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**Distribution of Fission Products in
Peach Bottom HTGR Fuel Element F03-01**

F. F. Dyer
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W. J. Martin
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CHEMICAL TECHNOLOGY DIVISION

HTGR BASE TECHNOLOGY PROGRAM
HTGR Chemistry Studies (189a 01329)

DISTRIBUTION OF FISSION PRODUCTS IN PEACH BOTTOM
HTGR FUEL ELEMENT FO3-01

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ABSTRACT

This is the fourth in a series of six postirradiation examinations of Peach Bottom High-Temperature Gas-Cooled Reactor driver fuel elements. Element FO3-01 was a so-called high-rhodium driver element centrally located within core 2 adjacent to a "type 2" control rod. Although not instrumented, the element was estimated to have operated at significantly higher temperatures than the majority of the driver elements and, therefore, was expected to exhibit enhanced release and migration of fission products from the fuel into its graphite components. Because of these expectations, the examination of element FO3-01 was believed to be especially important. The element received an equivalent of 897 full-power days of irradiation prior to scheduled termination of core operation.

The examination procedures emphasized the determination of radionuclide distributions in the graphite portions of the fuel element. Axial gamma scans indicated 36 Ci of ^{137}Cs in the sleeve of the element and 9.8 Ci in the spine. From similar measurements, 358 Ci of ^{137}Cs was estimated to be in the fuel, showing that ~13% of it was found in the graphite components. Axial distributions also indicated that significant amounts of the total inventory of ^{137}Cs moved toward the bottom of the element during operation. The axial distribution of ^{134}Cs was similar to that of ^{137}Cs .

Other nuclides found in the fuel of the element included ^{95}Zr , ^{103}Ru , ^{106}Ru , ^{125}Sb , ^{141}Ce , ^{144}Ce , ^{154}Eu , and ^{233}Pa . Nuclides found in the graphite, in addition to ^{134}Cs and ^{137}Cs , included ^{54}Mn , ^{60}Co , ^{106}Ru , ^{110}mAg , ^{144}Ce , and ^{154}Eu . Europium-154, a nuclide formed in the fuel by neutron capture in the stable fission product ^{153}Eu , appeared to have been released from the fuel and migrated along the element to about the same extent as the two cesium isotopes. About 1 Ci of ^{110}mAg was found in the spine and sleeve of the element. None of the other nuclides appeared to have been significantly released from the fuel.

In addition to the determination of fission product distributions, the appearance of the component parts of the element was

recorded photographically. Fuel compact and graphite dimensions were recorded at numerous locations, and metallographic examinations of the fuel were performed.

Although metrology data for the element were not obtained before irradiation, comparisons of the postirradiation dimensions with nominal preirradiation dimensions indicated that irradiation-induced changes were somewhat more extensive than observed for previously examined elements. Except for cracks in a few compacts and some pitted surfaces, the general appearance of the element did not appear to be significantly affected by the irradiation.

The fraction of particles that had failed coatings was measured in several compacts by a hot-chlorine leaching procedure and found to be of the order of $\leq 1\%$.

1. INTRODUCTION

A series of postirradiation examinations of driver fuel elements withdrawn from the Peach Bottom High-Temperature Gas-Cooled Reactor (HTGR) is being undertaken in conjunction with the General Atomic Company (GAC) as part of a surveillance program for this reactor. The overall objective of the surveillance work is the verification of design procedures used for predicting fission product and temperature distributions in an HTGR.

The postirradiation examination of driver fuel elements is being conducted by ORNL; GAC will make use of results of the examination in the design verification procedures. As in ORNL-5126, ORNL-5214, and ORNL/TM-5730, the present report is intended primarily to provide a documentation of the methods used as well as a graphical and tabular presentation of the results found in the examination. Very little discussion relative to critical evaluation and interpretation is included.

This report presents results of the examination of fuel element FO3-01, which received 897 equivalent full-power days (EFPDs) of irradiation. Emphasis was placed on determining fission product distributions in the element, especially as a result of migration to the graphite sleeve and spine from the fuel compacts. Inventories of gamma-emitting nuclides

in the fuel were obtained by scanning each of the 30 compacts individually. Distributions of gamma-emitting nuclides and the beta-emitters ^3H , ^{14}C , and ^{90}Sr were obtained for the graphite portions of the element by axial scanning and radial dissection in a hot cell.

In addition to the measurement of fission product distributions, the following general categories of examination were performed:

1. The appearance of each component part of the element was photographically recorded.
2. Critical dimensions, such as the inner and outer sleeve and fuel compact diameters, were measured. The recorded metrology data form an essential part of the effort to validate the predictive temperature codes for HTGRs.
3. Portions of four fuel compacts were examined metallographically.
4. The failed fractions of fuel particles in four compacts were determined by a hot-chlorine leach procedure.

The fuel-element examination portion of the Peach Bottom Fission Product Surveillance Program includes four completed examinations - EO6-01 (384 EFPDs),¹ E11-07 (701 EFPDs),² E14-01 (897 EFPDs),³ and FO3-01 (897 EFPDs) reported here - plus two additional 897-EFPD elements (EO1-01 and FO5-05). The last four elements of the series are core 2 end-of-life (EOL) elements. Examinations of the final two elements have been completed along with reports describing the findings; publication of these reports is expected soon. The surveillance program at ORNL has also been concerned with the measurement of fission product distributions in the primary coolant circuit during the operation of core 2, from 1970 through most of 1974. Results of these measurements were reported by F. F. Dyer et al.⁴

General descriptive material concerning the reactor and driver fuel elements was obtained from the Peach Bottom HTGR Final Hazards Summary Report,⁵ the core 2 supplement to the FHSR,⁶ and a report by Turner et al.⁷ which discussed the fuel performance of core 2 after 630 EFPDs. An internal GAC document⁸ which details the irradiation exposure, the first estimate of

the thermal history, and results obtained in gamma scanning this element 38 days following reactor shutdown was used in the preparation of this report.

In addition to providing fuel element construction drawings, GAC assisted in the examinations described here by supplying funds to partially cover the physical examination procedures described in Sect. 3. These funds also enabled improvement of tools employed for metrology and hence provided benefit to subsequent fuel-element examinations.

The authors wish to gratefully acknowledge the support provided by the Analytical Chemistry Division, particularly to personnel in the Reactor Projects group headed by D. A. Costanzo and the Radiochemical Analyses group headed by R. R. Rickard. J. L. Botts developed the useful method for determining failed particle fractions of fuel compact samples. Hugh Parker and P. S. Gouge performed the beta-emitter analyses on the graphite samples. L. D. Bible and W. F. Rogers skillfully operated the lathe to acquire the radial graphite specimen in a hot cell by using procedures established by L. C. Bate.

In this report, as well as previous reports in this series dealing with surveillance of fission products in the Peach Bottom Reactor, the efforts of Betty Drake, who has typed and retyped, arranged, and rearranged both text and tables, are sincerely appreciated.

2. FUEL-ELEMENT DESCRIPTION

2.1 Design Dimensions and Specifications

Element FO3-01 was classified according to the Peach Bottom FHSR⁵ as a type 1 driver element. As such, its middle 18 fuel compacts were of the high-rhodium variety (1.03 g of rhodium per compact); the top three and bottom nine compacts were of the standard variety containing no rhodium. The element was similar to element Ell-07² in all respects except that its dimensions were not measured before irradiation and it was a high-rhodium (type 1) rather than a low-rhodium (type 2) element. The element was also similar to Ell-07 in that it was not instrumented with thermocouples. The

reader is referred to ref. 2 for details of assembly drawings of the element and to ref. 1 for an account of the composition of fuel compacts and specifications for graphite and BISO-coated fuel particles for the element.

Trace levels of the chemical elements, which could be of significance in the interpretation of observed radionuclide distributions in the graphite, were measured in archive sleeve graphite. These results are given in refs. 1 and 2.

By referring to Fig. 2.1 of ref. 1, one may note the location of element FO3-01 in the third annular row of the F sector of the Peach Bottom core, adjacent to control rod element FO4-01.

Beginning-of-life (BOL) and EOL heavy-metal contents of element FO3-01, calculated with the GAUGE code, are given in Table 2.1-1.⁸

2.2 Operating History

The operation of element FO3-01 began at the startup of core 2 on July 15, 1970, and ceased on October 31, 1974, at the end of core life. An approximation of the power history of core 2 is given in Table 2.2-1.⁸ Using a rated full power level of 115.5 MW(t) indicates that this fuel element, like element E14-01 reported in ref. 3, experienced 897 EFPDs of operation. It should be noted that element EO6-01 was removed from the reactor (384 EFPDs) during the 162-day shutdown period, and element E11-07 was removed (701 EFPDs) during the 114-day shutdown. Results of the post-irradiation examinations of these fuel elements are reported in refs. 1 and 2 respectively.

The estimated temperature trends with irradiation time at compact 16 (axial location of highest temperature) for the fuel, sleeve, and coolant are presented in Fig. 2.2-1.⁸ The temperature of the spine (not shown) is assumed to be the same as that of the inside diameter of the fuel compact. The fuel temperatures on the plot are volume-averaged over fuel particles and matrix graphite. A comparison of the temperatures given in Fig. 2.2-1 for FO3-01 with corresponding temperatures for fuel element E14-01 given in Fig. 2.2-1 of ref. 3 indicates that element FO3-01 experienced temperatures $\sim 60^\circ$ higher than did element E14-01.

Table 2.1-1. Heavy-metal loadings for driver FO3-01^a

Nuclide	BOL (g)	EOL (g)
²³² Th	1373.757	1316.213
²³³ Pa	0.	2.280
²³³ U	0.	32.710
²³⁴ U	0.	2.994
²³⁵ U	0.	0.391
²³⁴ U	3.738	2.442
²³⁵ U	232.451	101.039
²³⁶ U	1.251	26.708
²³⁸ U	12.110	10.393
²³⁷ Np	0.	2.251
²³⁹ Np	0.	0.005
²³⁸ Pu	0.	0.548
²³⁹ Pu	0.	0.371
²⁴⁰ Pu	0.	0.123
²⁴¹ Pu	0.	0.172

^aData taken from ref. 8. The first five rows pertain to loadings due to ²³²Th.

Table 2.2-1. Approximate power history of Peach Bottom Reactor
during operation with fuel element FO3-01^a

Date	Core power [MW(t)]	Relative radial power	Time at power (days)	Equivalent full- power days (EFPDs)	Cumulative EFPDs
July 15, 1970					0
	108	0.982	29	27	27
	107	0.942	39	36	63
	92	0.978	7	6	69
	109	0.953	141	133	202
	96	0.976	60	50	252
	Shutdown	-	80	0	252
	94	1.043	56	46	298
	93	1.003	56	45	343
	Shutdown	-	22	0	343
	103	1.019	47	42	385
	Shutdown	-	162	0	385
	91	1.024	146	115	500
	Shutdown	-	46	0	500
	92	1.014	81	64	564
	103	0.909	52	46	610
	Shutdown	-	20	0	610
	106	0.905	99	91	701
	Shutdown	-	114	0	701
	107	0.908	51	47	748
	92	0.887	50	40	788
	92	0.902	37	30	818
	Shutdown	-	38	0	818
	65	0.837	30	17	835
	92	0.799	29	23	858
	79	0.789	47	32	890
	67	0.790	12	7	897
Oct. 30, 1974					

^aData taken from ref. 8.

Fig. 2.2-1. Estimated temperature trends in fuel element F03-01 at compact 16 as a function of irradiation time.

The computed axial temperature distributions of fuel element FO3-01 at 858 EFPDs are shown in Fig. 2.2-2.⁸ Although axial temperatures were computed and given in ref. 8 for FO3-01 at 20 time points throughout the life of the element, only the highest temperature values at 858 EFPDs are reproduced here. At this time, the temperature profile of the inner diameter of the fuel compacts showed a low point of $\sim 520^{\circ}\text{C}$ at the bottom of the core, increased to a maximum of $\sim 1340^{\circ}\text{C}$ at the midplane of the core, and then decreased to 1150°C at the top of the core. At that time, the temperature of the inside diameter of the sleeve ranged from $\sim 420^{\circ}\text{C}$ at the bottom of the core to $\sim 890^{\circ}\text{C}$ at the top.

It must be emphasized that temperatures reported in Figs. 2.2-1 and 2.2-2 are preliminary and do not reflect knowledge gained from this examination. Currently, work is under way at GAC to more accurately determine operative fuel-element temperatures from postirradiation fuel element examinations, thermocouple readings on instrumented elements, and measured fuel burnup measurements.

The total thermal and fast neutron fluence distributions estimated for fuel element FO3-01 are shown in Fig. 2.2-3.⁸ The maximum thermal and fast neutron fluences, $\sim 4.2 \times 10^{22}$ neutrons/cm² in each case, occurred at approximately compact position 17.

The calculated burnups, fissions per initial heavy-metal atom, are given (as percentage values) in Table 2.2-2 for each fuel compact.⁸

3. PHOTOGRAPHIC DESCRIPTION AND METROLOGY

3.1 Visual and Photographic Examination

The element was visually examined before and during dissection, and representative normal features and appearances were noted and photographed. In addition, all abnormal features such as cracks in the compacts and graphite spallation were photographed.

The outside of the element appeared to be normal; hence no photographs of its outer surface were made. Soot deposits on the top reflector and near spacer rings were present in amounts that appeared to be comparable

Fig. 2.2-2. Computed axial temperature profile of fuel element F03-01 at the end of 858 EFPDs.

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Fig. 2.2-3. Computed axial neutron fluence profile for fuel element F03-01 at end of life.

Table 2.2-2. Calculated FIMA, fissions per
initial heavy-metal atom^a

Compact	Active core axial location (in.)	Fissile FIMA (%)	Fertile FIMA (%)	Mixed (5.5 Th, U)C ₂ FIMA (%)
1	1.5	30.280	0.445	5.009
2	4.5	30.915	0.465	5.071
3	7.5	35.659	0.634	6.011
4	10.5	39.385	0.962	6.859
5	13.5	42.350	1.202	7.514
6	16.5	44.679	1.423	8.054
7	19.5	46.246	1.634	8.462
8	22.5	47.347	1.787	8.786
9	25.5	48.194	1.913	9.017
10	28.5	48.829	2.011	9.210
11	31.5	49.338	2.057	9.325
12	34.5	49.634	2.099	9.441
13	37.5	49.846	2.128	9.480
14	40.5	49.973	2.142	9.518
15	43.5	49.634	2.113	9.480
16	46.5	49.338	2.071	9.402
17	49.5	48.829	2.015	9.248
18	52.5	48.194	1.944	9.079
19	55.5	47.432	1.860	8.902
20	58.5	46.585	1.761	8.670
21	61.5	45.526	1.648	8.377
22	64.5	44.129	1.519	8.054
23	67.5	42.562	1.367	7.707
24	70.5	40.741	1.226	7.283
25	73.5	38.623	1.068	6.836
26	76.5	36.336	0.902	6.358
27	79.5	34.092	0.744	5.896
28	82.5	32.017	0.588	5.433
29	85.5	30.492	0.462	5.071
30	88.5	30.492	0.462	5.071
	av	42.350	1.409	7.707

^aData taken from ref. 8.

to those found on fuel elements E11-07² and E14-01.³ During initial dissection, the element was transversely cut at four axial locations so as to divide it into five parts consisting of the top reflector, the bottom connector, and three sleeve sections, each of which contained ten fuel compacts and one spine piece. Details³ of the disassembly of the element and the cutting procedures, which made use of a remotely operated reciprocating hacksaw, were the same as those used for fuel element E14-01. Dimensional measurements made during dissection are discussed in Sect. 3.2 of this report.

Figures 3.1-1 through 3.1-6 show external views of the 30 fuel compacts, each juxtaposed with its corresponding section of spine. Before being photographed, the compacts and spines were roughly oriented so that, in each case, the side toward the camera was the same as the side of the element on which the serial number was marked. This side was designated the "zero azimuth side." On visual observation, the compact and spine surfaces did not seem to be as bright as the fuel compacts of element E14-01.³ Considerable pitting of the compact surfaces is apparent in the above-mentioned figures, but this feature does not appear to be different between high-temperature and low-temperature regions. Cracks in compacts 6, 7, 18, and 24 are also visible in Figs. 3.1-1 through 3.1-6. Spallation of graphite was found only on the surface of the bottom of the top spine piece adjacent to compacts 21 and 22, as shown in Fig. 3.1-5. During the cutting operation to separate the fueled region into three parts, the circumferential sawing of the sleeve at compact locations 20 and 30 was inadvertently allowed to go through the sleeve and penetrate the fuel compacts slightly. Figures 3.1-4 and 3.1-6 show the grooves made in compacts 20 and 30 due to sawing.

Compacts 1, 9, 18, 24, and 30 were selected for more-detailed photographic documentation; views of both ends, the zero azimuth side, and the opposite side are presented in Figs. 3.1-7 through 3.1-16. Note that cracking to various extents is visible in each of these compacts. Compact 18 has a crack that runs the entire length and appears to completely penetrate the wall. The pitting observed on its exterior surfaces is also visible on the inside of the compact (Fig. 3.1-11).

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Fig. 3.1-1. Compacts 1, 2, 3 (top) and 4, 5, 6, (bottom) plus associated spine.

Fig. 3.1-2. Compacts 7, 8, 9 (top) and 8, 9, 10 (bottom) plus associated spine.

Fig. 3.1-3. Compacts 11, 12, 13 (top) and 14, 15, 16 (bottom) plus associated spine.

Fig. 3.1-4. Compacts 17, 18, 19 (top) and 18, 19, 20 (bottom) plus associated spine.

Fig. 3.1-5. Compacts 21, 22, 23 (top) and 24, 25, 26 (bottom) plus associated spine.

Fig. 3.1-6. Compacts 27, 28, 29 (top) and 28, 29, 30 (bottom) plus associated spine.

Fig. 3.1-7. View from top (upper figure) and bottom (lower figure) of compact 1.

Fig. 3.1-8. Side view of compact 1 from 0° azimuth (top) and 180° azimuth (bottom) directions.

Fig. 3.1-9. View from top (upper figure) and bottom (lower figure) of compact 9.

Fig. 3.1-10. Side view of compact 9 from 0° azimuth (top) and 180° azimuth (bottom) directions.

Fig. 3.1-11. View from top (upper figure) and bottom (lower figure) of compact 18.

Fig. 3.1-12. Side view of compact 18 from 0° azimuth (top) and 180° azimuth (bottom) directions.

Fig. 3.1-13. View from top (upper figure) and bottom (lower figure) of compact 24.

