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APPROVED BY: (SUPERVISOR) E. M. Chandler	PROGRAM: SRE	TWR 2084
OTHER: N. C. Miller	PROJECT: SRE First Core Fuel	DATE May 16, 1960
		PAGE 1 OF 58

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SUBJECT: Calculation of Uranium and Plutonium Inventories in the SRE First Core Fuel Loading

CONTENTS:

I STATEMENT OF PROBLEM

Determine analytically the isotope concentrations in the SRE first core fuel unalloyed uranium; 2.778 w/o enriched after final exposure. This information is required prior to fuel shipments to ORNL for processing.

II. SUMMARY OF RESULTS

The inventory values required by the AEC prior to fuel shipments are tabulated below for the 48 unalloyed uranium SRE 1st core fuel elements after final exposure.

Fuel Element No.	U-235 Fissioned Plus U-236 Produced (gm)	U-236 Produced Less U-236 Burnup (gm)	U-238 Fissioned Plus Pu Produced (gm)	Pu Produced less Pu Fissioned (gm)
SU-1-1	4.046	0.6669	1.651	1.651
SU-1-2	30.43	5.729	14.83	14.62
SU-1-3	78.92	14.98	39.75	38.21
SU-1-4	48.10	9.098	23.76	23.18
SU-1-5	54.10	10.24	26.76	26.03
SU-1-6	41.26	7.72	20.06	19.64
SU-1-7	65.12	12.33	32.56	31.50
SU-1-8	73.59	13.93	36.60	35.22
SU-1-9	69.36	13.17	34.68	33.49
SU-1-10	50.65	9.56	25.04	24.40
SU-1-11	76.66	14.49	38.52	37.02
SU-1-12	78.92	14.98	39.65	38.11
SU-1-13	74.75	14.20	37.38	35.95
SU-1-14	74.26	14.06	36.94	35.55
SU-1-15	28.52	5.35	13.87	13.68

730-G-8

Fuel Element No.	U-235 Fissioned Plus U-236 Produced (gm)	U-236 Produced Less U-236 Burnup (gm)	U-238 Fissioned Plus Pu Produced (gm)	Pu Produced less Pu Fissioned (gm)
SU-1-16	56.25	10.62	27.75	26.96
SU-1-17	69.17	13.10	34.49	33.31
SU-1-18	68.16	12.90	33.89	32.73
SU-1-19	88.82	16.85	44.70	42.73
SU-1-20	80.97	15.30	40.48	38.84
SU-1-21	77.99	14.8	39.09	37.57
SU-1-22	25.01	4.699	11.93	11.82
SU-1-23	48.12	9.10	23.68	23.08
SU-1-24	70.52	13.32	35.07	33.83
SU-1-25	70.10	13.24	34.86	33.64
SU-1-26	47.43	8.97	23.33	22.76
SU-1-27	43.82	8.26	21.34	20.86
SU-1-28	79.84	15.09	40.02	38.45
SU-1-29	54.83	10.98	28.72	27.90
SU-1-30	73.20	13.85	36.60	35.25
SU-1-31	80.48	15.21	40.24	38.66
SU-1-32	81.02	15.43	40.61	38.92
SU-1-33	60.26	11.80	31.00	30.03
SU-1-34	68.78	12.98	34.30	33.12
SU-1-35	76.71	14.54	38.55	37.05
SU-1-36	74.73	14.19	37.75	36.31
SU-1-37	59.33	11.20	29.28	28.39
SU-1-38	74.56	14.12	37.18	35.78
SU-1-39	37.06	6.96	17.96	17.63
SU-1-40	65.72	12.49	32.76	31.66
SU-1-41	-	main standard	-	-
SU-1-42	24.96	4.69	12.10	11.94
SU-1-43	51.67	9.76	25.36	24.68
SU-1-44	55.13	10.44	27.37	26.60
SU-1-45	37.38	7.06	18.30	17.96
SU-1-46	40.50	7.64	19.67	19.28
SU-1-47	59.92	11.35	29.86	28.94
SU-3-1	46.29	8.726	22.77	22.24

The curves used in determining the above values are included in the report. Also included is a listing of the fuel elements in order of reactor exposure (Mwd/Tonne, lowest to highest), and a figure showing ring number and channel number positions of the elements in the core.

III. DISCUSSION OF RESULTS

The data presented pertains to the 48 unalloyed uranium SRE 1st core fuel elements and the 14 reactor power runs.

The following are tabulated for each run:

1. Date start-up
2. Date shut-down
3. Operating days per run
4. Cummulative operating days
5. Reactor Mwd per run
6. Cummulative Reactor Mwd
7. Average MW per run
8. Average MW since start-up

The following are tabulated for each fuel element:

1. Experiment number
2. Shield plug number
3. Weight (SS Net gms.)
4. Description
5. Composition
6. Cumulative operating days per element
7. Position; channel number and ring number
8. Orifice size
9. Channel factor
10. Mwd per element
11. Cumulative Mwd per element
12. Cumulative Mwd per tonne per element
13. U-235 consumed*
14. U-236 produced*
15. Pu produced*
16. Pu-239 fissioned*

The data used in determining the exposure of each element were obtained from R. Nebiker[3] and consisted of (1) reactor Mwd per run, (2) a channel factor for each element per run, and (3) the fuel weight for each element.

Isotope concentrations were determined by solving the following differential equations on a PACE analog computer.

---

* After final exposure

Equations:(1)

$$\dot{N}_5 = -\lambda_5 N_5$$

$$\dot{N}_6 = \lambda^c_5 N_5$$

$$\dot{N}_8 = -\lambda_8 N_8$$

$$\dot{N}_9 = \lambda^e_8 N_8 - \lambda_9 N_9$$

$$\dot{N}_0 = \lambda^c_9 N_9 - \lambda_0 N_0$$

$$\dot{N}_1 = \lambda_0 N_0 - \lambda_1 N_1$$

$$\dot{N}_2 = \lambda^e_1 N_1$$

$$\dot{N}_F = \lambda^f_5 N_5 + \lambda^f_9 N_9 + \lambda^f_1 N_1 + \lambda^f_8 N_8$$

$$\lambda_8 = \frac{\bar{\sigma}_8}{\bar{\sigma}_5} + \frac{P}{N_8}(\eta_5 N_5 + \lambda_9 \eta_9 N_9 + \lambda_1 \eta_1 N_1) + \frac{A}{N_8}$$

$$\lambda^c_8 = \lambda_8 - \frac{A}{N_8(1+\alpha_8)}$$

$$\lambda^f_8 = \frac{A}{N_8(1+\alpha_8)}$$

$$A = \frac{\nu_5(\epsilon - 1)(1+\alpha_8)}{(\nu_8 - \alpha_8 - 1)(1+\alpha_5)}$$

$$E = 9.01 \times 10^3 \, e_o N_F$$

$$P = \epsilon(1-p)e^{-B^2 \tau_c}$$

$$\dot{N}_i = \frac{dN_i}{d\tau}$$

$$d\tau = \frac{-dN_5}{N_5} \quad \text{where } N_5(0) = 1.0$$

Symbols:

E = Fuel exposure (Mwd/tonne of uranium in new fuel)

e_o = Enrichment in new fuel

N = Atomic concentration

P = First collision probability for a fission neutron

ϵ = Fast fission factor

B^2 = Buckling

τ_e = Fermi age of the core

α = Ratio of capture to fission cross section of a nucleus

η = Neutrons produced per absorption in fuel material

λ = Rate of neutron reaction relative to absorption in U-235.

ν = Neutrons produced per fission

$\bar{\sigma}_5$ = Absorption cross section of U-235 averaged over neutron spectrum

$\bar{\sigma}_8$ = Thermal absorption cross section of U-238

Subscripts:

0 = Pu-240

1 = Pu-241

2 = Pu-242

5 = U-235

6 = U-236

8 = U-238

9 = Pu-239

F = Fission product pair

Superscripts:

c = Radiative capture

f = fission

Constants:(1)

λ_5 = 1.000

λ^f_5 = 0.808

λ^c_5 = 0.193

λ_9 = 3.221

λ^f_9 = 2.028

λ^c_9 = 1.193

λ_0 = 7.017

λ_1 = 2.842

λf_1 = 2.082

λe_1 = 0.76

η_5 = 2.00

η_9 = 1.82

η_1 = 2.09

$\bar{\sigma}_8/\bar{\sigma}_5$ = 0.00434

α_8 = 0.30

A = 0.043

P = 0.17*

The above constants (taken from NAA-SR 2561[1] correspond with a moderator temperature of 400°C and an epithermal ratio of 0.3. These values are similar to these used in previous SRE core physics calculations[1][2].

Results from the analog computer are presented in the series of curves shown in Figure 1. The selection of curves is intended to satisfy the AEC requirements for reporting fuel burnup[4].

