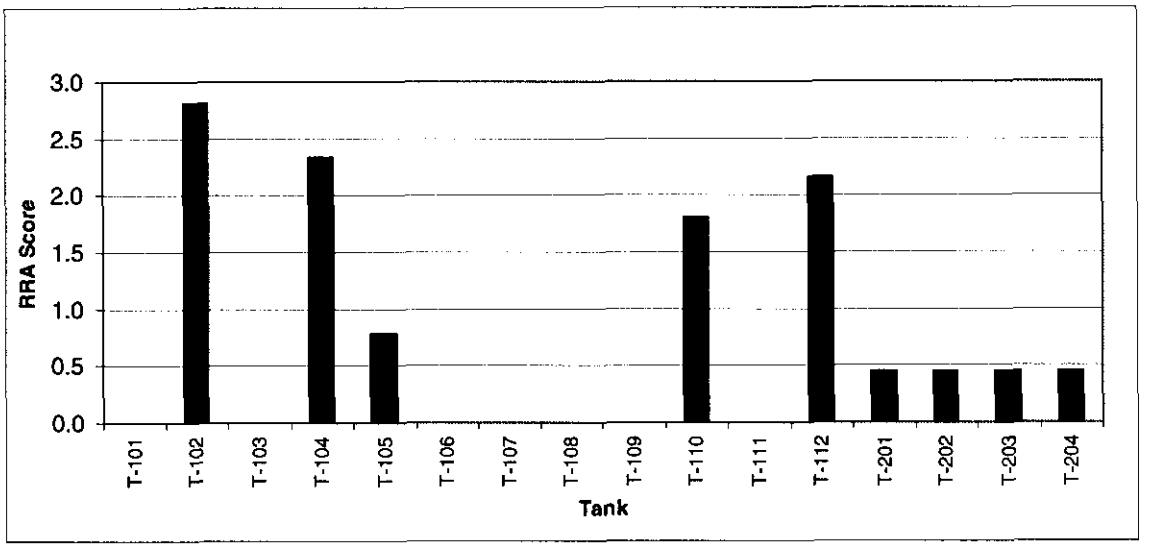

Figure D - 9. 241-T Tank Farm RRA Scores

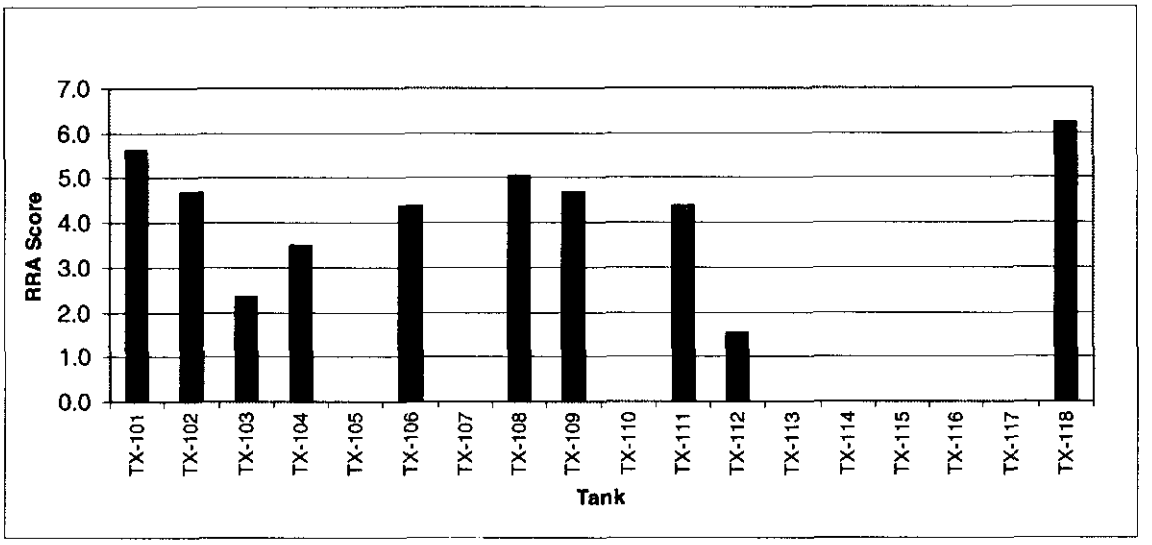

Figure D - 10. 241-TX Tank Farm RRA Scores