Fig. 3.1-14. Side view of compact 24 from 0° azimuth (top) and 180° azimuth (bottom) directions.

Fig. 3.1-15. View from top (upper figure) and bottom (lower figure) of compact 30.

Fig. 3.1-16. Side view of compact 30 from the 0° azimuth (top) and 180° azimuth (bottom) directions.

The appearance of the fuel particles over a fracture plane in compact 20 is shown in Fig. 3.1-17.

3.2 Metrology of Sleeve, Spine, and Fuel Compacts

No preirradiation dimensional measurements of fuel element FO3-01 were made. The results of postirradiation measurements, summarized in Tables 3.2-1 through 3.2-7, include: (1) the overall length of the element; (2) the so-called fuel compact expansion gap, which is the free distance between the top of compact 30 and the bottom of the top reflector assembly; (3) the outside and inside diameters of the sleeve at five axial locations; (4) the diameters of the spine pieces at each of three locations; (5) the length of each spine piece; (6) the outside diameters, inside diameters, and wall thicknesses of five fuel compacts in four different planes; and (7) the lengths of the 30 fuel compacts. The reader is directed to ref. 3 for an account of the metrology methods that were used for element FO3-01. (These were the same methods that were used for element E14-01.) It should be noted that the dimensional data reported here were taken from GAC-ORNL correspondence in which the methods were described and the results tabulated.⁹

Table 3.2-1 shows the postirradiation length of the element and the fuel compact expansion gap, along with nominal values of these quantities for unirradiated Peach Bottom fuel elements. Also included are the nominal preirradiation and the measured postirradiation lengths of the total 30 fuel compacts. Although the element was not dimensionally measured before it was irradiated, a comparison with nominal preirradiation dimensions indicates that the total length decreased during operation by $\sim 0.5\%$. A comparison of the measured length of the fuel axial expansion gap after irradiation with the nominal length before irradiation indicates that the gap may have decreased by about 1.2 in. The decrease in the expansion gap was also computed by adding the estimated increase in fuel-element length to the estimated decrease in the fuel-element length to yield a value of 1.4 in. These data indicate that the decrease in the gap was due to approximately equal changes in absolute magnitude of the element's sleeve

Fig. 3.1-17. Fracture plane of compact 20 (top and bottom).

Table 3.2-1. Measurements of overall element length, fuel axial expansion gap, and overall length of fuel compacts

	Nominal preirradiation value ^a (in.)	Postirradiation value (in.)	Difference (in.)	Percent difference ^b
Overall length	144.00	143.9	-0.81	-0.5
Fuel expansion gap ^c	4.6	3.4	-1.2	-26.0
Total length of fuel compacts	90.0	90.0	+0.63	+0.70

^aValues are not preirradiation measurements on FO3-01 but were taken from design specifications of Peach Bottom fuel elements.

^bNegative value denotes a decrease in value.

^cValue estimated by adding the increase in length of the fuel compacts to the decrease in total length of the element.

Table 3.2-2. Cross-sectional dimensions of F03-01 sleeve

Location, compact		Mean (in.)	Percent difference ^a	Dimension (in.) at indicated orientation of: ^b			
				0°	90°	180°	270°
1	OD	3.480	-0.1	3.482 (2)	3.480 (0)	3.481 (1)	3.479 (-1)
	Wall	0.368	0.4	0.368 (0)	0.365 (-3)	0.368 (0)	0.370 (2)
	ID	2.745	-0.2	2.744 (-1)	2.745 (0)	2.744 (-1)	2.745 (0)
9	OD	3.468	-0.5	3.467 (-1)	3.471 (3)	3.469 (1)	3.465 (-3)
	Wall	0.366	-0.1	0.347 (-19)	0.357 (-9)	0.381 (15)	0.379 (13)
	ID	2.736	-0.6	2.740 (5)	2.732 (-4)	2.740 (4)	2.733 (-3)
18	OD	3.465	-0.5	3.464 (-1)	3.469 (4)	3.467 (2)	3.462 (-3)
	Wall	0.367	0.0	0.331 (-36)	0.349 (-18)	0.395 (28)	0.393 (26)
	ID	2.732	-0.7	2.740 (8)	2.724 (-8)	2.741 (9)	2.725 (-7)
24	OD	3.468	-0.5	3.466 (-2)	3.472 (4)	3.468 (0)	3.467 (-1)
	Wall	0.379	3.4	0.348 (-31)	0.377 (-2)	0.391 (12)	0.400 (21)
	ID	2.711	-1.5	2.729 (19)	2.691 (-20)	2.730 (19)	2.692 (-19)
30	OD	3.479	-0.2	3.479 (0)	3.480 (1)	3.480 (1)	3.478 (-1)
	Wall	0.368	0.4	0.362 (-6)	0.368 (0)	0.372 (4)	0.368 (0)
	ID	2.744	-0.3	2.745 (1)	2.743 (-1)	2.745 (1)	2.743 (-1)

^aNumbers represent the change from nominal preirradiation values, which were: OD = 3.485 in., wall = 0.367 in., and ID = 2.752 in.

^bValue in parentheses was computed by: (observation - mean) x 1000.

Table 3.2-3. Diameters of F03-01 spine pieces

Spine section	Percent Difference ^a	Location	Mean (in.)	Diameter (in.) at indicated azimuth of:			
				0°	90°	180°	270°
Bottom	-0.4	Bottom	1.658	1.658	1.659	1.657	1.658
	-0.7	Center	1.653	1.653	1.653	1.654	1.652
	-0.8	Top	1.651	1.651	1.651	1.652	1.651
Center	-0.7	Bottom	1.653	1.653	1.653	1.652	1.653
	-0.8	Center	1.652	1.651	1.652	1.651	1.652
	-0.8	Top	1.651	1.651	1.652	1.652	1.650
Top	-0.8	Bottom	1.652	1.655	1.652	1.652	1.651
	-0.8	Center	1.651	1.652	1.650	1.651	1.652
	-0.7	Top	1.654	1.655	1.655	1.654	1.654

^aDifference between the nominal value before irradiation (1.688 in.) and the mean of the four observations.

Table 3.2-4. Lengths of F03-01 spine pieces

Spine section	Length (in.)	Percent difference ^a
Bottom	29.59	-1.4
Center	29.39	-2.0
Top	29.40	-2.0

^aDifference between nominal length of unirradiated spine (30.0 in.) and measured postirradiation length.

Table 3.2-5. Inside and outside diameters of F03-01 fuel compacts

Compact		Outside diameter (in.)		Percent difference ^a	Inside diameter (in.)		Percent difference ^a
		0°	90°		0°	90°	
1	Bottom	2.733	2.733		1.744	1.746	
	Center	2.728	2.729		1.742	1.742	
	Top	2.730	2.728		1.741	1.741	
	Mean	2.730 ± 0.002		-0.4	1.743 ± 0.002		-0.4
9	Bottom	2.675	2.690		1.704	1.719	
	Center	2.677	2.687		1.702	1.713	
	Top	2.677	2.687		1.706	1.717	
	Mean	2.679 ± 0.009		-2.3	1.701 ± 0.007		-2.3
18	Bottom	2.624	2.668		1.682	1.705	
	Center	2.637	2.656		1.682	1.699	
	Top	2.666	2.675		1.700	1.708	
	Mean	2.654 ± 0.020		-3.2	1.696 ± 0.011		-3.1
24	Bottom	2.652	2.681		1.684	1.713	
	Center	2.656	2.683		1.684	1.714	
	Top	2.670	2.700		1.697	1.725	
	Mean	2.674 ± 0.018		-2.5	1.703 ± 0.018		-2.7
30	Bottom	2.718	2.715		1.730	1.725	
	Center	2.717	2.712		1.730	1.723	
	Top	2.723	2.717		1.733	1.727	
	Mean	2.717 ± 0.004		-0.9	1.728 ± 0.004		-1.2

^aPercent difference refers to the change from the preirradiation nominal values, which were: OD = 2.743 in., ID = 1.750 in.

Table 3.2-6. Measured wall thicknesses of F03-01 fuel compacts

Compact	Location	Wall thickness (in.) at indicated azimuth of:			
		0°	90°	180°	270°
1	Bottom	0.493	0.494	0.496	0.493
	Center	0.492	0.494	0.493	0.493
	Top	0.495	0.490	0.494	0.494
		Mean = 0.493 ± 0.002			
		% difference = -0.7 ^a			
9	Bottom	0.484	0.487	0.484	0.483
	Center	0.482	0.483	0.480	0.484
	Top	0.487	0.487	0.487	0.484
		Mean = 0.484 ± 0.002			
		% difference = -2.5			
18	Bottom	0.465	0.488	0.476	0.479
	Center	0.481	0.481	0.474	0.476
	Top	0.485	0.485	0.480	0.478
		Mean = 0.479 ± 0.006			
		% difference = -3.5			
24	Bottom	0.481	0.483	0.488	0.491
	Center	0.482	0.480	0.489	0.489
	Top	0.485	0.481	0.487	0.487
		Mean = 0.485 ± 0.004			
		% difference = -2.3			
30	Bottom	0.494	0.493	0.496	0.497
	Center	0.492	0.491	0.496	0.498
	Top	0.493	0.493	0.495	0.496
		Mean = 0.495 ± 0.002			
		% difference = -0.3			

^aPercent difference refers to the change from the preirradiation nominal value, which was 0.496 in.

Table 3.2-7. Lengths of compacts comprising
fuel element F03-01

Compact	Length ^a (in.)	Percent difference
1	2.991	-0.3
2	2.952	-1.6
3	3.010	0.3
4	2.976	-0.8
5	2.983	-0.6
6	3.026	0.9
7	3.016	0.5
8	3.018	0.6
9	3.023	0.8
10	3.035	1.2
11	3.017	0.6
12	3.048	1.6
13	2.995	-0.2
14	3.029	1.0
15	3.045	1.5
16	3.021	0.7
17	3.043	1.4
18	3.066	2.2
19	B	
20	B	
21	3.010	0.3
22	3.074	2.5
23	2.992	-0.3
24	3.119	4.0
25	3.102	3.4
26	3.030	1.1
27	3.026	0.9
28	2.985	-0.5
29	3.007	0.2
30	2.948	-1.7

^aB denotes broken compact.

(shortening) and the fuel compacts (lengthening). The estimated changes in the length of the element and the gap seem to be consistent with observations made on previously examined fuel elements.^{2,3}

Table 3.2-2 presents the dimensions of the sleeve, including outer diameter, wall thickness, and inner diameter, determined at locations adjacent to compacts 1, 9, 18, 24, and 30. The outer diameters and wall thicknesses were measured at four azimuthal orientations, separated by 90°, using procedures described in ref. 3; the measured values and their means are tabulated. It should be noted that the use of the "curvature gauge" for measuring the outer diameter of a cylinder yields a value for the diameter at each orientation measured. Thus it is possible to have two estimates of the diameter from the 0° to the 180° azimuths and two estimates across the 90° to 270° azimuths, as are given in Table 3.2-2 for the sleeve. The algebraic difference between the observed quantity and the mean is given in parentheses after each diameter or wall thickness entry in the table. By examining these differences, one can readily see that the outer diameter varies with azimuth by only 0 to ~0.004 in. and that the outside circumference of the element is therefore very nearly circular. Likewise, the thickness of the sleeve adjacent to compacts 1 and 30 is rather highly uniform around its circumference. On the other hand, the sleeve thickness varies significantly near compacts 9, 18, and 30. A negative sign for the tabulated differences denotes that the wall thickness is less than the mean value by the amount shown. Adjacent to compact 18, the wall thickness of the sleeve varies by at least 0.064 in. around the circumference.

Although it was not known initially whether the inside circumference of the sleeve was circular, inside diameters were derived by a method of triangulation which made use of the locations of the four points on the inside circumference that were derived from the wall thickness measurements. These inside diameters, along with a mean diameter and differences between each diameter and the mean (in parentheses), are given in Table 3.2-2. The differences between individual diameters and the mean show that the inside circumference is nearly circular near compacts 1, 9, and 30. Adjacent to compact 24, the inner diameter between the 0° and 180°

orientations is nearly 0.04 in. larger than the diameter between the 90° and 270° orientations. At this point, the sleeve appears to be significantly elliptical; less ellipticity is evident at compact 18. It should be noted that the extent of ellipticity is probably larger than indicated since the derived diameters are not likely to be along the major and minor axes.

The values given under the "Percent difference" column of Table 3.2-2 pertain to the difference between the nominal preirradiation and the post-irradiation dimensions. The results indicate that both the outside diameter and the inside diameter decreased during irradiation, leaving the wall thickness essentially unchanged.

The diameters of the spine pieces as determined with a curvature gauge (see ref. 3) are presented in Table 3.2-3. As can be seen, the circumference appears to be highly circular. Axial variations of the diameter range up to about 0.4%; and at most axial locations, the diameter is ~ 0.7 to 0.8% less than the nominal value of an unirradiated element.

The lengths of the spine pieces are given in Table 3.2-4. The lengths are ~ 1.5 to 2% less than the nominal lengths of unirradiated spines.

Measurements of the inside and outside diameters of fuel compacts 1, 9, 18, 24, and 30 are presented in Table 3.2-5. Diameters were determined at three locations: bottom, center, and top, each at 0° and 90° azimuths. Means and standard deviations, computed for each of the six measurements, are also listed in the table. Both compact 1 and compact 30 appear to have circular inside and outside circumferences. Although the data for compacts 9, 18, and 24 show considerable scatter, there seems to be some evidence for a slight degree of ellipticity in these compacts. The difference between the nominal preirradiation and postirradiation dimensions indicates that both the outside diameter and the inside diameter decreased from $\sim 0.4\%$ on the ends of the element to $\sim 3\%$ in the middle.

The wall thicknesses of compacts 1, 9, 18, 24, and 30 are given in Table 3.2-6; the procedures and apparatus used are described in ref. 2. Twelve measurements were made on each compact; the mean and the standard deviation of the results are tabulated under each set of data. A comparison of the mean measured wall thicknesses with the nominal value for

unirradiated compacts (0.496 in.) indicates that the wall thicknesses decreased by $\sim 3.5\%$ in the middle of the fuel element.

The lengths of all the compacts except 19 and 20 (which were broken) were measured, and the results are given in Table 3.2-7. Comparisons, given in the table, with nominal preirradiation dimensions indicate that these lengths may have increased slightly during irradiation.

4. DISTRIBUTION OF GAMMA-EMITTING RADIONUCLIDES

4.1 Methods and Procedures

The procedures used for obtaining axial and radial distributions of radionuclides in the spine and sleeve and for determining the inventories of radionuclides in the fuel compacts are described in Sect. 4 of ref. 2.

4.2 Axial Distributions

4.2.1 Fuel compacts

Ten gamma-emitting radionuclides, ^{95}Zr , ^{103}Ru , ^{106}Ru , ^{125}Sb , ^{134}Cs , ^{137}Cs , ^{141}Ce , ^{144}Ce , ^{154}Eu , and ^{233}Pa , were detected and measured in the fuel. Niobium-95, the daughter of ^{95}Zr , was also detected, but its inventory was not derived. Table 4.2-1 lists the measured inventories of the ten radionuclides for each fuel compact. These data consist of means and standard deviations based on four observations per compact. Two observations (gamma spectra) were made at the bottom and in the middle of the compacts in the 0° plane; and two, top and middle, were made in the 90° plane. Values of the standard deviations of individual observations based on counting statistics are not given in Table 4.2-1; however, they are roughly summarized in Table 4.2-2. The inventories of the individual radionuclides in the total fuel are given at the bottom of each column in Table 4.2-1.

Figures 4.2-1 through 4.2-3 illustrate the axial distributions of the gamma-emitter inventories per compact. The error bars shown are the one-sigma errors, expressed as curies per compact, computed from the percent relative standard deviations given in Table 4.2-1. No attempt was

Table 4.2-1. Fission product inventories in FO3-01 fuel compacts as of October 31, 1974
(curies per compact at end of life)

