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# **KBS** TEKNISK RAPPORT

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**1**

**Källstyrkor i utbränt bränsle och  
högaktivt avfall från en PWR  
beräknande med ORIGEN**

Nils Kjellbert

AB Atomenergi 77-04-05

KÄLLSTYRKOR I UTBRÄNT BRÄNSLE  
OCH HÖGAKTIVT AVFALL FRÅN EN  
PWR BERÄKNADE MED ORIGEN

Nils Kjellbert

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Objekt 11.04

I slutet av rapporten har bifogats en förteckning över av KBS hittills publicerade tekniska rapporter i denna serie.

1977-06-21

RADIONUCLIDE INVENTORIES IN PWR SPENT FUEL AND  
HIGH-LEVEL WASTE CALCULATED BY USE OF THE  
ORIGEN CODE

N Kjellbert

Summary

Radionuclide inventories in PWR spent fuel and high-level waste have been computed. Apart from fission products and heavy nuclides the activation products emanating from the cladding have been included for the spent fuel case. As times-to-reprocessing 1, 3 and 10 years of cooling have been used and the inventories have been calculated for times from 1 year through  $10^7$  years after shut-down.

For specification of the reference alternative please look under 2. below.

Separated fractions in the reprocessing:

U	99.9 %
Pu	99.5
H	100
Kr, Xe	100
C	993

A special treatment of the carbon 14 inventories has been made in 5. below.

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Tables

Table I	Fission products in spent fuel
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Fig 1	Radiotoxic hazard in spent fuel ( $\text{m}^3$ water/tU for dilution to MPC, "U-malm" = radium from the mill tailings)
Fig 2	Radiotoxic hazard in high-level waste (3 y alternative)
Fig 3	Inventory of americium 241 for different processing alternatives.

Titel och författare

Källstyrkor i utbränt bränsle och högaktivt avfall från en PWR beräknade med ORIGEN

Org enh och nr

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## SAMMANFATTNING

Källstyrkor i Ci/ton uran har beräknats för en PWR som är avsedd att likna Ringhals II i möjligaste mån. Förutom fissionsprodukter och tunga nuklider i utbränt bränsle och högaktivt avfall så har aktiveringsprodukter från zircaloykapslingen inkluderats för fallet direktdeponering. Tider till upparbetning är 1, 3 och 10 år och avsvälningstiderna sträcker sig fram till 10 miljoner år efter uttag ur reaktorn. Senare kommer materialet att kompletteras med BEGAFIP-beräkningar.

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### 1. PWR kontra BWR

I dessa beräkningar har endast PWR behandlats. Med sin högre utbränning får PWR-bränsle högre källstyrkor än BWR-bränsle. Källstyrkorna är ungefär proportionella mot utbränningen och påverkas mindre av effekttätheten varför BWR-källstyrkorna blir 15 - 20 % lägre. De flesta svenska reaktorerna är ju av kokartyp men för att beräkningarna skall ligga på den konservativa sidan har beräkningarna gjorts för tryckvattenreaktorbränsle som väl också kan komma att bli gränssättande. Dessutom kan BWRs framtida utbränning komma att nå PWRs [1].

### 2. Specifikation av referensalternativet

Reaktortyp:	PWR
Utbränning:	33 000 MWd(t)/tU
Effekttäthet:	34.4 MW(t)/tU
Anrikning:	3.1 % U235, 0.025 % U234 (samt Th234, Pa234m och Pa234g i jämvikt med U238)
Kapsling:	232 kg Zircaloy-4/tU
Sammansättning:	Zr 98.3 vikts-%
	Sn 1.5 "
	Fe 0.12 "
	Cr 0.09 "
	Ni 0.005 "
Avsvainingstider för utbränt bränsle:	1, 3, 10, 30, ....., $3 \cdot 10^6$ , $10^7$ år efter uttag
Upparbetning:	1, 3 och 10 år efter uttag
Avsvaining e upp- arbetning:	3, 10, 30, ....., $3 \cdot 10^6$ , $10^7$ år e uttag 10, 30, ....., $3 \cdot 10^6$ , $10^7$ år e uttag 30, ....., $3 \cdot 10^6$ , $10^7$ år e uttag respektive

### 3. Direktdeponering

Vid direktdeponering av det utbrända bränslet antas här allt kapslingsmaterial i form av zircaloy följa med, däremot ej fjädrar, spridare m m som i vanliga fall är gjorda i inconel. Detta antagande torde äga relevans åtminstone i det fall då bränslestavarna kapas.

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Vid kapningen antas avgå fissionsprodukter ansamlade i fissionsgasutrymmet och kapslingsspalten med följande andelar av stavinnehållet [2]:

Tritium	1 %
Kr-85	30 %
Övriga ädelgaser	10 %
Halogener	10 %
Cesium	1 %
Övriga fissionsprodukter	0.01 %

Alla tunga nuklider anses stanna i bränslet. Som synes stannar även huvuddelen av övriga nuklider kvar. Därför bör antas att all aktivitet följer med vid direktdeponering och ingen skillnad bör göras mellan alternativen kapning - icke kapning. Överhuvudtaget görs i det följande ingen skillnad mellan 60 - 70 % och 100 % kvarstannande aktivitet i de olika processerna.

#### 4. Upparbetning

##### 4.1 Uran och plutonium

Med nuvarande teknik vid PUREX-extraktionerna förloras ca 0.1 % av uranet och ca 0.5 % av plutoniet (som alltså inte är fullt lika lättextraherat som uran) till det högaktiva avfallet som innehåller huvuddelen av fissionsprodukterna [3, 4]. Dock förekommer ytterligare en del förluster av U och Pu i processen och återföringen blir ungefär 99.5 resp 99 %. Detta betyder att ca 0.5 % av uranet och plutoniet kommer att behöva förvaras på särskilt sätt som  $\alpha$ -avfall, vilket för närvarande är fallet [3], eller möjligen återförs till det högaktiva avfallet. Här har dock antagits det förstnämnda, dvs 0.1 % U och 0.5 % Pu i avfallet.

##### 4.2 Neptunium

Neptunium intar en mellanställning mellan å ena sidan uran och plutonium och å den andra sidan övriga transuraner vad



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gäller extraherbarhet [5]. Extraherbarheten beror starkt av oxidationstalet och för att få med så stor andel som möjligt i vattenfasen så måste Np - V ( $\text{Np O}_2^+$ ) eftersträvas. Det är dock inte möjligt att bibehålla detta oxidationstal genom hela processen men huvuddelen Np följer med fissionsprodukterna. Fransmännen påpekar existensen av förluster men använder ändå 100 % neptunium i det högaktiva avfallet som bas för beräkningar [5, 6], något som också görs här.

#### 4.3 Krypton och xenon

Alla ädelgasnuklider antas lämna det högaktiva avfallet vid upparbetningen [7, 8, 9, 10].

#### 4.4 Tritium

Vid upparbetning kommer den allt övervägande delen tritium att följa vattenfasen i extraktionsprocessen [10]. Det tritierade vattnet kommer att vid kalcineringsprocessen så gott som kvantitativt lämna avfallet och tritium kommer ej att återfinnas i glaset.

#### 4.5 Brom och jod

Den mest långlivade bromisotopen (av de som skapas i reaktorn) har halveringstiden 35 h och kommer aldrig att hinna nå det inglasade avfallet.

Vid bränsleupplösningen kommer jod att praktiskt taget helt frigöras [10]. För en modern anläggning som West Valley anges att 0,1% av joden stannar i det högaktiva avfallet [11]; huvudsakligen i form av jodat [10]. Vid kalcineringen torde denna sista rest avgå. Jod utvättas i skrubbers och den lilla andel som slipper igenom adsorberas i ett silverimpregnerat sorptionsmedel. Jod kan i framtiden komma att återföras till det högaktiva avfallet i inglasningsprocessen [3]. Upparbetningsanläggningen i Barnwell kommer att använda kvicksilver (II) nitrat i jodskrubbers. Kviksilver (II)-jodid och -jodat är båda nära olösliga i vatten

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och termiskt stabila vilket sistnämnda gör att återföring är möjlig [10]. Därför bör antas att 100 % av bränslets jodinventarium återfinns i det vitrifierade avfallet, även om antagandet i nuvarande situation är starkt konservativt.

#### 4.6 Övriga

Av övriga flyktiga produkter är rutenium och cesium besvär-  
ligast. I bränslet finns rutenium som  $\text{RuO}_2(\text{s})$ . Vid upplös-  
ningen oxideras en mindre del av denna till  $\text{RuO}_4$ . Ru kan  
frigöras som  $\text{RuO}_4(\text{g})$  eller nitrosylförening. Det rör sig  
dock endast om promillemängder [10]. Värre är det vid kal-  
cineringen,  $\text{RuO}_2(\text{s}) + \text{O}_2(\text{g}) \rightleftharpoons \text{RuO}_4(\text{g})$  är starkt förskjuten  
åt höger vid aktuella temperaturer. I den nya amerikanska  
kalcineringsprocessen med fotogeninblåsning bildas dock ingen  
 $\text{RuO}_4$  [3] varför man bör anta att all rutenium återfinns i  
glaset.

Cesium är visserligen flyktigt, i Marcoule avgår ca 0.1 %  
i kalcineringsprocessen [3], men inte så flyktigt att  
någon källstyrkereducering i processen bör antas.

Alla andra, ej ovan och nedan nämnda nuklider antas till  
100 % återfinnas i det inglasade avfallet.

#### 5. Kol-14

Nedanstående stöder sig i allt väsentligt på Ref 12.

C14-problemen i bränslecykeln uppkommer genom reaktionerna  
 $^{17}\text{O}(\text{n},\alpha)^{14}\text{C}$  och  $^{14}\text{N}(\text{n},\text{p})^{14}\text{C}$  medan  $^{13}\text{C}(\text{n},\gamma)^{14}\text{C}$  kan  
försummas. Syrereaktionen uppstår i reaktorvattnet och i  
bränslets urandioxid. Kväveraktionen ger i bränslet ett  
tillskott på grund av att N finns däri som förorening  
i ppm-halter. Dessutom finns kväve som förorening i  
zircaloy och det bildade kolet sitter mycket hårt fast på  
grund av zirkoniums benägenhet att bilda karbider. Tyska  
värden för PWR omräknade från Ci/GWe · år ger ungefär 0.37  
Ci C14/tU resp 0.21 Ci C14/tU genom kväve resp syre i

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bränslet vilket rimmar väl med svenska beräkningar för BWR. Av de bildade 0.6 Ci/tU frigörs ca 0.5 Ci vid upparbetningen medan 0.1 Ci stannar i avfallet. De svenska beräkningarna ger dessutom upp till 0.7 - 1 Ci/tU i zircaloy för BWR. Detta leder oss till följande:

Direktdeponering:  $\approx 1.5$  Ci/tU  
 Upparbetning:  $\approx 0.1$  Ci/tU

innan avklingningen hinner göra sig gällande.

Dock kan dessa halter komma att bringas ned kraftigt i framtiden eftersom de är starkt föroreningsberoende och föroreningshalten kan komma att sänkas.

Avklingning År	Direktdep Ci/tU	Upparb
300	1.4	0.10
1 000	1.3	0.09
3 000	1.0	0.07
10 000	0.4	0.03
30 000	0.04	0.003
100 000	$8 \cdot 10^{-6}$	$6 \cdot 10^{-7}$

#### 6. Kommentarer till tabeller och figurer

Bladen i tabellerna är ordnade för högsta möjliga läsbarhet. En "omgång" nuklider redovisas, tidsmässigt, i sin helhet innan nästa tar vid. Varje "omgång" upptar tre sidor. På den första finns tider t o m 100 år, på den andra 300 - - 30 000 år och på den tredje 100 000 - 10 000 000 år. Alla tider räknas från uttag ur reaktorn.

Tabell I ger källstyrkorna för fissionsprodukter i utbränt bränsle vid olika tider efter uttag ur reaktorn. Detta är den enda redovisningen av fissionsprodukterna. Vid de aktuella tidpunkterna bildar de inga komplicerade kedjor och aktivitetsreduktionen vid upparbetningen är beskriven ovan. Totalerna påverkas med högst någon procent.

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Tabell II ger aktiviteterna av de tunga nukliderna i direktdeponerat bränsle vid olika svalningstider.

Tabell III redovisar aktiveringsprodukter från 232 kg Zircaloy-4 per ton uran. Dessa ger ett försumbart tillskott till totalaktiviteten vid direktdeponering.

Tabell IV visar de tunga nuklidernas aktivitet för bränsle upparbetat vid 1 år efter uttag. För aktiviteten före upparbetning: se Tabell II.

Tabell V är analog med Tabell IV men här är tiden till upparbetning 3 år.

Tabell VI: som IV fast 10 år.

Fig 1 visar den mängd vatten som åtgår för att späda aktuell nuklid i ett ton utbränt uran till MPC\* för direktdeponerat bränsle. Endast de viktigaste nukliderna samt totalen är medtagna.

Fig 2: som Fig 1 men för bränsle upparbetat 3 år efter uttag ur reaktorn.

Fig 3: Am241-aktiviteten för olika upparbetningsalternativ inkl direktdeponering.

Som synes dominerar Sr90 starkt radiotoxiciteten fram till 300 år. Därefter vidtar en period där americium och plutonium dominerar och som sträcker sig fram till ungefär 30 000 år. Toxiciteten beror sedan starkt av om bränslet upparbetas eller ej. Vid direktdeponering dominerar Ra226 "in i evigheten" medan för upparbetningsalternativet bilden domineras av Th229 - Ra225, I 129 (vid återföring) medan Ra226 tar överhanden efter ca 200 miljoner år (alt 15 milj år). Aktiviteten av Am241 beror starkt av tiden till upparbetning.

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\*  $\frac{X}{I/I0}$  av MPC för I68h

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Snar upparbetning betyder en hel del för perioden 300 - 3 000 år där Am241 dominerar. Döttrarna Np237 och Th229 - Ra225 påverkas mindre eftersom Np237 finns i rätt stor mängd redan från början.

För värdefull hjälp med det datatekniska tackas Clas Grägg, RD.

## 7. Referenser

1. HAUG H O  
"Calculation and Compilations of Composition, Radioactivity, Thermal Power, Gamma and Neutron Release Rates of Fission Products and Actinides of Spent Power Reactor Fuels and Their Reprocessing Wastes".  
KFK-1945, April 1974.
2. Safety Guide 25  
"Assumptions Used for Evaluating the Potential Radiological Consequences of a Fuel Handling Accident in the Fuel Handling and Storage Facility for Boiling and Pressurized Water Reactors".  
Division of Reactor Standards USAEC.
3. HULTGREN Å  
AB Atomenergi.  
Personligt samtal.
4. Använt kärnbränsle och radioaktivt avfall, del II.  
SOU 1976:31.
5. BATHELLIER A  
"Les éléments transuraniens dans le retraitment des combustibles nucléaires".  
Bulletin d'Informations Scientifiques et Techniques, No 217, p 7 (1976).
6. GUILLAUME B  
"Problèmes posés par la présence d'éléments transuraniens dans les déchets du retraitment des combustibles nucléaires".  
Bulletin d'Informations Scientifiques et Techniques, No 217, p 31 (1976).
7. FÄRNKVIST K  
"Avgasrening vid upparbetningsanläggningar".  
AE-TPM-DS-170, 1976-02-24.

1977-04-05

8. DEVELL L, BERGMAN R  
"Begränsning av Kr85 i utsläppen från en svensk  
upparbetningsanläggning. Preliminär analys".  
AE-DS-500, 1976-02-17.
9. STENQUIST C  
"Avskiljning och disponering av Kr85-avfall".  
AE, 1975-05-20 (koncept).
10. HESBÖL R  
"Frigörelse av radioaktiva gaser vid upparbetning  
av bränsle. Beräkningar av bränsleinventarium och  
skorstensutsläpp".  
AE-TPM-SM-16, 1976-11-23.
11. West Valley Reprocessing Plant  
Safety Analysis Report, Supplement 20.  
NFS, Rockville, Md, USA.  
DOCKET-50201-175, 24 Feb 1976.
12. OLSSON G  
" $C^{14}$ -bildning i kraftreaktorer".  
S-541, AB Atomenergi, 1976.
13. BELL M J  
"ORIGEN -- The ORNL Isotope Generation and Deple-  
tion Code".  
ORNL-4628, 1973.
14. SCHNEIDER K J, PLATT A M (eds)  
"High-level Radioactive Waste Management Alterna-  
tives, Vol 1".  
BNWL-1900, May 1974.
15. Siting of Fuel Reprocessing Plants and Waste  
Management Facilities.  
ORNL-4451, 1970.
16. McGRATH P E  
"Radioactive Waste Management Potentials from a  
Risk Point of View".  
KFK-1992, 1974.
17. MORLEY F, KELLY G N  
"Radiological Protection and Transuranic Wastes  
from the Nuclear Fuel Cycle".  
MRPB-R-43, paper 6, Sep 1976.
18. CLARKE R H et al  
"Waste Disposal Aspects of the Long Term Cooling  
Characteristics of Irradiated Nuclear Fuels".  
Ann Nucl Energy 2, 451 (1975).

1977-04-05

19. COHEN B L  
"High-level Radioactive Waste from Light-Water Reactors".
20. STENQUIST C  
"Direktdeponering av utbränt bränsle. Fissions-  
gastryck och aktivitet".  
AE-TPM-DS-161, 1975-12-10.
21. THEGERSTRÖM C  
"Omhändertagande av utbränt kärnkraftbränsle. Al-  
ternativa metoder till upparbetningen".  
AE-TPM-DW-86, 1976-02-02.

SPENT REFERENCE PWR FUEL - DECAY

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	1. Y	3. Y	10. Y	30. Y	100. Y
H 3	0.	7.30E+02	6.90E+02	6.16E+02	4.15E+02	1.35E+02	2.60E+00
ZN 72	0.	2.42E+01	0.	0.	0.	0.	0.
GA 72	0.	2.42E+01	0.	0.	0.	0.	0.
GA 73	0.	4.72E+01	0.	0.	0.	0.	0.
GA 74	0.	1.80E+02	0.	0.	0.	0.	0.
GA 75	0.	2.19E+02	0.	0.	0.	0.	0.
GE 75M	0.	2.10E+02	0.	0.	0.	0.	0.
GE 75	0.	2.19E+02	0.	0.	0.	0.	0.
GA 76	0.	7.79E+02	0.	0.	0.	0.	0.
AS 76	0.	1.14E+01	0.	0.	0.	0.	0.
GE 77M	0.	2.12E+03	0.	0.	0.	0.	0.
GE 77	0.	9.97E+02	0.	0.	0.	0.	0.
AS 77	0.	2.61E+03	0.	0.	0.	0.	0.
SE 77M	0.	8.06E+00	0.	0.	0.	0.	0.
GE 78	0.	6.50E+03	0.	0.	0.	0.	0.
AS 78	0.	6.52E+03	0.	0.	0.	0.	0.
AS 79	0.	1.27E+04	0.	0.	0.	0.	0.
SE 79M	0.	1.27E+04	0.	0.	0.	0.	0.
SE 79	0.	3.95E-01	3.95E-01	3.95E-01	3.95E-01	3.95E-01	3.94E-01
AS 80	0.	2.12E+04	0.	0.	0.	0.	0.
BR 80M	0.	2.18E+00	0.	0.	0.	0.	0.
BR 80	0.	1.40E+03	0.	0.	0.	0.	0.
AS 81	0.	4.57E+03	0.	0.	0.	0.	0.
SE 81M	0.	4.58E+03	0.	0.	0.	0.	0.
SE 81	0.	3.58E+04	0.	0.	0.	0.	0.
KR 81M	0.	4.05E+02	0.	0.	0.	0.	0.
BR 82M	0.	2.58E+03	0.	0.	0.	0.	0.
BR 82	0.	2.81E+03	0.	0.	0.	0.	0.
SE 83M	0.	3.26E+04	0.	0.	0.	0.	0.
SE 83	0.	3.09E+04	0.	0.	0.	0.	0.
BR 83	0.	6.34E+04	0.	0.	0.	0.	0.
KR 83M	0.	6.35E+04	0.	0.	0.	0.	0.
SE 84	0.	1.68E+05	0.	0.	0.	0.	0.
BR 84M	0.	3.35E+03	0.	0.	0.	0.	0.
BR 84	0.	1.68E+05	0.	0.	0.	0.	0.
SE 85	0.	1.85E+05	0.	0.	0.	0.	0.
BR 85	0.	1.86E+05	0.	0.	0.	0.	0.
KR 85M	0.	2.09E+05	0.	0.	0.	0.	0.
KR 85	0.	1.12E+04	1.05E+04	9.24E+03	5.90E+03	1.63E+03	1.83E+01
BR 86	0.	3.05E+05	0.	0.	0.	0.	0.
RB 86M	0.	5.29E+01	0.	0.	0.	0.	0.
RB 86	0.	5.71E+02	7.53E-04	1.31E-15	0.	0.	0.
BR 87	0.	3.72E+05	0.	0.	0.	0.	0.
KR 87	0.	4.00E+05	0.	0.	0.	0.	0.
RB 87	0.	1.92E-05	1.92E-05	1.92E-05	1.92E-05	1.92E-05	1.92E-05
SR 87M	0.	4.65E-01	0.	0.	0.	0.	0.
BR 88	0.	5.53E+05	0.	0.	0.	0.	0.
KR 88	0.	5.86E+05	0.	0.	0.	0.	0.
RB 88	0.	5.87E+05	0.	0.	0.	0.	0.
BR 89	0.	6.76E+05	0.	0.	0.	0.	0.
KR 89	0.	7.27E+05	0.	0.	0.	0.	0.
RB 89	0.	7.29E+05	0.	0.	0.	0.	0.



SPENT REFERENCE PWR FUEL - DECAY (CONT'D)

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	300. Y	1000. Y	3000. Y	10000. Y	30000. Y
H 3	0.	7.30E+02	3.31E-05	2.44E-22	0.	0.	0.
ZN 72	0.	2.42E+01	0.	0.	0.	0.	0.
GA 72	0.	2.42E+01	0.	0.	0.	0.	0.
GA 73	0.	4.71E+01	0.	0.	0.	0.	0.
GA 74	0.	1.72E+02	0.	0.	0.	0.	0.
GA 75	0.	1.83E+02	0.	0.	0.	0.	0.
GE 75M	0.	2.03E+02	0.	0.	0.	0.	0.
GE 75	0.	2.19E+02	0.	0.	0.	0.	0.
GA 76	0.	3.93E+02	0.	0.	0.	0.	0.
AS 76	0.	1.14E+01	0.	0.	0.	0.	0.
GE 77M	0.	1.41E+03	0.	0.	0.	0.	0.
GE 77	0.	9.96E+02	0.	0.	0.	0.	0.
AS 77	0.	2.61E+03	0.	0.	0.	0.	0.
SE 77M	0.	7.89E+00	0.	0.	0.	0.	0.
GE 78	0.	6.48E+03	0.	0.	0.	0.	0.
AS 78	0.	6.52E+03	0.	0.	0.	0.	0.
AS 79	0.	1.22E+04	0.	0.	0.	0.	0.
SE 79M	0.	1.26E+04	0.	0.	0.	0.	0.
SE 79	0.	3.95E-01	3.93E-01	3.91E-01	3.82E-01	3.55E-01	2.87E-01
AS 80	0.	5.06E+03	0.	0.	0.	0.	0.
BR 80M	0.	2.18E+00	0.	0.	0.	0.	0.
BR 80	0.	1.38E+03	0.	0.	0.	0.	0.
AS 81	0.	2.36E+03	0.	0.	0.	0.	0.
SE 81M	0.	4.57E+03	0.	0.	0.	0.	0.
SE 81	0.	3.52E+04	0.	0.	0.	0.	0.
KR 81M	0.	7.52E+01	0.	0.	0.	0.	0.
BR 82M	0.	2.43E+03	0.	0.	0.	0.	0.
BR 82	0.	2.81E+03	0.	0.	0.	0.	0.
SE 83M	0.	2.38E+04	0.	0.	0.	0.	0.
SE 83	0.	3.04E+04	0.	0.	0.	0.	0.
BR 83	0.	6.34E+04	0.	0.	0.	0.	0.
KR 83M	0.	6.35E+04	0.	0.	0.	0.	0.
SE 84	0.	1.50E+05	0.	0.	0.	0.	0.
BR 84M	0.	3.16E+03	0.	0.	0.	0.	0.
BR 84	0.	1.68E+05	0.	0.	0.	0.	0.
SE 85	0.	1.05E+05	0.	0.	0.	0.	0.
BR 85	0.	1.80E+05	0.	0.	0.	0.	0.
KR 85M	0.	2.19E+05	0.	0.	0.	0.	0.
KR 85	0.	1.12E+04	4.86E-05	1.49E-24	0.	0.	0.
BR 86	0.	2.03E+05	0.	0.	0.	0.	0.
RB 86M	0.	3.73E+01	0.	0.	0.	0.	0.
RB 86	0.	5.71E+02	0.	0.	0.	0.	0.
BR 87	0.	2.50E+05	0.	0.	0.	0.	0.
KR 87	0.	3.99E+05	0.	0.	0.	0.	0.
RB 87	0.	1.92E-05	1.92E-05	1.92E-05	1.92E-05	1.92E-05	1.92E-05
SR 87M	0.	4.64E-01	0.	0.	0.	0.	0.
BR 88	0.	1.41E+05	0.	0.	0.	0.	0.
KR 88	0.	5.86E+05	0.	0.	0.	0.	0.
RB 88	0.	5.87E+05	0.	0.	0.	0.	0.
BR 89	0.	5.23E+03	0.	0.	0.	0.	0.
KR 89	0.	6.63E+05	0.	0.	0.	0.	0.
RB 89	0.	7.28E+05	0.	0.	0.	0.	0.

SPENT REFERENCE PWR FUEL - DECAY (CONT'D)

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

		CHARGE	DISCHARGE	100000.	Y300000.	1.00E+06	3.00E+06	1.00E+07
						Y*****	Y*****	Y*****
H	3	C.	7.30E+02	0.	0.	0.	0.	0.
ZN	72	0.	2.42E+01	0.	0.	0.	0.	0.
GA	72	0.	2.42E+01	0.	0.	0.	0.	0.
GA	73	0.	4.71E+01	0.	0.	0.	0.	0.
GA	74	0.	1.64E+02	0.	0.	0.	0.	0.
GA	75	0.	1.52E+02	0.	0.	0.	0.	0.
GE	75M	0.	1.87E+02	0.	0.	0.	0.	0.
GE	75	0.	2.19E+02	0.	0.	0.	0.	0.
GA	76	0.	1.98E+02	0.	0.	0.	0.	0.
AS	76	0.	1.14E+01	0.	0.	0.	0.	0.
GE	77M	0.	9.43E+02	0.	0.	0.	0.	0.
GE	77	0.	9.96E+02	0.	0.	0.	0.	0.
AS	77	0.	2.61E+03	0.	0.	0.	0.	0.
SE	77M	0.	7.84E+00	0.	0.	0.	0.	0.
GE	78	0.	6.45E+03	0.	0.	0.	0.	0.
AS	78	0.	6.52E+03	0.	0.	0.	0.	0.
AS	79	0.	1.17E+04	0.	0.	0.	0.	0.
SE	79M	0.	1.26E+04	0.	0.	0.	0.	0.
SE	79	0.	3.95E-01	1.36E-01	1.61E-02	9.22E-06	5.03E-15	0.
AS	80	0.	1.21E+03	0.	0.	0.	0.	0.
BR	80M	0.	2.18E+00	0.	0.	0.	0.	0.
BR	80	0.	1.35E+03	0.	0.	0.	0.	0.
AS	81	0.	1.21E+03	0.	0.	0.	0.	0.
SE	81M	0.	4.55E+03	0.	0.	0.	0.	0.
SE	81	0.	3.46E+04	0.	0.	0.	0.	0.
KR	81M	0.	1.40E+01	0.	0.	0.	0.	0.
BR	82M	0.	2.29E+03	0.	0.	0.	0.	0.
BR	82	0.	2.81E+03	0.	0.	0.	0.	0.
SE	83M	0.	1.74E+04	0.	0.	0.	0.	0.
SE	83	0.	3.00E+04	0.	0.	0.	0.	0.
BR	83	0.	6.34E+04	0.	0.	0.	0.	0.
KR	83M	0.	6.35E+04	0.	0.	0.	0.	0.
SE	84	0.	1.35E+05	0.	0.	0.	0.	0.
BR	84M	0.	2.97E+03	0.	0.	0.	0.	0.
BR	84	0.	1.68E+05	0.	0.	0.	0.	0.
SE	85	0.	6.02E+04	0.	0.	0.	0.	0.
BR	85	0.	1.69E+05	0.	0.	0.	0.	0.
KR	85M	0.	2.09E+05	0.	0.	0.	0.	0.
KR	85	0.	1.12E+04	0.	0.	0.	0.	0.
BR	86	0.	1.35E+05	0.	0.	0.	0.	0.
RB	86M	0.	2.62E+01	0.	0.	0.	0.	0.
RB	86	0.	5.71E+02	0.	0.	0.	0.	0.
BR	87	0.	1.68E+05	0.	0.	0.	0.	0.
KR	87	0.	3.98E+05	0.	0.	0.	0.	0.
RB	87	0.	1.92E-05	1.92E-05	1.92E-05	1.92E-05	1.92E-05	1.92E-05
SR	87M	0.	4.63E-01	0.	0.	0.	0.	0.
BR	88	0.	5.59E+04	0.	0.	0.	0.	0.
KR	88	0.	5.85E+05	0.	0.	0.	0.	0.
RB	88	0.	5.87E+05	0.	0.	0.	0.	0.
BR	89	0.	4.05E+01	0.	0.	0.	0.	0.
KR	89	0.	5.92E+05	0.	0.	0.	0.	0.
RB	89	0.	7.26E+05	0.	0.	0.	0.	0.