The inventory is obtained from Figure 1 as follows:

	AEC Requirement	Read From Figure 1
1.	U-235 fissioned plus U-236 produced	U-235 consumed
2.	U-236 produced less U-236 burnup	U-236 produced less 1.5%
3.	U-238 fissioned plus Pu produced	Pu produced
4.	Pu produced less Pu fissioned	Pu produced less Pu fissioned

Item 2 assumes 1.5% of the U-236 produced is burnt up (a value accepted by the AEC). Item 3 assumes all U-238 consumed is converted to Pu (good approximation for low exposures). The above quantities were taken from Figure 1 for the fuel elements listed in pages 12 through 58 by obtaining, from the respective curve in

---

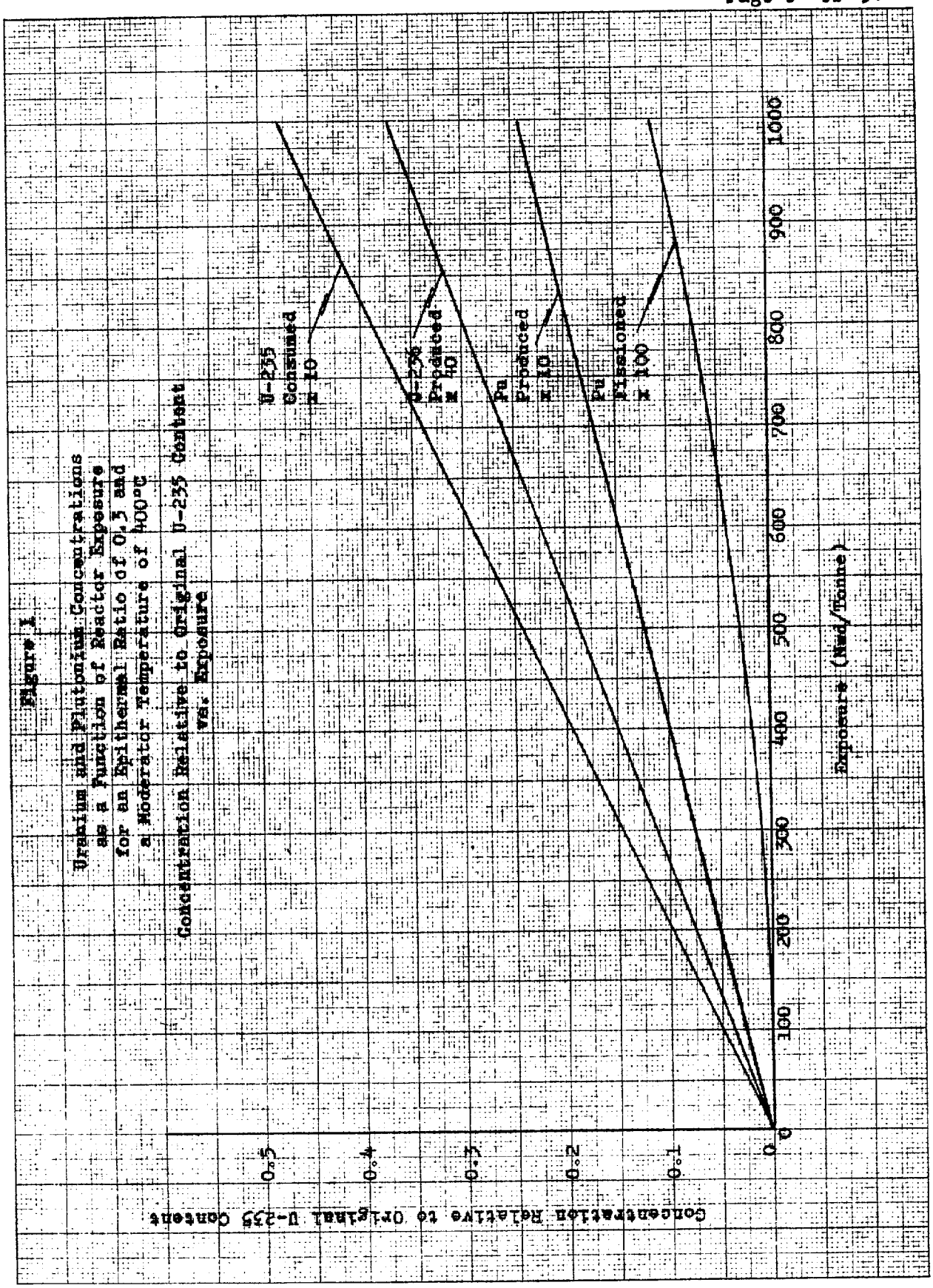
* Determined from values given in NAA-SR 1517[2]

Figure 1, the relative concentration for the given exposure (cumulative Mwd per tonne element) and multiplying by the weight of U-235 in the element.

The core configuration, Figure 2, shows the ring number and channel number positions, and indicates the location of fuel elements, control rods, source, and safety rods. Preceding the fuel element data sheets is a listing of the elements in order of reactor exposure (Mwd/Tonne, lowest to highest).

IV. REFERENCES

1. Connolly, T. J., Interim Report on Nuclear Analysis of SGR Fueling, NAA-SR-2561, October 1958.
2. Fillmore, F. L., Two-group Calculations of the Critical Core Size of the SRE Reactor, NAA-SR-1517, January 1959.
3. Nebiker, R. P., Verbal Data and Fuel Element Histories (personal files).
4. Schaubert, V. J., Inter-Office Letter to E. M. Chandler, July 9, 1959.



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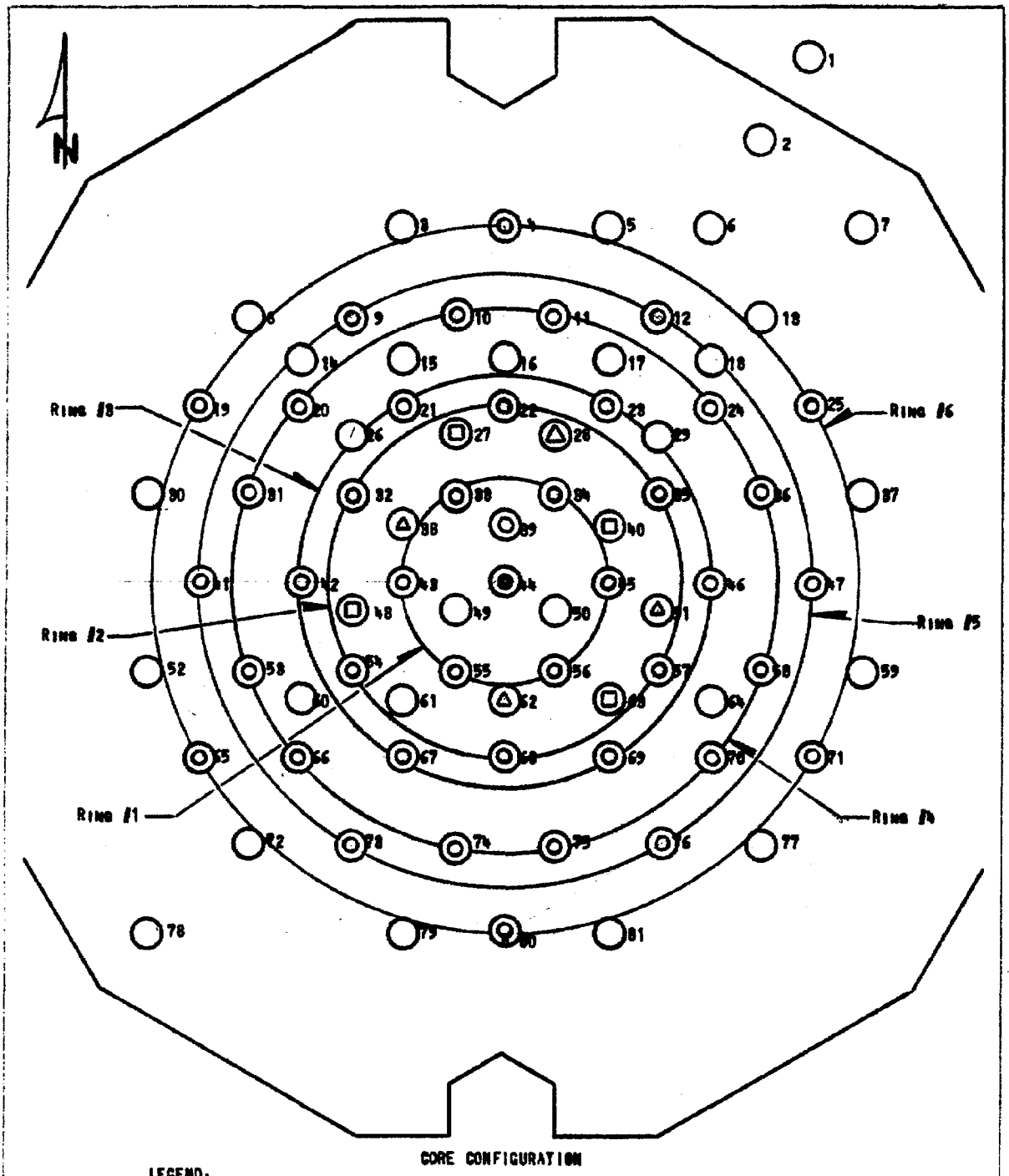

CORE CONFIGURATION

Figure 2

730-V-45 (REV 5-59)

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DATE May 16, 1960
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SRE FIRST CORE RUN DATA

RUN NO.	DATE START-UP	DATE SHUT-DOWN	OPER. DAYS	CUM. OPER. DAYS	REACTOR MWD/RUN	CUM. REACTOR MWD	AVE. MW/RUN	AVE. MW SINCE START-UP
1	July 10, 57							
2			5.7	5.7	22.7	22.7	3.98	3.98
3		Nov. 20, 57	12.6	18.3	78.2	100.9	6.21	5.51
4	May 9, 58	May 28, 58	13.3	31.6	116.2	217.1	8.74	6.87
5	July 18, 58	Aug. 4, 58	11.5	43.1	203.8	420.9	17.72	9.76
6	Aug. 10, 58	Sept. 1, 58	22.0	65.1	394.0	814.9	17.91	12.52
7	Sept. 10,58	Sept. 25, 58	17.2	82.3	306.2	1121.1	17.80	13.62
8	Dec. 18, 58	Jan. 24, 59	37.0	119.3	596.9	1718.0	16.13	14.40
9	Feb. 11, 59	Feb. 26, 59	11.5	130.8	126.5	1844.5	11.00	14.10
10	Mar. 6, 59	Mar. 7, 59	0.6	131.4	3.1	1847.6	5.17	14.06
11	Mar. 13, 59	Apr. 5, 59	23.6	155.0	293.5	2141.1	12.44	13.81
12	May 15, 59	May 24, 59	9.7	164.7	154.3	2295.4	15.91	13.94
13	May 27, 59	June 3, 59	6.6	171.3	114.3	2409.7	17.32	14.07
14	July 12, 59	July 26, 59	14.2	185.5	16.1	2425.8	1.13	13.08