Compact	⁹⁵ Sr		¹⁰³ Ru		¹⁰⁶ Ru		¹²⁵ Sb		¹³⁴ Cs		¹³⁷ Cs		¹⁴¹ Ce		¹⁴⁴ Ce		¹⁵⁴ Eu		²³³ Pa	
	Mean	% RSD	Mean	% RSD	Mean	% RSD	Mean	% RSD	Mean	% RSD	Mean	% RSD	Mean	% RSD	Mean	% RSD	Mean	% RSD	Mean	% RSD
1	1.01E+02	10.7	4.51E+01	14.0	4.95E+00	7.9	2.47E-01	99.0	5.62E+00	4.3	8.20E+00	6.3	7.19E+01	15.0	6.06E+01	5.9	1.52E-01	4.9	5.74E+02	12.5
2	1.12E+02	8.7	4.82E+01	19.4	5.71E+00	8.5	2.83E-01	14.9	7.88E+00	8.2	9.43E+00	4.6	6.59E+01	31.8	6.45E+01	12.6	2.04E-01	4.5	7.16E+02	14.5
3	1.23E+02	2.8	5.22E+01	5.1	5.96E+00	4.4	3.03E-01	23.9	1.08E+01	20.6	1.07E+01	14.3	8.24E+01	11.7	6.90E+01	2.9	2.16E-01	26.7	0.75E+02	5.6
4	1.42E+02	8.5	6.08E+01	9.1	6.54E+00	8.1	3.72E-01	71.5	1.41E+01	5.6	1.25E+01	5.5	9.09E+01	21.7	7.76E+01	8.6	2.91E-01	12.9	1.06E+03	13.9
5	1.66E+02	5.1	6.62E+01	5.5	7.33E+00	11.2	3.28E-01	62.2	1.89E+01	7.6	1.49E+01	5.8	1.04E+02	15.0	8.65E+01	7.5	3.47E-01	20.0	1.22E+03	4.5
6	1.78E+02	1.9	7.17E+01	4.0	7.35E+00	17.3	4.56E-01	5.6	2.21E+01	14.6	1.64E+01	12.0	1.25E+02	8.7	9.02E+01	7.4	3.94E-01	9.5	1.31E+03	5.5
7	1.77E+02	7.6	7.20E+01	8.9	7.12E+00	11.0	3.94E-01	3.7	2.49E+01	10.7	1.74E+01	9.8	1.20E+02	8.9	9.14E+01	9.8	3.32E-01	3.8	1.23E+03	3.7
8	1.83E+02	5.9	6.99E+01	3.1	7.42E+00	7.3	3.94E-01	3.7	3.37E+01	10.9	2.22E+01	9.5	1.27E+02	6.0	9.06E+01	9.2	3.88E-01	11.3	1.36E+03	11.7
9	1.83E+02	9.8	7.05E+01	12.0	7.33E+00	10.3	4.77E-01	21.5	3.19E+01	2.2	2.07E+01	2.5	1.27E+02	4.8	8.81E+01	19.3	3.82E-01	15.2	1.34E+03	15.1
10	2.21E+02	8.7	7.70E+01	13.2	8.34E+00	13.9	6.07E-01	99.0	3.67E+01	12.0	2.37E+01	10.5	1.38E+02	9.9	1.04E+02	18.9	5.04E-01	4.4	1.47E+03	15.0
11	2.10E+02	12.2	7.47E+01	12.8	7.42E+00	21.9	5.73E-01	47.3	3.56E+01	4.6	2.25E+01	4.7	1.44E+02	26.1	1.03E+02	11.4	3.93E-01	5.2	1.47E+03	17.7
12	2.12E+02	6.2	7.87E+01	13.4	9.10E+00	2.5	5.90E-01	22.4	2.70E+01	5.4	1.75E+01	4.4	1.54E+02	8.7	1.10E+02	10.3	4.36E-01	22.1	1.52E+03	9.3
13	2.25E+02	4.7	8.27E+01	9.8	9.19E+00	7.4	5.84E-01	24.1	2.94E+01	15.7	1.89E+01	13.7	1.51E+02	1.9	1.10E+02	6.8	4.04E-01	16.5	1.59E+03	7.3
14	2.15E+02	1.2	8.59E+01	11.9	9.56E+00	12.7	6.65E-01	3.9	2.01E+01	16.6	1.35E+01	11.2	1.47E+02	16.5	1.07E+02	4.7	4.15E-01	3.2	1.65E+03	6.7
15	2.14E+02	9.1	8.57E+01	9.3	9.85E+00	12.7	6.17E-01	22.1	1.62E+01	15.9	1.13E+01	9.8	1.58E+02	24.3	1.10E+02	11.8	3.16E-01	35.7	1.61E+03	12.5
16	2.10E+02	6.8	8.83E+01	9.9	9.65E+00	8.2	6.27E-01	23.9	1.42E+01	26.4	1.03E+01	20.9	1.39E+02	22.2	1.12E+02	10.8	3.70E-01	20.9	1.60E+03	9.4
17	2.15E+02	6.4	8.83E+01	6.4	1.00E+01	7.6	5.71E-01	38.8	1.06E+01	19.2	8.26E+00	13.5	1.41E+02	20.7	1.20E+02	7.6	2.04E-01	43.5	1.66E+03	3.9
18	2.40E+02	10.9	9.40E+01	10.0	1.17E+01	8.3	6.53E-01	43.8	6.17E+00	15.1	5.99E+00	8.6	1.61E+02	26.7	1.24E+02	12.1	1.85E-01	45.5	1.77E+03	11.1
19	2.30E+02	4.7	9.38E+01	8.2	1.06E+01	9.1	6.75E-01	17.7	4.15E+00	9.5	4.88E+00	4.3	1.61E+02	26.5	1.23E+02	5.2	1.88E-01	45.5	1.75E+03	5.7
20	2.01E+02	16.9	8.24E+01	11.3	1.03E+01	9.7	7.02E-01	18.5	9.97E+00	19.3	7.92E+00	14.1	1.61E+02	26.5	1.16E+02	8.0	1.86E-01	22.0	1.62E+03	6.1
21	2.20E+02	9.6	9.66E+01	11.9	1.14E+01	10.7	6.80E-01	21.1	5.26E+00	9.5	5.77E+00	3.7	1.33E+02	16.5	1.25E+02	9.8	1.86E-01	22.0	1.76E+03	9.4
22	2.20E+02	7.2	8.87E+01	4.2	1.00E+01	9.6	6.74E-01	22.1	3.93E+00	15.1	4.73E+00	8.3	1.72E+02	7.9	1.19E+02	5.5	1.86E-01	22.0	1.63E+03	5.5
23	2.21E+02	7.5	9.09E+01	14.1	1.01E+01	7.5	7.60E-01	24.0	4.86E+00	14.1	5.50E+00	10.0	1.53E+02	18.5	1.20E+02	7.7	1.40E-01	43.6	1.70E+03	6.9
24	2.20E+02	10.1	8.97E+01	9.0	9.54E+00	3.4	5.83E-01	15.5	8.07E+00	22.4	7.35E+00	13.9	1.58E+02	8.4	1.16E+02	12.2	1.92E-01	41.6	1.53E+03	13.5
25	2.17E+02	12.7	9.06E+01	10.2	9.56E+00	15.1	5.66E-01	39.9	9.64E+00	12.4	8.82E+00	8.4	1.28E+02	20.5	1.16E+02	13.3	1.96E-01	40.1	1.45E+03	10.6
26	1.76E+02	10.5	6.97E+01	10.2	7.83E+00	8.4	3.92E-01	24.7	1.06E+01	9.4	9.35E+00	6.7	1.33E+02	9.0	9.26E+01	11.9	2.52E-01	29.4	1.25E+03	3.5
27	1.73E+02	8.0	7.32E+01	10.8	7.87E+00	3.8	4.02E-01	26.6	1.07E+01	12.5	1.01E+01	10.9	1.01E+02	28.6	9.39E+01	9.7	2.48E-01	28.5	1.11E+03	6.0
28	1.52E+02	10.5	6.29E+01	8.7	6.44E+00	14.0	3.75E-01	22.2	9.62E+00	3.1	9.79E+00	3.4	1.01E+02	28.3	8.66E+01	5.2	2.00E-01	25.5	9.55E+02	6.0
29	1.42E+02	8.4	5.78E+01	14.5	6.59E+00	10.7	4.43E-01	22.6	8.60E+00	10.6	9.89E+00	9.4	9.55E+01	22.5	7.86E+01	5.4	1.92E-01	21.6	8.33E+02	10.4
30	1.22E+02	4.3	5.51E+01	3.4	5.75E+00	10.1	4.53E-01	18.9	7.04E+00	3.5	9.23E+00	3.4	8.00E+01	12.0	7.26E+01	3.5	1.67E-01	5.3	8.63E+02	6.5
SUM	5.63E+03		2.26E+03		2.51E+02		1.54E+01		4.59E+02		3.58E+02		3.88E+03		2.93E+03		8.34E+00		4.04E+04	

% RSD = percent relative standard deviation.

Table 4.2-2. Approximate counting statistics errors obtained for radionuclides measured in fuel compacts of F03-01

Radionuclide	Percent relative standard deviation ^a
⁹⁵ Zr	0.4
¹⁰³ Ru	4.0
¹⁰⁶ Ru	5.0
¹²⁵ Sb	14.0
¹³⁴ Cs	0.3
¹³⁷ Cs	0.3
¹⁴¹ Ce	7.0
¹⁴⁴ Ce	3.0
¹⁵⁴ Eu	8.0
²³³ Pa	3.0

^aPercent relative standard deviation was computed with the function

$$\frac{100 \sqrt{GC + BL}}{GC - BL},$$

where

GC = total counts in the photopeak,
BL = total counts in the baseline under the peak.

The reader is referred to ref. 4 for an account of how photopeak counts are determined.

Fig. 4.2-1. Inventories of ^{95}Zr , ^{141}Ce , and ^{144}Ce per compact of element F03-01 as of October 31, 1974.

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Fig. 4.2-2. Inventories of ^{103}Ru , ^{106}Ru , and ^{233}Pa per compact of element F03-01 as of October 31, 1974.

Fig. 4.2-3. Inventories of ^{134}Cs and ^{137}Cs per compact of element FO3-01 as of October 31, 1974.

made to incorporate the counting statistics errors of Table 4.2-2 into the error bars of the plots. The gamma-emitter inventories normalized to the inventories of ^{95}Zr are plotted in Figs. 4.2-4 through 4.2-8. Since the isotope ^{95}Zr is known to be immobile in Peach Bottom fuel throughout the range of conditions observed thus far, the inventory distribution of other fission products normalized to ^{95}Zr would provide strong evidence as to whether that particular isotope had experienced significant gross movement during irradiation service.

The inventory distributions of ^{95}Zr , ^{141}Ce , and ^{144}Ce (shown in Fig. 4.2-1) and ^{103}Ru , ^{106}Ru , and ^{233}Pa (shown in Fig. 4.2-2), as well as the normalized distributions of the cerium and ruthenium isotopes and ^{233}Pa , indicate that no significant redistribution of these nuclides occurred. Generally, the inventory distributions of these nuclides roughly correspond to the neutron fluence experienced by the element, as depicted in Fig. 2.2-3. Because the $^{233}\text{U}/^{235}\text{U}$ ratio was larger in the central region of the element than at the ends, differences in the yields of fission products from these nuclides would slightly influence the inventory distributions. The softening of the neutron energy spectrum near the ends of the element might also affect the distributions. This latter effect, combined with the relatively large epithermal neutron capture cross section of ^{233}Th as compared with the thermal neutron capture cross section, probably accounts for the decrease in the $^{233}\text{Pa}/^{95}\text{Zr}$ ratio near the ends of the element (see Fig. 4.2-8). Some of the scatter in the inventory profiles may result from variations in the number of fuel particles per unit volume of fuel compact. Much of the scatter, particularly in the case of the nuclides ^{103}Ru , ^{106}Ru , and ^{141}Ce , is probably due to the poor counting statistics obtained.

The inventories of ^{134}Cs and ^{137}Cs shown in Fig. 4.2-3, as well as their normalization to ^{95}Zr shown in Fig. 4.2-6, indicate that both isotopes underwent significant redistribution during irradiation. As was pointed out in ref. 2, the distribution of the $^{137}\text{Cs}/^{95}\text{Zr}$ activity ratio (barring such minor effects as differences in fission yields between ^{233}U and ^{235}U) would be uniform if ^{137}Cs were not released from the fuel compacts. Cesium-134, which is formed by two successive neutron reactions (first, fission to produce ^{133}Cs and, then, capture), has a profile that would, if no

Fig. 4.2-4. Inventory ratios of $^{103}\text{Ru}/^{95}\text{Zr}$ and $^{106}\text{Ru}/^{95}\text{Zr}$ in F03-01 fuel compacts as of October 13, 1974.

ORNL DWG 77-1292

Fig. 4.2-5. Inventory ratios of $^{141}\text{Ce}/^{95}\text{Zr}$ and $^{144}\text{Ce}/^{95}\text{Zr}$ in FO3-01 fuel compacts as of October 31, 1974.

Fig. 4.2-6. Inventory ratios of $^{134}\text{Cs}/^{95}\text{Zr}$ and $^{137}\text{Cs}/^{95}\text{Zr}$ in FO3-01 fuel compacts as of October 31, 1974.

ORNL DWG 77-1296

Fig. 4.2-7. Inventory ratios of $^{125}\text{Sb}/^{95}\text{Zr}$ and $^{154}\text{Eu}/^{95}\text{Zr}$ in F03-01 fuel compacts as of October 31, 1974.

ORNL DWG 77-1294

Fig. 4.2-8. Inventory ratio of $^{233}\text{Pa}/^{95}\text{Zr}$ in F03-01 fuel compacts as of October 31, 1974.

redistribution occurred, roughly follow the square of the neutron flux. The profile of the $^{134}\text{Cs}/^{95}\text{Zr}$ ratio would parallel the neutron flux distribution. The relationship of the epithermal and thermal-neutron capture cross sections of ^{133}Cs is similar to that of ^{232}Th ; thus the neutron energy spectrum probably also affects the ^{134}Cs distribution to a significant extent. The dip in the $^{137}\text{Cs}/^{95}\text{Zr}$ ratio in the region roughly from compact 14 to compact 30 and the rise in the ratio from compact 1 to about compact 14 indicate that cesium moved from the upper to the lower part of the fuel. It is believed that cesium, vaporized in the higher-temperature regions, was transported by the purge gas to cooler regions where it condensed on the fuel and graphite. The ^{137}Cs in compacts at or near the ends of the element is believed to have suffered insignificant vaporization. Hence the $^{137}\text{Cs}/^{95}\text{Zr}$ ratio in the end compacts, along with the observed ^{95}Zr inventory in a compact whose ^{137}Cs inventory has been modified by redistribution, can be used to compute the amount of ^{137}Cs generated in the compact. The difference between the computed and observed inventories is therefore the amount of ^{137}Cs that either vaporized from or deposited on the compact. It is thus possible to make a rough mass balance calculation for the ^{137}Cs in an element by estimating the amount vaporized from the fuel and comparing this estimate with the amount estimated to be deposited on the cooler compacts plus the amount found in the spine and sleeve.

Table 4.2-3 presents results of ^{137}Cs mass balance estimates for fuel elements FO3-01 and Ell-07 expressed both as curies and as percentages of the total ^{137}Cs in the elements. Data for Ell-07 were taken from ref. 2. Compact 30 of each element was assumed to have lost an insignificant amount of ^{137}Cs ; therefore, its $^{137}\text{Cs}/^{95}\text{Zr}$ ratio was selected for the calculations. This selection was based on two observations: (1) that the $^{137}\text{Cs}/^{95}\text{Zr}$ ratio in compact 30 was only slightly lower than in compact 1, and (2) that very little ^{137}Cs was found in either element below compact 1 as well as in the graphite adjacent to compact 1. Such evidence suggests that compact 30 may have lost a minor amount of ^{137}Cs , while compact 1 may have gained a little from the redistribution.

Table 4.2-3. Comparison of the movement of ^{137}Cs in fuel elements FO3-01 and E11-07

Source	FO3-01		E11-07	
	Ci	%	Ci	%
Sleeve	36	8.9	17	4.6
Spine	9.8	2.4	8.3	2.3
Sleeve and spine	46	11	25	6.8
Fuel	358	89	343	93
Element	404	100	368	100
Deposit on fuel ^a	47	12	45	12
Deposits on graphite and fuel	93	23	69	19
Calc. release from fuel ^a	113	28	73	20
Difference ^b	20	18	4	5

^a Estimate as described in text.

^b Difference between the ^{137}Cs estimated to have been released from high-temperature fuel and that deposited on low-temperature fuel plus amount found in graphite.

As shown in Table 4.2-3 for element FO3-01, it was estimated that 113 Ci, or 28% of the total ^{137}Cs , was released by the high-temperature compacts and 93 Ci, or 23%, was found in the graphite or estimated to be on the cooler fuel compacts. This balance is considered to be fairly good; however, the balance for element E11-07, where 20% was released and 19% was found elsewhere, was much better. It is interesting to note that both elements had the same percentage of their ^{137}Cs deposited on the low-temperature fuel and in the spine, whereas element FO3-01 had almost twice as much of the cesium on its sleeve as did element E11-07.

The distribution of the $^{154}\text{Eu}/^{95}\text{Zr}$ ratio in the FO3-01 fuel compacts depicted in Fig. 4.2-7 indicates that this nuclide redistributed similarly to the cesium isotopes. Like ^{134}Cs , ^{154}Eu is formed by two successive neutron reactions; if no release of europium took place, the $^{154}\text{Eu}/^{95}\text{Zr}$ ratio should therefore parallel the neutron fluence. No attempt was made to estimate the amount of ^{154}Eu that redistributed in the element.

4.2.2 Sleeve, spine, and bottom connector

The sleeve was cut into three pieces, each about 30 in. long (corresponding to the three manufactured sections of the spine) and scanned axially in two planes 90° apart. The spine pieces and bottom connector were similarly measured. Spectra acquired at 0.2459-in. intervals along each plane were analyzed in terms of curies per an equivalent 3 in. of length. Six nuclides, ^{60}Co , $^{110\text{m}}\text{Ag}$, ^{134}Cs , ^{137}Cs , ^{144}Ce , and ^{154}Eu , were detected and measured.

These results are listed in Tables A-1 through A-18 in Appendix A. Both the observed inventory per 3 in. of length and the standard deviation based on counting statistics at each location are given. In these tables the designation (****), which appears frequently in the standard deviation column, signifies that no direct observation of the isotope was made at the particular location, and that the given inventory value is merely the upper limit which could exist there without detection. If the observed count rates in three channels on either side of a photopeak were less than three standard deviations above the base line, established by the count rate at each end of the six-channel width, then the photopeak was judged to be "not detected." The listed "upper-limit value" was then calculated, assuming a photopeak count rate equal to the maximum, nondetectable value of three standard deviations above the base line. For the sleeve and spine, the values tabulated under the column labeled as "Distance" represent the distance from the bottom of fuel compact 1; in the case of the bottom reflector, distance is measured from the bottom of the fuel element.