SPENT REFERENCE PWR FUEL - DECAY

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	1. Y	3. Y	10. Y	30. Y	100. Y
SR 89	0.	7.99E+05	6.14E+03	3.62E-01	5.71E-16	2.91E-58	0.
KR 90	0.	8.21E+05	0.	0.	0.	0.	0.
RB 90	0.	8.24E+05	0.	0.	0.	0.	0.
SR 90	0.	7.62E+04	7.43E+04	7.07E+04	5.95E+04	3.63E+04	6.46E+03
Y 90M	0.	3.5JE+00	0.	0.	0.	0.	0.
Y 90	0.	7.97E+04	7.43E+04	7.08E+04	5.95E+04	3.64E+04	6.47E+03
KR 91	0.	6.10E+05	0.	0.	0.	0.	0.
RB 91	0.	9.34E+05	0.	0.	0.	0.	0.
SR 91	0.	1.00E+06	0.	0.	0.	0.	0.
Y 91M	0.	5.90E+05	0.	0.	0.	0.	0.
Y 91	0.	1.05E+06	1.43E+04	2.60E+00	2.11E-13	8.36E-51	0.
KR 92	0.	3.84E+05	0.	0.	0.	0.	0.
RB 92	0.	1.01E+06	0.	0.	0.	0.	0.
SR 92	0.	1.01E+06	0.	0.	0.	0.	0.
Y 92	0.	1.14E+06	0.	0.	0.	0.	0.
KR 93	0.	1.38E+05	0.	0.	0.	0.	0.
RB 93	0.	1.27E+06	0.	0.	0.	0.	0.
SR 93	0.	1.27E+06	0.	0.	0.	0.	0.
Y 93	0.	1.27E+06	0.	0.	0.	0.	0.
ZR 93	0.	1.86E+00	1.86E+00	1.86E+00	1.86E+00	1.86E+00	1.86E+00
NB 93M	0.	1.25E-01	2.12E-01	3.72E-01	8.19E-01	1.49E+00	1.85E+00
KR 94	0.	5.18E+04	0.	0.	0.	0.	0.
RB 94	0.	5.96E+05	0.	0.	0.	0.	0.
SR 94	0.	1.23E+06	0.	0.	0.	0.	0.
Y 94	0.	1.23E+06	0.	0.	0.	0.	0.
RB 95	0.	4.26E+05	0.	0.	0.	0.	0.
SR 95	0.	1.14E+06	0.	0.	0.	0.	0.
Y 95	0.	1.52E+06	0.	0.	0.	0.	0.
ZR 95	0.	1.57E+06	3.19E+04	1.32E+01	1.90E-11	2.78E-45	0.
NB 95M	0.	3.20E+04	6.76E+02	2.80E-01	4.02E-13	5.90E-47	0.
NB 95	0.	1.58E+06	6.94E+04	2.93E+01	4.11E-11	6.03E-45	0.
Y 96	0.	1.57E+06	0.	0.	0.	0.	0.
NB 96	0.	1.63E+03	0.	0.	0.	0.	0.
Y 97	0.	1.58E+06	0.	0.	0.	0.	0.
ZR 97	0.	1.58E+06	0.	0.	0.	0.	0.
NB 97M	0.	1.52E+06	0.	0.	0.	0.	0.
NB 97	0.	1.58E+06	0.	0.	0.	0.	0.
ZR 98	0.	1.62E+06	0.	0.	0.	0.	0.
NB 98M	0.	1.62E+06	0.	0.	0.	0.	0.
NB 98	0.	4.27E+04	0.	0.	0.	0.	0.
NB 99	0.	1.74E+06	0.	0.	0.	0.	0.
MO 99	0.	1.75E+06	0.	0.	0.	0.	0.
TC 99M	0.	1.52E+06	0.	0.	0.	0.	0.
TC 99	0.	1.43E+01	1.43E+01	1.43E+01	1.43E+01	1.43E+01	1.43E+01
NB100	0.	1.94E+06	0.	0.	0.	0.	0.
TC100	0.	2.51E+05	0.	0.	0.	0.	0.
NB101	0.	1.61E+06	0.	0.	0.	0.	0.
MO101	0.	1.62E+06	0.	0.	0.	0.	0.
TC101	0.	1.62E+06	0.	0.	0.	0.	0.
MO102	0.	1.56E+06	0.	0.	0.	0.	0.
TC102M	0.	7.78E+05	0.	0.	0.	0.	0.
TC102	0.	7.78E+05	0.	0.	0.	0.	0.

SPENT REFERENCE PWR FUEL - DECAY (CONT'D)

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	300. Y	1000. Y	3000. Y	10000. Y	30000. Y
SR 89	C.	7.99E+05	0.	0.	0.	0.	0.
KR 90	C.	4.23E+05	0.	0.	0.	0.	0.
RB 90	0.	7.97E+05	0.	0.	0.	0.	0.
SR 90	C.	7.62E+04	4.65E+01	1.47E-06	5.50E-28	0.	0.
Y 90M	C.	3.49E+03	0.	0.	0.	0.	0.
Y 90	0.	7.97E+04	4.65E+01	1.47E-06	5.50E-28	0.	0.
KR 91	0.	6.84E+04	0.	0.	0.	0.	0.
RB 91	0.	7.51E+05	0.	0.	0.	0.	0.
SR 91	C.	1.00E+06	0.	0.	0.	0.	0.
Y 91M	0.	5.90E+05	0.	0.	0.	0.	0.
Y 91	C.	1.05E+06	0.	0.	0.	0.	0.
KR 92	0.	2.62E+02	0.	0.	0.	0.	0.
RB 92	C.	2.41E+04	0.	0.	0.	0.	0.
SR 92	0.	1.01E+06	0.	0.	0.	0.	0.
Y 92	0.	1.14E+06	0.	0.	0.	0.	0.
KR 93	0.	2.46E+00	0.	0.	0.	0.	0.
RB 93	C.	2.70E+04	0.	0.	0.	0.	0.
SR 93	C.	1.23E+06	0.	0.	0.	0.	0.
Y 93	0.	1.27E+06	0.	0.	0.	0.	0.
ZR 93	0.	1.86E+00	1.86E+00	1.86E+00	1.86E+00	1.85E+00	1.84E+00
NB 93M	0.	1.25E-01	1.80E+00	1.80E+00	1.86E+00	1.85E+00	1.84E+00
KR 94	C.	8.47E-03	0.	0.	0.	0.	0.
RB 94	0.	3.41E+02	0.	0.	0.	0.	0.
SR 94	0.	9.44E+05	0.	0.	0.	0.	0.
Y 94	C.	1.22E+06	0.	0.	0.	0.	0.
RB 95	0.	6.75E+01	0.	0.	0.	0.	0.
SR 95	0.	7.38E+05	0.	0.	0.	0.	0.
Y 95	0.	1.50E+06	0.	0.	0.	0.	0.
ZR 95	0.	1.57E+06	0.	0.	0.	0.	0.
NB 95M	0.	3.20E+04	0.	0.	0.	0.	0.
NB 95	C.	1.58E+06	0.	0.	0.	0.	0.
Y 96	C.	1.34E+06	0.	0.	0.	0.	0.
NB 96	C.	1.63E+03	0.	0.	0.	0.	0.
Y 97	0.	4.13E+04	0.	0.	0.	0.	0.
ZR 97	0.	1.53E+06	0.	0.	0.	0.	0.
NB 97M	0.	1.52E+06	0.	0.	0.	0.	0.
NB 97	C.	1.58E+06	0.	0.	0.	0.	0.
ZR 98	0.	1.13E+06	0.	0.	0.	0.	0.
NB 98M	0.	1.58E+06	0.	0.	0.	0.	0.
NB 98	0.	4.24E+04	0.	0.	0.	0.	0.
NB 99	0.	1.49E+06	0.	0.	0.	0.	0.
MO 99	0.	1.75E+06	0.	0.	0.	0.	0.
TC 99M	0.	1.52E+06	0.	0.	0.	0.	0.
TC 99	0.	1.43E+01	1.43E+01	1.43E+01	1.42E+01	1.39E+01	1.30E+01
NB100	0.	1.72E+06	0.	0.	0.	0.	0.
TC100	0.	6.94E+04	0.	0.	0.	0.	0.
NB101	C.	1.12E+06	0.	0.	0.	0.	0.
MO101	0.	1.62E+06	0.	0.	0.	0.	0.
TC101	0.	1.62E+06	0.	0.	0.	0.	0.
MO102	0.	1.50E+06	0.	0.	0.	0.	0.
TC102M	0.	7.77E+05	0.	0.	0.	0.	0.
TC102	0.	7.58E+05	0.	0.	0.	0.	0.

SPENT REFERENCE PWR FUEL - DECAY (CONT'D)

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

				1.00E+06	3.00E+06	1.00E+07	
	CHARGE	DISCHARGE	100000.	Y*****	Y*****	Y*****	
			Y300000.				
SR 89	L.	7.99E+05	0.	0.	0.	0.	
KR 90	G.	2.18E+05	0.	0.	0.	0.	
RB 90	G.	7.39E+05	0.	0.	0.	0.	
SR 90	G.	7.62E+04	0.	0.	0.	0.	
Y 90M	L.	3.49E+00	0.	0.	0.	0.	
Y 90	O.	7.97E+04	0.	0.	0.	0.	
KR 91	G.	7.67E+03	0.	0.	0.	0.	
RB 91	G.	5.61E+05	0.	0.	0.	0.	
SR 91	G.	1.00E+06	0.	0.	0.	0.	
Y 91M	O.	5.90E+05	0.	0.	0.	0.	
Y 91	G.	1.05E+06	0.	0.	0.	0.	
KR 92	G.	1.78E-01	0.	0.	0.	0.	
RB 92	G.	3.93E+02	0.	0.	0.	0.	
SR 92	G.	1.01E+06	0.	0.	0.	0.	
Y 92	G.	1.14E+06	0.	0.	0.	0.	
KR 93	G.	4.37E-05	0.	0.	0.	0.	
RB 93	L.	5.43E+02	0.	0.	0.	0.	
SR 93	G.	1.18E+06	0.	0.	0.	0.	
Y 93	G.	1.27E+06	0.	0.	0.	0.	
ZR 93	O.	1.86E+00	1.78E+00	1.62E+00	1.17E+00	4.65E-01	1.83E-02
NB 93M	L.	1.25E-01	1.78E+00	1.62E+00	1.17E+00	4.65E-01	1.83E-02
KR 94	G.	1.39E-09	0.	0.	0.	0.	0.
RB 94	G.	1.81E-01	0.	0.	0.	0.	0.
SR 94	G.	7.13E+05	0.	0.	0.	0.	0.
Y 94	G.	1.22E+06	0.	0.	0.	0.	0.
RB 95	O.	1.07E-02	0.	0.	0.	0.	0.
SR 95	O.	4.68E+05	0.	0.	0.	0.	0.
Y 95	G.	1.47E+06	0.	0.	0.	0.	0.
ZR 95	G.	1.57E+06	0.	0.	0.	0.	0.
NB 95M	L.	3.20E+04	0.	0.	0.	0.	0.
NB 95	L.	1.56E+06	0.	0.	0.	0.	0.
Y 95	G.	1.14E+05	0.	0.	0.	0.	0.
NB 96	G.	1.63E+03	0.	0.	0.	0.	0.
Y 97	G.	1.08E+03	0.	0.	0.	0.	0.
ZR 97	O.	1.53E+06	0.	0.	0.	0.	0.
NB 97M	O.	1.52E+06	0.	0.	0.	0.	0.
NB 97	L.	1.58E+06	0.	0.	0.	0.	0.
ZR 98	L.	7.83E+05	0.	0.	0.	0.	0.
NB 98M	G.	1.47E+06	0.	0.	0.	0.	0.
NB 98	G.	4.21E+04	0.	0.	0.	0.	0.
NB 99	G.	1.28E+06	0.	0.	0.	0.	0.
MO 99	G.	1.75E+06	0.	0.	0.	0.	0.
TC 99M	L.	1.52E+06	0.	0.	0.	0.	0.
TC 99	O.	1.43E+01	1.03E+01	5.37E+00	5.44E-01	7.87E-04	9.02E-14
NB100	O.	1.52E+06	0.	0.	0.	0.	0.
TC100	O.	1.92E+04	0.	0.	0.	0.	0.
NB101	L.	7.75E+05	0.	0.	0.	0.	0.
MO101	G.	1.60E+06	0.	0.	0.	0.	0.
TC101	G.	1.62E+06	0.	0.	0.	0.	0.
MO102	G.	1.46E+06	0.	0.	0.	0.	0.
TC102M	L.	7.74E+05	0.	0.	0.	0.	0.
TC102	O.	7.34E+05	0.	0.	0.	0.	0.

SPENT REFERENCE PWR FUEL - DECAY

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	1. Y	3. Y	10. Y	30. Y	100. Y
MO103	0.	1.40E+06	0.	0.	0.	0.	0.
TC103	0.	1.40E+06	0.	0.	0.	0.	0.
RU103	0.	1.42E+06	2.38E+03	6.65E-03	2.43E-22	0.	0.
RH103M	0.	1.42E+06	2.38E+03	6.66E-03	2.43E-22	0.	0.
MO104	0.	1.35E+06	0.	0.	0.	0.	0.
TC104	0.	1.35E+06	0.	0.	0.	0.	0.
RH104M	0.	7.36E+04	0.	0.	0.	0.	0.
RH104	0.	1.01E+06	0.	0.	0.	0.	0.
MO105	0.	1.11E+06	0.	0.	0.	0.	0.
TC105	0.	1.12E+06	0.	0.	0.	0.	0.
RU105	0.	1.13E+06	0.	0.	0.	0.	0.
RH105M	0.	1.13E+06	0.	0.	0.	0.	0.
RH105	0.	7.48E+05	0.	0.	0.	0.	0.
TC106	0.	9.33E+05	0.	0.	0.	0.	0.
RU106	0.	6.18E+05	3.10E+05	7.81E+04	6.24E+02	6.35E-04	6.75E-25
RH106M	0.	1.17E+05	0.	0.	0.	0.	0.
RH106	0.	8.80E+05	3.10E+05	7.81E+04	6.24E+02	6.35E-04	6.75E-25
RU107	0.	6.94E+05	0.	0.	0.	0.	0.
RH107	0.	6.94E+05	0.	0.	0.	0.	0.
PD107M	0.	1.43E+05	0.	0.	0.	0.	0.
PD107	0.	1.17E-01	1.17E-01	1.17E-01	1.17E-01	1.17E-01	1.17E-01
RU108	0.	4.84E+05	0.	0.	0.	0.	0.
RH108	0.	4.84E+05	0.	0.	0.	0.	0.
AG108	0.	3.43E-03	0.	0.	0.	0.	0.
RH109	0.	2.69E+05	0.	0.	0.	0.	0.
PD109M	0.	1.27E+03	0.	0.	0.	0.	0.
PD109	0.	3.30E+05	0.	0.	0.	0.	0.
AG109M	0.	3.30E+05	2.59E-06	8.46E-07	1.69E-08	2.36E-13	2.41E-30
CD109	0.	4.52E-06	2.59E-06	8.46E-07	1.69E-08	2.36E-13	2.41E-30
RH110	0.	9.77E+04	0.	0.	0.	0.	0.
AG110M	0.	4.33E+03	1.59E+03	2.15E+02	1.95E-01	3.96E-10	0.
AG110	0.	1.98E+05	2.07E+02	2.80E+01	2.54E-02	5.15E-11	0.
PD111M	0.	1.85E+03	0.	0.	0.	0.	0.
PD111	0.	4.67E+04	0.	0.	0.	0.	0.
AG111M	0.	4.75E+04	0.	0.	0.	0.	0.
AG111	0.	4.75E+04	1.04E-10	4.94E-40	0.	0.	0.
CD111M	0.	8.72E+01	0.	0.	0.	0.	0.
PD112	0.	2.45E+04	0.	0.	0.	0.	0.
AG112	0.	2.45E+04	0.	0.	0.	0.	0.
PD113	0.	1.64E+04	0.	0.	0.	0.	0.
AG113M	0.	1.64E+03	0.	0.	0.	0.	0.
AG113	0.	1.48E+04	0.	0.	0.	0.	0.
CD113M	0.	1.17E+01	1.11E+01	1.01E+01	7.13E+00	2.65E+00	8.27E-02
PD114	0.	1.13E+04	0.	0.	0.	0.	0.
AG114	0.	1.13E+04	0.	0.	0.	0.	0.
IN114M	0.	1.73E+00	1.09E-02	4.37E-07	1.76E-22	0.	0.
IN114	0.	2.49E+00	1.06E-02	4.22E-07	1.70E-22	0.	0.
PD115	0.	9.25E+03	0.	0.	0.	0.	0.
AG115M	0.	2.59E+03	0.	0.	0.	0.	0.
AG115	0.	6.66E+03	0.	0.	0.	0.	0.
CD115M	0.	6.53E+02	1.81E+00	1.39E-05	1.75E-23	0.	0.
CD115	0.	9.17E+03	0.	0.	0.	0.	0.

SPENT REFERENCE PWR FUEL - DECAY (CONT'D)

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	300. Y	1000. Y	3000. Y	10000. Y	30000. Y
MO103	0.	9.82E+05	0.	0.	0.	0.	0.
TC103	0.	1.31E+06	0.	0.	0.	0.	0.
RU103	0.	1.42E+06	0.	0.	0.	0.	0.
RH103M	0.	1.42E+06	0.	0.	0.	0.	0.
MO104	0.	1.02E+06	0.	0.	0.	0.	0.
TC104	0.	1.35E+06	0.	0.	0.	0.	0.
RH104M	0.	6.78E+04	0.	0.	0.	0.	0.
RH104	0.	6.34E+05	0.	0.	0.	0.	0.
MO105	0.	6.45E+05	0.	0.	0.	0.	0.
TC105	0.	7.89E+05	0.	0.	0.	0.	0.
RU105	0.	1.13E+06	0.	0.	0.	0.	0.
RH105M	0.	1.13E+06	0.	0.	0.	0.	0.
RH105	0.	7.48E+05	0.	0.	0.	0.	0.
TC106	0.	5.17E+05	0.	0.	0.	0.	0.
RU106	0.	6.18E+05	0.	0.	0.	0.	0.
RH106M	0.	1.17E+05	0.	0.	0.	0.	0.
RH106	0.	7.45E+05	0.	0.	0.	0.	0.
RU107	0.	6.36E+05	0.	0.	0.	0.	0.
RH107	0.	6.93E+05	0.	0.	0.	0.	0.
PD107M	0.	1.40E+05	0.	0.	0.	0.	0.
PD107	0.	1.17E-01	1.17E-01	1.17E-01	1.17E-01	1.17E-01	1.17E-01
RU108	0.	4.47E+05	0.	0.	0.	0.	0.
RH108	0.	4.68E+05	0.	0.	0.	0.	0.
AG108	0.	2.95E-03	0.	0.	0.	0.	0.
RH109	0.	1.30E+05	0.	0.	0.	0.	0.
PD109M	0.	1.18E+03	0.	0.	0.	0.	0.
PD109	0.	3.30E+05	0.	0.	0.	0.	0.
AG109M	0.	3.20E+05	0.	0.	0.	0.	0.
CD109	0.	4.52E-06	0.	0.	0.	0.	0.
RH110	0.	1.23E+03	0.	0.	0.	0.	0.
AG110M	0.	4.33E+03	0.	0.	0.	0.	0.
AG110	0.	8.12E+04	0.	0.	0.	0.	0.
PD111M	0.	1.85E+03	0.	0.	0.	0.	0.
PD111	0.	4.60E+04	0.	0.	0.	0.	0.
AG111M	0.	4.73E+04	0.	0.	0.	0.	0.
AG111	0.	4.75E+04	0.	0.	0.	0.	0.
CD111M	0.	8.66E+01	0.	0.	0.	0.	0.
PD112	0.	2.45E+04	0.	0.	0.	0.	0.
AG112	0.	2.45E+04	0.	0.	0.	0.	0.
PD113	0.	1.27E+04	0.	0.	0.	0.	0.
AG113M	0.	1.59E+03	0.	0.	0.	0.	0.
AG113	0.	1.48E+04	0.	0.	0.	0.	0.
CD113M	0.	1.17E+01	4.14E-06	3.66E-21	3.59E-64	0.	0.
PD114	0.	9.73E+03	0.	0.	0.	0.	0.
AG114	0.	1.01E+04	0.	0.	0.	0.	0.
IN114M	0.	1.73E+00	0.	0.	0.	0.	0.
IN114	0.	2.28E+00	0.	0.	0.	0.	0.
PD115	0.	5.69E+03	0.	0.	0.	0.	0.
AG115M	0.	2.17E+03	0.	0.	0.	0.	0.
AG115	0.	6.64E+03	0.	0.	0.	0.	0.
CD115M	0.	6.53E+02	0.	0.	0.	0.	0.
CD115	0.	9.17E+03	0.	0.	0.	0.	0.

SPENT REFERENCE PWR FUEL - DECAY (CONT'D)

POWER= 54.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

				1.00E+06	3.00E+06	1.00E+07
	CHARGE	DISCHARGE	100000.	Y*****	Y*****	Y*****
			Y300000.			
MO103	0.	6.90E+05	0.	0.	0.	0.
TC103	0.	1.14E+06	0.	0.	0.	0.
RU103	0.	1.42E+06	0.	0.	0.	0.
RH103M	0.	1.42E+06	0.	0.	0.	0.
MO104	0.	7.69E+05	0.	0.	0.	0.
TC104	0.	1.34E+06	0.	0.	0.	0.
RH104M	0.	6.24E+04	0.	0.	0.	0.
RH104	0.	4.07E+05	0.	0.	0.	0.
MO105	0.	3.73E+05	0.	0.	0.	0.
TC105	0.	4.66E+05	0.	0.	0.	0.
RU105	0.	1.13E+06	0.	0.	0.	0.
RH105M	0.	1.13E+06	0.	0.	0.	0.
RH105	0.	7.48E+05	0.	0.	0.	0.
TC106	0.	2.86E+05	0.	0.	0.	0.
RU106	0.	6.18E+05	0.	0.	0.	0.
RH106M	0.	1.17E+05	0.	0.	0.	0.
RH106	0.	6.79E+05	0.	0.	0.	0.
RU107	0.	5.83E+05	0.	0.	0.	0.
RH107	0.	6.92E+05	0.	0.	0.	0.
PD107M	0.	1.39E+05	0.	0.	0.	0.
PD107	0.	1.17E-01	1.10E-01	1.14E-01	1.06E-01	8.70E-02
RU108	0.	4.12E+05	0.	0.	0.	0.
RH108	0.	4.37E+05	0.	0.	0.	0.
AG108	0.	2.54E-03	0.	0.	0.	0.
RH109	0.	6.26E+04	0.	0.	0.	0.
PD109M	0.	1.09E+03	0.	0.	0.	0.
PD109	0.	3.30E+05	0.	0.	0.	0.
AG109M	0.	3.30E+05	0.	0.	0.	0.
CD109	0.	4.52E-06	0.	0.	0.	0.
RH110	0.	1.55E+01	0.	0.	0.	0.
AG110M	0.	4.33E+03	0.	0.	0.	0.
AG110	0.	3.35E+04	0.	0.	0.	0.
PD111M	0.	1.85E+03	0.	0.	0.	0.
PD111	0.	4.52E+04	0.	0.	0.	0.
AG111M	0.	4.70E+04	0.	0.	0.	0.
AG111	0.	4.75E+04	0.	0.	0.	0.
CD111M	0.	8.59E+01	0.	0.	0.	0.
PD112	0.	2.45E+04	0.	0.	0.	0.
AG112	0.	2.45E+04	0.	0.	0.	0.
PD113	0.	9.77E+03	0.	0.	0.	0.
AG113M	0.	1.46E+03	0.	0.	0.	0.
AG113	0.	1.48E+04	0.	0.	0.	0.
CD113M	0.	1.17E+01	0.	0.	0.	0.
PD114	0.	8.36E+03	0.	0.	0.	0.
AG114	0.	8.66E+03	0.	0.	0.	0.
IN114M	0.	1.73E+00	0.	0.	0.	0.
IN114	0.	2.12E+00	0.	0.	0.	0.
PD115	0.	3.50E+03	0.	0.	0.	0.
AG115M	0.	1.53E+03	0.	0.	0.	0.
AG115	0.	6.58E+03	0.	0.	0.	0.
CD115M	0.	6.53E+02	0.	0.	0.	0.
CD115	0.	9.17E+03	0.	0.	0.	0.



SPENT REFERENCE PWR FUEL - DECAY

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	1. Y	3. Y	10. Y	30. Y	100. Y
IN115M	0.	9.17E+03	0.	0.	0.	0.	0.
AG116	0.	8.54E+03	0.	0.	0.	0.	0.
IN116M	0.	6.91E+03	0.	0.	0.	0.	0.
IN116	0.	1.84E+03	0.	0.	0.	0.	0.
AG117	0.	8.75E+03	0.	0.	0.	0.	0.
CD117M	0.	1.29E+04	0.	0.	0.	0.	0.
CD117	0.	8.77E+03	0.	0.	0.	0.	0.
IN117M	0.	8.78E+03	0.	0.	0.	0.	0.
IN117	0.	4.13E+03	0.	0.	0.	0.	0.
SN117M	0.	7.44E+01	1.04E-06	2.04E-22	0.	0.	0.
CD118	0.	8.75E+03	0.	0.	0.	0.	0.
IN118M	0.	1.35E-02	0.	0.	0.	0.	0.
IN118	0.	8.75E+03	0.	0.	0.	0.	0.
CD119M	0.	4.51E+03	0.	0.	0.	0.	0.
CD119	0.	4.51E+03	0.	0.	0.	0.	0.
IN119M	0.	9.02E+03	0.	0.	0.	0.	0.
IN119	0.	4.51E+02	0.	0.	0.	0.	0.
SN119M	0.	1.88E+01	6.81E+00	8.99E-01	7.49E-04	1.20E-12	0.
CD120	0.	9.09E+03	0.	0.	0.	0.	0.
IN120M	0.	4.55E+03	0.	0.	0.	0.	0.
IN120	0.	4.55E+03	0.	0.	0.	0.	0.
CD121	0.	9.88E+03	0.	0.	0.	0.	0.
IN121M	0.	9.88E+03	0.	0.	0.	0.	0.
IN121	0.	1.29E+02	0.	0.	0.	0.	0.
SN121M	0.	5.96E-04	5.90E-04	5.80E-04	5.44E-04	4.53E-04	2.39E-04
SN121	0.	1.00E+04	0.	0.	0.	0.	0.
IN122	0.	9.73E+03	0.	0.	0.	0.	0.
SB122M	0.	1.32E+02	0.	0.	0.	0.	0.
SB122	0.	1.32E+03	0.	0.	0.	0.	0.
IN123M	0.	1.10E+04	0.	0.	0.	0.	0.
IN123	0.	1.36E+03	0.	0.	0.	0.	0.
SN123M	0.	1.36E+03	0.	0.	0.	0.	0.
SN123	0.	1.04E+04	1.37E+03	2.38E+01	1.66E-05	4.22E-23	0.
TE123M	0.	7.46E-01	8.57E-02	1.13E-03	2.95E-10	4.76E-29	0.
IN124	0.	1.49E+04	0.	0.	0.	0.	0.
SB124M	0.	2.00E+01	0.	0.	0.	0.	0.
SB124	0.	4.29E+02	6.30E+00	1.36E-03	2.02E-16	4.48E-53	0.
SN125M	0.	8.90E+03	0.	0.	0.	0.	0.
SN125	0.	1.62E+04	3.25E-08	1.31E-31	0.	0.	0.
SB125	0.	9.45E+03	7.43E+03	4.45E+03	7.37E+02	4.34E+00	6.80E-08
TE125M	0.	3.33E+03	3.07E+03	1.84E+03	3.05E+02	1.80E+00	2.82E-08
SN126	0.	5.69E-01	5.69E-01	5.69E-01	5.69E-01	5.69E-01	5.68E-01
SB126M	0.	2.91E+01	5.69E-01	5.69E-01	5.69E-01	5.69E-01	5.68E-01
SB126	0.	7.23E+01	5.63E-01	5.63E-01	5.63E-01	5.63E-01	5.63E-01
SN127M	0.	1.06E+03	0.	0.	0.	0.	0.
SN127	0.	8.47E+04	0.	0.	0.	0.	0.
SB127	0.	8.59E+04	0.	0.	0.	0.	0.
TE127M	0.	1.80E+04	1.83E+03	1.76E+01	1.53E-06	1.02E-26	0.
TE127	0.	8.48E+04	1.81E+03	1.74E+01	1.51E-06	1.01E-26	0.
SN128	0.	2.41E+05	0.	0.	0.	0.	0.
SB128M	0.	2.34E+05	0.	0.	0.	0.	0.
SB128	0.	3.18E+04	0.	0.	0.	0.	0.