Listing of the Elements in Order of Reactor Exposure

Experiment No.	Exposure MWD/Tonne
SU-1-41	Main Standard
SU-1-1	47.68
SU-1-22	266.2
SU-1-42	267.6
SU-1-15	303.5
SU-1-2	324.1
SU-1-39	397.9
SU-1-45	398.9
SU-1-46	431.9
SU-1-6	440.7
SU-1-27	472.2
SU-3-1	499.8
SU-1-26	511.7
SU-1-23	516.2
SU-1-4	518.3
SU-1-10	543.2
SU-1-43	554.6
SU-1-5	581.1
SU-1-44	593.2
SU-1-16	602.7
SU-1-29	620.8
SU-1-37	635.9
SU-1-47	645.2
SU-1-33	671.3
SU-1-7	702.4
SU-1-40	708.9
SU-1-18	734.2
SU-1-34	739.6
SU-1-17	745.1
SU-1-9	747.8
SU-1-25	752.7
SU-1-24	759.5
SU-1-30	790.3
SU-1-8	793.7
SU-1-14	801.3
SU-1-38	805.6
SU-1-13	809.2
SU-1-36	812.0
SU-1-11	826.2
SU-1-35	833.5
SU-1-21	843.5
SU-1-12	853.0
SU-1-3	855.3
SU-1-28	867.8
SU-1-31	870.3
SU-1-20	876.2
SU-1-32	880.2
SU-1-19	963.9

SRE FIRST CORE FUEL ELEMENT DATA

ELEMENT	RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
EXPERIMENT NO.	1								
SU-1-1	2	5.7	44	0		.0338	.7673	.7673	12.91
SHIELD PLUG NO.	3	18.3	44	0		.0264	2.064	2.832	47.68
71520-028	4								
WEIGHT (S. S. NET)	5								
59,440.86 gm	6								
DESCRIPTION	7								
7-rod element	8								
	9								
	10								
	11								
	12								
	13								
COMPOSITION	14								

U(2.778 w/o U-235)

1651.27 gm U-235

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
4.046	3.369	.6770	.0101	.6669	1.651	0+	1.651**

REMARKS

Element discharged and not replaced 4-22-58

One rod removed and not replaced 5-10-58

Weight: rod removed - 9887.64 gm
274.68 gm U-235

SRE FIRST CORE FUEL ELEMENT DATA

ELEMENT	RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
EXPERIMENT NO.	1								
SU-1-2	2	5.7	43	1		.0353	.8013	.8013	11.56
SHIELD PLUG NO.	3	18.3	43	1		.0261	2.041	2.842	41.01
71520-025	4	31.6	43	1		.0261	3.033	5.875	84.78
WEIGHT (S. S. NET)	5								
69330.85 gm	6								
	7								
DESCRIPTION	8								
	9	37.8	70	4	.356	.0246	3.112	8.987	129.7
	10	38.4	70	4	.356	.0246	.0763	9.063	130.8
7-rod element	11	62.0	70	4	.356	.0231	6.780	15.84	228.6
	12	71.7	70	4	.356	.0232	3.580	19.42	280.2
	13	78.3	70	4	.356	.0233	2.663	22.09	318.8
COMPOSITION	14		70	4	.356	.0233	.3751	22.46	324.1
U(2.778 w/o U-235)									
1926.02 gm U-235									

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
30.43	24.61	5.816	.087	5.729	14.83	.2119	14.62

REMARKS

One rod removed and replaced 6-20-58.

Weights: rod removed - 9918.00 gm
275.52 gm U-235

rod replaced - 9874.72 gm
274.32 gm U-235

SRE FIRST CORE FUEL ELEMENT DATA

ELEMENT	RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
EXPERIMENT NO. SU-1-3	1								
	2	5.7	34	1		.0332	.7536	.7536	10.87
	3	18.3	34	1		.0250	1.955	2.709	39.09
SHIELD PLUG NO. 715134-002	4	31.6	56	1		.0241	2.800	5.509	79.49
	5	43.1	56	1		.0254	5.176	10.68	154.1
WEIGHT (S. S. NET)	6	65.1	56	1		.0235	9.259	19.94	287.7
69292.74 gm	7	82.3	56	1		.0265	8.114	28.06	404.9
	8	119.3	56	1	.400	.0230	13.73	41.79	603.0
DESCRIPTION	9	125.5	56	1	.400	.0249	3.150	44.94	648.5
	10	126.1	56	1	.400	.0249	.0772	45.02	649.6
7-rod element	11	149.7	56	1	.400	.0254	7.455	52.47	757.1
	12	159.4	56	1	.400	.0254	3.919	56.39	813.7
	13	166.0	56	1	.400	.0252	2.880	59.27	855.3
COMPOSITION	14								

U(2.778 w/o U-235)

1924.97 gm U-235

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
78.92	63.71	15.21	.2300	14.98	39.75	1.540	38.21

REMARKS

One rod removed and replaced 5-26-59.

Weights:

rod removed - 9906.50 gm
275.20 gm U-235

rod replaced - 9862.88 gm
273.99 gm U-235

SRE FIRST CORE FUEL ELEMENT DATA

ELEMENT	RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
EXPERIMENT NO.	1								
SU-1-4	2	5.7	55	1		.0284	.6447	.6447	9.343
SHIELD PLUG NO.	3	18.3	55	1		.0235	1.838	2.482	35.97
71564-047	4	31.6	55	1		.0282	3.277	5.759	83.46
WEIGHT (S. S. NET)	5	43.1	55	1		.0225	4.586	10.35	150.0
68,987.47 gm	6	65.1	55	1		.0267	10.52	20.86	302.3
	7								
	8								
DESCRIPTION	9	71.3	76	5	.307	.0208	2.631	23.50	340.6
7-rod element	10	71.9	76	5	.307	.0208	.0645	23.56	341.4
	11	95.5	76	5	.307	.0212	6.222	29.78	431.6
	12	105.2	76	5	.307	.0211	3.256	33.04	478.8
	13	111.8	76	5	.307	.0209	2.389	35.43	513.5
COMPOSITION	14		76	5	.307	.0209	.3365	35.76	518.3

U(2.778 w/o U-235)

1916.45 gm U-235

REMARKS	U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
	48.10	38.86	9.237	.1390	9.098	23.76	.5749	23.18

One rod removed(to hot cell) and replaced 9-24-58.

Weights: rod removed - 9915.32 gm
275.45 gm U-235

rod replaced - 9883.95 gm
274.57 gm U-235

SRE FIRST CORE FUEL ELEMENT DATA

ELEMENT	RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
EXPERIMENT NO.	1								
	2								
SU-1-5	3	12.6	19	6		.0235	1.838	1.838	26.52
SHIELD PLUG NO. 71520-052	4	25.9	4	6		.0168	1.952	3.790	54.69
	5	37.4	4	6		.0172	3.505	7.295	105.3
WEIGHT (S. S. NET)	6	59.4	4	6		.0173	6.816	14.11	203.6
69298.85 gm.	7	76.6	4	6	.233	.0168	5.144	19.26	277.9
	8	113.6	4	6	.233	.0142	8.476	27.73	400.2
DESCRIPTION	9	119.8	4	6	.233	.0180	2.277	30.01	433.0
7-rod element	10	120.4	4	6	.233	.0180	.0558	30.06	433.8
	11	144.0	4	6	.233	.0178	5.224	35.29	509.2
	12	153.7	4	6	.233	.0174	2.685	37.97	548.0
	13	160.3	4	6	.233	.0176	2.012	39.98	576.9
COMPOSITION	14		4	6	.233	.0176	.2834	40.27	581.1
U (2.778 w/o U-235)									
1925.13 gm U-235									

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
54.10	43.70	10.40	.16	10.24	26.76	.73	26.03

REMARKS

SRE FIRST CORE FUEL ELEMENT DATA

EXPERIMENT NO.
SU-1-6

SHIELD PLUG NO.
71564-011

WEIGHT (S. S. NET)
68762.72 gm.

DESCRIPTION
7-rod element

COMPOSITION
U (2.778 w/o U-235)

1910.23 gm U-235

REMARKS

ELEMENT RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
1								
2								
3								
4								
5								
6								
7								
8	37.0	9	5	.370	.0235	14.03	14.03	145.7
9	43.2	9	5	.370	.0227	2.872	16.90	245.6
10	43.8	9	5	.370	.0227	.0704	16.97	246.7
11	67.4	9	5	.370	.0227	6.662	23.63	343.5
12	77.1	9	5	.370	.0235	3.626	27.26	396.2
13	83.7	9	5	.370	.0235	2.686	29.94	435.2
14		9	5	.370	.0235	.3784	30.32	440.7

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
41.26	33.43	7.83	.11	7.72	20.06	.42	19.64

SRE FIRST CORE FUEL ELEMENT DATA

ELEMENT	RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
EXPERIMENT NO. SU-1-7	1								
	2					.0257	.5830	.5830	8.413
SHIELD PLUG NO. 71520-046	3					.0245	1.916	2.499	36.06
	4	13.3	10	4		.0230	2.673	5.172	74.63
WEIGHT (S. S. NET) 69348.34 gm	5	24.8	10	4		.0241	4.912	10.08	147.6
	6	46.8	10	4		.0243	9.574	19.66	283.7
	7	64.0	10	4	.304	.0241	7.379	27.04	390.1
	8	101.0	10	4	.304	.0206	12.30	39.33	567.6
DESCRIPTION 7-rod element	9	107.2	10	4	.304	.0218	2.758	42.09	607.4
	10	107.8	10	4	.304	.0218	.0676	42.16	608.4
	11		10	4	.304	.0222	6.516	48.68	702.4
	12								
	13								
COMPOSITION U (2.778 w/o U-235) 1926.51 gm U-235	14								

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
65.12	52.60	12.52	.19	12.33	32.56	1.06	31.50

REMARKS

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SRE FIRST CORE FUEL ELEMENT DATA

ELEMENT

EXPERIMENT NO.

