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CANYON TRANSFER NEUTRON ABSORBER TO FISSILE MATERIAL RATIO ANALYSIS (U)

by

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**HIGH LEVEL WASTE ENGINEERING
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**CANYON TRANSFER NEUTRON
ABSORBER TO FISSILE MATERIAL
RATIO ANALYSIS (U)**

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BY

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INTRODUCTION

Waste tank fissile material and non-fissile material estimates are used to evaluate criticality safety for the existing sludge inventory and batches of sludge sent to Extended Sludge Processing (ESP). This report documents the weight ratios of several non-fissile waste constituents to fissile waste constituents from canyon reprocessing waste streams [1]. Weight ratios of Fe, Mn, Al, Ni, and U-238 to fissile material are calculated from monthly loss estimates from the F and H Canyon Low Heat Waste (LHW) and High Heat Waste (HHW) streams [1]. The monthly weight ratios for Fe, Mn and U-238 are then compared to calculated minimum safe weight ratios. Documented minimum safe weight ratios for Al and Ni to fissile material are currently not available. Total mass data for the subject sludge constituents is provided along with scatter plots of the monthly weight ratios for each waste stream.

SUMMARY

Weight ratios of Fe, Mn and U-238 to fissile material (U-233 + U-235 + Pu-239 + Pu-241) were calculated for the LHW and HHW stream for each month from the beginning of canyon operation to February of 1992 for F Canyon and to December of 1992 for H Canyon. Of the 1790 individual months evaluated, only 16% did not exceed the minimum safe weight ratios of Fe, Mn and/or U-238. This 16% percent of the months accounted for 14% of the total fissile mass. This does not mean an unsafe mass was transferred. Single parameter mass limits were in effect for individual canyon waste transfers, and for special transfers of fissile material to waste, a safety evaluation was performed specifically for that transfer.

On an overall total mass basis, both the HHW and LHW stream for each canyon contained an excess of iron, manganese and/or U-238 to satisfy the minimum safe weight ratios for criticality safety. Demonstrating criticality safety based solely on the presence of one or two sludge diluents, while neglecting the presence of several other neutron absorbing diluents indicates a large margin of safety. This margin of safety is demonstrated independent of the physical distribution of the fissile material in the waste tanks.

DISCUSSION

Background

Criticality safety of SRS waste tank sludge and ESP results from dilute concentrations of fissile material intimately mixed with large quantities of non-fissile neutron absorbing waste constituents. This results in an infinitely safe mixture. Waste tank fissile material concentrations and areal densities are low, and both of these parameters also indicate safe mixtures. The published safe concentration and areal density values [5] however, were calculated for mixtures that are not at all like sludge.

Criticality safety can be demonstrated using areal density and concentration for sludge mixtures, but the criticality safety margin demonstrated is not accurate because the true critical concentration and critical areal density are specific to the constituents of that sludge mixture. Safe concentration and areal density values are modeled after uniform mixtures. Sludge mixtures are made up of insoluble solids that do not possess the uniformity of soluble solids in solution. Sludge mixtures are also variable in the type and abundance of constituents.

Criticality safety is more accurately represented through characterization of the insoluble sludge constituents and how each of these constituents effect the criticality potential of the fissile mass present. For each non-fissile waste constituent, there is a weight ratio of constituent to fissile material, such that if the mixture equals or exceeds this weight ratio, then an infinite mass of this mixture is safe. This ratio is referred to as the minimum safe weight ratio for that constituent.

Minimum safe weight ratios for a few sludge constituents to fissile material have been calculated [2,3,4]. When criticality safety is being demonstrated for a particular waste tank, the weight ratios of these constituents to fissile material are compared to the minimum safe weight ratios. To determine the constituent to fissile material weight ratios, an estimate of the tank contents is made. This estimate can either be based on a sludge sample or on canyon material losses and waste tank receipts. The weight ratios calculated for a particular tank are as accurate as the material estimates upon which they are based. This measure of criticality safety is independent of fissile material mass, geometry or volume.

A material estimate based on sample data, requires confidence that the sample was representative of the tank. Representative sludge samples can only be taken from tanks that have been well mixed, such as ESP tanks or the tanks feeding ESP after they have been slurried. Few samples of this type exist.

A material estimate based on canyon reprocessing losses and waste tank receipts is independent of physical distribution and should be very accurate. One difficulty that may exist however, is determining the fraction of material moved from one tank to another as a result of inter-tank sludge transfers. When sludge is transferred, it is suspended by agitation and transferred as a slurry to another tank. The only method to account for this material transferred is to assume the volume of sludge transferred was proportional to the volume of sludge slurry transferred. If there is only one receipt tank, this is accurate. If there are multiple receipt tanks, there is a potential to introduce error.

This report focuses not on tank estimates, but on the waste streams that fed the tanks. If the waste streams that fed the tanks were safe based on the presence of a few waste constituents, then the material in the tanks should also be safe based upon this same premise.

Data Analysis

SRS reprocessing operations have been broken down into three main reprocessing campaigns. Campaigns and duration for which the monthly waste discharges were evaluated are given below:

<u>Campaign</u>	<u>Begin</u>	<u>End</u>
F Canyon PUREX	Nov-54	Feb-92
H Canyon PUREX	Aug-55	Mar-59
H Canyon HM	Jun-59	Dec-92

The LHW and HHW stream for each major campaign was assessed. Listed below are the equations necessary to reproduce the calculated weight ratios of Fe, Al, Ni, Mn and U-238 to fissile material presented in Appendix A through F.

Fissile Material (FM)	=	(U-233 + U-235 + Pu-239 + Pu-241)
Wt. % Fe in Fe(OH) ₃	=	52.26 wt. %
Fe:FM Weight Ratio	=	(0.5226 x Fe(OH) ₃)/(FM)
Wt. % Mn in MnO ₂	=	63.19 wt. %
Mn:FM Weight Ratio	=	(0.6319 x MnO ₂)/(FM)
Wt. % Ni in Ni(OH) ₂	=	63.33 wt. %
Ni:FM Weight Ratio	=	(0.6333 x Ni(OH) ₂)/(FM)
Wt. % Al in NaAlO ₂	=	32.91 wt. %
Al:FM Weight Ratio	=	(0.3291 x NaAlO ₂)/(FM)
Equivalent U-235	=	U-235 + 1.92 x (U-233+Pu-239+Pu-241)
U-238:Eq. U-235 Ratio	=	$\frac{(U-238)}{\text{Equivalent U-235}}$

The calculated weight ratios of Fe, Mn, and U-238 are compared to the following calculated safe ratios [2,3,4]. The weight ratios of Al and Ni in the appendices are listed for future reference.

Safe Weight Ratios of Fe, Mn, U-238, U-235 & Pu-239

<u>Fe:Pu-239</u>	<u>Mn:Pu-239</u>	<u>Fe:Mn:Pu-239</u>	<u>U-238:Eq. U-235</u>
160:1	32:1	26.5:26.5:1	103:1
		60:20:1	
		80:16:1	
		94.5:13.5:1	
		110:11:1	

For comparison of monthly and overall Fe and Mn weight ratios to minimum safe weight ratios, U-233, U-235 and Pu-241 are converted to Pu-239 on a 1:1 mass basis. The calculated weight ratios are then compared to safe ratios for Pu-239. For the U-238 weight ratio calculation, U-233, Pu-239 and Pu-241 are converted to U-235 by multiplying by 1.92. The 1.92 equivalency factor was calculated based on a safe U-235 enrichment limit of 0.96 wt. % [5] and a Pu-239 and natural U(.71) mixture limit of $Pu/(Pu+U) < 0.13$ wt. % [4]. The U-238 ratios are listed for all months, however they only apply to the waste streams that received natural or depleted uranium (PUREX waste). Equating fissile material in this manner is not the most accurate approach that could be taken, but it is conservative, simple and sufficient to demonstrate criticality safety.

Monthly weight ratios and mass data are tabled and plotted in Appendices A through F. If there is no fissile material sent to waste for a particular month, the weight ratios are listed as N/A and the comparison to safe value is listed as N/A. If a month does not meet the Fe, Mn and/or U-238 minimum safe weight ratio, then the mass of fissile material for that month is recorded in the last column titled "Fissile Mass w/Low Diluents". These months are shown on a scatter plot with their associated fissile mass. Months with no fissile mass are not plotted because the weight ratio is undefined. Months with weight ratios of less than 1 are not plotted due to the logarithmic scale. Overall total mass values and overall weight ratios for each waste stream are summarized in Table 1.

The following sections assess the fissile and non-fissile weight ratios of the LHW and HHW streams for each major reprocessing campaign in F and H Canyon.

F Canyon PUREX

HHW

The major fissile material of concern in the PUREX waste stream is Pu-239. The majority of the U-235 in PUREX waste is that which is in natural or depleted uranium (slightly enriched U was used as target material in a few select target loads [1]), and does not represent a criticality potential by itself. However, it is included in the monthly fissile mass total and usually accounts for the largest portion because of the large amount of target

uranium sent to waste in PUREX reprocessing. On an overall mass basis the HHW stream is in excess of the minimum safe weight ratios of Mn, Fe and U-238. On a monthly basis, there were 17 months out of 448 that were not above the ratio criteria. The majority of these were months when there was no uranium throughput. The reason the months with no uranium throughput do not meet the simple safe ratio criteria results from the method Fe and Mn are estimated.

The mass of Fe and Mn sent to waste is determined from canyon reprocessing flowsheets [1]. The amount of Fe and Mn determined from the flowsheets is proportional to the uranium throughput. If there was no uranium throughput for a month then there is no Fe or Mn credited to waste for that month. The amount of uranium and plutonium sent to waste is determined differently. The uranium and plutonium losses are based on accountability data (based on process sample analyses) published in monthly data reports. Therefore regardless of uranium throughput, uranium and plutonium masses sent to waste are available. When there is no uranium throughput, it does not mean the uranium and plutonium are sent to waste in the absence of Fe and Mn for that month. The Fe and Mn are still present for that month, however they have been accounted for in the preceding months. This is a limitation of the estimating method since monthly Fe and Mn material loss data are not readily available. Monthly data for F Canyon PUREX HHW is tabled and plotted in Appendix A.

LHW

On an overall mass basis, weight ratios of Fe and Mn to fissile material in the LHW stream are in excess of the minimum safe weight ratios for Fe and Mn. On a monthly basis, there were 107 months out of 448 that did not meet the minimum safe ratio criteria. Similar to the HHW stream, the majority of the 107 months occurred when there was no uranium throughput.

F Canyon Low Activity Waste (LAW), which contained the Fe and Mn, was sent down the HHW header prior to June 1961. This contributed to a deficiency of these diluents in the early years of operation. However many of these months still have sufficient U-238 ratios. Monthly data for F Canyon PUREX LHW is tabled and plotted in Appendix B.

H Canyon PUREX

HHW

Waste from H Canyon PUREX was only received for 44 months. For the HHW stream, each of the 44 months were in excess of the minimum safe weight ratios for Fe, Mn and/or U-238. On an overall mass basis, the minimum safe weight ratios of Fe and Mn were met. Monthly data for H Canyon PUREX HHW is tabled and plotted in Appendix C.

LHW

As with F Canyon PUREX LHW, the H Canyon LAW portion was diverted to HHW prior to June of 1961. Thus no Fe or Mn is documented as going to LHW. However due to the presence of U-238, all but 3 of the 44 months were in excess of the minimum safe weight ratio for U-238. On an overall mass basis, the weight ratio of U-238 to fissile material was in excess of the minimum safe weight ratio. Monthly data for H Canyon PUREX LHW is tabled and plotted in Appendix D.

H Canyon HM*HHW*

There were 403 months of H Canyon HM HHW evaluated, of which 78 did not meet any of the minimum safe weight ratios applied. As with the other waste streams, a large portion of these months occurred when there was no production. There were no months that were safe based on the presence of U-238. This is because HM reprocessing involved enriched uranium from reactor fuel. The U-238 ratios are given to demonstrate this fact. The only H Canyon waste that contained natural or depleted uranium was PUREX waste between Aug-55 and Mar-59. On an overall mass basis, the weight ratios for Fe and Mn were in excess of the minimum safe weight ratios. Monthly data for H Canyon HM HHW is tabled and plotted in Appendix E.

LHW

Of the 403 months of H Canyon HM LHW evaluated, 90 did not meet any of the minimum safe weight ratios applied. On an overall mass basis, the weight ratio for Fe was in excess of the minimum safe weight ratio for Fe. Mn was not documented sent to LHW [1], nor was Pu-239 or Pu-241. The only fissile materials of concern in the LHW stream were U-233 and U-235. Monthly data for H Canyon HM LHW is tabled and plotted in Appendix F.

CONCLUSION

On an overall mass basis, all the waste streams evaluated had weight ratios of Fe, Mn and/or U-238 in excess of the minimum safe weight ratios. There are a small percentage of months for each waste stream, except H Canyon PUREX HHW, that have months which do not exceed any minimum safe weight ratios. This does not mean the transfers for that month were not safe. The minimum safe weight ratios applied to the monthly material loss data do not determine unsafe mixtures, only safe mixtures. At the time of this report, the waste streams have not been characterized sufficiently, nor have enough minimum safe weight ratios been calculated for the current level of waste characterization to demonstrate that waste receipts for each month were safe. Of the 1790 individual months evaluated in this report, 295 require further evaluation.

There are a few measures that can be taken to demonstrate criticality safety for the months not shown safe by diluents. One is to quantify the mass of fissile material in the months with low diluents and compare to safe mass limits. Several of the months not shown to have excess diluents were months when no processing occurred and the fissile mass sent to waste was small. If this fissile mass was immediately preceded and followed by months with excess diluents, averaging of these months may also be possible. This will not demonstrate that there were diluents in excess of the minimum safe weight ratios for the transfers in that month. However, it may be sufficient to demonstrate a safe mixture in the waste tank. This method will require use of waste receipt data [6] to ensure the materials averaged were sent to the same waste tank.

Second, there are several months in the H-Canyon HM HHW stream where the combination of Fe and Mn ratios seem to be sufficient, but the ratios do not fall within the bound of the calculated values. If more combinations of safe mixtures were available, several of these months would be shown as safe. The range of safe Fe, Mn, and Pu-239 mixtures that should be calculated are for weight ratios of Fe:Mn:Pu-239 of 160:0:1 to 0:32:1. Enough safe mixtures should be calculated to generate a safe Fe:Mn:Pu-239 mixture curve.

Third, loss estimates of Al and Ni to waste have been documented [1], however minimum safe weight ratios have not. Al is a poor absorber, but is very abundant. Ni is a better absorber than Fe, but less abundant than Al. A minimum safe ratio should be calculated for Ni to U-235 and Pu-239. Then enough safe mixtures of Fe, Ni, and Pu-239 should be calculated to develop a safe mixture curve similar to the one for Fe:Mn:Pu-239. Minimum safe ratios of Al to fissile material may be too large to be of benefit, however if weight ratios of Fe or U-238 are just under the minimum safe weight ratio, then including Al may be enough to demonstrate safety.

Fourth, there is no record of Pu-239 or Pu-241 losses to H Area HM LHW. Therefore, safe ratios for U-235 instead of Pu-239 can be used in the months when no U-233 was sent to waste. This reduces Fe and Mn minimum safe weight ratios from 160:1 to 77:1 and 32:1 to 30:1 respectively. The safe weight ratios for combinations of Fe and Mn are likewise reduced.

On a total mass basis, the waste streams that fed the tanks are safe based on the presence of non-fissile diluents. Demonstration of safe input to the waste tanks, based on the presence of a few non-fissile diluents, is a strong indicator of the safety of the waste tank contents. Improved characterization of the canyon waste streams along with the improved minimum safe ratio calculations will show that the fissile material inventory is safe based on the presence of neutron absorbing waste diluents. This eliminates the need to apply safe limits based on mass that do not accurately reflect the safety margin associated with sludge. In addition, the excessive diluent argument eliminates any criticality safety concerns stemming from the physical distribution of fissile material in a waste tank. The

criticality safety margin of waste tank sludge should continue to increase as characterization of the sludge improves.

Table 1. Overall Total Mass and Weight Ratio Data for Canyon HHW and LHW Streams

	F-Canyon PUREX		H-Canyon PUREX		H-Canyon HM	
	<u>HHW</u>	<u>LHW</u>	<u>HHW</u>	<u>LHW</u>	<u>HHW</u>	<u>LHW</u>
No. of Months Evaluated	448	448	44	44	403	403
No. of Months Below Ratio Criteria	17	107	0	3	78	90
% of Months Below Ratio Criteria	3.8%	24%	0%	6.8%	19%	22%
U-233+U-235+Pu-239+Pu-241 (kg)	392	425	55	13	462	63
Total FM Below Ratio Criteria (kg)	19	52	0	1.3	106	23
% of FM Below Ratio Criteria	4.9%	12%	0%	10%	23%	37%
Largest FM Below Ratio Criteria (g)	11845	3194	0	532	12544	5552
Total Fe Transferred (kg)	77040	299845	16526	0	87747	159183
Overall Fe to FM Weight Ratio	196	706	300	0	190	2525
Total Mn Transferred (kg)	27842	19606	25660	0	24606	0
Overall Mn to FM Weight Ratio	71	46	466	0	53	0
Total U-238 Transferred (kg)	95227	55332	6149	1804	172	131
Overall U-238 to FM Weight Ratio	202	91	87	125	0.2	2.1
Total Al Transferred (kg)	12554	101768	1765	15098	162483	3406
Overall Al to FM Weight Ratio	32	239	32	1170	351	54
Total Ni Transferred (kg)	35607	0	5282	0	3016	0
Overall Ni to FM Weight Ratio	91	0	96	0	7	0
No. of Months Above Fe Ratio	236	281	36	0	111	284
No. of Months Above Mn Ratio	93	246	44	0	220	0
No. of Months Above Fe & Mn Ratio	94	283	44	0	244	0
No. of Months Above U-238 Ratio	316	153	16	41	0	0
No. of Months with no FM	69	12	0	0	56	29

CHANGES IN REVISION 1

Revision 1 is a complete revision. The purpose of the report has remained the same. Corrections were made in the Fe and Mn to fissile material weight ratio calculations. Revision 1 includes calculated weight ratios of U-238 to fissile material with a safe ratio applied. In addition, the weight ratios calculated in revision 1 are based on monthly mass estimates from revision 1 of reference 1. Weight ratios calculated in revision 0 of this report were based on revision 0 of reference 1.

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- [4] TID-7016, Rev.2, J. T. Thomas, Nuclear Safety Guide, June 1978
- [5] ANSI/ANS-8.1-1983, Nuclear Criticality Safety in Operations With Fissionable Materials Outside Reactors
- [6] WSRC-TR-93-426, Rev. 1, W. S. Cavin and A. T. Crumm, "Fresh Waste Receipts (U)", January 21, 1994

Appendices

- A F Canyon PUREX HHW Monthly Weight Ratio Data
- B F Canyon PUREX LHW Monthly Weight Ratio Data
- C H Canyon PUREX HHW Monthly Weight Ratio Data
- D H Canyon PUREX LHW Monthly Weight Ratio Data
- E H Canyon HM HHW Monthly Weight Ratio Data
- F H Canyon HM LHW Monthly Weight Ratio Data

F-Area PUREX HHW Monthly Weight Ratio Data

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																			Fissile
	Total	Estimated							Fe	Mn	U238	Ni	Al	Safe by	Safe by	Safe by	Safe by	Mass	
	Uranium	U-235	Pu-239	Pu-241	NaAlO2	Ni(OH)2	Fe(OH)3	MnO2	Ratio	Ratio	Ratio	Ratio	Ratio	Fe only	Mn only	Fe & Mn	U238	Diluents	
Date	HHW (Kg)	HHW (Kg)	HHW (g)	HHW (g)	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW (g)	
Nov-54	2	0.01	324	0	9	14	79	95	122	178	3	26	9	No	Yes	Yes	No		
Dec-54	38	0.24	430	0	30	46	261	314	206	297	36	44	15	Yes	Yes	Yes	No		
Jan-55	334	2.07	666	1	33	62	292	352	56	81	99	12	4	No	Yes	Yes	No		
Feb-55	400	2.48	415	0	76	118	664	798	120	174	121	26	9	No	Yes	Yes	Yes		
Mar-55	279	1.73	615	1	90	140	790	950	176	256	95	38	13	Yes	Yes	Yes	No		
Apr-55	488	3.03	394	0	87	136	766	611	117	113	128	25	8	No	Yes	Yes	Yes		
May-55	119	0.74	628	1	100	155	877	699	335	323	61	72	24	Yes	Yes	Yes	No		
Jun-55	39	0.24	338	0	100	155	877	699	791	762	44	170	57	Yes	Yes	Yes	No		
Jul-55	73	0.45	719	1	122	189	1067	851	475	458	40	102	34	Yes	Yes	Yes	No		
Aug-55	220	1.36	787	1	65	101	569	454	138	133	76	30	10	No	Yes	Yes	No		
Sep-55	12	0.07	216	0	95	147	830	662	1492	1438	24	320	107	Yes	Yes	Yes	No		
Oct-55	9	0.06	133	0	86	134	758	605	2100	2025	29	451	151	Yes	Yes	Yes	No		
Nov-55	92	0.57	129	0	69	108	608	485	454	438	112	98	33	Yes	Yes	Yes	Yes		
Dec-55	69	0.43	572	1	95	147	830	662	433	418	45	93	31	Yes	Yes	Yes	No		
Jan-56	68	0.36	171	0	67	104	585	466	575	555	84	124	41	Yes	Yes	Yes	No		
Feb-56	73	0.45	451	0	78	122	687	713	397	499	55	85	29	Yes	Yes	Yes	No		
Mar-56	197	1.22	309	0	96	150	845	877	289	362	108	62	21	Yes	Yes	Yes	Yes		
Apr-56	185	1.15	212	0	102	158	893	927	343	431	118	74	25	Yes	Yes	Yes	Yes		
May-56	39	0.24	120	0	82	127	719	746	1039	1304	82	223	75	Yes	Yes	Yes	No		
Jun-56	44	0.27	204	0	104	162	916	951	1004	1261	66	216	72	Yes	Yes	Yes	No		
Jul-56	32	0.20	231	0	86	133	418	779	509	1146	50	196	66	Yes	Yes	Yes	No		
Aug-56	154	0.95	170	0	107	167	524	976	243	548	119	94	31	Yes	Yes	Yes	Yes		
Sep-56	44	0.27	158	0	82	127	400	746	486	1094	76	187	63	Yes	Yes	Yes	No		
Oct-56	50	0.31	166	0	92	143	449	836	492	1109	79	190	63	Yes	Yes	Yes	No		
Nov-56	42	0.26	187	0	101	157	493	918	575	1297	67	222	74	Yes	Yes	Yes	No		
Dec-56	18	0.11	181	0	104	161	506	943	902	2033	39	348	116	Yes	Yes	Yes	No		
Jan-57	30	0.19	111	0	112	174	546	1017	959	2161	75	370	124	Yes	Yes	Yes	No		
Feb-57	137	0.85	151	0	104	161	506	943	264	595	119	102	34	Yes	Yes	Yes	Yes		
Mar-57	90	0.56	57	0	97	151	475	637	404	655	134	156	52	Yes	Yes	Yes	Yes		
Apr-57	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
May-57	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Jun-57	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Jul-57	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Aug-57	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Sep-57	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Oct-57	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Nov-57	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Dec-57	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Jan-58	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Feb-58	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Mar-58	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Apr-58	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
May-58	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Jun-58	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

APPENDIX A

F-Area PUREX HHW Monthly Weight Ratio Data

Page A2 of A17																			Fissile
																			Mass
	Total	Estimated							Fe	Mn	U238	Ni	Al	Safe by	Safe by	Safe by	Safe by		w/Low
	Uranium	U-235	Pu-239	Pu-241	NaAlO2	Ni(OH)2	Fe(OH)3	MnO2	Ratio	Ratio	Ratio	Ratio	Ratio	Fe only	Mn only	Fe & Mn	U238	Diluents	
Date	HHW (Kg)	HHW (Kg)	HHW (g)	HHW (g)	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW (g)
Jul-58	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Aug-58	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Sep-58	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Oct-58	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Nov-58	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Dec-58	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Jan-59	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Feb-59	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Mar-59	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Apr-59	610	3.78	163	0	50	78	745	230	99	37	148	13	4	No	Yes	Yes	Yes	Yes	
May-59	148	0.92	163	0	46	71	678	209	328	122	120	42	14	Yes	Yes	Yes	Yes	No	
Jun-59	62	0.38	180	0	40	62	585	180	542	202	84	69	23	Yes	Yes	Yes	Yes	No	
Jul-59	208	1.29	513	1	86	133	1264	390	366	136	91	47	16	Yes	Yes	Yes	Yes	No	
Aug-59	253	1.57	498	1	122	190	1809	558	457	170	100	58	19	Yes	Yes	Yes	Yes	No	
Sep-59	454	2.81	290	0	35	55	519	160	87	33	134	11	4	No	Yes	Yes	Yes	Yes	
Oct-59	490	3.04	505	1	113	176	1676	517	247	92	121	32	11	Yes	Yes	Yes	Yes	No	
Nov-59	227	1.41	807	1	101	157	1490	459	351	131	76	45	15	Yes	Yes	Yes	Yes	No	
Dec-59	372	2.31	784	1	108	168	1596	482	270	101	97	34	11	Yes	Yes	Yes	Yes	No	
Jan-60	350	2.17	763	1	215	335	3179	980	566	211	96	72	24	Yes	Yes	Yes	Yes	No	
Feb-60	596	3.70	760	1	99	154	1463	451	172	64	115	22	7	Yes	Yes	Yes	Yes	Yes	
Mar-60	286	1.77	1116	1	114	178	1689	521	305	114	73	39	13	Yes	Yes	Yes	Yes	No	
Apr-60	970	6.02	853	1	224	349	3312	1021	252	94	126	32	11	Yes	Yes	Yes	Yes	Yes	
May-60	430	2.66	626	1	135	210	1995	615	317	118	110	40	14	Yes	Yes	Yes	Yes	Yes	
Jun-60	983	6.10	1222	1	202	314	2979	918	213	79	116	27	9	Yes	Yes	Yes	Yes	No	
Jul-60	571	3.54	1231	2	126	196	1862	574	204	76	96	26	9	Yes	Yes	Yes	Yes	No	
Aug-60	386	2.39	1072	1	154	239	2274	701	343	128	86	44	15	Yes	Yes	Yes	Yes	No	
Sep-60	394	2.44	770	1	133	207	1968	607	320	119	100	41	14	Yes	Yes	Yes	Yes	No	
Oct-60	260	1.61	385	0	20	31	293	90	76	28	110	10	3	No	No	Yes	Yes	Yes	
Nov-60	240	1.49	170	0	0	0	0	0	0	0	131	0	0	No	No	No	No	No	644
Dec-60	77	0.48	168	0	0	0	0	0	0	0	112	0	0	No	No	No	No	Yes	
Jan-61	179	1.11	252	0	0	0	0	0	0	0	115	0	0	No	No	No	No	Yes	
Feb-61	344	2.13	443	1	0	0	0	0	0	0	103	12	4	No	Yes	Yes	Yes	Yes	
Mar-61	849	5.26	1517	2	86	133	1264	390	97	36	103	12	4	Yes	Yes	Yes	Yes	No	
Apr-61	208	1.29	1767	2	212	330	3139	968	537	200	44	68	23	Yes	Yes	Yes	Yes	No	
May-61	647	4.01	1391	2	229	356	3378	813	327	95	96	42	14	No	Yes	Yes	Yes	Yes	
Jun-61	368	2.28	510	1	261	406	232	667	43	151	112	92	31	No	No	No	No	Yes	
Jul-61	364	2.26	219	0	0	0	0	0	0	0	136	0	0	No	No	No	No	Yes	
Aug-61	166	1.03	7	0	0	0	0	0	0	0	158	0	0	No	No	No	No	No	478
Sep-61	42	0.26	216	0	0	0	0	0	0	0	62	0	0	No	No	No	No	No	251
Oct-61	25	0.16	94	0	0	0	0	0	0	0	76	0	0	No	No	No	No	Yes	
Nov-61	5	0.03	4	0	0	0	0	0	0	0	128	0	0	No	No	No	No	No	97
Dec-61	1	0.01	92	0	0	0	0	0	0	0	5	0	0	No	No	No	No	No	
Jan-62	256	1.59	650	1	110	171	98	281	23	79	90	48	16	No	Yes	No	No	No	
Feb-62	195	1.21	115	0	315	490	280	805	110	383	136	234	78	No	Yes	Yes	Yes	Yes	