SPENT REFERENCE PWR FUEL - DECAY (CONT'D)

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	300. Y	1000. Y	3000. Y	10000. Y	30000. Y
IN115M	0.	9.17E+03	0.	0.	0.	0.	0.
AG116	0.	7.38E+03	0.	0.	0.	0.	0.
IN116M	0.	6.86E+03	0.	0.	0.	0.	0.
IN116	0.	3.85E+02	0.	0.	0.	0.	0.
AG117	0.	6.28E+03	0.	0.	0.	0.	0.
CD117M	0.	1.29E+01	0.	0.	0.	0.	0.
CD117	0.	8.77E+03	0.	0.	0.	0.	0.
IN117M	0.	8.78E+03	0.	0.	0.	0.	0.
IN117	0.	4.13E+03	0.	0.	0.	0.	0.
SN117M	0.	7.44E+01	0.	0.	0.	0.	0.
CD118	0.	8.68E+03	0.	0.	0.	0.	0.
IN118M	0.	1.24E-02	0.	0.	0.	0.	0.
IN118	0.	8.70E+03	0.	0.	0.	0.	0.
CD119M	0.	3.94E+03	0.	0.	0.	0.	0.
CD119	0.	4.35E+03	0.	0.	0.	0.	0.
IN119M	0.	9.01E+03	0.	0.	0.	0.	0.
IN119	0.	4.51E+02	0.	0.	0.	0.	0.
SN119M	0.	1.88E+01	0.	0.	0.	0.	0.
CD120	0.	6.32E+03	0.	0.	0.	0.	0.
IN120M	0.	3.34E+03	0.	0.	0.	0.	0.
IN120	0.	4.25E+03	0.	0.	0.	0.	0.
CD121	0.	8.90E+03	0.	0.	0.	0.	0.
IN121M	0.	9.82E+03	0.	0.	0.	0.	0.
IN121	0.	6.22E+01	0.	0.	0.	0.	0.
SN121M	0.	5.96E-04	3.86E-05	6.51E-08	7.78E-16	1.45E-43	0.
SN121	0.	1.00E+04	0.	0.	0.	0.	0.
IN122	0.	6.31E+02	0.	0.	0.	0.	0.
SB122M	0.	1.21E+02	0.	0.	0.	0.	0.
SB122	0.	1.32E+03	0.	0.	0.	0.	0.
IN123M	0.	5.98E+03	0.	0.	0.	0.	0.
IN123	0.	1.52E+02	0.	0.	0.	0.	0.
SN123M	0.	1.35E+03	0.	0.	0.	0.	0.
SN123	0.	1.04E+04	0.	0.	0.	0.	0.
TE123M	0.	7.46E-01	0.	0.	0.	0.	0.
IN124	0.	6.28E+01	0.	0.	0.	0.	0.
SB124M	0.	1.58E+01	0.	0.	0.	0.	0.
SB124	0.	4.29E+02	0.	0.	0.	0.	0.
SN125M	0.	8.57E+03	0.	0.	0.	0.	0.
SN125	0.	1.62E+04	0.	0.	0.	0.	0.
SB125	0.	9.45E+03	0.	0.	0.	0.	0.
TE125M	0.	3.33E+03	0.	0.	0.	0.	0.
SN126	0.	5.69E-01	5.68E-01	5.65E-01	5.57E-01	5.31E-01	4.62E-01
SB126M	0.	2.85E+01	5.68E-01	5.65E-01	5.57E-01	5.31E-01	4.62E-01
SB126	0.	7.23E+01	5.62E-01	5.59E-01	5.52E-01	5.25E-01	4.57E-01
SN127M	0.	9.65E+02	0.	0.	0.	0.	0.
SN127	0.	8.44E+04	0.	0.	0.	0.	0.
SB127	0.	8.59E+04	0.	0.	0.	0.	0.
TE127M	0.	1.80E+04	0.	0.	0.	0.	0.
TE127	0.	8.48E+04	0.	0.	0.	0.	0.
SN128	0.	2.40E+05	0.	0.	0.	0.	0.
SB128M	0.	2.34E+05	0.	0.	0.	0.	0.
SB128	0.	3.18E+04	0.	0.	0.	0.	0.

SPENT REFERENCE PWR FUEL - DECAY (CONT'D)

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	100000.	Y300000.	1.00E+06 Y*****	3.00E+06 Y*****	1.00E+07 Y*****
IN115M	0.	9.17E+03	0.	0.	0.	0.	0.
AG116	0.	6.38E+03	0.	0.	0.	0.	0.
IN116M	0.	6.81E+03	0.	0.	0.	0.	0.
IN116	0.	8.06E+01	0.	0.	0.	0.	0.
AG117	0.	4.51E+03	0.	0.	0.	0.	0.
CD117M	0.	1.29E+01	0.	0.	0.	0.	0.
CD117	0.	8.76E+03	0.	0.	0.	0.	0.
IN117M	0.	8.78E+03	0.	0.	0.	0.	0.
IN117	0.	4.13E+03	0.	0.	0.	0.	0.
SN117M	0.	7.44E+01	0.	0.	0.	0.	0.
CD118	0.	8.62E+03	0.	0.	0.	0.	0.
IN118M	0.	1.14E-02	0.	0.	0.	0.	0.
IN118	0.	8.63E+03	0.	0.	0.	0.	0.
CD119M	0.	3.44E+03	0.	0.	0.	0.	0.
CD119	0.	4.19E+03	0.	0.	0.	0.	0.
IN119M	0.	8.99E+03	0.	0.	0.	0.	0.
IN119	0.	4.51E+02	0.	0.	0.	0.	0.
SN119M	0.	1.88E+01	0.	0.	0.	0.	0.
CD120	0.	4.39E+03	0.	0.	0.	0.	0.
IN120M	0.	2.32E+03	0.	0.	0.	0.	0.
IN120	0.	3.63E+03	0.	0.	0.	0.	0.
CD121	0.	8.02E+03	0.	0.	0.	0.	0.
IN121M	0.	9.67E+03	0.	0.	0.	0.	0.
IN121	0.	3.00E+01	0.	0.	0.	0.	0.
SN121M	0.	5.96E-04	0.	0.	0.	0.	0.
SN121	0.	1.00E+04	0.	0.	0.	0.	0.
IN122	0.	4.10E+01	0.	0.	0.	0.	0.
SB122M	0.	1.11E+02	0.	0.	0.	0.	0.
SB122	0.	1.32E+03	0.	0.	0.	0.	0.
IN123M	0.	3.26E+03	0.	0.	0.	0.	0.
IN123	0.	1.71E+01	0.	0.	0.	0.	0.
SN123M	0.	1.34E+03	0.	0.	0.	0.	0.
SN123	0.	1.04E+04	0.	0.	0.	0.	0.
TE123M	0.	7.46E-01	0.	0.	0.	0.	0.
IN124	0.	2.65E-01	0.	0.	0.	0.	0.
SB124M	0.	1.25E+01	0.	0.	0.	0.	0.
SB124	0.	4.29E+02	0.	0.	0.	0.	0.
SN125M	0.	8.26E+03	0.	0.	0.	0.	0.
SN125	0.	1.62E+04	0.	0.	0.	0.	0.
SB125	0.	9.45E+03	0.	0.	0.	0.	0.
TE125M	0.	3.33E+03	0.	0.	0.	0.	0.
SN126	0.	5.69E-01	2.84E-01	7.11E-02	5.55E-04	5.29E-10	4.46E-31
SB126M	0.	2.80E+01	2.84E-01	7.11E-02	5.55E-04	5.29E-10	4.46E-31
SB126	0.	7.23E+01	2.82E-01	7.04E-02	5.50E-04	5.23E-10	4.41E-31
SN127M	0.	8.81E+02	0.	0.	0.	0.	0.
SN127	0.	8.42E+04	0.	0.	0.	0.	0.
SB127	0.	8.59E+04	0.	0.	0.	0.	0.
TE127M	0.	1.80E+04	0.	0.	0.	0.	0.
TE127	0.	8.48E+04	0.	0.	0.	0.	0.
SN128	0.	2.38E+05	0.	0.	0.	0.	0.
SB128M	0.	2.34E+05	0.	0.	0.	0.	0.
SB128	0.	3.18E+04	0.	0.	0.	0.	0.

SPENT REFERENCE PWR FUEL - DECAY

POWER= 34.40MW, BURNUP= 3300J.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	1. Y	3. Y	10. Y	30. Y	100. Y
I128	C.	1.29E+04	0.	0.	0.	0.	0.
SN129M	C.	4.05E+05	0.	0.	0.	0.	0.
SN129	O.	5.71E+03	0.	0.	0.	0.	0.
SB129	O.	4.13E+05	0.	0.	0.	0.	0.
TE129M	O.	6.67E+04	3.91E+01	1.33E-05	3.06E-28	0.	0.
TE129	O.	3.92E+05	2.51E+01	8.53E-06	1.96E-28	0.	0.
I129	O.	3.75E-02	3.79E-02	3.79E-02	3.79E-02	3.79E-02	3.79E-02
XE129M	O.	1.59E+01	2.86E-13	9.26E-41	0.	0.	0.
SN130	O.	6.69E+05	0.	0.	0.	0.	0.
SB130M	O.	6.02E+05	0.	0.	0.	0.	0.
SB130	O.	7.50E+04	0.	0.	0.	0.	0.
I130M	O.	2.80E+04	0.	0.	0.	0.	0.
I130	O.	4.13E+04	0.	0.	0.	0.	0.
SN131	C.	9.75E+05	0.	0.	0.	0.	0.
SB131	O.	9.92E+05	0.	0.	0.	0.	0.
TE131M	O.	1.49E+05	0.	0.	0.	0.	0.
TE131	O.	8.74E+05	0.	0.	0.	0.	0.
I131	O.	9.96E+05	2.25E-08	1.08E-35	0.	0.	0.
XE131M	O.	7.33E+03	1.20E-05	2.76E-24	0.	0.	0.
SN132	O.	1.34E+06	0.	0.	0.	0.	0.
SB132	O.	1.36E+06	0.	0.	0.	0.	0.
TE132	O.	1.37E+06	0.	0.	0.	0.	0.
I132	O.	1.41E+06	0.	0.	0.	0.	0.
SB133	O.	1.14E+06	0.	0.	0.	0.	0.
TE133M	O.	1.44E+06	0.	0.	0.	0.	0.
TE133	O.	5.23E+05	0.	0.	0.	0.	0.
I133	O.	1.84E+06	0.	0.	0.	0.	0.
XE133M	O.	4.47E+04	0.	0.	0.	0.	0.
XE133	O.	1.84E+06	3.09E-15	5.74E-57	0.	0.	0.
SB134	O.	1.81E+06	0.	0.	0.	0.	0.
TE134	C.	1.85E+06	0.	0.	0.	0.	0.
I134	O.	2.09E+06	0.	0.	0.	0.	0.
CS134M	C.	7.31E+04	0.	0.	0.	0.	0.
CS134	O.	2.62E+05	1.87E+05	9.52E+04	8.92E+03	1.03E+01	5.41E-10
TE135	O.	1.61E+06	0.	0.	0.	0.	0.
I135	O.	1.63E+06	0.	0.	0.	0.	0.
XE135M	O.	4.94E+05	0.	0.	0.	0.	0.
XE135	O.	3.54E+05	0.	0.	0.	0.	0.
CS135M	O.	5.37E+04	0.	0.	0.	0.	0.
CS135	O.	2.51E-01	2.52E-01	2.52E-01	2.52E-01	2.52E-01	2.52E-01
BA135M	O.	3.25E+01	0.	0.	0.	0.	0.
I136	O.	6.43E+05	0.	0.	0.	0.	0.
CS136	O.	6.62E+04	2.30E-04	2.79E-21	0.	0.	0.
I137	O.	1.69E+06	0.	0.	0.	0.	0.
XE137	O.	1.80E+06	0.	0.	0.	0.	0.
CS137	O.	1.09E+05	1.06E+05	1.01E+05	3.62E+04	5.43E+04	1.08E+04
BA137M	O.	1.02E+05	9.92E+04	9.47E+04	8.06E+04	5.08E+04	1.01E+04
I138	O.	1.64E+06	0.	0.	0.	0.	0.
XE138	C.	1.73E+06	0.	0.	0.	0.	0.
CS138	O.	1.74E+06	0.	0.	0.	0.	0.
I139	O.	1.34E+06	0.	0.	0.	0.	0.
XE139	O.	1.42E+06	0.	0.	0.	0.	0.

SPENT REFERENCE PWR FUEL - DECAY (CONT'D)

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	300. Y	1000. Y	3000. Y	10000. Y	30000. Y
I126	0.	1.27E+04	0.	0.	0.	0.	0.
SN129M	0.	4.02E+05	0.	0.	0.	0.	0.
SN129	0.	5.49E+03	0.	0.	0.	0.	0.
SB129	0.	4.13E+05	0.	0.	0.	0.	0.
TE129M	0.	6.07E+04	0.	0.	0.	0.	0.
TE129	0.	3.92E+05	0.	0.	0.	0.	0.
I129	0.	3.75E-02	3.79E-02	3.79E-02	3.79E-02	3.79E-02	3.79E-02
XE129M	0.	1.59E+01	0.	0.	0.	0.	0.
SN130	0.	5.82E+05	0.	0.	0.	0.	0.
SB130M	0.	6.00E+05	0.	0.	0.	0.	0.
SB130	0.	7.48E+04	0.	0.	0.	0.	0.
I130M	0.	2.69E+04	0.	0.	0.	0.	0.
I130	0.	4.13E+04	0.	0.	0.	0.	0.
SN131	0.	8.70E+05	0.	0.	0.	0.	0.
SB131	0.	9.91E+05	0.	0.	0.	0.	0.
TE131M	0.	1.49E+05	0.	0.	0.	0.	0.
TE131	0.	8.74E+05	0.	0.	0.	0.	0.
I131	0.	9.96E+05	0.	0.	0.	0.	0.
XE131M	0.	7.33E+03	0.	0.	0.	0.	0.
SN132	0.	1.13E+06	0.	0.	0.	0.	0.
SB132	0.	1.34E+06	0.	0.	0.	0.	0.
TE132	0.	1.37E+06	0.	0.	0.	0.	0.
I132	0.	1.41E+06	0.	0.	0.	0.	0.
SB133	0.	1.05E+06	0.	0.	0.	0.	0.
TE133M	0.	1.44E+06	0.	0.	0.	0.	0.
TE133	0.	5.22E+05	0.	0.	0.	0.	0.
I133	0.	1.84E+06	0.	0.	0.	0.	0.
XE133M	0.	4.47E+04	0.	0.	0.	0.	0.
XE133	0.	1.84E+06	0.	0.	0.	0.	0.
SB134	0.	8.40E-01	0.	0.	0.	0.	0.
TE134	0.	1.84E+06	0.	0.	0.	0.	0.
I134	0.	2.08E+06	0.	0.	0.	0.	0.
CS134M	0.	7.29E+04	0.	0.	0.	0.	0.
CS134	0.	2.62E+05	0.	0.	0.	0.	0.
TE135	0.	7.56E+05	0.	0.	0.	0.	0.
I135	0.	1.63E+06	0.	0.	0.	0.	0.
XE135M	0.	4.94E+05	0.	0.	0.	0.	0.
XE135	0.	3.55E+05	0.	0.	0.	0.	0.
CS135M	0.	5.34E+04	0.	0.	0.	0.	0.
CS135	0.	2.51E-01	2.52E-01	2.52E-01	2.52E-01	2.51E-01	2.50E-01
BA135M	0.	3.25E+01	0.	0.	0.	0.	0.
I136	0.	4.94E+05	0.	0.	0.	0.	0.
CS136	0.	6.62E+04	0.	0.	0.	0.	0.
I137	0.	6.55E+05	0.	0.	0.	0.	0.
XE137	0.	1.73E+06	0.	0.	0.	0.	0.
CS137	0.	1.09E+05	1.06E+02	1.00E-05	8.51E-26	0.	0.
BA137M	0.	1.02E+05	9.91E+01	9.36E-06	7.95E-26	0.	0.
I138	0.	4.03E+04	0.	0.	0.	0.	0.
XE138	0.	1.71E+06	0.	0.	0.	0.	0.
CS138	0.	1.74E+06	0.	0.	0.	0.	0.
I139	0.	2.38E+01	0.	0.	0.	0.	0.
XE139	0.	8.92E+05	0.	0.	0.	0.	0.

SPENT REFERENCE PWR FUEL - DECAY (CONT'D)

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	100000.	Y300000.	1.00E+06	3.00E+06	1.00E+07
					Y*****	Y*****	Y*****
I128	0.	1.25E+04	0.	0.	0.	0.	0.
SN129M	0.	4.09E+05	0.	0.	0.	0.	0.
SN129	0.	5.27E+03	0.	0.	0.	0.	0.
SB129	0.	4.13E+05	0.	0.	0.	0.	0.
TE129M	0.	6.67E+04	0.	0.	0.	0.	0.
TE129	0.	3.92E+05	0.	0.	0.	0.	0.
I129	0.	3.75E-02	3.78E-02	3.75E-02	3.64E-02	3.36E-02	2.52E-02
XE129M	0.	1.59E+01	0.	0.	0.	0.	0.
SN130	0.	5.05E+05	0.	0.	0.	0.	0.
SB130M	0.	5.94E+05	0.	0.	0.	0.	0.
SB130	0.	7.46E+04	0.	0.	0.	0.	0.
I130M	0.	2.58E+04	0.	0.	0.	0.	0.
I130	0.	4.13E+04	0.	0.	0.	0.	0.
SN131	0.	7.87E+05	0.	0.	0.	0.	0.
SB131	0.	9.89E+05	0.	0.	0.	0.	0.
TE131M	0.	1.49E+05	0.	0.	0.	0.	0.
TE131	0.	8.74E+05	0.	0.	0.	0.	0.
I131	0.	9.96E+05	0.	0.	0.	0.	0.
XE131M	0.	7.33E+03	0.	0.	0.	0.	0.
SN132	0.	9.59E+05	0.	0.	0.	0.	0.
SB132	0.	1.29E+06	0.	0.	0.	0.	0.
TE132	0.	1.37E+06	0.	0.	0.	0.	0.
I132	0.	1.41E+06	0.	0.	0.	0.	0.
SB133	0.	9.59E+05	0.	0.	0.	0.	0.
TE133M	0.	1.43E+06	0.	0.	0.	0.	0.
TE133	0.	5.20E+05	0.	0.	0.	0.	0.
I133	0.	1.84E+06	0.	0.	0.	0.	0.
XE133M	0.	4.47E+04	0.	0.	0.	0.	0.
XE133	0.	1.84E+06	0.	0.	0.	0.	0.
SB134	0.	3.90E-07	0.	0.	0.	0.	0.
TE134	0.	1.82E+06	0.	0.	0.	0.	0.
I134	0.	2.08E+06	0.	0.	0.	0.	0.
CS134M	0.	7.28E+04	0.	0.	0.	0.	0.
CS134	0.	2.62E+05	0.	0.	0.	0.	0.
TE135	0.	3.56E+05	0.	0.	0.	0.	0.
I135	0.	1.63E+06	0.	0.	0.	0.	0.
XE135M	0.	4.94E+05	0.	0.	0.	0.	0.
XE135	0.	3.55E+05	0.	0.	0.	0.	0.
CS135M	0.	5.30E+04	0.	0.	0.	0.	0.
CS135	0.	2.51E-01	2.46E-01	2.35E-01	2.00E-01	1.26E-01	2.50E-02
BA135M	0.	3.25E+01	0.	0.	0.	0.	0.
I136	0.	3.79E+05	0.	0.	0.	0.	0.
CS136	0.	6.62E+04	0.	0.	0.	0.	0.
I137	0.	2.53E+05	0.	0.	0.	0.	0.
XE137	0.	1.62E+06	0.	0.	0.	0.	0.
CS137	0.	1.09E+05	0.	0.	0.	0.	0.
BA137M	0.	1.02E+05	0.	0.	0.	0.	0.
I138	0.	9.89E+02	0.	0.	0.	0.	0.
XE138	0.	1.67E+06	0.	0.	0.	0.	0.
CS138	0.	1.74E+06	0.	0.	0.	0.	0.
I139	0.	4.24E-04	0.	0.	0.	0.	0.
XE139	0.	5.36E+05	0.	0.	0.	0.	0.

SPENT REFERENCE PWR FUEL - DECAY

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	1. Y	3. Y	10. Y	30. Y	100. Y
CS139	0.	1.73E+06	0.	0.	0.	0.	0.
BA139	0.	1.73E+06	0.	0.	0.	0.	0.
XE140	0.	9.90E+05	0.	0.	0.	0.	0.
CS140	0.	1.56E+06	0.	0.	0.	0.	0.
BA140	0.	1.66E+06	4.27E-03	2.81E-20	0.	0.	0.
LA140	0.	1.72E+06	4.91E-03	3.23E-20	0.	0.	0.
XE141	0.	3.67E+05	0.	0.	0.	0.	0.
CS141	0.	1.10E+06	0.	0.	0.	0.	0.
BA141	0.	1.53E+06	0.	0.	0.	0.	0.
LA141	0.	1.56E+06	0.	0.	0.	0.	0.
CE141	0.	1.58E+06	6.43E+02	1.05E-04	1.84E-28	0.	0.
XE142	0.	1.05E+05	0.	0.	0.	0.	0.
CS142	0.	8.79E+05	0.	0.	0.	0.	0.
BA142	0.	1.43E+06	0.	0.	0.	0.	0.
LA142	0.	1.51E+06	0.	0.	0.	0.	0.
PR142	0.	6.73E+04	0.	0.	0.	0.	0.
XE143	0.	2.07E+04	0.	0.	0.	0.	0.
CS143	0.	4.49E+05	0.	0.	0.	0.	0.
BA143	0.	1.12E+06	0.	0.	0.	0.	0.
LA143	0.	1.38E+06	0.	0.	0.	0.	0.
CE143	0.	1.39E+06	0.	0.	0.	0.	0.
PR143	0.	1.37E+06	1.44E-02	1.27E-16	0.	0.	0.
LA144	0.	1.26E+06	0.	0.	0.	0.	0.
CE144	0.	1.23E+06	5.04E+05	8.47E+04	1.65E+02	2.98E-06	2.35E-33
PR144	0.	1.24E+06	5.04E+05	8.47E+04	1.65E+02	2.98E-06	2.35E-33
CE145	0.	9.65E+05	0.	0.	0.	0.	0.
PR145	0.	9.65E+05	0.	0.	0.	0.	0.
CE146	0.	7.86E+05	0.	0.	0.	0.	0.
PR146	0.	7.86E+05	0.	0.	0.	0.	0.
CE147	0.	6.24E+05	0.	0.	0.	0.	0.
PR147	0.	6.24E+05	0.	0.	0.	0.	0.
ND147	0.	6.75E+05	8.39E-05	1.29E-24	0.	0.	0.
PM147	0.	1.01E+05	8.37E+04	4.93E+04	7.74E+03	3.90E+01	3.52E-07
CE148	0.	4.91E+05	0.	0.	0.	0.	0.
PR148	0.	4.93E+05	0.	0.	0.	0.	0.
PM148M	0.	3.93E+04	9.46E+01	5.49E-04	2.59E-22	0.	0.
PM148	0.	2.22E+05	7.60E+00	4.41E-05	2.08E-23	0.	0.
PR149	0.	3.38E+05	0.	0.	0.	0.	0.
VD149	0.	3.87E+05	0.	0.	0.	0.	0.
PM149	0.	7.37E+05	0.	0.	0.	0.	0.
PM150	0.	8.99E+03	0.	0.	0.	0.	0.
ND151	0.	2.06E+05	0.	0.	0.	0.	0.
PM151	0.	2.06E+05	0.	0.	0.	0.	0.
SM151	0.	1.26E+03	1.26E+03	1.24E+03	1.17E+03	9.97E+02	5.71E+02
PM152	0.	1.49E+05	0.	0.	0.	0.	0.
EU152M	0.	4.33E+02	0.	0.	0.	0.	0.
EU152	0.	1.06E+01	1.06E+01	8.92E+00	5.95E+00	1.87E+00	3.29E-02
PM153	0.	8.14E+04	0.	0.	0.	0.	0.
SM153	0.	5.82E+05	0.	0.	0.	0.	0.
GD153	0.	3.46E+01	1.22E+01	1.50E+00	9.95E-04	8.09E-13	0.
PM154	0.	6.44E+04	0.	0.	0.	0.	0.
EU154	0.	7.34E+03	7.03E+03	6.45E+03	4.76E+03	2.00E+03	9.65E+01

SPENT REFERENCE PWR FUEL - DECAY (CONT'D)

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	300. Y	1000. Y	3000. Y	10000. Y	30000. Y
CS139	0.	1.68E+06	0.	0.	0.	0.	0.
BA139	0.	1.73E+06	0.	0.	0.	0.	0.
XE140	0.	2.52E+05	0.	0.	0.	0.	0.
CS140	0.	1.27E+06	0.	0.	0.	0.	0.
BA140	0.	1.66E+06	0.	0.	0.	0.	0.
LA140	0.	1.72E+06	0.	0.	0.	0.	0.
XE141	0.	6.52E+00	0.	0.	0.	0.	0.
CS141	0.	4.55E+05	0.	0.	0.	0.	0.
BA141	0.	1.52E+06	0.	0.	0.	0.	0.
LA141	0.	1.56E+06	0.	0.	0.	0.	0.
CE141	0.	1.58E+06	0.	0.	0.	0.	0.
XE142	0.	4.87E-02	0.	0.	0.	0.	0.
CS142	0.	7.95E+01	0.	0.	0.	0.	0.
BA142	0.	1.39E+06	0.	0.	0.	0.	0.
LA142	0.	1.51E+06	0.	0.	0.	0.	0.
PR142	0.	6.72E+04	0.	0.	0.	0.	0.
XE143	0.	6.55E-06	0.	0.	0.	0.	0.
CS143	0.	8.35E+00	0.	0.	0.	0.	0.
BA143	0.	1.96E+05	0.	0.	0.	0.	0.
LA143	0.	1.36E+06	0.	0.	0.	0.	0.
CE143	0.	1.39E+06	0.	0.	0.	0.	0.
PR143	0.	1.37E+06	0.	0.	0.	0.	0.
LA144	0.	5.30E+03	0.	0.	0.	0.	0.
CE144	0.	1.23E+06	0.	0.	0.	0.	0.
PR144	0.	1.24E+06	0.	0.	0.	0.	0.
CE145	0.	8.55E+05	0.	0.	0.	0.	0.
PR145	0.	9.65E+05	0.	0.	0.	0.	0.
CE146	0.	7.65E+05	0.	0.	0.	0.	0.
PR146	0.	7.85E+05	0.	0.	0.	0.	0.
CE147	0.	4.46E+05	0.	0.	0.	0.	0.
PR147	0.	6.21E+05	0.	0.	0.	0.	0.
ND147	0.	6.75E+05	0.	0.	0.	0.	0.
PM147	0.	1.01E+05	0.	0.	0.	0.	0.
CE148	0.	2.95E+05	0.	0.	0.	0.	0.
PR148	0.	4.74E+05	0.	0.	0.	0.	0.
PM148M	0.	3.93E+04	0.	0.	0.	0.	0.
PM148	0.	2.22E+05	0.	0.	0.	0.	0.
PR149	0.	2.89E+05	0.	0.	0.	0.	0.
ND149	0.	3.87E+05	0.	0.	0.	0.	0.
PM149	0.	7.37E+05	0.	0.	0.	0.	0.
PM150	0.	8.97E+03	0.	0.	0.	0.	0.
ND151	0.	2.00E+05	0.	0.	0.	0.	0.
PM151	0.	2.06E+05	0.	0.	0.	0.	0.
SM151	0.	1.26E+03	1.16E+02	4.38E-01	5.26E-08	3.15E-32	0.
PM152	0.	1.40E+05	0.	0.	0.	0.	0.
EU152M	0.	4.32E+02	0.	0.	0.	0.	0.
EU152	0.	1.06E+01	3.15E-07	8.65E-25	0.	0.	0.
PM153	0.	7.62E+04	0.	0.	0.	0.	0.
SM153	0.	5.82E+05	0.	0.	0.	0.	0.
GD153	0.	3.46E+01	0.	0.	0.	0.	0.
PM154	0.	5.57E+04	0.	0.	0.	0.	0.
EU154	0.	7.34E+03	1.66E-02	1.12E-15	2.61E-53	0.	0.



SPENT REFERENCE PWR FUEL - DECAY (CONT'D)

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	1000000.	Y3000000.	1.00E+06 Y*****	3.00E+06 Y*****	1.00E+07 Y*****
CS139	0.	1.64E+05	0.	0.	0.	0.	0.
BA139	0.	1.73E+06	0.	0.	0.	0.	0.
XE140	0.	6.43E+04	0.	0.	0.	0.	0.
CS140	0.	9.46E+05	0.	0.	0.	0.	0.
BA140	0.	1.66E+06	0.	0.	0.	0.	0.
LA140	0.	1.72E+06	0.	0.	0.	0.	0.
XE141	0.	1.16E-04	0.	0.	0.	0.	0.
CS141	0.	1.83E+05	0.	0.	0.	0.	0.
BA141	0.	1.49E+06	0.	0.	0.	0.	0.
LA141	0.	1.56E+06	0.	0.	0.	0.	0.
CE141	0.	1.58E+06	0.	0.	0.	0.	0.
XE142	0.	2.26E-03	0.	0.	0.	0.	0.
CS142	0.	5.89E-03	0.	0.	0.	0.	0.
BA142	0.	1.34E+06	0.	0.	0.	0.	0.
LA142	0.	1.50E+06	0.	0.	0.	0.	0.
PR142	0.	6.72E+04	0.	0.	0.	0.	0.
XE143	0.	2.07E-15	0.	0.	0.	0.	0.
CS143	0.	1.48E-04	0.	0.	0.	0.	0.
BA143	0.	3.17E+04	0.	0.	0.	0.	0.
LA143	0.	1.33E+06	0.	0.	0.	0.	0.
CE143	0.	1.39E+06	0.	0.	0.	0.	0.
PR143	0.	1.37E+05	0.	0.	0.	0.	0.
LA144	0.	2.23E+01	0.	0.	0.	0.	0.
CE144	0.	1.23E+06	0.	0.	0.	0.	0.
PR144	0.	1.24E+06	0.	0.	0.	0.	0.
CE145	0.	7.57E+05	0.	0.	0.	0.	0.
PR145	0.	9.65E+05	0.	0.	0.	0.	0.
CE146	0.	7.46E+05	0.	0.	0.	0.	0.
PR146	0.	7.85E+05	0.	0.	0.	0.	0.
CE147	0.	3.18E+05	0.	0.	0.	0.	0.
PR147	0.	6.14E+05	0.	0.	0.	0.	0.
ND147	0.	6.75E+05	0.	0.	0.	0.	0.
PM147	0.	1.01E+05	0.	0.	0.	0.	0.
CE148	0.	1.78E+05	0.	0.	0.	0.	0.
PR148	0.	4.34E+05	0.	0.	0.	0.	0.
PM148M	0.	3.93E+04	0.	0.	0.	0.	0.
PM148	0.	2.22E+05	0.	0.	0.	0.	0.
PR149	0.	2.46E+05	0.	0.	0.	0.	0.
ND149	0.	3.87E+05	0.	0.	0.	0.	0.
PM149	0.	7.37E+05	0.	0.	0.	0.	0.
PM150	0.	8.95E+03	0.	0.	0.	0.	0.
ND151	0.	1.94E+05	0.	0.	0.	0.	0.
PM151	0.	2.06E+05	0.	0.	0.	0.	0.
SM151	0.	1.26E+03	0.	0.	0.	0.	0.
PM152	0.	1.32E+05	0.	0.	0.	0.	0.
EU152M	0.	4.32E+02	0.	0.	0.	0.	0.
EU152	0.	1.06E+01	0.	0.	0.	0.	0.
PM153	0.	7.13E+04	0.	0.	0.	0.	0.
SM153	0.	5.82E+05	0.	0.	0.	0.	0.
GD153	0.	3.46E+01	0.	0.	0.	0.	0.
PM154	0.	4.81E+04	0.	0.	0.	0.	0.
EU154	0.	7.34E+03	0.	0.	0.	0.	0.