Tables 4.2-4 and 4.2-5 list the observed inventories for the sleeve and spine, respectively, expressed as curies per 3-in. segment corresponding to the length of a fuel compact. These data were derived from the gamma scan data given in Appendix A. Inventory values per 3-in. segment were obtained for each plane that was measured by apportioning the total number of scan points, normally about 264 along a plane, into 30 groups. Each group corresponded nominally to 12 scan points, although a few corresponded to 13 points. Because some of the data in Appendix A represented upper limits (as described above) rather than real measured values, the

Table 4.2-4. Axial distribution of gamma-emitters in the sleeve of element F03-01
(curies per compact length, corrected to October 31, 1974)

Compact	⁶⁰ Co						^{110m} Ag					
	Plane 1			Plane 2			Plane 1			Plane 2		
	Inventory (Ci/3 in.)	Error ^a (%)	NO ^b	Inventory (Ci/3 in.)	Error ^a (%)	NO ^b	Inventory (Ci/3 in.)	Error ^a (%)	NO ^b	Inventory (Ci/3 in.)	Error ^a (%)	NO ^b
1	3.06E-05	47.5	12	6.18E-05	74.9	12	2.40E-04	23.8	10	2.02E-04	74.0	12
2	2.52E-05	22.5	11	2.94E-05	36.7	12	1.17E-03	203.4	12	1.45E-03	205.1	11
3	3.33E-05	20.1	10	3.20E-05	37.6	12	1.89E-03	206.5	11	1.63E-03	186.3	12
4	5.85E-05	48.8	11	3.82E-05	20.9	5	1.01E-02	129.1	3	7.83E-03	133.0	4
5	7.90E-05	38.2	3	5.54E-05	23.2	5	6.54E-03	68.0	3	9.66E-03	114.4	4
6	1.04E-04	0.6	2	8.29E-05	29.8	3	1.03E-02	65.3	11	7.79E-03	94.2	12
7	4.29E-04	39.7	1	3.73E-04	26.6	1	1.88E-02	30.0	11	1.36E-02	30.1	12
8	6.16E-04	99.0	0	6.68E-04	38.2	1	3.53E-02	40.1	12	2.69E-02	36.6	12
9	2.19E-03	33.5	1	1.85E-03	99.0	0	7.09E-02	14.5	8	5.22E-02	34.7	11
10	1.77E-03	27.1	2	1.88E-03	31.5	1	5.03E-02	21.7	6	4.79E-02	23.4	12
11	1.72E-03	99.0	0	8.78E-04	34.5	1	3.85E-02	38.4	9	4.64E-02	31.5	10
12	2.98E-03	99.0	0	2.74E-03	99.0	0	7.27E-02	53.2	6	6.20E-02	15.0	9
13	2.38E-03	99.0	0	2.80E-03	18.2	4	5.98E-02	32.4	11	5.96E-02	33.7	7
14	2.93E-03	16.9	3	2.44E-03	20.5	2	5.14E-02	19.8	9	4.73E-02	28.2	8
15	2.50E-03	13.4	4	3.25E-03	28.1	1	4.80E-02	34.1	4	3.70E-02	2.2	4
16	6.21E-03	47.1	10	4.78E-03	33.0	12	4.22E-02	23.8	5	4.44E-02	17.9	4
17	8.37E-03	39.5	12	4.95E-03	23.2	6	5.13E-02	15.0	3	4.62E-02	35.4	1
18	1.20E-02	21.2	12	1.11E-02	47.4	11	5.26E-02	28.8	1	4.62E-02	35.7	1
19	5.99E-03	46.4	12	6.23E-03	22.8	12	3.14E-02	34.0	1	4.97E-02	34.5	1
20	8.77E-03	60.6	12	7.06E-03	27.4	12	2.54E-02	99.0	0	5.27E-02	26.7	1
21	5.36E-03	39.7	13	5.66E-03	30.7	12	4.02E-02	10.6	2	5.31E-03	37.9	1
22	6.86E-03	43.9	12	5.97E-03	26.3	12	2.01E-02	99.0	0	1.95E-02	99.0	0
23	5.00E-03	42.2	13	5.83E-03	26.9	13	1.48E-02	99.0	0	1.64E-02	99.0	0
24	1.83E-02	72.0	12	1.48E-02	38.9	12	1.20E-02	37.1	1	1.38E-02	99.0	0
25	6.58E-03	22.6	13	6.38E-03	24.2	13	1.52E-02	34.6	2	7.44E-03	99.0	0
26	3.85E-03	37.4	12	4.25E-03	25.5	12	6.09E-03	11.4	6	7.52E-03	41.1	4
27	4.66E-03	28.4	13	4.58E-03	23.1	13	3.60E-03	50.0	10	2.70E-03	39.5	9
28	3.17E-03	36.4	12	3.07E-03	42.8	12	2.28E-03	40.0	11	1.98E-03	31.9	12
29	1.06E-03	57.1	13	1.10E-03	59.3	13	2.87E-03	10.8	13	2.70E-03	22.9	13
30	1.88E-04	55.9	12	2.83E-04	62.1	12	3.09E-03	42.8	12	3.03E-03	40.6	12
SUM ^c	1.14E-01			1.03E-01			8.00E-01			7.41E-01		

Table 4.2-4 (continued)

Compact	^{134}Cs						^{137}Cs					
	Plane 1			Plane 2			Plane 1			Plane 2		
	Inventory (Ci/3 in.)	Error ^a (%)	NO ^b	Inventory (Ci/ 3 in.)	Error ^a (%)	NO ^b	Inventory (Ci/3 in.)	Error ^a (%)	NO ^b	Inventory (Ci/3 in.)	Error ^a (%)	NO ^b
1	2.87E-03	67.6	12	3.56E-03	79.6	12	2.92E-03	52.4	12	3.50E-03	66.3	12
2	1.06E-02	165.8	12	7.32E-03	135.3	12	7.23E-03	130.9	12	5.89E-03	113.0	12
3	3.10E-02	145.9	12	1.53E-02	129.7	12	1.89E-02	148.2	12	1.05E-02	119.8	12
4	4.98E-02	109.8	12	2.55E-02	113.6	12	3.05E-02	110.7	12	1.61E-02	114.7	12
5	8.03E-02	15.1	12	4.11E-02	23.9	12	4.64E-02	14.4	12	2.40E-02	23.7	12
6	1.61E-01	27.6	12	1.13E-01	27.7	12	8.74E-02	29.0	12	6.49E-02	27.5	12
7	3.98E-01	26.9	12	4.35E-01	33.0	12	2.30E-01	26.7	12	2.47E-01	32.7	12
8	1.13E+00	48.4	12	1.96E+00	38.9	12	6.30E-01	47.5	12	1.11E+00	38.7	12
9	3.48E+00	7.4	12	4.11E+00	7.0	12	1.97E+00	7.4	12	2.34E+00	6.9	12
10	2.56E+00	27.1	12	3.81E+00	13.4	12	1.45E+00	26.8	12	2.14E+00	13.3	12
11	3.40E+00	27.3	12	3.67E+00	34.2	12	1.91E+00	26.8	12	2.05E+00	34.3	12
12	6.12E+00	5.4	12	5.66E+00	6.8	12	3.44E+00	5.5	12	3.16E+00	7.1	12
13	4.89E+00	13.0	12	4.59E+00	28.5	12	2.70E+00	13.2	12	2.56E+00	27.9	12
14	4.04E+00	8.3	12	3.39E+00	10.9	12	2.23E+00	8.4	12	1.90E+00	11.1	12
15	3.78E+00	6.3	12	4.18E+00	11.0	12	2.09E+00	6.2	12	2.33E+00	10.9	12
16	4.11E+00	10.8	12	4.20E+00	12.3	12	2.27E+00	10.1	12	2.35E+00	12.6	12
17	5.26E+00	13.1	12	4.96E+00	18.6	12	2.92E+00	13.2	12	2.75E+00	18.4	12
18	4.72E+00	10.6	12	6.06E+00	15.9	12	2.65E+00	10.5	12	3.37E+00	16.4	12
19	3.17E+00	17.5	12	4.81E+00	18.0	12	1.81E+00	18.3	12	2.70E+00	18.5	12
20	3.26E+00	38.3	12	4.51E+00	21.6	12	1.83E+00	37.2	12	2.53E+00	21.1	12
21	3.72E+00	33.8	13	3.59E+00	39.1	13	2.10E+00	33.2	13	2.04E+00	38.4	13
22	2.16E+00	16.1	12	1.86E+00	13.5	12	1.28E+00	15.3	12	1.10E+00	13.1	12
23	1.21E+00	21.7	13	1.45E+00	6.5	13	7.35E-01	20.6	13	8.84E-01	6.3	13
24	1.43E+00	45.9	12	1.17E+00	20.0	12	8.94E-01	46.2	12	7.26E-01	19.5	12
25	1.22E+00	28.7	13	9.34E-01	22.5	13	7.89E-01	29.2	13	6.01E-01	22.7	13
26	4.55E-01	21.9	12	6.37E-01	29.4	12	3.18E-01	19.8	12	4.33E-01	27.5	12
27	1.58E-01	51.1	13	1.77E-01	42.7	13	1.18E-01	48.9	13	1.31E-01	40.0	13
28	5.52E-02	43.0	12	5.32E-02	41.4	12	4.64E-02	39.5	12	4.47E-02	40.5	12
29	1.35E-02	22.6	13	7.85E-03	29.6	13	1.41E-02	17.6	13	8.02E-03	28.8	13
30	7.41E-03	35.1	12	5.50E-03	37.3	12	8.56E-03	37.0	12	5.76E-03	41.1	12
SUM ^c	6.11E+01			6.65E+01			3.46E+01			3.77E+01		

Table 4.2-4 (continued)

Compact	¹⁴⁴ Ce						¹⁵⁴ Eu					
	Plane 1			Plane 2			Plane 1			Plane 2		
	Inventory (Ci/3 in.)	Error ^a (%)	NO ^b	Inventory (Ci/3 in.)	Error ^a (%)	NO ^b	Inventory (Ci/3 in.)	Error ^a (%)	NO ^b	Inventory (Ci/3 in.)	Error ^a (%)	NO ^b
1	1.36E-02	93.8	12	1.80E-02	128.1	12	6.05E-05	95.0	12	8.12E-05	109.0	12
2	8.83E-03	33.3	12	8.80E-03	41.3	12	3.67E-05	34.2	9	3.52E-05	29.5	8
3	9.11E-03	60.6	12	7.88E-03	34.5	12	6.74E-05	53.2	9	4.22E-05	33.6	3
4	1.47E-02	33.4	11	9.72E-03	43.0	8	9.02E-05	31.1	1	7.78E-05	99.0	0
5	2.37E-02	27.5	12	1.84E-02	28.1	11	1.48E-04	15.7	3	1.26E-04	15.8	4
6	3.57E-02	26.9	11	2.92E-02	51.6	6	2.43E-04	35.2	1	2.53E-04	99.0	0
7	8.66E-02	31.1	9	7.89E-02	22.6	10	7.86E-04	99.0	0	6.12E-04	39.9	1
8	1.20E-01	37.7	5	2.01E-01	32.3	5	1.79E-03	99.0	0	2.67E-03	99.0	0
9	3.41E-01	26.1	10	3.78E-01	21.4	7	4.62E-03	99.0	0	5.53E-03	99.0	0
10	3.76E-01	33.9	4	3.23E-01	29.2	7	3.68E-03	99.0	0	9.59E-03	24.8	1
11	3.75E-01	33.5	9	3.47E-01	43.0	6	4.98E-03	99.0	0	2.59E-03	29.8	1
12	4.87E-01	15.1	7	5.62E-01	24.4	4	1.45E-02	28.2	1	1.37E-02	13.0	3
13	4.76E-01	16.8	7	4.79E-01	24.9	5	9.25E-03	10.9	3	1.01E-02	32.3	5
14	3.78E-01	13.4	8	3.89E-01	19.0	5	1.20E-02	27.1	6	8.87E-03	32.2	7
15	3.58E-01	22.4	8	4.50E-01	28.8	6	2.00E-02	39.5	12	3.19E-02	50.0	11
16	5.02E-01	5.4	6	4.25E-01	23.6	4	2.23E-02	51.3	12	7.43E-02	50.2	12
17	4.83E-01	20.4	6	4.89E-01	31.9	8	9.61E-02	43.5	11	1.06E-01	17.1	12
18	4.28E-01	20.1	9	4.91E-01	17.8	9	1.61E-01	22.4	12	1.95E-01	29.6	12
19	3.76E-01	18.5	6	4.55E-01	22.8	4	3.48E-01	21.4	12	4.04E-01	18.5	12
20	3.02E-01	32.1	3	3.51E-01	16.9	5	3.21E-01	35.4	12	3.04E-01	37.3	12
21	3.09E-01	31.8	7	3.91E-01	22.0	9	2.71E-01	47.0	13	3.03E-01	52.2	13
22	2.62E-01	25.9	7	2.70E-01	6.5	2	3.71E-01	17.4	12	3.88E-01	15.5	12
23	2.22E-01	17.8	5	2.54E-01	17.7	3	3.51E-01	14.2	13	3.16E-01	9.2	13
24	1.75E-01	37.0	5	1.93E-01	20.4	4	2.04E-01	26.8	12	2.19E-01	23.0	12
25	1.24E-01	28.8	8	1.09E-01	28.7	7	5.95E-02	86.8	13	6.54E-02	49.9	13
26	7.83E-02	34.5	9	8.04E-02	24.8	8	3.78E-02	74.6	12	3.53E-02	44.6	12
27	3.98E-02	31.3	10	3.56E-02	48.9	10	1.56E-02	26.9	13	1.44E-02	28.2	13
28	3.94E-02	52.7	12	1.30E-02	26.6	12	6.19E-03	38.3	12	5.78E-03	26.6	12
29	2.77E-02	33.7	13	1.60E-02	12.3	13	9.14E-04	49.5	13	1.21E-03	56.3	13
30 ^c	1.84E-02	33.9	12	1.86E-02	37.9	12	1.29E-04	55.2	12	1.73E-04	55.3	12
Sum	6.50E+00			6.90E+00			2.34E+00			2.52E+00		

^aDenotes: (1) percent relative standard deviation when NO is greater than 1, (2) counting statistics error when NO is equal to 1, and (3) arbitrary value of 99.0 when NO is equal to zero. When NO is zero, the inventory value tabulated is the mean of all of the upper-limit values (nominally 12) computed.

^bDenotes the number of real observations (nonupper limit) per 3-in. interval (see text).

^cDenotes the total inventory in the graphite component and includes upper-limit values.

Table 4.2-5. Axial distribution of gamma-emitters in the spine of element FO3-01
(curies per compact length, corrected to October 31, 1974)

Compact	^{60}Co						^{110m}Ag					
	Plane 1			Plane 2			Plane 1			Plane 2		
	Inventory (Ci/3 in.)	Error ^a (%)	NO ^b	Inventory (Ci/3 in.)	Error ^a (%)	NO ^b	Inventory (Ci/3 in.)	Error ^a (%)	NO ^b	Inventory (Ci/3 in.)	Error ^a (%)	NO ^b
1	1.54E-04	34.3	12	1.29E-04	50.5	12	1.07E-02	76.4	12	5.38E-03	74.2	12
2	3.36E-04	50.4	12	3.56E-04	31.0	12	2.66E-02	37.3	12	1.51E-02	12.7	12
3	5.69E-04	18.4	12	5.83E-04	10.1	12	1.67E-02	25.9	12	7.06E-03	29.7	12
4	7.63E-04	16.4	12	6.38E-04	18.9	12	7.54E-03	25.6	12	5.34E-03	31.0	12
5	6.04E-04	26.6	12	5.96E-04	21.2	12	5.38E-03	27.8	12	6.75E-03	18.0	7
6	6.98E-04	25.8	12	7.75E-04	22.1	11	4.31E-03	14.0	4	5.81E-03	10.1	3
7	6.05E-04	31.9	12	6.16E-04	21.0	12	3.53E-03	8.3	2	3.91E-03	99.0	0
8	8.69E-04	61.0	12	7.36E-04	41.6	10	7.60E-03	35.3	1	4.78E-03	99.0	0
9	3.69E-03	69.9	12	2.34E-03	31.8	12	6.97E-03	99.0	0	7.47E-03	99.0	0
10	9.77E-04	20.3	9	8.29E-04	22.2	8	7.40E-03	99.0	0	6.79E-03	99.0	0
11	1.83E-03	37.3	11	1.37E-03	7.7	6	1.10E-02	99.0	0	1.12E-02	99.0	0
12	2.14E-03	33.2	12	1.50E-03	24.7	7	1.07E-02	99.0	0	9.84E-03	99.0	0
13	3.38E-03	29.0	12	2.89E-03	30.1	12	1.00E-02	99.0	0	9.18E-03	99.0	0
14	2.77E-03	17.7	12	1.73E-03	32.6	12	9.19E-03	99.0	0	7.44E-03	99.0	0
15	3.21E-03	18.7	12	2.31E-03	31.0	12	7.21E-03	99.0	0	7.03E-03	99.0	0
16	6.25E-03	22.6	12	5.63E-03	32.4	12	7.67E-03	99.0	0	7.78E-03	99.0	0
17	2.98E-03	46.5	11	3.28E-03	48.1	11	1.38E-02	30.5	1	8.54E-03	99.0	0
18	8.52E-04	31.5	7	1.19E-03	31.4	6	6.27E-03	99.0	0	5.63E-03	99.0	0
19	6.01E-04	14.9	6	4.39E-04	14.9	7	4.48E-03	37.1	1	3.52E-03	99.0	0
20	4.83E-04	46.1	2	5.37E-04	11.7	3	5.86E-03	99.0	0	5.00E-03	99.0	0
21	5.57E-04	99.0	0	5.67E-04	41.3	3	7.11E-03	99.0	0	7.41E-03	35.1	1
22	3.79E-04	28.4	1	2.58E-04	39.9	1	3.22E-03	99.0	0	2.85E-03	99.0	0
23	1.44E-04	20.3	5	1.37E-04	10.0	6	1.40E-03	99.0	0	1.48E-03	99.0	0
24	1.29E-03	79.9	11	1.41E-03	86.4	12	8.99E-04	99.0	0	8.67E-04	99.0	0
25	4.65E-03	15.5	12	5.09E-03	12.9	12	9.03E-04	99.0	0	8.17E-04	99.0	0
26	2.67E-03	36.8	12	2.72E-03	37.8	12	8.24E-04	99.0	0	6.03E-04	99.0	0
27	2.17E-03	31.0	12	2.19E-03	36.7	12	3.18E-04	99.0	0	3.13E-04	99.0	0
28	2.21E-03	15.3	12	2.10E-03	16.2	12	1.80E-04	99.0	0	1.79E-04	99.0	0
29	2.05E-03	46.2	13	1.78E-03	37.7	13	1.45E-04	99.0	0	1.36E-04	99.0	0
30	9.18E-04	88.0	12	7.07E-04	86.8	12	1.23E-04	16.7	1	8.10E-05	25.5	1
SUM ^c	5.08E-02			4.56E-02			1.98E-01			1.58E-01		

Table 4.2-5 (continued)