SU-1-8

SHIELD PLUG NO.

71520-045

WEIGHT (S. S. NET)

69346.97 gm

DESCRIPTION

7-rod element

COMPOSITION

U (2.778 w/o U-235)

1926.47 gm U-235

REMARKS

RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
1								
2	5.7	11	4		.0266	.6038	.6038	8.713
3	18.3	11	4		.0221	1.728	2.332	33.65
4	31.6	11	4		.0214	2.487	4.819	69.53
5	43.1	11	4		.0221	4.504	9.323	134.5
6	65.1	11	4		.0219	8.629	17.95	259.0
7	82.3	11	4	.348	.0223	6.828	24.78	357.6
8	119.3	11	4	.348	.0243	14.50	39.28	566.9
9	125.5	11	4	.348	.0218	2.758	42.04	606.7
10	126.1	11	4	.348	.0218	.0676	42.11	607.6
11	149.7	11	4	.348	.0229	6.721	48.83	704.6
12	159.4	11	4	.348	.0216	3.333	52.16	752.7
13	166.0	11	4	.348	.0218	2.492	54.66	788.7
14		11	4	.348	.0218	.3510	55.01	793.7

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
73.59	59.45	14.14	.21	13.93	36.60	1.39	35.22

SRE FIRST CORE FUEL ELEMENT DATA

ELEMENT

EXPERIMENT NO.

SU-1-9

SHIELD PLUG NO.

71520-038

WEIGHT (S. S. NET)

69358.60 gm

DESCRIPTION

7-rod element

COMPOSITION

U (2.778 w/o U-235)

1926.78 gm U-235

REMARKS

RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
1								
2	5.7	12	5		.0236	.5357	.5357	7.719
3	18.3	12	5		.0206	1.611	2.147	30.93
4	31.6	12	5		.0200	2.324	4.471	64.42
5	45.1	12	5		.0203	4.137	8.608	124.0
6	65.1	12	5		.0206	8.116	16.72	241.0
7	82.3	12	5	.294	.0202	6.185	22.91	330.1
8	119.3	12	5	.294	.0229	13.67	36.58	527.1
9	125.5	12	5	.294	.0246	3.112	39.69	571.9
10	126.1	12	5	.294	.0246	.0763	39.77	573.0
11	149.7	12	5	.294	.0212	6.222	45.99	662.7
12	159.4	12	5	.294	.0209	3.225	49.21	709.1
13	166.0	12	5	.294	.0206	2.355	51.57	742.2
14		12	5	.294	.0206	.3317	51.90	747.8

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
69.36	55.99	13.37	.20	13.17	34.68	1.20	33.49

SRE FIRST CORE FUEL ELEMENT DATA

ELEMENT	RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
EXPERIMENT NO.	1								
	2								
SU-1-10	3	12.6	4	6		.0135	1.056	1.056	15.23
SHIELD PLUG NO.	4	25.9	19	6		.0143	1.662	2.717	39.20
71520-057	5	37.4	19	6		.0146	2.976	5.693	82.15
WEIGHT (S. S. NET)	6	59.4	19	6		.0147	5.792	11.48	165.7
69321.45 gm	7	76.6	19	6		.0144	4.409	15.89	229.4
	8	113.6	19	6	.377	.0205	12.24	28.13	405.9
DESCRIPTION	9	119.8	19	6	.377	.0204	2.581	30.71	443.2
7-rod element	10	120.4	19	6	.377	.0212	.0657	30.78	444.1
	11	- - -	-	-	- - -	- - -	- - - -	- - - -	- - - -
	12	130.1	35	2	.415	.0244	3.765	34.76	498.4
	13	136.7	35	2	.415	.0238	2.720	37.26	537.7
COMPOSITION	14		35	2	.415	.0238	.3832	37.64	543.2

U (2.778 w/o U-235)

1925.75 gm U-235

REMARKS

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
50.65	40.94	9.71	.15	9.56	25.04	.64	24.40

SRE FIRST CORE FUEL ELEMENT DATA

ELEMENT	RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
	1								
EXPERIMENT NO.	2	5.7	20	4	- -	.0257	.5834	.5834	8.418
SU-1-11	3	18.3	20	4	- -	.0230	1.799	2.382	34.37
SHIELD PLUG NO.	4	31.6	20	4	- -	.0215	2.498	4.880	70.42
71520-044	5	43.1	20	4	- -	.0223	4.545	9.425	136.0
WEIGHT (S. S. NET)	6	65.1	20	4	- -	.0228	8.983	18.41	265.6
69334.01 gm	7	82.3	20	4	.348	.0226	6.920	25.33	365.5
	8	119.3	20	4	.348	.0267	15.94	41.27	595.5
DESCRIPTION	9	125.5	20	4	.348	.0225	2.846	44.11	636.5
7-rod element	10	126.1	20	4	.348	.0225	.0698	44.18	637.5
	11	149.7	20	4	.348	.0225	6.604	50.78	732.8
	12	159.4	20	4	.348	.0229	3.534	54.32	783.8
	13	166.0	20	4	.348	.0225	2.572	56.89	820.9
COMPOSITION	14		20	4	.348	.0225	.3622	57.25	826.2

U (2.778 w/o U-235)

1926.10 gm U-235

REMARKS

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
76.66	61.94	14.72	.23	14.49	38.52	1.50	37.02

SRE FIRST CORE FUEL ELEMENT DATA

ELEMENT

EXPERIMENT NO.
SU-1-12

SHIELD PLUG NO.
71520-059

WEIGHT (S. S. NET)
69286.25 gm.

DESCRIPTION
7-rod element

COMPOSITION
U (2.778 w/o U-235)

1924.79 gm U-235

REMARKS

RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
1								
2	5.7	21	3		.0299	.6787	.6787	9.794
3	18.3	21	3		.0251	1.963	2.642	38.12
4	31.6	21	3		.0235	2.731	5.372	77.52
5	43.1	21	3		.0245	4.993	10.36	149.6
6	65.1	21	3		.0247	9.732	20.97	302.6
7	82.3	21	3	.400	.0248	7.594	27.69	399.6
8	119.3	21	3	.400	.0239	14.26	41.96	605.4
9	125.5	21	3	.400	.0230	2.910	44.87	647.4
10	126.1	21	3	.400	.0230	.0713	44.94	648.5
11	149.7	21	3	.400	.0242	7.103	52.04	750.9
12	159.4	21	3	.400	.0248	3.827	55.87	806.2
13	166.0	21	3	.400	.0249	2.846	58.71	847.2
14		21	3	.400	.0249	.4009	59.11	853.0

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
78.92	63.71	15.21	.23	14.98	39.65	1.54	38.11

SRE FIRST CORE FUEL ELEMENT DATA

EXPERIMENT NO.
SU-1-13

SHIELD PLUG NO.
71520-056

WEIGHT (S. S. NET)
69354.04 gm.

DESCRIPTION
7-rod element

COMPOSITION
U(2.778 w/o U-235)

1926.66 gm U-235

REMARKS

ELEMENT	RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
	1								
	2	5.7	22	2		.0299	.6787	.6787	9.780
	3	18.3	22	2		.0234	1.830	2.509	36.20
	4	31.6	22	2		.0226	2.626	5.135	73.99
	5	43.1	22	2		.0237	4.830	9.965	143.6
	6	65.1	22	2		.0234	9.220	19.18	276.4
	7	82.3	22	2	.415	.0242	7.410	26.59	383.2
	8	119.3	22	2	.415	.0222	13.25	39.84	574.2
	9	125.5	22	2	.415	.0217	2.745	42.59	613.7
	10	126.1	22	2	.415	.0217	.0673	42.66	614.7
	11	149.7	22	2	.415	.0231	6.780	49.44	712.4
	12	159.4	22	2	.415	.0236	3.642	53.08	764.8
	13	166.0	22	2	.415	.0236	2.698	55.78	803.7
	14		22	2	.415	.0236	.3800	56.16	809.2

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
74.75	60.34	14.41	.21	14.20	37.38	1.43	35.95

SRE FIRST CORE FUEL ELEMENT DATA

ELEMENT

EXPERIMENT NO.
SU-1-14

SHIELD PLUG NO.
71520-015

WEIGHT (S. S. NET)
69251.13 gm

DESCRIPTION
7-rod element

COMPOSITION
U(2.778 w/o U-235)

1923.80 gm U-235

REMARKS

RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
1								
2	5.7	42	3		.0336	.7627	.7627	11.01
3	18.3	42	3		.0294	2.299	3.062	44.18
4	31.6	23	3		.0230	2.673	5.734	82.75
5	43.1	23	3		.0239	4.871	10.60	153.0
6	65.1	23	3		.0234	9.220	19.82	286.1
7	82.3	23	3	.400	.0241	7.379	27.20	392.6
8	119.3	23	3	.400	.0227	13.55	40.75	588.1
9	125.5	23	3	.400	.0212	2.682	43.44	626.8
10	126.1	23	3	.400	.0212	.0657	43.50	627.7
11	149.7	23	3	.400	.0206	6.046	49.55	715.0
12	159.4	23	3	.400	.0210	3.240	52.79	761.7
13	166.0	23	3	.400	.0210	2.400	55.19	796.4
14		23	3	.400	.0210	.3381	55.53	801.3

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
74.26	59.98	14.28	.22	14.06	36.94	1.38	35.55