## SPENT REFERENCE PWR FUEL - DECAY

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	1. Y	3. Y	10. Y	30. Y	100. Y
SM155	0.	5.02E+04	0.	0.	0.	0.	0.
EU155	0.	7.86E+03	5.36E+03	2.49E+03	1.71E+02	8.04E-02	1.83E-13
SM156	0.	2.30E+04	0.	0.	0.	0.	0.
EU156	0.	2.81E+05	1.31E-02	2.87E-17	0.	0.	0.
SM157	0.	1.63E+04	0.	0.	0.	0.	0.
EU157	0.	1.63E+04	0.	0.	0.	0.	0.
EU158	0.	7.96E+03	0.	0.	0.	0.	0.
EU159	0.	4.17E+03	0.	0.	0.	0.	0.
GD159	0.	4.89E+03	0.	0.	0.	0.	0.
EU160	0.	1.92E+03	0.	0.	0.	0.	0.
TB160	0.	1.58E+03	4.70E+01	4.19E-02	8.84E-13	2.78E-43	0.
GD161	0.	7.69E+02	0.	0.	0.	0.	0.
TB161	0.	7.69E+02	8.91E-14	1.19E-45	0.	0.	0.
GD162	0.	3.78E+02	0.	0.	0.	0.	0.
TB162M	0.	3.78E+02	0.	0.	0.	0.	0.
TB163M	0.	8.59E+01	0.	0.	0.	0.	0.
TB163	0.	8.45E+01	0.	0.	0.	0.	0.
TB164	0.	5.70E+01	0.	0.	0.	0.	0.
DY165M	0.	4.18E+02	0.	0.	0.	0.	0.
DY165	0.	1.38E+02	0.	0.	0.	0.	0.
DY166	0.	1.32E+01	0.	0.	0.	0.	0.
H0166M	0.	8.20E-04	8.20E-04	8.19E-04	8.15E-04	8.06E-04	7.74E-04
H0166	0.	1.62E+02	0.	0.	0.	0.	0.
SUBTOT	0.	1.59E+08	2.42E+06	8.34E+05	3.18E+05	1.83E+05	3.45E+04
TOTALS	0.	1.59E+08	2.42E+06	8.34E+05	3.18E+05	1.83E+05	3.45E+04

## SPENT REFERENCE PWR FUEL - DECAY (CONT'D)

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	300. Y	1000. Y	3000. Y	10000. Y	30000. Y
SM155	0.	4.94E+04	0.	0.	0.	0.	0.
EU155	0.	7.86E+03	0.	0.	0.	0.	0.
SM156	0.	2.30E+04	0.	0.	0.	0.	0.
EU156	0.	2.81E+05	0.	0.	0.	0.	0.
SM157	0.	7.85E+03	0.	0.	0.	0.	0.
EU157	0.	1.63E+04	0.	0.	0.	0.	0.
EU158	0.	7.89E+03	0.	0.	0.	0.	0.
EU159	0.	4.09E+03	0.	0.	0.	0.	0.
GD159	0.	4.89E+03	0.	0.	0.	0.	0.
EU160	0.	1.66E+03	0.	0.	0.	0.	0.
TB160	0.	1.58E+03	0.	0.	0.	0.	0.
GD161	0.	6.97E+02	0.	0.	0.	0.	0.
TB161	0.	7.69E+02	0.	0.	0.	0.	0.
GD162	0.	3.65E+02	0.	0.	0.	0.	0.
TB162M	0.	3.78E+02	0.	0.	0.	0.	0.
TB163M	0.	8.15E+01	0.	0.	0.	0.	0.
TB163	0.	8.45E+01	0.	0.	0.	0.	0.
TB164	0.	5.70E+01	0.	0.	0.	0.	0.
DY165M	0.	3.13E+02	0.	0.	0.	0.	0.
DY165	0.	1.38E+02	0.	0.	0.	0.	0.
DY166	0.	1.32E+01	0.	0.	0.	0.	0.
HU166M	0.	8.20E-04	6.90E-04	4.60E-04	1.45E-04	2.54E-06	2.44E-11
HU166	0.	1.62E+02	0.	0.	0.	0.	0.
SUBTOT	0.	1.31E+08	4.35E+02	2.09E+01	2.04E+01	1.99E+01	1.87E+01
TOTALS	0.	1.31E+08	4.35E+02	2.09E+01	2.04E+01	1.99E+01	1.87E+01

SPENT REFERENCE PWR FUEL - DECAY (CONT'D)

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

CHARGE	DISCHARGE	100000.		300000.		1.00E+06		3.00E+06		1.00E+07	
		Y*****	Y*****	Y*****	Y*****	Y*****	Y*****	Y*****	Y*****	Y*****	Y*****
SM155	0.	4.86E+04	0.	0.	0.	0.	0.	0.	0.	0.	0.
EU155	0.	7.86E+03	0.	0.	0.	0.	0.	0.	0.	0.	0.
SM156	0.	2.30E+04	0.	0.	0.	0.	0.	0.	0.	0.	0.
EU156	0.	2.81E+05	0.	0.	0.	0.	0.	0.	0.	0.	0.
SM157	0.	3.79E+03	0.	0.	0.	0.	0.	0.	0.	0.	0.
EU157	0.	1.63E+04	0.	0.	0.	0.	0.	0.	0.	0.	0.
EU158	0.	7.83E+03	0.	0.	0.	0.	0.	0.	0.	0.	0.
EU159	0.	4.01E+03	0.	0.	0.	0.	0.	0.	0.	0.	0.
GD159	0.	4.89E+03	0.	0.	0.	0.	0.	0.	0.	0.	0.
EU160	0.	1.43E+03	0.	0.	0.	0.	0.	0.	0.	0.	0.
TB160	0.	1.58E+03	0.	0.	0.	0.	0.	0.	0.	0.	0.
GD161	0.	6.31E+02	0.	0.	0.	0.	0.	0.	0.	0.	0.
TB161	0.	7.69E+02	0.	0.	0.	0.	0.	0.	0.	0.	0.
GD162	0.	3.53E+02	0.	0.	0.	0.	0.	0.	0.	0.	0.
TB162M	0.	3.77E+02	0.	0.	0.	0.	0.	0.	0.	0.	0.
TB163M	0.	7.74E+01	0.	0.	0.	0.	0.	0.	0.	0.	0.
TB163	0.	8.44E+01	0.	0.	0.	0.	0.	0.	0.	0.	0.
TB164	0.	5.70E+01	0.	0.	0.	0.	0.	0.	0.	0.	0.
DY165M	0.	2.34E+02	0.	0.	0.	0.	0.	0.	0.	0.	0.
DY165	0.	1.37E+02	0.	0.	0.	0.	0.	0.	0.	0.	0.
DY166	0.	1.32E+01	0.	0.	0.	0.	0.	0.	0.	0.	0.
HU166M	0.	8.20E-04	0.	0.	0.	0.	0.	0.	0.	0.	0.
HU166	0.	1.62E+02	0.	0.	0.	0.	0.	0.	0.	0.	0.
SUBTOT	0.	1.22E+08	1.55E+01	9.23E+00	3.23E+00	1.18E+00	1.30E-01				
TOTALS	0.	1.22E+08	1.53E+01	9.23E+00	3.23E+00	1.18E+00	1.30E-01				



SPENT REFERENCE PWR FUEL - DECAY (CONT'D)

POWER= 34.40MW, BURNUP= 35000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	300. Y	1000. Y	3000. Y	10000. Y	30000. Y
TL207	0.	6.25E-07	1.14E-04	3.33E-04	9.60E-04	3.13E-03	8.86E-03
TL208	0.	4.36E-04	4.31E-04	5.14E-07	1.55E-08	5.73E-08	1.96E-07
TL209	0.	3.75E-09	2.05E-07	2.83E-06	3.21E-05	3.45E-04	1.99E-03
PB209	0.	1.71E-07	9.33E-06	1.29E-04	1.46E-03	1.57E-02	9.02E-02
PB210	0.	3.66E-10	1.94E-04	2.48E-03	1.90E-02	1.11E-01	3.61E-01
PB211	0.	6.27E-07	1.14E-04	3.34E-04	9.63E-04	3.14E-03	8.89E-03
PB212	0.	1.21E-03	1.20E-03	1.43E-06	4.29E-08	1.59E-07	5.43E-07
PB214	0.	1.12E-08	1.94E-04	2.48E-03	1.90E-02	1.11E-01	3.61E-01
BI210	0.	3.66E-10	1.94E-04	2.48E-03	1.90E-02	1.11E-01	3.61E-01
BI211	0.	6.27E-07	1.14E-04	3.34E-04	9.63E-04	3.14E-03	8.89E-03
BI212	0.	1.21E-03	1.20E-03	1.43E-06	4.29E-08	1.59E-07	5.43E-07
BI213	0.	1.71E-07	9.33E-06	1.29E-04	1.46E-03	1.57E-02	9.02E-02
BI214	0.	1.12E-08	1.94E-04	2.48E-03	1.90E-02	1.11E-01	3.61E-01
PO210	0.	2.21E-10	1.94E-04	2.48E-03	1.90E-02	1.11E-01	3.61E-01
PO211	0.	1.89E-09	3.42E-07	1.00E-06	2.89E-06	9.42E-06	2.67E-05
PO212	0.	7.75E-04	7.66E-04	9.15E-07	2.75E-08	1.02E-07	3.48E-07
PO213	0.	1.67E-07	9.13E-06	1.26E-04	1.43E-03	1.53E-02	8.82E-02
PO214	0.	1.12E-08	1.94E-04	2.48E-03	1.90E-02	1.11E-01	3.61E-01
PO215	0.	6.27E-07	1.14E-04	3.34E-04	9.63E-04	3.14E-03	8.89E-03
PO216	0.	1.21E-03	1.20E-03	1.43E-06	4.29E-08	1.59E-07	5.43E-07
PO218	0.	1.12E-08	1.94E-04	2.48E-03	1.90E-02	1.11E-01	3.61E-01
AT217	0.	1.71E-07	9.33E-06	1.29E-04	1.46E-03	1.57E-02	9.02E-02
RN219	0.	6.27E-07	1.14E-04	3.34E-04	9.63E-04	3.14E-03	8.89E-03
RN220	0.	1.21E-03	1.20E-03	1.43E-06	4.29E-08	1.59E-07	5.43E-07
RN222	0.	1.12E-08	1.94E-04	2.48E-03	1.90E-02	1.11E-01	3.61E-01
FR221	0.	1.71E-07	9.33E-06	1.29E-04	1.46E-03	1.57E-02	9.02E-02
FR223	0.	9.73E-09	1.60E-06	4.68E-06	1.35E-05	4.40E-05	1.24E-04
RA223	0.	6.27E-07	1.14E-04	3.34E-04	9.63E-04	3.14E-03	8.89E-03
RA224	0.	1.21E-03	1.20E-03	1.43E-06	4.29E-08	1.59E-07	5.43E-07
RA225	0.	1.78E-07	9.33E-06	1.29E-04	1.46E-03	1.57E-02	9.02E-02
RA226	0.	1.12E-08	1.94E-04	2.48E-03	1.90E-02	1.11E-01	3.61E-01
RA228	0.	2.02E-12	4.05E-09	1.37E-08	4.29E-08	1.59E-07	5.43E-07
AC225	0.	1.71E-07	9.33E-06	1.29E-04	1.46E-03	1.57E-02	9.02E-02
AC227	0.	6.95E-07	1.14E-04	3.34E-04	9.63E-04	3.14E-03	8.89E-03
AC228	0.	2.02E-12	4.05E-09	1.37E-08	4.29E-08	1.59E-07	5.43E-07
TH227	0.	6.43E-07	1.13E-04	3.30E-04	9.49E-04	3.10E-03	8.76E-03
TH228	0.	1.21E-03	1.20E-03	1.43E-06	4.29E-08	1.59E-07	5.43E-07
TH229	0.	2.80E-08	9.33E-06	1.29E-04	1.46E-03	1.57E-02	9.02E-02
TH230	0.	1.38E-05	3.48E-03	1.39E-02	4.37E-02	1.43E-01	3.86E-01
TH231	0.	7.31E-01	1.49E-02	1.51E-02	1.57E-02	1.75E-02	2.12E-02
TH232	0.	2.13E-11	4.05E-09	1.37E-08	4.29E-08	1.59E-07	5.43E-07
TH233	0.	1.78E-02	0.	0.	0.	0.	0.
TH234	3.23E-01	3.15E-01	3.15E-01	3.15E-01	3.15E-01	3.15E-01	3.15E-01
PA231	0.	1.97E-05	1.14E-04	3.34E-04	9.62E-04	3.14E-03	8.88E-03
PA232	0.	3.44E-01	0.	0.	0.	0.	0.
PA233	0.	3.16E-01	6.39E-01	9.69E-01	1.12E+00	1.13E+00	1.12E+00
PA234M	3.23E-01	3.21E-01	3.15E-01	3.15E-01	3.15E-01	3.15E-01	3.15E-01
PA234	3.23E-04	7.50E-03	3.15E-04	3.15E-04	3.15E-04	3.15E-04	3.15E-04
U232	0.	5.41E-03	1.16E-03	1.38E-06	5.98E-15	3.21E-44	0.
U233	0.	4.16E-05	6.82E-04	3.18E-03	1.24E-02	4.53E-02	1.34E-01
U234	1.52E+00	6.72E-01	1.65E+00	1.75E+00	1.74E+00	1.71E+00	1.64E+00
U235	6.56E-02	1.48E-02	1.49E-02	1.51E-02	1.57E-02	1.75E-02	2.12E-02

## SPENT REFERENCE PWR FUEL - DECAY (CONT'D)

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

NUCLIDE	CHARGE	DISCHARGE			Y*****		
		100000.	Y300000.	Y*****	1.00E+06	3.00E+06	1.00E+07
TL207	0.	6.25E-07	2.10E-02	2.60E-02	2.61E-02	2.61E-02	2.59E-02
TL208	0.	4.36E-04	7.28E-07	2.18E-06	7.19E-06	2.10E-05	6.33E-05
TL209	0.	3.75E-09	8.32E-03	1.70E-02	1.88E-02	9.96E-03	9.53E-04
PB209	0.	1.71E-07	3.78E-01	7.73E-01	8.53E-01	4.53E-01	4.33E-02
PB210	0.	3.66E-10	8.95E-01	1.06E+00	4.43E-01	3.24E-01	3.14E-01
PB211	0.	6.27E-07	2.10E-02	2.61E-02	2.62E-02	2.61E-02	2.60E-02
PB212	0.	1.21E-03	2.02E-06	6.05E-06	2.00E-05	5.82E-05	1.76E-04
PB214	0.	1.12E-08	8.95E-01	1.06E+00	4.43E-01	3.24E-01	3.14E-01
BI210	0.	3.66E-10	8.95E-01	1.06E+00	4.43E-01	3.24E-01	3.14E-01
BI211	0.	6.27E-07	2.10E-02	2.61E-02	2.62E-02	2.61E-02	2.60E-02
BI212	0.	1.21E-03	2.02E-06	6.05E-06	2.00E-05	5.82E-05	1.76E-04
BI213	0.	1.71E-07	3.78E-01	7.73E-01	8.53E-01	4.53E-01	4.33E-02
BI214	0.	1.12E-08	8.95E-01	1.06E+00	4.43E-01	3.24E-01	3.14E-01
PO210	0.	2.21E-10	8.95E-01	1.06E+00	4.43E-01	3.24E-01	3.14E-01
PO211	0.	1.89E-09	6.31E-05	7.84E-05	7.85E-05	7.84E-05	7.79E-05
PO212	0.	7.75E-04	1.29E-06	3.87E-06	1.28E-05	3.73E-05	1.13E-04
PO213	0.	1.67E-07	3.70E-01	7.56E-01	8.34E-01	4.43E-01	4.24E-02
PO214	0.	1.12E-08	8.95E-01	1.06E+00	4.43E-01	3.24E-01	3.14E-01
PO215	0.	6.27E-07	2.10E-02	2.61E-02	2.62E-02	2.61E-02	2.60E-02
PO216	0.	1.21E-03	2.02E-06	6.05E-06	2.00E-05	5.82E-05	1.76E-04
PO218	0.	1.12E-08	8.95E-01	1.06E+00	4.43E-01	3.24E-01	3.14E-01
AT217	0.	1.71E-07	3.78E-01	7.73E-01	8.53E-01	4.53E-01	4.33E-02
RN219	0.	6.27E-07	2.10E-02	2.61E-02	2.62E-02	2.61E-02	2.60E-02
RN220	0.	1.21E-03	2.02E-06	6.05E-06	2.00E-05	5.82E-05	1.76E-04
RN222	0.	1.12E-08	8.95E-01	1.06E+00	4.43E-01	3.24E-01	3.14E-01
FR221	0.	1.71E-07	3.78E-01	7.73E-01	8.53E-01	4.53E-01	4.33E-02
FR223	0.	9.73E-09	2.94E-04	3.66E-04	3.67E-04	3.66E-04	3.63E-04
RA223	0.	6.27E-07	2.10E-02	2.61E-02	2.62E-02	2.61E-02	2.60E-02
RA224	0.	1.21E-03	2.02E-06	6.05E-06	2.00E-05	5.82E-05	1.76E-04
RA225	0.	1.78E-07	3.78E-01	7.73E-01	8.53E-01	4.53E-01	4.33E-02
RA226	0.	1.12E-08	8.95E-01	1.06E+00	4.43E-01	3.24E-01	3.14E-01
RA228	0.	2.02E-12	2.02E-06	6.05E-06	2.00E-05	5.82E-05	1.76E-04
AC225	0.	1.71E-07	3.78E-01	7.73E-01	8.53E-01	4.53E-01	4.33E-02
AC227	0.	6.95E-07	2.10E-02	2.61E-02	2.62E-02	2.61E-02	2.60E-02
AC228	0.	2.02E-12	2.02E-06	6.05E-06	2.00E-05	5.82E-05	1.76E-04
TH227	0.	6.43E-07	2.07E-02	2.58E-02	2.58E-02	2.58E-02	2.56E-02
TH228	0.	1.21E-03	2.02E-06	6.05E-06	2.00E-05	5.82E-05	1.76E-04
TH229	0.	2.80E-08	3.78E-01	7.73E-01	8.53E-01	4.53E-01	4.33E-02
TH230	0.	1.38E-05	8.95E-01	1.05E+00	4.43E-01	3.24E-01	3.14E-01
TH231	0.	7.31E-01	2.55E-02	2.62E-02	2.62E-02	2.61E-02	2.60E-02
TH232	0.	2.13E-11	2.02E-06	6.05E-06	2.00E-05	5.82E-05	1.76E-04
TH233	0.	1.75E-02	0.	0.	0.	0.	0.
TH234	3.23E-01	3.15E-01	3.15E-01	3.15E-01	3.15E-01	3.15E-01	3.14E-01
PA231	0.	1.97E-05	2.10E-02	2.61E-02	2.62E-02	2.61E-02	2.60E-02
PA232	0.	3.43E-01	0.	0.	0.	0.	0.
PA233	0.	3.16E-01	1.07E+00	1.00E+00	7.99E-01	4.18E-01	4.33E-02
PA234M	3.23E-01	3.19E-01	3.15E-01	3.15E-01	3.15E-01	3.15E-01	3.14E-01
PA234	3.23E-04	7.50E-03	3.15E-04	3.15E-04	3.15E-04	3.15E-04	3.14E-04
U232	0.	5.41E-03	0.	0.	0.	0.	0.
U233	0.	4.16E-05	3.78E-01	7.54E-01	8.48E-01	4.52E-01	4.33E-02
U234	1.52E+00	6.72E-01	1.40E+00	9.35E-01	4.02E-01	3.15E-01	3.14E-01
U235	6.56E-02	1.48E-02	2.55E-02	2.62E-02	2.62E-02	2.61E-02	2.60E-02

SPENT REFERENCE PWR FUEL - DECAY

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	1. Y	3. Y	10. Y	30. Y	100. Y
U236	0.	2.71E-01	2.71E-01	2.71E-01	2.71E-01	2.72E-01	2.73E-01
U237	0.	9.73E+05	2.52E+00	2.30E+00	1.65E+00	6.37E-01	2.30E-02
U238	3.23E-01	3.15E-01	3.15E-01	3.15E-01	3.15E-01	3.15E-01	3.15E-01
U239	0.	2.21E+07	0.	0.	0.	0.	0.
U240	0.	2.20E-15	1.12E-14	2.93E-14	9.24E-14	2.73E-13	9.04E-13
NP236	0.	3.43E+00	0.	0.	0.	0.	0.
NP237	0.	3.28E-01	3.36E-01	3.36E-01	3.39E-01	3.53E-01	4.27E-01
NP238	0.	4.66E+05	0.	0.	0.	0.	0.
NP239	0.	2.21E+07	2.11E+01	2.11E+01	2.10E+01	2.10E+01	2.09E+01
NP240M	0.	2.20E-15	1.12E-14	2.93E-14	9.24E-14	2.73E-13	9.04E-13
NP240	0.	4.66E+04	0.	0.	0.	0.	0.
PU236	0.	3.74E-01	2.95E-01	1.81E-01	3.30E-02	2.55E-04	1.03E-11
PU238	0.	2.78E+03	2.93E+03	2.92E+03	2.77E+03	2.37E+03	1.37E+03
PU239	0.	3.18E+02	3.24E+02	3.24E+02	3.24E+02	3.23E+02	3.23E+02
PU240	0.	4.90E+02	4.90E+02	4.91E+02	4.92E+02	4.94E+02	4.93E+02
PU241	0.	1.10E+05	1.05E+05	9.55E+04	6.85E+04	2.65E+04	9.55E+02
PU242	0.	1.53E+00	1.53E+00	1.53E+00	1.53E+00	1.53E+00	1.53E+00
PU243	0.	4.73E+05	3.55E-07	3.55E-07	3.55E-07	3.55E-07	3.55E-07
PU244	0.	2.21E-15	1.12E-14	2.93E-14	9.25E-14	2.73E-13	9.05E-13
PU245	0.	3.46E-10	0.	0.	0.	0.	0.
AM241	0.	7.78E+01	2.50E+02	5.69E+02	1.47E+03	2.81E+03	3.31E+03
AM242M	0.	8.36E+00	8.32E+00	8.25E+00	7.99E+00	7.29E+00	5.30E+00
AM242	0.	6.83E+04	8.32E+00	8.25E+00	7.99E+00	7.29E+00	5.30E+00
AM243	0.	2.10E+01	2.11E+01	2.11E+01	2.10E+01	2.10E+01	2.09E+01
AM244	0.	1.70E+05	1.46E-17	3.81E-17	1.20E-16	3.55E-16	1.18E-15
AM245	0.	8.48E-08	3.77E-08	7.53E-09	2.66E-11	2.64E-18	8.09E-43
CM242	0.	3.45E+04	7.34E+03	3.35E+02	6.56E+00	5.98E+00	4.35E+00
CM243	0.	3.96E+00	3.88E+00	3.71E+00	3.19E+00	2.07E+00	4.54E-01
CM244	0.	3.00E+03	2.89E+03	2.68E+03	2.05E+03	9.51E+02	6.52E+01
CM245	0.	4.32E-01	4.32E-01	4.32E-01	4.32E-01	4.31E-01	4.28E-01
CM246	0.	9.20E-02	9.20E-02	9.20E-02	9.19E-02	9.16E-02	9.07E-02
CM247	0.	3.55E-07	3.55E-07	3.55E-07	3.55E-07	3.55E-07	3.55E-07
CM248	0.	1.18E-06	1.18E-06	1.18E-06	1.18E-06	1.18E-06	1.18E-06
CM249	0.	4.54E-02	1.72E-14	7.72E-27	0.	0.	0.
CM250	0.	1.73E-13	1.73E-13	1.73E-13	1.73E-13	1.73E-13	1.72E-13
BK249	0.	5.63E-03	2.52E-03	5.02E-04	1.77E-06	1.76E-13	5.39E-38
BK250	0.	1.20E-02	1.73E-13	1.73E-13	1.73E-13	1.73E-13	1.72E-13
CF249	0.	1.52E-06	9.13E-06	1.40E-05	1.50E-05	1.44E-05	1.26E-05
CF250	0.	6.03E-05	5.75E-05	5.17E-05	3.57E-05	1.24E-05	3.03E-07
CF251	0.	4.48E-07	4.48E-07	4.47E-07	4.45E-07	4.38E-07	4.15E-07
CF252	0.	8.79E-05	6.77E-05	4.01E-05	6.40E-06	3.39E-08	3.68E-16
CF253	0.	8.26E-06	5.53E-12	2.48E-24	0.	0.	0.
CF254	0.	2.45E-09	3.73E-11	6.64E-15	1.64E-27	7.30E-64	0.
ES253	0.	5.69E-06	2.45E-10	6.92E-21	0.	0.	0.
SUBTOT	2.56E+00	4.65E+07	1.19E+05	1.03E+05	7.57E+04	3.35E+04	6.58E+03
TOTALS	2.56E+00	4.65E+07	1.19E+05	1.03E+05	7.57E+04	3.35E+04	6.58E+03



## SPENT REFERENCE PWR FUEL - DECAY (CONT'D)

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	300. Y	1000. Y	3000. Y	10000. Y	30000. Y
U236	0.	2.71E-01	2.76E-01	2.85E-01	3.09E-01	3.61E-01	4.05E-01
U237	0.	9.73E+05	1.18E-05	9.55E-06	8.07E-06	4.49E-06	8.39E-07
U238	3.23E-01	3.15E-01	3.15E-01	3.15E-01	3.15E-01	3.15E-01	3.15E-01
U239	0.	2.18E+07	0.	0.	0.	0.	0.
U240	0.	2.20E-15	2.71E-12	9.01E-12	2.70E-11	8.93E-11	2.63E-10
NP236	0.	3.43E+00	0.	0.	0.	0.	0.
NP237	0.	3.28E-01	6.39E-01	9.69E-01	1.12E+00	1.13E+00	1.12E+00
NP238	0.	4.60E+05	0.	0.	0.	0.	0.
NP239	0.	2.21E+07	2.05E+01	1.92E+01	1.61E+01	8.51E+00	1.39E+00
NP240M	0.	2.20E-15	2.71E-12	9.01E-12	2.70E-11	8.93E-11	2.63E-10
NP240	0.	4.64E+04	0.	0.	0.	0.	0.
PU236	0.	3.74E-01	0.	0.	0.	0.	0.
PU238	0.	2.78E+03	2.91E+02	1.40E+00	8.39E-06	2.59E-19	6.31E-59
PU239	0.	3.18E+02	3.21E+02	3.15E+02	2.99E+02	2.47E+02	1.42E+02
PU240	0.	4.90E+02	4.85E+02	4.49E+02	3.66E+02	1.79E+02	2.30E+01
PU241	0.	1.10E+05	4.94E-01	3.98E-01	3.36E-01	1.87E-01	3.49E-02
PU242	0.	1.53E+00	1.53E+00	1.53E+00	1.52E+00	1.50E+00	1.45E+00
PU243	0.	4.72E+05	3.55E-07	3.55E-07	3.55E-07	3.55E-07	3.55E-07
PU244	0.	2.21E-15	2.71E-12	9.03E-12	2.70E-11	8.94E-11	2.63E-10
PU245	0.	3.46E-10	0.	0.	0.	0.	0.
AM241	0.	7.78E+01	2.43E+03	7.91E+02	3.25E+01	1.88E-01	3.49E-02
AM242M	0.	8.36E+00	2.13E+00	8.74E-02	9.56E-06	1.31E-19	3.18E-59
AM242	0.	6.83E+04	2.13E+00	8.74E-02	9.56E-06	1.31E-19	3.18E-59
AM243	0.	2.10E+01	2.05E+01	1.92E+01	1.61E+01	8.51E+00	1.39E+00
AM244	0.	1.67E+05	3.52E-15	1.17E-14	3.51E-14	1.16E-13	3.42E-13
AM245	0.	8.48E-08	0.	0.	0.	0.	0.
CM242	0.	3.45E+04	1.75E+00	7.17E-02	7.84E-06	1.07E-19	2.62E-59
CM243	0.	3.96E+00	5.96E-03	1.55E-09	2.36E-28	0.	0.
CM244	0.	3.00E+03	3.07E-02	8.16E-14	3.51E-14	1.16E-13	3.42E-13
CM245	0.	4.32E-01	4.21E-01	3.97E-01	3.36E-01	1.87E-01	3.49E-02
CM246	0.	9.20E-02	8.81E-02	7.94E-02	5.92E-02	2.11E-02	1.11E-03
CM247	0.	3.55E-07	3.55E-07	3.55E-07	3.55E-07	3.55E-07	3.55E-07
CM248	0.	1.18E-06	1.18E-06	1.17E-06	1.17E-06	1.15E-06	1.11E-06
CM249	0.	4.52E-02	0.	0.	0.	0.	0.
CM250	0.	1.73E-13	1.71E-13	1.66E-13	1.54E-13	1.16E-13	5.24E-14
BK249	0.	5.63E-03	0.	0.	0.	0.	0.
BK250	0.	1.20E-02	1.71E-13	1.66E-13	1.54E-13	1.16E-13	5.24E-14
CF249	0.	1.52E-06	8.49E-06	2.14E-06	4.16E-08	4.29E-14	3.36E-31
CF250	0.	6.03E-05	7.72E-12	1.66E-13	1.54E-13	1.16E-13	5.24E-14
CF251	0.	4.48E-07	3.56E-07	2.08E-07	4.45E-08	2.03E-10	4.13E-17
CF252	0.	8.79E-05	0.	0.	0.	0.	0.
CF253	0.	8.26E-06	0.	0.	0.	0.	0.
CF254	0.	2.45E-09	0.	0.	0.	0.	0.
ES253	0.	5.69E-06	0.	0.	0.	0.	0.
SUBTOT	2.56E+00	4.62E+07	3.58E+03	1.60E+03	7.37E+02	4.51E+02	1.79E+02
TOTALS	2.56E+00	4.62E+07	3.58E+03	1.60E+03	7.37E+02	4.51E+02	1.79E+02

SPENT REFERENCE PWR FUEL - DECAY (CONT'D)

POWER= 34.40MW, BURNUP= 35000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