Compact	¹³⁴ Cs						¹³⁷ Cs					
	Plane 1			Plane 2			Plane 1			Plane 2		
	Inventory (Ci/3 in.)	Error ^a (%)	NO ^b	Inventory (Ci/3 in.)	Error ^a (%)	NO ^b	Inventory (Ci/3 in.)	Error ^a (%)	NO ^b	Inventory (Ci/3 in.)	Error ^a (%)	NO ^b
1	1.58E-02	63.1	12	8.70E-03	76.6	12	1.00E-02	59.0	12	5.68E-03	36.9	12
2	1.17E-01	41.4	12	8.42E-02	38.5	12	7.86E-02	39.2	12	5.53E-02	36.5	12
3	3.17E-01	15.8	12	1.83E-01	26.0	12	1.95E-01	14.3	12	1.13E-01	24.3	12
4	3.34E-01	32.1	12	3.38E-01	17.3	12	2.00E-01	31.7	12	2.02E-01	16.9	12
5	2.64E-01	12.0	12	4.93E-01	5.8	12	1.56E-01	11.4	12	2.91E-01	5.9	12
6	3.14E-01	15.4	12	5.44E-01	4.0	12	1.81E-01	15.0	12	3.18E-01	3.7	12
7	3.53E-01	7.2	12	5.37E-01	6.6	12	1.99E-01	6.6	12	3.98E-01	6.1	12
8	5.55E-01	26.7	12	6.96E-01	18.5	12	3.12E-01	26.4	12	3.94E-01	17.5	12
9	1.00E+00	9.9	12	1.18E+00	3.5	12	5.74E-01	9.6	12	6.32E-01	3.1	12
10	1.19E+00	8.3	12	1.07E+00	7.5	12	6.60E-01	5.4	12	5.90E-01	5.9	12
11	1.81E+00	64.3	12	1.87E+00	32.0	12	9.99E-01	65.9	12	1.33E+00	32.9	12
12	1.69E+00	3.6	12	1.53E+00	2.7	12	9.38E-01	3.5	12	3.45E-01	3.1	12
13	1.56E+00	6.9	12	1.38E+00	9.4	12	8.55E-01	7.5	12	7.59E-01	9.7	12
14	1.41E+00	13.7	12	1.03E+00	13.2	12	7.74E-01	13.3	12	5.67E-01	12.3	12
15	1.02E+00	3.6	12	1.02E+00	5.6	12	5.59E-01	3.7	12	5.55E-01	5.6	12
16	1.05E+00	17.7	12	1.09E+00	5.2	12	5.74E-01	16.3	12	5.9E-01	4.5	12
17	1.48E+00	7.1	12	1.27E+00	6.3	12	3.11E-01	7.7	12	7.31E-01	6.5	12
18	8.81E-01	38.7	12	7.27E-01	34.2	12	4.86E-01	37.9	12	4.90E-01	34.1	12
19	3.39E-01	6.6	12	2.68E-01	11.1	12	1.91E-01	6.3	12	1.51E-01	11.9	12
20	6.93E-01	50.2	12	5.18E-01	55.6	12	3.90E-01	51.7	12	2.94E-01	57.9	12
21	1.10E+00	37.8	12	7.77E-01	54.2	12	6.13E-01	37.4	12	4.39E-01	54.3	12
22	4.63E-01	29.1	12	3.84E-01	25.5	12	2.70E-01	28.2	12	2.24E-01	24.3	12
23	1.47E-01	46.1	12	1.58E-01	27.0	12	8.74E-02	46.1	12	9.40E-02	26.9	12
24	7.11E-02	29.0	12	7.00E-02	37.8	12	4.42E-02	27.6	12	4.31E-02	36.5	12
25	7.37E-02	39.6	12	6.54E-02	15.7	12	4.68E-02	40.3	12	4.16E-02	16.1	12
26	7.81E-02	45.3	12	4.21E-02	64.7	12	5.16E-02	43.2	12	2.77E-02	63.6	12
27	1.21E-02	96.9	12	5.78E-03	43.8	12	8.38E-03	96.1	12	3.89E-03	43.6	12
28	1.88E-03	25.2	12	1.72E-03	33.3	12	1.29E-03	26.2	12	1.14E-03	36.5	12
29	9.33E-04	30.4	13	8.33E-04	23.7	13	6.15E-04	32.6	13	5.26E-04	25.4	13
30	6.20E-04	27.3	12	5.37E-04	29.5	12	4.23E-04	26.1	12	3.24E-04	27.5	12
SUM ^c	1.84E+01			1.73E+01			1.02E+01			9.73E+00		

Table 4.2-5 (continued)

Compact	¹⁴⁴ Ce						¹⁵⁴ Eu					
	Plane 1			Plane 2			Plane 1			Plane 2		
	Inventory (Ci/3 in.)	Error ^a (%)	NO ^b	Inventory (Ci/3 in.)	Error ^a (%)	NO ^b	Inventory (Ci/3 in.)	Error ^a (%)	NO ^b	Inventory (Ci/3 in.)	Error ^a (%)	NO ^b
1	6.49E-03	71.4	4	4.70E-03	35.4	4	2.51E-04	19.2	12	2.75E-04	22.7	12
2	1.43E-02	32.9	7	1.41E-02	57.0	9	4.24E-04	40.3	4	3.47E-04	28.7	9
3	3.94E-02	20.5	6	3.69E-02	23.2	3	5.88E-04	99.0	0	6.67E-04	28.8	1
4	4.86E-02	28.7	8	4.20E-02	21.7	6	6.39E-04	12.6	3	8.91E-04	26.1	4
5	4.11E-02	10.0	3	6.25E-02	7.7	6	5.92E-04	7.3	4	1.05E-03	10.7	2
6	5.09E-02	29.5	4	7.30E-02	31.7	4	7.41E-04	32.9	2	8.83E-04	99.0	6
7	5.14E-02	21.6	3	5.92E-02	24.0	10	6.37E-04	38.9	1	8.75E-04	99.0	0
8	7.20E-02	25.3	7	7.58E-02	25.0	8	1.16E-03	25.8	2	1.07E-03	99.0	0
9	1.11E-01	26.8	4	1.38E-01	15.9	8	2.50E-03	22.0	4	2.73E-03	6.6	3
10	1.46E-01	13.4	3	1.46E-01	28.2	6	2.10E-03	2.2	2	2.74E-03	24.6	7
11	1.08E-01	99.0	0	2.05E-01	21.0	5	3.86E-03	26.2	8	4.72E-03	33.0	3
12	1.11E-01	99.0	0	1.41E-01	0.5	2	6.78E-03	34.3	11	5.22E-03	23.8	10
13	1.91E-01	28.1	1	1.03E-01	99.0	0	3.98E-03	26.6	6	4.03E-03	17.9	8
14	1.01E-01	99.0	0	1.44E-01	30.3	1	7.95E-03	43.8	12	8.01E-03	43.1	11
15	1.10E-01	3.2	2	1.13E-01	34.8	1	8.93E-03	24.8	12	9.72E-03	17.1	12
16	1.23E-01	11.0	3	1.19E-01	3.8	4	9.41E-03	36.2	12	9.78E-03	32.4	12
17	1.41E-01	10.0	2	1.78E-01	42.8	2	1.96E-02	13.9	12	1.58E-02	16.2	12
18	1.11E-01	43.2	4	1.06E-01	10.2	2	1.80E-02	13.0	12	1.80E-02	17.9	12
19	9.54E-02	26.0	1	4.98E-02	99.0	0	1.86E-02	15.3	12	1.71E-02	18.2	12
20	1.22E-01	40.8	2	8.24E-02	39.7	1	2.54E-02	18.8	12	2.40E-02	17.5	12
21	1.33E-01	29.1	4	9.52E-02	26.8	3	2.24E-02	29.1	12	2.08E-02	33.4	12
22	7.05E-02	52.2	10	8.29E-02	40.3	5	2.35E-02	9.0	12	2.24E-02	6.3	12
23	3.91E-02	120.7	12	2.01E-02	47.9	5	2.28E-02	4.0	12	2.33E-02	6.5	12
24	2.36E-02	53.1	12	1.21E-02	33.3	12	2.18E-02	16.9	12	2.16E-02	20.5	12
25	1.14E-02	24.3	10	1.09E-02	16.1	8	1.13E-02	27.6	12	1.01E-02	26.4	12
26	1.32E-02	58.8	10	1.14E-02	51.3	9	1.04E-02	35.0	12	8.31E-03	34.5	12
27	4.74E-03	66.2	10	2.96E-03	35.6	10	7.30E-03	16.9	12	6.67E-03	10.1	12
28	2.81E-03	31.6	12	2.70E-03	27.0	12	5.26E-03	25.6	12	5.19E-03	27.0	12
29	4.08E-03	9.8	13	3.83E-03	10.3	13	2.34E-03	50.9	13	2.36E-03	56.9	13
30 ^c	2.04E-03	37.1	12	2.10E-03	42.4	12	5.45E-04	44.4	12	5.03E-04	46.4	12
SUM ^c	2.10E+00			2.14E+00			2.60E-01			2.49E-01		

^aDenotes: (1) percent relative standard deviation when NO is greater than 1, (2) counting statistics error when NO is equal to 1, and (3) arbitrary value of 99.0 when NO is equal to zero. When NO is zero, the inventory value tabulated is the mean of all of the upper-limit values (nominally 12) computed.

^bDenotes the number of real observations (nonupper limit) per 3-in. interval (see text).

^cDenotes the total inventory in the graphite component and includes upper-limit values.

data were classified according to three categories. Category 1 consists of data for which two or more of the scan points per 3-in. interval were actual measured quantities. In this case, mean values of the observed activities were tabulated as the inventory per 3-in. interval. The errors listed in Tables 4.2-4 and 4.2-5 for category 1 data are conventional standard deviations expressed as percentages of the mean inventories. The number of measured points within each 3-in. segment (statistically the number of degrees of freedom) is listed after each error value. Category 2 consisted of data for which only one scan point within a 3-in. segment was an actual measured quantity. In this case, the observed quantity was tabulated as the inventory per 3 in. of section and the counting statistics error for that scan point in Appendix A was tabulated as the error in Tables 4.2-4 and 4.2-5. Category 3 represented those data in which all of the scan points per 3 in. of section consisted of upper-limit values designated in Appendix A. The mean of each of the upper-limit values per 3-in.interval was computed and tabulated for category 3 data, and is signified in Tables 4.2-4 and 4.2-5 with an arbitrarily assigned error of 99.0%. For such data, the number of observed real values was zero and is tabulated as such.

Because the counting time interval used to acquire gamma spectra in the automated scanning of spine and sleeve (as described in Sect. 4 of ref. 2) was only about 5 min, it was thought that some improvement in the axial distributions of gamma-emitters might be realized if a limited sampling were made with longer counting times. Longer times would reduce counting statistics errors and perhaps result in the replacement of some upper-limit estimates by real-value estimates, as well as possibly allow detection of additional radionuclides if they were present at low levels. Consequently, gamma spectra of both sleeve and spine were acquired, for 2000 sec, in both planes at nine selected locations along the element adjacent to the locations of fuel compacts 3, 6, 9, 13, 16, 19, 23, 26, and 29.

Tables 4.2-6 and 4.2-7 present the inventories, per 3-in. segment of sleeve and spine, of the nuclides detected and measured by these so-called "long counts." Generally, these data were in good agreement with the

Table 4.2-6. Inventories of gamma-emitting radionuclides in sleeve of fuel element FO3-01 measured by long counts
(corrected to October 31, 1974)^a

Compact	Distance ^b (in.)	Plane	⁶⁰ Co		¹⁰⁶ Ru		^{110m} Ag		¹³⁴ Cs		¹³⁷ Cs		¹⁴⁴ Ce		¹⁵⁴ Eu	
			Inventory (Ci/3 in.)	Error ^c (%)	Inventory (Ci/3 in.)	Error ^c (%)	Inventory (Ci/3 in.)	Error ^c (%)	Inventory (Ci/3 in.)	Error ^c (%)	Inventory (Ci/3 in.)	Error ^c (%)	Inventory (Ci/3 in.)	Error ^c (%)	Inventory (Ci/3 in.)	Error ^c (%)
3	7.5	1	3.4E-5	4	4.6E-4	14	3.1E-4	2	1.1E-2	0.2	7.5E-3	0.2	3.7E-3	15	4.1E-5	8
		2	3.1E-5	4	7.7E-4	8	2.5E-4	2	6.2E-3	0.2	4.9E-3	0.2			3.6E-5	8
		Mean	3.2E-5		6.2E-4		2.8E-4		8.4E-3		6.2E-3				2.8E-5	
6	16.5	1					8.3E-3	2	0.15	0.1	8.9E-2	0.1				
		2					7.5E-3	2	0.11	0.1	6.1E-2	0.2				
		Mean					7.9E-3		0.13		7.5E-2					
9	25.5	1					3.5E-2	6	3.3	0.1	1.9	0.1				
		2					5.8E-2	5	4.3	0.1	2.4	0.1				
		Mean					4.7E-2		3.8		2.2					
13	37.5	1					2.7E-2	12	4.7	0.1	2.6	0.1				
		2					3.4E-2	13	4.1	0.1	2.3	0.1				
		Mean					3.1E-2		4.4		2.5					
16	46.5	1	4.7E-3	6			1.2E-2	24	4.8	0.1	2.7	0.1			2.4E-2	4
		2	5.8E-3	5			1.6E-2	18	2.9	0.1	2.2	0.1			9.5E-2	1
		Mean	5.2E-3				1.4E-2		4.4		2.4				5.9E-2	
19	55.5	1	1.8E-2	2					1.0	0.2	1.2	0.2			0.4	0.5
		2	9.2E-3	4					3.4	0.1	1.9	0.1			0.4	0.5
		Mean	1.3E-2						2.7		1.6				0.4	
23	67.5	1	3.9E-3	5					1.2	0.2	0.7	0.2			0.4	0.6
		2	6.7E-3	3					1.5	0.2	0.9	0.2			0.3	0.6
		Mean	5.3E-3						1.3		0.8				0.3	0.6
26	76.5	1	3.4E-3	2			5.1E-3	9	0.5	0.2	0.3	0.1			1.5E-2	2
		2	4.2E-3	2			2.4E-3	19	0.5	0.2	0.3	0.2			1.9E-2	1
		Mean	3.8E-3				3.7E-3		0.5		0.3				1.7E-2	
29	85.5	1	5.0E-4	0.9	1.6E-3	5	2.9E-3	1	1.0E-2	0.2	1.1E-2	0.1	1.3E-2	7	5.6E-4	2
		2	6.1E-4	0.8	1.0E-3	6	3.2E-3	0.9	5.2E-3	0.3	5.2E-3	0.2	5.6E-3	15	6.9E-4	2
		Mean	5.6E-4		1.3E-3		3.1E-3		7.7E-3		8.3E-3		9.1E-3		6.2E-4	

^aMeasurements made by acquiring gamma spectra, for 2000 sec, in the middle of that sleeve section adjacent to the designated compact.

^bDistance from bottom of fuel.

^cDenotes one-sigma counting statistics error.

Table 4.2-7. Inventories of gamma-emitting radionuclides in spine of fuel element FO3-01 measured by long counts
(corrected to October 31, 1974)^a

Compact	Distance ^b (in.)	Plane	⁶⁰ Co		¹⁰⁶ Ru		^{110m} Ag		¹³⁴ Cs		¹³⁷ Cs		¹⁴⁴ Ce		¹⁵⁴ Eu	
			Inventory (Ci/3 in.)	Error ^c (%)	Inventory (Ci/3 in.)	Error ^c (%)	Inventory (Ci/3 in.)	Error ^c (%)	Inventory (Ci/3 in.)	Error ^c (%)	Inventory (Ci/3 in.)	Error ^c (%)	Inventory (Ci/3 in.)	Error ^c (%)	Inventory (Ci/3 in.)	Error ^c (%)
3	7.5	1	6.2E-4	4			1.4E-2	2	0.18	0.2	0.11	0.2				
		2	6.0E-4	5			9.8E-3	3	0.20	0.2	0.12	0.2				
		Mean	6.1E-4				1.2E-2		0.19		0.12					
6	16.5	1	7.4E-4	5			1.3E-3	28	0.41	0.1	0.23	0.2				
		2	6.6E-4	6			1.1E-3	33	0.54	0.1	0.32	0.1				
		Mean	6.9E-4				1.2E-3		0.47		0.28					
9	25.5	1	1.1E-3	8					1.2	0.1	0.65	0.2				
		2	9.5E-4	9					1.1	0.1	0.64	0.2				
		Mean	1.0E-3						1.1							
13	37.5	1	3.3E-3	4					1.5	0.1	0.84	0.1			3.5E-3	8
		2	3.8E-3	4					1.4	0.1	0.78	0.2			2.4E-3	11
		Mean	3.5E-3						1.4		0.81				3.0E-3	
16	46.5	1	8.7E-3	2					1.1	0.2	0.60	0.2			7.7E-3	4
		2	7.9E-3	2					1.1	0.2	0.59	0.2			1.1E-2	3
		Mean	8.3E-3						1.1		0.59				9.2E-3	
19	55.5	1	3.9E-5	3					0.37	0.3	0.21	0.3			1.9E-2	2
		2							0.32	0.3	0.18	0.3			1.7E-2	2
		Mean							0.34		0.19				1.8E-2	
23	67.5	1							0.12	0.1	7.1E-2	0.1			2.4E-2	0.4
		2							0.15	0.1	9.2E-2	0.1			2.4E-2	0.4
		Mean							0.14		8.2E-2				2.4E-2	
26	76.5	1	3.0E-3	0.7					6.7E-2	0.1	4.5E-2	0.1			8.2E-3	0.6
		2	3.1E-3	0.6					3.3E-2	0.2	2.2E-2	0.2			6.2E-3	0.7
		Mean	3.0E-3						5.0E-2		3.4E-2				7.2E-3	
29	85.5	1	3.7E-3	0.2	3.4E-4	9			7.1E-4	0.7	4.9E-4	0.8			1.1E-3	0.9
		2	2.6E-3	0.3	2.9E-4	9			6.4E-4	0.8	3.9E-4	0.9	2.24E-3	3.4	9.5E-4	0.9
		Mean	3.1E-3		3.2E-4				6.8E-4		4.4E-4				1.0E-3	

^aMeasurements made by acquiring gamma spectra, for 2000 sec, in the middle of that sleeve section adjacent to the designated compact.

^bDistance from bottom of fuel.

^cDenotes one-sigma counting statistics error.

results that were found by the automated scanning procedure (see tabulation in Appendix A). In a few instances, small amounts of ^{106}Ru and ^{144}Ce that were not found by the scanning procedure were detected by the long counts.

Small amounts of the gamma-emitting nuclides observed in the sleeve and spine were found in the bottom connector. Table 4.2-8 summarizes the nuclide inventories derived from the axial distributions in Appendix A. As can be seen, none of the nuclides are present in amounts that are significant when compared with those found in the sleeve, spine, and fuel.

Table 4.2-8. Inventories of gamma-emitting nuclides
found in the bottom connector of F03-01
(as of October 31, 1974)

Nuclide	Inventory (Ci)
^{60}Co	0.10
$^{110\text{m}}\text{Ag}$	<0.01
^{134}Cs	0.03
^{137}Cs	0.01
^{144}Ce	<0.1
^{154}Eu	0.002

4.2.3 Axial distributions in the top reflector

Axial distributions of observed gamma-emitting nuclides in the upper-element region are given in Table 4.2-9. The top portion of this table records nuclide levels found in graphite samples drawn from the inner surface of the purge-flow inlet tube by drilling the 1/4-in. (0.635-cm)-diam tube out to 5/16 in. (0.794 cm). These samples thus represent deposited activity from the primary coolant, from which the purge flow is drawn directly at this point. The lower portion of the table lists the nuclide levels observed in core-drilled samples taken from the porous plug.