SRE FIRST CORE FUEL ELEMENT DATA

ELEMENT

EXPERIMENT NO.
SU-1-15

SHIELD PLUG NO.
71520-011

WEIGHT (S. S. NET)
69355.34 gm

DESCRIPTION

7-rod element

COMPOSITION
U(2.778 w/o U-235

1926.69 gm U-235

REMARKS

RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
1								
2	5.7	56	1		.0322	.7309	.7309	10.53
3	18.3	56	1		.0228	1.783	2.514	36.22
4	31.6	34	1		.0245	2.847	5.361	77.24
5	- - -	--	-		- - -	- - -	- - - -	- - - - -
6	- - -	--	-		- - -	- - -	- - - -	- - - - -
7	- - -	--	-	- -	- - -	- - -	- - - -	- - - - -
8	- - -	--	-		- - -	- - -	- - - -	- - - - -
9	37.8	24	4	.319	.0214	2.707	8.068	116.2
10	38.4	24	4	.319	.0214	.0663	8.134	119.2
11	62.0	24	4	.319	.0231	6.780	14.91	214.9
12	71.7	24	4	.319	.0217	3.348	18.26	263.1
13	78.3	24	4	.319	.0215	2.457	20.72	298.6
14		24	4	.319	.0215	.3462	21.07	303.5

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
28.52	23.09	5.43	.08	5.35	13.87	.19	13.68

SRE FIRST CORE FUEL ELEMENT DATA

ELEMENT

EXPERIMENT NO.
SU-1-16

SHIELD PLUG NO.
71520-053

WEIGHT (S. S. NET)
69340.29 gm

DESCRIPTION
7-rod element

COMPOSITION
U(2.778 w/o U-235)

1926.29 gm U-235

REMARKS

RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
1								
2								
3	12.6	25	6		.0172	1.345	1.345	19.41
4	25.9	25	6		.0189	2.196	3.541	51.10
5	37.4	25	6		.0186	3.791	7.332	105.8
6	59.4	25	6		.0183	7.210	14.54	209.8
7	76.6	25	6		.0176	5.389	19.93	287.6
8	113.6	25	6	.250	.0226	13.49	33.42	482.3
9	119.8	25	6	.250	.0200	2.530	35.95	518.8
10	120.4	25	6	.250	.0200	.0620	36.01	519.7
11	144.0	25	6	.250	.0196	5.753	41.77	602.7
12								
13								
14								

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
56.25	45.46	10.79	.17	10.62	27.75	.79	26.96

SRE FIRST CORE FUEL ELEMENT DATA

ELEMENT

EXPERIMENT NO.
SU-1-17

SHIELD PLUG NO.
71520-008

WEIGHT (S. S. NET)
69357.41 gm

DESCRIPTION
7-rod element

COMPOSITION
U(2.778 w/o U-235)

1926.76 gm U-235

REMARKS

RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
1								
2	5.7	31	4		.0249	.5652	.5652	8.144
3	18.3	31	4		.0231	1.806	2.372	34.17
4	31.6	31	4		.0215	2.498	4.870	70.17
5	43.1	31	4		.0225	4.586	9.455	136.2
6	65.1	31	4		.0216	8.510	17.97	258.9
7	83.3	31	4	.348	.0226	6.920	24.89	358.6
8	119.3	31	4	.348	.0180	10.74	35.63	513.4
9	125.5	31	4	.348	.0218	2.758	38.39	553.1
10	126.1	31	4	.348	.0218	.0676	38.46	554.1
11	149.7	31	4	.348	.0227	6.662	45.12	650.1
12	159.4	31	4	.348	.0233	3.595	48.71	701.9
13	166.0	31	4	.348	.0230	2.629	51.34	739.8
14		31	4	.348	.0230	.3703	51.71	745.1

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
69.17	55.87	13.30	.20	13.10	34.49	1.18	33.31

SRE FIRST CORE FUEL ELEMENT DATA

EXPERIMENT NO.
SU-1-18

SHIELD PLUG NO.
71520-039

WEIGHT (S. S. NET)
69309.14 gm

DESCRIPTION

7-rod element

COMPOSITION

U(2.778 w/o U-235)

1925.42 gm U-235

REMARKS

ELEMENT	RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
	1								
	2	5.7	41	5		.0188	.4268	.4268	6.159
	3	18.3	41	5		.0190	1.486	1.913	27.60
	4	31.6	41	5		.0180	2.092	4.004	57.78
	5	43.1	41	5		.0185	3.770	7.774	112.2
	6	65.1	41	5		.0187	7.368	15.14	218.5
	7	82.3	41	5		.0181	5.542	20.68	298.5
	8	119.3	41	5	.370	.0231	13.79	34.47	497.4
	9	125.5	41	5	.370	.0230	2.910	37.38	539.4
	10	126.1	41	5	.370	.0230	.0713	37.45	540.5
	11	149.7	41	5	.370	.0227	6.662	44.12	636.6
	12	159.4	41	5	.370	.0237	3.659	47.78	689.4
	13	166.0	41	5	.370	.0238	2.720	50.50	728.6
	14		41	5	.370	.0238	.3832	50.88	734.2

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
68.16	55.07	13.09	.19	12.90	33.89	1.16	32.73

SRE FIRST CORE FUEL ELEMENT DATA

EXPERIMENT NO.
SU-1-19

SHIELD PLUG NO.
71520-020

WEIGHT (S. S. NET)
69351.02 gm

DESCRIPTION

COMPOSITION
U(2.778 w/o U-235)

1926.58 gm U-235

REMARKS

ELEMENT	RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
	1								
	2	5.7	23	3		.0297	.6742	.6742	9.715
	3	18.3	23	3		.0227	1.775	2.449	35.29
	4	31.6	42	3		.0276	3.207	5.656	81.50
	5	43.1	42	3		.0284	5.788	11.44	164.9
	6	65.1	42	3		.0290	11.43	22.87	329.5
	7	82.3	42	3		.0287	8.788	31.66	456.2
	8	119.3	42	3		.0266	15.88	47.54	685.0
	9	125.5	42	3	.445	.0263	3.327	50.86	732.9
	10	126.1	42	3	.445	.0263	.0815	50.94	734.1
	11	149.7	42	3	.445	.0268	7.866	58.81	847.4
	12	159.4	42	3	.445	.0278	4.290	63.10	909.2
	13	166.0	42	3	.445	.0291	3.326	66.43	957.1
	14						0.471	66.90	963.9

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
88.82	71.71	17.11	.26	16.85	44.70	1.96	42.73

SRE FIRST CORE FUEL ELEMENT DATA

EXPERIMENT NO.
SU-1-20

SHIELD PLUG NO.
71520-040

WEIGHT (S. S. NET)
69395.11 gm

DESCRIPTION
7-rod element

COMPOSITION
U(2.778 w/o U-235)

1927.80 gm U-235

REMARKS

ELEMENT	RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
	1								
	2	5.7	45	1		.0366	.8308	.8308	11.97
	3	18.3	45	1		.0255	1.984	2.815	40.56
	4	31.6	45	1		.0259	3.010	5.824	83.92
	5	43.1	45	1		.0253	5.156	10.98	158.2
	6	65.1	45	1		.0267	10.52	21.50	309.8
	7	82.3	45	1	.480	.0264	8.084	29.58	426.3
	8	119.3	45	1	.480	.0234	13.97	43.55	627.5
	9	125.5	45	1	.480	.0238	3.011	46.56	670.9
	10	126.1	45	1	.480	.0238	.0738	46.64	672.0
	11	149.7	45	1	.480	.0247	7.249	53.88	776.4
	12	159.4	45	1	.480	.0246	3.796	57.68	831.1
	13	166.0	45	1	.480	.0240	2.743	60.42	870.7
	14		45	1	.480	.0240	.3864	60.81	876.2

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
80.97	65.43	15.54	.24	15.30	40.48	1.64	38.84

SRE FIRST CORE FUEL ELEMENT DATA

ELEMENT

EXPERIMENT NO.
SU-1-21

SHIELD PLUG NO.
71520-030

WEIGHT (S. S. NET)
69317.97 gm

DESCRIPTION

7-rod element

COMPOSITION

U(2.778 w/o U-235)

1925.66 gm U-235

REMARKS

RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
1								
2	5.7	46	3		.0278	.6311	.6311	9.107
3	18.3	46	3		.0234	1.820	2.452	35.38
4	31.6	46	3		.0234	2.719	5.171	74.61
5	43.1	46	3		.0234	4.769	9.940	143.4
6	65.1	46	3		.0236	9.298	19.24	277.6
7	82.3	46	3	.400	.0243	7.441	26.68	385.0
8	119.3	46	3	.400	.0258	15.40	42.08	607.2
9	125.5	46	3	.400	.0227	2.872	44.95	648.6
10	126.1	46	3	.400	.0227	.0704	45.02	651.5
11	149.7	46	3	.400	.0236	6.927	51.95	748.5
12	159.4	46	3	.400	.0230	3.549	55.50	800.8
13	166.0	46	3	.400	.0227	2.595	58.09	838.3
14		46	3	.400	.0227	.3655	58.46	843.5

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
77.99	62.97	15.02	.22	14.80	39.09	1.52	37.57

SRE FIRST CORE FUEL ELEMENT DATA

ELEMENT	RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
EXPERIMENT NO.	1								
SU-1-22	2								
	3								
SHIELD PLUG NO.	4	31.6	44	0		.0258	2.998	2.998	43.32
71520-043	5								
WEIGHT (S. S. NET)	6								
	7								
69246.35 gm	8								
DESCRIPTION	9	37.8	47	5		.0215	2.720	5.718	82.63
	10	38.4	47	5		.0215	.0666	5.785	83.58
7-rod element	11	62.0	47	5		.0231	6.780	12.56	181.5
	12	71.7	47	5		.0206	3.179	15.74	227.5
	13	78.3	47	5		.0205	2.343	18.09	261.4
COMPOSITION	14	94.4	47	5		.0205	.3300	18.42	266.2
U(2.778 w/o U-235)									
1923.66 U-235									

REMARKS	U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
	25.01	20.24	4.771	.072	4.699	11.93	.1154	11.82