		CHARGE	DISCHARGE	100000. Y	300000. Y	1.00E+06 Y	3.00E+06 Y	1.00E+07 Y
U236	L.	2.71E-01	4.11E-01	4.09E-01	4.00E-01	3.75E-01	3.08E-01	
U237	U.	9.73E+05	2.36E-09	1.23E-16	3.89E-42	0.	0.	
U238	3.23E-01	3.15E-01	3.15E-01	3.15E-01	3.15E-01	3.15E-01	3.14E-01	
U239	U.	2.14E+07	0.	0.	0.	0.	0.	
U240	U.	2.20E-15	8.19E-10	2.04E-09	3.92E-09	4.47E-09	4.23E-09	
NP236	U.	3.43E+00	0.	0.	0.	0.	0.	
NP237	U.	3.28E-01	1.07E+00	1.00E+00	7.99E-01	4.18E-01	4.33E-02	
NP238	U.	4.66E+05	0.	0.	0.	0.	0.	
NP239	U.	2.21E+07	2.44E-03	3.51E-07	3.41E-07	3.13E-07	2.33E-07	
NP240M	U.	2.20E-15	8.19E-10	2.04E-09	3.92E-09	4.47E-09	4.23E-09	
NP240	U.	4.61E+04	0.	0.	0.	0.	0.	
PU236	U.	3.74E-01	0.	0.	0.	0.	0.	
PU238	U.	2.78E+03	0.	0.	0.	0.	0.	
PU239	U.	3.18E+02	1.95E+01	6.63E-02	3.41E-07	3.13E-07	2.33E-07	
PU240	L.	4.90E+02	1.75E-02	2.07E-09	3.93E-09	4.48E-09	4.24E-09	
PU241	U.	1.10E+05	9.85E-05	5.11E-12	1.62E-37	0.	0.	
PU242	U.	1.53E+00	1.27E+00	8.84E-01	2.46E-01	6.33E-03	1.74E-03	
PU243	U.	4.72E+05	3.54E-07	3.51E-07	3.41E-07	3.13E-07	2.33E-07	
PU244	L.	2.21E-15	8.20E-10	2.04E-09	3.93E-09	4.48E-09	4.24E-09	
PU245	U.	3.46E-10	0.	0.	0.	0.	0.	
AM241	U.	7.78E+01	1.04E-04	5.39E-12	1.71E-37	0.	0.	
AM242M	U.	8.36E+00	0.	0.	0.	0.	0.	
AM242	U.	6.83E+04	0.	0.	0.	0.	0.	
AM243	U.	2.10E+01	2.44E-03	3.51E-07	3.41E-07	3.13E-07	2.33E-07	
AM244	U.	1.65E+05	1.07E-12	2.66E-12	5.10E-12	5.82E-12	5.51E-12	
AM245	U.	8.48E-08	0.	0.	0.	0.	0.	
CM242	U.	3.45E+04	0.	0.	0.	0.	0.	
CM243	U.	3.96E+00	0.	0.	0.	0.	0.	
CM244	U.	3.00E+03	1.07E-12	2.66E-12	5.10E-12	5.82E-12	5.51E-12	
CM245	U.	4.32E-01	9.83E-05	5.10E-12	1.62E-37	0.	0.	
CM246	L.	9.20E-02	3.74E-08	1.11E-18	1.15E-30	2.92E-65	0.	
CM247	U.	3.55E-07	3.54E-07	3.51E-07	3.41E-07	3.13E-07	2.33E-07	
CM248	U.	1.18E-06	9.67E-07	6.52E-07	1.64E-07	3.20E-09	3.30E-15	
CM249	U.	4.49E-02	0.	0.	0.	0.	0.	
CM250	U.	1.73E-13	3.22E-15	1.12E-18	8.63E-31	2.15E-65	0.	
BK249	U.	5.63E-03	0.	0.	0.	0.	0.	
BK250	U.	1.20E-02	3.22E-15	1.12E-18	8.63E-31	2.15E-65	0.	
CF249	U.	1.52E-06	0.	0.	0.	0.	0.	
CF250	U.	6.03E-05	3.22E-15	1.12E-18	8.64E-31	2.15E-65	0.	
CF251	U.	4.48E-07	0.	0.	0.	0.	0.	
CF252	L.	8.79E-05	0.	0.	0.	0.	0.	
CF253	U.	8.26E-06	0.	0.	0.	0.	0.	
CF254	L.	2.45E-09	0.	0.	0.	0.	0.	
ES253	U.	5.69E-06	0.	0.	0.	0.	0.	
SUBTOT		2.56E+00	4.58E+07	3.82E+01	2.31E+01	1.60E+01	1.01E+01	5.47E+00
TOTALS		2.56E+00	4.58E+07	3.82E+01	2.31E+01	1.60E+01	1.01E+01	5.47E+00

SPENT REFERENCE PWR FUEL - DECAY

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	1. Y	3. Y	10. Y	30. Y	100. Y
H 3	0.	2.73E-08	2.58E-08	2.31E-08	1.56E-08	5.04E-09	9.75E-11
AR 41	0.	5.01E-13	0.	0.	0.	0.	0.
K 42	0.	3.42E-16	0.	0.	0.	0.	0.
K 43	0.	1.10E-20	0.	0.	0.	0.	0.
K 44	0.	1.15E-12	0.	0.	0.	0.	0.
CA 45	0.	9.27E-12	2.00E-12	9.29E-14	2.01E-18	9.43E-32	0.
CA 47	0.	4.04E-09	0.	0.	0.	0.	0.
SC 46	0.	9.55E-14	4.67E-15	1.12E-17	2.10E-26	1.29E-52	0.
SC 47	0.	1.94E-05	0.	0.	0.	0.	0.
SC 48	0.	2.44E-05	0.	0.	0.	0.	0.
SC 49	0.	4.47E-06	0.	0.	0.	0.	0.
SC 50	0.	4.47E-07	0.	0.	0.	0.	0.
TI 51	0.	7.73E-03	0.	0.	0.	0.	0.
V 52	0.	1.43E+01	0.	0.	0.	0.	0.
V 53	0.	4.98E-02	0.	0.	0.	0.	0.
V 54	0.	5.78E-04	0.	0.	0.	0.	0.
CR 51	0.	1.22E+03	1.35E-01	1.66E-09	3.40E-37	0.	0.
CR 55	0.	1.73E+01	0.	0.	0.	0.	0.
MN 54	0.	2.06E+01	8.94E+00	1.68E+00	4.84E-03	2.67E-10	1.06E-35
MN 56	0.	9.55E+00	0.	0.	0.	0.	0.
MN 57	0.	6.89E-02	0.	0.	0.	0.	0.
MN 58	0.	2.16E-04	0.	0.	0.	0.	0.
FE 55	0.	1.56E+02	1.19E+02	7.00E+01	1.08E+01	5.23E-02	4.10E-10
FE 59	0.	1.21E+01	4.35E-02	5.64E-07	4.43E-24	0.	0.
CO 58	0.	1.26E+01	3.61E-01	2.97E-04	4.76E-15	6.80E-46	0.
CO 60M	0.	1.21E+00	0.	0.	0.	0.	0.
CO 60	0.	3.21E-01	2.81E-01	2.16E-01	8.58E-02	6.15E-03	6.06E-07
CO 61	0.	1.78E-02	0.	0.	0.	0.	0.
CO 62	0.	9.61E-04	0.	0.	0.	0.	0.
NI 59	0.	4.85E-03	4.85E-03	4.85E-03	4.85E-03	4.85E-03	4.85E-03
NI 63	0.	7.73E-01	7.67E-01	7.56E-01	7.17E-01	6.17E-01	3.64E-01
NI 65	0.	1.19E+00	0.	0.	0.	0.	0.
CU 64	0.	5.64E-03	0.	0.	0.	0.	0.
CU 66	0.	8.05E-03	0.	0.	0.	0.	0.
ZN 65	0.	5.21E-07	1.85E-07	2.35E-08	1.69E-11	1.79E-20	0.
SR 89	0.	4.21E+01	3.24E-01	1.91E-05	3.01E-20	1.53E-62	0.
SR 90	0.	9.58E-04	9.35E-04	8.90E-04	7.49E-04	4.57E-04	8.13E-05
SR 91	0.	8.22E+00	0.	0.	0.	0.	0.
Y 90	0.	1.56E+03	9.35E-04	8.90E-04	7.49E-04	4.57E-04	8.13E-05
Y 91M	0.	4.88E+00	0.	0.	0.	0.	0.
Y 91	0.	1.11E+02	1.49E+00	2.71E-04	2.20E-17	8.74E-55	0.
ZR 93	0.	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
ZR 95	0.	3.26E+04	6.63E+02	2.74E-01	3.95E-13	5.78E-47	0.
NB 93M	0.	6.11E-03	1.08E-02	1.94E-02	4.37E-02	7.98E-02	9.96E-02
NB 94	0.	1.02E-13	1.02E-13	1.02E-13	1.02E-13	1.02E-13	1.02E-13
NB 95	0.	3.14E+04	1.43E+03	6.04E-01	8.38E-13	1.23E-46	0.
NB 96	0.	1.79E+01	0.	0.	0.	0.	0.
NB 97	0.	6.17E-07	0.	0.	0.	0.	0.
MO 99	0.	4.58E-06	0.	0.	0.	0.	0.
TC 99M	0.	3.98E-06	0.	0.	0.	0.	0.
TC 99	0.	5.99E-12	6.17E-12	6.17E-12	6.17E-12	6.17E-12	6.17E-12
CD115	0.	1.95E-03	0.	0.	0.	0.	0.

SPENT REFERENCE PWR FUEL - DECAY (CONT'D)

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	300. Y	1000. Y	3000. Y	10000. Y	30000. Y
H 3	0.	2.73E-08	1.24E-15	9.13E-33	0.	0.	0.
AR 41	0.	5.00E-13	0.	0.	0.	0.	0.
K 42	0.	3.42E-16	0.	0.	0.	0.	0.
K 43	0.	1.10E-20	0.	0.	0.	0.	0.
K 44	0.	1.13E-12	0.	0.	0.	0.	0.
CA 45	0.	9.27E-12	0.	0.	0.	0.	0.
CA 47	0.	4.04E-09	0.	0.	0.	0.	0.
SC 46	0.	9.55E-14	0.	0.	0.	0.	0.
SC 47	0.	1.94E-05	0.	0.	0.	0.	0.
SC 48	0.	2.44E-05	0.	0.	0.	0.	0.
SC 49	0.	4.44E-06	0.	0.	0.	0.	0.
SC 50	0.	3.62E-07	0.	0.	0.	0.	0.
TI 51	0.	7.26E-03	0.	0.	0.	0.	0.
V 52	0.	1.28E+01	0.	0.	0.	0.	0.
V 53	0.	4.15E-02	0.	0.	0.	0.	0.
V 54	0.	3.88E-04	0.	0.	0.	0.	0.
CR 51	0.	1.22E+03	0.	0.	0.	0.	0.
CR 55	0.	1.56E+01	0.	0.	0.	0.	0.
MN 54	0.	2.06E+01	0.	0.	0.	0.	0.
MN 56	0.	9.53E+00	0.	0.	0.	0.	0.
MN 57	0.	5.56E-02	0.	0.	0.	0.	0.
MN 58	0.	1.55E-04	0.	0.	0.	0.	0.
FE 55	0.	1.56E+02	0.	0.	0.	0.	0.
FE 59	0.	1.21E+01	0.	0.	0.	0.	0.
CO 58	0.	1.26E+01	0.	0.	0.	0.	0.
CO 60M	0.	1.17E+00	0.	0.	0.	0.	0.
CO 60	0.	3.21E-01	2.16E-18	0.	0.	0.	0.
CO 61	0.	1.77E-02	0.	0.	0.	0.	0.
CO 62	0.	9.36E-04	0.	0.	0.	0.	0.
NI 59	0.	4.85E-03	4.84E-03	4.81E-03	4.73E-03	4.45E-03	3.74E-03
NI 63	0.	7.73E-01	8.06E-02	4.13E-04	1.18E-10	1.46E-33	0.
NI 65	0.	1.19E+00	0.	0.	0.	0.	0.
CU 64	0.	5.64E-03	0.	0.	0.	0.	0.
CU 66	0.	7.50E-03	0.	0.	0.	0.	0.
ZN 65	0.	5.21E-07	0.	0.	0.	0.	0.
SR 89	0.	4.21E+01	0.	0.	0.	0.	0.
SR 90	0.	9.58E-04	5.85E-07	1.85E-14	6.91E-36	0.	0.
SR 91	0.	8.22E+00	0.	0.	0.	0.	0.
Y 90	0.	1.56E+03	5.85E-07	1.85E-14	6.92E-36	0.	0.
Y 91M	0.	4.88E+00	0.	0.	0.	0.	0.
Y 91	0.	1.11E+02	0.	0.	0.	0.	0.
ZR 93	0.	1.00E-01	1.00E-01	1.00E-01	1.00E-01	9.97E-02	9.88E-02
ZR 95	0.	3.26E+04	0.	0.	0.	0.	0.
NB 93M	0.	6.11E-03	1.00E-01	1.00E-01	1.00E-01	9.97E-02	9.88E-02
NB 94	0.	1.02E-13	1.02E-13	1.02E-13	1.02E-13	1.02E-13	1.01E-13
NB 95	0.	3.14E+04	0.	0.	0.	0.	0.
NB 96	0.	1.79E+01	0.	0.	0.	0.	0.
NB 97	0.	6.14E-07	0.	0.	0.	0.	0.
MO 99	0.	4.58E-06	0.	0.	0.	0.	0.
TC 99M	0.	3.98E-06	0.	0.	0.	0.	0.
TC 99	0.	5.99E-12	6.17E-12	6.15E-12	6.11E-12	5.97E-12	5.59E-12
CD115	0.	1.95E-03	0.	0.	0.	0.	0.

SPENT REFERENCE PWR FUEL - DECAY (CONT'D)

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

		CHARGE DISCHARGE			100000.	Y300000.	1.00E+06	3.00E+06	1.00E+07
					Y*****	Y*****	Y*****	Y*****	Y
H	3	0.	2.73E-08	0.	0.	0.	0.	0.	0.
AR	41	0.	4.98E-13	0.	0.	0.	0.	0.	0.
K	42	0.	3.42E-16	0.	0.	0.	0.	0.	0.
K	43	0.	1.10E-20	0.	0.	0.	0.	0.	0.
K	44	0.	1.11E-12	0.	0.	0.	0.	0.	0.
CA	45	0.	9.27E-12	0.	0.	0.	0.	0.	0.
CA	47	0.	4.04E-09	0.	0.	0.	0.	0.	0.
SC	46	0.	9.55E-14	0.	0.	0.	0.	0.	0.
SC	47	0.	1.94E-05	0.	0.	0.	0.	0.	0.
SC	48	0.	2.44E-05	0.	0.	0.	0.	0.	0.
SC	49	0.	4.41E-06	0.	0.	0.	0.	0.	0.
SC	50	0.	2.93E-07	0.	0.	0.	0.	0.	0.
TI	51	0.	6.82E-03	0.	0.	0.	0.	0.	0.
V	52	0.	1.15E+01	0.	0.	0.	0.	0.	0.
V	53	0.	3.46E-02	0.	0.	0.	0.	0.	0.
V	54	0.	2.61E-04	0.	0.	0.	0.	0.	0.
CR	51	0.	1.22E+03	0.	0.	0.	0.	0.	0.
CR	55	0.	1.40E+01	0.	0.	0.	0.	0.	0.
MN	54	0.	2.06E+01	0.	0.	0.	0.	0.	0.
MN	56	0.	9.51E+00	0.	0.	0.	0.	0.	0.
MN	57	0.	4.49E-02	0.	0.	0.	0.	0.	0.
MN	58	0.	1.11E-04	0.	0.	0.	0.	0.	0.
FE	55	0.	1.56E+02	0.	0.	0.	0.	0.	0.
FE	59	0.	1.21E+01	0.	0.	0.	0.	0.	0.
CO	58	0.	1.26E+01	0.	0.	0.	0.	0.	0.
CO	60M	0.	1.13E+00	0.	0.	0.	0.	0.	0.
CO	60	0.	3.21E-01	0.	0.	0.	0.	0.	0.
CO	61	0.	1.77E-02	0.	0.	0.	0.	0.	0.
CO	62	0.	9.12E-04	0.	0.	0.	0.	0.	0.
NI	59	0.	4.85E-03	2.04E-03	3.61E-04	8.37E-07	2.49E-14	1.13E-40	
NI	63	0.	7.73E-01	0.	0.	0.	0.	0.	0.
NI	65	0.	1.19E+00	0.	0.	0.	0.	0.	0.
CU	64	0.	5.63E-03	0.	0.	0.	0.	0.	0.
CU	66	0.	6.98E-03	0.	0.	0.	0.	0.	0.
ZN	65	0.	5.21E-07	0.	0.	0.	0.	0.	0.
SR	89	0.	4.21E+01	0.	0.	0.	0.	0.	0.
SR	90	0.	9.58E-04	0.	0.	0.	0.	0.	0.
SR	91	0.	8.21E+00	0.	0.	0.	0.	0.	0.
Y	90	0.	1.56E+03	0.	0.	0.	0.	0.	0.
Y	91M	0.	4.88E+00	0.	0.	0.	0.	0.	0.
Y	91	0.	1.11E+02	0.	0.	0.	0.	0.	0.
ZR	93	0.	1.00E-01	9.57E-02	8.72E-02	6.31E-02	2.50E-02	9.86E-04	
ZR	95	0.	3.26E+04	0.	0.	0.	0.	0.	0.
NB	93M	0.	6.11E-03	9.57E-02	8.72E-02	6.31E-02	2.50E-02	9.86E-04	
NB	94	0.	1.02E-13	1.01E-13	1.01E-13	9.81E-14	9.15E-14	7.18E-14	
NB	95	0.	3.14E+04	0.	0.	0.	0.	0.	0.
NB	96	0.	1.79E+01	0.	0.	0.	0.	0.	0.
NB	97	0.	6.11E-07	0.	0.	0.	0.	0.	0.
MO	99	0.	4.58E-06	0.	0.	0.	0.	0.	0.
TC	99M	0.	3.98E-06	0.	0.	0.	0.	0.	0.
TC	99	0.	5.99E-12	4.44E-12	2.29E-12	2.27E-13	3.09E-16	2.85E-26	
CD	115	0.	1.95E-03	0.	0.	0.	0.	0.	0.

## SPENT REFERENCE PWR FUEL - DECAY (CONT'D)

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

 NUCLEIDE RADIOACTIVITY, CURIES  
 BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	300. Y	1000. Y	3000. Y	10000. Y	30000. Y
CD119	0.	7.16E-04	0.	0.	0.	0.	0.
CD121	0.	2.06E-04	0.	0.	0.	0.	0.
IN119M	0.	7.42E-04	0.	0.	0.	0.	0.
IN119	0.	5.64E-02	0.	0.	0.	0.	0.
IN121M	0.	2.27E-04	0.	0.	0.	0.	0.
SN117M	0.	1.29E+04	0.	0.	0.	0.	0.
SN119M	0.	2.56E+01	0.	0.	0.	0.	0.
SN121M	0.	3.28E-01	2.13E-02	3.58E-05	4.28E-13	7.99E-41	0.
SN121	0.	2.29E+03	0.	0.	0.	0.	0.
SN123M	0.	1.04E+02	0.	0.	0.	0.	0.
SN123	0.	4.98E-01	0.	0.	0.	0.	0.
SN125M	0.	9.32E+01	0.	0.	0.	0.	0.
SN125	0.	4.04E+00	0.	0.	0.	0.	0.
SB124M	0.	1.80E-01	0.	0.	0.	0.	0.
SB124	0.	4.92E+00	0.	0.	0.	0.	0.
SB125	0.	4.59E+01	0.	0.	0.	0.	0.
SB126M	0.	1.36E-01	0.	0.	0.	0.	0.
SB126	0.	2.70E-01	0.	0.	0.	0.	0.
TE125M	0.	1.64E+01	0.	0.	0.	0.	0.
SUBTOT	0.	8.27E+04	3.07E-01	2.06E-01	2.05E-01	2.04E-01	2.01E-01
TOTALS	0.	8.27E+04	3.07E-01	2.06E-01	2.05E-01	2.04E-01	2.01E-01

SPENT REFERENCE PWR FUEL - DECAY

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	1. Y	3. Y	10. Y	30. Y	100. Y
CD119	0.	7.42E-04	0.	0.	0.	0.	0.
CD121	0.	2.29E-04	0.	0.	0.	0.	0.
IN119M	0.	7.42E-04	0.	0.	0.	0.	0.
IN119	0.	6.71E-02	0.	0.	0.	0.	0.
IN121M	0.	2.29E-04	0.	0.	0.	0.	0.
SN117M	0.	1.29E+04	1.81E-04	3.54E-20	0.	0.	0.
SN119M	0.	2.56E+01	9.30E+00	1.23E+00	1.02E-03	1.63E-12	0.
SN121M	0.	3.28E-01	3.25E-01	3.19E-01	2.99E-01	2.49E-01	1.32E-01
SN121	0.	2.29E+03	0.	0.	0.	0.	0.
SN123M	0.	1.05E+02	0.	0.	0.	0.	0.
SN123	0.	4.98E-01	6.57E-02	1.14E-03	7.96E-10	2.03E-27	0.
SN125M	0.	9.68E+01	0.	0.	0.	0.	0.
SN125	0.	4.04E+00	8.09E-12	3.25E-35	0.	0.	0.
SB124M	0.	2.28E-01	0.	0.	0.	0.	0.
SB124	0.	4.92E+00	7.24E-02	1.56E-05	2.32E-18	5.15E-55	0.
SB125	0.	4.59E+01	3.55E+01	2.13E+01	3.52E+00	2.07E-02	3.25E-10
SB126M	0.	1.38E-01	0.	0.	0.	0.	0.
SB126	0.	2.70E-01	4.31E-10	1.10E-27	0.	0.	0.
TE125M	0.	1.64E+01	1.47E+01	8.81E+00	1.46E+00	8.59E-03	1.35E-10
SUBTOT	0.	8.28E+04	2.29E+03	1.05E+02	1.71E+01	1.14E+00	7.00E-01
TOTALS	0.	8.28E+04	2.29E+03	1.05E+02	1.71E+01	1.14E+00	7.00E-01

SPENT REFERENCE PWR FUEL - DECAY (CONT'D)

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

				1.00E+06	3.00E+06	1.00E+07
	CHARGE	DISCHARGE	100000.	Y*****	Y*****	Y*****
			Y300000.			
CD119	0.	6.90E-04	0.	0.	0.	0.
CD121	0.	1.86E-04	0.	0.	0.	0.
IN119M	0.	7.41E-04	0.	0.	0.	0.
IN119	0.	4.74E-02	0.	0.	0.	0.
IN121M	0.	2.24E-04	0.	0.	0.	0.
SN117M	0.	1.29E+04	0.	0.	0.	0.
SN119M	0.	2.56E+01	0.	0.	0.	0.
SN121M	0.	3.28E-01	0.	0.	0.	0.
SN121	0.	2.29E+03	0.	0.	0.	0.
SN123M	0.	1.03E+02	0.	0.	0.	0.
SN123	0.	4.98E-01	0.	0.	0.	0.
SN125M	0.	8.98E+01	0.	0.	0.	0.
SN125	0.	4.04E+00	0.	0.	0.	0.
SB124M	0.	1.42E-01	0.	0.	0.	0.
SB124	0.	4.92E+00	0.	0.	0.	0.
SB125	0.	4.59E+01	0.	0.	0.	0.
SB126M	0.	1.33E-01	0.	0.	0.	0.
SB126	0.	2.70E-01	0.	0.	0.	0.
TE125M	0.	1.64E+01	0.	0.	0.	0.
SUBTOT	0.	8.27E+04	1.93E-01	1.75E-01	1.26E-01	5.01E-02
TOTALS	0.	8.27E+04	1.93E-01	1.75E-01	1.26E-01	5.01E-02



## REPROCESSED REFERENCE PWR WASTE - DECAY

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

 NUCLIDE RADIOACTIVITY, CURIES  
 BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	3. Y	10. Y	30. Y	100. Y
TL207	0.	1.30E-06	2.47E-06	6.01E-06	1.27E-05	1.93E-05
TL208	0.	1.09E-03	5.33E-04	5.93E-05	1.94E-05	9.88E-06
TL209	0.	7.04E-10	7.11E-10	8.32E-10	1.99E-09	1.56E-08
PB209	0.	3.20E-08	3.23E-08	3.78E-08	9.05E-08	7.08E-07
PB210	0.	8.28E-10	2.50E-09	1.57E-08	9.99E-08	6.45E-07
PB211	0.	1.31E-06	2.48E-06	6.03E-06	1.27E-05	1.93E-05
PB212	0.	3.02E-03	1.48E-03	1.65E-04	5.38E-05	2.75E-05
PB214	0.	1.85E-08	3.55E-08	9.51E-08	2.67E-07	9.28E-07
BI210	0.	8.29E-10	2.50E-09	1.57E-08	9.99E-08	6.45E-07
BI211	0.	1.31E-06	2.48E-06	6.03E-06	1.27E-05	1.93E-05
BI212	0.	3.02E-03	1.48E-03	1.65E-04	5.38E-05	2.75E-05
BI213	0.	3.20E-08	3.23E-08	3.78E-08	9.05E-08	7.08E-07
BI214	0.	1.85E-08	3.55E-08	9.51E-08	2.67E-07	9.28E-07
PO210	0.	5.72E-10	1.97E-09	1.57E-08	9.99E-08	6.45E-07
PO211	0.	3.92E-09	7.43E-09	1.81E-08	3.82E-08	5.80E-08
PO212	0.	1.93E-03	9.47E-04	1.05E-04	3.44E-05	1.76E-05
PO213	0.	3.13E-03	3.16E-03	3.70E-03	8.85E-03	6.92E-07
PO214	0.	1.85E-08	3.55E-08	9.51E-08	2.67E-07	9.28E-07
PO215	0.	1.31E-06	2.48E-06	6.03E-06	1.27E-05	1.93E-05
PO216	0.	3.02E-03	1.48E-03	1.65E-04	5.38E-05	2.75E-05
PO218	0.	1.85E-08	3.55E-08	9.51E-08	2.67E-07	9.28E-07
AT217	0.	3.20E-08	3.23E-08	3.78E-08	9.05E-08	7.08E-07
RN219	0.	1.31E-06	2.48E-06	6.03E-06	1.27E-05	1.93E-05
RN220	0.	3.02E-03	1.48E-03	1.65E-04	5.38E-05	2.75E-05
RN222	0.	1.85E-08	3.55E-08	9.51E-08	2.67E-07	9.28E-07
FR221	0.	3.20E-08	3.23E-08	3.78E-08	9.05E-08	7.08E-07
FR223	0.	1.83E-08	3.46E-08	8.43E-08	1.78E-07	2.71E-07
RA223	0.	1.31E-06	2.48E-06	6.03E-06	1.27E-05	1.93E-05
RA224	0.	3.02E-03	1.48E-03	1.65E-04	5.38E-05	2.75E-05
RA225	0.	3.20E-08	3.23E-08	3.78E-08	9.05E-08	7.08E-07
RA226	0.	1.85E-08	3.55E-08	9.51E-08	2.67E-07	9.28E-07
RA228	0.	4.58E-12	1.02E-11	2.28E-11	3.34E-11	3.58E-11
AC225	0.	3.20E-08	3.23E-08	3.78E-08	9.05E-08	7.08E-07
AC227	0.	1.30E-06	2.47E-06	6.02E-06	1.27E-05	1.93E-05
AC228	0.	4.58E-12	1.02E-11	2.28E-11	3.34E-11	3.58E-11
TH227	0.	1.29E-06	2.44E-06	5.95E-06	1.25E-05	1.91E-05
TH228	0.	3.02E-03	1.47E-03	1.64E-04	5.38E-05	2.75E-05
TH229	0.	3.20E-08	3.23E-08	3.78E-08	9.05E-08	7.08E-07
TH230	0.	1.97E-05	1.97E-05	1.98E-05	2.03E-05	2.52E-05
TH231	0.	1.48E-02	1.48E-05	1.48E-05	1.48E-05	1.49E-05
TH232	0.	3.40E-11	3.46E-11	3.47E-11	3.50E-11	3.60E-11
TH234	3.23E-01	3.15E-01	3.15E-04	3.15E-04	3.15E-04	3.15E-04
PA231	0.	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05
PA233	0.	3.36E-01	3.36E-01	3.37E-01	3.38E-01	3.44E-01
PA234M	3.23E-01	3.15E-01	3.15E-04	3.15E-04	3.15E-04	3.15E-04
PA234	3.23E-04	3.15E-04	3.15E-07	3.15E-07	3.15E-07	3.15E-07
U232	0.	8.57E-06	3.07E-05	5.68E-05	5.24E-05	2.67E-05
U233	0.	4.32E-08	3.08E-06	1.33E-05	4.22E-05	1.44E-04
U234	1.52E+00	6.80E-04	9.04E-04	1.88E-03	4.43E-03	1.11E-02
U235	6.56E+02	1.43E-05	1.48E-05	1.48E-05	1.48E-05	1.49E-05
U236	0.	2.71E-04	2.71E-04	2.72E-04	2.70E-04	2.95E-04
U237	0.	2.52E-03	1.15E-02	8.24E-03	3.19E-03	1.25E-04

