WSRC-MS-2000-00104

Savannah River Site Waste Characterization System Database

J. R. Hester
Westinghouse Savannah River Company
Aiken, SC 29808

This document was prepared in conjunction with work accomplished under Contract No. DE-AC09-96SR18500 with the U.S. Department of Energy.

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1. Introduction

Information relating to the contents of Savannah River Site high level waste tanks is available from numerous and scattered sources. The Waste Characterization System (WCS) database consolidates this information and provides for the orderly weighing of contradictory information. WCS is a computerized system that tracks the inventory of selected chemicals and radionuclides in high level waste tanks. These inventories are applied to high level waste problems, including:

- Planning and scheduling high level waste system activities
- Calculating radiolytic heat loads and hydrogen generation rates
- Estimating source terms for accident analyses
- Estimating residual inventories for tank closure studies
- Reconstructing tank fill histories for waste removal planning

2. Summary

WCS resides on an SRS local network server. WCS inventories cover approximately ninety non-radioactive chemicals and forty radionuclides and are based on concentration estimates from sample analyses, process histories, composition studies, and theoretical relationships.

The intent of WCS is to consolidate waste characterization information, which now exists in multiple locations, and to estimate the most likely values of waste constituent inventories, which are based on the best-estimate compositions.

3. Discussion

3.1. Background

The Savannah River Site has 51 underground high level waste tanks in the F and H Area Tank Farms. Forty-two of these million-plus-gallon tanks currently contain stored waste. Three tanks have undergone waste removal, and six others are used to prepare waste for the Defense Waste Processing Facility (DWPF).

All but a small fraction of SRS high level waste originated in the 221-F and 221-H Canyons and was transferred to the tank farms as an alkaline sludge slurry. The bulk of the sludge settled, and the supernate was dewatered by evaporation to form saltcake. There were incidental transfers of resins from cesium removal columns and of sand and coal from backflushing reactor sand filters. One of DWPF feed preparation tanks contains an organic precipitate.

The following discussion covers how WCS treats major waste components (i.e., sludge, salt, supernate, organic precipitate, and miscellaneous materials).

3.2. Sludge

WCS tracks the inventory and composition of the sludge constituents listed in Table 1. The inventories and compositions of major sludge constituents are based on tank fill histories. Minor constituent inventories are based on compositions developed during the DWPF design. WCS sludge inventories are based on sludge transfers from the canyons to the tank farms and between tanks. This data is documented electronically in an Excel workbook with a spreadsheet corresponding to each tank. (For completeness, WCS includes tanks that did not receive sludge.)

These spreadsheets provide the following details about each sludge transfer:

- Date
- Source - canyon or tank
- Destination - tank
- Chemical Process - PUREX or SRS Modified PUREX (HM) Stream - High Heat Waste (HHW)*, Low Heat Waste (LHW), or Mixed
  *Waste from solvent extraction first cycle.
- Volume
- Major chemical compound weights - Fe(OH)3, NaAlO2, Ni(OH)2, and MnO2
- Major actinide weights - Th-232, U-233, U-234, U-235, U-236, U-238, Np-237, Pu-238, Pu-239, Pu-240, Pu-241, and Pu-242

WCS combines this information with data on minor chemical and radionuclide compositions to compute the quantity of each sludge constituent in each transfer. The overall inventory of each constituent in each tank is determined by combining the individual transfers (including intertank transfers). The concentration of each constituent is determined by dividing its inventory (expressed as a weight or activity) by the total weight of sludge in the tank. WCS sludge computations are described below and documented electronically in Excel workbooks.

WCS assumes that sludge is homogeneous, that it contains a nominal 70 volume percent interstitial liquid (supernate), and has a nominal bulk density of 1.95 pounds of dry solids per gallon of settled sludge (0.234 kilograms per liter).

3.2.1 Sludge Chemical Compound Inventory

WCS computes the sludge chemical compound inventory in a tank as follows:

1. The weight of each major compound (Al(OH)3, Fe(OH)3, Ni(OH)2, and MnO) in each canyon receipt is taken from the appropriate transfer spreadsheet (tank01.xls, etc.). (WCS reports aluminum as insoluble, Al(OH)3, instead of soluble NaAlO2 as reported previously in sludge transfer spreadsheets.)

2. The weight of each minor compound in each canyon receipt is determined by multiplying the weight of Fe(OH)3 by the

appropriate ratio from Table 2. (The weight ratios of minor compounds are known from analyses of sludge samples from the various waste streams. WCS uses Fe(OH)3 as a reference because it is more abundant in waste than Ni(OH)2, and MnO and because analyses for Fe(OH)3 are more reliable than for Al(OH)3, which is more soluble.)

3. The weight of each compound slurried to another tank is determined by summing the weights preceding the transfer and multiplying by the fraction of the sludge transferred.

4. The final inventory of each compound is determined by adding the canyon receipts, subtracting the transfers to other tanks, and adding the transfers from other tanks.

3.2.2. Example: Sludge Chemical Compound Inventory

1. Tank 1F received its first waste transfer in November 1954, consisting of PUREX mixed HAW/LAW and containing 79 kilograms Fe(OH)3, 95 kilograms MnO2, 9 kilograms NaAlO2, and 14 kilograms Ni(OH)2.

2. The weight of AgOH in the first transfer to Tank 1F is determined by multiplying the ratio of AgOH to Fe(OH)3 from the "PUREX Mixed" Column of Table 2 by 79 kilograms to obtain 0.428 kilograms AgOH. Other minor constituent weights are determined similarly. Tank 1F received 43 transfers from F Canyon between November 1954 and December 1966, which are treated as above. When summed, Tank 1F received 16,211 kilograms Fe(OH)3, 68.520 kilograms AgOH, and the indicated quantities of other components, for a total of 49,023 kilograms of sludge.

3. In May 1969, 77 percent of the sludge in Tank 1F was slurried out to Tank 7F removing 37,748 kilograms of sludge containing commensurate amounts of each constituent.

4. The final inventory in Tank 1F contains 3,729 kilograms Fe(OH)3, 15.760 kilograms AgOH, etc., totaling 11, 275 kilograms of sludge.

Table 3 summarizes the final inventory of sludge chemical compounds in each tank. This data resides electronically in and Excel spreadsheet, SlgNonRadInv.

3.2.3. Sludge Fission/Activation Product Inventory

WCS computes the inventory of fission/activation products (H-3 through Eu-154 in Table 1) in sludge using concentrations based on fission yield distributions in SRS reactor assemblies and solubility data.

The sludge fission/activation product inventory in a tank is computed as follows:

1. The original activity of each fission/activation product is determined for canyon receipts by multiplying the volume of the transfer by the appropriate concentration from Table 4.

2. The theoretical current activity of each fission/activation product in each canyon transfer is determined by decay calculation.

3. The activity of each fission/activation product in each slurry transfer to another tank is determined by summing the activities preceding the transfer and multiplying by the fraction of the sludge transferred.

4. The final inventory of each fission/activation product is determined by combining the canyon receipts and the transfers to or from other tanks.

3.2.4. Example: Sludge Fission/Activation Product Inventory

1. Tank 1F received 42,480 gallons of PUREX mixed HAW/LAW in its first waste transfer. The activity of Sr-90, for instance, in this transfer was 134,619 curies, obtained by multiplying the volume by 3.169 curies per gallon from the "PUREX Mixed" Column of Table 4. The activity of the other fission/activation products are determined similarly.

2. The theoretical current activity of Sr-90 in the first transfer to Tank 1F is 48,475 curies as of October 1996 by decay calculation. Again, the current activity of the other fission/activation products are determined similarly.

3. In all, the 43 transfers to Tank 1F contained a decay-corrected 3,028,075 curies Sr-90, etc. In May 1969, 77 percent of the sludge in Tank 1F was slurried out to Tank 7F removing a decay-corrected 2,331,618 curies Sr-90, etc.

4. Accordingly, the final decay-corrected fission/activation product inventory in Tank 1F is 696,457 curies Sr-90, etc.

Table 5 lists the sludge radionuclide inventories in each tank. This data resides electronically in an Excel spreadsheet, SlgRadInv.

3.2.5. Sludge Actinide Inventory

WCS computes the inventory of sludge actinides (U-232 through Cm-245 in Table 1) using a combination of the techniques used for cold chemicals and fission/activation products. The weights of the major actinides in each canyon transfer are known from canyon accountability records or process records. The concentrations of minor actinides have been estimated based on fission yield distributions in SRS reactor assemblies.

The sludge actinide inventory in a tank is computed as follows:

1. The original activity of each major actinide in each canyon receipt is determined by multiplying the weight of each actinide by its specific activity.

2. Canyon records do not cover U-232, Am-241, Am-242m, Cm-244, and Cm-245, so the activity of these minor actinides is computed by multiplying the volume of the transfer by the appropriate concentration from Table 4.

3. The theoretical current activity of each actinide in each canyon transfer is determined by decay calculation.

4. The activity of each actinide in each slurry transfer is determined by summing the activities preceding the transfer and multiplying by the fraction of the sludge transferred.

5. The final activity of each actinide is determined by combining the canyon receipts with the transfers to or from other tanks.

3.2.6. Example: Sludge Actinide Inventory

1. Tank 1F received 128,030 gallons of PUREX mixed HAW/LAW in its third transfer in January 1955. Taking Pu-241, for instance, this transfer contained 0.000623 kilograms. Originally, this transfer contained 64 curies Pu-241 (0.000623 kilograms * 1.030E05 curies per kilogram) or 8.57 curies in October 1996 accounting for decay. The activity of the other major actinides is determined similarly.

2. The activity of Am-241, for instance, in this transfer was 546 curies, obtained by multiplying the volume by 4.270E-03 curies per gallon from the "PUREX Mixed" Column of Table 4. The activity of other minor actinides is determined similarly. The theoretical current activity of the *original* Am-241 in Tank 1F is 511 curies. Because Pu-241 decays to Am-241, an additional 52 curies of ingrown Am-241 (iAm-241) is also present. Therefore, the current Am-241 activity in Tank 1F is 511 + 52 = 563 curies total.

3. Forty-three transfers to Tank 1F and one transfer to Tank 7F left a current inventory of 50 curies Pu-241 and 2,342 curies Am-241, including the original and ingrown sources.

Table 6 lists the sludge actinide inventory for each tank. This data resides electronically in and Excel spreadsheet, SlgRadInv.