Table 4.2-9. Axial distribution of gamma-emitting radionuclides found in top reflector of element F03-01
(corrected to October 31, 1974)

Sample weight (g)	Location ^a (cm)	Section length ^b (cm)	Radionuclide concentration (μCi/g)								¹³⁷ Cs/ ¹³⁴ Cs • ratio
			⁵⁴ Mn	⁶⁰ Co	¹⁰⁶ Ru	^{110m} Ag	¹³⁴ Cs	¹³⁷ Cs	¹⁴⁴ Ce	¹⁵⁴ Eu	
Samples from purge tube ^c											
2.9863	4.1	8.1	3.34E-2	0.168	<0.11	<0.02	2.53	1.47	<0.81	<2E-3	0.58
3.1246	12.4	8.5	2.76E-2	7.58E-2	<0.04	1.19E-2	0.78	0.46	<0.28	1.6E-3	0.59
2.7683	20.4	7.6	5.0E-3	5.17E-2	<0.03	3.88E-2	0.56	0.32	<0.25	<7.8E-4	0.57
1.7555	27.3	5.2	6.2E-3	6.3E-2	<0.05	8.4E-2	0.77	0.45	<0.35	<1.2E-3	0.58
1.8383	32.4	5.1	7.3E-3	5.9E-2	<0.05	9.9E-2	0.67	0.39	<0.33	<1.2E-3	0.58
1.5208	37.2	4.4	1.13E-2	7.1E-2	<0.05	0.16	0.69	0.40	<0.39	<1.3E-3	0.58
1.7867	42.1	5.4	1.98E-2	0.12	<0.05	0.22	0.68	0.40	<0.4	<1.3E-3	0.59

Samples from porous plug											
4.8823	43.4	1.2	2.26	18.0	-	2.46	1.65	0.94	<8.4	1.39	0.57
7.3870	46.6	1.2	-	22.2	3.61	7.36	1.66	1.53	<17.7	1.4	0.92
2.8279	48.0	1.7	-	26.8	-	4.7	0.74	0.77	<20.1	1.49	1.04
3.4707	49.8	1.9	-	37.0	-	<0.82	0.23	4.74E-2	<20.9	1.61	0.21
3.5616	51.8	2.1	-	61.8	-	<1.06	0.34	9.13E-2	<27.0	1.87	0.27
3.5425	54.0	2.3	-	105.6	-	<2.05	0.50	0.16	<54.6	2.0	0.32
3.5077	56.0	1.7	2.93	127.1	-	<2.27	0.75	0.39	<60.5	2.38	0.52

^aDistance from top of element to center of section.

^bLength of section.

^cData were obtained by cutting the top reflector into sections and drilling out the inner surface of purge tube and portions of the porous plug.

The observed distributions of gamma-emitting nuclides in the sleeve and spine are plotted in Figs. 4.2-9 through 4.2-20, corresponding to the tabular data given in Appendix A. The vertical bands signify the values of the standard deviations based on counting statistics. Distributions in each of the two planes in which observations were made are shown. Frequently, the upward-facing arrow appears as a plotting point, especially in spine distributions. This denotes an upper-limit value calculated by the method discussed earlier in this section.

The axial distributions of ^{137}Cs in the sleeve, spine, and fuel compacts of element FO3-01 are plotted in Fig. 4.2-21. Similar plots presented in ref. 2 for fuel element E11-07 and in ref. 3 for E14-01 are reproduced in Figs. 4.2-22 and 4.2-23 to permit a convenient comparison of the axial distribution of ^{137}Cs in the three fuel elements. It should be noted that the $^{137}\text{Cs}/^{95}\text{Zr}$ ratio in the fuel is plotted for elements E11-07 and E14-01 rather than the ^{137}Cs inventory per compact. Also, the plots for these two elements include the tentative temperature profiles. It is interesting to note that the axial migration of ^{137}Cs from higher- to lower-temperature fuel (see Sect. 4.2-1) is also apparent in the sleeve and spine of elements FO3-01 and E11-07. However, the migration is less pronounced in the sleeves than in the spines. No axial migration of ^{137}Cs is detectable in either the fuel or the graphite of element E14-01 -- an observation that points to a lower operating temperature than for the other two elements.

4.3 Radial Distributions

The sleeve and spine were radially dissected at locations adjacent to fuel compacts 5, 12, 18, and 29 by methods described in Sect. 4 of ref. 2. Tables 4.3-1 through 4.3-8 summarize the radial distributions observed for the gamma-emitting nuclides; the distributions are plotted in Fig. 4.3-1 through 4.3-4.

The reader should note that many of the tabulated activity measurements are upper-limit values denoted by the "<" symbol. Although the upper-limit values are plotted, the significance of such plots is simply that the true distributions should lie somewhere below the upper-limit

Fig. 4.2-9. Axial distribution of ^{60}Co in F03-01 sleeve as of October 31, 1974.

Fig. 4.2-10. Axial distribution of ^{60}Co in F03-01 spine as of October 31, 1974.

Fig. 4.2-11. Axial distribution of ^{110m}Ag in F03-01 sleeve as of October 31, 1974.

Fig. 4.2-12. Axial distribution of ^{110m}Ag in FO3-01 spine as of October 31, 1974.

Fig. 4.2-13. Axial distribution of ^{134}Cs in F03-01 sleeve as of October 31, 1974.

Fig. 4.2-14. Axial distribution of ^{134}Cs in F03-01 spine as of October 31, 1974.

Fig. 4.2-15. Axial distribution of ^{137}Cs in FO3-01 sleeve as of October 31, 1974.

Fig. 4.2-16. Axial distribution of ^{137}Cs in F03-01 spine as of October 31, 1974.

Fig. 4.2-17. Axial distribution of ^{144}Ce in F03-01 sleeve as of October 31, 1974.

Fig. 4.2-18. Axial distribution of ^{144}Ce in F03-01 spine as of October 31, 1974.

Fig. 4.2-19. Axial distribution of ^{154}Eu in FO3-01 sleeve as of October 31, 1974.

Fig. 4.2-20. Axial distribution of ^{154}Eu in F03-01 spine as of October 31, 1974.

Fig. 4.2-21. Axial distributions of ^{137}Cs in the fuel, sleeve, and spine of fuel element F03-01 as of October 31, 1974.

Fig. 4.2-22. Axial distribution of ^{137}Cs in sleeve and spine of element Ell-07 as of September 14, 1973.

Fig. 4.2-23. Axial distribution of ^{137}Cs in sleeve, spine, and fuel of element E14-01 as of October 31, 1974.

Table 4.3-1. Radial distribution of gamma-emitting radionuclides found in F03-01 sleeve at compact 5
(corrected to October 31, 1974)

Thickness ^a (mils)	(cm)	Distance to center of cut from ID (cm)	Radionuclide concentration (μCi/g)								¹³⁷ Cs/ ¹³⁴ Cs ratio
			⁵⁴ Mn	⁶⁰ Co ^b	¹⁰⁶ Ru ^b	^{110m} Ag ^b	¹³⁴ Cs	¹³⁷ Cs	¹⁴⁴ Ce ^b	¹⁵⁴ Eu ^b	
10	0.0254	0.0127	-	1.08	44.5	5.42	760	530	357	4.2	0.69
10	0.0254	0.038	-	0.216	<36.9	<4.0	840	516	-	1.14	0.62
18	0.0457	0.0737	-	<0.157	<21.9	<3.0	720	428	<160	<0.4	0.60
15	0.0381	0.1156	-	<0.061	<10.9	<1.0	350	210	<78	<0.2	0.60
15	0.0381	0.154	-	<0.036	<6.66	<0.8	200	121	<50	<0.1	0.60
30	0.0762	0.21	-	<0.016	<2.82	<0.3	79	47.1	<20	<0.05	0.60
30	0.0762	0.287	-	0.013	0.88	<0.07	16.2	9.6	<4	0.029	0.59
30	0.0762	0.363	-	0.03	0.16	<0.01	2.2	1.31	-	0.028	0.60
30	0.0762	0.516	-	0.04	0.33	<8E-3	0.042	0.041	-	0.028	0.98
30	0.0762	0.668	-	0.030	0.16	<7E-3	0.034	0.037	-	0.025	1.09
30	0.0762	0.744	-	0.021	0.16	<7E-3	0.030	0.033	-	0.022	1.10
30	0.0762	0.82	-	0.014	0.12	<6E-3	0.027	0.029	-	0.018	1.07
15	0.0381	0.87	-	0.018	0.11	<8E-3	0.066	0.055	-	0.015	0.83
15	0.0381	0.92	9.3E-3	0.049	0.1	<0.01	0.20	0.139	-	0.019	0.70
10	0.0254	0.94	1.16	1.76	<0.29	0.82	3.1	2.19	-	0.074	0.70

^a Thickness of sample milled from sleeve.

^b Numbers preceded by < are upper-limit values.

Table 4.3-2. Radial distribution of gamma-emitting radionuclides found in F03-01 spine at compact 5
(corrected to October 31, 1974)

Thickness ^a (mils)	(cm)	Distance to center of cut from OD (cm)	Radionuclide concentration (μCi/g)							¹³⁷ Cs/ ¹³⁴ Cs ratio	
			⁵⁴ Mn	⁶⁰ Co ^b	¹⁰⁶ Ru ^b	^{110m} Ag ^b	¹³⁴ Cs	¹³⁷ Cs	¹⁴⁴ Ce ^b		¹⁵⁴ Eu ^b
5	0.0127	0.0064	-	<16	<2.6E3	<2.5E2	8.27E4	4.89E4	<1.7E4	<38	0.59
15	0.0381	0.0318	-	<3	<4.5E2	5.59E2	2.33E4	1.39E4	<3.3E3	<9	0.59
30	0.0762	0.0889	-	<2	<2.0E2	74.4	1.01E4	5.98E3	<1.5E3	<3	0.59
30	0.0762	0.165	-	1.3	<1.05E2	<15.0	4.99E3	2.92E3	<7.6E2	<2	0.59
30	0.0762	0.241	-	1.89	<60	<6.8	2.06E3	1.21E3	<3.9E2	<1	0.59
30	0.0762	0.318	-	3.49	<38	<3.7	7.95E2	4.62E2	<2.3E2	<0.7	0.58
30	0.0762	0.394	-	2.82	<10	<1.2	2.95E2	1.72E2	<70	1.16	0.58
30	0.0762	0.47	-	2.8	<7	<0.8	1.3E2	74.4	<46	1.17	0.57
30	0.0762	0.546	0.41	2.45	<3	<0.4	63.7	36.4	<18	1.04	0.57
30	0.0762	0.622	0.3	2.19	<0.8	<0.2	31.4	17.7	<6	0.98	0.56
30	0.0762	0.699	-	2.45	<1.6	<0.3	18.6	10.0	<12	1.03	0.54
30	0.0762	0.775	0.37	2.42	<0.5	<0.1	9.9	5.09	<4	1.00	0.51
60	0.1524	0.889	0.27	2.24	<0.9	<0.2	5.6	2.47	<7	1.04	0.44
73	0.1854	1.058	0.26	1.91	<0.3	<0.08	2.4	0.68	-	0.93	0.29
62.5	0.1588	1.62	0.16	1.23	-	0.13	9.7	5.52	-	1.04	0.57
125	0.3175	1.86	0.11	0.99	<0.3	<0.09	2.5	0.92	<3	0.94	0.36

^aThickness of sample milled from spine.

^bNumbers preceded by < are upper-limit values.

Table 4.3-3. Radial distribution of gamma-emitting radionuclides found in F03-01 sleeve at compact 12
(corrected to October 31, 1974)

Thickness ^a (mils)	(cm)	Distance to center of cut from ID (cm)	Radionuclide concentration ($\mu\text{Ci/g}$)								$^{137}\text{Cs}/^{134}\text{Cs}$ ratio
			^{54}Mn	$^{60}\text{Co}^b$	$^{106}\text{Ru}^b$	$^{110m}\text{Ag}^b$	^{134}Cs	^{137}Cs	$^{144}\text{Ce}^b$	$^{154}\text{Eu}^b$	
5	0.013	0.006	-	82	<3E3	4.9E3	1.20E5	7.07E4	<2E4	85	0.59
10	0.025	0.025	-	37	<2.5E3	1.8E3	9.12E4	5.26E4	<1.7E4	95	0.58
10	0.025	0.051	-	40	<2E3	1.4E3	8.07E4	4.68E4	<1.4E4	110	0.58
10	0.025	0.076	-	15.8	<2E3	1.13E3	6.35E4	3.7E4	<1.4E4	156	0.58
15	0.038	0.108	-	<12	<2E3	1.09E3	6.13E4	3.54E4	<1.4E4	120	0.58
30	0.076	0.165	-	<7	<1E3	-	4.60E4	2.65E4	<8E3	<21	0.58
30	0.076	0.24	-	1.72	<280	<33	2.89E4	1.65E4	<1.9E3	<4	0.57
30	0.076	0.32	-	3.55	<440	<60	1.87E4	1.04E4	<3.2E3	<8	0.56
30	0.076	0.47	-	<1.3	400	<24	6.75E3	3.69E3	<1.5E3	<3	0.55
30	0.076	0.62	-	<0.25	<46	<6	1.51E3	816	<330	<0.7	0.54
30	0.076	0.69	-	<0.1	<20	<2	550	298	<140	<0.3	0.54
30	0.076	0.77	-	<0.03	<4.8	<0.6	170	91.7	<35	<0.08	0.54
30	0.076	0.84	-	0.02	<1.6	<0.2	45	24.2	<11	0.04	0.54
15	0.038	0.90	-	0.02	<0.6	<0.06	12.9	6.9	<4	0.02	0.54
15	0.038	0.93	-	0.06	-	<0.05	6.6	3.6	-	<0.02	0.54
10	0.025	0.94	1.44	2.76	<2	0.5	39.2	21.9	<16	0.69	0.56

^aThickness of sample milled from sleeve.

^bNumbers preceded by < are upper-limit values.

Table 4.3-4. Radial distribution of gamma-emitting radionuclides found in F03-01 spine at compact 12
(corrected to October 31, 1974)

Thickness ^a (mils)	(cm)	Distance to center of cut from OD (cm)	Radionuclide concentration (μCi/g)								¹³⁷ Cs/ ¹³⁴ Cs ratio
			⁵⁴ Mn	⁶⁰ Co	¹⁰⁶ Ru ^b	^{110m} Ag ^b	¹³⁴ Cs	¹³⁷ Cs	¹⁴⁴ Ce ^b	¹⁵⁴ Eu ^b	
7	0.0178	0.0089	-	25.3	<500	<59	2.53E4	1.49E4	-	82	0.59
15	0.0381	0.0369	-	16	<600	<79	2.20E4	1.27E4	<4.2E3	79	0.58
30	0.0762	0.094	-	17.8	<400	<64	1.8E4	1.04E4	<3.1E3	73	0.58
30	0.0762	0.170	-	12.6	<340	<48	1.33E4	7.6E3	<2.5E3	70	0.57
30	0.0762	0.246	-	18.2	<280	<33	9.5E3	5.3E3	<2.1E3	58	0.56
30	0.0762	0.323	-	15.1	<250	<28	7.1E3	3.9E3	<1.7E3	47	0.56
30	0.0762	0.40	-	16.3	<150	<18	5.5E3	3.07E3	<1.1E3	35	0.56
30	0.0762	0.475	-	13.8	<77	<10	4.3E3	2.38E3	<5.4E2	31	0.55
30	0.0762	0.551	-	11.7	<67	<8	3.33E3	1.84E3	<4.6E2	23	0.55
30	0.0762	0.627	-	9.1	<61	<6.7	2.64E3	1.44E3	<4.1E2	20	0.55
30	0.0762	0.704	-	7.0	<55	<5.8	2.1E3	1.14E3	<3.6E2	16	0.54
30	0.0762	0.78	-	4.6	<23	<2.3	1.7E3	9.2E2	<1.5E2	13	0.54
60	0.1524	0.894	-	2.8	<33	<3.5	1.23E3	6.6E2	<2.2E2	10	0.54
68	0.1727	0.98	-	1.29	<26	<2.6	7.9E2	4.2E2	<1.7E2	5.9	0.53
62.5	0.1588	1.62	-	0.25	<12	<1.1	2.21E2	1.14E2	<7.8E1	1.6	0.52
125	0.3175	1.86	-	1.69	<30	<3.5	1.35E3	6.9E2	<2.1E2	11	0.51

^aThickness of sample milled from the spine.

^bNumbers preceded by < are upper-limit values.

Table 4.3-5. Radial distribution of gamma-emitting radionuclides found in F03-01 sleeve at compact 18
(corrected to October 31, 1974)

Thickness (mils)	a (cm)	Distance to center of cut from ID (cm)	Radionuclide concentration (μCi/g)								¹³⁷ Cs/ ¹³⁴ Cs ratio
			⁵⁴ Mn	⁶⁰ Co ^b	¹⁰⁶ Ru ^b	^{110m} Ag ^b	¹³⁴ Cs	¹³⁷ Cs	¹⁴⁴ Ce ^b	¹⁵⁴ Eu ^b	
15	0.038	0.019	-	670	<2E3	<310	5.45E4	3.15E4	<1.6E4	1.02E4	0.56
15	0.038	0.057	-	158	<1.5E3	<210	4.88E4	2.80E4	<1.1E4	3.04E3	0.57
30	0.076	0.114	-	65	<1.1E3	<179	4.53E4	2.62E4	<8.9E3	2.84E3	0.58
30	0.076	0.19	-	<5	<840	<120	3.30E4	1.89E4	<6.4E3	388	0.57
30	0.076	0.27	-	<3	<420	<68	2.07E4	1.17E4	<3.3E3	<9.3	0.57
30	0.076	0.42	-	<1	<155	<20	6.6E3	3.67E3	<1.1E3	<2.8	0.56
30	0.076	0.57	-	<0.2	<35	<4	1.14E3	627	<260	<0.58	0.55
30	0.076	0.65	-	<0.08	<16	<1.7	439	241	<107	<0.22	0.55
30	0.076	0.72	-	<0.03	<5.9	<0.6	155	84.8	49.7	<0.09	0.55
30	0.076	0.80	-	1.5E-2	<1.8	<0.2	49	26.5	<13	<0.03	0.54
15	0.038	0.86	-	1.79E-2	<0.65	<0.07	17	9.6	<4.4	0.028	0.55
15	0.038	0.89	-	3.9E-2	0.65	<0.05	9.0	5.0	-	5.54E-2	0.55
11	0.028	0.93	1.51	4.02	<1.2	<0.25	31.6	17.9	<9.5	0.76	0.57

^aThickness of sample milled from sleeve.

^bNumbers preceded by < are upper-limit values.