TABELL IV

## REPROCESSED REFERENCE PWR WASTE - DECAY (CONT'D)

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

 NUCLIDE RADIOACTIVITY, CURIES  
 BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	300. Y	1000. Y	3000. Y	10000. Y	30000. Y
TL207	0.	1.30E-06	2.00E-05	2.00E-05	1.99E-05	2.20E-05	4.84E-05
TL208	0.	1.09E-03	1.44E-06	1.72E-09	4.82E-11	2.52E-10	1.21E-09
TL209	0.	7.04E-10	1.37E-07	1.54E-06	1.36E-05	1.26E-04	6.98E-04
PB209	0.	3.20E-08	6.22E-06	7.00E-05	6.18E-04	5.74E-03	3.17E-02
PB210	0.	3.20E-08	4.03E-06	3.52E-05	2.57E-04	1.49E-03	4.80E-03
PB211	0.	1.31E-06	2.01E-05	2.00E-05	2.00E-05	2.20E-05	4.85E-05
PB212	0.	3.02E-03	4.00E-06	4.79E-09	1.34E-10	6.99E-10	3.37E-09
PB214	0.	1.85E-08	4.03E-06	3.52E-05	2.57E-04	1.49E-03	4.80E-03
BI210	0.	3.29E-10	4.03E-06	3.52E-05	2.57E-04	1.49E-03	4.80E-03
BI211	0.	1.31E-06	2.01E-05	2.00E-05	2.00E-05	2.20E-05	4.85E-05
BI212	0.	3.02E-03	4.00E-06	4.79E-09	1.34E-10	6.99E-10	3.37E-09
BI213	0.	3.20E-08	6.22E-06	7.00E-05	6.18E-04	5.74E-03	3.17E-02
BI214	0.	1.85E-08	4.03E-06	3.52E-05	2.57E-04	1.49E-03	4.80E-03
PO210	0.	5.72E-10	4.03E-06	3.52E-05	2.57E-04	1.49E-03	4.80E-03
PO211	0.	3.93E-09	6.03E-08	6.01E-08	6.00E-08	6.61E-08	1.45E-07
PO212	0.	1.93E-03	2.56E-06	3.07E-09	8.56E-11	4.48E-10	2.16E-09
PO213	0.	3.13E-08	6.03E-06	6.84E-05	6.05E-04	5.62E-03	3.10E-02
PO214	0.	1.85E-08	4.03E-06	3.52E-05	2.57E-04	1.49E-03	4.80E-03
PO215	0.	1.31E-06	2.01E-05	2.00E-05	2.00E-05	2.20E-05	4.85E-05
PO216	0.	3.03E-03	4.00E-06	4.79E-09	1.34E-10	6.99E-10	3.37E-09
PO218	0.	1.85E-08	4.03E-06	3.52E-05	2.57E-04	1.49E-03	4.80E-03
AT217	0.	3.20E-08	6.22E-06	7.00E-05	6.18E-04	5.74E-03	3.17E-02
RN219	0.	1.31E-06	2.01E-05	2.00E-05	2.00E-05	2.20E-05	4.85E-05
RN220	0.	3.02E-03	4.00E-06	4.79E-09	1.34E-10	6.99E-10	3.37E-09
RN222	0.	1.85E-08	4.03E-06	3.52E-05	2.57E-04	1.49E-03	4.80E-03
FR221	0.	3.20E-08	6.22E-06	7.00E-05	6.18E-04	5.74E-03	3.17E-02
FR223	0.	1.83E-03	2.81E-07	2.81E-07	2.80E-07	3.08E-07	6.79E-07
RA223	0.	1.31E-06	2.01E-05	2.00E-05	2.00E-05	2.20E-05	4.85E-05
RA224	0.	3.02E-03	4.00E-06	4.79E-09	1.34E-10	6.99E-10	3.37E-09
RA225	0.	3.20E-08	6.22E-06	7.00E-05	6.18E-04	5.74E-03	3.17E-02
RA226	0.	1.85E-08	4.03E-06	3.52E-05	2.57E-04	1.49E-03	4.80E-03
RA228	0.	4.58E-12	3.92E-11	5.50E-11	1.34E-10	6.99E-10	3.37E-09
AC225	0.	3.20E-08	6.22E-06	7.00E-05	6.18E-04	5.74E-03	3.17E-02
AC227	0.	1.30E-06	2.01E-05	2.00E-05	2.00E-05	2.20E-05	4.85E-05
AC228	0.	4.53E-12	3.92E-11	5.50E-11	1.34E-10	6.99E-10	3.37E-09
TH227	0.	1.29E-06	1.98E-05	1.98E-05	1.97E-05	2.17E-05	4.78E-05
TH228	0.	3.02E-03	4.00E-06	4.79E-09	1.34E-10	6.99E-10	3.37E-09
TH229	0.	3.20E-08	6.22E-06	7.00E-05	6.18E-04	5.74E-03	3.17E-02
TH230	0.	1.97E-05	3.34E-05	1.89E-04	5.87E-04	1.91E-03	5.14E-03
TH231	0.	1.48E-02	1.53E-05	1.66E-05	2.17E-05	4.85E-05	1.40E-04
TH232	0.	3.40E-11	3.92E-11	5.50E-11	1.34E-10	6.99E-10	3.37E-09
TH234	3.23E-01	3.15E-01	3.15E-04	3.15E-04	3.15E-04	3.15E-04	3.15E-04
PA231	0.	2.01E-05	2.01E-05	2.00E-05	2.00E-05	2.20E-05	4.85E-05
PA233	0.	3.36E-01	3.57E-01	3.79E-01	3.90E-01	3.90E-01	3.88E-01
PA234M	3.23E-01	3.15E-01	3.15E-04	3.15E-04	3.15E-04	3.15E-04	3.15E-04
PA234	3.23E-04	3.15E-04	3.15E-07	3.15E-07	3.15E-07	3.15E-07	3.15E-07
U232	0.	6.57E-06	3.90E-06	4.61E-09	2.00E-17	1.07E-46	0.
U233	0.	4.32E-03	4.44E-04	1.55E-03	4.83E-03	1.62E-02	4.68E-02
U234	1.52E+00	0.80E-04	1.97E-02	2.33E-02	2.33E-02	2.29E-02	2.16E-02
U235	6.56E-02	1.48E-05	1.53E-05	1.66E-05	2.17E-05	4.85E-05	1.40E-04
U236	0.	2.71E-04	3.58E-04	5.52E-04	1.04E-03	2.12E-03	3.02E-03
U237	0.	2.52E-03	1.01E-05	9.55E-06	8.07E-06	4.49E-06	8.39E-07

REPROCESSED REFERENCE PWR WASTE - DECAY (CONT'D)

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

		1.00E+06	3.00E+06	1.00E+07			
	CHARGE	DISCHARGE	100000. Y	300000. Y	***** Y	***** Y	***** Y
TL207	U.	1.30E-06	2.85E-04	3.97E-04	3.99E-04	3.96E-04	3.96E-04
TL208	U.	1.09E-03	5.53E-09	1.67E-08	5.50E-08	1.60E-07	4.34E-07
TL209	U.	7.04E-10	2.95E-03	6.03E-03	6.65E-03	3.53E-03	3.38E-04
PB209	U.	3.20E-03	1.34E-01	2.74E-01	3.02E-01	1.61E-01	1.54E-02
PB210	U.	3.28E-10	1.16E-02	1.26E-02	2.38E-03	3.32E-04	3.15E-04
PB211	U.	1.31E-06	2.86E-04	3.98E-04	4.00E-04	3.99E-04	3.97E-04
PB212	U.	3.02E-03	1.55E-08	4.63E-08	1.53E-07	4.45E-07	1.35E-06
PB214	U.	1.85E-08	1.16E-02	1.26E-02	2.38E-03	3.32E-04	3.15E-04
BI210	U.	3.29E-10	1.16E-02	1.26E-02	2.38E-03	3.32E-04	3.15E-04
BI211	U.	1.31E-06	2.86E-04	3.98E-04	4.00E-04	3.99E-04	3.97E-04
BI212	U.	3.02E-03	1.55E-08	4.63E-08	1.53E-07	4.45E-07	1.35E-06
BI213	U.	3.20E-08	1.34E-01	2.74E-01	3.02E-01	1.61E-01	1.54E-02
BI214	U.	1.85E-08	1.16E-02	1.26E-02	2.38E-03	3.32E-04	3.15E-04
PO210	U.	5.72E-10	1.16E-02	1.26E-02	2.38E-03	3.32E-04	3.15E-04
PO211	U.	3.93E-09	3.57E-07	1.19E-06	1.20E-06	1.20E-06	1.19E-06
PO212	U.	1.93E-03	9.93E-09	2.97E-08	9.78E-08	2.85E-07	8.61E-07
PO213	U.	3.13E-08	1.31E-01	2.68E-01	2.96E-01	1.57E-01	1.50E-02
PO214	U.	1.85E-08	1.16E-02	1.26E-02	2.38E-03	3.32E-04	3.15E-04
PO215	U.	1.31E-06	2.86E-04	3.98E-04	4.00E-04	3.99E-04	3.97E-04
PO216	U.	3.03E-03	1.55E-08	4.63E-08	1.53E-07	4.45E-07	1.35E-06
PO218	U.	1.85E-08	1.16E-02	1.26E-02	2.38E-03	3.32E-04	3.15E-04
AT217	U.	3.20E-08	1.34E-01	2.74E-01	3.02E-01	1.61E-01	1.54E-02
RN219	U.	1.31E-06	2.86E-04	3.98E-04	4.00E-04	3.99E-04	3.97E-04
RN220	U.	3.02E-03	1.55E-08	4.63E-08	1.53E-07	4.45E-07	1.35E-06
RN222	U.	1.85E-08	1.16E-02	1.26E-02	2.38E-03	3.32E-04	3.15E-04
FR221	U.	3.20E-08	1.34E-01	2.74E-01	3.02E-01	1.61E-01	1.54E-02
FR223	U.	1.83E-08	4.07E-06	5.57E-06	5.60E-06	5.59E-06	5.55E-06
RA223	U.	1.31E-06	2.86E-04	3.98E-04	4.00E-04	3.99E-04	3.97E-04
RA224	U.	3.02E-03	1.55E-08	4.63E-08	1.53E-07	4.45E-07	1.35E-06
RA225	U.	3.20E-08	1.34E-01	2.74E-01	3.02E-01	1.61E-01	1.54E-02
RA226	U.	1.85E-08	1.16E-02	1.26E-02	2.38E-03	3.32E-04	3.15E-04
RA228	U.	4.53E-12	1.55E-08	4.63E-08	1.53E-07	4.45E-07	1.35E-06
AC225	U.	3.20E-08	1.34E-01	2.74E-01	3.02E-01	1.61E-01	1.54E-02
AC227	U.	1.30E-06	2.86E-04	3.98E-04	4.00E-04	3.99E-04	3.97E-04
AC223	U.	4.53E-12	1.55E-08	4.63E-08	1.53E-07	4.45E-07	1.35E-06
TH227	U.	1.29E-06	2.82E-04	3.93E-04	3.95E-04	3.94E-04	3.91E-04
TH228	U.	3.02E-03	1.55E-08	4.63E-08	1.53E-07	4.45E-07	1.35E-06
TH229	U.	3.20E-08	1.34E-01	2.74E-01	3.02E-01	1.61E-01	1.54E-02
TH230	U.	1.97E-05	1.16E-02	1.25E-02	2.38E-03	3.32E-04	3.15E-04
TH231	U.	1.48E-02	3.78E-04	4.00E-04	4.00E-04	3.99E-04	3.97E-04
TH232	U.	3.46E-11	1.55E-08	4.63E-08	1.53E-07	4.45E-07	1.35E-06
TH234	3.23E-01	3.15E-01	3.15E-04	3.15E-04	3.15E-04	3.15E-04	3.15E-04
PA231	U.	2.01E-05	2.86E-04	3.98E-04	4.00E-04	3.99E-04	3.97E-04
PA233	U.	3.36E-01	3.79E-01	3.56E-01	2.83E-01	1.48E-01	1.54E-02
PA234	3.23E-01	3.15E-01	3.15E-04	3.15E-04	3.15E-04	3.15E-04	3.15E-04
PA234	3.23E-04	3.15E-04	3.15E-07	3.15E-07	3.15E-07	3.15E-07	3.15E-07
U232	U.	8.57E-06	0.	0.	0.	0.	0.
U233	U.	4.32E-08	1.34E-01	2.67E-01	3.01E-01	1.60E-01	1.54E-02
U234	1.52E+00	6.80E-04	1.73E-02	1.03E-02	1.71E-03	3.20E-04	3.15E-04
U235	6.56E-02	1.48E-05	3.73E-04	4.00E-04	4.00E-04	3.99E-04	3.97E-04
U236	U.	2.71E-04	3.14E-03	3.13E-03	3.06E-03	2.89E-03	2.36E-03
U237	U.	2.53E-03	2.36E-09	1.23E-16	3.89E-42	0.	0.

## REPROCESSED REFERENCE PWR WASTE - DECAY

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	3. Y	10. Y	30. Y	100. Y
U238	3.23E-01	3.15E-04	3.15E-04	3.15E-04	3.15E-04	3.15E-04
U240	0.	1.12E-17	1.81E-14	8.12E-14	2.62E-13	8.93E-13
NP237	0.	3.36E-01	3.36E-01	3.37E-01	3.32E-01	3.44E-01
NP239	0.	2.11E+01	2.11E+01	2.10E+01	2.10E+01	2.09E+01
NP240M	0.	1.12E-14	1.81E-14	8.12E-14	2.62E-13	8.93E-13
PU238	0.	1.47E-03	9.06E-04	1.65E-04	1.27E-06	5.14E-14
PU238	0.	1.46E+01	4.93E+01	4.86E+01	4.25E+01	2.67E+01
PU239	0.	1.62E+00	1.62E+00	1.62E+00	1.64E+00	1.68E+00
PU240	0.	2.45E+00	3.02E+00	4.70E+00	7.62E+00	9.93E+00
PU241	0.	5.25E+02	4.78E+02	3.43E+02	1.33E+02	5.20E+00
PU242	0.	7.64E-03	7.64E-03	7.66E-03	7.72E-03	7.87E-03
PU243	0.	1.78E-09	3.55E-07	3.55E-07	3.55E-07	3.55E-07
PU244	0.	5.62E-17	1.81E-14	8.13E-14	2.62E-13	8.94E-13
AM241	0.	2.50E+02	2.51E+02	2.52E+02	2.51E+02	2.29E+02
AM242M	0.	8.32E+00	8.25E+00	7.99E+00	7.29E+00	5.30E+00
AM242	0.	8.32E+00	8.25E+00	7.99E+00	7.29E+00	5.30E+00
AM243	0.	2.11E+01	2.11E+01	2.10E+01	2.10E+01	2.09E+01
AM244	0.	1.46E-17	2.36E-17	1.06E-16	3.41E-16	1.16E-15
AM245	0.	3.77E-03	7.53E-09	2.66E-11	2.64E-11	8.09E-43
CM242	0.	7.34E+03	3.35E+02	6.56E+00	5.98E+00	4.35E+00
CM243	0.	3.88E+00	3.71E+00	3.19E+00	2.07E+00	4.54E-01
CM244	0.	2.89E+03	2.68E+03	2.05E+03	9.51E+02	6.52E+01
CM245	0.	4.32E-01	4.32E-01	4.32E-01	4.31E-01	4.28E-01
CM246	0.	9.20E-02	9.20E-02	9.19E-02	9.16E-02	9.07E-02
CM247	0.	3.55E-07	3.55E-07	3.55E-07	3.55E-07	3.55E-07
CM248	0.	1.18E-06	1.18E-06	1.18E-06	1.18E-06	1.18E-06
CM249	0.	1.72E-14	7.72E-27	0.	0.	0.
CM250	0.	1.73E-13	1.73E-13	1.73E-13	1.73E-13	1.72E-13
BK249	0.	2.52E-05	5.02E-04	1.77E-06	1.76E-13	5.39E-38
BK250	0.	1.73E-13	1.73E-13	1.73E-13	1.73E-13	1.72E-13
CF249	0.	9.13E-06	1.40E-05	1.50E-05	1.44E-05	1.26E-05
CF250	0.	5.75E-05	5.17E-05	3.57E-05	1.24E-05	3.03E-07
CF251	0.	4.43E-07	4.47E-07	4.45E-07	4.38E-07	4.15E-07
CF252	0.	6.77E-05	4.01E-05	6.40E-06	3.39E-08	3.68E-16
CF253	0.	5.53E-12	2.43E-24	0.	0.	0.
CF254	0.	3.73E-11	8.64E-15	1.64E-27	7.30E-64	0.
ES253	0.	2.45E-10	6.92E-21	0.	0.	0.
SUBTOT	2.56E+00	1.11E+04	3.86E+03	2.77E+03	1.45E+03	3.96E+02
TOTALS	2.56E+00	1.11E+04	3.86E+03	2.77E+03	1.45E+03	3.96E+02

REPROCESSED REFERENCE PWR WASTE - DECAY (CONT'D)

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	300. Y	1000. Y	3000. Y	10000. Y	30000. Y
U233	3.23E-01	3.15E-04	3.15E-04	3.15E-04	3.15E-04	3.15E-04	3.15E-04
U240	0.	1.12E-17	2.70E-12	9.00E-12	2.70E-11	8.93E-11	2.63E-10
NP237	0.	3.36E-01	3.57E-01	3.79E-01	3.90E-01	3.90E-01	3.82E-01
NP239	0.	2.11E+01	2.05E+01	1.92E+01	1.61E+01	8.51E+00	1.39E+00
NP240M	0.	1.12E-14	2.73E-12	9.00E-12	2.70E-11	8.93E-11	2.63E-10
PU236	0.	1.47E-03	0.	0.	0.	0.	0.
PU238	0.	1.46E+01	7.64E+00	1.88E-01	8.18E-06	2.59E-19	6.31E-59
PU239	0.	1.62E+00	1.79E+00	2.14E+00	2.99E+00	4.58E+00	4.16E+00
PU240	0.	2.45E+00	9.90E+00	9.21E+00	7.50E+00	3.60E+00	4.71E-01
PU241	0.	5.25E+02	4.22E-01	3.98E-01	3.36E-01	1.87E-01	3.49E-02
PU242	0.	7.64E-03	3.13E-03	8.37E-03	8.60E-03	8.96E-03	8.88E-03
PU243	0.	2.21E-09	3.55E-07	3.55E-07	3.55E-07	3.55E-07	3.55E-07
PU244	0.	5.62E-17	2.70E-12	9.00E-12	2.70E-11	8.94E-11	2.63E-10
AM241	0.	2.50E+02	1.66E+02	5.45E+01	2.55E+00	1.87E-01	3.49E-02
AM242M	0.	3.32E+00	2.13E+00	3.74E-02	9.56E-06	1.31E-19	3.18E-59
AM242	0.	8.32E+00	2.13E+00	3.74E-02	9.56E-06	1.31E-19	3.18E-59
AM243	0.	2.11E+01	2.05E+01	1.92E+01	1.61E+01	8.51E+00	1.39E+00
AM244	0.	1.46E-17	3.51E-15	1.17E-14	3.51E-14	1.16E-13	3.42E-13
AM245	0.	3.77E-08	0.	0.	0.	0.	0.
CM242	0.	7.34E+03	1.75E+00	7.17E-02	7.84E-06	1.07E-19	2.62E-59
CM243	0.	3.83E+00	5.96E-03	1.55E-09	2.36E-28	0.	0.
CM244	0.	2.89E+03	3.07E-02	8.16E-14	3.51E-14	1.16E-13	3.42E-13
CM245	0.	4.32E-01	4.21E-01	3.97E-01	3.36E-01	1.87E-01	3.49E-02
CM246	0.	9.20E-02	3.81E-02	7.94E-02	5.92E-02	2.11E-02	1.11E-03
CM247	0.	3.55E-07	3.55E-07	3.55E-07	3.55E-07	3.55E-07	3.55E-07
CM248	0.	1.18E-06	1.18E-06	1.17E-06	1.17E-06	1.15E-06	1.11E-06
CM249	0.	1.72E-14	0.	0.	0.	0.	0.
CM250	0.	1.73E-13	1.71E-13	1.66E-13	1.54E-13	1.16E-13	5.24E-14
BK249	0.	2.52E-03	0.	0.	0.	0.	0.
BK250	0.	1.73E-13	1.71E-13	1.66E-13	1.54E-13	1.16E-13	5.24E-14
CF249	0.	9.13E-06	8.49E-06	2.14E-06	4.16E-08	4.29E-14	3.36E-31
CF250	0.	5.75E-05	7.72E-12	1.66E-13	1.54E-13	1.16E-13	5.24E-14
CF251	0.	4.43E-07	3.56E-07	2.08E-07	4.45E-08	2.03E-10	4.13E-17
CF252	0.	6.77E-05	0.	0.	0.	0.	0.
CF253	0.	5.53E-12	0.	0.	0.	0.	0.
CF254	0.	3.73E-11	0.	0.	0.	0.	0.
ES253	0.	2.45E-10	0.	0.	0.	0.	0.
SUBTOT	2.56E+00	1.11E+04	2.34E+02	1.06E+02	4.67E+01	2.67E+01	8.68E+00
TOTALS	2.56E+00	1.11E+04	2.34E+02	1.06E+02	4.67E+01	2.67E+01	8.68E+00

REPROCESSED REFERENCE PWR WASTE - DECAY (CONT'D)

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

			100000.	Y300000.	Y*****	Y*****	Y*****	Y
	CHARGE	DISCHARGE	1.00E+06	3.00E+06	1.00E+07			
U238	3.23E-01	3.15E-04	3.15E-04	3.15E-04	3.15E-04	3.15E-04	3.15E-04	3.15E-04
U240	0.	1.12E-17	3.19E-10	2.04E-09	3.92E-09	4.47E-09	4.23E-09	
NP237	0.	5.30E-01	3.79E-01	5.56E-01	2.83E-01	1.48E-01	1.54E-02	
NP239	0.	2.11E+01	2.44E-03	3.51E-07	3.41E-07	3.13E-07	2.33E-07	
NP240M	0.	1.12E-14	8.19E-10	2.04E-09	3.92E-09	4.47E-09	4.23E-09	
PU236	0.	1.47E-05	0.	0.	0.	0.	0.	
PU238	0.	1.46E+01	0.	0.	0.	0.	0.	
PU239	0.	1.62E+00	6.55E-01	2.24E-03	3.41E-07	3.13E-07	2.33E-07	
PU240	0.	2.45E+00	3.59E-04	2.04E-09	3.93E-09	4.48E-09	4.24E-09	
PU241	0.	5.25E+02	9.85E-05	5.11E-12	1.62E-37	0.	0.	
PU242	0.	7.64E-03	7.83E-03	5.43E-03	1.51E-03	3.89E-05	1.07E-10	
PU245	0.	2.64E-09	3.54E-07	3.51E-07	3.41E-07	3.13E-07	2.33E-07	
PU244	0.	5.62E-17	3.20E-10	2.04E-09	3.93E-09	4.48E-09	4.24E-09	
AM241	0.	2.50E+02	1.04E-04	5.39E-12	1.71E-37	0.	0.	
AM242M	0.	8.32E+00	0.	0.	0.	0.	0.	
AM242	0.	8.32E+00	0.	0.	0.	0.	0.	
AM243	0.	2.11E+01	2.44E-03	3.51E-07	3.41E-07	3.13E-07	2.33E-07	
AM244	0.	1.46E-17	1.07E-12	2.66E-12	5.10E-12	5.82E-12	5.51E-12	
AM245	0.	3.77E-03	0.	0.	0.	0.	0.	
CM242	0.	7.34E+03	0.	0.	0.	0.	0.	
CM243	0.	3.33E+00	0.	0.	0.	0.	0.	
CM244	0.	2.89E+03	1.07E-12	2.66E-12	5.10E-12	5.82E-12	5.51E-12	
CM245	0.	4.32E-01	9.83E-05	5.13E-12	1.62E-37	0.	0.	
CM246	0.	9.20E-02	3.74E-03	1.11E-18	1.18E-30	2.92E-65	0.	
CM247	0.	3.55E-07	3.54E-07	3.51E-07	3.41E-07	3.13E-07	2.33E-07	
CM248	0.	1.18E-06	9.67E-07	6.52E-07	1.64E-07	3.20E-09	3.30E-15	
CM249	0.	1.72E-14	0.	0.	0.	0.	0.	
CM250	0.	1.73E-13	3.22E-15	1.12E-18	8.63E-31	2.15E-65	0.	
BK249	0.	2.52E-03	0.	0.	0.	0.	0.	
BK250	0.	1.73E-13	3.22E-15	1.12E-18	8.63E-31	2.15E-65	0.	
CF249	0.	9.13E-06	0.	0.	0.	0.	0.	
CF250	0.	5.75E-05	3.22E-15	1.12E-18	8.64E-31	2.15E-65	0.	
CF251	0.	4.43E-07	0.	0.	0.	0.	0.	
CF252	0.	6.77E-05	0.	0.	0.	0.	0.	
CF253	0.	5.53E-12	0.	0.	0.	0.	0.	
CF254	0.	3.73E-11	0.	0.	0.	0.	0.	
ES253	0.	2.45E-10	0.	0.	0.	0.	0.	
SUBTOT	2.56E+00	1.11E+04	2.73E+00	3.32E+00	3.32E+00	1.75E+00	1.80E-01	
TOTALS	2.56E+00	1.11E+04	2.73E+00	3.32E+00	3.32E+00	1.75E+00	1.80E-01	

## REPROCESSED REFERENCE PWR WASTE -- DECAY

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTM CHARGED TO REACTOR

	CHARGE	DISCHARGE	10. Y	30. Y	100. Y
TL207	0.	2.49E-06	6.15E-06	1.31E-05	1.99E-05
TL208	0.	2.60E-03	2.18E-04	1.44E-05	7.30E-06
TL209	0.	8.90E-10	9.65E-10	2.00E-09	1.52E-08
PB209	0.	4.05E-08	4.39E-08	9.07E-08	6.93E-07
PB210	0.	2.61E-09	2.07E-08	1.50E-07	9.70E-07
PB211	0.	2.49E-06	6.17E-06	1.31E-05	1.99E-05
PB212	0.	7.22E-03	6.04E-04	4.00E-05	2.03E-05
PB214	0.	4.06E-08	1.36E-07	4.09E-07	1.37E-06
BI210	0.	2.61E-09	2.07E-08	1.50E-07	9.70E-07
BI211	0.	2.49E-06	6.17E-06	1.31E-05	1.99E-05
BI212	0.	7.22E-03	6.04E-04	4.00E-05	2.03E-05
BI213	0.	4.05E-08	4.39E-08	9.07E-08	6.93E-07
BI214	0.	4.06E-08	1.36E-07	4.09E-07	1.37E-06
PO210	0.	2.03E-09	2.07E-08	1.50E-07	9.70E-07
PO211	0.	7.48E-09	1.85E-08	3.93E-08	5.98E-08
PO212	0.	4.62E-03	3.87E-04	2.56E-05	1.30E-05
PO213	0.	3.96E-08	4.29E-08	8.87E-08	6.78E-07
PO214	0.	4.06E-08	1.36E-07	4.09E-07	1.37E-06
PO215	0.	2.49E-06	6.17E-06	1.31E-05	1.99E-05
PO216	0.	7.22E-03	6.04E-04	4.00E-05	2.03E-05
PO218	0.	4.06E-08	1.36E-07	4.09E-07	1.37E-06
AT217	0.	4.05E-08	4.39E-08	9.07E-08	6.93E-07
RN219	0.	2.49E-06	6.17E-06	1.31E-05	1.99E-05
RN220	0.	7.22E-03	6.04E-04	4.00E-05	2.03E-05
RN222	0.	4.06E-08	1.36E-07	4.09E-07	1.37E-06
FR221	0.	4.05E-08	4.39E-08	9.07E-08	6.93E-07
FR223	0.	3.49E-08	8.63E-08	1.83E-07	2.79E-07
RA223	0.	2.49E-06	6.17E-06	1.31E-05	1.99E-05
RA224	0.	7.22E-03	6.04E-04	4.00E-05	2.03E-05
RA225	0.	4.05E-08	4.39E-08	9.07E-08	6.93E-07
RA226	0.	4.06E-08	1.36E-07	4.09E-07	1.37E-06
RA228	0.	1.28E-11	3.78E-11	5.86E-11	6.25E-11
AC225	0.	4.05E-08	4.39E-08	9.07E-08	6.93E-07
AC227	0.	2.49E-06	6.17E-06	1.31E-05	1.99E-05
AC228	0.	1.28E-11	3.78E-11	5.86E-11	6.25E-11
TH227	0.	2.46E-06	6.08E-06	1.29E-05	1.97E-05
TH228	0.	7.22E-03	6.01E-04	4.00E-05	2.03E-05
TH229	0.	4.05E-08	4.39E-08	9.07E-08	6.93E-07
TH230	0.	3.16E-05	3.16E-05	3.19E-05	3.38E-05
TH231	0.	1.48E-02	1.48E-05	1.48E-05	1.49E-05
TH232	0.	6.13E-11	6.14E-11	6.16E-11	6.26E-11
TH234	3.23E-01	3.15E-01	3.15E-04	3.15E-04	3.15E-04
PA231	0.	2.07E-05	2.07E-05	2.07E-05	2.07E-05
PA233	0.	3.36E-01	3.38E-01	3.41E-01	3.53E-01
PA234M	3.23E-01	3.15E-01	3.15E-04	3.15E-04	3.15E-04
PA234	3.23E-04	3.15E-04	3.15E-07	3.15E-07	3.15E-07
U232	0.	1.29E-05	4.01E-05	3.87E-05	1.97E-05
U233	0.	4.61E-08	1.01E-05	3.92E-05	1.43E-04
U234	1.52E+00	6.97E-04	1.01E-03	1.86E-03	4.28E-03
U235	6.56E-02	1.48E-05	1.48E-05	1.48E-05	1.49E-05
U236	0.	2.71E-04	2.72E-04	2.75E-04	2.93E-04
U237	0.	2.30E-03	8.24E-03	3.19E-03	1.25E-04