3.3. Salt

WCS tracks the dry inventory of the salt compounds listed in Table 7. The salt compositions in the table are based on salt analyses. (The insoluble solids in Table 7 are taken to be sludge entrained in the salt.)

Saltcake has a bulk density of about 1.45 kilograms of dry solids per liter and contains 22 percent interstitial liquid by volume. Chemically, salt consists primarily of sodium salts.

WCS assumes that all of the radioactive constituents in saltcake are in entrained sludge or interstitial supernate, that is, the salt crystals themselves are composed of nonradioactive chemicals. WCS will be revised if future studies show that radionuclides constitute a significant proportion of salt crystals. Currently, WCS accounts for interstitial supernate but does not account for entrained sludge.

The salt inventory in a tank is computed as follows:

1. The overall salt weight is determined by multiplying the salt volume (from soundings or tank inspection) by the nominal density of salt, 1.45 kilograms of dry solids per liter.

2. The weight of each constituent is determined by multiplying the concentrations in Table 7 by the overall weight.

3.3.1. Example: Salt Inventory

1. Tank 25F contains 1,108,000 gallons (6,081,463 kilograms dry weight) of saltcake.

2. The inventory of CaSO4, for instance, in Tank 25F is 86 kilograms, using the weight fraction of 1.42E-05 from the "F Area" Column of Table 7. The inventory of the other salt compounds is determined similarly.

Table 8 lists the current salt dry weight inventories for each tank. This data resides in an Excel spreadsheet, SalInv.

3.4. Supernate

Chemically, supernate consists primarily of dissolved sodium salts in alkaline solution. Because of corrosion concerns, the concentrations of anions, such as hydroxide, nitrate, nitrite, and aluminate ions, are determined by regular analysis. WCS uses these concentrations to determine the tank-to-tank inventory of these anions.

On the other hand, analytical data for cations is sparse. Because of this sparsity, WCS uses solubility models to estimate cation inventories in the tanks. Although the concentrations derived from solubilities are only approximate, the overall inventory of most cations is little affected by any errors because, other than sodium and potassium, cations are fairly insoluble in an alkaline medium and most of them are tied up as sludge compounds.

Cs-137 is the predominant radionuclide in supernate because of its high solubility. Sr-90, which (like Cs-137) has a moderately half life, is insoluble, and other fission/activation products, such as Ru-106, have short half lives and have effectively decayed away.

Actinides are essentially insoluble, but even at low concentration, alpha-emitting actinides like Pu-238 and Np-237 are major dose contributors in supernate.

WCS assumes that supernate is homogeneous and that the concentration of each constituent is uniform. Under this assumption, the first step in computing the supernate inventory for a tank is to determine the volume of supernate as follows:

1. The partial volume of free supernate is determined by subtracting the interstitial sludge and salt volumes from the total volume.

2. The partial volume of interstitial supernate in salt is determined by multiplying the salt volume salt liquid fraction, 0.22.

3. The partial volume of interstitial supernate in sludge is determined by multiplying the sludge volume sludge liquid fraction, usually 0.7.

4. The total supernate volume is computed by summing the partial volumes.

3.4.1. Example: Supernate Volume

1. Tank 33F contains 419,094 gallons, with 227,000 gallons of salt and 39,000 gallons of sludge. By difference, the partial volume of free supernate is 153,094 gallons.

2. The partial volume of interstitial supernate in the salt in Tank 33F is 0.22 * 227,000 gallons = 49,940 gallons.

3. The partial volume of interstitial supernate in the sludge in Tank 33F is 0.7 * 39,000 gallons = 27,300 gallons.

4. Accordingly, the total supernate volume in Tank 33F is 230,334 gallons.

3.4.2. Supernate Ion Inventory

Supernate ions are either positive (cations) or negative (anions). There is extensive analytical data available on anions concentrations through Tank Chemistry (corrosion program) reports. Supernate samples are drawn at regular intervals and routinely analyzed for OH-, CO3-, AlO2-, NO2-, NO3-, F-, Cl-, PO4-, SO4-, and C2O4-. Data for cations and less common anions, such as chromate, is scarce, and less direct means are used to estimate their concentrations.

Sodium is the most abundant supernate cation, with concentrations ranging from about 5 to 20 moles per liter, which can be estimated

using the empirical relation:

Density (grams/milliliter) = 0.04413 [Na+] (moles/liter) + 1.010

3.4.3. Example: Supernate Na+ Concentration From Density Correlation

1. Tank 32H supernate has a specific gravity of 1.26.

2. The supernate Na+ concentration in Tank 32H is, therefore, (1.260 - 1.010)/0.04413 = 5.665 moles per liter (0.130 kilograms per liter).

Solubility data can be used to obtain a rough estimate of the concentration of limited solubility ions, such as iron. A simple linear regression fit of iron solubility data yields the following relation to the hydroxide concentration:

[Fe3+] (milligrams per liter) = 2.102 [OH-] (moles/liter) - 0.186

3.4.4. Example: Supernate Fe3+ Concentration From Solubility Data

1. Tank 32H has a supernate hydroxide concentration of 1.240 molar.

2. The supernate Fe3+ concentration in Tank 32H is, therefore, 1.240 * 2.102 - 0.186 = 2.420 milligrams per liter.

The supernate ion inventory in a tank is computed as follows:

1. The inventory of each ion in a tank is determined by multiplying the total supernate volume by the respective ion concentrations.

3.4.5. Example: Na+ and Fe3+ Inventory

1. Tank 32H contains 1,166,798 gallons (4,416,680 liters) of supernate.

2. The Na+ inventory in Tank 32H is 4,416,680 liters * 0.130 kilograms Na+ per liter = 575,224 kilograms Na+.

3. The Fe3+ inventory in Tank 32H is 4,416,680 liters * 2.420 milligrams Fe3+ per liter = 10.688 kilograms Fe3+. The inventory of other ions is determined similarly.

Analysis of Tank 32H supernate indicates, however, that the Fe3+ concentration is less than 0.2 milligrams per liter, which would yield an inventory of about 1 kilogram instead of more than 10 kilograms as above. This indicates a difficulty in modeling the data using solubilities. Therefore, WCS supernate cation inventory estimates must be used with caution.

(Errors in estimating the supernate inventories of low solubility constituents, such as Fe3+, do not significantly impact overall tank estimates because these constituents reside primarily in sludge. Errors in other constituents are a problem, however, because they are highly soluble, i.e., potassium, or they are toxic, i.e., mercury, and are important even at low concentration.

Table 9 lists the inventory of supernate cations, and Table 10 lists the inventory of supernate anions for each tank. This data resides in an Excel spreadsheet, SupInv.

3.4.6. Supernate Fission/Activation Product Inventory

A recent study has shown that Cs-137/Ba-137m contribute approximately 99% of the activity in aged supernate; therefore, WCS tracks only Cs-137/Ba-137m in supernate.

The supernate Cs-137/Ba-137m inventory for a tank is computed as follows:

1. The curie concentration of Ba-137m in the supernate is inferred from the gross gamma concentration determined by sample analysis. (See example below.)

   Ba-137m emits a strong gamma, which accounts for essentially all the gamma in aged supernate. Cs-137 is in equilibrium with Ba-137m in a ratio of 1:0.946, so the Cs-137 beta concentration is determined by ratio with the (measured) Ba-137m gamma concentration.

2. The Cs-137/Ba-137m inventory is determined by multiplying the concentration by the supernate volume.

3.4.7. Example: Cs-137/Ba-137m Inventory

1. Tank 34F supernate contains 3.1374 curies Ba-137m per gallon. The corresponding Cs-137 concentration is 3.1374 curies per gallon ÷ 0.946 = 3.3165 curies per gallon.

2. Tank 34F contains 3.1374 curies Ba-137m per gallon * 1,084,773 gallons = 3,403,367 curies Ba-137m and 3,597,639 curies Cs-137.

Table 11 lists the inventory of supernate fission/activation products for each tank. This data resides in an Excel spreadsheet, SupInv.

3.4.8. Supernate Actinide Inventory

The supernate actinide (U-232 through Cm-245 in Table 12) inventory for a tank is computed as follows:

1. The curie ratio of each actinide to alpha in the supernate is determined from the actinide to alpha curie ratio in the *sludge*. This assumes that the supernate actinide isotopic assay is identical to that in the underlying sludge and that the actinides are equally soluble.

2. The supernate concentration of each actinide is determined by multiplying the respective curie ratios by the *supernate* total alpha concentration determined from sample analysis.

3. The supernate inventory of each actinide is determined by multiplying its respective concentration by the supernate volume.

Example: Tank 35H Pu-238 Inventory

1. Tank 35H sludge contains 389,723 curies Pu-238 and 573,275 curies total alpha from Table 6. The curie fraction of Pu-238 to total alpha in Tank 35H is 0.681.

2. By averaging the alpha concentrations of similar tanks, Tank 35H supernate contains approximately 7.10E-03 curies total alpha per gallon * 0.681 = 0.00484 curies Pu-238 per gallon.

3. The Pu-238 inventory in Tank 35H supernate is 0.00484 curies Pu-238 per gallon * 1,209,651 gallons = 5853 curies Pu-238. The inventory of other actinides in other tanks is determined similarly.

Table 12 lists the inventory of supernate actinides for each tank. This data resides in an Excel spreadsheet, SupInv.

3.5. Precipitate

Currently, WCS contains data only on Cs-137/Ba-137m and Pu-238 in Tank 48H, the primary ITP process tank. Information on chemical constituents, such as tetraphenylborate, is not yet available on the system.

The Cs-137/Ba-137m inventory is taken from pre-precipitation analysis that showed gross gamma at 0.86 curies per gallon in 442,000 gallons of supernate, which is equivalent to 0.86 * 442,000 = 380,120 curies of Ba-137m and 401,818 curies of Cs-137, using the ratio of 1:0.946 for Cs-137/Ba-137m.

The Pu-238 inventory is taken from an analysis that showed a total alpha inventory of 1350 curies in Tank 48H with and isotopic assay of 99.8 percent Pu-238.

3.6. Miscellaneous Materials

WCS tracks sand and coal from backflushing reactor sand filters in Tank 7F; resin (primarily Zeolite) from Cesium Removal Column (CRC) drops in Tanks 19F, 24H, 25F, 27F, 32H, and 42H; and Zeolite from RBOF transfers in Tank 23H.

The sand and coal inventories in Tank 7F are from a waste composition study, resin inventories in Tanks 19F, 24H, 25F, 27F, 32H, and 42H are from monthly data reports, and the Zeolite inventory in Tank 23H is from a special composition study.