Table 4.3-6. Radial distribution of gamma-emitting radionuclides found in FO3-01 spine at compact 18
(corrected to October 31, 1974)

Thickness ^a (mils)	Distance to center of cut from OD (cm)	Radionuclide concentration (μCi/g)								¹³⁷ Cs/ ¹³⁴ Cs ratio
		⁵⁴ Mn	⁶⁰ Co	¹⁰⁶ Ru ^b	^{110m} Ag ^b	¹³⁴ Cs	¹³⁷ Cs	¹⁴⁴ Ce ^b	¹⁵⁴ Eu	
6	0.015	-	5.39	<340	<45	9.11E3	5.53E3	-	760	0.61
15	0.038	-	3.31	<160	<21	5.18E3	3.12E3	-	226	0.60
30	0.076	-	3.23	<150	<18	4.74E3	2.84E3	<1000	101	0.60
30	0.076	-	2.27	<143	<17	4.26E3	2.52E3	<1000	92	0.59
30	0.076	-	2.72	<140	<16	3.87E3	2.27E3	<1000	92	0.59
30	0.076	-	0.91	<130	<15	3.53E3	2.03E3	<1000	82	0.58
30	0.076	-	1.23	<100	<12	3.06E3	1.76E3	<700	77	0.58
30	0.076	-	-	<98	<11	2.75E3	1.56E3	<670	73	0.57
30	0.076	-	1.62	<97	<10	2.45E3	1.38E3	<650	68	0.56
30	0.076	-	-	<64	<8	2.08E3	1.17E3	<450	63	0.56
30	0.076	-	-	<62	<7	1.91E3	1.06E3	<440	62	0.56
30	0.076	-	1.13	<61	<7	1.71E3	960	<430	60	0.56
60	0.152	-	0.72	<33	<4	1.10E3	600	<238	42	0.55
68	0.173	-	1.03	<40	<4	1.15E3	630	<282	49	0.55
62.5	0.159	-	0.49	<23	<2	620	330	<169	38	0.53
125	0.318	-	0.59	<21	<2	576	300	<156	36	0.53

^aThickness of sample milled from spine.

^bNumbers preceded by < are upper-limit values.

Table 4.3-7. Radial distribution of gamma-emitting radionuclides found in F03-01 sleeve at compact 28
(corrected to October 31, 1974)

Thickness ^a (mils)	Distance to center of cut from ID (cm)	54Mn	Radionuclide concentration (μCi/g)							137Cs/134Cs ratio	
			60Co ^b	106Ru ^b	110mAg ^b	134Cs	137Cs	144Ce ^b	154Eu ^b		
15	0.0381	0.019	-	290	-	<32	1.44E3	1.2E3	2.5E3	390	0.83
15	0.0381	0.057	-	250	<120	79	1.31E3	1.10E3	<1.1E3	362	0.84
15	0.0381	0.095	-	86	<76	42	1.03E3	860	<600	148	0.84
30	0.0762	0.152	-	4.9	<34	17.5	590	495	<240	22	0.83
30	0.0762	0.23	-	<0.05	<11	3.7	279	229	<75	<0.2	0.82
30	0.0762	0.30	-	<0.02	<4	<0.53	130	106	<30	<0.7	0.81
30	0.0762	0.46	-	<6.9E-3	<1.2	<0.14	32.7	25.9	<8	3.3E-2	0.79
30	0.0762	0.61	-	<2.3E-3	<0.4	<0.04	9.1	6.9	<2.8	1.3E-2	0.76
30	0.0762	0.69	-	1.7E-3	<0.23	<0.02	5.3	3.9	<1.5	5.3E-3	0.75
30	0.0762	0.76	-	<1.3E-3	<0.22	<0.02	2.72	1.98	<1.3	6.9E-3	0.73
30	0.0762	0.84	-	3.2E-3	<0.11	<0.01	1.64	1.13	<0.7	8.4E-3	0.69
15	0.0381	0.89	-	0.033	<0.35	0.059	7.2	4.5	<2.5	0.29	0.63
15	0.0381	0.93	0.014	0.078	<0.16	0.032	1.62	0.93	<1.2	0.079	0.57
16	0.0406	0.97	1.02	1.63	<0.48	0.21	7.1	4.2	-	0.53	0.59

^aThickness of sample milled from sleeve.

^bNumbers preceded by < are upper-limit values.

Table 4.3-8. Radial distribution of gamma-emitting radionuclides found in F03-01 spine at compact 28
(corrected to October 31, 1977)

Thickness ^a		Distance to center of cut from OD (cm)	Radionuclide concentration (μCi/g)							¹³⁷ Cs/ ¹³⁴ Cs ratio	
(mils)	(cm)		⁵⁴ Mn	⁶⁰ Co	¹⁰⁶ Ru ^b	^{110m} Ag ^b	¹³⁴ Cs	¹³⁷ Cs	¹⁴⁴ Ce ^b		¹⁵⁴ Eu
6	0.0152	0.0076	-	80.4	1.09E2	<4.0	97	91	9.3E2	99	0.94
15	0.0381	0.0343	-	16.9	-	<1.0	15	12.1	-	36	0.80
30	0.0762	0.091	-	15.2	<2.6	<0.8	9.3	6.9	<28	30	0.75
30	0.0762	0.168	-	12.5	-	<0.2	8.1	5.9	<7	23	0.73
30	0.0762	0.244	-	11.0	-	<0.4	6.5	4.6	<15	19	0.71
30	0.0762	0.320	-	10.1	-	<0.4	5.2	3.5	<15	16	0.68
30	0.0762	0.396	-	9.4	-	<0.4	4.2	2.7	<14	14.1	0.66
30	0.0762	0.472	-	8.5	<0.9	<0.3	3.4	2.0	<10	11.8	0.60
30	0.0762	0.549	-	7.7	-	<0.3	2.6	1.5	<9	9.7	0.55
30	0.0762	0.625	-	7.4	<0.9	<0.3	2.2	1.09	<9	8.7	0.49
30	0.0762	0.701	-	7.1	-	<0.3	1.8	0.77	<9	7.3	0.42
30	0.0762	0.777	-	6.6	<0.8	<0.3	1.6	0.60	<9	6.3	0.37
60	0.1524	0.892	0.13	6.0	<0.6	<0.2	1.3	0.39	<6	5.0	0.29
68	0.1727	1.054	0.11	5.3	-	<0.2	1.16	0.21	<6	3.6	0.18
62.5	0.1588	1.70	-	1.9	-	<0.08	1.13	0.18	<2	1.1	0.16
125	0.3175	1.94	-	0.6	<0.1	<0.03	0.89	0.07	-	0.9	0.08

^aThickness of sample milled from spine.

^bNumbers preceded by < are upper-limit values.

Fig. 4.3-1. Radial distribution of gamma-emitting radionuclides found at compact 5 in element F03-01 (corrected to October 31, 1974).

Fig. 4.3-2. Radial distribution of gamma-emitting radionuclides at compact 12 in element FO3-01 (corrected to October 31, 1974).

Fig. 4.3-3. Radial distribution of gamma-emitting radionuclides at compact 18 in element F03-01 (corrected to October 31, 1974).

Fig. 4.3-4. Radial distribution of gamma-emitting radionuclides at compact 28 in element F03-01 (corrected to October 31, 1974).

values; the actual profiles are unknown. Generally, the nuclides ^{106}Ru , $^{110\text{m}}\text{Ag}$, and ^{144}Ce are the only ones represented as upper limits. Since the upper-limit values derived for these nuclides are governed by the nuclides that are present in larger concentrations, principally ^{134}Cs and ^{137}Cs , the upper-limit profiles usually follow the profiles of the cesium isotopes.

The $^{137}\text{Cs}/^{134}\text{Cs}$ ratios given in the radial distribution tables are plotted in Fig. 4.3-5. Some of the factors that influence this ratio are discussed in the report describing the examination of fuel element ELL-07 (ref. 2). The $^{137}\text{Cs}/^{134}\text{Cs}$ ratio in the higher-temperature regions of the element, which varies only slightly from the surfaces adjacent to the fuel to the inside of the spine and to the outside of the sleeve, evidently indicates that the migration of metallic species of ^{137}Cs and ^{134}Cs is the predominant mode of cesium transfer. In the spine at compact location 28, the rapid decrease of the ratio indicates that the migration of ^{133}Xe is relatively more important in regulating the levels of ^{134}Cs . The strange behavior of the ratio in the sleeve at compact location 5 is not presently understood.

The bottom connector was radially dissected just below the point where it was joined to the sleeve. The observed radial distributions are given in Table 4.3-9.

5. DISTRIBUTIONS OF ^3H , ^{14}C , AND ^{90}Sr

5.1 Axial Distributions in the Top Reflector

Axial distributions of the beta-emitters ^3H , ^{14}C , and ^{90}Sr were determined only in samples removed from the inside of the purge-gas entrance tube and the porous plug in the top reflector of the element. The radiochemical methods used to effect these analyses are outlined in Sect. 5 of ref. 2. The results of the measurements are listed in Table 5.1-1 and plotted in Fig. 5.1-1. It is interesting to note that the levels of both ^3H and ^{14}C increase markedly from the top of the element to the bottom of the porous plug, whereas ^{90}Sr is fairly constant except at the

Fig. 4.3-5. Radial distribution of the $^{137}\text{Cs}/^{134}\text{Cs}$ ratio at compacts 5, 12, 18, and 28 in element F03-01 (corrected to October 31, 1974).

Table 4.3-9. Radial distribution of gamma-emitting radionuclides found in F03-01 bottom connector
(corrected to October 31, 1974)

Thickness ^a (mils)	Distance to center of cut from ID (cm)	Radionuclide concentration (μCi/g)								¹³⁷ Cs/ ¹³⁴ Cs ratio
		⁵⁴ Mn	⁶⁰ Co	¹⁰⁶ Ru ^b	^{110m} Ag ^b	¹³⁴ Cs	¹³⁷ Cs	¹⁴⁴ Ce ^b	¹⁵⁴ Eu ^b	
20	0.0508	0.028	0.17	<0.093	0.082	2.30	1.83	<0.63	0.023	0.80
40	0.1016	-	5.2E-3	<5E-3	2.43E-3	2.79E-2	2.51E-2	-	<3.5E-4	0.90
40	0.1016	1.84E-3	7.88E-3	<3E-3	-	8.68E-3	6.76E-3	-	6.92E-4	0.78
60	0.1524	-	3.56E-3	<1.9E-3	6.13E-4	1.02E-2	7.72E-3	-	2.51E-4	0.76
60	0.1524	-	2.94E-3	<1.02E-3	<4.1E-4	3.04E-3	2.09E-3	<1.2E-2	<1.38E-4	0.69
60	0.1524	-	4.09E-3	<1.5E-3	<6.7E-4	2.55E-3	1.80E-3	<1.47E-2	<8.37E-5	0.71
60	0.1524	-	3.22E-3	<3.3E-4	<1.0E-4	1.63E-3	1.06E-3	-	3.14E-5	0.65
60	0.1524	-	3.49E-3	<1.4E-3	<5.2E-4	1.70E-3	1.09E-3	<1.43E-2	<1.49E-4	0.64
60	0.1524	-	3.14E-3	<1.7E-3	-	2.50E-3	1.68E-3	<1.58E-2	<8.71E-5	0.67
60	0.1524	-	3.47E-3	<3.5E-3	<9.5E-4	9.83E-3	6.98E-3	<3.4E-2	7.78E-3	0.71
60	0.1524	-	3.1E-3	<2.0E-3	<7.0E-4	4.39E-3	3.26E-3	<1.7E-2	<2.24E-4	0.74
62.5	0.1588	-	5.9E-3	<5.8E-3	1.39E-2	1.17E-2	9.4E-3	-	<1.17E-3	0.80
62.5	0.1588	-	5.4E-2	<1.12E-2	1.66E-2	4.66E-2	4.25E-2	-	1.6E-3	0.91

^aThickness of sample milled from spine.

^bNumbers preceded by < are upper-limit values.

Table 5.1-1. Axial distribution of beta-emitting
radionuclides found in F03-01 top reflector
(corrected to October 31, 1974)

Location ^a (cm)	Section length ^b (cm)	Radionuclide concentration (μCi/g)		
		³ H	¹⁴ C	⁹⁰ Sr
Samples from purge hole ^c				
4.1	8.1	0.86	0.034	0.053
12.4	8.5	1.0	0.025	0.039
20.4	7.6	1.38	0.053	0.007
27.3	5.2	2.04	0.072	0.011
32.4	5.1	2.08	0.089	≤0.003
37.2	4.4	2.66	0.118	0.041
42.1	5.4	2.99	0.172	0.010
Samples from porous plug				
43.4	1.2	22.73	0.969	0.259
46.6	1.2	27.88	2.72	0.716
48.0	1.7	24.22	0.667	0.14
49.8	1.9	33.7	0.296	0.06
51.8	2.1	51.9	0.346	0.024
54.0	2.3	91.3	0.394	0.027
56.0	1.7	157.3	0.308	0.138

^aDistance from top of element to center of the section.

^bLength of section.

^cData were obtained by cutting the top reflector into sections and drilling the inner surface of purge tube and portions of the porous plug.

Fig. 5.1-1. Axial distribution of beta-emitting radionuclides in F03-01 top reflector (corrected to October 31, 1974).

top and bottom of the porous plug -- a behavior similar to that observed for ^{137}Cs , as shown in Table 4.2-9.

5.2 Radial Distributions in the Sleeve, Spine, and Bottom Connector

Radial distributions of ^3H , ^{14}C , and ^{90}Sr measured in the sleeve and spine adjacent to fuel compacts 5, 12, 18, and 28 are listed in Tables 5.2-1 through 5.2-8 and plotted in Figs. 5.2-1 through 5.2-4.

Radial distributions of ^3H and ^{14}C observed in the bottom connector are listed in Table 5.2-9. Strontium-90 measurements in these specimens were not attempted.

6. EXAMINATION OF FUEL PARTICLES

6.1 Fission Product and Heavy-Metal Inventories in Fuel Particles

The total amounts of fission products were measured in a series of fuel particles recovered from fuel compacts 2, 13, 19, and 28. Fission product inventories are given in Table 6.1-1. Two particles were selected from each of these compacts, and the heavy-metal radionuclides ^{233}U , ^{239}Pu , ^{241}Am , and ^{244}Cm were determined by alpha spectroscopy. Thorium-232 was measured colorimetrically. Inventories of these nuclides are listed in Table 6.1-2. The abundances of the uranium isotopes ^{233}U , ^{234}U , ^{235}U , ^{236}U , and ^{238}U were determined by mass spectroscopy; the results are presented in Table 6.1-3. From the amount of ^{233}U found by alpha spectroscopy and its isotopic abundance measured by mass spectroscopy, we computed the inventories of the total uranium and the other uranium isotopes. The inventories of all the heavy-metal nuclides, expressed in atoms per pair of particles, are summarized in Table 6.1-4. The results of similar measurements for fuel particles from compacts 2, 9, 13, 16, 19, 20, 24, and 28 of fuel element Ell-07 are reported in Tables 6.1-3, 6.1-5, and 6.1-6. In this instance, however, ^{232}Th , ^{233}U (except for compact 16), and isotopic abundances of uranium isotopes were not determined.

Table 5.2-1. Radial distribution of beta-emitting radionuclides
found in FO3-01 sleeve at compact 5
(corrected to October 31, 1974)

Thickness ^a (mils)	(cm)	Distance to center of cut from ID (cm)	Radionuclide concentration ($\mu\text{Ci/g}$)		
			^3H	^{14}C	^{90}Sr
10	0.025	0.013	14.2	0.48	242.0
10	0.025	0.038	41.9	0.34	26.0
18	0.046	0.074	41.8	0.27	2.91
15	0.038	0.154	110.0	0.27	0.242
30	0.076	0.287	4.11	0.23	0.028
30	0.076	0.363	1.47	0.27	0.036
30	0.076	0.516	1.31	0.27	0.10
30	0.076	0.744	1.31	0.26	0.029
15	0.038	0.87	2.42	0.24	0.159
10	0.025	0.94	12.5	0.66	1.77

^aThickness of sample milled from sleeve.

Table 5.2-2. Radial distribution of beta-emitting radionuclides
found in FO3-01 spine at compact 5
(corrected to October 31, 1974)

Thickness ^a (mils)	(cm)	Distance to center of cut from OD (cm)	Radionuclide concentration ($\mu\text{Ci/g}$)		
			^3H	^{14}C	^{90}Sr
5	0.013	0.0064	52.0	2.04	-
15	0.038	0.032	19.2	0.83	~34.0
30	0.076	0.089	5.97	0.73	7.80
30	0.076	0.165	3.12	0.72	0.188
30	0.076	0.241	4.98	0.69	0.199
30	0.076	0.394	4.62	0.690	0.157
30	0.076	0.546	4.35	0.71	0.125
30	0.076	0.699	3.77	0.68	0.247
60	0.152	0.889	3.83	0.74	0.144
62.5	0.159	1.62	2.31	0.79	1.56
125	0.318	1.86	2.07	0.73	0.282

^aThickness of sample milled from spine.

Table 5.2-3. Radial distribution of beta-emitting radionuclides
found in F03-01 sleeve at compact 12
(corrected to October 31, 1974)

Thickness ^a (mils)	(cm)	Distance to center of cut from ID (cm)	Radionuclide concentration ($\mu\text{Ci/g}$)		
			^3H	^{14}C	^{90}Sr
5	0.013	0.006	45.3	0.97	-
10	0.025	0.025	54.3	0.64	4631
10	0.025	0.076	45.6	0.46	7127
30	0.076	0.165	46.5	0.36	92.4
30	0.076	0.32	69.1	0.40	2.34
30	0.076	0.47	90.3	0.39	1.38
30	0.076	0.62	79.9	0.34	1.43
30	0.076	0.77	65.4	0.32	0.06
15	0.038	0.90	58.4	0.33	0.06
10	0.025	0.94	49.5	1.02	13.2

^aThickness of sample milled from sleeve.

Table 5.2-4. Radial distribution of beta-emitting radionuclides
found in FO3-01 spine at compact 12
(corrected to October 31, 1974)

Thickness ^a (mils)	(cm)	Distance to center of cut from OD (cm)	Radionuclide concentration ($\mu\text{Ci/g}$)		
			^3H	^{14}C	^{90}Sr
7	0.018	0.0089	15.9	2.25	-
15	0.038	0.037	12.0	0.899	3200
30	0.076	0.094	6.31	0.787	2500
30	0.076	0.170	6.68	0.865	2300
30	0.076	0.246	6.14	0.881	1900
30	0.076	0.400	5.42	0.873	1510
30	0.076	0.551	4.76	0.940	1220
30	0.076	0.704	4.66	0.955	738
60	0.152	0.894	3.73	0.850	489
62.5	0.159	1.62	2.54	0.912	149
125	0.318	1.86	2.48	0.892	99

^a Thickness of sample milled from spine.