APPENDIX A F-Area PUREX HHW Monthly Weight Ratio Data

																			Fissile Mass
	Total	Estimated							Fe	Mn	U238	Ni	Al	Safe by	Safe by	Safe b y	Safe by	w/Low	
	Uranium	U-235	Pu-239	Pu-241	NaAlO2	Ni(OH)2	Fe(OH)3	MnO2	Ratio	Ratio	Ratio	Ratio	Ratio	Fe only	Mn only	Fe & Mn	U238	Diluents	
Date	HHW (Kg)	HHW (Kg)	HHW (g)	HHW (g)	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW (g)	
Mar-62	410	2.54	310	0	293	455	260	748	48	166	130	101	34	No	Yes	Yes	Yes		
Apr-62	558	3.46	370	1	275	427	244	702	33	116	133	71	24	No	Yes	Yes	Yes		
May-62	338	2.10	568	1	285	444	254	729	50	173	105	105	35	No	Yes	Yes	Yes		
Jun-62	446	2.77	743	1	232	361	206	593	31	107	106	65	22	No	Yes	Yes	Yes		
Jul-62	268	1.66	303	0	302	469	268	771	71	248	119	151	51	No	Yes	Yes	Yes		
Aug-62	7	0.04	83	0	0	0	0	0	0	0	33	0	0	No	No	No	No	126	
Sep-62	58	0.36	118	0	0	0	0	0	0	0	98	0	0	No	No	No	No	475	
Oct-62	8	0.05	90	0	0	0	0	0	0	0	36	0	0	No	No	No	No	141	
Nov-62	32	0.20	53	0	0	0	0	0	0	0	106	0	0	No	No	No	Yes		
Dec-62	10	0.06	8	0	0	0	0	0	0	0	126	0	0	No	No	No	Yes		
Jan-63	1	0.01	2	0	0	0	0	0	0	0	98	0	0	No	No	No	No	7	
Feb-63	103	0.61	225	0	65	101	194	166	118	121	95	74	25	No	Yes	Yes	No		
Mar-63	124	0.77	162	0	221	343	662	564	371	382	114	233	78	Yes	Yes	Yes	Yes		
Apr-63	136	0.84	595	1	184	286	551	469	200	206	68	126	42	Yes	Yes	Yes	No		
May-63	222	1.38	345	0	178	277	535	455	162	167	108	102	34	Yes	Yes	Yes	Yes		
Jun-63	230	1.42	85	0	277	431	832	277	288	116	144	181	60	Yes	Yes	Yes	Yes		
Jul-63	412	2.55	176	0	154	239	462	154	88	36	142	56	19	No	Yes	Yes	Yes		
Aug-63	312	1.93	192	0	196	305	589	196	145	58	135	91	30	No	Yes	Yes	Yes		
Sep-63	163	1.01	180	0	231	360	694	231	304	123	120	191	64	Yes	Yes	Yes	Yes		
Oct-63	142	0.88	243	0	0	0	0	0	0	0	105	0	0	No	No	No	Yes		
Nov-63	127	0.79	268	0	0	0	0	0	0	0	97	0	0	No	No	No	No	1056	
Dec-63	28	0.17	32	0	0	0	0	0	0	0	118	0	0	No	No	No	Yes		
Jan-64	176	1.09	237	0	144	224	432	144	170	68	113	107	36	Yes	Yes	Yes	Yes		
Feb-64	274	1.70	344	1	255	396	764	255	196	79	115	123	41	Yes	Yes	Yes	Yes		
Mar-64	170	1.05	183	0	137	213	410	137	174	70	120	109	36	Yes	Yes	Yes	Yes		
Apr-64	173	1.07	261	0	184	286	551	184	216	87	109	135	45	Yes	Yes	Yes	Yes		
May-64	147	0.91	390	1	194	302	583	194	235	95	88	147	49	Yes	Yes	Yes	No		
Jun-64	173	1.07	384	1	260	405	780	260	279	113	95	176	59	Yes	Yes	Yes	No		
Jul-64	0	0.00	7	0	0	0	0	0	0	0	0	0	0	No	No	No	No	7	
Aug-64	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Sep-64	19	0.12	263	0	0	0	0	0	0	0	30	0	0	No	No	No	No	378	
Oct-64	190	1.18	171	0	69	108	77	69	30	33	125	51	17	No	Yes	Yes	Yes		
Nov-64	431	2.83	594	1	225	350	250	225	38	42	108	65	22	No	Yes	Yes	Yes		
Dec-64	397	2.68	189	0	180	280	200	180	36	40	129	62	21	No	Yes	Yes	Yes		
Jan-65	192	1.19	327	1	149	231	165	149	57	62	105	96	32	No	Yes	Yes	Yes		
Feb-65	230	1.43	95	0	189	294	210	189	72	78	142	122	41	No	Yes	Yes	Yes		
Mar-65	177	1.29	96	0	135	210	150	135	56	61	119	96	32	No	Yes	Yes	Yes		
Apr-65	140	1.04	167	0	179	279	199	179	86	94	102	146	49	No	Yes	Yes	No		
May-65	411	2.55	167	0	239	372	266	239	51	56	142	87	29	No	Yes	Yes	Yes		
Jun-65	23	0.14	78	2	0	0	0	0	0	0	76	0	0	No	No	No	No	221	
Jul-65	6	0.04	36	4	1703	141	201	91	1317	720	54	1123	7029	Yes	Yes	Yes	No		
Aug-65	76	0.47	39	1	60	94	67	60	69	75	138	117	39	No	Yes	Yes	Yes		
Sep-65	0	0.00	0	0	17	27	19	17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Oct-65	29	0.18	45	0	50	77	55	50	128	139	108	216	72	No	Yes	Yes	Yes		

APPENDIX A

F-Area PUREX HHW Monthly Weight Ratio Data

																			Fissile Mass
	Total	Estimated							Fe	Mn	U238	Ni	Al	Safe by	Safe by	Safe b y	Safe by	w/Low	
	Uranium	U-235	Pu-239	Pu-241	NaAlO2	Ni(OH)2	Fe(OH)3	MnO2	Ratio	Ratio	Ratio	Ratio	Ratio	Fe only	Mn only	Fe & Mn	U238	Diluents	
Date	HHW (Kg)	HHW (Kg)	HHW (g)	HHW (g)	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW (g)	
Nov-65	95	0.59	122	0	48	74	53	48	39	42	115	66	22	No	Yes	Yes	Yes		
Dec-65	96	0.60	71	0	109	169	121	109	95	103	130	161	54	No	Yes	Yes	Yes		
Jan-66	45	0.36	42	0	68	106	76	68	99	108	101	168	56	No	Yes	Yes	No		
Feb-66	120	0.76	189	0	161	251	179	161	100	109	108	170	57	No	Yes	Yes	Yes		
Mar-66	66	0.41	44	0	83	129	92	83	106	116	133	181	60	No	Yes	Yes	Yes		
Apr-66	23	0.14	38	0	0	0	0	0	0	0	106	0	0	No	No	No	Yes		
May-66	49	0.38	105	0	97	151	108	97	116	126	83	197	66	No	Yes	Yes	No		
Jun-66	128	0.80	72	0	71	111	79	71	47	52	136	81	27	No	Yes	Yes	Yes		
Jul-66	99	0.77	80	0	41	64	46	41	28	31	106	48	16	No	No	Yes	Yes		
Aug-66	108	0.76	114	0	167	260	186	167	111	121	109	188	63	No	Yes	Yes	Yes		
Sep-66	6	0.05	35	0	40	62	44	40	269	293	54	457	153	Yes	Yes	Yes	No		
Oct-66	117	0.72	90	0	59	91	65	59	42	45	129	71	24	No	Yes	Yes	Yes		
Nov-66	79	0.50	28	0	125	195	139	0	137	0	141	232	77	No	No	No	Yes		
Dec-66	49	0.37	30	0	97	151	108	0	141	0	115	239	80	No	No	No	Yes		
Jan-67	52	0.39	6	0	116	181	129	0	170	0	129	288	96	Yes	No	No	Yes		
Feb-67	133	0.83	22	0	40	62	44	0	27	0	152	46	15	No	No	No	Yes		
Mar-67	210	1.58	63	0	103	160	114	0	36	0	123	62	21	No	No	No	Yes		
Apr-67	53	0.40	33	0	145	225	161	0	195	0	114	331	111	Yes	No	No	Yes		
May-67	161	1.00	62	0	111	172	123	0	61	0	143	103	34	No	No	No	Yes		
Jun-67	111	0.69	59	0	126	196	140	0	96	0	134	164	55	No	No	No	Yes		
Jul-67	84	0.52	36	0	140	218	468	0	439	0	141	248	83	Yes	No	No	Yes		
Aug-67	85	0.64	101	0	90	140	300	0	213	0	101	120	40	Yes	No	No	No		
Sep-67	129	0.97	36	0	142	221	474	0	247	0	123	140	47	Yes	No	No	Yes		
Oct-67	42	0.31	28	0	46	71	153	0	234	0	113	133	44	Yes	No	No	Yes		
Nov-67	102	0.77	31	0	85	132	282	0	185	0	123	105	35	Yes	No	No	Yes		
Dec-67	69	0.52	23	0	0	0	0	0	0	0	122	0	0	No	No	No	Yes		
Jan-68	52	0.39	12	0	48	74	159	0	208	0	125	117	39	Yes	No	No	Yes		
Feb-68	156	1.17	50	0	39	60	129	0	55	0	122	31	10	No	No	No	Yes		
Mar-68	108	0.81	34	0	88	137	294	0	182	0	123	103	34	Yes	No	No	Yes		
Apr-68	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
May-68	182	1.36	40	2	40	62	132	0	49	0	125	28	9	No	No	No	Yes		
Jun-68	98	0.61	76	1	118	183	393	0	300	0	129	170	57	Yes	No	No	Yes		
Jul-68	153	0.95	21	0	85	132	282	0	152	0	154	86	29	No	No	No	Yes		
Aug-68	103	0.64	24	0	88	137	294	0	233	0	149	132	44	Yes	No	No	Yes		
Sep-68	111	0.70	25	0	104	161	345	0	249	0	147	141	47	Yes	No	No	Yes		
Oct-68	95	0.71	45	0	96	150	321	0	221	0	118	125	42	Yes	No	No	Yes		
Nov-68	190	1.42	59	0	111	172	369	0	130	0	123	74	25	No	No	No	Yes		
Dec-68	110	0.82	45	0	88	137	294	0	177	0	120	100	33	Yes	No	No	Yes		
Jan-69	191	1.44	70	0	131	204	438	0	152	0	121	86	29	No	No	No	Yes		
Feb-69	221	1.37	69	0	88	137	294	0	107	0	146	60	20	No	No	No	Yes		
Mar-69	55	0.42	39	0	138	214	459	0	528	0	112	299	100	Yes	No	No	Yes		
Apr-69	168	1.26	79	0	61	95	204	0	80	0	118	45	15	No	No	No	Yes		
May-69	534	1.10	81	0	108	168	360	0	159	0	423	90	30	No	No	No	Yes		
Jun-69	769	0.92	98	0	105	164	351	0	180	0	651	102	34	Yes	No	No	Yes		

APPENDIX A

F-Area PUREX HHW Monthly Weight Ratio Data

																			Fissile Mass w/Low Diluents
	Total	Estimated							Fe	Mn	U238	Ni	Al	Safe by	Safe by	Safe b y	Safe by		
	Uranium	U-235	Pu-239	Pu-241	NaAlO2	Ni(OH)2	Fe(OH)3	MnO2	Ratio	Ratio	Ratio	Ratio	Ratio	Fe only	Mn only	Fe & Mn	U238		
Date	HHW (Kg)	HHW (Kg)	HHW (g)	HHW (g)	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW (g)	
Jul-69	1111	5.21	245	0	66	102	219	0	21	0	195	12	4	No	No	No	Yes		
Aug-69	511	0.61	88	0	135	210	450	0	335	0	652	190	63	Yes	No	No	Yes		
Sep-69	368	2.20	109	0	135	210	450	0	102	0	152	58	19	No	No	No	Yes		
Oct-69	28	0.03	22	0	81	126	270	0	2577	0	371	1457	487	Yes	No	No	Yes		
Nov-69	134	0.16	129	0	20	31	66	0	119	0	327	67	22	No	No	No	Yes		
Dec-69	49	0.06	52	0	108	168	360	0	1683	0	309	952	318	Yes	No	No	Yes		
Jan-70	161	0.83	48	0	84	130	279	0	167	0	175	94	32	Yes	No	No	Yes		
Feb-70	107	0.51	43	0	111	172	369	0	350	0	180	198	66	Yes	No	No	Yes		
Mar-70	368	0.43	60	0	95	147	315	0	336	0	656	190	64	Yes	No	No	Yes		
Apr-70	135	0.62	31	0	91	141	303	0	244	0	198	138	46	Yes	No	No	Yes		
May-70	223	1.67	83	0	97	151	324	0	96	0	121	54	18	No	No	No	Yes		
Jun-70	0	0.00	0	0	68	106	228	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Jul-70	308	2.31	40	0	14	21	45	0	10	0	128	6	2	No	No	No	Yes		
Aug-70	194	1.46	44	0	122	189	405	0	141	0	125	80	27	No	No	No	Yes		
Sep-70	125	0.15	52	0	56	87	186	0	480	0	498	271	91	Yes	No	No	Yes		
Oct-70	419	0.50	120	0	126	196	420	0	353	0	571	199	67	Yes	No	No	Yes		
Nov-70	152	0.18	67	0	153	238	510	0	1065	0	487	602	201	Yes	No	No	Yes		
Dec-70	233	0.28	79	0	123	192	411	0	600	0	540	339	113	Yes	No	No	Yes		
Jan-71	264	0.32	94	0	94	146	312	0	398	0	531	225	75	Yes	No	No	Yes		
Feb-71	21	0.03	2	0	0	0	0	0	0	0	730	0	0	No	No	No	Yes		
Mar-71	22	0.03	3	0	84	130	279	0	4923	0	662	2784	930	Yes	No	No	Yes		
Apr-71	295	0.35	36	0	99	154	330	0	442	0	698	250	84	Yes	No	No	Yes		
May-71	182	0.22	36	0	111	172	369	0	758	0	634	429	143	Yes	No	No	Yes		
Jun-71	132	0.16	21	0	32	50	108	0	315	0	660	178	59	Yes	No	No	Yes		
Jul-71	107	0.13	74	0	42	66	141	0	364	0	394	206	69	Yes	No	No	Yes		
Aug-71	0	0.00	36	1	390	0	0	0	0	0	0	0	3500	No	No	No	No	37	
Sep-71	50	0.06	37	0	83	129	276	0	1473	0	380	833	278	Yes	No	No	Yes		
Oct-71	138	0.17	94	0	95	148	318	0	640	0	399	362	121	Yes	No	No	Yes		
Nov-71	142	0.17	43	0	95	147	315	0	769	0	561	435	145	Yes	No	No	Yes		
Dec-71	171	0.21	28	0	126	196	420	0	941	0	659	532	178	Yes	No	No	Yes		
Jan-72	210	0.25	120	0	68	106	228	0	320	0	435	181	60	Yes	No	No	Yes		
Feb-72	237	0.28	60	0	110	171	366	0	555	0	593	314	105	Yes	No	No	Yes		
Mar-72	208	0.25	60	0	113	176	378	0	638	0	570	361	120	Yes	No	No	Yes		
Apr-72	142	0.17	46	0	113	176	378	0	911	0	549	515	172	Yes	No	No	Yes		
May-72	200	0.24	53	0	97	151	324	0	578	0	583	327	109	Yes	No	No	Yes		
Jun-72	196	0.24	67	0	22	34	72	0	124	0	537	70	23	No	No	No	Yes		
Jul-72	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Aug-72	381	0.46	84	0	90	140	300	0	289	0	615	164	55	Yes	No	No	Yes		
Sep-72	78	0.09	69	0	59	91	195	0	625	0	344	354	118	Yes	No	No	Yes		
Oct-72	83	0.10	85	1	146	227	486	0	1371	0	314	775	259	Yes	No	No	Yes		
Nov-72	124	0.15	94	0	94	146	312	0	671	0	377	380	127	Yes	No	No	Yes		
Dec-72	106	0.13	59	0	124	193	414	0	1164	0	439	658	220	Yes	No	No	Yes		
Jan-73	373	0.45	136	0	186	290	621	0	556	0	526	315	105	Yes	No	No	Yes		
Feb-73	235	0.28	90	0	121	188	402	0	564	0	516	319	107	Yes	No	No	Yes		

APPENDIX A

F-Area PUREX HHW Monthly Weight Ratio Data

																			Fissile Mass
	Total Uranium	Estimated U-235	Pu-239	Pu-241	NaAlO2	Ni(OH)2	Fe(OH)3	MnO2	Fe Ratio	Mn Ratio	U238 Ratio	Ni Ratio	Al Ratio	Safe by Fe only	Safe by Mn only	Safe by Fe & Mn	Safe by U238	Safe by w/Low	
Date	HHW (Kg)	HHW (Kg)	HHW (g)	HHW (g)	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	Diluents HHW (g)
Mar-73	411	0.49	122	0	56	87	186	0	168	0	563	89	30	No	No	No	Yes		
Apr-73	0	0.00	0	0	109	169	363	0	2126600	0	0	1202632	401759	Yes	No	No	No		
May-73	0	0.00	1	4	0	0	0	0	0	0	0	0	0	No	No	No	No	6	
Jun-73	54	0.06	33	0	74	115	246	0	1324	0	420	749	250	Yes	No	No	Yes		
Jul-73	276	0.33	81	0	145	225	483	0	612	0	565	346	116	Yes	No	No	Yes		
Aug-73	87	0.10	67	0	61	96	204	0	620	0	372	351	117	Yes	No	No	Yes		
Sep-73	167	0.20	92	0	172	267	573	0	1023	0	443	579	193	Yes	No	No	Yes		
Oct-73	162	0.18	21	0	52	81	174	0	449	0	683	254	85	Yes	No	No	Yes		
Nov-73	406	0.49	86	0	155	241	516	0	470	0	621	266	89	Yes	No	No	Yes		
Dec-73	225	0.27	47	0	78	122	261	0	430	0	625	243	81	Yes	No	No	Yes		
Jan-74	238	0.40	172	0	133	207	444	0	402	0	323	227	76	Yes	No	No	Yes		
Feb-74	41	0.07	79	1	79	123	264	0	923	0	183	522	174	Yes	No	No	Yes		
Mar-74	144	0.24	86	1	140	218	468	0	737	0	348	417	139	Yes	No	No	Yes		
Apr-74	41	0.07	40	0	131	204	438	0	2072	0	279	1172	391	Yes	No	No	Yes		
May-74	150	0.26	150	0	129	200	429	0	553	0	276	313	105	Yes	No	No	Yes		
Jun-74	92	0.16	93	0	146	227	486	0	1019	0	276	576	192	Yes	No	No	Yes		
Jul-74	89	0.15	61	0	111	172	369	0	906	0	332	512	171	Yes	No	No	Yes		
Aug-74	135	0.23	61	0	43	67	144	0	259	0	389	146	49	Yes	No	No	Yes		
Sep-74	65	0.11	50	0	73	113	243	0	794	0	315	449	150	Yes	No	No	Yes		
Oct-74	123	0.21	38	0	94	146	312	0	659	0	434	373	125	Yes	No	No	Yes		
Nov-74	68	0.11	23	0	51	80	171	0	646	0	422	365	122	Yes	No	No	Yes		
Dec-74	103	0.18	47	0	59	92	198	0	466	0	388	264	88	Yes	No	No	Yes		
Jan-75	56	0.10	54	0	77	120	258	0	899	0	281	508	170	Yes	No	No	Yes		
Feb-75	12	0.02	7	0	0	0	0	0	0	0	342	0	0	No	No	No	Yes		
Mar-75	39	0.07	13	0	0	0	0	0	0	0	426	0	0	No	No	No	Yes		
Apr-75	41	0.07	7	0	0	0	0	0	0	0	498	0	0	No	No	No	Yes		
May-75	4	0.01	3	0	0	0	0	0	0	0	313	0	0	No	No	No	Yes		
Jun-75	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Jul-75	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Aug-75	282	0.48	36	0	0	0	0	0	0	0	514	0	0	No	No	No	Yes		
Sep-75	82	0.14	37	0	78	122	261	0	770	0	387	436	146	Yes	No	No	Yes		
Oct-75	105	0.18	39	0	78	122	261	0	626	0	413	353	118	Yes	No	No	Yes		
Nov-75	125	0.21	46	0	100	155	333	0	673	0	415	380	127	Yes	No	No	Yes		
Dec-75	103	0.18	38	0	106	165	354	0	867	0	413	490	164	Yes	No	No	Yes		
Jan-76	96	0.16	54	0	110	171	366	0	878	0	358	496	166	Yes	No	No	Yes		
Feb-76	89	0.15	42	0	114	178	381	0	1026	0	383	580	194	Yes	No	No	Yes		
Mar-76	142	0.24	75	0	87	136	291	0	481	0	368	272	91	Yes	No	No	Yes		
Apr-76	167	0.28	65	0	92	143	306	0	458	0	407	259	86	Yes	No	No	Yes		
May-76	185	0.31	65	0	84	130	279	0	383	0	419	217	72	Yes	No	No	Yes		
Jun-76	93	0.16	45	0	95	148	318	0	821	0	379	465	155	Yes	No	No	Yes		
Jul-76	150	0.26	93	0	101	157	336	0	504	0	346	285	95	Yes	No	No	Yes		
Aug-76	107	0.18	115	0	93	144	309	0	545	0	264	308	103	Yes	No	No	Yes		
Sep-76	142	0.24	157	0	95	147	315	0	412	0	261	233	78	Yes	No	No	Yes		
Oct-76	134	0.23	65	0	49	76	162	0	289	0	378	163	55	Yes	No	No	Yes		

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F-Area PUREX HHW Monthly Weight Ratio Data

Date	Total Uranium HHW (kg)	Estimated U-235 HHW (kg)	Pu-239 HHW (g)	Pu-241 HHW (g)	NaAlO ₂ HHW (kg)	Ni(OH) ₂ HHW (kg)	Fe(OH) ₃ HHW (kg)	MnO ₂ HHW (kg)	Fe Ratio HHW	Mn Ratio HHW	U238 Ratio HHW	Ni Ratio HHW	Al Ratio HHW	Safe by Fe only HHW	Safe by Mn only HHW	Safe by Fe & Mn HHW	Safe by U238 HHW	Fissile Mass w/Low Diluents HHW (g)
Nov-76	171	0.29	66	0	174	270	579	0	850	0	412	480	160	Yes	No	No	Yes	
Dec-76	74	0.13	71	0	41	63	135	0	367	0	282	202	67	Yes	No	No	Yes	
Jan-77	79	0.13	47	0	74	115	246	0	707	0	362	400	134	Yes	No	No	Yes	
Feb-77	63	0.11	68	0	86	132	282	0	839	0	264	474	159	Yes	No	No	Yes	
Mar-77	93	0.16	76	0	86	134	288	0	648	0	307	366	122	Yes	No	No	Yes	
Apr-77	119	0.20	47	0	115	179	384	0	806	0	406	456	152	Yes	No	No	Yes	
May-77	146	0.26	66	0	137	213	456	0	763	0	389	431	144	Yes	No	No	Yes	
Jun-77	121	0.21	96	0	114	178	381	0	662	0	310	374	125	Yes	No	No	Yes	
Jul-77	68	0.10	66	0	69	108	231	0	739	0	260	418	140	Yes	No	No	Yes	
Aug-77	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Sep-77	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Oct-77	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Nov-77	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Dec-77	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Jan-78	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Feb-78	108	0.18	3	0	36	55	117	0	327	0	571	186	62	Yes	No	No	Yes	
Mar-78	123	0.21	74	0	117	182	390	0	720	0	349	407	136	Yes	No	No	Yes	
Apr-78	126	0.21	62	0	119	185	396	0	766	0	376	427	143	Yes	No	No	Yes	
May-78	126	0.21	53	0	103	160	342	0	673	0	396	381	127	Yes	No	No	Yes	
Jun-78	118	0.20	57	0	127	197	423	0	855	0	380	484	162	Yes	No	No	Yes	
Jul-78	153	0.26	58	0	122	189	406	0	666	0	411	376	126	Yes	No	No	Yes	
Aug-78	104	0.18	63	0	46	71	153	0	334	0	349	189	63	Yes	No	No	Yes	
Sep-78	40	0.07	37	0	28	43	93	0	459	0	287	259	87	Yes	No	No	Yes	
Oct-78	39	0.07	46	0	121	188	402	0	1884	0	250	1065	366	Yes	No	No	Yes	
Nov-78	91	0.15	65	0	0	0	0	0	0	0	323	0	0	No	No	No	Yes	
Dec-78	51	0.09	10	0	0	0	0	0	0	0	478	0	0	No	No	No	Yes	
Jan-79	42	0.07	36	0	25	39	84	0	409	0	300	231	77	Yes	No	No	Yes	
Feb-79	6	0.01	5	0	28	43	93	0	3303	0	309	1868	624	Yes	No	No	Yes	
Mar-79	48	0.08	33	0	109	232	363	0	1667	0	330	1293	315	Yes	No	No	Yes	
Apr-79	117	0.20	89	0	149	216	498	0	906	0	315	475	171	Yes	No	No	Yes	
May-79	144	0.24	155	1	139	158	462	0	603	0	264	250	114	Yes	No	No	Yes	
Jun-79	43	0.07	33	0	102	169	339	0	1682	0	314	1019	318	Yes	No	No	Yes	
Jul-79	126	0.21	112	0	104	161	345	0	564	0	291	313	106	Yes	No	No	Yes	
Aug-79	296	0.50	106	0	59	91	195	0	168	0	418	95	32	Yes	No	No	Yes	
Sep-79	64	0.11	40	0	68	106	225	0	785	0	344	444	148	Yes	No	No	Yes	
Oct-79	64	0.11	40	0	0	0	0	0	0	0	344	0	0	No	No	No	Yes	
Nov-79	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Dec-79	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Jan-80	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Feb-80	39	0.07	68	0	96	150	321	0	1237	0	198	700	234	Yes	No	No	Yes	
Mar-80	99	0.17	112	0	125	195	417	0	776	0	257	439	147	Yes	No	No	Yes	
Apr-80	126	0.21	99	0	125	195	417	0	694	0	311	393	131	Yes	No	No	Yes	
May-80	61	0.10	34	0	101	157	336	0	1281	0	361	724	242	Yes	No	No	Yes	
Jun-80	137	0.23	144	1	125	195	417	0	576	0	268	326	109	Yes	No	No	Yes	

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F-Area PUREX HHW Monthly Weight Ratio Data