WCS data on miscellaneous materials in the tanks resides in an Excel spreadsheet, MiscInv.

3.7. Applications And Uncertainties

WCS inventories are best-estimates of the most likely values of constituent, based on available waste composition. The uncertainties in WCS inventories have not been evaluated quantitatively; therefore, engineering judgment is required when applying the estimates.

Sludge major chemical and actinide inventories, which are based on separations historical records, should be reliable except that evaporator system tank inventories need to be corrected to account for small amounts of entrained sludge. Sludge minor constituent inventories are probably accurate only within a factor of three, perhaps greater.

The principal uncertainty in salt inventories is the assumed bulk density. The observed bulk density of dry salt ranges from 1.2 - 1.7 kilograms per liter, and WCS uses the average value of these values, 1.45 kilograms per liter. Changing this value will affect the saltcake inventory, but not its composition.

Analytical results for major constituents in supernate samples should be reliable, but unfortunately, little data is available on the variability of supernate composition within a tank. A statistical study of Tank 48H, which is a well-mixed ITP precipitate tank, showed an uncertainty of about 36% in the Cs-137 concentration. As a rough estimate, supernate major constituent inventories in ordinary tanks are probably accurate within a factor of two.

WCS estimates have undergone considerable technical and peer review, and they continue to be improved and refined. Also, new information is being constantly developed that will help resolve the uncertainties and improve the estimates.

Table 1. Sludge Constituents

Chemical Compounds	Radiochemicals
AgOH	H-3
Al(OH)3	C-14
BaCO3	Co-60
BaSO4	Ni-59
Ca3(PO4)2	Ni-63
CaC2O4	Se-79
CaCO3	Sr-90
CaF2	Y-90
CaSO4	Nb-94
Ce(OH)3	Tc-99
Co(OH)3	Ru-106
Cr(OH)3	Rh-106
Cu(OH)2	Sb-125
Fe(OH)3	Sn-126
HgO	I-129
KNO3	Cs-134
KOH	Cs-135
La(OH)3	Cs-137
Mg(OH)2	Ba-137m
MnO2	Ce-144
Na2C2O4	Pr-144
Na2SO4	Pm-147
Na3PO4	Eu-154
NaCl	U-232
NaF	Th-232
NaI	U-233
NaNO3	U-234
NaOH	U-235
Ni(OH)2	U-236
PbCO3	U-238
PbSO4	Np-237
Pr(OH)3	Pu-238
RuO2	Pu-239
SiO2	Pu-240
SrCO3	Pu-241
ThO2	Pu-242
UO2(OH)2	Am-241
Zn(OH)2	Am-242m
ZrO(OH)2	Cm-244
TiO2 (Tank 23H)	Cm-245

Table 2. Sludge Chemical Compositions

Assumed Species	HM HAW (wt. frac.)	HM LAW (wt. frac.)	HM Mixed (wt. frac.)	PUREX HAW (wt. frac.)	PUREX LAW (wt. frac.)	PUREX Mixed (wt. frac.)
AgOH	0.000E+00	0.000E+00	0.000E+00	7.230E-04	3.600E-03	2.611E-03
Al(OH)3	6.703E-01	2.063E-01	6.198E-01	6.500E-02	1.389E-01	1.135E-01
BaCO3	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BaSO4	1.364E-03	2.229E-03	1.458E-03	8.001E-03	3.083E-03	4.773E-03
Ca3(PO4)2	8.980E-04	0.000E+00	8.002E-04	3.295E-03	1.928E-03	2.398E-03
CaC2O4	2.161E-02	0.000E+00	1.926E-02	0.000E+00	0.000E+00	0.000E+00
CaCO3	0.000E+00	4.553E-02	4.960E-03	2.769E-02	5.448E-02	4.527E-02
CaF2	0.000E+00	0.000E+00	0.000E+00	3.948E-04	3.373E-03	2.349E-03
CaSO4	0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.662E-03	4.372E-03
Ce(OH)3	5.471E-04	1.193E-02	1.787E-03	2.621E-03	3.535E-03	3.221E-03
Co(OH)3	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.579E-04	1.692E-04
Cr(OH)3	2.279E-03	1.559E-03	2.200E-03	6.853E-03	4.336E-03	5.201E-03
Cu(OH)2	4.929E-04	4.027E-04	4.831E-04	1.549E-03	2.387E-03	2.099E-03
Fe(OH)3	1.018E-01	4.602E-01	1.408E-01	4.852E-01	4.800E-01	4.818E-01
HgO	3.012E-02	2.152E-02	2.918E-02	2.428E-03	6.902E-04	1.287E-03
KNO3	2.227E-03	1.809E-03	2.181E-03	2.484E-03	8.769E-03	6.609E-03
KOH	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
La(OH)3	4.388E-04	3.587E-03	7.818E-04	1.182E-03	2.126E-03	1.802E-03
Mg(OH)2	2.695E-03	6.293E-03	3.087E-03	5.840E-03	2.072E-03	3.367E-03
MnO2	2.608E-02	1.184E-01	3.614E-02	1.211E-01	4.213E-02	6.926E-02
Na2C2O4	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Na2SO4	3.243E-03	0.000E+00	2.890E-03	0.000E+00	0.000E+00	0.000E+00
Na3PO4	2.972E-04	0.000E+00	2.648E-04	0.000E+00	0.000E+00	0.000E+00
NaCl	0.000E+00	1.441E-02	1.570E-03	2.059E-03	2.079E-02	1.435E-02
NaF	2.376E-03	0.000E+00	2.118E-03	0.000E+00	0.000E+00	0.000E+00
NaI	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.826E-04	2.511E-04
NaNO3	3.257E-02	3.454E-03	2.939E-02	1.339E-02	1.573E-02	1.493E-02
NaOH	1.351E-02	3.285E-02	1.562E-02	5.083E-02	4.691E-02	4.826E-02
Ni(OH)2	1.012E-02	6.767E-03	9.754E-03	5.786E-02	3.447E-02	4.251E-02
PbCO3	0.000E+00	6.502E-04	7.084E-05	4.894E-03	0.000E+00	1.682E-03
PbSO4	1.174E-04	5.660E-03	7.213E-04	1.055E-03	3.793E-03	2.852E-03
Pr(OH)3	4.371E-04	2.383E-03	6.490E-04	1.178E-03	2.118E-03	1.795E-03
RuO2	3.170E-04	0.000E+00	2.824E-04	3.795E-03	6.823E-03	5.782E-03
SiO2	4.682E-02	0.000E+00	4.172E-02	9.605E-03	1.885E-02	1.567E-02
SrCO3	6.379E-04	4.381E-04	6.162E-04	2.728E-03	1.129E-03	1.678E-03
ThO2	1.315E-02	1.094E-03	1.183E-02	7.653E-04	7.863E-05	3.147E-04
UO2(OH)2	1.252E-02	4.708E-02	1.628E-02	1.093E-01	7.785E-02	8.865E-02
Zn(OH)2	4.878E-04	0.000E+00	4.347E-04	2.336E-03	4.726E-03	3.905E-03
ZrO(OH)2	2.547E-03	5.415E-03	2.859E-03	5.950E-03	8.024E-03	7.311E-03
TiO2	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Zeolite	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
H2O	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Table 3. Sludge Cold Chemical Inventories (October 1996)

Assumed Species	AgOH (kg)	Al(OH)3 (kg)	BaCO3 (kg)	BaSO4 (kg)	Ca3(PO4)2 (kg)	CaC2O4 (kg)	CaCO3 (kg)	CaF2 (kg)	CaSO4 (kg)	Ce(OH)3 (kg)	Co(OH)3 (kg)	Cr(OH)3 (kg)	Cu(OH)2 (kg)	Fe(OH)3 (kg)	HgO (kg)	KNO3 (kg)	KOH (kg)	La(OH)3 (kg)	Mg(OH)2 (kg)	MnO2 (kg)
Tank 1F	17	1320	0	42	20	0	320	15	26	24	1	43	15	3729	12	44	0	13	90	1878
Tank 2F	4	64	0	5	3	0	62	4	7	4	0	6	3	594	1	10	0	2	3	490
Tank 3F	7	125	0	8	5	0	110	6	13	7	0	10	5	1051	2	17	0	4	6	1038
Tank 4F	49	6667	0	322	137	0	1378	95	40	121	2	286	73	21300	96	147	0	58	234	6492
Tank 5F	126	3854	0	248	123	0	2230	113	209	160	8	265	104	24201	67	322	0	89	175	5455
Tank 6F	15	6273	0	166	66	0	576	8	0	54	0	142	32	10086	50	52	0	25	121	2381
Tank 7F	1232	89232	0	1187	712	0	18942	1149	2255	1244	87	1691	836	171211	277	3013	0	741	606	31030
Tank 8F	460	38225	0	603	329	0	7437	423	814	508	31	723	335	72344	153	1141	0	293	418	6715
Tank 9H	4	61	0	4	2	0	59	8	7	4	0	6	3	563	1	9	0	2	3	449
Tank 10H	1	13	0	1	0	0	10	1	1	1	0	1	0	97	0	2	0	0	1	119
Tank 11H	0	56585	0	287	136	3262	1664	0	0	518	0	401	89	32181	5332	402	0	197	637	3832
Tank 12H	72	76110	0	363	230	4374	1148	67	129	188	5	566	151	31526	6117	629	0	134	605	23077
Tank 13H	104	91712	0	1172	206	2638	18440	93	173	4554	7	1056	291	199837	11593	1195	0	1436	2764	25809
Tank 14H	1	657	0	16	6	20	72	1	0	12	0	14	3	1163	45	7	0	4	16	1116
Tank 15H	0	86573	0	285	150	3618	1168	0	0	398	0	421	93	28848	5594	419	0	165	613	6644
Tank 16H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 17F	34	1469	0	29	18	0	521	32	64	34	2	41	28	4590	7	84	0	20	28	177
Tank 18F	55	2798	0	47	30	0	835	52	102	54	4	86	37	7360	11	134	0	33	32	284
Tank 19F	11	464	0	10	6	0	170	11	21	11	1	14	7	1496	2	27	0	7	6	57
Tank 20F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 21H	0	292	0	22	0	1	446	0	0	117	0	15	4	4510	213	13	0	35	62	4
Tank 22H	0	450	0	46	0	0	938	0	0	246	0	32	8	9479	443	37	0	74	130	0
Tank 23H	0	0	0	0	0	0	0	0	0	0	0	129	0	34085	0	0	0	0	103	175
Tank 24H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 25F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 26F	503	43114	0	431	270	0	7618	472	932	494	36	606	334	67112	97	1226	0	297	290	5296
Tank 27F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 28F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 29H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 30H	0	334	0	1	1	14	0	0	0	0	0	2	0	68	20	1	0	0	2	30
Tank 31H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 32H	0	69406	0	595	374	8989	558	0	0	374	0	987	210	47980	12791	948	0	225	1198	5678
Tank 33F	21	4055	0	234	96	0	811	12	0	77	0	201	45	14204	71	73	0	35	171	0
Tank 34F	33	6403	0	366	151	0	1273	18	0	121	0	315	71	22305	112	114	0	54	268	9
Tank 35H	0	44934	0	449	292	7027	0	0	0	178	0	741	160	33039	9794	724	0	143	876	4568
Tank 36H	0	101	0	0	0	4	0	0	0	0	0	0	0	21	6	0	0	0	1	7
Tank 37H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 38H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 39H	0	54932	0	150	99	2379	0	0	0	80	0	251	54	11203	3315	245	0	48	297	5003
Tank 40H	559	29417	0	548	304	0	9853	533	1052	885	41	728	368	88422	899	1434	0	434	500	2928
Tank 41H	0	105	0	8	0	0	155	0	0	43	0	6	1	1673	78	7	0	13	28	0
Tank 42H	403	15710	0	605	287	1711	9209	878	746	1254	29	772	334	93230	3332	1281	0	518	875	5225
Tank 43H	0	2571	0	177	0	0	3613	0	0	946	0	124	32	36518	1708	144	0	285	499	109
Tank 44F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 45F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 46F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 47F	464	36593	0	397	248	0	7021	435	859	456	33	559	308	51857	89	1130	0	274	267	4495
Tank 48H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 49H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 50H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 51H	819	41870	0	758	436	3	13553	782	1505	3125	58	1022	558	121025	748	2031	0	578	540	4196