Removed to storage as single unit (Building 22) 10-12-59

SRE FIRST CORE FUEL ELEMENT DATA

ELEMENT	RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
EXPERIMENT NO. SU-1-23	1								
	2	5.7	33	1		.0347	.7877	.7877	11.37
SHIELD PLUG NO. 71520-033	3	18.3	33	1		.0255	1.994	2.782	40.14
	4	31.6	33	1		.0241	2.800	5.582	80.60
	5	- - -	-	-	-	- - -	- - - -	- - - -	- - - - -
WEIGHT (S. S. NET) 69286.05 gm	6	- - -	-	-		- - -	- - - -	- - - -	- - - - -
	7	- - -	-	-		- - -	- - - -	- - - -	- - - - -
	8	68.6	53	4	.356	.0222	13.25	18.83	271.8
DESCRIPTION	9	74.8	53	4	.356	.0228	2.884	21.72	313.4
7-rod element	10	75.4	53	4	.356	.0239	.0741	21.79	314.5
	11	99.0	53	4	.356	.0235	6.897	28.69	414.0
	12	108.7	53	4	.356	.0247	3.811	32.50	469.0
	13	115.3	53	4	.356	.0251	2.869	35.37	510.4
COMPOSITION U(2.778 w/o U-235)	14		53	4	.356	.0251	.4041	35.77	516.2

1924.76 gm U-235

REMARKS

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
48.12	38.88	9.24	.14	9.10	23.68	.58	23.08

SRE FIRST CORE FUEL ELEMENT DATA

ELEMENT

EXPERIMENT NO.
SU-1-24

SHIELD PLUG NO.
715145-019

WEIGHT (S. S. NET)
69358.09 gm

DESCRIPTION
7-rod element

COMPOSITION
U(2.778 w/o U-235)

1926.78 gm U-235

REMARKS

RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
1								
2	5.7	32	2		.0315	.7150	.7150	10.30
3	18.3	32	2		.0300	2.346	3.061	44.11
4	31.6	32	2		.0257	2.986	6.047	87.14
5	43.1	32	2		.0290	5.910	11.96	172.3
6	- - -	-	-		- - -	- - -	- - - -	- - - - -
7	60.3	9	5		.0240	7.349	19.31	278.2
8	97.3	54	2	.415	.0241	14.38	33.69	485.5
9	103.5	54	2	.415	.0259	3.276	36.97	532.7
10	104.1	54	2	.415	.0259	.0803	37.05	533.8
11	127.4	54	2	.415	.0267	7.836	44.88	646.8
12	137.4	54	2	.415	.0277	4.274	49.16	708.3
13	144.0	54	2	.415	.0272	3.109	52.27	753.1
14		54	2	.415	.0272	.4379	52.71	759.5

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
70.52	56.99	13.53	.21	13.32	35.07	1.23	33.83

SRE FIRST CORE FUEL ELEMENT DATA

EXPERIMENT NO.
SU-1-25
SHIELD PLUG NO.
71520-058
WEIGHT (S. S. NET)
69322.86 gm

DESCRIPTION
7-rod element

COMPOSITION
U(2.778 w/o U-235)

1925.70 gm U-235

REMARKS

ELEMENT	RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
	1								
	2	5.7	54	2		.0316	.7173	.7173	10.35
	3	18.3	54	2		.0269	2.104	2.821	40.71
	4	31.6	57	2		.0242	2.812	5.633	81.28
	5	43.1	57	2		.0245	4.993	10.63	153.3
	6	65.1	57	2		.0243	9.574	20.20	291.5
	7	82.3	57	2		.0247	7.563	27.76	400.6
	8	119.3	57	2	.415	.0241	14.38	42.15	608.2
	9	125.5	57	2	.415	.0236	2.985	45.13	651.3
	10	126.1	57	2	.415	.0236	.0732	45.21	652.3
	11	149.7	57	2	.415	.0237	6.956	52.16	752.7
	12								
	13								
	14								

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
70.10	56.56	13.44	.20	13.24	34.86	1.21	33.64

SRE FIRST CORE FUEL ELEMENT DATA

ELEMENT

EXPERIMENT NO.
SU-1-26

SHIELD PLUG NO.
71564-010

WEIGHT (S. S. NET)
68839.57 gm

DESCRIPTION
7-rod element

COMPOSITION
U(2.778 w/o U-235)

1912.37 gm U-235

REMARKS

RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
1								
2								
3								
4								
5								
6								
7								
8	37.0	67	3	.433	.0279	16.65	16.65	242.1
9	43.2	67	3	.433	.0265	3.352	20.01	290.8
10	43.8	67	3	.433	.0265	.0822	20.09	292.2
11	67.4	67	3	.433	.0258	7.572	27.66	402.0
12	77.1	67	3	.433	.0266	4.104	31.76	461.7
13	83.7	67	3	.433	.0264	3.018	34.78	505.6
14		67	3	.433	.0264	.4250	35.21	511.7

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
47.43	38.33	9.10	.13	8.97	23.33	.57	22.76

SRE FIRST CORE FUEL ELEMENT DATA

ELEMENT

EXPERIMENT NO.
SU-1-27

SHIELD PLUG NO.
71564-012

WEIGHT (S. S. NET)
68589.40 gm

DESCRIPTION
7-rod element

COMPOSITION
U(2.778 w/o U-235)

1905.41 gm U-235

REMARKS

RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
1								
2								
3								
4								
5								
6								
7								
8	37.0	36	4	.356	.0258	15.40	15.40	224.5
9		36	4	.356	.0239	3.023	18.42	268.6
10		36	4	.356	.0239	.0741	18.50	269.6
11		36	4	.356	.0237	6.956	25.45	371.0
12		36	4	.356	.0242	3.734	29.19	425.5
13		36	4	.356	.0246	2.812	32.00	466.5
14		36	4	.356	.0246	.3960	32.40	472.2

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
43.82	35.44	8.38	.12	8.26	21.34	.48	20.86

SRE FIRST CORE FUEL ELEMENT DATA

EXPERIMENT NO.
SU-1-28

SHIELD PLUG NO.
71564-013

WEIGHT (S. S. NET)
68924.68 gm

DESCRIPTION
7-rod element

COMPOSITION
U(2.778 w/o U-235)

1914.98 gm U-235

REMARKS

ELEMENT	RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
	1								
	2	5.7	24	4		.0229	.5198	.5198	7.544
	3	18.3	24	4		.0191	1.494	2.013	29.22
	4	31.6	58	4		.0247	2.870	4.884	70.88
	5	43.1	58	4		.0233	4.748	9.632	139.8
	6	65.1	58	4		.0239	9.417	19.05	276.5
	7	82.3	58	4		.0247	7.563	26.61	386.2
	8	119.3	58	4	.387	.0253	15.10	41.71	605.4
	9	125.5	58	4	.387	.0255	3.226	44.94	652.2
	10	126.1	58	4	.387	.0255	.0790	45.02	653.4
	11	149.7	58	4	.387	.0246	7.220	52.24	758.2
	12	159.4	58	4	.387	.0262	4.043	56.28	816.8
	13	166.0	58	4	.387	.0269	3.075	59.36	861.5
	14		58	4	.387	.0269	.4331	59.79	867.8

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
79.84	64.52	15.32	.23	15.09	40.02	1.57	38.45

SRE FIRST CORE FUEL ELEMENT DATA

ELEMENT

EXPERIMENT NO.

SU-1-29

SHIELD PLUG NO.

715145-022

WEIGHT (S. S. NET)

69395.03 gm

DESCRIPTION

7-rod element

COMPOSITION

U(2.778 w/o U-235)

1927.80 gm U-235

REMARKS

RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
1								
2								
3	12.6	65	6		.0212	1.658	1.658	23.89
4	25.9	65	6		.0180	2.092	3.749	54.02
5	37.4	65	6		.0174	3.546	7.296	105.1
6	59.4	65	6		.0157	6.186	13.48	194.3
7	76.6	65	6		.0161	4.930	18.41	265.3
8	113.6	65	6	.262	.0194	11.58	29.99	432.1
9	119.8	65	6	.262	.0187	2.366	32.36	466.2
10	120.4	65	6	.262	.0187	.0580	32.42	467.1
11	144.0	65	6	.262	.0181	5.312	37.73	543.6
12	153.7	65	6	.262	.0189	2.916	40.64	585.6
13	160.3	65	6	.262	.0187	2.137	42.78	616.4
14		65	6	.262	.0187	.3011	43.08	620.8

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
57.83	46.69	11.14	.16	10.98	28.72	.83	27.90

SRE FIRST CORE FUEL ELEMENT DATA

ELEMENT

EXPERIMENT NO.
SU-1-30

SHIELD PLUG NO.
71520-029

WEIGHT (S. S. NET)
69340.50 gm

DESCRIPTION

7-rod element

COMPOSITION
U(2.778 U-235)

1926.29 gm U-235

REMARKS

RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
1								
2	5.7	66	4		.0249	.5652	.5652	8.156
3	18.3	66	4		.0220	1.720	2.286	32.98
4	36.6	66	4		.0234	2.719	5.005	72.22
5	43.1	66	4		.0232	4.728	9.733	140.4
6	65.1	66	4		.0232	9.141	18.87	272.4
7	82.3	66	4		.0225	6.890	25.76	371.8
8	119.3	66	4	.348	.0208	12.42	38.18	550.9
9	125.5	66	4	.348	.0252	3.188	41.37	596.1
10	126.1	66	4	.348	.0252	.0781	41.44	598.1
11	149.7	66	4	.348	.0225	6.604	48.05	693.3
12	159.4	66	4	.348	.0237	3.657	51.70	746.1
13	166.0	66	4	.348	.0235	2.686	54.39	784.9
14		66	4	.348	.0235	.3784	54.77	790.3

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
73.20	59.14	14.06	.21	13.85	36.60	1.35	35.25

SRE FIRST CORE FUEL ELEMENT DATA

EXPERIMENT NO.
SU-1-31

SHIELD PLUG NO.
71520-042

WEIGHT (S. S. NET)
69310.67 gm

DESCRIPTION
7-rod element

COMPOSITION
U(2.778 w/o U-235)