																			Fissile
	Total	Estimated							Fe	Mn	U238	Ni	Al	Safe by	Safe by	Safe by	Safe by	Mass	
	Uranium	U-235	Pu-239	Pu-241	NaAlO2	Ni(OH)2	Fe(OH)3	MnO2	Ratio	Ratio	Ratio	Ratio	Ratio	Fe only	Mn only	Fe & Mn	U238	Diluents	
Date	HHW (Kg)	HHW (Kg)	HHW (g)	HHW (g)	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW (g)	
Jul-80	179	0.30	107	0	77	120	258	0	328	0	361	185	62	Yes	No	No	Yes		
Aug-80	60	0.10	56	0	145	225	483	0	1697	0	285	903	302	Yes	No	No	Yes		
Sep-80	37	0.06	41	0	144	224	480	0	2408	0	260	1362	455	Yes	No	No	Yes		
Oct-80	128	0.22	210	1	144	224	480	0	585	0	205	331	111	Yes	No	No	Yes		
Nov-80	194	0.33	86	0	137	213	456	0	573	0	391	324	108	Yes	No	No	Yes		
Dec-80	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Jan-81	121	0.21	43	0	11	17	36	0	76	0	418	43	14	No	No	No	Yes		
Feb-81	226	0.38	304	1	104	161	345	0	262	0	233	148	49	Yes	No	No	Yes		
Mar-81	70	0.12	199	1	128	199	426	0	698	0	139	395	132	Yes	No	No	Yes		
Apr-81	41	0.07	62	0	117	182	390	0	1548	0	217	876	292	Yes	No	No	Yes		
May-81	262	0.45	228	1	85	132	282	0	219	0	296	124	41	Yes	No	No	Yes		
Jun-81	267	0.45	138	1	129	200	429	0	378	0	370	214	71	Yes	No	No	Yes		
Jul-81	191	0.32	165	1	96	150	321	0	342	0	297	194	65	Yes	No	No	Yes		
Aug-81	252	0.43	117	0	165	256	549	0	526	0	385	297	99	Yes	No	No	Yes		
Sep-81	273	0.46	189	1	166	258	552	0	441	0	329	250	83	Yes	No	No	Yes		
Oct-81	449	0.76	274	1	131	203	435	0	219	0	347	124	41	Yes	No	No	Yes		
Nov-81	323	0.55	213	1	152	237	507	0	347	0	336	196	66	Yes	No	No	Yes		
Dec-81	269	0.46	151	1	121	188	402	0	345	0	359	195	65	Yes	No	No	Yes		
Jan-82	444	0.75	310	1	86	133	285	0	140	0	328	79	26	No	No	No	Yes		
Feb-82	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Mar-82	47	0.08	26	0	72	112	240	0	1181	0	360	668	223	Yes	No	No	Yes		
Apr-82	184	0.31	122	0	41	63	135	0	162	0	335	92	31	Yes	No	No	Yes		
May-82	482	0.82	263	1	132	206	441	0	213	0	363	120	40	Yes	No	No	Yes		
Jun-82	346	0.59	161	1	111	172	369	0	257	0	385	145	49	Yes	No	No	Yes		
Jul-82	295	0.50	195	1	101	157	336	0	252	0	335	142	48	Yes	No	No	Yes		
Aug-82	138	0.23	151	1	80	125	267	0	362	0	263	205	68	Yes	No	No	Yes		
Sep-82	193	0.33	137	1	92	143	306	0	343	0	325	194	65	Yes	No	No	Yes		
Oct-82	291	0.49	180	1	129	200	429	0	532	0	346	188	63	Yes	No	No	Yes		
Nov-82	134	0.23	99	0	125	195	417	0	666	0	319	377	126	Yes	No	No	Yes		
Dec-82	204	0.35	99	0	48	74	159	0	186	0	379	105	35	Yes	No	No	Yes		
Jan-83	96	0.16	53	0	75	116	249	0	600	0	360	340	113	Yes	No	No	Yes		
Feb-83	214	0.36	180	1	155	241	516	0	496	0	301	280	94	Yes	No	No	Yes		
Mar-83	303	0.52	110	0	135	210	450	0	376	0	416	212	71	Yes	No	No	Yes		
Apr-83	225	0.38	94	0	103	160	342	0	375	0	399	212	71	Yes	No	No	Yes		
May-83	146	0.25	72	0	47	73	156	0	254	0	377	144	48	Yes	No	No	Yes		
Jun-83	39	0.07	26	0	41	64	138	0	779	0	333	440	147	Yes	No	No	Yes		
Jul-83	189	0.32	88	0	76	118	252	0	322	0	384	182	61	Yes	No	No	Yes		
Aug-83	212	0.36	45	0	41	63	135	0	174	0	474	98	33	Yes	No	No	Yes		
Sep-83	212	0.36	445	2	34	53	114	0	74	0	174	42	14	No	No	No	Yes		
Oct-83	223	0.38	427	2	68	106	228	0	147	0	185	83	28	No	No	No	Yes		
Nov-83	52	0.09	204	1	46	71	153	0	273	0	108	154	52	Yes	No	No	Yes		
Dec-83	21	0.04	62	0	69	108	231	0	1236	0	136	699	234	Yes	No	No	Yes		
Jan-84	156	0.27	137	1	64	99	213	0	277	0	295	156	52	Yes	No	No	Yes		
Feb-84	83	0.14	148	1	81	126	270	0	487	0	195	276	92	Yes	No	No	Yes		

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F-Area PUREX HHW Monthly Weight Ratio Data

																			Fissile Mass w/Low Diluents
	Total	Estimated							Fe	Mn	U238	Ni	Al	Safe by	Safe by	Safe b y	Safe by		
	Uranium	U-235	Pu-239	Pu-241	NaAlO2	Ni(OH)2	Fe(OH)3	MnO2	Ratio	Ratio	Ratio	Ratio	Ratio	Fe only	Mn only	Fe & Mn	U238		
Date	HHW (Kg)	HHW (Kg)	HHW (g)	HHW (g)	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW (Kg)	P:W	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW (g)	
Mar-84	696	1.01	263	1	61	95	204	0	84	0	396	48	16	No	No	No	Yes		
Apr-84	1057	1.80	314	1	54	84	180	0	45	0	439	25	8	No	No	No	Yes		
May-84	589	1.00	282	1	87	136	291	0	117	0	376	66	22	No	No	No	Yes		
Jun-84	1485	2.52	822	4	143	223	477	0	74	0	361	42	14	No	No	No	Yes		
Jul-84	2056	3.50	1290	6	46	71	153	0	17	0	343	9	3	No	No	No	Yes		
Aug-84	887	1.51	284	1	154	239	513	0	149	0	431	65	28	No	No	No	Yes		
Sep-84	382	0.65	346	2	166	258	552	0	289	0	290	164	55	Yes	No	No	Yes		
Oct-84	371	0.63	191	1	86	134	288	0	183	0	371	104	35	Yes	No	No	Yes		
Nov-84	643	1.09	502	2	137	213	456	0	149	0	311	84	28	No	No	No	Yes		
Dec-84	661	1.12	130	1	90	140	300	0	125	0	480	71	24	No	No	No	Yes		
Jan-85	65	0.11	42	0	93	144	309	0	1067	0	339	598	200	Yes	No	No	Yes		
Feb-85	196	0.33	131	1	84	130	279	0	314	0	334	177	59	Yes	No	No	Yes		
Mar-85	0	0.00	0	0	33	52	111	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Apr-85	120	0.20	91	0	17	27	57	0	101	0	316	57	19	No	No	No	Yes		
May-85	1516	2.58	393	2	110	171	366	0	64	0	454	36	12	No	No	No	Yes		
Jun-85	1065	1.81	712	3	121	188	402	0	83	0	334	47	16	No	No	No	Yes		
Jul-85	693	1.18	1133	5	182	283	606	0	137	0	206	77	26	No	No	No	Yes		
Aug-85	730	1.24	678	3	164	255	546	0	148	0	286	84	28	No	No	No	Yes		
Sep-85	1906	3.24	2358	11	106	165	354	0	33	0	244	19	6	No	No	No	Yes		
Oct-85	1842	3.13	369	2	95	148	318	0	47	0	478	27	9	No	No	No	Yes		
Nov-85	1221	10.26	1578	7	82	127	273	0	12	0	91	7	2	No	No	No	No	11845	
Dec-85	2471	7.97	766	4	68	106	228	0	14	0	261	8	3	No	No	No	Yes		
Jan-86	1305	2.22	633	3	159	248	531	0	97	0	379	55	18	No	No	No	Yes		
Feb-86	2096	3.56	494	2	173	269	576	0	74	0	463	42	14	No	No	No	Yes		
Mar-86	500	0.85	546	3	154	239	513	0	192	0	262	108	36	Yes	No	No	Yes		
Apr-86	516	0.88	192	1	171	266	570	0	278	0	413	157	53	Yes	No	No	Yes		
May-86	422	0.72	573	3	131	203	435	0	176	0	231	99	33	Yes	No	No	Yes		
Jun-86	184	0.31	73	0	47	73	156	0	211	0	406	119	40	Yes	No	No	Yes		
Jul-86	17	0.03	0	0	0	0	0	0	0	0	587	0	0	No	No	No	Yes		
Aug-86	897	1.52	1157	6	69	108	231	0	45	0	238	25	8	No	No	No	Yes		
Sep-86	384	0.65	1150	6	173	269	576	0	166	0	133	94	31	Yes	No	No	Yes		
Oct-86	235	0.40	376	2	93	144	309	0	208	0	209	118	39	Yes	No	No	Yes		
Nov-86	237	0.40	856	4	0	0	0	0	0	0	115	0	0	No	No	No	Yes		
Dec-86	279	0.47	1230	6	82	127	273	0	83	0	98	47	16	No	No	No	No	1710	
Jan-87	2126	3.61	439	2	232	361	774	0	100	0	476	56	19	No	No	No	Yes		
Feb-87	269	0.46	439	2	126	196	420	0	244	0	206	138	46	Yes	No	No	Yes		
Mar-87	907	1.54	363	2	181	281	603	0	165	0	404	93	31	Yes	No	No	Yes		
Apr-87	1302	2.21	203	1	151	235	504	0	109	0	495	62	21	No	No	No	Yes		
May-87	700	1.19	765	4	159	248	531	0	142	0	262	80	27	No	No	No	Yes		
Jun-87	741	1.26	417	2	115	179	384	0	120	0	358	68	23	No	No	No	Yes		
Jul-87	62	0.11	265	1	63	98	210	0	296	0	100	167	56	Yes	No	No	No		
Aug-87	50	0.09	22	0	29	45	96	0	466	0	389	264	88	Yes	No	No	Yes		
Sep-87	13	0.02	14	0	0	0	0	0	0	0	264	0	0	No	No	No	Yes		
Oct-87	2299	3.91	153	1	122	189	405	0	52	0	546	29	10	No	No	No	Yes		

APPENDIX A

F-Area PUREX HHW Monthly Weight Ratio Data

																			Fissile Mass
	Total Uranium	Estimated U-235	Pu-239	Pu-241	NaAlO2	NI(OH)2	Fe(OH)3	MnO2	Fe Ratio	Mn Ratio	U238 Ratio	NI Ratio	Al Ratio	Safe by Fe only	Safe by Mn only	Safe b y Fe & Mn	Safe by U238	w/Low Diluents	
Date	HHW (Kg)	HHW (Kg)	HHW (g)	HHW (g)	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW (g)	
Nov-87	274	0.47	109	1	135	210	450	0	408	0	404	231	77	Yes	No	No	Yes		
Dec-87	59	0.10	33	0	143	223	477	0	1872	0	360	1068	354	Yes	No	No	Yes		
Jan-88	104	0.18	36	0	162	252	540	0	1328	0	423	761	251	Yes	No	No	Yes		
Feb-88	188	0.32	513	3	133	207	444	0	278	0	143	157	52	Yes	No	No	Yes		
Mar-88	568	0.97	450	2	148	230	492	0	181	0	309	103	34	Yes	No	No	Yes		
Apr-88	230	0.39	106	1	104	161	345	0	363	0	386	205	69	Yes	No	No	Yes		
May-88	267	0.45	577	3	111	172	369	0	187	0	170	105	35	Yes	No	No	Yes		
Jun-88	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Jul-88	292	0.50	1231	7	155	241	516	0	155	0	101	88	29	No	No	No	No	1734	
Aug-88	347	0.59	1205	7	167	259	555	0	161	0	119	91	30	Yes	No	No	Yes		
Sep-88	246	0.42	407	2	151	235	504	0	318	0	204	180	60	Yes	No	No	Yes		
Oct-88	176	0.30	331	2	53	83	177	0	146	0	187	83	28	No	No	No	Yes		
Nov-88	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Dec-88	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Jan-89	0	0.00	0	0	66	102	219	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Feb-89	57	0.10	122	1	26	41	87	0	207	0	172	117	39	Yes	No	No	Yes		
Mar-89	81	0.14	94	1	11	17	36	0	81	0	253	46	15	No	No	No	Yes		
Apr-89	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
May-89	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Jun-89	3	0.01	3	0	32	50	108	0	7125	0	285	4030	1346	Yes	No	No	Yes		
Jul-89	214	0.36	282	2	79	123	264	0	213	0	235	120	40	Yes	No	No	Yes		
Aug-89	46	0.08	154	1	0	0	0	0	0	0	122	0	0	No	No	No	Yes		
Sep-89	100	0.17	99	1	29	45	96	0	186	0	276	105	35	Yes	No	No	Yes		
Oct-89	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Nov-89	284	0.48	207	1	0	0	0	0	0	0	322	0	0	No	No	No	Yes		
Dec-89	201	0.34	94	1	31	48	102	0	122	0	383	69	23	No	No	No	Yes		
Jan-90	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Feb-90	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Mar-90	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Apr-90	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
May-90	133	0.23	36	0	0	0	0	0	0	0	448	0	0	No	No	No	Yes		
Jun-90	417	0.71	398	2	5	8	18	0	8	0	282	5	2	No	No	No	Yes		
Jul-90	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Aug-90	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Sep-90	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Oct-90	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Nov-90	1	0.00	1	0	0	0	0	0	0	0	285	0	0	No	No	No	Yes		
Dec-90	218	0.37	61	0	0	0	0	0	0	0	446	0	0	No	No	No	Yes		
Jan-91	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Feb-91	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Mar-91	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Apr-91	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
May-91	4	0.01	4	0	0	0	0	0	0	0	285	0	0	No	No	No	Yes		
Jun-91	456	0.78	123	1	0	0	0	0	0	0	449	0	0	No	No	No	Yes		

APPENDIX A

F-Area PUREX HHW Monthly Weight Ratio Data

																		Fissile Mass
	Total	Estimated							Fe	Mn	U238	Ni	Al	Safe by	Safe by	Safe by	Safe by	w/Low
	Uranium	U-235	Pu-239	Pu-241	NaAlO ₂	Ni(OH) ₂	Fe(OH) ₃	MnO ₂	Ratio	Ratio	Ratio	Ratio	Ratio	Fe only	Mn only	Fe & Mn	U238	Diluents
Date	HHW (Kg)	HHW (Kg)	HHW (g)	HHW (g)	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW (g)
Jul-91	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Aug-91	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Sep-91	354	0.60	230	1	0	0	0	0	0	0	378	0	0	No	No	No	Yes	
Oct-91	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Nov-91	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Dec-91	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Jan-92	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Feb-92	0	0.00	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Totals	95584	307	85159	263	38146	56224	147416	44061	196	71	202	91	32	Yes	Yes	Yes	Yes	19214

APPENDIX A

Figure A.1 F-Canyon PUREX HHW Monthly Fe:Fissile Material Weight Ratios

APPENDIX A

Figure A.2 F-Canyon PUREX HHW Monthly Mn:Fissile Material Weight Ratios

APPENDIX A

Figure A.3 F-Canyon PUREX HHW Monthly U-238:Equivalent U-235 Weight Ratios

APPENDIX A

Figure A.4 F-Canyon PUREX HHW Monthly Ni:Fissile Material Weight Ratios

APPENDIX A

Figure A.5 F-Canyon PUREX HHW Monthly Al:Fissile Material Weight Ratios

APPENDIX A

Figure A.6 F-Canyon PUREX HHW Fissile Mass in Months
Not Exceeding Minimum Safe Weight Ratios of Fe, Mn and/or U-238

APPENDIX B

F-Area PUREX LHW Monthly Weight Ratio Data

																Fissile Mass
	Total	Estimated						Fe	Mn	U238	Al	Safe by	Safe by	Safe by	Safe by	w/Low
	Uranium	U-235	Pu-239	Pu-241	NaAlO2	Fe(OH)3	MnO2	Ratio	Ratio	Ratio	Ratio	Fe only	Mn only	Fe & Mn	U238	Diluents
Date	LHW (Kg)	LHW (Kg)	LHW (g)	LHW (g)	LHW (Kg)	LHW (Kg)	LHW (Kg)	LHW	LHW	LHW	LHW	LHW	LHW	LHW	LHW	(g)
Nov-54	0	0.00	1	0	77	0	0	0	0	0	27078	No	No	No	No	1
Dec-54	40	0.25	94	0	254	0	0	0	0	93	244	No	No	No	No	343
Jan-55	42	0.26	129	0	285	0	0	0	0	82	241	No	No	No	No	390
Feb-55	89	0.55	151	0	647	0	0	0	0	105	303	No	No	No	Yes	
Mar-55	139	0.86	221	0	770	0	0	0	0	107	234	No	No	No	Yes	
Apr-55	112	0.69	135	0	747	0	0	0	0	117	296	No	No	No	Yes	
May-55	65	0.40	131	0	855	0	0	0	0	99	527	No	No	No	No	534
Jun-55	56	0.35	129	0	855	0	0	0	0	94	590	No	No	No	No	476
Jul-55	214	1.33	150	0	1040	0	0	0	0	132	232	No	No	No	Yes	
Aug-55	65	0.40	108	0	554	0	0	0	0	106	357	No	No	No	Yes	
Sep-55	94	0.58	114	0	809	0	0	0	0	116	382	No	No	No	Yes	
Oct-55	38	0.24	136	0	739	0	0	0	0	76	655	No	No	No	No	371
Nov-55	6	0.04	174	0	593	0	0	0	0	16	924	No	No	No	No	211
Dec-55	514	3.19	151	0	809	0	0	0	0	147	80	No	No	No	Yes	
Jan-56	28	0.17	139	0	570	0	0	0	0	63	599	No	No	No	No	313
Feb-56	125	0.78	151	0	670	0	0	0	0	117	238	No	No	No	Yes	
Mar-56	154	0.95	165	0	824	0	0	0	0	120	242	No	No	No	Yes	
Apr-56	163	1.01	169	0	870	0	0	0	0	121	243	No	No	No	Yes	
May-56	131	0.81	153	0	701	0	0	0	0	118	239	No	No	No	Yes	
Jun-56	167	1.04	172	0	893	0	0	0	0	121	243	No	No	No	Yes	
Jul-56	137	0.85	157	0	732	0	0	0	0	118	239	No	No	No	Yes	
Aug-56	171	1.06	174	0	916	0	0	0	0	122	244	No	No	No	Yes	
Sep-56	131	0.81	79	0	701	0	0	0	0	135	259	No	No	No	Yes	
Oct-56	147	0.91	152	0	785	0	0	0	0	121	243	No	No	No	Yes	
Nov-56	161	1.00	174	0	862	0	0	0	0	120	242	No	No	No	Yes	
Dec-56	166	1.03	207	0	886	0	0	0	0	116	236	No	No	No	Yes	
Jan-57	178	1.10	201	0	955	0	0	0	0	119	241	No	No	No	Yes	
Feb-57	166	1.03	175	0	886	0	0	0	0	121	242	No	No	No	Yes	
Mar-57	156	0.97	177	0	832	0	0	0	0	119	239	No	No	No	Yes	
Apr-57	0	0.00	115	0	0	0	0	0	0	0	0	No	No	No	No	115
May-57	0	0.00	148	0	0	0	0	0	0	0	0	No	No	No	No	148
Jun-57	0	0.00	14	0	0	0	0	0	0	0	0	No	No	No	No	14
Jul-57	0	0.00	48	0	0	0	0	0	0	0	0	No	No	No	No	48
Aug-57	0	0.00	80	0	0	0	0	0	0	0	0	No	No	No	No	80
Sep-57	0	0.00	48	0	0	0	0	0	0	0	0	No	No	No	No	48
Oct-57	0	0.00	132	0	0	0	0	0	0	0	0	No	No	No	No	132
Nov-57	0	0.00	106	0	0	0	0	0	0	0	0	No	No	No	No	106
Dec-57	0	0.00	50	0	0	0	0	0	0	0	0	No	No	No	No	51
Jan-58	0	0.00	61	0	0	0	0	0	0	0	0	No	No	No	No	61
Feb-58	0	0.00	76	0	0	0	0	0	0	0	0	No	No	No	No	76
Mar-58	0	0.00	59	0	0	0	0	0	0	0	0	No	No	No	No	59
Apr-58	0	0.00	79	0	0	0	0	0	0	0	0	No	No	No	No	80
May-58	0	0.00	75	0	0	0	0	0	0	0	0	No	No	No	No	75
Jun-58	0	0.00	52	0	0	0	0	0	0	0	0	No	No	No	No	52

APPENDIX B

F-Area PUREX LHW Monthly Weight Ratio Data

																	Fissile
																	Mass
	Total	Estimated						Fe	Mn	U238	Al	Safe by	Safe by	Safe by	Safe by		w/Low
	Uranium	U-235	Pu-239	Pu-241	NaAlO2	Fe(OH)3	MnO2	Ratio	Ratio	Ratio	Ratio	Fe only	Mn only	Fe & Mn	U238		Diluents
Date	LHW (Kg)	LHW (Kg)	LHW (g)	LHW (g)	LHW (Kg)	LHW (Kg)	LHW (Kg)	LHW	LHW	LHW	LHW	LHW	LHW	LHW	LHW		(g)
Jul-58	0	0.00	32	0	0	0	0	0	0	0	0	No	No	No	No		32
Aug-58	0	0.00	33	0	0	0	0	0	0	0	0	No	No	No	No		33
Sep-58	0	0.00	46	0	0	0	0	0	0	0	0	No	No	No	No		46
Oct-58	0	0.00	50	0	0	0	0	0	0	0	0	No	No	No	No		51
Nov-58	0	0.00	32	0	0	0	0	0	0	0	0	No	No	No	No		32
Dec-58	0	0.00	21	0	0	0	0	0	0	0	0	No	No	No	No		21
Jan-59	0	0.00	33	0	0	0	0	0	0	0	0	No	No	No	No		33
Feb-59	0	0.00	99	0	0	0	0	0	0	0	0	No	No	No	No		99
Mar-59	0	0.00	36	0	0	0	0	0	0	0	0	No	No	No	No		36
Apr-59	81	0.50	127	0	431	0	0	0	0	108	225	No	No	No	Yes		
May-59	73	0.46	179	0	393	0	0	0	0	91	205	No	No	No	No		631
Jun-59	63	0.39	157	0	339	0	0	0	0	90	204	No	No	No	No		548
Jul-59	46	0.28	455	1	732	0	0	0	0	39	325	No	No	No	No		740
Aug-59	55	0.34	441	1	1047	0	0	0	0	46	439	No	No	No	No		785
Sep-59	99	0.62	148	0	300	0	0	0	0	110	129	No	No	No	Yes		
Oct-59	108	0.67	448	1	970	0	0	0	0	70	286	No	No	No	No		1115
Nov-59	50	0.31	715	1	862	0	0	0	0	29	277	No	No	No	No		1025
Dec-59	82	0.51	695	1	924	0	0	0	0	44	253	No	No	No	No		1202
Jan-60	77	0.48	677	1	1840	0	0	0	0	43	525	No	No	No	No		1153
Feb-60	131	0.81	674	1	847	0	0	0	0	62	188	No	No	No	No		1485
Mar-60	161	1.00	792	1	978	0	0	0	0	63	180	No	No	No	No		1791
Apr-60	164	1.02	530	1	1917	0	0	0	0	80	407	No	No	No	No		1549
May-60	156	0.96	618	1	1155	0	0	0	0	72	240	No	No	No	No		1583
Jun-60	187	1.16	1217	1	1725	0	0	0	0	53	238	No	No	No	No		2380
Jul-60	231	1.43	533	1	1078	0	0	0	0	94	180	No	No	No	No		1968
Aug-60	289	1.79	1130	1	1317	0	0	0	0	72	148	No	No	No	No		2926
Sep-60	106	0.66	453	1	1140	0	0	0	0	69	338	No	No	No	No		1109
Oct-60	31	0.19	413	1	169	0	0	0	0	31	92	No	No	No	No		608
Nov-60	12	0.07	153	0	0	0	0	0	0	32	0	No	No	No	No		227
Dec-60	7	0.04	130	0	0	0	0	0	0	23	0	No	No	No	No		172
Jan-61	71	0.44	92	0	0	0	0	0	0	114	0	No	No	No	Yes		
Feb-61	78	0.48	148	0	0	0	0	0	0	101	0	No	No	No	No		629
Mar-61	163	1.01	405	1	732	0	0	0	0	91	170	No	No	No	No		1418
Apr-61	289	1.79	468	1	1817	0	0	0	0	107	264	No	No	No	Yes		
May-61	357	2.21	980	1	1956	0	0	0	0	87	201	No	No	No	No		3194
Jun-61	246	1.53	1079	1	2233	3625	261	727	63	68	282	Yes	Yes	Yes	No		
Jul-61	15	0.09	93	0	0	0	0	0	0	54	0	No	No	No	No		183
Aug-61	73	0.46	12	0	0	0	0	0	0	152	0	No	No	No	Yes		
Sep-61	83	0.51	127	0	0	0	0	0	0	108	0	No	No	No	Yes		
Oct-61	99	0.61	199	0	0	0	0	0	0	99	0	No	No	No	No		812
Nov-61	91	0.56	94	0	0	0	0	0	0	121	0	No	No	No	Yes		
Dec-61	19	0.12	59	0	0	0	0	0	0	82	0	No	No	No	No		177
Jan-62	278	1.72	836	1	939	1525	110	312	27	83	121	Yes	No	Yes	No		
Feb-62	395	2.45	635	1	2695	4375	315	741	65	107	287	Yes	Yes	Yes	Yes		