Table 3. Sludge Cold Chemical Inventories (October 1996) (CONTINUED)

Assumed Species	Na2C2O4 (kg)	Na2SO4 (kg)	Na3PO4 (kg)	NaCl (kg)	NaF (kg)	NaI (kg)	NaNO3 (kg)	NaOH (kg)	Ni(OH)2 (kg)	PbCO3 (kg)	PbSO4 (kg)	Pr(OH)3 (kg)	RuO2 (kg)	SiO2 (kg)	SrCO3 (kg)	ThO2 (kg)	UO2(OH)2 (kg)	Zn(OH)2 (kg)	ZrO(OH)2 (kg)	TiO2 (kg)
Tank 1F	0	0	0	90	0	2	113	377	1194	18	19	13	41	111	16	0	1679	28	54	0
Tank 2F	0	0	0	22	0	0	19	59	105	1	4	2	8	22	2	0	77	5	10	0
Tank 3F	0	0	0	39	0	1	34	104	204	2	7	4	14	38	3	0	193	10	17	0
Tank 4F	0	0	0	203	0	2	603	2211	10898	186	53	57	185	478	110	0	12747	117	274	0
Tank 5F	0	0	0	690	0	12	746	2430	5463	92	139	89	285	772	67	0	9484	192	364	0
Tank 6F	0	0	0	48	0	0	278	1057	7140	102	22	24	79	200	57	0	9484	49	124	0
Tank 7F	0	0	0	7076	0	130	5568	16794	7286	88	1808	738	2378	5554	431	0	85017	1642	2823	0
Tank 8F	0	0	0	2597	0	47	2300	7187	6850	136	493	292	941	2574	215	0	26443	643	1148	0
Tank 9H	0	0	0	21	0	0	18	56	100	1	4	2	7	20	2	0	112	5	9	0
Tank 10H	0	0	0	4	0	0	3	10	22	0	1	0	1	4	0	0	22	1	2	0
Tank 11H	0	489	45	527	958	0	5041	3240	476	24	225	158	48	7067	112	148	247	74	562	0
Tank 12H	0	656	60	409	481	7	6941	3813	4026	17	101	133	289	9873	160	14812	2632	198	694	0
Tank 13H	0	396	38	5837	290	10	5833	15582	4572	306	2198	985	269	6339	305	2055	7068	215	2581	0
Tank 14H	0	3	0	12	2	0	55	116	256	8	5	8	7	60	5	110	303	4	15	0
Tank 15H	0	543	50	370	398	0	5541	3104	26	17	165	134	53	7638	118	11772	51	82	569	0
Tank 16H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 17F	0	0	0	199	0	4	150	448	0	0	36	20	65	180	11	0	320	48	77	0
Tank 18F	0	0	0	319	0	6	241	719	0	0	58	32	105	289	17	0	583	72	123	0
Tank 19F	0	0	0	65	0	1	49	146	0	0	12	7	21	59	4	0	70	15	25	0
Tank 20F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 21H	0	0	0	141	0	0	36	322	0	6	55	23	0	3	4	0	8	0	98	0
Tank 22H	0	0	0	297	0	0	71	677	0	13	117	49	0	0	9	0	38	0	112	0
Tank 23H	0	646	0	0	0	0	494	0	0	0	0	0	0	2285	0	0	0	346	0	49
Tank 24H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 25F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 26F	0	0	0	2807	0	54	2199	6559	0	0	530	296	954	2636	158	0	7694	661	1122	0
Tank 27F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 28F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 29H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 30H	0	2	0	0	2	0	22	9	0	0	0	0	0	31	0	0	0	0	2	0
Tank 31H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 32H	0	1349	124	177	988	0	13588	6022	1394	8	118	211	132	19478	271	0	107	203	1126	0
Tank 33F	0	0	0	60	0	0	392	1488	6628	143	31	34	111	281	80	0	32805	68	174	0
Tank 34F	0	0	0	95	0	0	618	2337	10345	225	49	54	174	442	125	0	30660	107	274	0
Tank 35H	0	1055	97	0	778	0	10590	4393	2217	0	38	142	103	15225	207	0	150	159	828	0
Tank 36H	0	1	0	0	0	0	7	3	0	0	0	0	0	10	0	0	0	0	1	0
Tank 37H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 38H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 39H	0	357	33	0	262	0	3584	1467	0	0	13	48	35	5153	70	0	61	54	280	0
Tank 40H	0	0	0	3679	0	60	2579	8310	0	18	754	400	1078	2577	190	0	6157	746	1416	0
Tank 41H	0	0	0	52	0	0	13	119	0	2	21	9	0	0	2	0	0	0	20	0
Tank 42H	0	257	24	8312	188	43	4574	8565	12	44	821	434	769	5617	207	5540	4399	568	1470	0
Tank 43H	0	0	0	1144	0	0	274	2867	0	52	449	189	0	0	95	0	36	0	430	0
Tank 44F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 45F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 46F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 47F	0	0	0	2580	0	49	2027	6045	0	0	489	273	879	2429	145	0	5617	509	1034	0
Tank 48H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 49H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 50H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 51H	0	0	0	5091	0	86	3652	11497	0	19	1012	544	1542	4265	267	0	8755	1068	1961	0

Table 4. Fresh Waste Sludge Radionuclide Compositions

Species	HM HAW (Ci/gal)	HM LAW (Ci/gal)	HM Mixed (Ci/gal)	PUREX HAW (Ci/gal)	PUREX LAW (Ci/gal)	PUREX Mixed (Ci/gal)
H-3	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
C-14	7.820E-08	0.000E+00	5.474E-08	0.000E+00	7.690E-08	3.845E-08
Co-60	3.720E-01	2.180E-02	2.669E-01	2.440E-01	1.490E-03	1.227E-01
Ni-59	8.560E-05	4.510E-06	6.127E-05	8.560E-05	4.510E-06	4.506E-05
Ni-63	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Se-79	4.710E-05	3.500E-06	3.402E-05	6.130E-05	3.730E-07	3.084E-05
Sr-90	6.000E+00	4.465E-01	4.334E+00	6.300E+00	3.835E-02	3.169E+00
Y-90	6.000E+00	4.465E-01	4.334E+00	6.300E+00	3.835E-02	3.169E+00
Nb-94	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Tc-99	7.980E-04	5.920E-05	5.764E-04	1.060E-03	6.470E-06	5.332E-04
Ru-106	6.200E+00	4.590E-01	4.478E+00	3.430E+01	2.090E-01	1.725E+01
Rh-106	6.200E+00	4.590E-01	4.478E+00	3.430E+01	2.090E-01	1.725E+01
Sb-125	7.120E-01	5.280E-02	5.142E-01	2.580E+00	1.570E-02	1.298E+00
Sn-126	4.310E-05	3.200E-06	3.113E-05	1.140E-04	6.930E-07	5.735E-05
I-129	2.760E-09	2.050E-10	1.994E-09	5.050E-09	3.070E-11	2.540E-09
Cs-134	3.850E-01	2.860E-02	2.781E-01	7.250E-02	4.410E-04	3.647E-02
Cs-135	5.273E-07	3.910E-08	3.809E-07	7.014E-07	4.270E-09	3.528E-07
Cs-137	3.160E-01	2.343E-02	2.283E-01	4.203E-01	2.559E-03	2.115E-01
Ba-137m	2.990E-01	2.217E-02	2.159E-01	3.977E-01	2.421E-03	2.000E-01
Ce-144	1.070E+02	7.950E+00	7.729E+01	1.515E+02	9.250E-01	7.621E+01
Pr-144	1.070E+02	7.950E+00	7.729E+01	1.515E+02	9.250E-01	7.621E+01
Pm-147	2.470E+01	1.830E+00	1.784E+01	5.500E+01	3.350E-01	2.767E+01
Eu-154	3.470E-01	2.580E-02	2.506E-01	1.160E-01	7.060E-04	5.835E-02
U-232	0.000E+00	0.000E+00	0.000E+00	7.110E-08	1.490E-09	3.630E-08
Th-232	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U-233	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U-234	0.000E+00	0.000E+00	0.000E+00	2.010E-21	4.250E-23	1.026E-21
U-235	0.000E+00	0.000E+00	0.000E+00	5.790E-09	1.220E-10	2.956E-09
U-236	0.000E+00	0.000E+00	0.000E+00	5.740E-09	1.210E-10	2.931E-09
U-238	0.000E+00	0.000E+00	0.000E+00	5.350E-07	1.130E-08	2.732E-07
Np-237	2.250E-06	2.390E-06	2.292E-06	2.730E-07	0.000E+00	1.365E-07
Pu-238	3.790E-01	0.000E+00	2.653E-01	1.060E-05	0.000E+00	5.300E-06
Pu-239	2.970E-03	0.000E+00	2.079E-03	2.660E-04	0.000E+00	1.330E-04
Pu-240	2.080E-03	0.000E+00	1.456E-03	5.820E-05	0.000E+00	2.910E-05
Pu-241	5.320E-01	0.000E+00	3.724E-01	3.440E-03	0.000E+00	1.720E-03
Pu-242	3.010E-06	0.000E+00	2.107E-06	4.550E-09	0.000E+00	2.275E-09
iAm-241	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Am-241	3.920E-03	2.070E-04	2.806E-03	8.540E-03	0.000E+00	4.270E-03
Am-242m	5.120E-06	2.700E-07	3.665E-06	1.220E-05	0.000E+00	6.100E-06
Cm-244	8.280E-05	6.150E-06	5.981E-05	7.910E-06	4.770E-08	3.979E-06
Cm-245	2.830E-09	2.100E-10	2.044E-09	1.740E-12	1.070E-14	8.754E-13