## REPROCESSED REFERENCE PWR WASTE - DECAY (CONT'D)

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	300. Y	1000. Y	3000. Y	10000. Y	30000. Y
TL207	0.	2.49E-06	2.07E-05	2.06E-05	2.05E-05	2.25E-05	4.87E-05
TL208	0.	2.60E-03	1.06E-06	1.29E-09	5.66E-11	2.51E-10	1.16E-09
TL209	0.	8.90E-10	1.39E-07	1.64E-06	1.52E-05	1.45E-04	8.10E-04
PB209	0.	4.05E-08	6.31E-06	7.45E-05	6.90E-04	6.61E-03	3.68E-02
PB210	0.	2.61E-09	4.49E-06	2.30E-05	1.31E-04	6.96E-04	2.21E-03
PB211	0.	2.49E-06	2.07E-05	2.07E-05	2.06E-05	2.25E-05	4.88E-05
PB212	0.	7.22E-03	2.95E-06	3.58E-09	1.57E-10	6.96E-10	3.23E-09
PB214	0.	4.06E-08	4.49E-06	2.30E-05	1.31E-04	6.96E-04	2.21E-03
BI210	0.	2.61E-09	4.49E-06	2.30E-05	1.31E-04	6.96E-04	2.21E-03
BI211	0.	2.49E-06	2.07E-05	2.07E-05	2.06E-05	2.25E-05	4.88E-05
BI212	0.	7.22E-03	2.95E-06	3.58E-09	1.57E-10	6.96E-10	3.23E-09
BI213	0.	4.05E-08	6.31E-06	7.45E-05	6.90E-04	6.61E-03	3.68E-02
BI214	0.	4.06E-08	4.49E-06	2.30E-05	1.31E-04	6.96E-04	2.21E-03
PO210	0.	2.03E-09	4.49E-06	2.30E-05	1.31E-04	6.96E-04	2.21E-03
PO211	0.	7.51E-09	6.22E-08	6.20E-08	6.18E-08	6.76E-08	1.46E-07
PO212	0.	4.62E-03	1.89E-06	2.29E-09	1.01E-10	4.46E-10	2.07E-09
PO213	0.	3.96E-08	6.17E-06	7.28E-05	6.75E-04	6.46E-03	3.60E-02
PO214	0.	4.06E-08	4.49E-06	2.30E-05	1.31E-04	6.96E-04	2.21E-03
PO215	0.	2.49E-06	2.07E-05	2.07E-05	2.06E-05	2.25E-05	4.88E-05
PO216	0.	7.23E-03	2.95E-06	3.58E-09	1.57E-10	6.96E-10	3.23E-09
PO218	0.	4.06E-08	4.49E-06	2.30E-05	1.31E-04	6.96E-04	2.21E-03
AT217	0.	4.05E-08	6.31E-06	7.45E-05	6.90E-04	6.61E-03	3.68E-02
RN219	0.	2.49E-06	2.07E-05	2.07E-05	2.06E-05	2.25E-05	4.88E-05
RN220	0.	7.22E-03	2.95E-06	3.58E-09	1.57E-10	6.96E-10	3.23E-09
RN222	0.	4.06E-08	4.49E-06	2.30E-05	1.31E-04	6.96E-04	2.21E-03
FR221	0.	4.05E-08	6.31E-06	7.45E-05	6.90E-04	6.61E-03	3.68E-02
FR223	0.	3.49E-08	2.90E-07	2.89E-07	2.88E-07	3.15E-07	6.83E-07
RA223	0.	2.49E-06	2.07E-05	2.07E-05	2.06E-05	2.25E-05	4.88E-05
RA224	0.	7.22E-03	2.95E-06	3.58E-09	1.57E-10	6.96E-10	3.23E-09
RA225	0.	4.05E-08	6.31E-06	7.45E-05	6.90E-04	6.61E-03	3.68E-02
RA226	0.	4.06E-08	4.49E-06	2.30E-05	1.31E-04	6.96E-04	2.21E-03
RA228	0.	1.28E-11	6.58E-11	8.12E-11	1.57E-10	6.96E-10	3.23E-09
AC225	0.	4.05E-08	6.31E-06	7.45E-05	6.90E-04	6.61E-03	3.68E-02
AC227	0.	2.49E-06	2.07E-05	2.07E-05	2.06E-05	2.25E-05	4.88E-05
AC228	0.	1.28E-11	6.58E-11	8.12E-11	1.57E-10	6.96E-10	3.23E-09
TH227	0.	2.46E-06	2.04E-05	2.04E-05	2.03E-05	2.22E-05	4.81E-05
TH228	0.	7.22E-03	2.95E-06	3.58E-09	1.57E-10	6.96E-10	3.23E-09
TH229	0.	4.05E-08	6.31E-06	7.45E-05	6.90E-04	6.60E-03	3.68E-02
TH230	0.	3.16E-05	4.50E-05	1.05E-04	2.86E-04	8.90E-04	2.36E-03
TH231	0.	1.48E-02	1.53E-05	1.66E-05	2.16E-05	4.85E-05	1.40E-04
TH232	0.	6.13E-11	6.58E-11	8.12E-11	1.57E-10	6.96E-10	3.23E-09
TH234	3.23E-01	3.15E-01	3.15E-04	3.15E-04	3.15E-04	3.15E-04	3.15E-04
PA231	0.	2.07E-05	2.07E-05	2.06E-05	2.06E-05	2.25E-05	4.88E-05
PA233	0.	3.36E-01	3.81E-01	4.31E-01	4.54E-01	4.54E-01	4.52E-01
PA234M	3.23E-01	3.15E-01	3.15E-04	3.15E-04	3.15E-04	3.15E-04	3.15E-04
PA234	3.23E-04	3.15E-04	3.15E-07	3.15E-07	3.15E-07	3.15E-07	3.15E-07
U232	0.	1.29E-05	2.88E-06	3.40E-09	1.48E-17	7.93E-47	0.
U233	0.	4.61E-08	4.58E-04	1.68E-03	5.48E-03	1.87E-02	5.44E-02
U234	1.52E+00	6.97E-04	8.13E-03	1.06E-02	1.06E-02	1.04E-02	9.89E-03
U235	6.56E-02	1.48E-05	1.53E-05	1.66E-05	2.16E-05	4.85E-05	1.40E-04
U236	0.	2.71E-04	3.53E-04	5.36E-04	9.92E-04	2.02E-03	2.87E-03
U237	0.	2.30E-03	1.01E-05	9.55E-06	8.07E-06	4.49E-06	8.39E-07



REPROCESSED REFERENCE PWR WASTE - DECAY (CONT'D)

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

		1.00E+06			3.00E+06			1.00E+07		
	CHARGE	DISCHARGE	100000.	Y300000.	Y*****	Y*****	Y*****	Y*****	Y*****	Y
TL207	0.	2.49E-06	2.85E-04	3.97E-04	3.99E-04	3.98E-04	3.95E-04			
TL208	0.	2.60E-03	5.31E-09	1.58E-08	5.22E-08	1.52E-07	4.60E-07			
TL209	0.	8.90E-10	3.44E-03	7.02E-03	7.75E-03	4.11E-03	3.94E-04			
PB209	0.	4.05E-08	1.56E-01	3.19E-01	3.52E-01	1.87E-01	1.79E-02			
PB210	0.	2.61E-09	5.35E-03	5.84E-03	1.24E-03	3.28E-04	3.15E-04			
PB211	0.	2.49E-06	2.86E-04	3.98E-04	4.00E-04	3.99E-04	3.97E-04			
PB212	0.	7.22E-03	1.47E-08	4.40E-08	1.45E-07	4.23E-07	1.28E-06			
PB214	0.	4.06E-08	5.35E-03	5.84E-03	1.24E-03	3.28E-04	3.15E-04			
BI210	0.	2.61E-09	5.35E-03	5.84E-03	1.24E-03	3.28E-04	3.15E-04			
BI211	0.	2.49E-06	2.86E-04	3.98E-04	4.00E-04	3.99E-04	3.97E-04			
BI212	0.	7.22E-03	1.47E-08	4.40E-08	1.45E-07	4.23E-07	1.28E-06			
BI213	0.	4.05E-08	1.56E-01	3.19E-01	3.52E-01	1.87E-01	1.79E-02			
BI214	0.	4.06E-08	5.35E-03	5.84E-03	1.24E-03	3.28E-04	3.15E-04			
PO210	0.	2.03E-09	5.35E-03	5.84E-03	1.24E-03	3.28E-04	3.15E-04			
PO211	0.	7.51E-09	8.57E-07	1.19E-06	1.20E-06	1.20E-06	1.19E-06			
PO212	0.	4.62E-03	9.44E-09	2.82E-08	9.28E-08	2.71E-07	8.17E-07			
PO213	0.	3.96E-08	1.53E-01	3.12E-01	3.45E-01	1.83E-01	1.75E-02			
PO214	0.	4.06E-08	5.35E-03	5.84E-03	1.24E-03	3.28E-04	3.15E-04			
PO215	0.	2.49E-06	2.86E-04	3.98E-04	4.00E-04	3.99E-04	3.97E-04			
PO216	0.	7.23E-03	1.47E-08	4.40E-08	1.45E-07	4.23E-07	1.28E-06			
PO218	0.	4.06E-08	5.35E-03	5.84E-03	1.24E-03	3.28E-04	3.15E-04			
AT217	0.	4.05E-08	1.56E-01	3.19E-01	3.52E-01	1.87E-01	1.79E-02			
RN219	0.	2.49E-06	2.86E-04	3.98E-04	4.00E-04	3.99E-04	3.97E-04			
RN220	0.	7.22E-03	1.47E-08	4.40E-08	1.45E-07	4.23E-07	1.28E-06			
RN222	0.	4.06E-08	5.35E-03	5.84E-03	1.24E-03	3.28E-04	3.15E-04			
FR221	0.	4.05E-08	1.56E-01	3.19E-01	3.52E-01	1.87E-01	1.79E-02			
FR223	0.	3.49E-08	4.00E-06	5.57E-06	5.60E-06	5.59E-06	5.55E-06			
RA223	0.	2.49E-06	2.86E-04	3.98E-04	4.00E-04	3.99E-04	3.97E-04			
RA224	0.	7.22E-03	1.47E-08	4.40E-08	1.45E-07	4.23E-07	1.28E-06			
RA225	0.	4.05E-08	1.56E-01	3.19E-01	3.52E-01	1.87E-01	1.79E-02			
RA226	0.	4.06E-08	5.35E-03	5.84E-03	1.24E-03	3.28E-04	3.15E-04			
RA228	0.	1.28E-11	1.47E-08	4.40E-08	1.45E-07	4.23E-07	1.28E-06			
AC225	0.	4.05E-08	1.56E-01	3.19E-01	3.52E-01	1.87E-01	1.79E-02			
AC227	0.	2.49E-06	2.86E-04	3.98E-04	4.00E-04	3.99E-04	3.97E-04			
AC228	0.	1.28E-11	1.47E-08	4.40E-08	1.45E-07	4.23E-07	1.28E-06			
TH227	0.	2.46E-06	2.82E-04	3.93E-04	3.95E-04	3.94E-04	3.91E-04			
TH228	0.	7.22E-03	1.47E-08	4.40E-08	1.45E-07	4.23E-07	1.28E-06			
TH229	0.	4.05E-08	1.56E-01	3.19E-01	3.52E-01	1.87E-01	1.79E-02			
TH230	0.	3.16E-05	5.35E-03	5.79E-03	1.24E-03	3.28E-04	3.15E-04			
TH231	0.	1.48E-02	3.78E-04	4.00E-04	4.00E-04	3.99E-04	3.97E-04			
TH232	0.	6.13E-11	1.47E-08	4.40E-08	1.45E-07	4.23E-07	1.28E-06			
TH234	3.23E-01	3.15E-01	3.15E-04	3.15E-04	3.15E-04	3.15E-04	3.15E-04			
PA231	0.	2.07E-05	2.86E-04	3.98E-04	4.00E-04	3.99E-04	3.97E-04			
PA233	0.	3.36E-01	4.42E-01	4.14E-01	3.30E-01	1.73E-01	1.79E-02			
PA234M	3.23E-01	3.15E-01	3.15E-04	3.15E-04	3.15E-04	3.15E-04	3.15E-04			
PA234	3.23E-04	3.15E-04	3.15E-07	3.15E-07	3.15E-07	3.15E-07	3.15E-07			
U232	0.	1.29E-05	0.	0.	0.	0.	0.			
U233	0.	4.61E-08	1.56E-01	3.11E-01	3.50E-01	1.87E-01	1.79E-02			
U234	1.52E+00	6.97E-04	8.18E-03	4.80E-03	9.44E-04	3.18E-04	3.15E-04			
U235	6.56E-02	1.48E-05	3.78E-04	4.00E-04	4.00E-04	3.99E-04	3.97E-04			
U236	0.	2.71E-04	2.98E-03	2.97E-03	2.91E-03	2.74E-03	2.24E-03			
U237	0.	2.30E-03	2.36E-09	1.23E-16	3.89E-42	0.	0.			

## REPROCESSED REFERENCE PWR WASTE - DECAY

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	10. Y	30. Y	100. Y
U238	3.23E-01	3.15E-04	3.15E-04	3.15E-04	3.15E-04
U240	0.	2.93E-17	6.33E-14	2.44E-13	8.75E-13
NP237	0.	3.36E-01	3.38E-01	3.41E-01	3.53E-01
NP239	0.	2.11E+01	2.10E+01	2.10E+01	2.09E+01
NP240M	0.	2.93E-14	6.33E-14	2.44E-13	8.75E-13
PU236	0.	9.06E-04	1.65E-04	1.27E-06	5.14E-14
PU238	0.	1.46E+01	1.57E+01	1.44E+01	1.05E+01
PU239	0.	1.62E+00	1.62E+00	1.64E+00	1.68E+00
PU240	0.	2.45E+00	4.14E+00	7.06E+00	9.36E+00
PU241	0.	4.78E+02	3.43E+02	1.33E+02	5.20E+00
PU242	0.	7.64E-03	7.66E-03	7.71E-03	7.87E-03
PU243	0.	1.78E-09	3.55E-07	3.55E-07	3.55E-07
PU244	0.	1.46E-16	6.34E-14	2.44E-13	8.76E-13
AM241	0.	5.69E+02	5.68E+02	5.57E+02	5.02E+02
AM242M	0.	8.25E+00	7.99E+00	7.29E+00	5.30E+00
AM242	0.	8.25E+00	7.99E+00	7.29E+00	5.30E+00
AM243	0.	2.11E+01	2.10E+01	2.10E+01	2.09E+01
AM244	0.	3.81E-17	8.24E-17	3.17E-16	1.14E-15
AM245	0.	7.53E-09	2.66E-11	2.64E-18	8.09E-43
CM242	0.	3.35E+02	6.56E+00	5.98E+00	4.35E+00
CM243	0.	3.71E+00	3.19E+00	2.07E+00	4.54E-01
CM244	0.	2.68E+03	2.05E+03	9.51E+02	6.52E+01
CM245	0.	4.32E-01	4.32E-01	4.31E-01	4.28E-01
CM246	0.	9.20E-02	9.19E-02	9.16E-02	9.07E-02
CM247	0.	3.55E-07	3.55E-07	3.55E-07	3.55E-07
CM248	0.	1.18E-06	1.18E-06	1.18E-06	1.18E-06
CM249	0.	7.72E-27	0.	0.	0.
CM250	0.	1.73E-13	1.73E-13	1.73E-13	1.72E-13
BK249	0.	5.02E-04	1.77E-06	1.76E-13	5.39E-38
BK250	0.	1.73E-13	1.73E-13	1.73E-13	1.72E-13
CF249	0.	1.40E-05	1.50E-05	1.44E-05	1.26E-05
CF250	0.	5.17E-05	3.57E-05	1.24E-05	3.03E-07
CF251	0.	4.47E-07	4.45E-07	4.38E-07	4.15E-07
CF252	0.	4.01E-05	6.40E-06	3.39E-08	3.68E-16
CF253	0.	2.48E-24	0.	0.	0.
CF254	0.	8.64E-15	1.64E-27	7.30E-64	0.
ES253	0.	6.92E-21	0.	0.	0.
SUBTOT	2.56E+00	4.14E+03	3.05E+03	1.73E+03	6.52E+02
TOTALS	2.56E+00	4.14E+03	3.05E+03	1.73E+03	6.52E+02

## REPROCESSED REFERENCE PWR WASTE - DECAY (CONT'D)

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	300. Y	1000. Y	3000. Y	10000. Y	30000. Y
U238	3.23E-01	3.15E-04	3.15E-04	3.15E-04	3.15E-04	3.15E-04	3.15E-04
U240	0.	2.93E-17	2.68E-12	8.99E-12	2.70E-11	8.93E-11	2.63E-10
NP237	0.	3.36E-01	3.81E-01	4.31E-01	4.54E-01	4.54E-01	4.52E-01
NP239	0.	2.11E+01	2.05E+01	1.92E+01	1.61E+01	8.51E+00	1.39E+00
NP240M	0.	2.93E-14	2.68E-12	8.99E-12	2.70E-11	8.93E-11	2.63E-10
PU236	0.	9.06E-04	0.	0.	0.	0.	0.
PU238	0.	1.46E+01	4.20E+00	1.73E-01	8.18E-06	2.59E-19	6.31E-59
PU239	0.	1.62E+00	1.78E+00	2.14E+00	2.99E+00	4.57E+00	4.16E+00
PU240	0.	2.45E+00	9.35E+00	8.70E+00	7.09E+00	3.46E+00	4.45E-01
PU241	0.	4.78E+02	4.22E-01	3.98E-01	3.36E-01	1.87E-01	3.49E-02
PU242	0.	7.64E-03	8.13E-03	8.37E-03	8.60E-03	8.96E-03	8.88E-03
PU243	0.	2.21E-09	3.55E-07	3.55E-07	3.55E-07	3.55E-07	3.55E-07
PU244	0.	1.46E-16	2.68E-12	9.00E-12	2.70E-11	8.94E-11	2.63E-10
AM241	0.	5.69E+02	3.64E+02	1.19E+02	5.18E+00	1.87E-01	3.49E-02
AM242M	0.	8.25E+00	2.13E+00	8.74E-02	9.56E-06	1.31E-19	3.18E-59
AM242	0.	8.25E+00	2.13E+00	8.74E-02	9.56E-06	1.31E-19	3.18E-59
AM243	0.	2.11E+01	2.05E+01	1.92E+01	1.61E+01	8.51E+00	1.39E+00
AM244	0.	3.81E-17	3.49E-15	1.17E-14	3.51E-14	1.16E-13	3.42E-13
AM245	0.	7.53E-09	0.	0.	0.	0.	0.
CM242	0.	3.35E+02	1.75E+00	7.17E-02	7.84E-06	1.07E-19	2.62E-59
CM243	0.	3.71E+00	5.96E-03	1.55E-09	2.36E-28	0.	0.
CM244	0.	2.68E+03	3.07E-02	8.15E-14	3.51E-14	1.16E-13	3.42E-13
CM245	0.	4.32E-01	4.21E-01	3.97E-01	3.36E-01	1.87E-01	3.49E-02
CM246	0.	9.20E-02	8.81E-02	7.94E-02	5.92E-02	2.11E-02	1.11E-03
CM247	0.	3.55E-07	3.55E-07	3.55E-07	3.55E-07	3.55E-07	3.55E-07
CM248	0.	1.18E-06	1.18E-06	1.17E-06	1.17E-06	1.15E-06	1.11E-06
CM249	0.	7.72E-27	0.	0.	0.	0.	0.
CM250	0.	1.73E-13	1.71E-13	1.66E-13	1.54E-13	1.16E-13	5.24E-14
BK249	0.	5.02E-04	0.	0.	0.	0.	0.
BK250	0.	1.73E-13	1.71E-13	1.66E-13	1.54E-13	1.16E-13	5.24E-14
CF249	0.	1.40E-05	8.49E-06	2.14E-06	4.16E-08	4.29E-14	3.36E-31
CF250	0.	5.17E-05	7.72E-12	1.66E-13	1.54E-13	1.16E-13	5.24E-14
CF251	0.	4.47E-07	3.56E-07	2.08E-07	4.45E-08	2.03E-10	4.13E-17
CF252	0.	4.01E-05	0.	0.	0.	0.	0.
CF253	0.	2.48E-24	0.	0.	0.	0.	0.
CF254	0.	8.64E-15	0.	0.	0.	0.	0.
ES253	0.	6.92E-21	0.	0.	0.	0.	0.
SUBTOT	2.56E+00	4.14E+03	4.28E+02	1.71E+02	4.90E+01	2.66E+01	8.79E+00
TOTALS	2.56E+00	4.14E+03	4.28E+02	1.71E+02	4.90E+01	2.66E+01	8.79E+00

REPROCESSED REFERENCE PWR WASTE - DECAY (CONT'D)

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	100000.	Y300000.	Y*****	Y*****	Y*****	Y
					1.00E+06	3.00E+06	1.00E+07	
U238	3.23E-01	3.15E-04	3.15E-04	3.15E-04	3.15E-04	3.15E-04	3.15E-04	3.15E-04
U240	0.	2.93E-17	8.18E-10	2.04E-09	3.92E-09	4.47E-09	4.23E-09	4.23E-09
NP237	0.	3.36E-01	4.42E-01	4.14E-01	3.30E-01	1.73E-01	1.79E-02	1.79E-02
NP239	0.	2.11E+01	2.44E-03	3.51E-07	3.41E-07	3.13E-07	2.33E-07	2.33E-07
NP240M	0.	2.93E-14	8.18E-10	2.04E-09	3.92E-09	4.47E-09	4.23E-09	4.23E-09
PU236	0.	9.06E-04	0.	0.	0.	0.	0.	0.
PU238	0.	1.46E+01	0.	0.	0.	0.	0.	0.
PU239	0.	1.62E+00	6.55E-01	2.24E-03	3.41E-07	3.13E-07	2.33E-07	2.33E-07
PU240	0.	2.45E+00	3.39E-04	2.04E-09	3.93E-09	4.48E-09	4.24E-09	4.24E-09
PU241	0.	4.78E+02	9.85E-05	5.11E-12	1.62E-37	0.	0.	0.
PU242	0.	7.64E-03	7.82E-03	5.43E-03	1.51E-03	3.89E-05	1.07E-10	1.07E-10
PU243	0.	2.64E-09	3.54E-07	3.51E-07	3.41E-07	3.13E-07	2.33E-07	2.33E-07
PU244	0.	1.46E-16	8.20E-10	2.04E-09	3.93E-09	4.48E-09	4.24E-09	4.24E-09
AM241	0.	5.69E+02	1.04E-04	5.39E-12	1.71E-37	0.	0.	0.
AM242M	0.	8.25E+00	0.	0.	0.	0.	0.	0.
AM242	0.	8.25E+00	0.	0.	0.	0.	0.	0.
AM243	0.	2.11E+01	2.44E-03	3.51E-07	3.41E-07	3.13E-07	2.33E-07	2.33E-07
AM244	0.	3.81E-17	1.07E-12	2.66E-12	5.10E-12	5.82E-12	5.51E-12	5.51E-12
AM245	0.	7.53E-09	0.	0.	0.	0.	0.	0.
CM242	0.	3.35E+02	0.	0.	0.	0.	0.	0.
CM243	0.	3.71E+00	0.	0.	0.	0.	0.	0.
CM244	0.	2.68E+03	1.07E-12	2.66E-12	5.10E-12	5.82E-12	5.51E-12	5.51E-12
CM245	0.	4.32E-01	9.83E-05	5.10E-12	1.62E-37	0.	0.	0.
CM246	0.	9.20E-02	3.74E-08	1.11E-18	1.18E-30	2.92E-65	0.	0.
CM247	0.	3.55E-07	3.54E-07	3.51E-07	3.41E-07	3.13E-07	2.33E-07	2.33E-07
CM248	0.	1.18E-06	9.67E-07	6.52E-07	1.64E-07	3.20E-09	3.30E-15	3.30E-15
CM249	0.	7.72E-27	0.	0.	0.	0.	0.	0.
CM250	0.	1.73E-13	3.22E-15	1.12E-18	8.63E-31	2.15E-65	0.	0.
BK249	0.	5.02E-04	0.	0.	0.	0.	0.	0.
BK250	0.	1.73E-13	3.22E-15	1.12E-18	8.63E-31	2.15E-65	0.	0.
CF249	0.	1.40E-05	0.	0.	0.	0.	0.	0.
CF250	0.	5.17E-05	3.22E-15	1.12E-18	8.64E-31	2.15E-65	0.	0.
CF251	0.	4.47E-07	0.	0.	0.	0.	0.	0.
CF252	0.	4.01E-05	0.	0.	0.	0.	0.	0.
CF253	0.	2.48E-24	0.	0.	0.	0.	0.	0.
CF254	0.	8.64E-15	0.	0.	0.	0.	0.	0.
ES253	0.	6.92E-21	0.	0.	0.	0.	0.	0.
SUBTOT	2.56E+00	4.14E+03	3.03E+00	3.77E+00	3.85E+00	2.04E+00	2.08E-01	2.08E-01
TOTALS	2.56E+00	4.14E+03	3.03E+00	3.77E+00	3.85E+00	2.04E+00	2.08E-01	2.08E-01

## REPROCESSED REFERENCE PWR WASTE - DECAY

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	30. Y	100. Y
TL207	0.	6.33E-06	1.42E-05	2.20E-05
TL208	0.	5.80E-03	1.15E-05	3.80E-06
TL209	0.	1.64E-09	2.25E-09	1.44E-08
P8209	0.	7.44E-08	1.02E-07	6.53E-07
P821.	0.	2.54E-08	2.85E-07	2.18E-06
P8211	0.	6.40E-06	1.42E-05	2.20E-05
P8212	0.	1.61E-02	3.19E-05	1.06E-05
P8214	0.	2.02E-07	8.53E-07	3.11E-06
BI210	0.	2.54E-08	2.85E-07	2.18E-06
BI211	0.	6.40E-06	1.42E-05	2.20E-05
BI212	0.	1.61E-02	3.19E-05	1.06E-05
BI213	0.	7.44E-08	1.02E-07	6.53E-07
BI214	0.	2.02E-07	8.53E-07	3.11E-06
P0210	0.	2.54E-08	2.85E-07	2.18E-06
P0211	0.	1.92E-08	4.27E-08	6.61E-08
P0212	0.	1.03E-02	2.04E-05	6.76E-06
P0213	0.	7.27E-08	1.00E-07	6.79E-07
P0214	0.	2.02E-07	8.53E-07	3.11E-06
P0215	0.	6.40E-06	1.42E-05	2.20E-05
P0216	0.	1.61E-02	3.19E-05	1.06E-05
P0218	0.	2.02E-07	8.53E-07	3.11E-06
AT217	0.	7.44E-08	1.02E-07	6.53E-07
RN219	0.	6.40E-06	1.42E-05	2.20E-05
RN220	0.	1.61E-02	3.19E-05	1.06E-05
RN222	0.	2.02E-07	8.53E-07	3.11E-06
FR221	0.	7.44E-08	1.02E-07	6.53E-07
FR223	0.	3.95E-08	1.99E-07	5.08E-07
RA223	0.	6.40E-06	1.42E-05	2.20E-05
RA224	0.	1.61E-02	3.19E-05	1.06E-05
RA225	0.	7.44E-08	1.02E-07	6.53E-07
RA226	0.	2.02E-07	8.53E-07	3.11E-06
RA228	0.	5.47E-11	1.43E-10	1.56E-10
AC225	0.	7.44E-08	1.02E-07	6.53E-07
AC227	0.	6.40E-06	1.42E-05	2.20E-05
AC228	0.	6.47E-11	1.43E-10	1.56E-10
TH227	0.	6.31E-06	1.40E-05	2.17E-05
TH228	0.	1.61E-02	3.18E-05	1.06E-05
TH229	0.	7.44E-08	1.02E-07	6.53E-07
TH23.	0.	7.56E-05	7.53E-05	7.73E-05
TH231	0.	1.48E-02	1.48E-05	1.49E-05
TH232	0.	1.55E-10	1.55E-10	1.56E-10
TH234	3.23E-01	3.15E-01	3.15E-04	3.15E-04
PA231	0.	2.30E-05	2.29E-05	2.29E-05
PA233	0.	3.39E-01	3.43E-01	3.79E-01
PA234M	3.23E-01	3.15E-01	3.15E-04	3.15E-04
PA234	3.23E-04	3.15E-04	3.15E-07	3.15E-07
U232	0.	1.76E-05	2.01E-05	1.03E-05
U233	0.	5.61E-08	2.94E-05	1.38E-04
U234	1.52E+00	7.53E-04	1.50E-03	3.67E-03
U235	6.56E-02	1.48E-05	1.48E-05	1.49E-05
U236	0.	2.71E-04	2.74E-04	2.33E-04
U237	0.	1.65E-03	3.19E-03	1.25E-04

REPROCESSED REFERENCE PWR WASTE - DECAY (CONT'D)