APPENDIX B

F-Area PUREX LHW Monthly Weight Ratio Data

																	Fissile Mass
	Total	Estimated						Fe	Mn	U238	Al	Safe by	Safe by	Safe by	Safe by	w/Low	
	Uranium	U-235	Pu-239	Pu-241	NaAlO2	Fe(OH)3	MnO2	Ratio	Ratio	Ratio	Ratio	Fe only	Mn only	Fe & Mn	U238	Diluents	
Date	LHW (Kg)	LHW (Kg)	LHW (g)	LHW (g)	LHW (Kg)	LHW (Kg)	LHW (Kg)	LHW	LHW	LHW	LHW	LHW	LHW	LHW	LHW	(g)	
Mar-62	390	2.42	883	1	2503	4063	293	643	56	94	242	Yes	Yes	Yes	No		
Apr-62	381	2.37	1000	1	2349	3813	275	592	52	88	230	Yes	Yes	Yes	No		
May-62	422	2.62	918	1	2441	3963	285	586	51	96	227	Yes	Yes	Yes	No		
Jun-62	368	2.28	755	1	1987	3225	232	555	48	98	215	Yes	Yes	Yes	No		
Jul-62	434	2.69	510	1	2580	4188	302	684	60	118	265	Yes	Yes	Yes	Yes		
Aug-62	89	0.55	207	0	0	0	0	0	0	0	0	No	No	No	No	761	
Sep-62	10	0.06	242	0	0	0	0	0	0	0	0	No	No	No	No	307	
Oct-62	24	0.15	175	0	0	0	0	0	0	0	0	No	No	No	No	327	
Nov-62	315	1.95	251	0	0	0	0	0	0	129	0	No	No	No	Yes		
Dec-62	164	1.02	301	0	0	0	0	0	0	102	0	No	No	No	No	1320	
Jan-63	6	0.04	290	0	0	0	0	0	0	10	0	No	No	No	No	327	
Feb-63	314	1.95	1023	1	554	900	65	158	14	80	61	No	No	Yes	No		
Mar-63	552	3.42	987	1	1887	3063	221	363	32	103	141	Yes	No	Yes	Yes		
Apr-63	298	1.84	680	1	1571	2550	184	528	46	94	205	Yes	Yes	Yes	No		
May-63	354	2.19	604	1	1525	2475	178	462	40	105	179	Yes	Yes	Yes	Yes		
Jun-63	619	3.84	921	1	2372	3850	277	423	37	110	164	Yes	Yes	Yes	Yes		
Jul-63	456	2.83	658	1	1317	2138	154	320	28	111	124	Yes	No	Yes	Yes		
Aug-63	485	3.01	694	1	1679	2725	196	385	33	111	149	Yes	Yes	Yes	Yes		
Sep-63	391	2.43	408	1	1979	3213	231	592	52	121	230	Yes	Yes	Yes	Yes		
Oct-63	73	0.46	224	0	0	0	0	0	0	82	0	No	No	No	No	680	
Nov-63	15	0.09	106	0	0	0	0	0	0	50	0	No	No	No	No	199	
Dec-63	74	0.46	309	0	0	0	0	0	0	70	0	No	No	No	No	770	
Jan-64	400	2.48	1036	2	1232	2000	144	297	26	89	115	Yes	No	Yes	No		
Feb-64	932	5.78	846	1	2179	3538	255	279	24	125	108	Yes	No	Yes	Yes		
Mar-64	554	3.44	1786	3	1170	1900	137	190	17	80	74	Yes	No	Yes	No		
Apr-64	489	3.03	1363	2	1571	2550	184	303	26	85	118	Yes	No	Yes	No		
May-64	754	4.68	1118	2	1663	2700	194	243	21	110	94	Yes	No	Yes	Yes		
Jun-64	344	2.13	906	1	2225	3613	260	621	54	88	241	Yes	Yes	Yes	No		
Jul-64	220	1.36	430	1	0	0	0	0	0	100	0	No	No	No	No	1795	
Aug-64	13	0.08	333	1	0	0	0	0	0	18	0	No	No	No	No	412	
Sep-64	4	0.02	217	0	0	0	0	0	0	8	0	No	No	No	No	240	
Oct-64	269	1.67	1393	2	593	963	69	164	14	62	64	Yes	No	Yes	No		
Nov-64	385	2.68	793	1	1925	3125	225	471	41	91	183	Yes	Yes	Yes	No		
Dec-64	978	6.57	1042	2	1540	2500	180	172	15	113	67	Yes	No	Yes	Yes		
Jan-65	94	0.52	452	1	1271	2063	149	1039	90	65	403	Yes	Yes	Yes	No		
Feb-65	351	2.17	668	1	1617	2625	189	483	42	101	187	Yes	Yes	Yes	No		
Mar-65	516	3.73	643	1	1155	1875	135	224	20	103	87	Yes	No	Yes	Yes		
Apr-65	430	3.17	570	1	1532	2488	179	347	30	100	135	Yes	No	Yes	No		
May-65	177	1.10	624	1	2048	3325	239	1009	88	77	392	Yes	Yes	Yes	No		
Jun-65	59	0.36	269	0	0	0	0	0	0	66	0	No	No	No	No	632	
Jul-65	78	0.48	103	4	778	1263	91	1117	97	113	433	Yes	Yes	Yes	Yes		
Aug-65	108	0.67	212	3	516	838	60	493	43	99	191	Yes	Yes	Yes	No		
Sep-65	116	0.72	123	1	146	238	17	147	13	121	57	No	No	Yes	Yes		
Oct-65	66	0.41	274	1	424	688	50	527	46	70	204	Yes	Yes	Yes	No		

APPENDIX B

F-Area PUREX LHW Monthly Weight Ratio Data

																	Fissile
	Total	Estimated						Fe	Mn	U238	Al	Safe by	Safe by	Safe by	Safe by		Mass
	Uranium	U-235	Pu-239	Pu-241	NaAlO2	Fe(OH)3	MnO2	Ratio	Ratio	Ratio	Ratio	Fe only	Mn only	Fe & Mn	U238		w/Low
Date	LHW (Kg)	LHW (Kg)	LHW (g)	LHW (g)	LHW (Kg)	LHW (Kg)	LHW (Kg)	LHW	LHW	LHW	LHW	LHW	LHW	LHW	LHW		Diluents
Nov-65	54	0.33	154	0	408	663	48	712	62	85	276	Yes	Yes	Yes	No		
Dec-65	139	0.86	431	1	932	1513	109	610	53	82	237	Yes	Yes	Yes	No		
Jan-66	492	3.51	463	1	585	950	68	125	11	111	48	No	No	No	Yes		
Feb-66	148	0.92	480	1	1378	2238	161	837	73	80	325	Yes	Yes	Yes	No		
Mar-66	122	0.75	672	1	708	1150	83	421	37	59	163	Yes	Yes	Yes	No		
Apr-66	45	0.28	402	1	0	0	0	0	0	43	0	No	No	No	No	684	
May-66	132	1.00	537	1	832	1350	97	459	40	64	178	Yes	Yes	Yes	No		
Jun-66	154	1.01	452	1	608	988	71	354	31	81	137	Yes	No	Yes	No		
Jul-66	181	1.40	433	1	354	1086	41	310	14	81	64	Yes	No	Yes	No		
Aug-66	355	2.50	966	2	1432	4390	167	662	31	81	136	Yes	No	Yes	No		
Sep-66	56	0.45	347	1	339	1038	40	681	31	50	140	Yes	No	Yes	No		
Oct-66	178	1.11	554	1	501	1534	59	483	22	82	99	Yes	No	Yes	No		
Nov-66	294	1.88	665	1	1070	3280	125	674	31	93	139	Yes	No	Yes	No		
Dec-66	164	1.23	639	1	832	2549	97	712	33	66	146	Yes	Yes	Yes	No		
Jan-67	234	1.75	339	1	993	3044	116	761	35	96	156	Yes	Yes	Yes	No		
Feb-67	165	1.05	256	0	339	1038	40	415	19	106	85	Yes	No	Yes	Yes		
Mar-67	326	2.45	491	1	878	2690	103	479	22	95	98	Yes	No	Yes	No		
Apr-67	109	0.82	676	1	1240	3800	145	1329	61	51	273	Yes	Yes	Yes	No		
May-67	171	1.06	629	1	947	2903	111	896	41	75	184	Yes	Yes	Yes	No		
Jun-67	199	1.23	550	1	1078	3304	126	967	45	86	199	Yes	Yes	Yes	No		
Jul-67	140	0.87	370	1	1201	3682	140	1552	72	88	319	Yes	Yes	Yes	No		
Aug-67	169	1.27	561	1	770	2360	90	675	31	71	139	Yes	No	Yes	No		
Sep-67	142	1.07	469	1	1217	3729	142	1267	58	72	260	Yes	Yes	Yes	No		
Oct-67	54	0.40	245	0	393	1204	46	972	45	61	200	Yes	Yes	Yes	No		
Nov-67	102	0.76	523	1	724	2218	85	902	42	57	185	Yes	Yes	Yes	No		
Dec-67	22	0.16	155	0	0	0	0	0	0	47	0	No	No	No	No	319	
Jan-68	267	2.00	310	1	408	1251	48	282	13	102	58	Yes	No	Yes	No		
Feb-68	68	0.51	256	0	331	1015	39	688	32	68	141	Yes	No	Yes	No		
Mar-68	113	0.85	215	0	755	2313	88	1134	52	89	233	Yes	Yes	Yes	No		
Apr-68	99	0.75	157	0	0	0	0	0	0	94	0	No	No	No	No	902	
May-68	62	0.46	254	0	339	1038	40	756	35	64	155	Yes	Yes	Yes	No		
Jun-68	122	0.77	250	5	1009	3092	118	1572	72	96	323	Yes	Yes	Yes	No		
Jul-68	99	0.62	381	4	724	2218	85	1159	53	73	238	Yes	Yes	Yes	No		
Aug-68	68	0.42	374	2	755	2313	88	1515	70	59	311	Yes	Yes	Yes	No		
Sep-68	48	0.35	442	2	886	2714	104	1785	82	40	367	Yes	Yes	Yes	No		
Oct-68	110	0.82	530	1	824	2525	96	974	45	59	200	Yes	Yes	Yes	No		
Nov-68	134	1.00	369	1	947	2903	111	1104	51	77	227	Yes	Yes	Yes	No		
Dec-68	86	0.65	335	1	755	2313	88	1231	57	66	253	Yes	Yes	Yes	No		
Jan-69	125	0.94	417	1	1124	3446	131	1327	61	71	273	Yes	Yes	Yes	No		
Feb-69	236	1.10	389	1	755	2313	88	813	37	127	167	Yes	Yes	Yes	Yes		
Mar-69	219	1.64	378	1	1178	3611	138	935	43	92	192	Yes	Yes	Yes	No		
Apr-69	109	0.82	261	1	524	1605	61	778	36	82	160	Yes	Yes	Yes	No		
May-69	109	0.43	261	1	924	2832	108	2155	99	117	443	Yes	Yes	Yes	Yes		
Jun-69	148	0.18	248	0	901	2761	105	3390	156	226	696	Yes	Yes	Yes	Yes		

APPENDIX B

F-Area PUREX LHW Monthly Weight Ratio Data

																Fissile Mass w/Low Diluents (g)
	Total Uranium LHW (Kg)	Estimated U-235 LHW (Kg)	Pu-239 LHW (g)	Pu-241 LHW (g)	NaAlO2 LHW (Kg)	Fe(OH)3 LHW (Kg)	MnO2 LHW (Kg)	Fe Ratio LHW	Mn Ratio LHW	U238 Ratio LHW	Al Ratio LHW	Safe by Fe only LHW	Safe by Mn only LHW	Safe by Fe & Mn LHW	Safe by U238 LHW	
Jul-69	112	0.55	307	1	562	1723	66	1048	48	98	215	Yes	Yes	Yes	No	
Aug-69	311	0.37	416	1	1155	3540	135	2343	108	265	481	Yes	Yes	Yes	Yes	
Sep-69	274	0.97	289	1	1155	3540	135	1464	67	178	301	Yes	Yes	Yes	Yes	
Oct-69	209	0.25	299	1	693	2124	81	2018	93	252	415	Yes	Yes	Yes	Yes	
Nov-69	54	0.06	393	1	169	519	20	592	27	66	122	Yes	No	Yes	No	
Dec-69	115	0.14	329	1	924	2832	108	3166	146	149	650	Yes	Yes	Yes	Yes	
Jan-70	88	0.45	338	1	716	2195	84	1455	67	80	299	Yes	Yes	Yes	No	
Feb-70	97	0.47	315	1	947	2903	111	1936	89	90	398	Yes	Yes	Yes	No	
Mar-70	150	0.18	403	1	809	2478	95	2220	102	157	456	Yes	Yes	Yes	Yes	
Apr-70	112	0.64	429	1	778	2384	91	1164	54	76	239	Yes	Yes	Yes	No	
May-70	52	0.26	311	1	832	2549	97	2322	107	60	477	Yes	Yes	Yes	No	
Jun-70	126	0.15	160	1	585	1794	68	3003	138	274	617	Yes	Yes	Yes	Yes	
Jul-70	150	1.13	339	3	116	354	14	126	6	84	26	No	No	No	No	1468
Aug-70	103	0.70	547	4	1040	3186	122	1330	61	58	273	Yes	Yes	Yes	No	
Sep-70	209	0.25	515	8	477	1463	56	989	46	166	203	Yes	Yes	Yes	Yes	
Oct-70	130	0.16	589	1	1078	3304	126	2315	107	101	476	Yes	Yes	Yes	No	
Nov-70	129	0.15	453	1	1309	4012	153	3448	159	125	708	Yes	Yes	Yes	Yes	
Dec-70	173	0.21	631	1	1055	3233	123	2011	93	122	413	Yes	Yes	Yes	Yes	
Jan-71	200	0.24	530	1	801	2454	94	1662	77	159	341	Yes	Yes	Yes	Yes	
Feb-71	68	0.08	110	0	0	0	0	0	0	231	0	No	No	No	Yes	
Mar-71	102	0.12	294	1	716	2195	84	2750	127	147	565	Yes	Yes	Yes	Yes	
Apr-71	206	0.25	312	1	847	2596	99	2420	112	243	497	Yes	Yes	Yes	Yes	
May-71	142	0.17	312	1	947	2903	111	3139	145	184	645	Yes	Yes	Yes	Yes	
Jun-71	28	0.03	240	1	277	850	32	1620	75	56	333	Yes	Yes	Yes	No	
Jul-71	27	0.03	244	1	362	1109	42	2092	96	54	430	Yes	Yes	Yes	No	
Aug-71	128	0.15	88	3	0	0	0	0	0	389	0	No	No	No	Yes	
Sep-71	133	0.16	254	1	708	2171	83	2734	126	204	562	Yes	Yes	Yes	Yes	
Oct-71	257	0.31	514	1	816	2502	95	1588	73	198	326	Yes	Yes	Yes	Yes	
Nov-71	199	0.24	443	1	809	2478	95	1896	87	182	390	Yes	Yes	Yes	Yes	
Dec-71	141	0.17	387	1	1078	3304	126	3099	143	154	637	Yes	Yes	Yes	Yes	
Jan-72	101	0.12	354	1	585	1794	68	1967	91	126	404	Yes	Yes	Yes	Yes	
Feb-72	122	0.15	360	1	939	2879	110	2966	137	145	610	Yes	Yes	Yes	Yes	
Mar-72	101	0.12	357	1	970	2974	113	3245	150	124	667	Yes	Yes	Yes	Yes	
Apr-72	142	0.17	446	1	970	2974	113	2515	116	138	517	Yes	Yes	Yes	Yes	
May-72	106	0.13	337	1	832	2549	97	2866	132	137	589	Yes	Yes	Yes	Yes	
Jun-72	11	0.01	149	0	185	566	22	1820	84	38	374	Yes	Yes	Yes	No	
Jul-72	24	0.03	65	0	0	0	0	0	0	159	0	No	No	No	Yes	
Aug-72	68	0.08	365	1	770	2360	90	2758	127	87	567	Yes	Yes	Yes	No	
Sep-72	38	0.05	223	1	501	1534	59	2978	137	79	612	Yes	Yes	Yes	No	
Oct-72	86	0.10	345	1	1247	3823	146	4453	205	112	915	Yes	Yes	Yes	Yes	
Nov-72	132	0.16	441	1	801	2454	94	2135	98	131	439	Yes	Yes	Yes	Yes	
Dec-72	114	0.14	606	1	1063	3257	124	2286	105	88	470	Yes	Yes	Yes	No	
Jan-73	166	0.20	647	2	1594	4885	186	3009	139	115	618	Yes	Yes	Yes	Yes	
Feb-73	126	0.15	468	1	1032	3162	121	2662	123	120	547	Yes	Yes	Yes	Yes	

APPENDIX B

F-Area PUREX LHW Monthly Weight Ratio Data

																	Fissile
	Total	Estimated						Fe	Mn	U238	Al	Safe by	Safe by	Safe by	Safe by		Mass
	Uranium	U-235	Pu-239	Pu-241	NaAlO2	Fe(OH)3	MnO2	Ratio	Ratio	Ratio	Ratio	Fe only	Mn only	Fe & Mn	U238		w/Low
Date	LHW (Kg)	LHW (Kg)	LHW (g)	LHW (g)	LHW (Kg)	LHW (Kg)	LHW (Kg)	LHW	LHW	LHW	LHW	LHW	LHW	LHW	LHW		Diluents (g)
Mar-73	104	0.12	384	1	477	1463	56	1500	69	120	308	Yes	Yes	Yes	Yes		
Apr-73	86	0.10	67	0	932	2856	109	8756	404	371	1799	Yes	Yes	Yes	Yes		
May-73	34	0.04	41	2	0	0	0	0	0	275	0	No	No	No	Yes		
Jun-73	160	0.19	363	2	631	1935	74	1851	85	183	380	Yes	Yes	Yes	Yes		
Jul-73	118	0.14	640	2	1240	3800	145	2535	117	86	521	Yes	Yes	Yes	Yes	No	
Aug-73	81	0.10	387	1	524	1806	61	1728	80	96	355	Yes	Yes	Yes	Yes	No	
Sep-73	125	0.15	566	1	1471	4508	172	3284	151	101	675	Yes	Yes	Yes	Yes	No	
Oct-73	80	0.10	381	1	447	1379	52	1561	72	101	321	Yes	Yes	Yes	Yes	No	
Nov-73	101	0.12	726	2	1324	4069	155	2498	115	67	514	Yes	Yes	Yes	Yes	No	
Dec-73	78	0.09	495	1	670	2053	78	1820	84	75	374	Yes	Yes	Yes	Yes	No	
Jan-74	104	0.18	726	2	1140	3493	133	2015	93	66	414	Yes	Yes	Yes	Yes	No	
Feb-74	51	0.09	487	6	678	2077	79	1873	86	49	385	Yes	Yes	Yes	Yes	No	
Mar-74	160	0.27	907	11	1201	3682	140	1619	75	78	333	Yes	Yes	Yes	Yes	No	
Apr-74	130	0.22	402	1	1124	3446	131	2884	133	131	593	Yes	Yes	Yes	Yes	Yes	
May-74	103	0.17	411	1	1101	3375	129	3006	139	106	618	Yes	Yes	Yes	Yes	Yes	
Jun-74	141	0.24	445	1	1247	3823	146	2916	134	128	599	Yes	Yes	Yes	Yes	Yes	
Jul-74	135	0.23	550	1	947	2903	111	1944	90	104	399	Yes	Yes	Yes	Yes	Yes	
Aug-74	60	0.10	274	1	370	1133	43	1569	72	96	322	Yes	Yes	Yes	Yes	No	
Sep-74	63	0.11	378	1	624	1912	73	2056	95	75	422	Yes	Yes	Yes	Yes	No	
Oct-74	138	0.24	515	1	801	2454	94	1706	79	113	351	Yes	Yes	Yes	Yes	Yes	
Nov-74	49	0.08	317	1	439	1345	51	1753	81	71	360	Yes	Yes	Yes	Yes	No	
Dec-74	104	0.18	405	1	508	1558	59	1397	64	108	287	Yes	Yes	Yes	Yes	Yes	
Jan-75	101	0.17	279	1	662	2030	77	2350	108	143	483	Yes	Yes	Yes	Yes	Yes	
Feb-75	13	0.02	209	1	0	0	0	0	0	31	0	No	No	No	No	No	232
Mar-75	83	0.14	115	0	0	0	0	0	0	227	0	No	No	No	No	Yes	
Apr-75	9	0.02	55	0	0	0	0	0	0	74	0	No	No	No	No	No	71
May-75	98	0.17	116	3	0	0	0	0	0	247	0	No	No	No	No	Yes	
Jun-75	18	0.03	125	1	0	0	0	0	0	66	0	No	No	No	No	No	158
Jul-75	13	0.02	95	0	0	0	0	0	0	62	0	No	No	No	No	No	117
Aug-75	9	0.01	98	2	0	0	0	0	0	42	0	No	No	No	No	No	114
Sep-75	149	0.25	398	1	670	2063	78	1643	76	146	338	Yes	Yes	Yes	Yes	Yes	
Oct-75	98	0.17	368	1	670	2053	78	2002	92	112	411	Yes	Yes	Yes	Yes	Yes	
Nov-75	121	0.21	399	1	855	2620	100	2258	104	124	464	Yes	Yes	Yes	Yes	Yes	
Dec-75	234	0.57	410	1	909	2785	106	1488	69	246	306	Yes	Yes	Yes	Yes	Yes	
Jan-76	128	0.22	406	1	939	2879	110	2407	111	128	495	Yes	Yes	Yes	Yes	Yes	
Feb-76	140	0.24	308	1	978	2997	114	2869	132	168	589	Yes	Yes	Yes	Yes	Yes	
Mar-76	141	0.24	381	1	747	2289	87	1925	89	144	395	Yes	Yes	Yes	Yes	Yes	
Apr-76	87	0.15	290	1	785	2407	92	2867	132	123	589	Yes	Yes	Yes	Yes	Yes	
May-76	137	0.23	423	1	716	2195	84	1745	80	131	358	Yes	Yes	Yes	Yes	Yes	
Jun-76	106	0.18	425	1	816	2502	95	2156	99	106	443	Yes	Yes	Yes	Yes	Yes	
Jul-76	117	0.20	415	1	862	2643	101	2242	103	117	461	Yes	Yes	Yes	Yes	Yes	
Aug-76	140	0.24	508	1	793	2431	93	1700	78	115	349	Yes	Yes	Yes	Yes	Yes	
Sep-76	113	0.19	342	1	809	2478	95	2420	112	133	497	Yes	Yes	Yes	Yes	Yes	
Oct-76	87	0.15	300	1	416	1274	49	1486	69	119	305	Yes	Yes	Yes	Yes	Yes	

APPENDIX B

F-Area PUREX LHW Monthly Weight Ratio Data

																	Fissile Mass w/Low Diluents (g)
	Total Uranium LHW (Kg)	Estimated U-235 LHW (Kg)	Pu-239 LHW (g)	Pu-241 LHW (g)	NaAlO ₂ LHW (Kg)	Fe(OH) ₃ LHW (Kg)	MnO ₂ LHW (Kg)	Fe Ratio LHW	Mn Ratio LHW	U238 Ratio LHW	Al Ratio LHW	Safe by Fe only LHW	Safe by Mn only LHW	Safe by Fe & Mn LHW	Safe by U238 LHW		
Date	LHW (Kg)	LHW (Kg)	LHW (g)	LHW (g)	LHW (Kg)	LHW (Kg)	LHW (Kg)										
Nov-76	121	0.21	443	1	1486	4555	174	3680	169	114	752	Yes	Yes	Yes	Yes		
Dec-76	31	0.05	356	1	347	1062	41	1355	62	42	278	Yes	Yes	Yes	No		
Jan-77	83	0.14	341	1	631	1935	74	2095	97	103	431	Yes	Yes	Yes	Yes		
Feb-77	106	0.18	368	1	724	2218	85	2108	97	119	433	Yes	Yes	Yes	Yes		
Mar-77	124	0.21	496	1	739	2266	86	1673	77	106	344	Yes	Yes	Yes	Yes		
Apr-77	110	0.19	400	1	886	3021	115	2685	124	114	552	Yes	Yes	Yes	Yes		
May-77	121	0.21	580	2	1170	3587	137	2381	110	91	489	Yes	Yes	Yes	No		
Jun-77	151	0.26	544	2	978	2987	114	1953	90	115	401	Yes	Yes	Yes	Yes		
Jul-77	41	0.07	393	1	593	1817	69	2046	94	50	420	Yes	Yes	Yes	No		
Aug-77	38	0.06	194	1	0	0	0	0	0	86	0	No	No	No	No	258	
Sep-77	13	0.02	17	0	0	0	0	0	0	235	0	No	No	No	Yes		
Oct-77	7	0.01	36	0	0	0	0	0	0	83	0	No	No	No	No	48	
Nov-77	10	0.02	67	0	0	0	0	0	0	68	0	No	No	No	No	85	
Dec-77	8	0.01	51	0	0	0	0	0	0	69	0	No	No	No	No	65	
Jan-78	16	0.03	50	0	0	0	0	0	0	128	0	No	No	No	Yes		
Feb-78	17	0.03	15	0	300	920	35	10742	495	292	2207	Yes	Yes	Yes	Yes		
Mar-78	156	0.27	358	1	1001	3068	117	2567	118	163	528	Yes	Yes	Yes	Yes		
Apr-78	185	0.31	468	1	1016	3115	119	2078	96	152	427	Yes	Yes	Yes	Yes		
May-78	168	0.29	736	2	878	2690	103	1373	63	99	282	Yes	Yes	Yes	No		
Jun-78	137	0.23	434	1	1086	3328	127	2603	120	128	535	Yes	Yes	Yes	Yes		
Jul-78	92	0.16	668	2	1040	1823	122	1154	93	63	414	Yes	Yes	Yes	No		
Aug-78	89	0.15	904	3	393	689	46	340	27	47	122	Yes	No	Yes	No		
Sep-78	49	0.08	410	1	239	419	28	443	35	55	159	Yes	Yes	Yes	Yes		
Oct-78	179	0.30	533	2	1032	1809	121	1128	91	134	405	Yes	Yes	Yes	Yes		
Nov-78	35	0.06	306	1	0	0	0	0	0	54	0	No	No	No	No	366	
Dec-78	43	0.07	132	0	0	0	0	0	0	131	0	No	No	No	Yes		
Jan-79	26	0.04	126	1	216	378	25	1150	93	91	413	Yes	Yes	Yes	No		
Feb-79	56	0.10	159	1	239	419	28	855	69	139	307	Yes	Yes	Yes	Yes		
Mar-79	295	0.50	277	1	932	1634	109	1096	88	284	394	Yes	Yes	Yes	Yes		
Apr-79	136	0.23	755	3	1278	2241	149	1185	96	81	426	Yes	Yes	Yes	No		
May-79	220	0.37	865	3	1186	2079	139	874	70	108	314	Yes	Yes	Yes	Yes		
Jun-79	110	0.19	580	2	870	1526	102	1038	84	84	373	Yes	Yes	Yes	No		
Jul-79	106	0.18	556	2	886	1553	104	1098	89	85	395	Yes	Yes	Yes	No		
Aug-79	99	0.17	302	1	501	878	59	973	78	132	350	Yes	Yes	Yes	Yes		
Sep-79	67	0.11	521	2	578	1013	68	832	67	60	299	Yes	Yes	Yes	No		
Oct-79	67	0.11	424	1	0	0	0	0	0	72	0	No	No	No	No	538	
Nov-79	30	0.05	270	1	0	0	0	0	0	52	0	No	No	No	No	322	
Dec-79	7	0.01	101	1	0	0	0	0	0	33	0	No	No	No	No	113	
Jan-80	22	0.04	245	1	0	0	0	0	0	44	0	No	No	No	No	284	
Feb-80	233	0.40	250	1	824	1445	96	1167	94	264	419	Yes	Yes	Yes	Yes		
Mar-80	1102	1.87	468	2	1070	1877	125	418	34	396	150	Yes	Yes	Yes	Yes		
Apr-80	259	0.44	706	3	1070	1877	125	854	69	144	307	Yes	Yes	Yes	Yes		
May-80	122	0.21	468	2	862	1512	101	1168	94	110	419	Yes	Yes	Yes	Yes		
Jun-80	131	0.22	579	2	1070	1877	125	1220	98	98	438	Yes	Yes	Yes	No		