Table 5. Sludge Radionuclide Inventories (October 1996)

Species	H-3 (Ci)	C-14 (Ci)	Co-60 (Ci)	Ni-59 (Ci)	Ni-63 (Ci)	Se-79 (Ci)	Sr-90 (Ci)	Y-90 (Ci)	Nb-94 (Ci)	Tc-99 (Ci)	Ru-106 (Ci)	Rh-106 (Ci)	Sb-125 (Ci)	Sn-126 (Ci)	I-129 (Ci)	Cs-134 (Ci)	Cs-135 (Ci)	Cs-137 (Ci)	Ba-137m (Ci)	Ce-144 (Ci)	Pr-144 (Ci)	Pm-147 (Ci)	Eu-154 (Ci)
Tank 1F	0	0	540	23	0	16	696457	696457	0	281	0	0	112	30	0	0	0	48783	46130	0	0	1698	1875
Tank 2F	0	0	42	3	0	2	87413	87413	0	40	0	0	3	4	0	0	0	5164	5831	0	0	40	172
Tank 3F	0	0	47	3	0	2	79283	79283	0	85	0	0	4	4	0	0	0	5576	5275	0	0	64	174
Tank 4F	0	0	14821	118	0	85	4559680	4559680	0	1465	78	78	14027	158	0	85	1	315032	298020	8	8	246011	22305
Tank 5F	0	0	4272	101	0	71	3277484	3277484	0	1222	0	0	1130	131	0	3	1	228472	216135	0	0	17767	10532
Tank 6F	0	0	7028	104	0	75	3794023	3794023	0	1289	1	1	2577	139	0	8	1	263155	248945	0	0	41578	14738
Tank 7F	0	1	3262	187	0	102	4201114	4201114	0	1763	0	0	495	190	0	1	1	294791	278863	0	0	7442	10361
Tank 8F	0	0	9311	120	0	74	3877948	3877948	0	1281	8	8	5221	138	0	22	1	269960	253963	1	1	67532	16805
Tank 9H	0	0	45	4	0	2	94236	94236	0	43	0	0	3	5	0	0	0	6645	6266	0	0	43	185
Tank 10H	0	0	5	0	0	0	10064	10064	0	4	0	0	0	0	0	0	0	705	667	0	0	6	22
Tank 11H	0	0	28664	154	0	90	6253720	6253720	0	1534	8	8	3492	83	0	325	1	340850	322255	4	4	96701	95108
Tank 12H	0	0	28548	280	0	158	9647278	9647278	0	2681	0	0	2021	162	0	124	2	539170	510055	0	0	52922	113969
Tank 13H	0	0	16130	278	0	172	8875259	8875259	0	2935	0	0	1100	225	0	58	2	530341	501702	0	0	27265	74760
Tank 14H	0	0	181	8	0	5	226176	226176	0	91	0	0	13	9	0	0	0	15677	14263	0	0	202	843
Tank 15H	0	0	21890	260	0	144	8654823	8654823	0	2437	1	1	1332	132	0	79	2	475055	449402	0	0	34651	96547
Tank 16H	0	0	3	0	0	0	2816	2816	0	1	0	0	0	0	0	0	0	156	147	0	0	2	22
Tank 17F	0	0	10	1	0	0	3740	3740	0	1	0	0	5	0	0	0	0	258	244	0	0	109	18
Tank 18F	0	0	18	2	0	0	7160	7160	0	2	0	0	11	0	0	0	0	496	469	0	0	197	31
Tank 19F	0	0	2	0	0	0	600	600	0	0	0	0	1	0	0	0	0	41	39	0	0	24	3
Tank 20F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 21H	0	0	409	1	0	1	61638	61638	0	13	1	1	110	1	0	14	0	3320	3141	0	0	3169	1273
Tank 22H	0	0	799	2	0	2	180940	180940	0	28	1	1	191	2	0	22	0	7056	6675	0	0	5451	2616
Tank 23H	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	514	486	0	0	0	0
Tank 24H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 25F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 26F	0	1	3042	35	0	3	229990	229990	0	50	5376	5376	10333	5	0	143	0	15564	14724	6604	6604	20132	2424
Tank 27F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 28F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 29H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 30H	0	0	977	1	0	0	46857	46857	0	8	82	82	539	0	0	126	0	2502	2367	128	128	16835	1558
Tank 31H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 32H	0	0	107582	271	0	149	11765941	11765941	0	2529	3922	3922	36266	137	0	7482	2	636170	601817	9430	9430	1107142	246125
Tank 33F	0	0	77681	112	0	80	6328953	6328953	0	1391	31732	31732	235681	150	0	3002	1	428542	405401	119629	119629	4539001	64630
Tank 34F	0	0	105488	171	0	123	9396789	9396789	0	2124	87062	87062	304570	228	0	3805	1	637213	602803	71642	71642	5850415	91065
Tank 35H	0	0	127167	227	0	125	10741870	10741870	0	2117	6138	6138	45326	114	0	3204	1	578164	546943	20332	20332	1381404	263239
Tank 36H	0	0	106	0	0	0	11619	11619	0	2	0	0	22	0	0	3	0	627	593	0	0	638	252
Tank 37H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 38H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 39H	0	0	184609	199	0	109	10432255	10432255	0	1854	15009	15009	89281	100	0	20015	1	558348	528187	70124	70124	2767371	317528
Tank 40H	0	0	1248	20	0	4	247976	247976	0	62	1	1	367	5	0	30	0	14494	13711	1	1	9174	8804
Tank 41H	0	0	155	0	0	0	15316	15316	0	3	1	1	63	0	0	10	0	820	776	1	1	1863	398
Tank 42H	0	0	12784	140	0	73	4479414	4479414	0	1240	4	4	1338	68	0	118	1	246259	232951	2	2	35977	52960
Tank 43H	0	0	17590	15	0	11	1102558	1102558	0	191	5191	5191	13286	10	0	3540	0	58713	55542	28369	28369	419951	38713
Tank 44F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 45F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 46F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 47F	0	0	1671	26	0	2	161085	161085	0	37	361	361	4922	4	0	43	0	10931	10341	159	159	75883	1511
Tank 48H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 49H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 50H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 51H	0	0	1361	27	0	4	278039	278039	0	72	2	2	452	6	0	97	0	16599	15702	1	1	11106	3991

Table 6. Sludge Actinide Inventories (October 1996)

Species	U-232 (Ci)	Th-232 (Ci)	U-233 (Ci)	U-234 (Ci)	U-235 (Ci)	U-236 (Ci)	U-238 (Ci)	Np-237 (Ci)	Pu-238 (Ci)	Pu-239 (Ci)	Pu-240 (Ci)	Pu-241 (Ci)	Pu-242 (Ci)	Am-241 (Ci)	Am-241 (Ci)	Am-242m (Ci)	Cm-244 (Ci)	Cm-245 (Ci)	Alpha (Ci)
Tank 1F	0	0	0	0	0	0	0	1	0	133	30	50	0	211	2181	3	1	0	2506
Tank 2F	0	0	0	0	0	0	0	0	0	20	4	4	0	25	299	0	0	0	349
Tank 3F	0	0	0	0	0	0	0	0	0	24	5	7	0	35	260	0	0	0	325
Tank 4F	0	0	0	0	0	0	3	3	0	587	133	563	0	1288	11296	15	4	0	13304
Tank 5F	0	0	0	0	0	0	2	4	0	482	115	258	0	976	9315	12	3	0	10897
Tank 6F	0	0	0	0	0	0	2	1	0	254	86	398	0	1202	9915	13	3	0	11466
Tank 7F	0	0	0	0	0	0	9	8	0	3663	873	2219	0	7638	12816	16	3	0	25211
Tank 8F	0	0	0	0	0	0	7	3	0	1979	465	2860	1	4400	9661	13	3	0	16518
Tank 9H	0	0	0	0	0	0	0	0	0	6	1	1	0	8	323	0	0	0	339
Tank 10H	0	0	0	0	0	0	0	0	0	3	1	1	0	4	33	0	0	0	42
Tank 11H	0	0	2	2	0	0	0	1	196339	1487	932	30676	2	86690	7168	9	61	0	202674
Tank 12H	0	1	38	4	0	0	1	6	121265	2314	1277	16064	2	36691	13489	16	84	0	175174
Tank 13H	0	0	43	6	0	1	2	15	43749	1456	681	3670	0	13358	16671	24	57	0	75956
Tank 14H	0	0	0	0	0	0	0	1	202	60	19	28	0	128	634	1	1	0	1045
Tank 15H	0	1	34	4	0	0	0	4	48460	1216	588	4323	0	15309	11339	13	78	0	77013
Tank 16H	0	0	0	0	0	0	0	0	11	1	0	2	0	9	4	0	0	0	26
Tank 17F	0	0	0	0	0	0	0	0	0	49	13	66	0	176	0	0	0	0	289
Tank 18F	0	0	0	0	0	0	0	0	0	96	24	141	0	304	0	0	0	0	424
Tank 19F	0	0	0	0	0	0	0	0	0	11	2	157	0	0	0	0	0	0	13
Tank 20F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 21H	0	0	0	0	0	0	0	0	873	1	1	12	0	20	46	0	1	0	942
Tank 22H	0	0	1	0	0	0	0	0	1492	0	0	0	0	0	95	0	1	0	1580
Tank 23H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 24H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 25F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 26F	0	0	0	0	0	0	2	0	0	2394	534	12050	0	7308	0	0	0	0	10238
Tank 27F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 28F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 29H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 30H	0	0	0	0	0	0	0	0	3536	31	22	2339	0	1440	39	0	1	0	5088
Tank 31H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 32H	0	0	0	3	0	1	0	1	379338	3530	2617	136683	6	159147	12008	15	124	0	558773
Tank 33F	0	0	0	0	0	0	9	7	0	1032	231	4859	0	3225	11007	15	7	0	15518
Tank 34F	0	0	0	0	0	0	8	6	0	1300	290	5982	0	3994	15778	23	10	0	22387
Tank 35H	0	0	0	3	0	1	0	1	389728	3281	2514	155108	5	167487	10131	13	119	0	579275
Tank 36H	0	0	0	0	0	0	0	0	594	5	4	179	0	240	11	0	0	0	854
Tank 37H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 38H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 39H	0	0	0	3	0	1	0	1	530644	5114	3549	322599	9	248190	8934	11	122	0	798568
Tank 40H	0	0	1	1	0	0	2	0	1972	991	252	1457	0	3126	126	0	2	0	6473
Tank 41H	0	0	0	0	0	0	0	0	195	0	0	0	0	0	10	0	0	0	206
Tank 42H	0	1	8	3	0	0	1	2	27822	1281	456	3137	0	9538	5598	7	40	0	44752
Tank 43H	0	0	0	2	0	0	0	1	13512	105	70	4922	0	4894	655	1	13	0	19253
Tank 44F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 45F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 46F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 47F	0	0	0	0	0	0	1	0	0	2253	566	3117	0	7176	0	0	0	0	9946
Tank 48H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 49H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 50H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 51H	0	0	1	0	0	0	2	0	2294	1420	361	2108	0	4812	127	0	2	0	8720