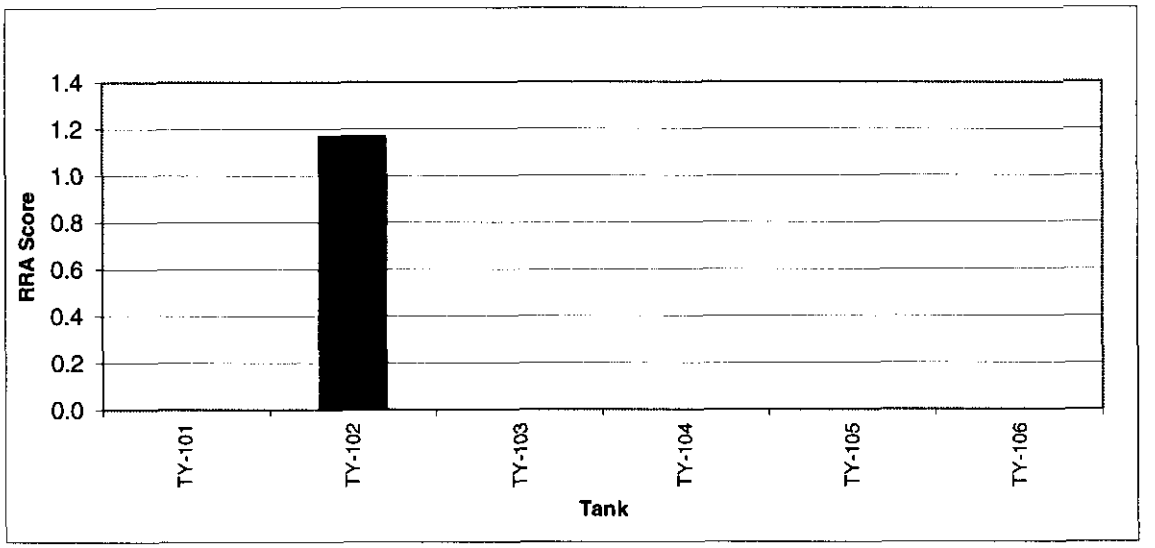

Figure D - 11. 241-TY Tank Farm RRA Scores

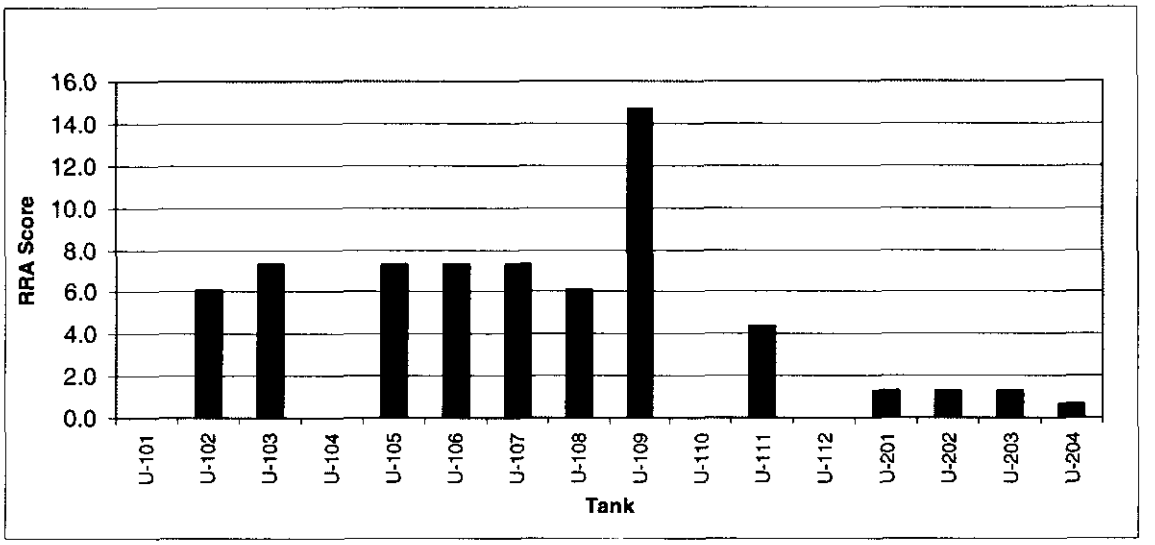

Figure D - 12. 241-U Tank Farm RRA Scores