APPENDIX B

F-Area PUREX LHW Monthly Weight Ratio Data

																	Feasible Mass
	Total	Estimated						Fe	Mn	U238	Al	Safe by	Safe by	Safe by	Safe by		w/Low
	Uranium	U-235	Pu-239	Pu-241	NaAlO2	Fe(OH)3	MnO2	Ratio	Ratio	Ratio	Ratio	Fe only	Mn only	Fe & Mn	U238	Diluents	
Date	LHW (Kg)	LHW (Kg)	LHW (g)	LHW (g)	LHW (Kg)	LHW (Kg)	LHW (Kg)	LHW	LHW	LHW	LHW	LHW	LHW	LHW	LHW	LHW	(g)
Jul-80	180	0.31	576	2	662	1161	77	688	65	127	247	Yes	Yes	Yes	Yes		
Aug-80	836	1.42	411	1	1240	2174	146	619	50	377	222	Yes	Yes	Yes	Yes		
Sep-80	80	0.14	597	2	1232	2160	144	1537	124	62	562	Yes	Yes	Yes	No		
Oct-80	182	0.31	606	2	1232	2160	144	1155	93	114	415	Yes	Yes	Yes	Yes		
Nov-80	84	0.14	639	2	1170	2052	137	1567	126	71	563	Yes	Yes	Yes	No		
Dec-80	15	0.03	296	1	0	0	0	0	0	25	0	No	No	No	No	321	
Jan-81	186	0.32	1133	4	92	162	11	58	5	74	21	No	No	No	No	1454	
Feb-81	81	0.14	567	2	898	1553	104	1149	93	66	413	Yes	Yes	Yes	No		
Mar-81	96	0.16	1077	4	1093	1917	128	805	65	43	289	Yes	Yes	Yes	No		
Apr-81	123	0.21	1236	5	1001	1756	117	633	51	47	227	Yes	Yes	Yes	No		
May-81	73	0.12	641	2	724	1269	85	864	70	54	310	Yes	Yes	Yes	No		
Jun-81	88	0.15	857	3	1101	1931	129	999	81	49	359	Yes	Yes	Yes	No		
Jul-81	216	0.37	432	2	824	1446	96	943	76	180	339	Yes	Yes	Yes	Yes		
Aug-81	209	0.36	888	3	1409	2471	165	1036	83	101	372	Yes	Yes	Yes	No		
Sep-81	148	0.25	640	2	1417	2484	166	1451	117	99	521	Yes	Yes	Yes	No		
Oct-81	206	0.35	1536	6	1117	1958	131	541	44	62	194	Yes	Yes	Yes	No		
Nov-81	124	0.21	856	3	1301	2282	152	1114	90	67	400	Yes	Yes	Yes	No		
Dec-81	121	0.21	715	3	1032	1809	121	1024	83	76	368	Yes	Yes	Yes	No		
Jan-82	67	0.11	644	3	732	1283	86	881	71	49	316	Yes	Yes	Yes	No		
Feb-82	11	0.02	209	1	0	0	0	0	0	26	0	No	No	No	No	229	
Mar-82	14	0.02	61	0	616	1080	72	6655	536	99	2390	Yes	Yes	Yes	No		
Apr-82	168	0.29	948	4	347	608	41	257	21	79	92	Yes	No	Yes	No		
May-82	260	0.44	496	2	1132	1985	132	1106	89	186	397	Yes	Yes	Yes	Yes		
Jun-82	124	0.21	578	2	947	1661	111	1097	88	93	394	Yes	Yes	Yes	No		
Jul-82	85	0.14	331	1	862	1512	101	1657	134	108	595	Yes	Yes	Yes	Yes		
Aug-82	76	0.13	575	2	685	1202	80	889	72	61	319	Yes	Yes	Yes	No		
Sep-82	85	0.14	536	2	785	1377	92	1055	85	72	379	Yes	Yes	Yes	No		
Oct-82	96	0.16	669	3	1101	1931	129	1208	97	66	434	Yes	Yes	Yes	No		
Nov-82	87	0.15	506	2	1070	1877	125	1496	121	77	537	Yes	Yes	Yes	No		
Dec-82	68	0.12	224	1	408	716	48	1097	88	124	394	Yes	Yes	Yes	Yes		
Jan-83	77	0.13	387	2	639	1121	75	1127	91	88	405	Yes	Yes	Yes	No		
Feb-83	122	0.21	685	3	1324	2322	155	1355	109	80	487	Yes	Yes	Yes	No		
Mar-83	140	0.24	661	3	1155	2025	136	1174	95	92	422	Yes	Yes	Yes	No		
Apr-83	110	0.19	323	1	878	1539	103	1574	127	136	565	Yes	Yes	Yes	Yes		
May-83	31	0.05	289	1	400	702	47	1070	86	51	384	Yes	Yes	Yes	No		
Jun-83	72	0.12	207	1	354	621	41	984	79	138	353	Yes	Yes	Yes	Yes		
Jul-83	55	0.09	337	1	647	1134	76	1373	111	74	493	Yes	Yes	Yes	No		
Aug-83	47	0.08	327	1	347	608	41	777	63	66	279	Yes	Yes	Yes	No		
Sep-83	53	0.09	147	1	293	513	34	1129	91	142	405	Yes	Yes	Yes	Yes		
Oct-83	64	0.11	169	1	585	1026	68	1924	155	147	691	Yes	Yes	Yes	Yes		
Nov-83	20	0.03	337	1	393	689	46	967	78	29	347	Yes	Yes	Yes	No		
Dec-83	45	0.08	83	0	593	1040	69	3394	274	190	1219	Yes	Yes	Yes	Yes		
Jan-84	45	0.08	346	2	547	959	64	1181	95	60	424	Yes	Yes	Yes	No		
Feb-84	59	0.10	386	2	693	1215	81	1301	105	70	467	Yes	Yes	Yes	No		

APPENDIX B

F-Area PUREX LHW Monthly Weight Ratio Data

																	Fissile Mass
	Total	Estimated						Fe	Mn	U238	Al	Safe by	Safe by	Safe by	Safe by		w/Low
	Uranium	U-235	Pu-239	Pu-241	NaAlO2	Fe(OH)3	MnO2	Ratio	Ratio	Ratio	Ratio	Fe only	Mn only	Fe & Mn	U238	Diluents	
Date	LHW (Kg)	LHW (Kg)	LHW (g)	LHW (g)	LHW (Kg)	LHW (Kg)	LHW (Kg)	LHW	LHW	LHW	LHW	LHW	LHW	LHW	LHW	(g)	
Mar-84	47	0.08	442	2	524	918	61	915	74	50	329	Yes	Yes	Yes	No		
Apr-84	47	0.08	339	1	462	810	54	1006	81	64	361	Yes	Yes	Yes	No		
May-84	89	0.15	1031	6	747	1310	87	576	46	42	207	Yes	Yes	Yes	No		
Jun-84	80	0.14	1233	6	1224	2147	143	816	66	32	293	Yes	Yes	Yes	No		
Jul-84	114	0.19	551	2	393	689	46	482	39	91	173	Yes	Yes	Yes	No		
Aug-84	142	0.24	1083	6	1317	2309	154	908	73	61	326	Yes	Yes	Yes	No		
Sep-84	45	0.08	564	2	1417	2484	166	2020	163	39	725	Yes	Yes	Yes	No		
Oct-84	91	0.15	1290	6	739	1296	86	467	38	34	168	Yes	Yes	Yes	No		
Nov-84	92	0.16	973	4	1170	2052	137	946	76	45	340	Yes	Yes	Yes	No		
Dec-84	99	0.17	734	3	770	1350	90	779	63	62	280	Yes	Yes	Yes	No		
Jan-85	37	0.06	649	3	793	1391	93	1017	82	28	365	Yes	Yes	Yes	No		
Feb-85	87	0.15	1216	6	716	1256	84	479	39	35	172	Yes	Yes	Yes	No		
Mar-85	29	0.05	52	0	285	500	33	2562	206	193	920	Yes	Yes	Yes	Yes		
Apr-85	39	0.07	399	2	146	257	17	287	23	47	103	Yes	No	Yes	No		
May-85	103	0.18	2654	12	939	1647	110	303	24	19	109	Yes	No	Yes	No		
Jun-85	84	0.14	1756	8	1032	1809	121	496	40	24	178	Yes	Yes	Yes	No		
Jul-85	152	0.26	2443	11	1555	2040	182	393	42	31	189	Yes	Yes	Yes	No		
Aug-85	145	0.25	1729	8	1401	1838	164	484	52	40	233	Yes	Yes	Yes	No		
Sep-85	89	0.15	1633	8	909	1192	106	348	37	27	167	Yes	Yes	Yes	No		
Oct-85	101	0.34	1694	8	816	1071	95	274	30	28	132	Yes	No	Yes	No		
Nov-85	165	1.07	1518	7	701	919	82	185	20	41	89	Yes	No	Yes	No		
Dec-85	30	0.05	1295	6	585	768	68	297	32	12	142	Yes	No	Yes	No		
Jan-86	125	0.21	1020	5	1363	1788	159	755	81	57	362	Yes	Yes	Yes	No		
Feb-86	114	0.19	615	3	1478	1939	173	1248	134	82	599	Yes	Yes	Yes	No		
Mar-86	118	0.20	745	4	1317	1727	154	951	102	72	456	Yes	Yes	Yes	No		
Apr-86	146	0.25	450	2	1463	1919	171	1432	154	131	688	Yes	Yes	Yes	Yes		
May-86	168	0.29	900	4	1117	1465	131	643	69	83	309	Yes	Yes	Yes	No		
Jun-86	13	0.02	79	0	400	525	47	2717	293	75	1304	Yes	Yes	Yes	No		
Jul-86	15	0.03	57	0	0	0	0	0	0	110	0	No	No	No	Yes		
Aug-86	341	0.58	1118	5	593	778	69	239	26	124	115	Yes	No	Yes	Yes		
Sep-86	69	0.12	1568	8	1478	1939	173	599	64	22	287	Yes	Yes	Yes	No		
Oct-86	12	0.02	845	4	793	1040	93	625	67	7	300	Yes	Yes	Yes	No		
Nov-86	36	0.06	1102	5	0	0	0	0	0	16	0	No	No	No	No	1169	
Dec-86	11	0.02	1447	7	701	919	82	326	35	4	157	Yes	Yes	Yes	No		
Jan-87	128	0.22	1855	10	1987	2606	232	654	70	34	314	Yes	Yes	Yes	No		
Feb-87	157	0.27	1445	7	1078	1414	126	430	46	51	206	Yes	Yes	Yes	No		
Mar-87	117	0.20	883	5	1548	2030	181	976	105	61	469	Yes	Yes	Yes	No		
Apr-87	119	0.20	712	4	1294	1697	151	966	104	75	454	Yes	Yes	Yes	No		
May-87	171	0.29	916	5	1363	1788	159	771	83	83	370	Yes	Yes	Yes	No		
Jun-87	100	0.17	791	4	986	1293	115	700	75	59	336	Yes	Yes	Yes	No		
Jul-87	10	0.02	438	2	539	707	63	809	87	12	388	Yes	Yes	Yes	No		
Aug-87	21	0.04	452	2	246	323	29	345	37	23	165	Yes	Yes	Yes	No		
Sep-87	6	0.01	118	1	0	0	0	0	0	25	0	No	No	No	No	129	
Oct-87	92	0.16	336	2	1040	1364	122	1444	156	114	693	Yes	Yes	Yes	Yes		

APPENDIX B

F-Area PUREX LHW Monthly Weight Ratio Data

																	File
																	Mass
	Total	Estimated						Fe	Mn	U238	Al	Safe by	Safe by	Safe by	Safe by		w/low
	Uranium	U-235	Pu-239	Pu-241	NaAlO2	Fe(OH)3	MnO2	Ratio	Ratio	Ratio	Ratio	Fe only	Mn only	Fe & Mn	U238		Diluents
Date	LHW (Kg)	LHW (Kg)	LHW (g)	LHW (g)	LHW (Kg)	LHW (Kg)	LHW (Kg)	LHW	LHW	LHW	LHW	LHW	LHW	LHW	LHW		(g)
Nov-87	113	0.19	613	3	1155	1515	135	979	106	82	470	Yes	Yes	Yes	No		
Dec-87	109	0.19	458	2	1224	1606	143	1299	140	102	624	Yes	Yes	Yes	No		
Jan-88	143	0.24	680	4	1386	1818	162	1025	110	92	492	Yes	Yes	Yes	Yes		
Feb-88	145	0.25	485	3	1140	1495	133	1065	115	122	511	Yes	Yes	Yes	Yes		
Mar-88	127	0.22	452	2	1263	1656	148	1294	139	116	621	Yes	Yes	Yes	Yes		
Apr-88	91	0.16	466	3	886	1162	104	973	106	86	467	Yes	Yes	Yes	Yes		
May-88	112	0.19	421	2	947	1242	111	1059	114	111	508	Yes	Yes	Yes	Yes		
Jun-88	0	0.00	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Jul-88	129	0.22	829	5	1324	1737	155	862	93	71	414	Yes	Yes	Yes	No		
Aug-88	154	0.26	1143	6	1425	1869	167	692	75	62	332	Yes	Yes	Yes	No		
Sep-88	136	0.23	817	4	1294	1411	151	701	91	75	404	Yes	Yes	Yes	No		
Oct-88	193	0.33	838	5	454	496	53	221	29	99	128	Yes	No	Yes	No		
Nov-88	2	0.00	25	0	0	0	0	0	0	35	0	No	No	No	No	32	
Dec-88	1	0.00	28	0	0	0	0	0	0	18	0	No	No	No	No	30	
Jan-89	107	0.18	735	4	562	613	66	348	45	66	201	Yes	Yes	Yes	No		
Feb-89	43	0.07	252	1	223	244	26	390	51	76	225	Yes	Yes	Yes	No		
Mar-89	26	0.04	307	2	92	182	11	270	19	41	86	Yes	No	Yes	No		
Apr-89	0	0.00	7	0	0	0	0	0	0	0	0	No	No	No	No	8	
May-89	0	0.00	67	0	0	0	0	0	0	0	0	No	No	No	No	58	
Jun-89	26	0.05	115	1	277	547	32	1784	128	99	569	Yes	Yes	Yes	No		
Jul-89	70	0.12	304	2	678	1338	79	1646	118	99	525	Yes	Yes	Yes	No		
Aug-89	18	0.03	342	2	0	0	0	0	0	26	0	No	No	No	No	375	
Sep-89	41	0.07	178	1	246	486	29	1025	73	99	327	Yes	Yes	Yes	No		
Oct-89	0	0.00	7	0	0	0	0	0	0	0	0	No	No	No	No	8	
Nov-89	1	0.00	99	1	0	0	0	0	0	5	0	No	No	No	No	101	
Dec-89	23	0.04	88	1	262	517	31	2117	152	111	675	Yes	Yes	Yes	Yes		
Jan-90	0	0.00	6	0	0	0	0	0	0	0	0	No	No	No	No	6	
Feb-90	0	0.00	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Mar-90	0	0.00	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Apr-90	0	0.00	79	0	0	0	0	0	0	0	0	No	No	No	No	80	
May-90	1	0.00	93	1	0	0	0	0	0	6	0	No	No	No	No	95	
Jun-90	5	0.01	149	1	46	91	5	301	22	17	96	Yes	No	Yes	No		
Jul-90	0	0.00	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Aug-90	0	0.00	18	0	0	0	0	0	0	0	0	No	No	No	No	18	
Sep-90	0	0.00	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Oct-90	0	0.00	13	0	0	0	0	0	0	0	0	No	No	No	No	13	
Nov-90	0	0.00	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Dec-90	7	0.01	46	0	0	0	0	0	0	70	0	No	No	No	No	58	
Jan-91	0	0.00	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Feb-91	6	0.01	13	0	0	0	0	0	0	169	0	No	No	No	Yes		
Mar-91	2	0.00	6	0	0	0	0	0	0	140	0	No	No	No	Yes		
Apr-91	0	0.00	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
May-91	0	0.00	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Jun-91	4	0.01	3	0	0	0	0	0	0	327	0	No	No	No	Yes		

APPENDIX B

F-Area PUREX LHW Monthly Weight Ratio Data

																	Fissile Mass
	Total	Estimated						Fe	Mn	U238	Al	Safe by	Safe by	Safe by	Safe by		w/Low
	Uranium	U-235	Pu-239	Pu-241	NaAlO2	Fe(OH)3	MnO2	Ratio	Ratio	Ratio	Ratio	Fe only	Mn only	Fe & Mn	U238		Diluents
Date	LHW (Kg)	LHW (Kg)	LHW (g)	LHW (g)	LHW (Kg)	LHW (Kg)	LHW (Kg)	LHW	LHW	LHW	LHW	LHW	LHW	LHW	LHW		(g)
Jul-91	573	0.97	632	4	0	0	0	0	0	261	0	No	No	No	Yes		
Aug-91	481	0.82	649	4	0	0	0	0	0	232	0	No	No	No	Yes		
Sep-91	53	0.09	44	0	0	0	0	0	0	302	0	No	No	No	Yes		
Oct-91	6	0.01	161	1	0	0	0	0	0	20	0	No	No	No	No	163	
Nov-91	0	0.00	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Dec-91	0	0.00	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Jan-92	0	0.00	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Feb-92	0	0.00	1	0	0	0	0	0	0	0	0	No	No	No	No	1	
Totals	55561	229	195501	653	309232	573757	31027	706	46	91	239	Yes	Yes	Yes	No	51843	

APPENDIX B

Figure B.1 F-Canyon PUREX LHW Monthly Fe:Fissile Material Weight Ratios

APPENDIX B

Figure B.2 F-Canyon PUREX LHW Monthly Mn:Fissile Material Weight Ratios

APPENDIX B

Figure B.3 F-Canyon PUREX LHW Monthly U-238:Fissile Material Weight Ratios

APPENDIX B

Figure B.4 F-Canyon PUREX LHW Monthly Al:Fissile Material Weight Ratios

APPENDIX B

Figure B.5 F-Canyon PUREX LHW Fissile Mass in Months
Not Exceeding Minimum Safe Weight Ratios of Fe, Mn and/or U-238

APPENDIX C

H-Area PUREX HHW Monthly Weight Ratio Data

																			Fissile Mass
	Total	Estimated							Fe	Mn	U238	Ni	Al	Safe by	Safe by	Safe b y	Safe by	w/Low	
	Uranium	U-235	Pu-239	Pu-241	NaAlO2	Ni(OH)2	Fe(OH)3	MnO2	Ratio	Ratio	Ratio	Ratio	Ratio	Fe only	Mn only	Fe & Mn	U238	Diluents	
Date	HHW (Kg)	HHW (Kg)	HHW (g)	HHW (g)	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	(g)	
Aug-55	197	1.22	266	0	111	172	972	775	341	329	113	73	24	Yes	Yes	Yes	Yes		
Sep-55	230	1.43	361	0	109	169	956	762	280	270	108	60	20	Yes	Yes	Yes	Yes		
Oct-55	174	1.08	108	0	122	190	1074	857	473	456	135	102	34	Yes	Yes	Yes	Yes		
Nov-55	89	0.55	64	0	154	239	1351	1077	1147	1106	131	246	82	Yes	Yes	Yes	Yes		
Dec-55	190	1.18	206	0	146	227	1280	1021	483	466	120	104	35	Yes	Yes	Yes	Yes		
Jan-56	177	1.10	186	0	107	167	940	750	383	369	121	82	27	Yes	Yes	Yes	Yes		
Feb-56	186	1.15	1606	2	118	183	1035	1074	196	246	44	42	14	Yes	Yes	Yes	No		
Mar-56	96	0.60	153	0	125	195	1098	1140	766	962	107	165	55	Yes	Yes	Yes	Yes		
Apr-56	161	1.00	150	0	126	196	1106	1148	504	632	124	108	36	Yes	Yes	Yes	Yes		
May-56	192	1.19	160	0	122	190	1074	1115	416	522	127	89	30	Yes	Yes	Yes	Yes		
Jun-56	112	0.69	232	0	150	234	1319	1369	744	934	98	160	53	Yes	Yes	Yes	No		
Jul-56	239	1.48	1033	1	138	214	673	1255	140	315	68	54	18	No	Yes	Yes	No		
Aug-56	128	0.79	266	0	151	235	739	1378	364	821	97	140	47	Yes	Yes	Yes	No		
Sep-56	118	0.73	505	0	161	251	788	1468	333	750	69	128	43	Yes	Yes	Yes	No		
Oct-56	161	1.00	984	1	126	196	616	1148	162	366	55	63	21	Yes	Yes	Yes	No		
Nov-56	134	0.83	318	0	172	267	840	1566	382	861	92	147	49	Yes	Yes	Yes	No		
Dec-56	166	1.03	432	0	194	301	946	1763	338	762	89	130	44	Yes	Yes	Yes	No		
Jan-57	221	1.37	358	0	212	329	1034	1927	313	704	107	121	40	Yes	Yes	Yes	Yes		
Feb-57	112	0.69	367	0	210	326	1025	1911	504	1137	79	194	65	Yes	Yes	Yes	No		
Mar-57	114	0.71	292	0	198	308	968	1298	506	821	89	195	65	Yes	Yes	Yes	No		
Apr-57	164	1.02	381	0	197	307	964	1292	360	584	93	139	46	Yes	Yes	Yes	No		
May-57	410	2.54	301	0	184	286	898	1204	165	267	131	64	21	Yes	Yes	Yes	Yes		
Jun-57	155	0.96	392	0	203	315	990	1328	382	620	90	147	49	Yes	Yes	Yes	No		
Jul-57	99	0.61	220	0	172	267	840	1127	527	854	95	203	68	Yes	Yes	Yes	No		
Aug-57	58	0.36	214	0	127	197	620	832	565	916	75	218	73	Yes	Yes	Yes	No		
Sep-57	245	1.52	335	0	162	252	792	1062	223	362	113	86	29	Yes	Yes	Yes	Yes		
Oct-57	28	0.17	387	0	71	111	348	466	324	525	30	125	42	Yes	Yes	Yes	No		
Nov-57	46	0.29	546	1	98	153	480	643	301	489	34	116	39	Yes	Yes	Yes	No		
Dec-57	160	0.99	381	0	87	136	427	572	162	263	92	63	21	Yes	Yes	Yes	No		
Jan-58	57	0.35	463	1	106	165	519	696	332	539	46	128	43	Yes	Yes	Yes	No		
Feb-58	23	0.14	540	1	101	157	493	661	377	611	19	145	49	Yes	Yes	Yes	No		
Mar-58	86	0.53	353	0	103	160	502	673	296	479	70	114	38	Yes	Yes	Yes	No		
Apr-58	48	0.30	661	1	116	181	568	761	309	501	30	119	40	Yes	Yes	Yes	No		
May-58	149	0.92	350	0	71	111	348	466	143	231	93	55	18	No	Yes	Yes	No		
Jun-58	344	2.13	525	1	77	120	378	507	74	121	109	29	10	No	Yes	Yes	Yes		
Jul-58	159	0.99	171	0	69	108	339	454	153	248	120	59	20	No	Yes	Yes	Yes		
Aug-58	36	0.22	278	0	60	94	295	395	307	498	47	119	40	Yes	Yes	Yes	No		
Sep-58	76	0.47	413	0	46	71	224	301	133	215	60	51	17	No	Yes	Yes	No		
Oct-58	261	1.62	473	1	52	81	255	342	64	103	103	25	8	No	Yes	Yes	No		
Nov-58	24	0.15	25	0	55	85	268	360	806	1306	121	311	104	Yes	Yes	Yes	Yes		
Dec-58	32	0.20	496	1	73	113	356	478	268	434	28	103	34	Yes	Yes	Yes	No		
Jan-59	50	0.31	349	0	75	116	365	490	290	469	51	112	37	Yes	Yes	Yes	No		
Feb-59	188	1.17	211	0	75	116	365	490	139	225	119	53	18	No	Yes	Yes	Yes		
Mar-59	92	0.57	217	0	32	49	154	207	102	166	93	39	13	No	Yes	Yes	No		
Totals	6187	38	16728	17	5362	8341	31623	40607	300	466	87	96	32	Yes	Yes	Yes	No	0	

APPENDIX C

Figure C.1 H-Canyon PUREX HHW Monthly Fe:Fissile Material Weight Ratios

APPENDIX C

Figure C.2 H-Canyon PUREX HHW Monthly Mn:Fissile Material Weight Ratios

APPENDIX C

Figure C.3 H-Canyon PUREX HHW Monthly U-238:Equivalent U-235 Weight Ratios

APPENDIX C

Figure C.4 H-Canyon PUREX HHW Monthly Ni:Fissile Material Weight Ratios

APPENDIX C

Figure C.5 H-Canyon PUREX HHW Monthly Al:Fissile Material Weight Ratios

APPENDIX D

H-Area PUREX LHW Monthly Weight Ratio Data

																	Fissile Mass
	Depleted Uranium	Estimated U-235	Pu-239	Pu-241	NaAlO ₂	Fe(OH) ₃	MnO ₂	Ratio	Ratio	Ratio	Ratio	Safe by Fe only	Safe by Mn only	Safe by Fe & Mn	Safe by U238	Safe by w/Low Diluents	
Date	LHW (Kg)	LHW (Kg)	LHW (g)	LHW (g)	LHW (Kg)	LHW (Kg)	LHW (Kg)	LHW	LHW	LHW	LHW	LHW	LHW	LHW	LHW	LHW	(g)
Aug-55	32	0.20	3	0	947	0	0	0	0	156	1549	No	No	No	Yes		
Sep-55	22	0.14	4	0	932	0	0	0	0	152	2188	No	No	No	Yes		
Oct-55	20	0.12	21	0	1047	0	0	0	0	122	2384	No	No	No	Yes		
Nov-55	22	0.14	10	0	1317	0	0	0	0	140	2954	No	No	No	Yes		
Dec-55	60	0.37	30	0	1247	0	0	0	0	139	1021	No	No	No	Yes		
Jan-56	71	0.44	66	0	916	0	0	0	0	124	595	No	No	No	Yes		
Feb-56	41	0.25	30	0	1009	0	0	0	0	131	1168	No	No	No	Yes		
Mar-56	43	0.27	32	0	1070	0	0	0	0	130	1180	No	No	No	Yes		
Apr-56	43	0.27	32	0	1078	0	0	0	0	130	1189	No	No	No	Yes		
May-56	42	0.26	117	0	1047	0	0	0	0	86	913	No	No	No	No	377	
Jun-56	52	0.32	209	0	1286	0	0	0	0	71	795	No	No	No	No	532	
Jul-56	47	0.29	121	0	1178	0	0	0	0	89	941	No	No	No	No	412	
Aug-56	52	0.32	38	0	1294	0	0	0	0	130	1180	No	No	No	Yes		
Sep-56	55	0.34	40	0	1378	0	0	0	0	131	1190	No	No	No	Yes		
Oct-56	43	0.27	45	0	1078	0	0	0	0	121	1139	No	No	No	Yes		
Nov-56	59	0.37	43	0	1471	0	0	0	0	131	1184	No	No	No	Yes		
Dec-56	67	0.42	49	0	1656	0	0	0	0	131	1174	No	No	No	Yes		
Jan-57	73	0.45	53	0	1810	0	0	0	0	131	1177	No	No	No	Yes		
Feb-57	72	0.45	52	0	1794	0	0	0	0	131	1184	No	No	No	Yes		
Mar-57	68	0.42	50	0	1694	0	0	0	0	131	1183	No	No	No	Yes		
Apr-57	68	0.42	50	0	1686	0	0	0	0	131	1178	No	No	No	Yes		
May-57	63	0.39	47	0	1571	0	0	0	0	130	1182	No	No	No	Yes		
Jun-57	70	0.43	51	0	1733	0	0	0	0	131	1174	No	No	No	Yes		
Jul-57	59	0.37	43	0	1471	0	0	0	0	131	1184	No	No	No	Yes		
Aug-57	44	0.27	32	0	1086	0	0	0	0	131	1173	No	No	No	Yes		
Sep-57	56	0.35	41	0	1386	0	0	0	0	131	1174	No	No	No	Yes		
Oct-57	24	0.15	18	0	608	0	0	0	0	130	1202	No	No	No	Yes		
Nov-57	34	0.21	24	0	839	0	0	0	0	131	1175	No	No	No	Yes		
Dec-57	30	0.19	22	0	747	0	0	0	0	131	1184	No	No	No	Yes		
Jan-58	36	0.22	27	0	909	0	0	0	0	130	1194	No	No	No	Yes		
Feb-58	35	0.22	25	0	862	0	0	0	0	131	1171	No	No	No	Yes		
Mar-58	35	0.22	26	0	878	0	0	0	0	130	1188	No	No	No	Yes		
Apr-58	40	0.25	29	0	993	0	0	0	0	131	1180	No	No	No	Yes		
May-58	24	0.15	18	0	608	0	0	0	0	130	1202	No	No	No	Yes		
Jun-58	27	0.17	20	0	662	0	0	0	0	131	1165	No	No	No	Yes		
Jul-58	24	0.15	18	0	593	0	0	0	0	130	1171	No	No	No	Yes		
Aug-58	21	0.13	15	0	516	0	0	0	0	131	1169	No	No	No	Yes		
Sep-58	16	0.10	11	0	393	0	0	0	0	132	1170	No	No	No	Yes		
Oct-58	18	0.11	13	0	447	0	0	0	0	131	1179	No	No	No	Yes		
Nov-58	19	0.12	13	0	470	0	0	0	0	132	1181	No	No	No	Yes		
Dec-58	25	0.16	19	0	624	0	0	0	0	130	1182	No	No	No	Yes		
Jan-59	26	0.16	19	0	639	0	0	0	0	131	1169	No	No	No	Yes		
Feb-59	26	0.16	19	0	639	0	0	0	0	131	1169	No	No	No	Yes		
Mar-59	11	0.07	7	0	270	0	0	0	0	132	1172	No	No	No	Yes		
Totals	1815	11	1650	2	45877	0	0	0	0	125	1170	No	No	No	Yes	1322	