Table 7. Salt Compositions*

Assumed Species	H Area (wt. frac.)	F Area (wt. frac.)
CaSO4	1.02E-05	1.42E-05
KNO3	1.79E-03	3.84E-03
Na2C2O4	2.71E-03	6.14E-03
Na2CO3	1.37E-01	4.82E-02
Na2CrO4	3.47E-03	3.19E-04
Na2MoO4	6.23E-05	1.01E-03
Na2SiO3	4.09E-04	1.56E-03
Na2SO4	1.18E-01	9.51E-02
Na3PO4	5.42E-04	4.34E-04
NaAg(OH)2	1.66E-06	1.61E-06
NaAlO2 2H2O	5.30E-02	7.72E-02
NaCl	3.14E-03	5.12E-03
NaF	3.99E-04	6.15E-03
NaHgO(OH)	3.47E-05	1.81E-05
NaNO2	1.15E-01	1.43E-02
NaNO3	5.28E-01	6.62E-01
NaOH	2.83E-02	7.37E-02
NH4NO3	0.00E+00	0.00E+00
Other Salts	5.11E-03	2.52E-03
Solids (Insol.)	2.58E-03	2.58E-03

*Assumes 2 volume percent (2.58E-03 weight fraction) sludge solids.

Table 8. Salt Inventories (October 1996)

Assumed Species	CsSO4 (kg)	KNO3 (kg)	Na2C2O4 (kg)	Na2CO3 (kg)	Na2CrO4 (kg)	Na2MoO4 (kg)	Na2SiO3 (kg)	Na2SO4 (kg)	Na3PO4 (kg)	NaAg(OH)2 (kg)	NaAlO2 2H2O (kg)	NaCl (kg)	NaF (kg)	NaHgO(OH) (kg)	NaNO2 (kg)	NaNO3 (kg)	NaOH (kg)	NH4NO3 (kg)	Other Salts (kg)	Solids (Insol.) (kg)
Tank 1F	37	10108	16172	127068	840	2652	4122	250461	1145	4	203467	13494	16199	48	37805	1743249	194278	0	6642	6802
Tank 2F	42	11287	18059	141893	938	2961	4603	279681	1278	5	227204	15069	18088	53	42216	1946628	216944	0	7417	7595
Tank 3F	42	11287	18059	141893	938	2961	4603	279681	1278	5	227204	15069	18088	53	42216	1946628	216944	0	7417	7595
Tank 4F	3	716	1146	9001	60	188	292	17741	81	0	14412	956	1147	3	2678	123480	13761	0	470	482
Tank 5F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 6F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 7F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 8F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 9H	30	5282	7998	404436	10261	184	1207	347074	1600	5	166636	9265	1177	103	345038	1560323	83600	0	15090	7624
Tank 10H	12	2091	3166	160113	4063	73	478	137416	633	2	62014	3668	466	41	135021	617749	33098	0	5974	3018
Tank 11H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 12H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 13H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 14H	9	1531	2319	117268	2975	53	350	100638	464	1	45419	2697	341	30	98698	452436	24241	0	4376	2211
Tank 15H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 16H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 17F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 18F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 19F	1	274	438	3441	23	72	112	6783	31	0	5511	366	439	1	1024	47213	5262	0	180	184
Tank 20F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 21H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 22H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 23H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 24H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 25F	86	23332	37331	293316	1939	6121	9515	578147	2642	10	469869	31150	37392	110	87267	4024000	446456	0	15332	15701
Tank 26F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 27F	36	9759	15600	122568	810	2558	3976	241590	1104	4	196260	13017	15625	46	36466	1681609	187397	0	6407	6561
Tank 28F	80	21732	34776	273197	1806	5701	8862	538491	2461	9	437453	29013	34827	103	81262	3747986	417637	0	14281	14624
Tank 29H	56	9817	14866	751703	19073	342	2244	645119	2973	9	291145	17222	2188	191	633899	2900229	155389	0	26049	14171
Tank 30H	1	116	178	9020	229	4	27	7741	36	0	3484	207	26	2	7607	34803	1865	0	337	170
Tank 31H	57	9954	15074	762227	19340	347	2275	654150	3015	9	295221	17463	2218	193	642774	2940832	157565	0	28441	14369
Tank 32H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 33F	18	4780	7648	60099	397	1254	1949	118447	541	2	96223	6382	7661	23	17879	824412	91877	0	3141	3217
Tank 34F	16	4464	7143	56122	371	1171	1820	110620	506	2	89864	5960	7154	21	16697	769935	85806	0	2934	3004
Tank 35H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 36H	61	10740	16263	822864	20866	374	2455	705760	3253	10	316512	18841	2393	209	698486	3172650	169996	0	30685	15503
Tank 37H	55	9552	14464	731407	18558	333	2183	627700	2893	9	283284	16757	2129	186	616784	2821923	151194	0	27291	13788
Tank 38H	44	7647	11580	585577	14858	267	1748	502547	2316	7	226802	13416	1704	149	493807	2259278	121048	0	21850	11039
Tank 39H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 40H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 41H	69	12085	18300	925347	23479	421	2762	794141	3660	11	358399	21200	2693	235	780330	3570182	191284	0	34528	17444
Tank 42H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 43H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 44F	77	20826	33322	261813	1731	5463	8493	516054	2358	9	419226	27604	33376	98	77825	3591820	400293	0	13666	14015
Tank 45F	88	23795	38072	299140	1978	6242	9703	589686	2695	10	478994	31758	38134	112	89000	4103899	457352	0	15637	16013
Tank 46F	0	84	135	1059	7	22	34	2087	10	0	1696	112	135	0	315	14527	1619	0	55	57
Tank 47F	67	18278	29245	229782	1519	4795	7454	452917	2070	8	367835	24402	29292	86	68365	3152376	351319	0	12011	12300
Tank 48H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 49H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 50H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 51H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 9. Supernate Cation Inventories (October 1996)