1925.46 gm U-235

REMARKS

ELEMENT	RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
	1								
	2	5.7	68	2		.0278	.6311	.6311	9.106
	3	18.3	68	2		.0234	1.830	2.461	35.51
	4	31.6	68	2		.0282	3.277	5.738	82.80
	5	43.1	68	2		.0270	5.503	11.24	162.2
	6	65.1	68	2		.0264	10.40	21.64	312.3
	7	82.3	68	2		.0263	8.053	29.70	428.5
	8	119.3	68	2	.415	.0218	13.01	42.71	616.3
	9	125.5	68	2	.415	.0248	3.137	45.84	661.5
	10	126.1	68	2	.415	.0248	.0769	45.92	662.7
	11	149.7	68	2	.415	.0248	7.279	53.20	768.7
	12	159.4	68	2	.415	.0252	3.888	57.09	823.8
	13	166.0	68	2	.415	.0247	2.823	59.91	864.5
	14		68	2	.415	.0247	.3977	60.31	870.3

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
80.48	65.04	15.44	.23	15.21	40.24	1.58	38.66

SRE FIRST CORE FUEL ELEMENT DATA

EXPERIMENT NO.
SU-1-32
SHIELD PLUG NO.
71520-036
WEIGHT (S. S. NET)
69279.05 gm

DESCRIPTION
7-rod element

COMPOSITION
U(2.778 w/o U-235)
1924.58 gm U-235

REMARKS

ELEMENT	RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
	1								
	2	5.7	69	3		.0279	.6333	.6333	9.138
	3	18.3	69	3		.0243	1.900	2.534	36.56
	4	31.6	69	3		.0262	3.044	5.578	80.49
	5	43.1	69	3		.0259	5.278	10.86	156.7
	6	65.1	69	3		.0264	10.40	21.26	306.8
	7	82.3	69	3		.0262	8.022	29.28	422.5
	8	119.3	69	3	.400	.0220	13.13	42.41	612.0
	9	125.5	69	3	.400	.0256	3.238	45.65	658.7
	10	126.1	69	3	.400	.0256	.0794	45.73	659.9
	11	149.7	69	3	.400	.0265	7.778	53.51	772.1
	12	159.4	69	3	.400	.0264	4.074	57.58	830.9
	13	166.0	69	3	.400	.0262	2.995	60.58	874.1
	14		69	3	.400	.0262	.4218	61.00	880.2

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
81.02	65.35	15.67	.24	15.43	40.61	1.69	38.92

SRE FIRST CORE FUEL ELEMENT DATA

ELEMENT

EXPERIMENT NO.
SU-1-33

SHIELD PLUG NO.
71520-041

WEIGHT (S. S. NET)
69303.15 gm

DESCRIPTION
7-rod element

COMPOSITION
U(2.778 w/o U-235)

1925.24 gm U-235

REMARKS

RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
1								
2								
3	12.6	71	6		.0171	1.337	1.337	19.30
4	25.9	71	6		.0191	2.219	3.557	51.30
5	37.4	71	6		.0183	3.730	7.286	105.1
6	59.4	71	6		.0183	7.210	14.50	209.2
7	76.6	71	6		.0180	5.512	20.01	288.7
8	113.6	71	6	.242	.0215	12.83	32.84	473.9
9	119.8	71	6	.242	.0221	2.796	35.64	514.2
10	120.4	71	6	.242	.0221	.0685	35.70	515.2
11	144.0	71	6	.242	.0196	5.753	41.46	598.2
12	153.7	71	6	.242	.0179	2.762	44.22	638.1
13	160.3	71	6	.242	.0176	2.012	46.23	667.1
14		71	6	.242	.0176	.2834	46.52	671.3

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
60.26	48.28	11.98	.18	11.80	31.00	.96	30.03

SRE FIRST CORE FUEL ELEMENT DATA

ELEMENT

EXPERIMENT NO.
SU-1-34

SHIELD PLUG NO.
715134-005

WEIGHT (S. S. NET)
69358.09 gm

DESCRIPTION
7-rod element

COMPOSITION
U(2.778 w/o U-235)

1926.76 gm U-235

REMARKS

RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
1								
2	5.7	73	5		.0197	.4472	.4472	6.444
3	18.3	73	5		.0206	1.611	2.058	29.66
4	31.6	73	5		.0223	2.591	4.649	66.99
5	43.1	73	5		.0212	4.321	8.970	129.2
6	65.1	73	5		.0206	8.116	17.09	246.2
7	82.3	73	5		.0196	6.002	23.09	332.7
8	119.3	73	5	.294	.0216	12.89	35.98	518.5
9	125.5	73	5	.294	.0218	2.758	38.74	558.2
10	126.1	73	5	.294	.0218	.0676	38.81	559.2
11	149.7	73	5	.294	.0224	6.574	45.38	653.9
12	159.4	73	5	.294	.0209	3.225	48.61	700.4
13	166.0	73	5	.294	.0209	2.389	50.99	734.8
14		73	5	.294	.0209	.3365	51.33	739.6

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
68.78	55.60	13.18	.20	12.98	34.30	1.18	33.12

SRE FIRST CORE FUEL ELEMENT DATA

ELEMENT

EXPERIMENT NO.
SU-1-35

SHIELD PLUG NO.
71564-051

WEIGHT (S. S. NET)
69032.90 gm

DESCRIPTION
7-rod element

COMPOSITION
U(2.778 w/o U-235)

1917.74 gm U-235

REMARKS

RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
1								
2	5.7	75	4		.0227	.5153	.5153	7.468
3	18.3	75	4		.0219	1.713	2.228	32.29
4	31.6	74	4		.0257	2.986	5.214	75.57
5	43.1	74	4		.0244	4.973	10.19	147.6
6	65.1	74	4		.0233	9.180	19.37	280.7
7	82.3	74	4		.0239	7.318	26.68	386.7
8	119.3	74	4	.356	.0233	13.91	40.59	588.3
9	125.5	74	4	.356	.0259	3.276	43.87	635.8
10	126.1	74	4	.356	.0259	.0803	43.95	637.0
11	149.7	74	4	.356	.0233	6.839	50.79	736.1
12	159.4	74	4	.356	.0237	3.657	54.44	789.1
13	166.0	74	4	.356	.0235	2.686	57.13	828.0
14		74	4	.356	.0235	.3784	57.51	833.5

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
76.71	61.94	14.77	.23	14.54	38.55	1.50	37.05

SRE FIRST CORE FUEL ELEMENT DATA

EXPERIMENT NO.
SU-1-36

SHIELD PLUG NO.
71564-037

WEIGHT (S. S. NET)
68975.88 gm

DESCRIPTION
7-rod element

COMPOSITION
U(2.778 w/o U-235)

1916.15 gm U-235

REMARKS

ELEMENT	RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
	1								
	2	5.7	74	4		.0240	.5448	.5448	7.896
	3	18.3	74	4		.0234	1.830	2.375	34.42
	4	31.6	75	4		.0234	2.719	5.094	73.82
	5	43.1	75	4		.0240	4.891	9.985	144.7
	6	65.1	75	4		.0245	9.653	19.64	284.6
	7	82.3	75	4		.0229	7.012	26.65	386.2
	8	119.3	75	4	.348	.0219	13.07	39.72	575.7
	9	125.5	75	4	.348	.0245	3.099	42.82	620.6
	10	126.1	75	4	.348	.0245	.0760	42.90	621.7
	11	149.7	75	4	.348	.0233	6.839	49.74	720.8
	12	159.4	75	4	.348	.0223	3.441	53.18	770.7
	13	166.0	75	4	.348	.0219	2.503	55.68	807.0
	14		75	4	.348	.0219	.3526	56.03	812.0

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
74.73	60.32	14.41	.22	14.19	37.75	1.44	36.31

SRE FIRST CORE FUEL ELEMENT DATA

ELEMENT

EXPERIMENT NO.
SU-1-37
SHIELD PLUG NO.
71520-054
WEIGHT (S. S. NET)
69338.41 gm

DESCRIPTION
7-rod element

COMPOSITION
U(2.778 w/o U-235)
1926.24 gm U-235

REMARKS

RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
1								
2								
3	12.6	80	6		.0188	1.470	1.470	21.22
4	25.9	80	6		.0177	2.057	3.527	50.89
5	37.4	80	6		.0168	3.424	6.951	100.3
6	59.4	80	6		.0167	6.580	13.53	195.2
7	76.6	80	6		.0162	4.960	18.49	266.8
8	113.6	80	6	.291	.0192	11.46	29.95	432.2
9	119.8	80	6	.291	.0210	2.656	32.61	470.5
10	120.4	80	6	.291	.0210	.0651	32.67	471.5
11	144.0	80	6	.291	.0196	5.753	38.43	554.5
12	153.7	80	6	.291	.0189	2.916	41.34	596.6
13	160.3	80	6	.291	.0209	2.389	43.73	631.0
14		80	6	.291	.0209	.3365	44.07	635.9

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
59.33	47.97	11.36	.16	11.20	29.28	.89	28.39

SRE FIRST CORE FUEL ELEMENT DATA

ELEMENT

EXPERIMENT NO.
SU-1-38

SHIELD PLUG NO.
71520-027

WEIGHT (S. S. NET)
69353.77 gm

DESCRIPTION
7-rod element

COMPOSITION
U(2.778 w/o U-235)

1926.65 gm U-235

REMARKS

RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
1								
2	5.7	35	2		.0307	.6969	.6969	10.04
3	18.3	35	2		.0257	2.010	2.707	39.00
4	31.6	35	2		.0254	2.952	5.658	81.53
5	43.1	35	2		.0255	5.197	10.86	156.4
6	65.1	35	2		.0254	10.01	20.86	300.6
7	82.3	35	2	.415	.0258	7.900	28.76	414.4
8	119.3	35	2	.415	.0276	16.47	45.24	651.8
9	125.5	35	2	.415	.0248	3.137	48.37	697.0
10	126.1	35	2	.415	.0254	7.455	55.91	805.6
11								
12								
13								
14								