APPENDIX D

Figure D.1 H-Canyon PUREX LHW Monthly U-238:Equivalent U-235 Weight Ratios

APPENDIX D

Figure D.2 H-Canyon PUREX LHW Monthly Al:Fissile Material Weight Ratios

APPENDIX D

**Figure D.3 H-Canyon PUREX LHW Fissile Mass in Months
Not Exceeding Minimum Safe Weight Ratios of Fe, Mn and/or U-238**

APPENDIX E

H-Area HM High Heat Waste

																				Fissile Mass
	Fe(OH)3	NaAlO2	MnO2	Ni(OH)2	Pu-239	Pu-241	U-233	U-235	U-238	Fe	Mn	U238	Ni	Al	Safe by	Safe by	Safe by	Safe by		
Date	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW (g)	HHW (g)	HHW (g)	HHW (g)	HHW (g)	Ratio HHW	Ratio HHW	Ratio HHW	Ratio HHW	Ratio HHW	Fe only HHW	Mn only HHW	Fe & Mn HHW	U-238 HHW	w/Low Diluents (g)	
Jun-59	527	2812	211	0	700	4	0	1096	120	153	74	0.049	0	514	No	Yes	Yes	No		
Jul-59	842	4492	337	0	1078	7	0	1357	126	180	87	0.037	0	605	Yes	Yes	Yes	No		
Aug-59	1013	5402	405	0	1283	8	0	1313	115	203	98	0.030	0	683	Yes	Yes	Yes	No		
Sep-59	878	4682	351	0	1121	7	0	1401	130	181	88	0.037	0	609	Yes	Yes	Yes	No		
Oct-59	1437	7664	575	0	1792	11	0	1088	89	260	126	0.020	0	873	Yes	Yes	Yes	No		
Nov-59	741	3950	296	0	956	6	0	540	41	258	125	0.017	0	866	Yes	Yes	Yes	No		
Dec-59	450	2401	180	0	607	3	0	463	36	219	106	0.022	0	736	Yes	Yes	Yes	No		
Jan-60	414	2208	166	0	761	7	0	991	88	123	59	0.036	0	413	No	Yes	Yes	No		
Feb-60	425	2269	170	0	780	7	0	868	70	134	65	0.029	0	451	No	Yes	Yes	No		
Mar-60	455	2424	182	0	829	7	0	1307	98	111	54	0.034	0	372	No	Yes	Yes	No		
Apr-60	163	871	65	0	341	3	0	454	36	107	52	0.031	0	360	No	Yes	Yes	No		
May-60	207	1104	83	0	414	4	0	667	53	100	48	0.036	0	335	No	Yes	Yes	No		
Jun-60	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Jul-60	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Aug-60	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Sep-60	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Oct-60	0	0	0	0	0	0	0	350	26	0	0	0.075	0	0	No	No	No	No	350	
Nov-60	585	3118	234	0	1047	10	0	1255	94	132	64	0.029	0	444	No	Yes	Yes	No		
Dec-60	548	2920	219	0	985	9	0	2329	186	86	42	0.044	0	289	No	Yes	Yes	No		
Jan-61	588	3137	235	0	1356	14	0	1459	112	109	53	0.027	0	365	No	Yes	Yes	No		
Feb-61	189	290	22	0	186	2	0	83	6	365	51	0.014	0	353	Yes	Yes	Yes	No		
Mar-61	0	0	0	0	0	0	0	3	0	0	0	0.077	0	0	No	No	No	No	3	
Apr-61	0	0	0	0	0	0	0	58	4	0	0	0.077	0	0	No	No	No	No	58	
May-61	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Jun-61	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Jul-61	0	0	0	0	696	4	0	154	12	0	0	0.008	0	0	No	No	No	No	854	
Aug-61	755	1162	87	0	0	0	0	1934	144	204	28	0.075	0	198	Yes	No	Yes	No		
Sep-61	2945	4531	340	0	1929	22	0	3254	243	296	41	0.035	0	286	Yes	Yes	Yes	No		
Oct-61	2039	3137	235	0	1356	14	0	2231	164	296	41	0.034	0	287	Yes	Yes	Yes	No		
Nov-61	1425	2192	164	0	967	10	0	1075	76	363	51	0.026	0	352	Yes	Yes	Yes	No		
Dec-61	91	140	11	0	239	1	0	0	0	198	28	0.000	0	192	Yes	No	Yes	No		
Jan-62	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Feb-62	0	0	0	0	0	0	0	163	12	0	0	0.071	0	0	No	No	No	No	163	
Mar-62	0	0	0	0	0	0	0	190	14	0	0	0.071	0	0	No	No	No	No	190	
Apr-62	0	0	0	0	0	0	0	16	1	0	0	0.071	0	0	No	No	No	No	16	
May-62	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Jun-62	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Jul-62	0	0	0	0	0	0	0	992	71	0	0	0.071	0	0	No	No	No	No	992	
Aug-62	2379	3660	274	0	1462	18	0	1509	126	416	58	0.029	0	403	Yes	Yes	Yes	No		
Sep-62	2731	4202	315	0	1668	21	0	881	72	555	77	0.018	0	538	Yes	Yes	Yes	No		
Oct-62	824	4338	325	0	1720	21	0	1380	115	138	66	0.024	0	457	No	Yes	Yes	No		
Nov-62	695	3660	274	0	1462	18	0	1177	104	137	65	0.026	0	453	No	Yes	Yes	No		
Dec-62	865	4554	342	0	1803	22	0	976	95	161	77	0.021	0	535	Yes	Yes	Yes	No		
Jan-63	1007	5302	398	0	2257	42	0	2052	210	121	58	0.032	0	401	No	Yes	Yes	No		

APPENDIX E

H-Area HM High Heat Waste

																				Fissile Mass
										Fe	Mn	U238	Ni	Al	Safe by	Safe by	Safe by	Safe by	w/Low	
	Fe(OH)3	NaAlO2	MnO2	Ni(OH)2	Pu-239	Pu-241	U-233	U-235	U-238	Ratio	Ratio	Ratio	Ratio	Ratio	Fe only	Mn only	Fe & Mn	U-238	Diluents	
Date	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW (g)	HHW (g)	HHW (g)	HHW (g)	HHW (g)	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	(g)	
Feb-63	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Mar-63	0	0	0	0	0	0	0	191	19	0	0	0.099	0	0	No	No	No	No	191	
Apr-63	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
May-63	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Jun-63	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Jul-63	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Aug-63	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Sep-63	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Oct-63	412	2168	163	0	963	17	0	695	53	137	65	0.021	0	453	No	Yes	Yes	No		
Nov-63	828	4367	327	0	1867	34	0	1607	142	123	59	0.027	0	409	No	Yes	Yes	No		
Dec-63	828	4357	327	0	1867	34	0	650	61	170	81	0.014	0	562	Yes	Yes	Yes	No		
Jan-64	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Feb-64	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Mar-64	0	0	0	0	0	0	454	0	0	0	0	0.000	0	0	No	No	No	No	0	
Apr-64	0	416	66	0	0	0	167	0	0	0	249	0.000	0	818	No	Yes	No	No		
May-64	0	304	48	0	0	0	725	0	0	0	42	0.000	0	138	No	Yes	No	No		
Jun-64	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Jul-64	155	813	61	0	178	2	0	1703	174	43	20	0.085	0	142	No	No	No	No	1882	
Aug-64	371	1952	146	0	334	5	0	1374	141	113	54	0.069	0	375	No	Yes	Yes	No		
Sep-64	680	3578	268	0	557	10	0	748	96	270	129	0.052	0	896	Yes	Yes	Yes	No		
Oct-64	0	0	0	0	0	0	0	1067	136	0	0	0.128	0	0	No	No	No	No	1067	
Nov-64	0	0	0	0	0	0	0	181	23	0	0	0.128	0	0	No	No	No	No	181	
Dec-64	0	0	0	0	0	0	0	62	8	0	0	0.128	0	0	No	No	No	No	62	
Jan-65	0	454	71	0	0	0	260	511	68	0	58	0.088	0	194	No	Yes	No	No		
Feb-65	0	416	66	0	0	1	549	403	54	0	44	0.057	0	144	No	Yes	No	No		
Mar-65	336	1764	132	0	183	1	0	677	69	204	97	0.057	0	675	Yes	Yes	Yes	No		
Apr-65	969	5100	383	0	368	3	0	576	50	535	255	0.039	0	1773	Yes	Yes	Yes	No		
May-65	853	4490	337	0	459	3	0	1042	99	296	141	0.052	0	982	Yes	Yes	Yes	No		
Jun-65	42	222	17	0	290	2	0	1023	112	17	8	0.071	0	55	No	No	No	No	1315	
Jul-65	577	3035	228	0	307	2	0	374	45	441	211	0.046	0	1462	Yes	Yes	Yes	No		
Aug-65	259	1365	102	0	209	1	0	1225	157	94	45	0.096	0	313	No	Yes	Yes	No		
Sep-65	0	0	0	0	0	0	0	996	128	0	0	0.128	0	0	No	No	No	No	996	
Oct-65	0	1025	161	0	0	0	161	218	46	0	268	0.121	0	890	No	Yes	No	No		
Nov-65	0	1431	225	0	0	0	192	751	170	0	151	0.180	0	499	No	Yes	No	No		
Dec-65	0	1282	202	0	0	0	205	372	91	0	221	0.159	0	731	No	Yes	No	No		
Jan-66	0	1282	202	0	0	0	144	0	0	0	886	0.002	0	2929	No	Yes	No	No		
Feb-66	0	0	0	0	0	0	177	649	173	0	0	0.210	0	0	No	No	No	No	649	
Mar-66	569	2994	225	0	454	11	0	1854	237	128	61	0.086	0	425	No	Yes	Yes	No		
Apr-66	1464	7703	578	0	1063	27	0	1038	133	359	172	0.042	0	1191	Yes	Yes	Yes	No		
May-66	1340	7052	529	0	1253	31	0	1440	201	257	123	0.051	0	852	Yes	Yes	Yes	No		
Jun-66	1019	5361	322	0	533	11	0	852	121	381	146	0.064	0	1264	Yes	Yes	Yes	No		
Jul-66	897	4723	283	0	823	19	0	888	123	271	103	0.049	0	898	Yes	Yes	Yes	No		
Aug-66	572	3008	226	0	489	11	0	699	98	249	119	0.059	0	826	Yes	Yes	Yes	No		
Sep-66	483	2543	191	0	424	10	0	442	67	288	138	0.053	0	955	Yes	Yes	Yes	No		

APPENDIX E

H-Area HM High Heat Waste

																				Fissile Mass
	Fe(OH)3	NaAlO2	MnO2	Ni(OH)2	Pu-239	Pu-241	U-233	U-235	U-238	Fe	Mn	U238	Ni	Al	Safe by	Safe by	Safe by	Safe by	w/Low	
Date	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW (g)	HHW (g)	HHW (g)	HHW (g)	HHW (g)	Ratio HHW	Ratio HHW	Ratio HHW	Ratio HHW	Ratio HHW	Fe only HHW	Mn only HHW	Fe & Mn HHW	U-238 HHW	Diluents (g)	
Oct-66	206	1078	73	0	229	4	0	650	102	121	52	0.093	0	402	No	Yes	Yes	No		
Nov-66	349	1836	83	0	251	1	0	515	74	238	68	0.074	0	788	Yes	Yes	Yes	No		
Dec-66	315	1658	124	0	299	6	0	257	74	293	140	0.088	0	971	Yes	Yes	Yes	No		
Jan-67	513	2702	203	0	183	1	0	274	101	586	280	0.161	0	1942	Yes	Yes	Yes	No		
Feb-67	215	1129	85	0	115	0	0	1057	152	96	46	0.119	0	317	No	Yes	Yes	No		
Mar-67	978	5147	386	0	288	2	0	1057	155	368	176	0.093	0	1221	Yes	Yes	Yes	No		
Apr-67	587	3091	232	0	199	1	0	421	61	494	236	0.075	0	1638	Yes	Yes	Yes	No		
May-67	485	2554	172	0	202	1	0	588	88	321	138	0.090	0	1062	Yes	Yes	Yes	No		
Jun-67	417	2194	165	0	161	1	0	482	74	339	162	0.094	0	1122	Yes	Yes	Yes	No		
Jul-67	759	3993	240	0	318	2	0	954	147	311	119	0.094	0	1031	Yes	Yes	Yes	No		
Aug-67	177	930	70	0	107	0	0	62	13	545	260	0.050	0	1808	Yes	Yes	Yes	No		
Sep-67	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Oct-67	0	0	0	0	0	0	0	155	33	0	0	0.214	0	0	No	No	No	No	155	
Nov-67	715	3764	226	0	303	2	0	348	87	572	218	0.093	0	1896	Yes	Yes	Yes	No		
Dec-67	756	3978	298	0	237	1	0	136	34	1057	505	0.057	0	3504	Yes	Yes	Yes	No		
Jan-68	121	638	48	0	72	2	0	340	66	153	73	0.137	0	507	No	Yes	Yes	No		
Feb-68	165	868	65	0	99	2	0	132	24	371	177	0.074	0	1229	Yes	Yes	Yes	No		
Mar-68	340	1788	134	0	202	5	0	116	39	550	262	0.076	0	1822	Yes	Yes	Yes	No		
Apr-68	170	897	67	0	101	2	0	477	155	154	73	0.230	0	510	No	Yes	Yes	No		
May-68	0	267	42	0	0	0	136	53	16	0	141	0.087	0	467	No	Yes	No	No		
Jun-68	0	694	109	0	0	0	136	53	16	0	366	0.087	0	1213	No	Yes	No	No		
Jul-68	0	529	83	0	0	0	19	0	0	0	2807	0.002	0	9318	No	Yes	No	No		
Aug-68	0	246	39	0	0	0	86	0	0	0	288	0.002	0	846	No	Yes	No	No		
Sep-68	65	341	26	0	38	1	0	63	19	333	159	0.136	0	1105	Yes	Yes	Yes	No		
Oct-68	355	1869	140	0	211	5	0	139	42	523	250	0.075	0	1735	Yes	Yes	Yes	No		
Nov-68	373	1963	147	0	222	5	0	127	36	551	263	0.064	0	1826	Yes	Yes	Yes	No		
Dec-68	601	3164	237	0	358	8	0	430	72	395	188	0.064	0	1308	Yes	Yes	Yes	No		
Jan-69	1009	5312	339	0	102	2	0	911	1299	520	211	1.170	0	1723	Yes	Yes	Yes	No		
Feb-69	440	2318	174	0	17	1	0	70	13	2631	1256	0.122	0	8720	Yes	Yes	Yes	No		
Mar-69	709	3730	241	0	52	1	0	1352	172	264	108	0.118	0	874	Yes	Yes	Yes	No		
Apr-69	451	2376	178	0	11	0	0	131	14	1658	791	0.095	0	5494	Yes	Yes	Yes	No		
May-69	733	1020	37	33	103	1	0	644	71	512	32	0.084	28	449	Yes	No	Yes	No		
Jun-69	2983	1615	178	221	95	1	0	555	61	2392	173	0.083	214	816	Yes	Yes	Yes	No		
Jul-69	1802	78	61	164	10	0	104	792	62	1040	43	0.068	115	28	Yes	Yes	Yes	No		
Aug-69	0	993	156	0	0	0	179	0	0	0	551	0.002	0	1827	No	Yes	No	No		
Sep-69	0	1068	168	0	0	0	257	0	1	0	412	0.002	0	1365	No	Yes	No	No		
Oct-69	0	1404	221	0	0	0	102	0	0	0	1366	0.002	0	4521	No	Yes	No	No		
Nov-69	0	785	123	0	0	0	897	1	2	0	87	0.002	0	288	No	Yes	No	No		
Dec-69	0	0	0	0	0	0	18	492	157	0	0	0.309	0	0	No	No	No	No	492	
Jan-70	394	2071	155	0	691	1	0	441	136	182	87	0.076	0	602	Yes	Yes	Yes	No		
Feb-70	743	3911	293	0	1308	1	0	70	22	282	134	0.008	0	933	Yes	Yes	Yes	No		
Mar-70	583	3068	230	0	1024	1	0	117	39	267	127	0.018	0	884	Yes	Yes	Yes	No		
Apr-70	657	3458	208	0	1219	2	0	506	171	199	76	0.060	0	659	Yes	Yes	Yes	No		
May-70	569	2994	180	0	1060	2	0	320	108	215	82	0.046	0	713	Yes	Yes	Yes	No		

APPENDIX E

H-Area HM High Heat Waste

																				Fissile Mass
											Fe	Mn	U238	Ni	Al	Safe by	Safe by	Safe by	Safe by	w/Low
	Fe(OH)3	NaAlO2	MnO2	Ni(OH)2	Pu-239	Pu-241	U-233	U-235	U-238	Ratio	Ratio	Ratio	Ratio	Ratio	Ratio	Fe only	Mn only	Fe & Mn	U-238	Diluents
Date	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW (g)	HHW (g)	HHW (g)	HHW (g)	HHW (g)	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	(g)
Jun-70	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Jul-70	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1156
Aug-70	289	1520	114	0	508	0	1966	648	687	48	23	0.191	0	160	No	No	No	No		
Sep-70	359	1889	142	0	633	1	0	327	34	195	93	0.022	0	647	Yes	Yes	Yes	No		
Oct-70	334	1760	132	0	583	1	0	175	58	230	110	0.045	0	763	Yes	Yes	Yes	No		
Nov-70	814	4282	257	0	1519	2	0	193	21	248	95	0.007	0	822	Yes	Yes	Yes	No		
Dec-70	1745	213	58	165	0	0	0	1231	126	741	30	0.103	80	57	Yes	No	Yes	No		
Jan-71	1311	1483	65	79	95	0	0	431	30	1302	78	0.048	96	928	Yes	Yes	Yes	No		
Feb-71	801	4218	237	0	987	4	0	925	61	219	78	0.022	0	724	Yes	Yes	Yes	No		
Mar-71	535	2816	169	0	642	2	0	339	31	284	109	0.020	0	943	Yes	Yes	Yes	No		
Apr-71	390	2054	116	0	479	2	0	1160	110	124	44	0.053	0	412	No	Yes	Yes	No		
May-71	578	3040	228	0	634	1	0	134	79	392	187	0.058	0	1301	Yes	Yes	Yes	No		
Jun-71	517	2722	174	0	606	2	0	28	16	425	172	0.013	0	1409	Yes	Yes	Yes	No		
Jul-71	697	3668	206	0	853	3	0	280	29	321	115	0.015	0	1063	Yes	Yes	Yes	No		
Aug-71	987	2215	60	29	109	0	0	264	25	1380	102	0.053	48	1950	Yes	Yes	Yes	No		
Sep-71	255	250	11	17	1	0	0	67	8	1961	107	0.112	154	1211	Yes	Yes	Yes	No		
Oct-71	287	1508	113	0	317	1	0	103	20	356	170	0.027	0	1180	Yes	Yes	Yes	No		
Nov-71	668	3515	264	0	729	2	0	1789	636	139	66	0.199	0	459	No	Yes	Yes	No		
Dec-71	294	1545	95	0	292	1	0	181	78	323	127	0.105	0	1072	Yes	Yes	Yes	No		
Jan-72	0	0	0	0	0	0	0	3	1	0	0	0.236	0	0	No	No	No	No	3	
Feb-72	335	1762	132	0	592	19	0	117	29	240	115	0.022	0	796	Yes	Yes	Yes	No		
Mar-72	284	79	8	11	0	0	0	15	4	9898	352	0.265	484	1742	Yes	Yes	Yes	No		
Apr-72	6775	2908	166	83	556	18	0	59	16	5595	165	0.013	83	1512	Yes	Yes	Yes	No		
May-72	579	3048	229	0	1028	34	0	92	22	262	125	0.010	0	869	Yes	Yes	Yes	No		
Jun-72	389	2049	154	0	691	23	0	105	26	249	119	0.017	0	824	Yes	Yes	Yes	No		
Jul-72	5945	2001	66	176	600	17	0	148	37	4057	54	0.028	146	860	Yes	Yes	Yes	No		
Aug-72	21	109	0	0	11	0	0	31	3	257	0	0.049	0	853	Yes	No	No	No		
Sep-72	384	2024	129	0	713	23	0	76	19	247	100	0.013	0	820	Yes	Yes	Yes	No		
Oct-72	7389	3446	156	39	1086	35	0	296	53	2724	70	0.022	18	800	Yes	Yes	Yes	No		
Nov-72	601	3162	202	0	1114	36	0	80	28	255	103	0.012	0	845	Yes	Yes	Yes	No		
Dec-72	1389	0	43	115	0	0	0	67	1382	10883	406	20.717	1091	0	Yes	Yes	Yes	No		
Jan-73	1357	10	43	112	0	0	0	239	4355	2965	113	18.212	297	14	Yes	Yes	Yes	No		
Feb-73	328	1728	130	0	1331	55	0	174	102	110	53	0.036	0	365	No	Yes	Yes	No		
Mar-73	476	2507	188	0	1936	79	0	1198	255	77	37	0.050	0	257	No	Yes	Yes	No		
Apr-73	679	3573	268	0	2768	114	0	123	28	118	56	0.005	0	391	No	Yes	Yes	No		
May-73	97	510	38	0	12352	152	0	39	10	4	2	0.000	0	13	No	No	No	No	12544	
Jun-73	249	1313	98	0	1089	44	0	199	30	98	47	0.012	0	324	No	Yes	Yes	No		
Jul-73	438	2304	173	0	1785	73	0	217	31	110	53	0.008	0	366	No	Yes	Yes	No		
Aug-73	463	2439	155	0	37	75	0	145	19	946	384	0.053	0	3135	Yes	Yes	Yes	No		
Sep-73	599	3153	236	0	2436	99	0	779	158	94	45	0.028	0	313	No	Yes	Yes	No		
Oct-73	423	2228	167	0	1724	70	0	87	33	118	56	0.009	0	390	No	Yes	Yes	No		
Nov-73	406	2138	160	0	1649	67	0	348	227	103	49	0.062	0	341	No	Yes	Yes	No		
Dec-73	415	439	14	38	0	0	0	40	804	5481	229	20.326	615	3654	Yes	Yes	Yes	No		
Jan-74	1436	1521	50	133	2	0	0	68	1390	10662	446	19.246	1197	7109	Yes	Yes	Yes	No		

APPENDIX E

H-Area HM High Heat Waste

																				Fissile Mass
										Fe	Mn	U238	Ni	Al	Safe by	Safe by	Safe by	Safe by	w/Low	
	Fe(OH)3	NaAlO2	MnO2	Ni(OH)2	Pu-239	Pu-241	U-233	U-235	U-238	Ratio	Ratio	Ratio	Ratio	Ratio	Fe only	Mn only	Fe & Mn	U-238	Diluents	
Date	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW (g)	HHW (g)	HHW (g)	HHW (g)	HHW (g)	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	(g)	
Feb-74	2408	2547	83	223	2	0	0	143	3342	8661	362	22.732	972	5776	Yes	Yes	Yes	No		
Mar-74	2361	2500	82	219	4	0	0	169	4662	7151	299	26.456	803	4768	Yes	Yes	Yes	No		
Apr-74	658	697	23	61	0	0	0	53	1167	6482	271	21.998	728	4322	Yes	Yes	Yes	No		
May-74	214	854	67	0	737	30	0	37	10	139	53	0.007	0	349	No	Yes	Yes	No		
Jun-74	507	2030	180	0	1734	71	0	215	57	131	56	0.015	0	331	No	Yes	Yes	No		
Jul-74	536	2138	169	0	1856	76	0	589	154	111	42	0.036	0	279	No	Yes	Yes	No		
Aug-74	295	1181	105	0	1008	42	0	206	51	123	53	0.023	0	310	No	Yes	Yes	No		
Sep-74	283	1131	112	0	950	40	0	328	84	112	54	0.038	0	283	No	Yes	Yes	No		
Oct-74	186	960	95	0	807	34	0	451	133	75	46	0.064	0	245	No	Yes	Yes	No		
Nov-74	191	982	97	0	824	34	0	317	89	85	52	0.045	0	275	No	Yes	Yes	No		
Dec-74	142	734	62	0	628	26	0	286	84	79	41	0.064	0	257	No	Yes	Yes	No		
Jan-75	859	415	56	72	223	9	0	245	53	939	73	0.076	95	286	Yes	Yes	Yes	No		
Feb-75	150	772	76	0	932	41	0	134	84	71	43	0.042	0	229	No	Yes	Yes	No		
Mar-75	224	1154	114	0	1399	62	0	267	238	68	42	0.078	0	220	No	Yes	Yes	No		
Apr-75	250	1288	108	0	1589	69	0	186	55	71	37	0.016	0	230	No	Yes	Yes	No		
May-75	266	1370	115	0	1695	74	0	198	52	71	37	0.015	0	229	No	Yes	Yes	No		
Jun-75	188	967	76	0	1196	52	0	113	34	72	35	0.013	0	234	No	Yes	Yes	No		
Jul-75	319	1641	162	0	1989	88	0	298	92	70	43	0.022	0	227	No	Yes	Yes	No		
Aug-75	73	376	37	0	456	20	0	526	906	38	23	0.629	0	123	No	No	No	No	1002	
Sep-75	1384	0	48	128	1	0	0	154	4983	4663	195	31.927	524	0	Yes	Yes	Yes	No		
Oct-75	1575	0	54	146	1	0	0	12	422	61219	2558	29.387	6873	0	Yes	Yes	Yes	No		
Nov-75	3133	0	108	290	3	0	0	6	218	190411	7957	19.206	21378	0	Yes	Yes	Yes	No		
Dec-75	145	745	74	0	767	34	0	132	116	81	50	0.070	0	263	No	Yes	Yes	No		
Jan-76	255	1314	130	0	1299	66	0	188	68	86	53	0.024	0	279	No	Yes	Yes	No		
Feb-76	169	872	86	0	862	44	0	83	38	89	55	0.021	0	290	No	Yes	Yes	No		
Mar-76	280	1444	100	0	1480	73	0	295	1301	79	34	0.397	0	257	No	Yes	Yes	No		
Apr-76	197	1017	80	0	1038	51	0	199	56	80	39	0.024	0	260	No	Yes	Yes	No		
May-76	189	975	82	0	980	49	0	162	65	83	43	0.030	0	269	No	Yes	Yes	No		
Jun-76	208	1073	85	0	1089	54	0	157	58	84	41	0.025	0	271	No	Yes	Yes	No		
Jul-76	208	1069	74	0	1103	54	0	260	75	76	33	0.030	0	248	No	Yes	Yes	No		
Aug-76	216	1113	88	0	1128	56	0	152	44	84	42	0.018	0	274	No	Yes	Yes	No		
Sep-76	254	1307	110	0	1325	66	0	121	41	88	46	0.015	0	284	No	Yes	Yes	No		
Oct-76	198	1022	101	0	1011	51	0	102	37	89	55	0.017	0	289	No	Yes	Yes	No		
Nov-76	102	524	52	0	524	26	0	316	961	61	38	0.700	0	199	No	Yes	Yes	No		
Dec-76	170	875	86	0	862	44	0	76	28	90	56	0.016	0	293	No	Yes	Yes	No		
Jan-77	204	1050	83	0	899	45	0	239	248	90	44	0.121	0	292	No	Yes	Yes	No		
Feb-77	233	1201	83	0	1045	51	0	281	656	88	38	0.275	0	287	No	Yes	Yes	No		
Mar-77	246	1267	88	0	1095	54	0	227	73	93	40	0.030	0	303	No	Yes	Yes	No		
Apr-77	183	941	93	0	781	40	0	119	44	102	62	0.026	0	330	No	Yes	Yes	No		
May-77	194	998	98	0	822	42	0	167	66	98	60	0.036	0	319	No	Yes	Yes	No		
Jun-77	189	971	96	0	801	41	0	265	118	89	55	0.063	0	289	No	Yes	Yes	No		
Jul-77	171	883	87	0	732	37	0	153	73	97	60	0.045	0	315	No	Yes	Yes	No		
Aug-77	216	1111	77	0	964	48	0	164	95	96	41	0.045	0	311	No	Yes	Yes	No		
Sep-77	67	346	34	0	48	0	0	420	151	75	46	0.293	0	243	No	Yes	Yes	No		