Species	Iron (kg)	Manganese (kg)	Nickel (kg)	Potassium (kg)	Sodium (kg)	Chromium (kg)	Mercury (kg)	Silver (kg)	Silicon (kg)	Boron (kg)	Calcium (kg)	Copper (kg)	Lithium (kg)	Magnesium (kg)	Molybdenum (kg)	Titanium (kg)	Zirconium (kg)
Tank 1F	9	0	1	2167	132793	245	63	0	0	0	0	221	0	0	0	0	10
Tank 2F	7	0	1	2235	116648	240	57	0	0	0	0	167	0	0	0	0	8
Tank 3F	7	0	1	2247	117271	241	58	0	0	0	0	167	0	0	0	0	8
Tank 4F	5	0	2	11057	347130	1040	201	0	0	0	4	126	0	0	0	0	7
Tank 5F	0	0	0	4	119	0	0	0	0	0	0	0	0	0	0	0	0
Tank 6F	0	0	0	12	206	1	0	0	0	0	0	0	0	0	0	0	0
Tank 7F	9	1	2	6752	197940	663	139	0	0	0	1	213	0	0	0	0	10
Tank 8F	0	0	0	6	79	1	0	0	0	0	0	0	0	0	0	0	0
Tank 9H	0	0	0	3222	133271	294	53	0	0	0	2	0	0	0	0	0	0
Tank 10H	0	0	0	1306	39326	119	22	0	0	0	1	0	0	0	0	0	0
Tank 11H	3	0	1	7695	212570	718	135	0	0	0	3	59	0	0	0	0	3
Tank 12H	0	0	0	12	0	1	0	0	0	0	0	0	0	0	0	0	0
Tank 13H	38	2	7	15941	642390	1662	383	1	0	0	0	955	0	0	0	0	45
Tank 14H	0	0	0	1399	41219	128	23	0	0	0	1	0	0	0	0	0	0
Tank 15H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 16H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tank 17F	0	0	1	7300	16614	659	123	0	0	0	4	1	0	0	0	0	1
Tank 18F	0	0	0	316	13053	29	5	0	0	0	0	0	0	0	0	0	0
Tank 19F	2	0	1	6480	121266	601	113	0	0	0	3	34	0	0	0	0	2
Tank 20F	0	0	0	484	0	44	8	0	0	0	0	0	0	0	0	0	0
Tank 21H	0	0	0	3406	15419	312	57	0	0	0	2	0	0	0	0	0	0
Tank 22H	3	0	2	12482	48448	1156	216	0	0	0	6	56	0	0	0	0	4
Tank 23H	0	0	1	12379	9323	1132	206	0	0	0	7	0	0	0	0	0	0
Tank 24H	1	0	1	7068	21548	649	119	0	0	0	4	8	0	0	0	0	1
Tank 25F	33	1	5	5875	349557	715	200	0	0	0	0	847	0	0	0	0	39
Tank 26F	44	2	8	19880	785031	2052	466	1	0	0	0	1105	0	0	0	0	52
Tank 27F	65	3	10	14519	788390	1685	444	1	0	0	0	1658	0	0	0	0	76
Tank 28F	30	1	5	6566	349914	761	202	0	0	0	0	767	0	0	0	0	35
Tank 29H	22	1	4	9514	407984	987	226	0	0	0	0	552	0	0	0	0	26
Tank 30H	31	2	7	25625	700429	2509	522	1	0	0	3	770	0	0	0	0	37
Tank 31H	8	1	2	11170	186783	1084	211	0	0	0	8	194	0	0	0	0	10
Tank 32H	11	1	5	29066	575224	2714	516	1	0	0	12	238	0	1	0	0	13
Tank 33F	2	0	1	5740	68132	536	102	0	0	0	2	47	0	0	0	0	3
Tank 34F	53	3	9	21015	791483	2202	511	1	0	0	0	1326	0	0	0	0	62
Tank 35H	18	1	6	29161	715620	2761	540	1	0	0	10	426	0	1	0	0	22
Tank 36H	28	1	4	7285	353178	814	206	0	0	0	0	700	0	0	0	0	32
Tank 37H	22	1	4	9798	408090	1014	231	0	0	0	0	556	0	0	0	0	26
Tank 38H	38	2	6	9172	424861	1040	268	0	0	0	0	956	0	0	0	0	44
Tank 39H	14	1	4	23433	572942	2216	432	1	0	0	8	325	0	1	0	0	17
Tank 40H	36	2	7	16560	584607	1704	365	1	0	0	0	895	0	0	0	0	42
Tank 41H	14	1	2	5363	198706	565	132	0	0	0	0	353	0	0	0	0	16
Tank 42H	0	0	1	11456	25795	1046	190	0	0	0	6	0	0	0	0	0	0
Tank 43H	14	1	4	17200	260132	1648	330	1	0	0	5	344	0	0	0	0	17
Tank 44F	43	2	5	6886	468862	861	247	0	0	0	0	1103	0	0	0	0	50
Tank 45F	38	2	5	4617	358116	623	192	0	0	0	0	961	0	0	0	0	44
Tank 46F	40	2	7	12402	544541	1350	330	0	0	0	0	1022	0	0	0	0	47
Tank 47F	16	1	3	9684	269766	971	210	0	0	0	0	401	0	0	0	0	19
Tank 48H	2	0	1	5742	96224	538	403	0	0	0	2	56	0	0	0	0	3
Tank 49H	0	0	0	3381	38311	309	56	0	0	0	2	0	0	0	0	0	0
Tank 50H	5	0	2	8812	0	833	162	0	0	0	3	123	0	0	0	0	6
Tank 51H	0	0	1	2889	22352	904	165	0	0	0	5	0	0	0	0	0	0

Table 10. Supernate Anion Inventories (October 1996)

Species	Hydroxide (kg)	Nitrate (kg)	Nitrite (kg)	Carbonate (kg)	Phosphate (kg)	Chloride (kg)	Sulfate (kg)	Oxalate (kg)	Fluoride (kg)	Aluminate (kg)
Tank 1F	71364	64133	60890	294	1117	452	265	337	140	7264
Tank 2F	54169	64034	64750	4113	2083	389	139	274	113	5296
Tank 3F	54458	64377	65096	4135	2094	391	140	275	113	5324
Tank 4F	46783	201283	105327	66644	2596	321	66528	1038	172	9738
Tank 5F	41	82	79	3	2	1	1	0	0	7
Tank 6F	52	178	91	11	3	3	24	0	0	14
Tank 7F	71633	107033	55061	58700	1312	898	6448	689	568	11806
Tank 8F	16	90	20	5	2	1	15	0	0	7
Tank 9H	29972	54635	68273	2783	2202	477	881	0	18	14097
Tank 10H	6074	52450	15566	1128	357	133	1428	0	11	3571
Tank 11H	23407	232873	104636	4900	698	703	25478	698	117	3545
Tank 12H	29	345	85	20	1	0	5	0	0	22
Tank 13H	315624	418609	219826	1850	3221	1060	7027	1872	761	26355
Tank 14H	8565	34975	18536	1209	191	136	765	0	15	4210
Tank 15H	0	0	0	0	0	0	0	0	0	0
Tank 16H	0	0	0	0	0	0	0	0	0	0
Tank 17F	4881	402	11737	12758	64	20	56	64	42	202
Tank 18F	2627	7041	5433	818	129	177	86	0	0	604
Tank 19F	14846	105844	69162	29101	295	619	9211	623	921	1290
Tank 20F	0	0	0	0	0	0	0	0	0	0
Tank 21H	1175	4282	7943	3256	267	31	136	30	12	94
Tank 22H	25306	2537	18825	12278	125	138	104	111	46	353
Tank 23H	3044	2330	7986	3222	102	25	255	107	18	340
Tank 24H	6683	2116	15699	6826	76	356	196	62	26	196
Tank 25F	272067	179657	100325	915	2897	1676	883	899	377	14486
Tank 26F	362642	700767	162916	13564	2862	2271	11091	2255	930	13599
Tank 27F	534650	356148	188298	18576	5553	2439	2515	2059	849	22217
Tank 28F	247064	193708	103482	937	3115	1108	1142	935	386	297
Tank 29H	180893	206658	220364	2186	4497	969	2249	1074	180	29065
Tank 30H	259645	688443	179578	2603	2595	815	16888	2596	1071	18128
Tank 31H	68363	79403	55641	1067	3716	353	2196	1096	439	26357
Tank 32H	93144	722979	225543	26504	2643	438	25587	2644	445	36920
Tank 33F	18239	88119	3209	523	522	87	4471	522	215	994
Tank 34F	432978	626326	170017	39425	3042	2038	14819	2458	1014	13262
Tank 35H	152634	857419	193802	2748	2827	471	20873	2821	870	45236
Tank 36H	226482	152130	129212	969	3986	916	843	952	399	13493
Tank 37H	182076	318027	128708	1119	2480	661	5314	1116	461	12756
Tank 38H	308700	246355	175091	1255	4965	1038	4766	1638	397	397
Tank 39H	117215	659193	161909	30799	2193	403	29594	2194	362	37610
Tank 40H	293701	336307	248094	1871	5625	1437	18355	2085	1777	15398
Tank 41H	115145	126792	58492	1907	1610	601	1207	634	262	201
Tank 42H	561	9927	18983	5943	94	20	1520	1133	63	314
Tank 43H	119365	376695	91889	1665	1660	275	13173	1636	279	527
Tank 44F	353966	170902	119902	1125	1709	1595	801	1106	46	11399
Tank 45F	307380	110999	101464	859	1904	1523	626	857	354	9523
Tank 46F	331546	460166	141861	1568	2482	1204	4467	1564	645	8936
Tank 47F	132984	283620	52411	51791	2131	734	4262	1033	426	984
Tank 48H	21242	19088	16995	0	852	561	418	0	18	2005
Tank 49H	1417	18847	20300	8238	74	17	1537	354	12	466
Tank 50H	44330	191549	17131	14069	131	831	2620	121	262	3668
Tank 51H	2920	12421	16456	3434	82	22	1495	856	82	272

Table 11. Supernate Fission/Activation Product Inventories (October 1996)

Species	H-3 (Ci)	C-14 (Ci)	Co-60 (Ci)	Ni-59 (Ci)	Ni-63 (Ci)	Se-79 (Ci)	Sr-90 (Ci)	Y-90 (Ci)	Nb-94 (Ci)	Tc-99 (Ci)	Ru-106 (Ci)	Rh-106 (Ci)	Sb-125 (Ci)	Sn-126 (Ci)	I-129 (Ci)	Cs-134 (Ci)	Cs-135 (Ci)	Cs-137 (Ci)	Ba-137m (Ci)	Ce-144 (Ci)	Pr-144 (Ci)	Pm-147 (Ci)	Eu-154 (Ci)
Tank 1F																		2390815	2282251				
Tank 2F																		872527	825411				
Tank 3F																		877189	829821				
Tank 4F																		5231099	4948619				
Tank 5F																		0	0				
Tank 6F																		0	0				
Tank 7F																		996650	850123				
Tank 8F																		0	0				
Tank 9H																		0	0				
Tank 10H																		0	0				
Tank 11H																		322138	304743				
Tank 12H																		0	0				
Tank 13H																		12110111	11456165				
Tank 14H																		0	0				
Tank 15H																		0	0				
Tank 16H																		0	0				
Tank 17F	3089																	22	21				
Tank 18F																		0	0				
Tank 19F																		7286	6893				
Tank 20F																		0	0				
Tank 21H																		1336	1264				
Tank 22H																		260	246				
Tank 23H																		140	132				
Tank 24H																		6605	6141				
Tank 25F																		1946041	1840955				
Tank 26F																		3462073	3275121				
Tank 27F																		4176149	3950637				
Tank 28F																		2134660	2019388				
Tank 29H																		6443451	6095504				
Tank 30H																		11544289	10920597				
Tank 31H																		5394766	5103468				
Tank 32H																		6435397	6087885				
Tank 33F																		59775	56547				
Tank 34F																		3597839	3403387				
Tank 35H																		10792481	10209696				
Tank 36H																		9453765	8943282				
Tank 37H																		6181153	5847577				
Tank 38H																		869232	816685				
Tank 39H																		5725571	5416390				
Tank 40H																		1012506	957641				
Tank 41H																		1014042	959284				
Tank 42H																		7859	7434				
Tank 43H																		523072	494826				
Tank 44F																		2866897	2713139				
Tank 45F																		2727720	2580423				
Tank 46F																		3172986	3001645				
Tank 47F																		1413698	1337857				
Tank 48H																		45	45				
Tank 49H																		0	0				
Tank 50H																		0	0				
Tank 51H																		5586	5284				

Table 12. Supernate Actinide Inventories (October 1996)