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
74.56	60.23	14.33	.21	14.12	37.18	1.41	35.78

SRE FIRST CORE FUEL ELEMENT DATA

ELEMENT

EXPERIMENT NO.
SU-1-39

SHIELD PLUG NO.
71564-002

WEIGHT (S. S. NET)
68775.08 gm

DESCRIPTION
7-rod element

COMPOSITION
U(2.778 w/o U-235)

1910.57 gm U-235

REMARKS

RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
1								
2	5.7	36	4		.0255	.5788	.5788	8.413
3	18.3	36	4		.0240	1.877	2.456	35.69
4	31.6	36	4		.0254	2.952	5.407	78.59
5	43.1	36	4		.0244	4.973	10.38	150.9
6	65.1	36	4		.0244	9.614	19.99	290.6
7	82.3	36	4		.0241	7.379	27.37	397.9
8								
9								
10								
11								
12								
13								
14								

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
37.06	29.99	7.07	.11	6.96	17.96	.32	17.63

SRE FIRST CORE FUEL ELEMENT DATA

EXPERIMENT NO.
SU-1-40

SHIELD PLUG NO.
715145-031

WEIGHT (S. S. NET)
69372.48 gm

DESCRIPTION
7-rod element

COMPOSITION
U(2.778 w/o U-235)

1927.17 gm U-235

REMARKS

ELEMENT RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
1								
2	5.7	58	4		.0240	.5448	.5448	7.850
3	18.3	58	4		.0305	2.385	2.930	42.22
4	31.6	24	4		.0214	2.487	5.417	78.05
5	43.1	24	4		.0230	4.687	10.10	145.6
6	65.1	24	4		.0240	9.456	19.56	281.8
7	82.3	24	4		.0226	6.920	26.48	381.6
8	119.3	24	4		.0284	16.95	43.43	625.8
9	125.5	-	-		- - -	- - - -	- - - -	- - - - -
10	126.1	-	-		- - -	- - - -	- - - -	- - - - -
11	149.7	-	-		- - -	- - - -	- - - -	- - - - -
12	159.4	25	6	.250	.0195	3.009	46.44	669.2
13	166.0	25	6	.250	.0206	2.355	48.80	703.1
14		25	6	.250	.0206	.3317	49.13	708.9

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
65.72	53.04	12.68	.19	12.49	32.76	1.10	31.66

SRE FIRST CORE FUEL ELEMENT DATA

ELEMENT	RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
EXPERIMENT NO. SU-1-42	1								
	2								
SHIELD PLUG NO. 71605-003	3	12.6	9	5		.0220	1.720	1.720	24.90
	4	25.9	9	5		.0208	2.417	4.137	59.88
WEIGHT (S. S. NET) 69106.85 gm	5	37.4	9	5		.0219	4.463	8.601	124.5
	6	59.4	9	5		.0251	9.889	18.49	267.6
DESCRIPTION 7-rod element	7								
	8								
	9								
	10								
	11								
	12								
	13								
COMPOSITION U(2.778 w/o U-235) 1919.79 gm U-235	14								

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
24.96	20.20	4.76	.07	4.69	12.10	.15	11.94

REMARKS

SRE FIRST CORE FUEL ELEMENT DATA

ELEMENT

EXPERIMENT NO.
SU-1-43

SHIELD PLUG NO.
71605-013

WEIGHT (S. S. NET)
69148.25 gm

DESCRIPTION
7-rod element

COMPOSITION
U(2.778 w/o U-235)

1920.94 gm U-235

REMARKS

RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
1								
2	5.7	76	5		.0205	.4654	.4654	6.735
3	18.3	76	5		.0204	1.595	2.061	29.82
4	31.6	76	5		.0228	2.649	4.710	68.16
5	43.1	76	5		.0217	4.423	9.133	132.2
6	65.1	76	5		.0217	8.550	17.68	255.9
7	82.3	76	5		.0212	6.491	24.17	349.8
8					.0238	14.15	38.32	554.6
9								
10								
11								
12								
13								
14								

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
51.67	41.76	9.91	.15	9.76	25.36	.67	24.68

SRE FIRST CORE FUEL ELEMENT DATA

EXPERIMENT NO.
SU-1-44

SHIELD PLUG NO.
71520-026

WEIGHT (S. S. NET)
69383.42 gm

DESCRIPTION
7-rod element

COMPOSITION
U(2.778 w/o U-235)

1927.47 gm U-235

REMARKS

ELEMENT	RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
	1								
	2	5.7	70	4		.0247	.5607	.5607	8.079
	3	18.3	70	4		.0244	1.908	2.469	35.57
	4	31.6	70	4		.0251	2.917	5.385	77.60
	5	43.1	70	4		.0232	4.728	10.11	145.7
	6	65.1	70	4		.0240	9.570	19.57	282.0
	7	82.3	70	4		.0238	7.288	26.86	387.0
	8	119.3	70	4		.0233	13.91	40.76	587.4
	9								
	10								
	11								
	12								
	13								
	14		56	1	.400	.0252	.4057	41.17	593.2

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
55.13	44.53	10.60	.16	10.44	27.37	.77	26.60

SRE FIRST CORE FUEL ELEMENT DATA

ELEMENT

EXPERIMENT NO.
SU-1-45

SHIELD PLUG NO.
71520-032

WEIGHT (S. S. NET)
69361.32 gm

DESCRIPTION
7-rod element

COMPOSITION
U(2.778 w/o U-235)

1926.86 gm U-235

REMARKS

RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
1								
2	5.7	53	4		.0286	.6492	.6492	9.354
3	18.3	53	4		.0255	1.994	2.643	38.09
4	31.6	53	4		.0247	2.870	5.513	79.44
5	43.1	53	4		.0244	4.973	10.49	151.1
6	65.1	53	4		.0250	9.850	20.34	293.0
7	82.3	53	4		.0240	7.349	27.68	398.9
8								
9								
10								
11								
12								
13								
14								

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
37.38	30.21	7.17	.11	7.06	18.30	.35	17.96

SRE FIRST CORE FUEL ELEMENT DATA

EXPERIMENT NO.
SU-1-46

SHIELD PLUG NO.
71520-048

WEIGHT (S. S. NET)
69413.51 gm

DESCRIPTION
7-rod element

COMPOSITION
U(2.778 w/o U-235)

1928.31 gm U-235

REMARKS

ELEMENT	RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
	1								
	2								
	3	12.6	57	2		.0215	1.681	1.681	24.23
	4	25.9	54	2		.0278	3.230	4.912	70.77
	5	37.4	54	2		.0265	5.401	10.31	148.6
	6	59.4	54	2		.0283	11.15	21.46	309.3
	7	76.6	54	2		.0278	8.512	29.98	431.9
	8	113.6	54	2	.415	- - -	- - - -	- - - - -	- - - - - -
	9								
	10								
	11								
	12								
	13								
	14								

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
40.50	32.75	7.75	.11	7.64	19.67	.39	19.28

SRE FIRST CORE FUEL ELEMENT DATA

EXPERIMENT NO.
SU-1-47

SHIELD PLUG NO.
71520-055

WEIGHT (S. S. NET)
69348.99 gm

DESCRIPTION
7-rod element

COMPOSITION
U(2.778 w/o U-235)

1926.52 gm U-235

REMARKS

ELEMENT	RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
	1								
	2	5.7	41	5		.0233	.5289	.5289	7.632
	3	18.3	41	5		.0242	1.892	2.421	34.94
	4	31.6	47	5		.0206	2.394	4.815	69.48
	5	43.1	47	5		.0204	4.158	8.972	129.5
	6	65.1	47	5		.0201	7.919	16.89	243.8
	7	82.3	47	5		.0199	6.093	22.98	331.7
	8	119.3	47	5	.294	.0266	15.88	38.86	560.8
	9	- - -	-	-	- - -	- - -	- - - -	- - - -	- - - - -
	10	- - -	-	-	- - -	- - -	- - - -	- - - -	- - - - -
	11	- - -	-	-	- - -	- - -	- - - -	- - - -	- - - - -
	12	129.0	10	5	.304	.0205	3.163	42.03	606.4
	13	135.6	10	5	.304	.0206	2.355	44.38	640.4
	14		10	5	.304	.0206	.3317	44.71	645.2

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
59.92	48.40	11.52	.17	11.35	29.86	.92	28.94

SRE FIRST CORE FUEL ELEMENT DATA

EXPERIMENT NO.
SU-3-1

SHIELD PLUG NO.
715111-008

WEIGHT (S. S. NET)
68,578.77 gm

DESCRIPTION
Tubular element

COMPOSITION
U(2.778 w/o U-235)

1905.12 gm U-235

REMARKS

ELEMENT RUN NO.	ACCUM. OPER. DAYS/ELEMENT	POSITION CH.NO.	POSITION RG.NO.	ORIFICE SIZE	CHANNEL FACTOR	MWD PER ELEMENT	ACCUM. MWD PER ELEMENT	ACCUM. MWD/ TONNE/ELEMENT
1								
2								
3								
4								
5								
6	11.5	32	2		.0254	10.01	10.01	145.9
7	33.5	32	2		.0259	7.931	17.94	261.5
8	50.7	32	2		.0274	16.36	34.29	499.8
9								
10								
11								
12								
13								
14								

U-235 CONSUMED (gm.)	U-235 FISSIONED (gm.)	U-236 PRODUCED (gm.)	U-236 BURN-UP (gm.)	NET U-236 (gm.)	PU PRODUCED (gm.)	PU FISSIONED (gm.)	NET PU (gm.)
46.29	37.43	8.859	.1330	8.726	22.77	.5334	22.24