APPENDIX E

H-Area HM High Heat Waste

																					Fissile Mass
											Fe	Mn	U238	Ni	Al	Safe by	Safe by	Safe by	Safe by	w/Low	
	Fe(OH)3	NaAlO2	MnO2	Ni(OH)2	Pu-239	Pu-241	U-233	U-235	U-238	Ratio	Ratio	Ratio	Ratio	Ratio	Ratio	Fe only	Mn only	Fe & Mn	U-238	Diluents	
Date	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW (g)	HHW (g)	HHW (g)	HHW (g)	HHW (g)	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	(g)	
Oct-77	1246	0	43	115	51	1	0	27	732	8220	343	5.770	923	0	Yes	Yes	Yes	No			
Nov-77	2198	0	76	204	38	0	0	26	699	17786	743	7.000	1997	0	Yes	Yes	Yes	No			
Dec-77	970	0	34	90	13	0	0	32	867	11153	466	15.101	1252	0	Yes	Yes	Yes	No			
Jan-78	381	0	13	35	4	0	0	7	192	17768	742	12.930	1995	0	Yes	Yes	Yes	No			
Feb-78	710	0	25	66	5	0	0	27	728	11503	481	19.761	1291	0	Yes	Yes	Yes	No			
Mar-78	813	0	28	75	7	0	0	2927	35880	145	6	12.202	16	0	No	No	No	No	2934		
Apr-78	145	747	52	0	547	29	0	497	4585	71	30	2.859	0	229	No	No	Yes	No			
May-78	231	1190	82	0	876	46	0	433	485	89	38	0.220	0	289	No	Yes	Yes	No			
Jun-78	224	1156	91	0	840	45	0	556	400	81	40	0.177	0	264	No	Yes	Yes	No			
Jul-78	221	1138	112	0	796	43	0	501	1605	86	53	0.780	0	279	No	Yes	Yes	No			
Aug-78	170	876	69	0	632	34	0	544	418	73	36	0.229	0	238	No	Yes	Yes	No			
Sep-78	232	1196	94	0	866	46	0	3429	25090	28	14	4.843	0	91	No	No	No	No	4341		
Oct-78	141	728	72	0	505	28	0	453	131	75	46	0.069	0	243	No	Yes	Yes	No			
Nov-78	230	1184	82	0	876	46	0	737	1551	72	31	0.618	0	235	No	No	Yes	No			
Dec-78	206	1064	73	0	787	41	0	369	125	90	39	0.064	0	292	No	Yes	Yes	No			
Jan-79	227	1172	93	0	1296	78	0	243	84	74	36	0.029	0	239	No	Yes	Yes	No			
Feb-79	240	1235	85	0	1579	95	0	242	344	65	28	0.100	0	212	No	No	Yes	No			
Mar-79	200	1030	86	0	1135	69	0	268	76	71	37	0.030	0	230	No	Yes	Yes	No			
Apr-79	188	967	81	0	1065	65	0	210	78	73	38	0.033	0	238	No	Yes	Yes	No			
May-79	217	1118	94	0	1230	75	0	554	528	61	32	0.173	0	198	No	No	Yes	No			
Jun-79	272	1400	110	0	1555	94	0	311	137	72	36	0.039	0	235	No	Yes	Yes	No			
Jul-79	232	1195	94	0	1319	80	0	813	947	55	27	0.271	0	178	No	No	Yes	No			
Aug-79	233	1199	95	0	1332	81	0	503	864	63	31	0.269	0	206	No	No	Yes	No			
Sep-79	258	1329	118	0	1454	88	0	720	679	60	33	0.184	0	193	No	Yes	Yes	No			
Oct-79	41	212	21	0	17	0	0	135	40	142	87	0.237	0	461	No	Yes	Yes	No			
Nov-79	0	0	0	0	0	0	0	46	1259	0	0	27.543	0	0	No	No	No	No	46		
Dec-79	1775	0	61	164	28	0	0	46	1268	12454	520	12.595	1398	0	Yes	Yes	Yes	No			
Jan-80	3633	0	126	337	317	3	0	5	143	5832	244	0.230	655	0	Yes	Yes	Yes	No			
Feb-80	4094	0	141	379	69	1	0	4	106	28989	1211	0.768	3255	0	Yes	Yes	Yes	No			
Mar-80	5180	0	179	480	60	0	0	5	131	41500	1734	1.085	4659	0	Yes	Yes	Yes	No			
Apr-80	2327	0	80	216	15	0	0	10	270	49035	2049	6.993	5505	0	Yes	Yes	Yes	No			
May-80	609	0	21	56	6	0	0	20	393	12300	514	12.506	1381	0	Yes	Yes	Yes	No			
Jun-80	214	1102	109	0	1615	100	0	221	69	58	35	0.020	0	187	No	Yes	Yes	No			
Jul-80	185	953	85	0	1407	87	0	295	92	54	30	0.029	0	175	No	No	Yes	No			
Aug-80	343	1765	122	0	2661	161	0	375	95	56	24	0.016	0	182	No	No	No	No	3197		
Sep-80	188	968	67	0	1456	88	0	534	126	47	20	0.036	0	153	No	No	No	No	2078		
Oct-80	295	1522	105	0	2291	139	0	361	81	55	24	0.016	0	180	No	No	No	No	2791		
Nov-80	250	1287	89	0	1933	117	0	345	78	55	23	0.018	0	177	No	No	No	No	2395		
Dec-80	277	1429	99	0	2148	130	0	288	70	56	24	0.015	0	183	No	No	No	No	2567		
Jan-81	269	1387	96	0	1691	113	0	286	75	67	29	0.020	0	218	No	No	Yes	No			
Feb-81	284	1464	101	0	1787	119	0	299	77	67	29	0.019	0	218	No	No	Yes	No			
Mar-81	306	1575	124	0	1715	128	0	257	65	76	37	0.017	0	247	No	Yes	Yes	No			
Apr-81	229	1180	93	0	1426	96	0	490	672	59	29	0.197	0	193	No	No	Yes	No			
May-81	245	1262	100	0	1521	102	0	346	134	65	32	0.039	0	211	No	No	Yes	No			

APPENDIX E

H-Area HM High Heat Waste

																				Fixable Mass
										Fe	Mn	U238	Ni	Al	Safe by	Safe by	Safe by	Safe by	w/Low	
	Fe(OH)3	NaAlO2	MnO2	Ni(OH)2	Pu-239	Pu-241	U-233	U-235	U-238	Ratio	Ratio	Ratio	Ratio	Ratio	Fe only	Mn only	Fe & Mn	U-238	Diluents	
Date	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW (g)	HHW (g)	HHW (g)	HHW (g)	HHW (g)	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	(g)	
Jun-81	218	1126	78	0	1364	91	0	522	713	58	25	0.215	0	187	No	No	No	No	1978	
Jul-81	232	1195	94	0	1444	97	0	861	851	60	25	0.223	0	164	No	No	No	No	2403	
Aug-81	283	1456	122	0	1740	118	0	421	205	65	34	0.062	0	210	No	Yes	Yes	No		
Sep-81	283	1456	115	0	1749	118	0	688	915	58	28	0.214	0	188	No	No	Yes	No		
Oct-81	296	1524	120	0	1844	125	0	673	2868	59	29	0.644	0	190	No	No	Yes	No		
Nov-81	199	1027	81	0	1236	83	0	371	651	62	30	0.224	0	200	No	No	Yes	No		
Dec-81	216	1114	77	0	1364	91	0	526	492	57	25	0.148	0	185	No	No	No	No	1981	
Jan-82	144	740	58	0	901	51	0	115	50	70	35	0.026	0	228	No	Yes	Yes	No		
Feb-82	0	0	0	0	0	0	0	11	5	0	0	0.434	0	0	No	No	No	No	11	
Mar-82	132	682	54	0	830	47	0	428	979	53	26	0.484	0	172	No	No	No	No	1304	
Apr-82	268	1383	109	0	1696	96	0	360	745	65	32	0.196	0	211	No	Yes	Yes	No		
May-82	216	1115	94	0	1356	77	0	306	131	65	34	0.043	0	211	No	Yes	Yes	No		
Jun-82	198	1019	85	0	1238	71	0	286	111	65	34	0.040	0	210	No	Yes	Yes	No		
Jul-82	38	197	14	0	240	13	0	479	1259	27	12	1.304	0	89	No	No	No	No	732	
Aug-82	226	1165	98	0	1415	81	0	320	276	65	34	0.087	0	211	No	Yes	Yes	No		
Sep-82	159	819	69	0	991	56	0	468	355	55	29	0.143	0	178	No	No	Yes	No		
Oct-82	178	918	91	0	1102	63	0	588	514	53	33	0.182	0	172	No	Yes	Yes	No		
Nov-82	67	343	34	0	406	23	0	317	66	47	29	0.057	0	151	No	No	Yes	No		
Dec-82	252	1298	128	0	1555	89	0	573	200	59	37	0.054	0	193	No	Yes	Yes	No		
Jan-83	199	1026	101	0	1399	101	0	531	292	51	32	0.086	0	166	No	No	Yes	No		
Feb-83	40	204	20	0	271	19	0	228	190	40	25	0.242	0	129	No	No	No	No	518	
Mar-83	247	1273	126	0	1741	126	0	421	228	56	35	0.057	0	183	No	Yes	Yes	No		
Apr-83	147	758	75	0	1042	76	0	517	263	47	29	0.099	0	153	No	No	Yes	No		
May-83	178	917	90	0	1256	90	0	453	406	52	32	0.133	0	168	No	No	Yes	No		
Jun-83	137	706	70	0	971	70	0	380	137	50	31	0.058	0	163	No	No	Yes	No		
Jul-83	97	500	49	0	685	0	0	518	128	42	26	0.070	0	137	No	No	No	No	1203	
Aug-83	155	797	67	0	1101	79	0	609	355	45	24	0.124	0	147	No	No	No	No	1788	
Sep-83	149	765	76	0	1042	76	0	335	65	53	33	0.026	0	173	No	Yes	Yes	No		
Oct-83	130	672	56	0	926	67	0	515	124	45	24	0.051	0	147	No	No	No	No	1509	
Nov-83	356	1835	154	0	2548	182	0	393	108	60	31	0.019	0	193	No	No	Yes	No		
Dec-83	186	961	76	0	1338	96	0	417	163	53	26	0.051	0	171	No	No	No	No	1851	
Jan-84	87	450	44	0	794	62	0	200	70	43	27	0.038	0	140	No	No	Yes	No		
Feb-84	210	1080	85	0	1920	148	0	389	123	45	22	0.028	0	145	No	No	No	No	2457	
Mar-84	239	1231	97	0	2189	169	0	346	111	46	23	0.023	0	150	No	No	No	No	2704	
Apr-84	271	1395	110	0	2479	191	0	238	75	49	24	0.014	0	158	No	No	No	No	2908	
May-84	175	902	76	0	1605	124	0	559	143	40	21	0.037	0	130	No	No	No	No	2289	
Jun-84	222	1146	96	0	2038	158	0	521	105	43	22	0.022	0	139	No	No	No	No	2717	
Jul-84	24	126	12	0	224	18	0	135	27	34	21	0.045	0	110	No	No	No	No	377	
Aug-84	160	823	69	0	1461	113	0	332	69	44	23	0.020	0	142	No	No	No	No	1907	
Sep-84	192	991	83	0	1750	136	0	349	67	45	24	0.017	0	146	No	No	No	No	2234	
Oct-84	297	1529	128	0	2716	210	0	480	97	46	24	0.016	0	148	No	No	No	No	3406	
Nov-84	315	1625	136	0	2881	223	0	586	176	45	23	0.027	0	145	No	No	No	No	3690	
Dec-84	328	1692	163	0	2976	232	0	500	199	46	28	0.030	0	150	No	No	Yes	No		
Jan-85	186	958	91	0	1345	72	0	578	232	49	29	0.070	0	158	No	No	Yes	No		

APPENDIX E

																				Fissile Mass
											Fe	Mn	U238	Ni	Al	Safe by	Safe by	Safe by	Safe by	w/Low
	Fe(OH)3	NaAlO2	MnO2	Ni(OH)2	Pu-239	Pu-241	U-233	U-235	U-238	Ratio	Ratio	Ratio	Ratio	Ratio	Ratio	Fe only	Mn only	Fe & Mn	U-238	Diluents
Date	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW (g)	HHW (g)	HHW (g)	HHW (g)	HHW (g)	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	(g)
Feb-86	278	1432	128	0	2006	108	0	248	100	61	34	0.023	0	200	No	Yes	Yes	No		
Mar-86	343	1765	160	0	2469	132	0	438	119	59	33	0.022	0	191	No	Yes	Yes	No		
Apr-86	362	1867	167	0	2620	141	0	982	259	51	28	0.041	0	164	No	No	Yes	No		
May-86	385	1984	178	0	2788	149	0	554	319	58	32	0.052	0	187	No	Yes	Yes	No		
Jun-86	217	1119	92	0	1574	84	0	610	231	50	26	0.061	0	162	No	No	No	No	2269	
Jul-86	239	1232	100	0	1746	93	0	681	231	50	25	0.055	0	161	No	No	No	No	2520	
Aug-86	260	1341	132	0	1854	100	0	509	176	55	34	0.041	0	178	No	Yes	Yes	No		
Sep-86	131	675	67	0	942	51	0	484	160	46	29	0.067	0	150	No	No	Yes	No		
Oct-86	0	0	0	0	0	0	0	173	59	0	0	0.341	0	0	No	No	No	No	173	
Nov-86	131	675	67	0	942	51	0	65	22	65	40	0.011	0	210	No	Yes	Yes	No		
Dec-86	393	2025	200	0	2806	151	0	217	78	65	40	0.013	0	210	No	Yes	Yes	No		
Jan-86	155	797	75	0	1114	83	0	751	290	41	24	0.095	0	135	No	No	No	No	1949	
Feb-86	243	1250	113	0	1741	130	0	186	69	62	35	0.018	0	200	No	Yes	Yes	No		
Mar-86	272	1404	98	0	1999	147	0	551	157	53	23	0.034	0	171	No	No	No	No	2698	
Apr-86	245	1263	100	0	1778	132	0	480	132	54	27	0.032	0	174	No	No	Yes	No		
May-86	360	1856	163	0	2609	194	0	456	92	58	32	0.016	0	187	No	No	Yes	No		
Jun-86	172	887	75	0	1252	93	0	584	158	47	25	0.050	0	151	No	No	No	No	1929	
Jul-86	263	1357	121	0	1909	142	0	433	136	55	31	0.031	0	180	No	No	Yes	No		
Aug-86	233	1200	106	0	1689	126	0	337	100	57	31	0.026	0	184	No	No	Yes	No		
Sep-86	252	1299	111	0	1823	136	0	556	132	52	28	0.031	0	170	No	No	Yes	No		
Oct-86	0	0	0	0	0	0	0	180	56	0	0	0.311	0	0	No	No	No	No	180	
Nov-86	101	519	44	0	718	53	0	11	3	67	36	0.002	0	218	No	Yes	Yes	No		
Dec-86	248	1275	122	0	1769	132	0	306	106	59	35	0.027	0	190	No	Yes	Yes	No		
Jan-87	131	675	67	0	797	48	0	314	98	59	36	0.051	0	192	No	Yes	Yes	No		
Feb-87	179	921	64	0	1128	69	0	207	63	67	29	0.025	0	216	No	No	Yes	No		
Mar-87	175	903	63	0	1106	66	0	1184	13488	39	17	3.929	0	126	No	No	No	No	2355	
Apr-87	276	1421	119	0	1709	102	0	1528	13442	43	22	2.685	0	140	No	No	No	No	3339	
May-87	186	959	64	0	1177	70	0	432	129	58	24	0.046	0	188	No	No	No	No	1679	
Jun-87	171	882	72	0	1068	64	0	427	185	57	29	0.071	0	186	No	No	Yes	No		
Jul-87	304	1569	147	0	1866	113	0	400	110	67	39	0.026	0	217	No	Yes	Yes	No		
Aug-87	22	112	11	0	131	8	0	371	105	22	14	0.166	0	73	No	No	No	No	510	
Sep-87	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Oct-87	86	442	40	0	529	32	0	25	13	76	43	0.012	0	248	No	Yes	Yes	No		
Nov-87	167	858	67	0	1039	62	0	135	52	70	34	0.023	0	228	No	Yes	Yes	No		
Dec-87	95	488	33	0	599	36	0	182	66	61	26	0.047	0	196	No	No	Yes	No		
Jan-88	222	1143	89	0	1292	106	0	198	66	73	35	0.023	0	236	No	Yes	Yes	No		
Feb-88	165	852	56	0	976	79	0	250	77	66	27	0.034	0	215	No	No	Yes	No		
Mar-88	216	1114	88	0	1257	103	0	205	63	72	35	0.022	0	234	No	Yes	Yes	No		
Apr-88	195	1004	78	0	1134	93	0	355	103	64	31	0.038	0	209	No	No	Yes	No		
May-88	121	624	0	0	82	3	0	348	106	146	0	0.206	0	474	No	No	No	No	433	
Jun-88	0	0	0	0	0	0	0	421	130	0	0	0.309	0	0	No	No	No	No	421	
Jul-88	0	0	0	0	0	0	0	133	40	0	0	0.300	0	0	No	No	No	No	133	
Aug-88	0	0	0	0	0	0	0	6	2	0	0	0.352	0	0	No	No	No	No	6	
Sep-88	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

APPENDIX E

																				Fissile Mass
										Fe	Mn	U238	Ni	Al	Safe by	Safe by	Safe by	Safe by	w/Low	
	Fe(OH)3	NaAlO2	MnO2	Ni(OH)2	Pu-239	Pu-241	U-233	U-236	U-238	Ratio	Ratio	Ratio	Ratio	Ratio	Fe only	Mn only	Fe & Mn	U-238	Diluents	
Date	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW (g)	HHW (g)	HHW (g)	HHW (g)	HHW (g)	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	(g)	
Oct-88	59	302	0	0	40	1	0	0	0	744	0	0.000	0	2414	Yes	No	No	No		
Nov-88	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Dec-88	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	26	
Jan-89	0	0	0	0	0	0	0	26	7	0	0	0.287	0	0	No	No	No	No		
Feb-89	51	261	0	0	34	1	0	0	0	742	0	0.000	0	2409	Yes	No	No	No		
Mar-89	32	167	0	0	22	1	0	27	8	338	0	0.110	0	1086	Yes	No	No	No	17	
Apr-89	0	0	0	0	0	0	0	117	33	0	0	0.287	0	0	No	No	No	No		
May-89	47	244	0	0	32	1	0	1	0	719	0	0.006	0	2332	Yes	No	No	No	26	
Jun-89	6	30	0	0	4	0	0	22	6	116	0	0.211	0	378	No	No	No	No	1	
Jul-89	0	0	0	0	0	0	0	1	0	0	0	0.287	0	0	No	No	No	No		
Aug-89	19	100	0	0	13	1	0	6	2	515	0	0.064	0	1672	Yes	No	No	No	133	
Sep-89	8	39	0	0	6	0	0	128	37	30	0	0.286	0	96	No	No	No	No	188	
Oct-89	0	0	0	0	0	0	0	188	54	0	0	0.287	0	0	No	No	No	No	122	
Nov-89	0	0	0	0	0	0	0	122	36	0	0	0.287	0	0	No	No	No	No	6	
Dec-89	0	0	0	0	0	0	0	6	1	0	0	0.287	0	0	No	No	No	No		
Jan-90	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	14	
Feb-90	0	0	0	0	0	0	0	14	4	0	0	0.287	0	0	No	No	No	No	2	
Mar-90	0	0	0	0	0	0	0	2	1	0	0	0.287	0	0	No	No	No	No		
Apr-90	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
May-90	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Jun-90	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Jul-90	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Aug-90	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	
Sep-90	0	0	0	0	0	0	0	1	0	0	0	0.287	0	0	No	No	No	No		
Oct-90	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Nov-90	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Dec-90	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Jan-91	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Feb-91	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Mar-91	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Apr-91	4	20	0	0	3	0	0	2	1	409	0	0.086	0	1327	Yes	No	No	No		
May-91	6	29	0	0	4	0	0	0	0	739	0	0.000	0	2399	Yes	No	No	No		
Jun-91	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Jul-91	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Aug-91	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Sep-91	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Oct-91	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Nov-91	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Dec-91	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Jan-92	6	32	0	0	4	0	0	2	1	491	0	0.080	0	1592	Yes	No	No	No		
Feb-92	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Mar-92	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Apr-92	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
May-92	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

APPENDIX E

H-Area HM High Heat Waste

																				Fissile Mass
	Fe(OH)3	NaAlO2	MnO2	Ni(OH)2	Pu-239	Pu-241	U-233	U-235	U-238	Fe Ratio	Mn Ratio	U238 Ratio	Ni Ratio	Al Ratio	Safe by Fe only	Safe by Mn only	Safe by Fe & Mn	Safe by U-238	w/Low Diluents	
Date	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW (Kg)	HHW (g)	HHW (g)	HHW (g)	HHW (g)	HHW (g)	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	HHW	(g)	
Jun-92	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Jul-92	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Aug-92	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Sep-92	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Oct-92	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Nov-92	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Dec-92	0	0	0	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Totals	167904	493718	38940	4763	289838	13632	6832	152045	171998	190	63	0.232	7	361	Yes	Yes	Yes	No	106863	

APPENDIX E

Figure E.1 H-Canyon HM HHW Monthly Fe:Fissile Material Weight Ratios

APPENDIX E

Figure E.2 H-Canyon HM HHW Monthly Mn:Fissile Material Weight Ratios

APPENDIX E

Figure E.3 H-Canyon HM HHW Monthly Ni:Fissile Material Weight Ratios

APPENDIX E

Figure E.4 H-Canyon HM HHW Monthly Al:Fissile Material Weight Ratios

APPENDIX E

Figure E.5 H-Canyon HM HHW Fissile Mass in Months
Not Exceeding Minimum Safe Weight Ratios of Fe, Mn and/or U-238

APPENDIX F

H-Area HM LHW Monthly Weight Ratio Data

												Fissile Mass
	Fe(OH)3	NaAlO2	U-233	U-235	U-238	Fe Ratio	U238 Ratio	Al Ratio	Safe by Fe only	Safe by U-238		w/Low Diluents
Date	LHW (Kg)	LHW (Kg)	LHW (g)	LHW (g)	LHW (g)	LHW	LHW	LHW	LHW	LHW		(g)
Jun-59	0	0	0	62	7	0	0	0	No	No		62
Jul-59	0	0	0	63	6	0	0	0	No	No		63
Aug-59	0	0	0	62	6	0	0	0	No	No		62
Sep-59	0	0	0	63	6	0	0	0	No	No		63
Oct-59	0	0	0	63	5	0	0	0	No	No		63
Nov-59	0	0	0	64	5	0	0	0	No	No		64
Dec-59	0	0	0	64	5	0	0	0	No	No		64
Jan-60	0	0	0	63	6	0	0	0	No	No		63
Feb-60	0	0	0	63	5	0	0	0	No	No		63
Mar-60	0	0	0	64	5	0	0	0	No	No		64
Apr-60	0	0	0	63	5	0	0	0	No	No		63
May-60	0	0	0	63	5	0	0	0	No	No		63
Jun-60	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A		
Jul-60	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A		
Aug-60	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A		
Sep-60	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A		
Oct-60	0	0	0	63	5	0	0	0	No	No		63
Nov-60	0	0	0	63	5	0	0	0	No	No		63
Dec-60	0	0	0	62	5	0	0	0	No	No		62
Jan-61	0	0	0	62	5	0	0	0	No	No		62
Feb-61	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A		
Mar-61	43	1	0	0	0	N/A	N/A	N/A	N/A	N/A		
Apr-61	36	4	0	0	0	N/A	N/A	N/A	N/A	N/A		
May-61	39	5	0	0	0	N/A	N/A	N/A	N/A	N/A		
Jun-61	45	6	0	0	0	N/A	N/A	N/A	N/A	N/A		
Jul-61	70	6	0	0	0	N/A	N/A	N/A	N/A	N/A		
Aug-61	71	8	0	62	5	590	0	43	Yes	No		
Sep-61	39	9	0	62	5	330	0	46	Yes	No		
Oct-61	87	10	0	234	17	194	0	14	Yes	No		
Nov-61	0	10	0	197	14	0	0	16	No	No		197
Dec-61	0	9	0	0	0	N/A	N/A	N/A	N/A	N/A		
Jan-62	38	9	0	0	0	N/A	N/A	N/A	N/A	N/A		
Feb-62	70	5	0	0	0	N/A	N/A	N/A	N/A	N/A		
Mar-62	80	4	0	0	0	N/A	N/A	N/A	N/A	N/A		
Apr-62	90	10	0	0	0	N/A	N/A	N/A	N/A	N/A		
May-62	130	14	0	0	0	N/A	N/A	N/A	N/A	N/A		
Jun-62	71	11	0	0	0	N/A	N/A	N/A	N/A	N/A		
Jul-62	0	10	0	0	0	N/A	N/A	N/A	N/A	N/A		
Aug-62	64	14	0	109	9	309	0	42	Yes	No		
Sep-62	34	15	0	45	4	387	0	106	Yes	No		
Oct-62	2038	10	0	191	16	5575	0	18	Yes	No		
Nov-62	1720	9	0	238	21	3772	0	12	Yes	No		
Dec-62	2134	9	0	200	20	5584	0	15	Yes	No		
Jan-63	2484	11	0	298	30	4352	0	12	Yes	No		

APPENDIX F **H-Area HM LHW Monthly Weight Ratio Data**

												Fissile Mass
	Fe(OH)3	NaAlO2	U-233	U-235	U-238	Fe Ratio	U238 Ratio	Al Ratio	Safe by Fe only	Safe by U-238		w/Low Diluents
Date	LHW (Kg)	LHW (Kg)	LHW (g)	LHW (g)	LHW (g)	LHW	LHW	LHW	LHW	LHW		(g)
Feb-63	70	17	0	66	7	548	0	82	Yes	No		
Mar-63	71	17	0	0	0	N/A	N/A	N/A	N/A	N/A		
Apr-63	39	9	0	8	1	2608	0	391	Yes	No		
May-63	87	21	0	376	37	120	0	18	No	No		376
Jun-63	0	0	0	107	11	0	0	0	No	No		107
Jul-63	0	0	0	216	160	0	1	0	No	No		216
Aug-63	38	9	0	139	143	142	1	21	No	No		139
Sep-63	70	17	0	189	174	192	1	29	Yes	No		
Oct-63	1077	19	0	676	163	833	0	9	Yes	No		
Nov-63	2084	21	0	1010	106	1084	0	7	Yes	No		
Dec-63	2134	31	0	477	93	2336	0	21	Yes	No		
Jan-64	71	17	0	366	80	101	0	15	No	No		366
Feb-64	0	0	0	580	127	0	0	0	No	No		580
Mar-64	64	15	227	120	16	97	0	15	No	No		347
Apr-64	34	8	91	398	53	36	0	5	No	No		489
May-64	90	21	362	0	0	129	0	19	No	No		362
Jun-64	118	28	238	2403	319	23	0	3	No	No		2640
Jul-64	443	16	0	226	23	1025	0	24	Yes	No		
Aug-64	971	17	0	322	33	1678	0	18	Yes	No		
Sep-64	1793	35	0	557	71	1682	0	21	Yes	No		
Oct-64	39	9	0	197	25	104	0	16	No	No		197
Nov-64	0	0	0	302	39	0	0	0	No	No		302
Dec-64	0	0	0	39	5	0	0	0	No	No		39
Jan-65	0	0	42	0	0	0	0	0	No	No		42
Feb-65	0	0	47	0	0	0	0	0	No	No		48
Mar-65	865	13	0	69	6	6566	0	61	Yes	No		
Apr-65	2387	10	0	271	24	4600	0	12	Yes	No		
May-65	2133	16	0	313	30	3561	0	17	Yes	No		
Jun-65	243	34	0	118	13	1073	0	93	Yes	No		
Jul-65	1463	16	0	362	43	2115	0	15	Yes	No		
Aug-65	789	38	0	789	101	522	0	16	Yes	No		
Sep-65	195	46	0	511	66	199	0	30	Yes	No		
Oct-65	0	0	192	27	6	0	0	0	No	No		219
Nov-65	0	0	56	25	6	0	0	0	No	No		81
Dec-65	0	0	45	23	6	0	0	0	No	No		68
Jan-66	0	0	76	23	6	0	0	0	No	No		99
Feb-66	134	32	6	21	6	2573	0	386	Yes	No		
Mar-66	1552	42	0	424	54	1912	0	32	Yes	No		
Apr-66	3785	58	0	230	29	8586	0	82	Yes	No		
May-66	3419	42	0	411	57	4344	0	33	Yes	No		
Jun-66	2466	0	0	644	91	2002	0	0	Yes	No		
Jul-66	2173	0	0	162	23	7002	0	0	Yes	No		
Aug-66	1468	20	0	63	9	12226	0	105	Yes	No		
Sep-66	1345	42	0	131	20	5370	0	105	Yes	No		