Species	U-232 (Ci)	Th-232 (Ci)	U-233 (Ci)	U-234 (Ci)	U-235 (Ci)	U-236 (Ci)	U-238 (Ci)	Np-237 (Ci)	Pu-238 (Ci)	Pu-239 (Ci)	Pu-240 (Ci)	Pu-241 (Ci)	Pu-242 (Ci)	Am-241 (Ci)	Am-241 (Ci)	Am-242m (Ci)	Cm-244 (Ci)	Cm-245 (Ci)
Tank 1F	1E-04	0	0.00E+00	0.00E+00	2.33E-04	0.00E+00	5.81E-03	8.48E-03	0.00E+00	1.75E+00	3.92E-01	6.61E-01	8.09E-05	2.79E+00	2.22E+01	2.83E-02	5.88E-03	4.81E-09
Tank 2F	1E-04	0	0.00E+00	0.00E+00	1.13E-04	0.00E+00	2.81E-03	2.94E-02	0.00E+00	2.74E+00	6.09E-01	5.99E-01	1.26E-04	3.46E+00	1.85E+01	2.31E-02	3.91E-03	4.19E-09
Tank 3F	1E-04	0	0.00E+00	0.00E+00	2.85E-04	0.00E+00	7.18E-03	5.33E-02	0.00E+00	3.35E+00	7.46E-01	1.04E+00	1.54E-04	4.98E+00	1.64E+01	2.05E-02	3.71E-03	3.61E-09
Tank 4F	5E-04	0	0.00E+00	0.00E+00	6.62E-04	0.00E+00	2.42E-02	2.16E-02	0.00E+00	4.32E+00	9.63E-01	4.19E+00	1.99E-04	9.14E+00	8.03E+01	1.05E-01	2.66E-02	1.70E-08
Tank 5F	2E-07	0	0.00E+00	0.00E+00	3.87E-07	0.00E+00	9.16E-06	1.55E-05	0.00E+00	1.78E-03	4.24E-04	3.59E-04	1.25E-07	3.60E-03	2.46E-02	3.20E-05	7.45E-06	5.34E-12
Tank 6F	6E-07	0	0.00E+00	0.00E+00	5.77E-07	0.00E+00	2.16E-05	7.49E-05	0.00E+00	2.21E-03	7.65E-04	3.46E-03	1.51E-05	1.04E-02	8.63E-02	1.12E-04	2.79E-05	1.83E-11
Tank 7F	2E-04	0	0.00E+00	0.00E+00	1.18E-03	0.00E+00	2.85E-02	2.61E-02	0.00E+00	1.14E+01	2.71E+00	6.95E+00	8.78E-04	2.43E+01	2.54E+01	3.22E-02	6.77E-03	5.86E-09
Tank 8F	2E-07	0	0.00E+00	0.00E+00	4.85E-07	0.00E+00	2.23E-05	1.01E-05	0.00E+00	6.95E-03	1.49E-03	9.27E-03	1.89E-05	1.41E-02	2.55E-02	3.34E-05	9.41E-06	5.55E-12
Tank 9H	1E-04	0	0.00E+00	0.00E+00	1.90E-04	0.00E+00	4.74E-03	3.24E-02	0.00E+00	1.00E+00	2.24E-01	2.17E-01	4.82E-05	1.26E+00	2.32E+01	2.69E-02	4.89E-03	5.14E-09
Tank 10H	4E-05	0	0.00E+00	0.00E+00	1.02E-04	0.00E+00	2.56E-03	1.95E-02	0.00E+00	1.42E+00	3.18E-01	3.48E-01	6.52E-05	1.89E+00	6.79E+00	6.47E-03	2.30E-03	1.24E-07
Tank 11H	6E-06	5E-06	6.52E-04	5.35E-04	1.01E-05	8.27E-05	1.87E-05	3.53E-04	4.35E+01	4.75E-01	2.98E-01	9.87E+00	6.35E-04	1.80E+01	2.29E+00	2.75E-03	1.96E-02	1.73E-06
Tank 12H	4E-09	7E-07	2.06E-05	1.93E-06	3.82E-08	1.53E-07	3.65E-07	4.27E-06	6.53E-02	1.24E-03	6.86E-04	8.70E-03	9.94E-07	1.97E-02	6.53E-03	7.61E-06	4.51E-05	4.43E-09
Tank 13H	9E-05	0.0005	9.57E-02	1.35E-02	3.69E-04	1.39E-03	4.92E-03	3.47E-02	1.03E+02	3.43E+00	1.42E+00	8.72E+00	9.43E-04	3.14E+01	3.12E+01	3.78E-02	1.33E-01	1.40E-05
Tank 14H	4E-06	0.0001	3.99E-03	5.48E-04	4.43E-05	4.71E-05	8.48E-04	5.86E-03	2.16E+00	6.45E-01	2.06E-01	3.14E-01	3.82E-06	1.37E+00	6.78E+00	8.45E-03	6.24E-03	6.51E-07
Tank 15H	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tank 16H	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tank 17F	5E-05	0	0.00E+00	0.00E+00	3.35E-04	0.00E+00	2.08E-02	0.00E+00	0.00E+00	1.22E+01	3.22E+00	2.14E+01	4.84E-03	4.35E+01	0.00E+00	0.00E+00	8.13E-04	4.85E-10
Tank 18F	2E-06	0	0.00E+00	0.00E+00	1.87E-05	0.00E+00	9.26E-04	0.00E+00	0.00E+00	5.73E-01	3.45E-01	8.49E-01	1.70E-04	1.80E+00	0.00E+00	0.00E+00	3.66E-05	2.33E-11
Tank 19F	1E-04	0	0.00E+00	0.00E+00	8.20E-04	0.00E+00	7.50E-02	0.00E+00	0.00E+00	4.39E+01	9.80E+00	6.43E+02	2.02E-02	0.00E+00	0.00E+00	0.00E+00	2.23E-03	1.17E-09
Tank 20F	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tank 21H	0	2E-07	5.01E-03	4.95E-03	6.82E-05	1.01E-03	4.62E-05	3.04E-03	2.53E+01	3.16E-02	1.83E-02	3.61E-01	1.54E-05	6.19E-01	1.33E+00	1.62E-03	1.90E-02	1.35E-06
Tank 22H	0	0	7.01E-02	2.52E-02	3.95E-04	4.15E-03	5.61E-04	1.53E-02	9.66E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.19E+00	7.57E-03	9.01E-02	6.47E-06
Tank 23H	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tank 24H	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tank 25F	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tank 26F	0.007	0	0.00E+00	0.00E+00	1.54E-02	0.00E+00	1.41E+00	0.00E+00	0.00E+00	1.67E+03	3.72E+02	8.46E+03	7.67E-02	5.03E+03	0.00E+00	0.00E+00	1.73E-01	5.77E-08
Tank 27F	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tank 28F	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tank 29H	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tank 30H	0	0	0.00E+00	2.94E-02	5.22E-04	5.43E-03	1.94E-05	1.33E-02	5.79E+03	4.93E+01	3.53E+01	3.76E+03	8.47E-02	2.29E+03	6.21E+01	7.84E-02	9.09E-01	4.59E-05
Tank 31H	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tank 32H	0	0	0.00E+00	4.13E-02	5.91E-04	9.87E-03	2.78E-04	1.71E-02	5.66E+03	5.26E+01	3.90E+01	2.05E+03	8.23E-02	2.36E+03	1.79E+02	2.19E-01	1.86E+00	1.33E-04
Tank 33F	0.009	0	0.00E+00	0.00E+00	9.86E-03	0.00E+00	9.10E-01	7.51E-01	0.00E+00	3.09E+02	2.43E+01	5.17E+02	5.01E-03	3.37E+02	1.16E+03	1.60E+00	7.25E-01	2.41E-07
Tank 34F	0.044	0	0.00E+00	0.00E+00	3.93E-02	0.00E+00	2.78E+00	2.14E+00	0.00E+00	4.48E+02	1.00E+02	2.08E+03	2.08E-02	1.98E+03	5.78E+03	7.94E+00	3.46E+00	1.20E-06
Tank 35H	0	0	0.00E+00	4.08E-02	7.68E-04	1.20E-02	4.19E-04	1.47E-02	5.85E+03	4.94E+01	3.77E+01	2.34E+03	8.49E-02	2.49E+03	1.52E+02	1.89E-01	1.79E+00	1.12E-04
Tank 36H	0	0	0.00E+00	2.57E-02	4.98E-04	9.08E-03	1.63E-04	7.20E-03	2.11E+03	1.74E+01	1.38E+01	6.41E+02	2.99E-02	6.47E+02	4.05E+01	4.99E-02	4.45E-01	3.01E-05
Tank 37H	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tank 38H	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tank 39H	0	0	0.00E+00	2.99E-02	4.38E-04	7.06E-03	3.32E-05	1.19E-02	4.60E+03	4.42E+01	3.07E+01	2.81E+03	7.67E-02	2.13E+03	7.73E+01	9.71E-02	1.05E+00	5.68E-05
Tank 40H	0.004	0	1.29E+00	4.65E-01	3.84E-02	7.65E-02	1.46E+00	2.82E-01	1.78E+03	8.96E+02	2.28E+02	1.33E+03	2.67E-01	2.82E+03	1.14E+02	1.40E-01	1.72E+00	1.19E-04
Tank 41H	0	0	0.00E+00	1.19E-01	1.38E-03	3.42E-02	9.44E-05	3.55E-01	1.89E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.57E+01	1.19E-01	1.67E+00	9.92E-05
Tank 42H	2E-04	0.037	5.21E-01	1.92E-01	4.52E-03	2.56E-02	7.93E-02	1.58E-01	1.93E+03	8.87E+01	3.18E+01	2.19E+02	2.82E-02	6.50E+02	3.82E+02	4.51E-01	2.79E+00	2.95E-04
Tank 43H	0	0	0.00E+00	5.68E-01	8.02E-03	1.32E-01	6.18E-04	2.89E-01	3.66E+03	2.85E+01	1.88E+01	1.34E+03	3.41E-02	1.81E+03	1.77E+02	2.23E-01	3.56E+00	1.63E-04
Tank 44F	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tank 45F	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tank 46F	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tank 47F	0.002	0	0.00E+00	0.00E+00	4.88E-03	0.00E+00	4.84E-01	0.00E+00	0.00E+00	7.42E+02	1.66E+02	3.01E+03	3.41E-02	2.33E+03	0.00E+00	0.00E+00	5.56E-02	1.93E-08
Tank 48H	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tank 49H	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tank 50H	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tank 51H	0.002	3E-06	2.37E-01	1.50E-01	1.64E-02	2.88E-02	7.08E-01	9.20E-02	7.08E+02	4.37E+02	1.11E+02	6.54E+02	1.39E-01	1.39E+03	3.92E+01	4.79E-02	5.92E-01	4.03E-05