POWER= 34.40MW, BURNUP= 35000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	300. Y	1000. Y	3000. Y	10000. Y	30000. Y
TL207	0.	6.38E-06	2.28E-05	2.27E-05	2.26E-05	2.42E-05	4.98E-05
TL208	0.	5.80E-03	5.54E-07	7.18E-10	8.66E-11	2.53E-10	1.02E-09
TL209	0.	1.64E-09	1.43E-07	1.91E-06	1.96E-05	1.99E-04	1.13E-03
PB209	0.	7.44E-08	6.51E-06	8.69E-05	8.93E-04	9.05E-03	5.13E-02
PB210	0.	2.54E-08	9.64E-06	3.70E-05	1.52E-04	6.77E-04	2.05E-03
PB211	0.	6.40E-06	2.29E-05	2.28E-05	2.27E-05	2.43E-05	4.99E-05
PB212	0.	1.61E-02	1.54E-06	1.99E-09	2.40E-10	7.01E-10	2.84E-09
PB214	0.	2.02E-07	9.64E-06	3.70E-05	1.52E-04	6.77E-04	2.05E-03
BI210	0.	2.54E-08	9.64E-06	3.70E-05	1.52E-04	6.77E-04	2.05E-03
BI211	0.	6.40E-06	2.29E-05	2.28E-05	2.27E-05	2.43E-05	4.99E-05
BI212	0.	1.61E-02	1.54E-06	1.99E-09	2.40E-10	7.01E-10	2.84E-09
BI213	0.	7.44E-08	6.51E-06	8.69E-05	8.93E-04	9.05E-03	5.13E-02
BI214	0.	2.02E-07	9.64E-06	3.70E-05	1.52E-04	6.77E-04	2.05E-03
PO210	0.	2.54E-08	9.64E-06	3.70E-05	1.52E-04	6.77E-04	2.05E-03
PO211	0.	1.92E-03	6.83E-08	6.84E-08	6.80E-08	7.29E-08	1.50E-07
PO212	0.	1.03E-02	9.85E-07	1.23E-09	1.54E-10	4.49E-10	1.82E-09
PO213	0.	7.27E-03	6.37E-06	8.50E-05	3.73E-04	8.35E-03	5.02E-02
PO214	0.	2.02E-07	9.64E-06	3.70E-05	1.52E-04	6.77E-04	2.05E-03
PO215	0.	6.40E-06	2.29E-05	2.28E-05	2.27E-05	2.43E-05	4.99E-05
PO216	0.	1.61E-02	1.54E-06	1.99E-09	2.40E-10	7.01E-10	2.84E-09
PO218	0.	2.02E-07	9.64E-06	3.70E-05	1.52E-04	6.77E-04	2.05E-03
AT217	0.	7.44E-08	6.51E-06	8.69E-05	8.93E-04	9.05E-03	5.13E-02
RN219	0.	6.40E-06	2.29E-05	2.28E-05	2.27E-05	2.43E-05	4.99E-05
RN220	0.	1.61E-02	1.54E-06	1.99E-09	2.40E-10	7.01E-10	2.84E-09
RN222	0.	2.02E-07	9.64E-06	3.70E-05	1.52E-04	6.77E-04	2.05E-03
FR221	0.	7.44E-08	6.51E-06	8.69E-05	8.93E-04	9.05E-03	5.13E-02
FR223	0.	8.95E-03	3.21E-07	7.19E-07	3.17E-07	3.40E-07	6.29E-07
RA223	0.	6.40E-06	2.29E-05	2.28E-05	2.27E-05	2.43E-05	4.99E-05
RA224	0.	1.61E-02	1.54E-06	1.99E-09	2.40E-10	7.01E-10	2.84E-09
RA225	0.	7.44E-08	6.51E-06	8.69E-05	8.93E-04	9.05E-03	5.13E-02
RA226	0.	2.02E-07	9.64E-06	3.70E-05	1.52E-04	6.77E-04	2.05E-03
RA228	0.	6.47E-11	1.59E-10	1.73E-10	2.40E-10	7.01E-10	2.84E-09
AC225	0.	7.44E-08	6.51E-06	8.69E-05	8.93E-04	9.05E-03	5.13E-02
AC227	0.	6.40E-06	2.29E-05	2.28E-05	2.27E-05	2.43E-05	4.99E-05
AC228	0.	6.47E-11	1.59E-10	1.73E-10	2.40E-10	7.01E-10	2.84E-09
TH227	0.	6.31E-06	2.26E-05	2.25E-05	2.23E-05	2.40E-05	4.92E-05
TH228	0.	1.61E-02	1.54E-06	1.99E-09	2.40E-10	7.01E-10	2.84E-09
TH229	0.	7.44E-08	6.51E-06	8.69E-05	8.93E-04	9.05E-03	5.13E-02
TH230	0.	7.56E-05	8.71E-05	1.41E-04	3.66E-04	8.53E-04	2.19E-03
TH231	0.	1.47E-02	1.52E-05	1.66E-05	2.16E-05	4.85E-05	1.39E-04
TH232	0.	1.55E-10	1.59E-10	1.73E-10	2.40E-10	7.01E-10	2.84E-09
TH234	3.23E-01	3.15E-01	3.15E-04	3.15E-04	3.15E-04	3.15E-04	3.15E-04
PA231	0.	2.30E-05	2.29E-05	2.28E-05	2.26E-05	2.43E-05	4.99E-05
PA233	0.	3.39E-01	4.50E-01	5.77E-01	6.35E-01	6.37E-01	6.34E-01
PA234M	3.23E-01	3.15E-01	3.15E-04	3.15E-04	3.15E-04	3.15E-04	3.15E-04
PA234	3.23E-04	3.15E-04	3.15E-07	3.15E-07	3.15E-07	3.15E-07	3.15E-07
U232	0.	1.76E-05	1.50E-06	1.77E-09	7.69E-18	4.13E-47	0.
U233	0.	5.61E-03	4.94E-04	2.06E-03	7.33E-03	2.59E-02	7.59E-02
U234	1.52E+00	7.53E-04	7.25E-03	9.65E-03	9.70E-03	9.52E-03	9.02E-03
U235	6.56E-02	1.48E-05	1.52E-05	1.66E-05	2.16E-05	4.85E-05	1.39E-04
U236	0.	2.71E-04	3.37E-04	4.89E-04	8.65E-04	1.71E-03	2.42E-03
U237	0.	1.65E-03	1.01E-05	9.55E-06	8.07E-06	4.49E-06	8.39E-07

REPROCESSED REFERENCE PWR WASTE - DECAY (CONT'D)

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 5.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

		1.00E+06	3.00E+06	1.00E+07
	CHARGE	DISCHARGE	Y*****	Y*****
		100000.	Y*****	Y*****
TL207	0.	6.38E-06	2.85E-04	3.97E-04
TL208	0.	5.80E-03	4.50E-09	1.34E-08
TL209	0.	1.64E-09	4.82E-03	9.84E-03
PB209	0.	7.44E-03	2.19E-01	4.47E-01
PB210	0.	2.54E-03	4.90E-03	5.34E-03
PB211	0.	6.40E-06	2.86E-04	3.98E-04
PB212	0.	1.61E-02	1.25E-08	3.71E-08
PB214	0.	2.02E-07	4.90E-03	5.34E-03
BI210	0.	2.54E-03	4.90E-03	5.34E-03
BI211	0.	6.40E-06	2.86E-04	3.98E-04
BI212	0.	1.61E-02	1.25E-08	3.71E-08
BI213	0.	7.44E-03	2.19E-01	4.47E-01
BI214	0.	2.02E-07	4.90E-03	5.34E-03
PO210	0.	2.54E-03	4.90E-03	5.34E-03
PO211	0.	1.92E-03	3.57E-07	1.19E-06
PO212	0.	1.03E-02	3.01E-09	2.38E-08
PO213	0.	7.27E-03	2.14E-01	4.37E-01
PO214	0.	2.02E-07	4.90E-03	5.34E-03
PO215	0.	6.40E-06	2.86E-04	3.98E-04
PO216	0.	1.61E-02	1.25E-08	3.71E-08
PO218	0.	2.02E-07	4.90E-03	5.34E-03
AT217	0.	7.44E-03	2.19E-01	4.47E-01
RN219	0.	6.40E-06	2.86E-04	3.98E-04
RN220	0.	1.61E-02	1.25E-08	3.71E-08
RN222	0.	2.02E-07	4.90E-03	5.34E-03
FR221	0.	7.44E-03	2.19E-01	4.47E-01
FR223	0.	3.95E-06	4.00E-06	5.57E-06
RA223	0.	6.40E-06	2.86E-04	3.98E-04
RA224	0.	1.61E-02	1.25E-08	3.71E-08
RA225	0.	7.44E-03	2.19E-01	4.47E-01
RA226	0.	2.02E-07	4.90E-03	5.34E-03
RA228	0.	6.47E-11	1.25E-08	3.71E-08
AC225	0.	7.44E-03	2.19E-01	4.47E-01
AC227	0.	6.40E-06	2.86E-04	3.98E-04
AC228	0.	6.47E-11	1.25E-08	3.71E-08
TH227	0.	6.31E-06	2.82E-04	3.92E-04
TH228	0.	1.61E-02	1.25E-08	3.71E-08
TH229	0.	7.44E-03	2.19E-01	4.47E-01
TH230	0.	7.50E-05	4.90E-03	5.29E-03
TH231	0.	1.47E-02	3.78E-04	4.00E-04
TH232	0.	1.55E-10	1.25E-08	3.71E-08
TH234	3.23E-01	3.15E-01	3.15E-04	3.15E-04
PA231	0.	2.30E-05	2.86E-04	3.98E-04
PA233	0.	5.39E-01	6.19E-01	5.81E-01
PA234M	3.23E-01	3.15E-01	3.15E-04	3.15E-04
PA234	3.23E-04	3.15E-04	3.15E-07	3.15E-07
U232	0.	1.76E-05	0.	0.
U233	0.	5.61E-08	2.19E-01	4.36E-01
U234	1.52E+00	7.53E-04	7.47E-03	4.39E-03
U235	6.56E-02	1.43E-05	3.78E-04	4.00E-04
U236	0.	2.71E-04	2.51E-03	2.50E-03
U237	0.	1.65E-03	2.36E-09	1.23E-16

REPROCESSED REFERENCE PWR WASTE - DECAY

POWER= 34.40MW, BURNUP= 53000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	30. Y	100. Y
U238	3.23E-01	3.15E-04	3.15E-04	3.15E-04
U240	0.	9.24E-17	1.81E-13	8.12E-13
NP237	0.	5.39E-01	3.48E-01	3.79E-01
NP239	0.	2.10E+01	2.10E+01	2.09E+01
NP240M	0.	9.24E-14	1.81E-13	8.12E-13
PU236	0.	1.65E-04	1.27E-06	5.14E-14
PU238	0.	1.33E+01	1.27E+01	9.50E+00
PU239	0.	1.62E+00	1.63E+00	1.67E+00
PU240	0.	2.46E+00	5.33E+00	7.70E+00
PU241	0.	3.43E+02	1.33E+02	5.20E+00
PU242	0.	7.64E-03	7.69E-03	7.35E-03
PU243	0.	1.78E-09	5.55E-07	3.55E-07
PU244	0.	4.63E-16	1.81E-13	8.13E-13
AM241	0.	1.47E+03	1.43E+03	1.28E+03
AM242M	0.	7.99E+00	7.29E+00	5.30E+00
AM242	0.	7.99E+00	7.29E+00	5.30E+00
AM243	0.	2.10E+01	2.10E+01	2.09E+01
AM244	0.	1.20E-16	2.35E-16	1.06E-15
AM245	0.	2.66E-11	2.64E-18	8.09E-43
CM242	0.	5.56E+00	5.98E+00	4.35E+00
CM243	0.	3.19E+00	2.07E+00	4.54E-01
CM244	0.	2.05E+03	9.51E+02	6.52E+01
CM245	0.	4.32E-01	4.31E-01	4.23E-01
CM246	0.	9.19E-02	9.16E-02	9.07E-02
CM247	0.	3.55E-07	3.55E-07	3.55E-07
CM248	0.	1.13E-06	1.13E-06	1.18E-06
CM250	0.	1.73E-13	1.73E-13	1.72E-13
BK249	0.	1.77E-06	1.76E-13	5.39E-38
BK250	0.	1.73E-13	1.73E-13	1.72E-13
CF249	0.	1.50E-05	1.44E-05	1.26E-05
CF250	0.	3.57E-05	1.24E-05	3.63E-07
CF251	0.	4.45E-07	4.38E-07	4.15E-07
CF252	0.	5.40E-06	3.39E-08	3.63E-16
CF254	0.	1.64E-27	0.	0.
SUBTOT	2.56E+00	3.94E+03	2.60E+03	1.43E+03
TOTALS	2.56E+00	3.94E+03	2.60E+03	1.43E+03



REPROCESSED REFERENCE PWR WASTE - DECAY (CONT'D)

POWER= 34.40MW, BURNUP= 3500).MWD, FLUX= 7.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTHM CHARGED TO REACTOR

	CHARGE	DISCHARGE	300. Y	1000. Y	3000. Y	10000. Y	30000. Y
U233	3.25E-01	3.15E-04	3.15E-04	3.15E-04	3.15E-04	3.15E-04	3.15E-04
U240	0.	9.24E-17	2.62E-12	8.92E-12	2.69E-11	8.92E-11	2.63E-10
NP237	0.	3.59E-01	4.50E-01	5.77E-01	6.35E-01	6.37E-01	6.34E-01
NP239	0.	2.10E+01	2.05E+01	1.92E+01	1.61E+01	8.51E+00	1.39E+00
NP240M	0.	5.78E-14	2.62E-12	8.92E-12	2.69E-11	8.92E-11	2.63E-10
PU236	0.	1.65E-04	0.	0.	0.	0.	0.
PU233	0.	1.38E+01	4.01E+00	1.72E-01	3.18E-06	2.59E-19	6.31E-59
PU239	0.	1.62E+00	1.78E+00	2.14E+00	2.99E+00	4.57E+00	4.16E+00
PU240	0.	2.46E+00	7.72E+00	7.19E+00	5.85E+00	2.86E+00	3.67E-01
PU241	0.	3.43E+02	4.22E-01	3.93E-01	3.36E-01	1.87E-01	3.49E-02
PU242	0.	7.64E-03	8.11E-03	8.35E-03	3.58E-03	8.94E-03	8.86E-03
PU243	0.	3.07E-07	3.55E-07	3.55E-07	3.55E-07	3.55E-07	3.55E-07
PU244	0.	4.63E-16	2.62E-12	8.93E-12	2.69E-11	8.94E-11	2.63E-10
AM241	0.	1.47E+03	9.31E+02	3.04E+02	1.27E+01	1.87E-01	3.49E-02
AM242M	0.	7.99E+00	2.13E+00	8.74E-02	9.56E-06	1.31E-19	3.18E-59
AM242	0.	7.99E+00	2.13E+00	8.74E-02	9.56E-06	1.31E-19	3.18E-59
AM243	0.	2.10E+01	2.05E+01	1.92E+01	1.61E+01	8.51E+00	1.39E+00
AM244	0.	1.20E-16	3.41E-15	1.16E-14	3.50E-14	1.16E-13	3.42E-13
AM245	0.	2.60E-11	0.	0.	0.	0.	0.
CM242	0.	6.56E+00	1.75E+00	7.17E-02	7.84E-06	1.07E-19	2.62E-59
CM243	0.	3.19E+00	3.96E-03	1.55E-09	2.76E-28	0.	0.
CM244	0.	2.05E+03	3.07E-02	8.15E-14	3.50E-14	1.16E-13	3.42E-13
CM245	0.	4.32E-01	4.21E-01	3.97E-01	3.36E-01	1.87E-01	3.49E-02
CM246	0.	9.19E-02	8.81E-02	7.94E-02	5.92E-02	2.11E-02	1.11E-03
CM247	0.	3.55E-07	3.55E-07	3.55E-07	3.55E-07	3.55E-07	3.55E-07
CM248	0.	1.18E-06	1.18E-06	1.17E-06	1.17E-06	1.15E-06	1.11E-06
CM250	0.	1.75E-13	1.71E-13	1.66E-13	1.54E-13	1.16E-13	5.24E-14
BK249	0.	1.77E-06	0.	0.	0.	0.	0.
BK250	0.	1.73E-13	1.71E-13	1.66E-13	1.54E-13	1.16E-13	5.24E-14
CF249	0.	1.53E-05	3.49E-06	2.14E-06	4.16E-08	4.29E-14	3.36E-31
CF250	0.	3.37E-05	7.70E-12	1.66E-13	1.54E-13	1.16E-13	5.24E-14
CF251	0.	4.45E-07	3.56E-07	2.93E-07	4.45E-08	2.33E-10	4.13E-17
CF252	0.	6.40E-06	0.	0.	0.	0.	0.
CF254	0.	1.64E-27	0.	0.	0.	0.	0.
SUBTOT	2.56E+00	3.94E+03	9.93E+02	2.54E+02	5.57E+01	2.64E+01	9.21E+00
TOTALS	2.56E+00	3.94E+03	9.93E+02	2.54E+02	5.57E+01	2.64E+01	9.21E+00

REPROCESSED REFERENCE PWR WASTE - DECAY (CONT'D)

POWER= 34.40MW, BURNUP= 33000.MWD, FLUX= 3.54E+13N/CM\*\*2-SEC

NUCLIDE RADIOACTIVITY, CURIES  
BASIS = 1 MTM CHARGED TO REACTOR

			1.00E+06	3.00E+06	1.00E+07
	CHARGE	DISCHARGE	100000. Y	300000. Y	***** Y
U235	3.23E-01	3.15E-04	3.15E-04	3.15E-04	3.15E-04
U238	0.	9.24E-17	8.13E-10	2.04E-09	3.92E-09
NP237	0.	5.39E-01	6.19E-01	5.81E-01	4.63E-01
NP239	0.	2.13E+01	2.44E-03	3.51E-07	3.41E-07
NP240M	0.	3.62E-14	3.13E-10	2.04E-09	3.92E-09
PU236	0.	1.65E-04	0.	0.	0.
PU238	0.	1.03E+01	0.	0.	0.
PU239	0.	1.62E+00	6.55E-01	2.23E-03	3.41E-07
PU240	0.	2.46E+00	2.80E-04	2.04E-09	3.93E-09
PU241	0.	3.43E+02	9.85E-05	5.11E-12	1.62E-37
PU242	0.	7.04E-03	7.81E-03	5.41E-03	1.50E-03
PU243	0.	1.03E-03	3.54E-07	3.51E-07	3.41E-07
PU244	0.	4.65E-16	3.19E-10	2.04E-09	3.93E-09
AM241	0.	1.47E+03	1.04E-04	5.39E-12	1.71E-37
AM242M	0.	7.99E+00	0.	0.	0.
AM242	0.	7.99E+00	0.	0.	0.
AM243	0.	2.13E+01	2.44E-03	3.51E-07	3.41E-07
AM244	0.	1.20E-16	1.07E-12	2.66E-12	5.10E-12
AM245	0.	2.66E-11	0.	0.	0.
CM242	0.	6.56E+00	0.	0.	0.
CM243	0.	3.19E+00	0.	0.	0.
CM244	0.	2.05E+03	1.07E-12	2.66E-12	5.10E-12
CM245	0.	4.32E-01	9.30E-05	5.13E-12	1.62E-37
CM246	0.	9.19E-02	3.74E-08	1.11E-18	1.18E-30
CM247	0.	3.55E-07	3.54E-07	3.51E-07	3.41E-07
CM248	0.	1.13E-06	9.67E-07	6.52E-07	1.64E-07
CM25	0.	1.70E-13	3.22E-15	1.12E-18	8.63E-31
BK249	0.	1.77E-06	0.	0.	0.
BK250	0.	1.70E-13	3.22E-15	1.12E-18	8.63E-31
CF249	0.	1.50E-05	0.	0.	0.
CF250	0.	3.57E-05	5.22E-15	1.12E-18	8.64E-31
CF251	0.	4.45E-07	0.	0.	0.
CF252	0.	6.40E-06	0.	0.	0.
CF254	0.	1.64E-27	0.	0.	0.
SURTOT	2.56E+00	3.94E+00	3.94E+00	3.25E+00	5.39E+00
TOTALS	2.56E+00	3.94E+00	3.94E+00	3.25E+00	5.39E+00

Fig 1 Radioaktivitet i direktdeponerat bränsle

ms 100  
1757  
- E+12

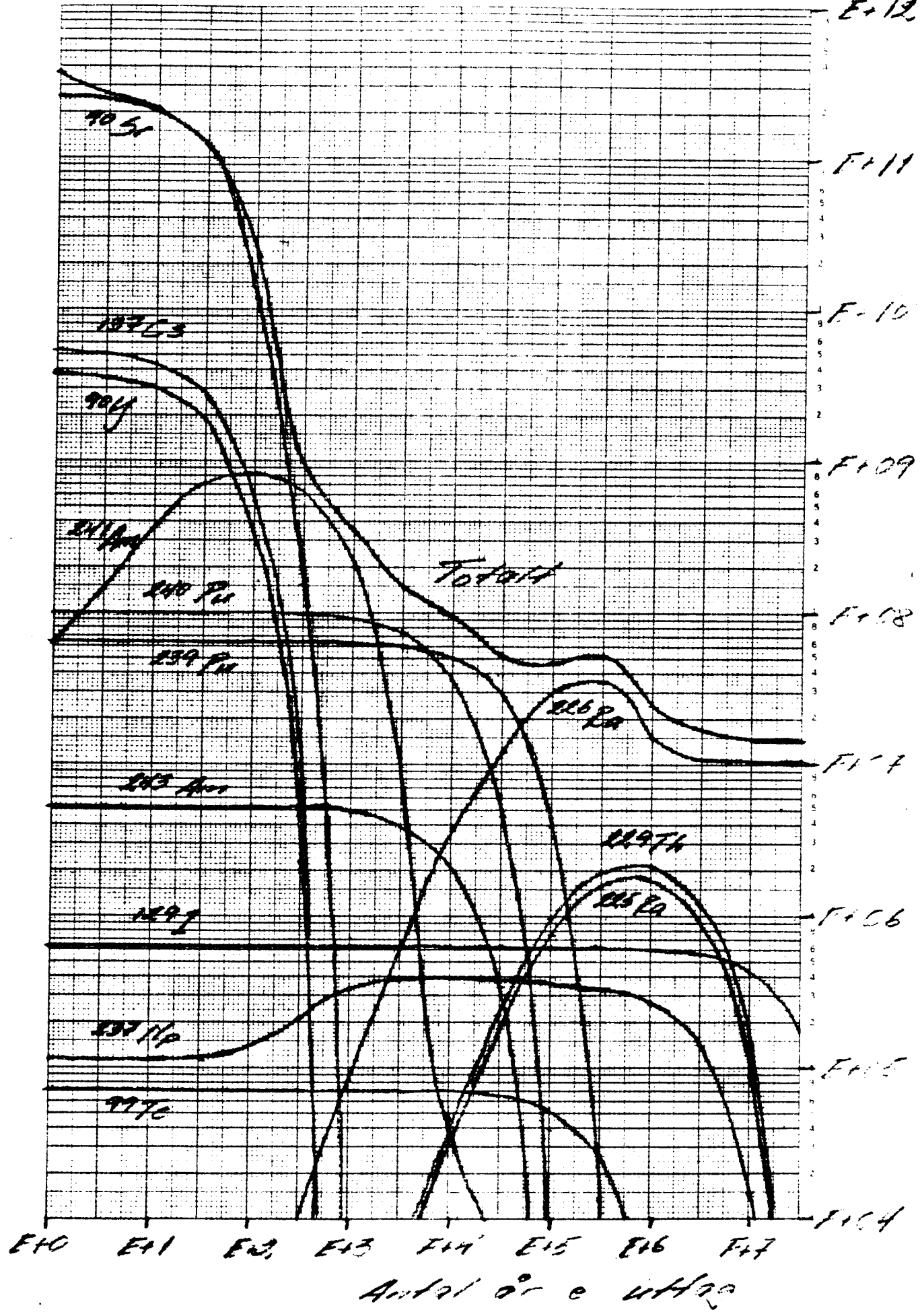


Fig 2

Radioaktivitet i brännle  
Upparbetad 3 år e utlag

ms 116  
1/11  
E+12

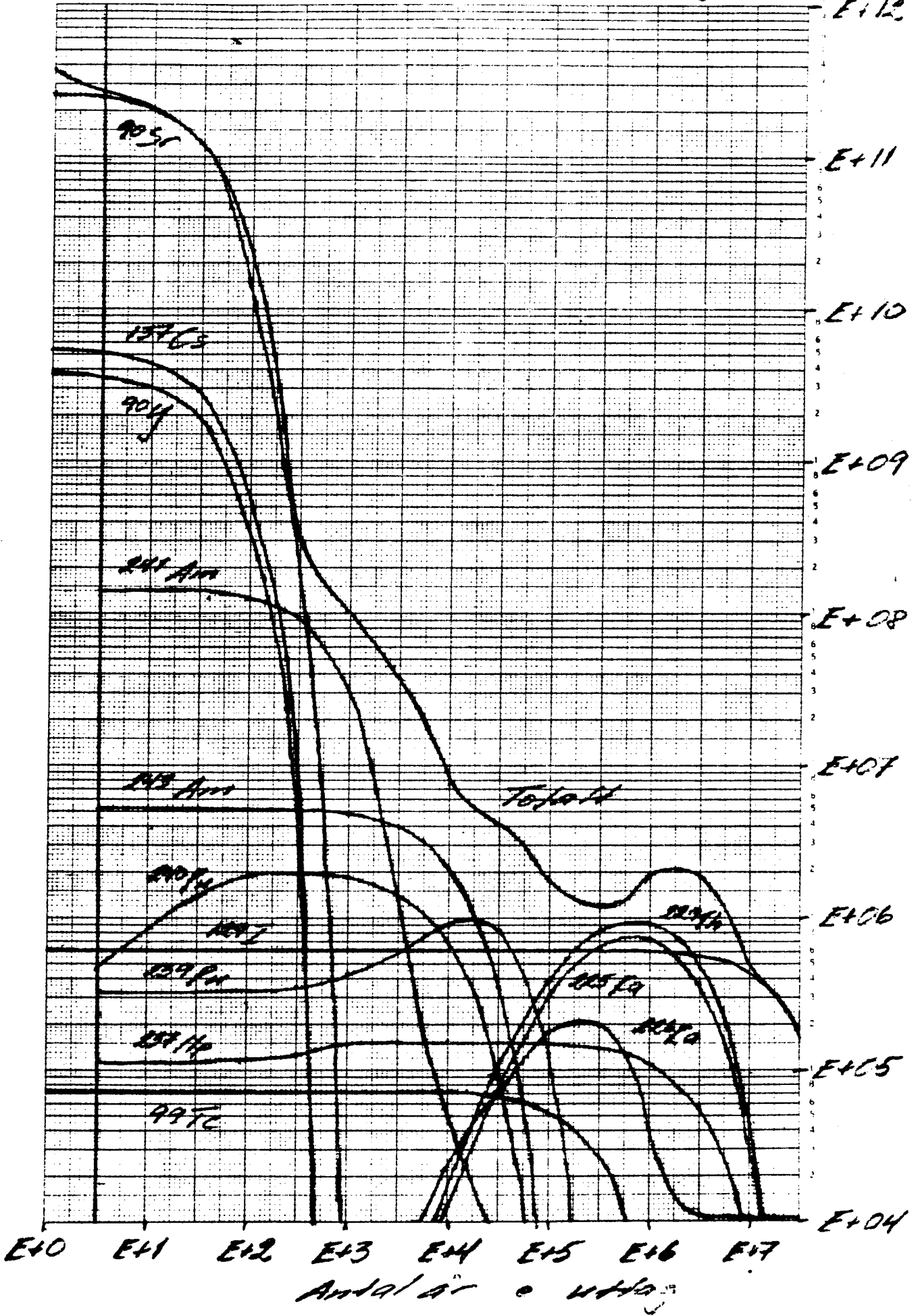
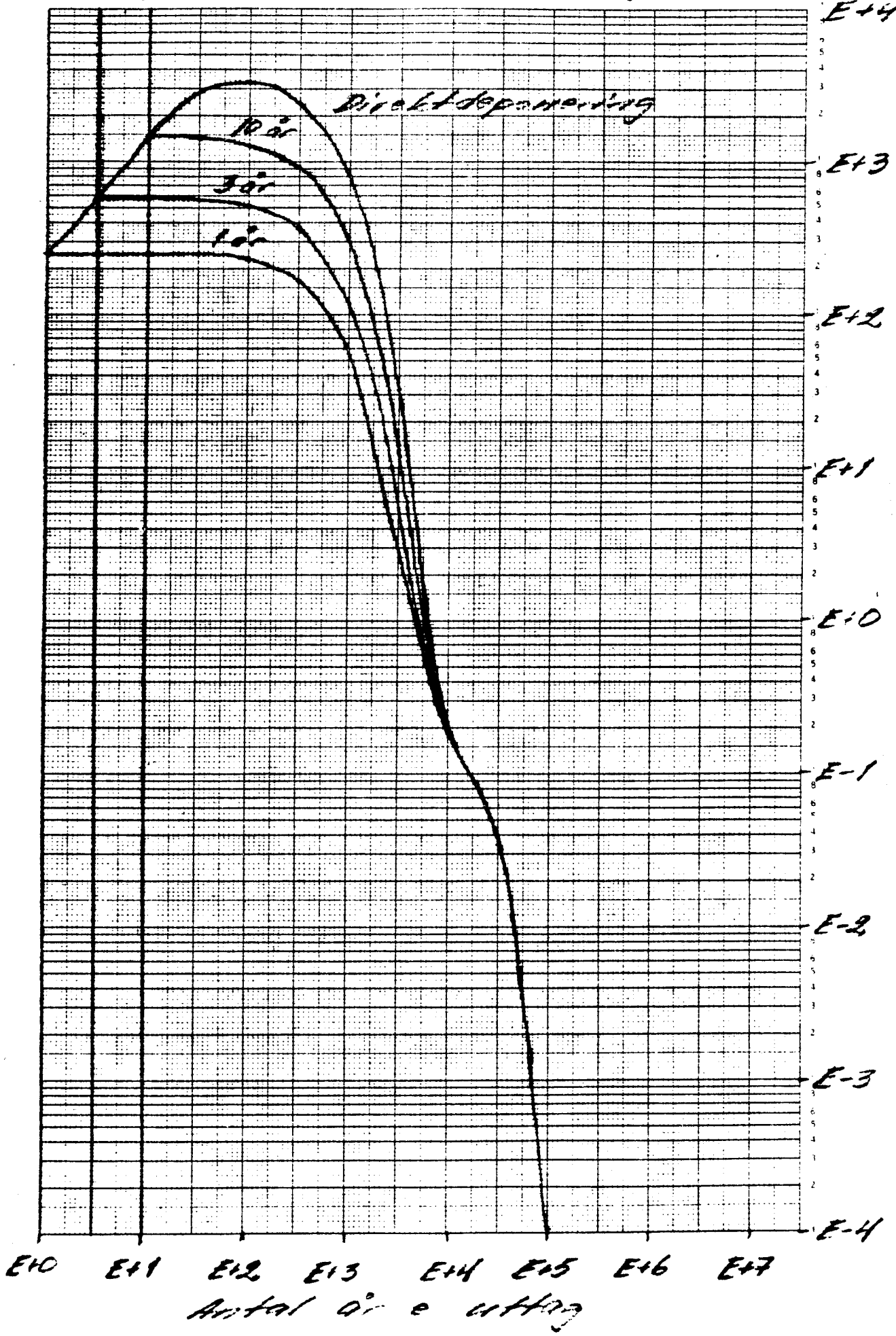


Fig 3 Antlingningen av 241 Am för olika upparbetningsstider Ciffra



## Förteckning över tekniska rapporter

01. Källstyrkor i utbränt bränsle och högaktivt avfall från en PWR beräknade med ORIGEN  
Nils Kjellbert  
AB Atomenergi 77-04-05
02. PM angående värmeledningstal hos jordmaterial  
Sven Knutsson och Roland Pusch  
Högskolan i Luleå 77-04-15
03. Deponering av högaktivt avfall i borrhål med buffertsubstans  
A Jacobsson och R Pusch  
Högskolan i Luleå 77-05-27
04. Deponering av högaktivt avfall i tunnlar med buffertsubstans  
A Jacobsson, R Pusch  
Högskolan i Luleå 77-06-01
05. Orienterande temperaturberäkningar för slutförvaring i berg av radioaktivt avfall  
Roland Blomqvist  
AB Atomenergi 77-03-17
06. Groundwater movements around a repository, Phase 1, State of the art and detailed study plan  
Ulf Lindblom  
Hagconsult AB 77-02-28
07. Resteffekt för KBS del 1  
Litteraturgenomgång Del 2 Beräkningar  
K Ekberg, N Kjellbert, G Olsson  
AB Atomenergi 77-04-19

08. Utlakning av franskt, engelskt och kanadensiskt  
glas med högaktivt avfall  
Göran Blomqvist  
AB Atomenergi 77-05-20
09. Diffusion of soluble materials in a fluid filling  
a porous medium  
Hans Häggblom  
AB Atomenergi 77-03-24