APPENDIX F

H-Area HM LHW Monthly Weight Ratio Data

											Fissile Mass
	Fe(OH)3	NaAlO2	U-233	U-235	U-238	Fe Ratio	U238 Ratio	Al Ratio	Safe by Fe only	Safe by U-238	w/Low Diluents
Date	LHW (Kg)	LHW (Kg)	LHW (g)	LHW (g)	LHW (g)	LHW	LHW	LHW	LHW	LHW	(g)
Oct-66	563	16	0	30	5	9896	0	177	Yes	No	
Nov-66	999	37	0	557	80	937	0	22	Yes	No	
Dec-66	753	0	0	240	69	1659	0	0	Yes	No	
Jan-67	1472	54	0	103	38	7498	0	175	Yes	No	
Feb-67	661	34	0	89	13	3863	0	124	Yes	No	
Mar-67	2368	0	0	56	8	22002	0	0	Yes	No	
Apr-67	1596	42	0	50	7	16739	0	275	Yes	No	
May-67	1316	34	0	300	45	2295	0	37	Yes	No	
Jun-67	1009	0	0	56	9	9378	0	0	Yes	No	
Jul-67	1978	34	0	56	9	18601	0	199	Yes	No	
Aug-67	616	45	0	716	153	450	0	21	Yes	No	
Sep-67	0	0	11	496	106	0	0	0	No	No	507
Oct-67	0	0	18	210	45	0	0	0	No	No	228
Nov-67	1731	0	0	116	29	7810	0	0	Yes	No	
Dec-67	1958	30	0	36	9	28097	0	275	Yes	No	
Jan-68	522	54	0	53	10	5154	0	338	Yes	No	
Feb-68	615	51	0	92	17	3478	0	183	Yes	No	
Mar-68	1051	54	0	53	18	10363	0	338	Yes	No	
Apr-68	587	42	0	57	19	5370	0	239	Yes	No	
May-68	67	16	9	3	1	2927	0	439	Yes	No	
Jun-68	188	45	9	3	1	8194	0	1229	Yes	No	
Jul-68	188	45	19	0	0	5263	0	789	Yes	No	
Aug-68	128	30	346	33	15	176	0	26	Yes	No	
Sep-68	452	70	0	23	7	10481	0	1027	Yes	No	
Oct-68	860	0	0	23	7	19918	0	0	Yes	No	
Nov-68	1199	70	0	5	1	128883	0	4767	Yes	No	
Dec-68	1455	0	0	14	2	52616	0	0	Yes	No	
Jan-69	2759	75	0	76	15	18879	0	324	Yes	No	
Feb-69	1066	0	0	27	5	20861	0	0	Yes	No	
Mar-69	1917	48	0	167	21	6018	0	95	Yes	No	
Apr-69	1402	74	0	41	5	17722	0	586	Yes	No	
May-69	1652	70	0	97	11	8923	0	240	Yes	No	
Jun-69	2456	74	0	49	5	26119	0	493	Yes	No	
Jul-69	405	72	15	187	15	1049	0	117	Yes	No	
Aug-69	168	40	21	0	0	4254	0	638	Yes	No	
Sep-69	255	61	24	0	0	5658	0	848	Yes	No	
Oct-69	195	46	26	0	0	3986	0	598	Yes	No	
Nov-69	0	0	106	0	0	0	0	0	No	No	106
Dec-69	323	77	279	145	54	398	0	60	Yes	No	
Jan-70	1168	51	0	125	38	4883	0	135	Yes	No	
Feb-70	1967	40	0	123	38	8344	0	107	Yes	No	
Mar-70	1667	61	0	266	88	3271	0	75	Yes	No	
Apr-70	1994	96	0	217	73	4793	0	145	Yes	No	
May-70	1612	55	0	282	95	2984	0	65	Yes	No	

APPENDIX F

H-Area HM LHW Monthly Weight Ratio Data

											Fissile Mass
	Fe(OH)3	NaAlO2	U-233	U-235	U-238	Fe Ratio	U238 Ratio	Al Ratio	Safe by Fe only	Safe by U-238	w/Low Diluents
Date	LHW (Kg)	LHW (Kg)	LHW (g)	LHW (g)	LHW (g)	LHW	LHW	LHW	LHW	LHW	(g)
Jun-70	0	0	120	71	12	0	0	0	No	No	191
Jul-70	0	0	964	1	2	0	0	0	No	No	965
Aug-70	753	13	217	280	30	792	0	8	Yes	No	
Sep-70	943	18	0	331	35	1489	0	18	Yes	No	
Oct-70	1011	48	0	292	96	1812	0	54	Yes	No	
Nov-70	2124	37	0	50	6	22186	0	242	Yes	No	
Dec-70	495	42	0	61	6	4217	0	223	Yes	No	
Jan-71	2602	32	0	62	4	21922	0	170	Yes	No	
Feb-71	2061	29	0	83	5	13022	0	115	Yes	No	
Mar-71	1437	34	0	193	18	3897	0	57	Yes	No	
Apr-71	1180	56	0	125	12	4917	0	147	Yes	No	
May-71	1654	61	0	26	15	33848	1	784	Yes	No	
Jun-71	1507	61	0	29	16	27268	1	693	Yes	No	
Jul-71	1922	56	0	140	14	7178	0	132	Yes	No	
Aug-71	3895	50	0	323	31	6294	0	50	Yes	No	
Sep-71	416	0	0	96	11	2263	0	0	Yes	No	
Oct-71	828	32	0	31	6	14050	0	342	Yes	No	
Nov-71	1906	69	0	24	8	41763	0	949	Yes	No	
Dec-71	711	0	0	23	10	16370	0	0	Yes	No	
Jan-72	0	0	0	29	7	0	0	0	No	No	29
Feb-72	810	0	0	120	30	3543	0	0	Yes	No	
Mar-72	62	0	0	142	38	229	0	0	Yes	No	
Apr-72	2672	94	0	180	48	7778	0	173	Yes	No	
May-72	1577	42	0	92	22	8948	0	149	Yes	No	
Jun-72	942	0	0	191	47	2579	0	0	Yes	No	
Jul-72	2016	107	0	84	21	12551	0	420	Yes	No	
Aug-72	151	24	0	72	6	1103	0	110	Yes	No	
Sep-72	1307	90	0	66	16	10412	0	449	Yes	No	
Oct-72	2898	48	0	141	25	10760	0	112	Yes	No	
Nov-72	1710	61	0	86	30	10411	0	233	Yes	No	
Dec-72	570	37	0	6	116	53120	21	2158	Yes	No	
Jan-73	769	86	0	16	293	25017	18	1770	Yes	No	
Feb-73	916	29	5	225	1812	2085	8	41	Yes	No	
Mar-73	1240	21	0	271	58	2389	0	25	Yes	No	
Apr-73	1697	13	0	160	36	5550	0	26	Yes	No	
May-73	235	0	0	75	18	1624	0	0	Yes	No	
Jun-73	691	21	0	151	22	2396	0	45	Yes	No	
Jul-73	1167	26	0	127	18	4807	0	66	Yes	No	
Aug-73	1310	45	0	196	26	3502	0	75	Yes	No	
Sep-73	1605	37	0	281	57	2990	0	43	Yes	No	
Oct-73	1381	85	0	76	29	9475	0	366	Yes	No	
Nov-73	1346	86	0	107	40	6559	0	265	Yes	No	
Dec-73	2541	56	0	16	157	82552	10	1146	Yes	No	
Jan-74	7983	0	0	16	149	265656	10	0	Yes	No	

APPENDIX F

H-Area HM LHW Monthly Weight Ratio Data

											Fissile Mass
						Fe	U238	Al	Safe by	Safe by	w/Low
	Fe(OH)3	NaAlO2	U-233	U-235	U-238	Ratio	Ratio	Ratio	Fe only	U-238	Diluents
Date	LHW (Kg)	LHW (Kg)	LHW (g)	LHW (g)	LHW (g)	LHW	LHW	LHW	LHW	LHW	(g)
Feb-74	13676	72	0	22	299	324743	14	1077	Yes	No	
Mar-74	13460	80	0	20	340	347808	17	1302	Yes	No	
Apr-74	2941	67	6	306	4976	6698	16	71	Yes	No	
May-74	1006	82	0	44	12	11947	0	610	Yes	No	
Jun-74	1576	0	0	45	12	18485	0	0	Yes	No	
Jul-74	1680	0	0	34	9	26302	0	0	Yes	No	
Aug-74	917	0	0	147	37	3257	0	0	Yes	No	
Sep-74	888	2	0	80	20	5836	0	10	Yes	No	
Oct-74	940	46	0	112	33	4387	0	136	Yes	No	
Nov-74	847	45	0	24	7	18828	0	627	Yes	No	
Dec-74	654	38	0	52	15	6540	0	242	Yes	No	
Jan-75	474	46	0	17	74	14775	4	912	Yes	No	
Feb-75	766	59	0	35	61	11316	2	560	Yes	No	
Mar-75	822	11	0	43	61	10080	1	87	Yes	No	
Apr-75	1201	80	0	44	63	14198	1	596	Yes	No	
May-75	1162	68	0	46	63	13291	1	416	Yes	No	
Jun-75	864	51	0	37	61	12212	2	456	Yes	No	
Jul-75	1330	54	0	45	14	15440	0	398	Yes	No	
Aug-75	487	51	0	408	155	598	0	41	Yes	No	
Sep-75	877	72	0	81	466	5666	6	293	Yes	No	
Oct-75	794	34	0	20	781	21149	40	563	Yes	No	
Nov-75	1299	0	0	1575	44035	431	28	0	Yes	No	
Dec-75	729	54	0	40	114	9464	3	445	Yes	No	
Jan-76	1117	56	0	110	958	5292	9	167	Yes	No	
Feb-76	948	86	0	140	1514	3539	11	203	Yes	No	
Mar-76	1352	91	0	303	65	2331	0	99	Yes	No	
Apr-76	1026	82	0	156	44	3432	0	172	Yes	No	
May-76	1017	86	0	137	55	3879	0	208	Yes	No	
Jun-76	780	14	0	319	117	1277	0	15	Yes	No	
Jul-76	1161	106	0	185	54	3274	0	188	Yes	No	
Aug-76	887	56	0	190	56	2442	0	97	Yes	No	
Sep-76	1007	58	0	137	47	3854	0	139	Yes	No	
Oct-76	659	14	0	119	43	2891	0	40	Yes	No	
Nov-76	307	0	0	133	52	1209	0	0	Yes	No	
Dec-76	512	0	0	127	48	2101	0	0	Yes	No	
Jan-77	796	43	0	86	27	4860	0	166	Yes	No	
Feb-77	892	45	0	361	103	1327	0	42	Yes	No	
Mar-77	1085	82	0	501	160	1132	0	54	Yes	No	
Apr-77	900	83	0	493	182	963	0	55	Yes	No	
May-77	974	93	0	239	95	2129	0	128	Yes	No	
Jun-77	710	34	0	29	13	12816	0	382	Yes	No	
Jul-77	692	42	0	54	26	6647	0	252	Yes	No	
Aug-77	825	42	0	131	59	3289	0	104	Yes	No	
Sep-77	240	27	0	64	23	1957	0	140	Yes	No	

APPENDIX F

H-Area HM LHW Monthly Weight Ratio Data

											Fissile Mass
						Fe	U-238	AI	Safe by	Safe by	
	Fe(OH)3	NaAlO2	U-233	U-235	U-238	Ratio	Ratio	Ratio	Fe only	U-238	w/Low Diluents
Date	LHW (Kg)	LHW (Kg)	LHW (g)	LHW (g)	LHW (g)	LHW	LHW	LHW	LHW	LHW	(g)
Oct-77	611	22	0	28	240	11390	9	263	Yes	No	
Nov-77	952	10	0	6	165	80796	27	513	Yes	No	
Dec-77	563	38	0	304	3694	988	12	42	Yes	No	
Jan-78	299	34	0	5	125	33981	27	2404	Yes	No	
Feb-78	536	58	459	5093	38757	50	7	3	No	No	5552
Mar-78	566	54	0	147	2084	2016	14	122	Yes	No	
Apr-78	457	5	0	48	417	4988	9	33	Yes	No	
May-78	919	53	0	84	39	5744	0	208	Yes	No	
Jun-78	878	48	0	67	27	6892	0	237	Yes	No	
Jul-78	801	32	0	101	37	4153	0	106	Yes	No	
Aug-78	735	53	0	62	20	6146	0	278	Yes	No	
Sep-78	902	48	0	55	19	8533	0	286	Yes	No	
Oct-78	426	0	0	212	62	1049	0	0	Yes	No	
Nov-78	1009	75	0	173	53	3057	0	143	Yes	No	
Dec-78	771	35	0	94	32	4276	0	123	Yes	No	
Jan-79	854	40	0	66	23	6767	0	200	Yes	No	
Feb-79	772	12	0	136	47	2977	0	28	Yes	No	
Mar-79	724	29	0	127	36	2986	0	75	Yes	No	
Apr-79	593	6	0	112	43	2758	0	19	Yes	No	
May-79	802	35	0	90	41	4652	0	129	Yes	No	
Jun-79	1061	58	0	74	34	7480	0	255	Yes	No	
Jul-79	894	46	0	62	25	7502	0	245	Yes	No	
Aug-79	843	34	0	45	18	9702	0	244	Yes	No	
Sep-79	1080	72	0	108	41	5210	0	219	Yes	No	
Oct-79	480	96	0	85	24	2943	0	371	Yes	No	
Nov-79	403	96	0	94	574	2245	6	337	Yes	No	
Dec-79	1038	72	0	45	238	12172	5	531	Yes	No	
Jan-80	1681	42	0	108	345	8105	3	126	Yes	No	
Feb-80	1825	30	0	272	1010	3507	4	37	Yes	No	
Mar-80	2370	53	0	41	929	29997	23	421	Yes	No	
Apr-80	1227	62	0	51	811	12627	16	404	Yes	No	
May-80	548	70	0	4	109	70445	27	5695	Yes	No	
Jun-80	820	42	0	8	3	52215	0	1669	Yes	No	
Jul-80	578	5	0	832	7057	363	8	2	Yes	No	
Aug-80	1309	66	0	197	119	3471	1	110	Yes	No	
Sep-80	836	64	0	362	2390	1208	7	58	Yes	No	
Oct-80	1201	74	0	275	62	2277	0	88	Yes	No	
Nov-80	1016	62	0	677	652	784	1	30	Yes	No	
Dec-80	978	34	0	251	833	2033	3	44	Yes	No	
Jan-81	987	42	0	293	483	1763	2	47	Yes	No	
Feb-81	1079	53	0	111	88	5064	1	156	Yes	No	
Mar-81	1133	50	0	77	20	7650	0	214	Yes	No	
Apr-81	1000	74	0	73	28	7197	0	334	Yes	No	
May-81	1021	67	0	37	14	14595	0	605	Yes	No	

APPENDIX F

H-Area HM LHW Monthly Weight Ratio Data

											Fissile Mass
	Fe(OH)3	NaAlO2	U-233	U-235	U-238	Fe	U238	Al	Safe by	Safe by	w/low Diluents
Date	LHW (Kg)	LHW (Kg)	LHW (g)	LHW (g)	LHW (g)	Ratio LHW	Ratio LHW	Ratio LHW	Fe only LHW	U-238 LHW	(g)
Jun-81	763	22	0	158	55	2484	0	47	Yes	No	
Jul-81	854	37	0	66	22	6746	0	183	Yes	No	
Aug-81	1027	42	0	69	22	7825	0	200	Yes	No	
Sep-81	1000	35	0	192	68	2726	0	60	Yes	No	
Oct-81	946	13	0	33	13	14877	0	127	Yes	No	
Nov-81	884	67	0	66	28	7033	0	337	Yes	No	
Dec-81	1042	93	0	38	17	14197	0	796	Yes	No	
Jan-82	863	102	0	33	14	13700	0	1024	Yes	No	
Feb-82	0	0	0	21	9	0	0	0	No	No	21
Mar-82	587	40	0	24	10	12534	0	557	Yes	No	
Apr-82	1106	70	0	21	10	27550	0	1106	Yes	No	
May-82	734	19	0	30	13	12758	0	210	Yes	No	
Jun-82	865	64	0	10	4	47104	0	2194	Yes	No	
Jul-82	310	48	0	928	2257	175	2	16	Yes	No	
Aug-82	891	50	0	48	18	9713	0	341	Yes	No	
Sep-82	856	90	0	32	7	13903	0	910	Yes	No	
Oct-82	833	70	0	72	13	6084	0	324	Yes	No	
Nov-82	376	42	0	49	10	4006	0	279	Yes	No	
Dec-82	1002	58	0	25	8	21101	0	764	Yes	No	
Jan-83	802	48	0	341	124	1231	0	46	Yes	No	
Feb-83	402	67	0	143	59	1472	0	155	Yes	No	
Mar-83	1028	67	0	96	36	5589	0	230	Yes	No	
Apr-83	672	54	0	115	48	3059	0	156	Yes	No	
May-83	779	58	0	51	21	8038	0	374	Yes	No	
Jun-83	614	48	0	37	16	8744	0	430	Yes	No	
Jul-83	447	37	0	61	26	3847	0	199	Yes	No	
Aug-83	722	61	0	260	96	1452	0	77	Yes	No	
Sep-83	636	45	0	68	13	4893	0	217	Yes	No	
Oct-83	562	40	0	90	17	3278	0	147	Yes	No	
Nov-83	1209	32	0	69	18	9206	0	153	Yes	No	
Dec-83	637	18	0	38	14	8848	0	154	Yes	No	
Jan-84	357	22	0	61	22	3038	0	120	Yes	No	
Feb-84	794	38	0	148	46	2806	0	85	Yes	No	
Mar-84	743	64	0	44	14	8746	0	475	Yes	No	
Apr-84	665	30	0	82	25	4229	0	122	Yes	No	
May-84	347	0	0	319	69	568	0	0	Yes	No	
Jun-84	441	0	0	57	11	4045	0	0	Yes	No	
Jul-84	49	0	0	29	6	883	0	0	Yes	No	
Aug-84	317	0	0	74	15	2251	0	0	Yes	No	
Sep-84	381	0	0	56	11	3555	0	0	Yes	No	
Oct-84	588	0	0	71	14	4322	0	0	Yes	No	
Nov-84	626	0	0	27	8	12268	0	0	Yes	No	
Dec-84	353	0	0	53	21	3495	0	0	Yes	No	
Jan-85	528	0	0	130	52	2121	0	0	Yes	No	

APPENDIX F

H-Area HM LHW Monthly Weight Ratio Data

											Fissile Mass
						Fe	U238	Al	Safe by	Safe by	w/Low
	Fe(OH)3	NaAlO2	U-233	U-235	U-238	Ratio	Ratio	Ratio	Fe only	U-238	Diluents
Date	LHW (Kg)	LHW (Kg)	LHW (g)	LHW (g)	LHW (g)	LHW	LHW	LHW	LHW	LHW	(g)
Feb-85	650	0	0	50	20	6815	0	0	Yes	No	
Mar-85	688	0	0	56	15	6426	0	0	Yes	No	
Apr-85	731	0	0	46	12	8517	0	0	Yes	No	
May-85	412	0	0	28	11	7721	0	0	Yes	No	
Jun-85	454	0	0	41	15	5854	0	0	Yes	No	
Jul-85	484	0	0	43	15	6037	0	0	Yes	No	
Aug-85	249	0	0	77	27	1679	0	0	Yes	No	
Sep-85	0	0	0	93	30	0	0	0	No	No	93
Oct-85	249	0	0	25	8	5220	0	0	Yes	No	
Nov-85	746	0	0	46	18	8527	0	0	Yes	No	
Dec-85	366	0	0	31	11	6070	0	0	Yes	No	
Jan-86	599	17	0	81	30	3863	0	70	Yes	No	
Feb-86	599	33	0	26	10	12102	0	421	Yes	No	
Mar-86	719	20	0	99	37	3802	0	65	Yes	No	
Apr-86	769	61	0	30	10	13370	0	663	Yes	No	
May-86	327	20	0	55	11	3088	0	120	Yes	No	
Jun-86	500	0	0	21	5	12242	0	0	Yes	No	
Jul-86	442	0	0	48	16	4795	0	0	Yes	No	
Aug-86	479	0	0	40	12	6249	0	0	Yes	No	
Sep-86	0	0	0	84	19	0	0	0	No	No	84
Oct-86	191	0	0	32	10	3102	0	0	Yes	No	
Nov-86	470	0	0	16	5	15001	0	0	Yes	No	
Dec-86	249	0	0	110	34	1177	0	0	Yes	No	
Jan-87	339	0	0	17	5	10497	0	0	Yes	No	
Feb-87	333	0	0	21	6	8446	0	0	Yes	No	
Mar-87	524	0	0	80	24	3439	0	0	Yes	No	
Apr-87	353	0	0	130	36	1419	0	0	Yes	No	
May-87	325	0	0	9	2	18431	0	0	Yes	No	
Jun-87	578	0	0	147	40	2057	0	0	Yes	No	
Jul-87	41	0	0	44	12	489	0	0	Yes	No	
Aug-87	0	0	0	83	24	0	0	0	No	No	83
Sep-87	163	0	0	0	0	N/A	N/A	N/A	N/A	N/A	
Oct-87	316	0	0	68	21	2446	0	0	Yes	No	
Nov-87	180	0	0	10	3	9370	0	0	Yes	No	
Dec-87	421	0	0	12	4	18834	0	0	Yes	No	
Jan-88	314	0	0	22	7	7314	0	0	Yes	No	
Feb-88	410	0	0	35	11	6110	0	0	Yes	No	
Mar-88	370	0	0	39	12	4949	0	0	Yes	No	
Apr-88	230	0	0	383	110	313	0	0	Yes	No	
May-88	0	0	0	50	14	0	0	0	No	No	50
Jun-88	0	0	0	4	1	0	0	0	No	No	4
Jul-88	0	0	0	159	46	0	0	0	No	No	159
Aug-88	0	0	0	7	2	0	0	0	No	No	7
Sep-88	111	0	0	82	24	709	0	0	Yes	No	

APPENDIX F

H-Area HM LHW Monthly Weight Ratio Data

											Flexible Mass
	Fe(OH)3	NaAlO2	U-233	U-235	U-238	Fe Ratio	U238 Ratio	Al Ratio	Safe by Fe only	Safe by U-238	w/Low Diluents
Date	LHW (Kg)	LHW (Kg)	LHW (g)	LHW (g)	LHW (g)	LHW	LHW	LHW	LHW	LHW	(g)
Oct-88	0	0	0	43	12	0	0	0	No	No	43
Nov-88	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	
Dec-88	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	
Jan-89	96	0	0	0	0	N/A	N/A	N/A	N/A	N/A	
Feb-89	61	0	0	4	1	7343	0	0	Yes	No	
Mar-89	0	0	0	9	3	0	0	0	No	No	9
Apr-89	68	0	0	497	143	72	0	0	No	No	497
May-89	8	0	0	53	15	82	0	0	No	No	53
Jun-89	0	0	0	4	1	0	0	0	No	No	4
Jul-89	28	0	0	1	0	13359	0	0	Yes	No	
Aug-89	11	0	0	2164	667	3	0	0	No	No	2164
Sep-89	0	0	0	13	4	0	0	0	No	No	13
Oct-89	0	0	0	44	13	0	0	0	No	No	44
Nov-89	0	0	0	104	30	0	0	0	No	No	104
Dec-89	0	0	0	89	26	0	0	0	No	No	89
Jan-90	0	0	0	6	2	0	0	0	No	No	6
Feb-90	0	0	0	51	15	0	0	0	No	No	51
Mar-90	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	
Apr-90	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	
May-90	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	
Jun-90	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	
Jul-90	0	0	0	160	46	0	0	0	No	No	160
Aug-90	0	0	0	206	59	0	0	0	No	No	206
Sep-90	0	0	0	274	79	0	0	0	No	No	274
Oct-90	0	0	0	14	4	0	0	0	No	No	14
Nov-90	0	0	0	95	27	0	0	0	No	No	95
Dec-90	0	0	0	229	66	0	0	0	No	No	229
Jan-91	0	0	0	7	2	0	0	0	No	No	7
Feb-91	0	0	0	315	90	0	0	0	No	No	315
Mar-91	6	0	0	246	71	12	0	0	No	No	246
Apr-91	8	0	0	327	94	13	0	0	No	No	327
May-91	0	0	0	295	85	0	0	0	No	No	295
Jun-91	0	0	0	397	114	0	0	0	No	No	397
Jul-91	0	0	0	364	104	0	0	0	No	No	364
Aug-91	0	0	0	420	121	0	0	0	No	No	420
Sep-91	0	0	0	46	13	0	0	0	No	No	46
Oct-91	0	0	0	51	15	0	0	0	No	No	51
Nov-91	0	0	0	82	27	0	0	0	No	No	82
Dec-91	9	0	0	22	6	211	0	0	Yes	No	
Jan-92	0	0	0	83	24	0	0	0	No	No	83
Feb-92	0	0	0	67	19	0	0	0	No	No	67
Mar-92	0	0	0	30	9	0	0	0	No	No	30
Apr-92	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	
May-92	0	0	0	25	7	0	0	0	No	No	25

APPENDIX F

H-Area HM LHW Monthly Weight Ratio Data

											Final Mass
						Fe	U238	Al	Safe by	Safe by	w/low
	Fe(OH)3	NaAlO2	U-233	U-235	U-238	Ratio	Ratio	Ratio	Fe only	U-238	Diluents
Date	LHW (Kg)	LHW (Kg)	LHW (g)	LHW (g)	LHW (g)	LHW	LHW	LHW	LHW	LHW	(g)
Jun-92	0	0	0	15	4	0	0	0	No	No	15
Jul-92	0	0	0	37	11	0	0	0	No	No	37
Aug-92	0	0	0	78	22	0	0	0	No	No	78
Sep-92	0	0	0	33	9	0	0	0	No	No	33
Oct-92	0	0	0	31	9	0	0	0	No	No	31
Nov-92	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A	
Dec-92	0	0	0	25	7	0	0	0	No	No	25
Totals	304599	10350	4032	59022	130624	2525	2	54	Yes	No	23035

APPENDIX F

Figure F.1 H-Canyon HM LHW Monthly Fe:Fissile Material Weight Ratios

APPENDIX F

Figure F.2 H-Canyon HM LHW Monthly Al:Fissile Material Weight Ratios

APPENDIX F

Figure F.3 H-Canyon HM LHW Fissile Mass in Months
Not Exceeding Minimum Safe Weight Ratios of Fe, Mn and/or U-238

DATE

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END