Table 5.2-5. Radial distribution of beta-emitting radionuclides
found in F03-01 sleeve at compact 18
(corrected to October 31, 1974)

Thickness ^a (mils)	(cm)	Distance to center of cut from ID (cm)	Radionuclide concentration ($\mu\text{Ci/g}$)		
			^3H	^{14}C	^{90}Sr
15	0.038	0.019	17.7	0.52	1.28E5
15	0.038	0.057	16.7	0.41	1.46E5
30	0.076	0.114	19.8	0.42	7.38E4
30	0.076	0.27	21.1	0.30	4.16E3
30	0.076	0.42	29.6	0.35	4.1
30	0.076	0.57	45.8	0.37	3.5
30	0.076	0.72	71.1	0.35	0.07
15	0.038	0.86	41.8	0.34	1.0
11	0.028	0.93	43.5	0.72	21.7

^aThickness of sample milled from sleeve.

Table 5.2-6. Radial distribution of beta-emitting radionuclides
found in F03-01 spine at compact 18
(corrected to October 31, 1974)

Thickness ^a (mils)	(cm)	Distance to center of cut from OD (cm)	Radionuclide concentration ($\mu\text{Ci/g}$)		
			^3H	^{14}C	^{90}Sr
6	0.015	0.0076	10.1	7.44	-
15	0.038	0.034	6.27	0.95	8900
30	0.076	0.091	4.39	0.79	3600
30	0.076	0.168	4.16	0.81	3400
30	0.076	0.244	2.69	0.80	2960
30	0.076	0.396	3.01	0.73	2970
30	0.076	0.549	2.75	0.78	3100
30	0.076	0.701	2.83	0.75	2700
60	0.152	0.892	2.82	0.88	2400
62.5	0.158	1.7	2.32	0.84	2100
125	0.317	1.94	2.02	0.86	2400

^aThickness of sample milled from spine.

Table 5.2-7. Radial distribution of beta-emitting radionuclides
found in FO3-01 spine at compact 28
(corrected to October 31, 1974)

Thickness ^a		Distance to center of cut from OD (cm)	Radionuclide concentration ($\mu\text{Ci/g}$)		
(mils)	(cm)		^3H	^{14}C	^{90}Sr
6	0.015	0.0076	14.2	6.04	7300
15	0.038	0.0343	7.03	1.03	2000
30	0.076	0.0914	1.94	0.54	1400
30	0.076	0.168	1.87	0.52	1380
30	0.076	0.244	1.93	0.56	1200
30	0.076	0.396	1.46	0.65	910
30	0.076	0.549	1.25	0.53	540
30	0.076	0.701	1.12	0.59	350
60	0.152	0.892	0.87	0.64	230
62.5	0.158	1.7	0.52	0.52	19
125	0.317	1.94	0.47	0.54	9.4

^aThickness of sample milled from spine.

Table 5.2-8. Radial distribution of beta-emitting radionuclides
found in FO3-01 sleeve at compact 28
(corrected to October 31, 1974)

Thickness ^a (mils)	(cm)	Distance to center of cut from ID (cm)	Radionuclide concentration ($\mu\text{Ci/g}$)		
			^3H	^{14}C	^{90}Sr
15	0.038	0.019	0.17	0.003	1.2E4
15	0.038	0.057	16.0	0.31	9.5E3
30	0.076	0.152	13.5	0.22	519
30	0.076	0.30	14.1	0.21	0.03
30	0.076	0.46	10.1	0.21	0.17
30	0.076	0.61	22.6	0.21	0.06
30	0.076	0.76	34.5	0.21	~0.02
15	0.038	0.89	42.2	0.21	5.9
15	0.038	0.97	33.9	0.53	9.6

^aThickness of sample milled from sleeve.

Fig. 5.2-1. Radial distribution of beta-emitting radionuclides in element FO3-01 at compact 5 (corrected to October 1, 1974).

Fig. 5.2-2. Radial distribution of beta-emitting radionuclides in element F03-01 at compact 12 (corrected to October 31, 1974).

Fig. 5.2-3. Radial distribution of beta-emitting radionuclides in element F03-01 at compact 18 (corrected to October 31, 1974).

Fig. 5.2-4. Radial distribution of beta-emitting radionuclides in element F03-01 at compact 28 (corrected to October 31, 1974).

Table 5.2-9. Radial distribution of beta-emitting radionuclides
found in FO3-01 bottom connector
(corrected to October 31, 1974)

Thickness ^a		Distance to center of cut from OD (cm)	Radionuclide concentration ($\mu\text{Ci/g}$)	
(mils)	(cm)		^3H	^{14}C
20	0.0508	0.025	3.84	0.049
40	0.1016	0.107	0.238	0.034
40	0.1016	0.203	0.206	0.028
60	0.1524	0.330	0.212	0.031
60	0.1524	0.940	0.217	0.019
60	0.1524	1.549	0.219	0.022
60	0.1524	2.159	0.233	0.020
60	0.1524	2.464	0.232	0.022
62.5	0.1588	3.553	0.256	0.028
62.5	0.1588	3.712	0.469	0.025

^aThickness of sample milled from the bottom connector.

Table 6.1-1. Inventories of fission products in single
fuel particles of element F03-01
(corrected to October 31, 1974)

Compact	Particle No.	Radionuclide concentration ($\mu\text{Ci}/\text{particle}$)					
		^{106}Ru	^{125}Sb	^{134}Cs	^{137}Cs	^{144}Ce	^{154}Eu
2	1	11.7	0.64	15.3	18.8	146	0.40
	2	10.6	0.62	11.9	15.0	114	0.36
	3	10.9	0.88	14.9	18.4	135	0.41
	4	10.6	0.61	13.3	16.4	128	0.38
13	1	44.4	2.98	123.5	78.6	455	1.96
	2	45.1	3.14	115.7	74.4	511	1.87
	3	53.5	2.84	138.5	88.3	547	1.94
	4	39.8	2.27	102.1	66.3	386	1.21
19	1	41.7	2.20	95.5	62.5	414.7	0.93
	2	14.5	1.20	6.6	7.5	68.8	-
	3	14.4	1.16	7.1	7.2	60.0	-
	4	23.3	1.92	11.8	12.2	114.8	-
28	1	19.0	1.41	7.4	8.5	69	-
	2	10.5	0.70	13.9	14.2	110	0.13
	3	25.0	1.58	36.3	35.5	285	0.60
	4	9.7	0.58	14.1	14.3	112	0.20

Table 6.1-2. Heavy-metal radionuclides determined in F03-01
fuel particles by alpha spectroscopy

Compact	Particle No.	Radionuclide concentration ($\mu\text{Ci}/\text{two particles}$)			
		^{233}U	^{238}Pu	^{241}Am	^{244}Cm
2	1-2	0.0156	0.276	0.0743	0.001
13	1-2	0.0391	4.59	0.60	0.13
19	1-2	0.0121	1.19	0.229	0.021
28	1-2	0.0150	0.527	0.356	0.0067

Table 6.1-3. Abundances of uranium isotopes found in
fuel particles by mass spectroscopy

Fuel element	Compact	Particle No.	Abundance (at. %)				
			^{233}U	^{234}U	^{235}U	^{236}U	^{238}U
F03-01	2	1-2	13.25	1.39	67.63	9.74	7.98
F03-01	13	1-2	24.50	3.51	45.78	18.78	7.43
F03-01	19	1-2	25.09	3.54	44.40	17.82	9.15
F03-01	28	1-2	20.22	2.68	52.86	15.40	8.84
E11-07	16	1	21.36	2.87	52.00	16.39	7.38

Table 6.1-4. Heavy-metal inventories in FO3-01 fuel particles

Compact	Particle No.	Atoms/pair of particles								
		^{232}Th	^{233}U	^{234}U	^{235}U	^{236}U	^{238}U	^{238}Pu	^{241}Am	^{244}Cm
2	1-2	4.41E17	4.15E15	4.35E14	2.12E16	3.05E15	2.50E15	4.08E13	5.29E13	~5E10
13	1-2	8.57E17	1.04E16	1.49E15	1.94E16	7.97E15	3.15E15	6.79E14	4.37E14	4.3E12
19	1-2	5.19E17	3.22E15	4.54E14	5.70E15	2.29E15	1.17E15	1.76E14	1.67E14	7.0E11
28	1-2	2.37E17	3.98E15	5.27E14	1.04E16	3.03E15	1.74E15	7.79E13	2.60E14	2.2E11

Table 6.1-5. Inventories of fission products and heavy metals
in fuel particles of element E11-07
(corrected to September 14, 1973)

Compact	Particle No.	Radionuclide concentration ($\mu\text{Ci}/\text{particle}$)						
		^{95}Zr	^{106}Ru	^{125}Sb	^{134}Cs	^{137}Cs	^{144}Ce	^{154}Eu
2	1	-	19.6	1.0	18.3	25.4	248	0.45
	2	-	13.5	0.67	10.1	15.1	153	0.27
	2A	-	15.1	0.73	11.4	17.0	171	0.29
	3	-	17.6	0.88	14.9	21.4	217	0.37
	1-2	-	22.7	1.09	16.9	24.5	252	0.52
	3-4	-	18.9	0.91	15.4	22.1	212	0.35
	5-6	-	21.7	1.02	15.1	20.8	312	0.28
	7-8	-	11.8	-	10.9	16.1	119	-
	9-10	-	17.5	-	27.8	40.7	297	-
	11-12	-	32.0	1.65	26.2	38.5	421	0.64
	13-14	-	31.7	1.51	26.7	39.4	396	0.50
	15-16	-	26.4	1.57	20.6	30.0	309	0.47
	17-18	-	20.8	1.14	17.1	25.6	239	0.31
9	1	-	19.3	-	55.9	69.1	161	1.0
	2	459	24.1	1.54	38.4	29.0	268	0.39
	3	585	28.8	1.87	47.6	36.6	335	0.65
	4	442	22.6	1.10	36.9	27.8	246	0.59
	5	247	15.1	0.92	21.6	16.3	146	0.29
	6	188	7.5	0.67	15.3	11.9	98	0.20
	7	400	19.6	1.07	32.6	24.6	239	0.51
	8	398	20.7	1.14	35.3	26.5	246	0.58
13	1	-	17.1	1.08	16.1	13.1	94	0.11
	1A	-	14.8	0.88	15.3	12.3	74	0.08
	2	-	11.8	0.75	17.7	13.0	94	0.11
	2A	-	13.9	0.86	12.3	10.3	84	0.04
	3	-	10.7	0.70	11.4	9.1	76	0.04
	3A	-	8.4	0.43	7.4	8.9	94	0.16
	1-2	-	24.2	1.54	36.6	31.5	233	0.34
	3-4	-	25.6	1.65	37.5	27.7	180	-
	5-6	-	41.6	1.65	52.3	45.8	329	-
	7-8	-	40.2	2.33	70.6	50.2	375	0.92
	9-10	-	72.7	4.32	142.2	98.5	769	2.57
	11-12	-	29.2	1.90	59.1	41.4	351	0.51
	13-14	-	39.0	2.05	63.0	44.3	400	1.01
	15-16	-	37.9	1.51	62.2	44.2	389	0.99
	17-18	-	30.4	1.94	61.4	44.2	430	0.96
16	1	789	43.0	2.69	47.1	35.0	305	-
	2	668	38.8	2.42	50.1	36.8	258	-
	3	622	30.9	2.08	53.5	37.9	343	0.81
	4	17	-	-	0.95	0.65	32	0.05
	5	712	35.6	2.52	58.9	41.7	389	1.00
	6	370	18.3	1.07	31.8	22.2	172	0.25
	7	748	42.9	2.43	42.5	31.6	311	-
	8	645	35.9	2.28	35.1	26.1	246	-

Table 6.1-5 (continued)

Compact	Particle No.	Radionuclide concentration ($\mu\text{Ci}/\text{particle}$)						
		^{95}Zr	^{106}Ru	^{125}Sb	^{134}Cs	^{137}Cs	^{141}Ce	^{154}Eu
16	9	255	13.9	0.94	23.5	16.9	135	0.23
	10	269	13.5	0.83	23.5	16.6	128	0.17
	1	-	45.4	2.82	34.3	28.0	265	0.13
	2	-	16.0	1.11	15.7	12.7	96	0.05
	2A	-	28.9	1.81	22.7	19.6	147	0.05
	3	-	31.3	1.96	22.1	18.2	206	0.08
	3A	-	37.1	2.30	16.8	16.7	111	0.04
20	1-2	-	50.9	2.86	17.3	21.9	288	-
	3-4	-	60.6	4.08	22.6	28.0	369	-
	5-6	-	39.0	2.24	14.1	17.6	223	-
	7-8	-	51.6	3.25	21.6	25.7	299	-
	9-10	-	48.8	2.84	18.2	21.6	258	-
	11-12	-	34.4	2.21	13.2	15.8	221	-
	13-14	-	41.1	2.86	13.5	16.8	250	-
	15-16	-	32.0	1.81	11.5	14.0	281	-
	17-18	-	52.5	3.23	18.5	24.0	279	-
24	1-2	-	35.1	2.03	32.2	30.5	285	0.30
	3-4	-	36.1	2.03	48.9	41.3	330	0.23
	5-6	-	26.8	1.77	37.3	31.9	246	0.38
	7-8	-	61.2	3.09	77.8	66.6	487	0.36
	9-10	-	44.6	2.30	56.0	47.8	445	0.67
	11-12	-	59.3	2.90	81.3	68.4	608	0.50
	13-14	-	25.0	1.25	36.2	31.3	219	0.07
	15-16	-	39.6	1.75	53.4	46.1	376	0.53
	17-18	-	50.2	2.01	65.5	56.3	425	0.77
28	1 (2) ^a	662	32.6	2.23	29.3	36.4	388	0.32
	2	230	11.8	0.64	10.6	13.1	138	0.13
	3	295	16.0	0.85	14.3	17.3	189	0.22
	4	197	11.2	0.74	10.0	12.2	126	0.13
	5	233	11.8	0.70	11.0	13.6	141	0.12
	6	174	9.7	0.52	8.5	10.3	93	-
	7	224	10.7	-	9.8	12.0	129	-
	8	252	13.9	0.61	12.5	15.4	161	0.16
	9	311	15.0	1.13	13.3	16.3	168	0.22
	10	226	12.0	-	11.0	13.4	126	-
	11	269	13.3	0.72	12.3	15.1	151	0.13
	12	200	8.9	0.63	9.0	11.3	115	0.13
	1A	-	9.0	0.34	7.9	9.7	98	0.08
	2	-	8.3	0.47	8.0	9.8	100	0.07
	2A	-	16.3	0.91	16.4	20.0	202	0.26
	3	-	19.5	1.07	18.0	22.6	235	0.18
	3A	-	25.2	1.10	21.0	25.9	279	0.29

^aTwo particles counted.

Table 6.1-6. Inventories of heavy-metal nuclides found in
E11-07 fuel particles by alpha spectroscopy

Compact	Particle No.	Radionuclide concentration ($\mu\text{Ci}/\text{two particles}$)			
		^{233}U	^{238}Pu	^{241}Am	^{244}Cm
2	1-2	0.024	0.018	0.172	$< 9\text{E-}4$
13	2-3	0.030	0.0073	0.446	$< 2\text{E-}3$
16	1-2	0.035	0.76		$< 5\text{E-}4$
28	1A-2	0.027	0.019	0.124	$< 4\text{E-}4$

The procedure used to measure the heavy-metal nuclides was briefly as follows. The sample consisting of two particles that had been analyzed for gamma-emitters was dissolved in a Teflon-lined pressure vessel containing 8 M HNO_3 and a small amount of perchloric acid. The resulting solution was nearly evaporated, perchloric acid was added, and heating was continued to ensure that the plutonium was in the hexavalent state. The solution was made 6 M in HCl and quantitatively transferred to an anion exchange resin column; then a fraction containing the curium was eluted with 6 M HCl . Americium-241 and some of the daughters of ^{232}U , principally ^{228}Th and ^{244}Ra , also eluted with the curium. Curium-244 was measured by alpha spectroscopy after being separated from the other alpha-emitters on a LaF_3 precipitation. The plutonium in the column was eluted with a solution that was 4 M in HCl and 0.1 M in NH_4I . The iodide ion reduced the plutonium to Pu(III) . Uranium was then eluted with 0.01 M HCl . Plutonium-238 and ^{233}U were measured by alpha spectroscopy.

6.2 Metallographic Examination of Fuel Compacts*

Representative photomicrographs obtained from samples of fuel compacts 2, 18, and 29 are presented in this section. The reader should keep in mind that any such collection of photomicrographs would naturally overemphasize

* These examinations were performed by the Remote Metallography Group of the Metals and Ceramics Division in the High-Radiation-Level Examination Laboratory.

the failed particles or other nonnormal features since it is desired to display the modes of failure. Although a number of typical particles are included, one does not obtain a proper estimate of the failed fuel fraction by scanning through this series. Determinations of the failed particle fraction by a hot-chlorine leaching procedure are presented in Sect. 6.3.

The fuel particles in all Peach Bottom HTGR driver elements were of the type designated as BISO with kernels composed of mixed $(\text{Th,U})\text{C}_2$. Compacts 1 through 9 (numbered from the bottom of the core) and 27 through 30 were the so-called "standard compacts" with an initial Th/U ratio of 5.5 and no burnable poison. The central compacts, numbered 10 through 26, had the same amounts of thorium and uranium as did the standard compacts and, additionally, 1.03 g of rhodium per compact. More complete specifications of the fuel compacts are given in ref. 1 as well as in the summary presented in Sect. 2.2 of ref. 6. No migration rate studies were made on FO3-01 particles.

The photomicrographs (Figs. 6.2-1 through 6.2-26) are presented in three sets, one for each of the three compacts. The operating conditions for these three compacts at end of life may be observed from Figs. 2.2-2 and 2.2-3, where it is seen that compact 18 sustained the highest fast and thermal fluences and highest temperature. Compact 2 at end of life had the lowest temperature and neutron fluence.

While the neutron fluence profiles presented in Fig. 2.2-3 may be considered to be reasonably accurate, the temperatures presented in Fig. 2.2-2 are highly preliminary. At present, ongoing work at GAC is endeavoring to more accurately specify Peach Bottom fuel service temperatures.

Each of the three sets of photomicrographs begins with 50X collective views of polished sections of the compacts which were taken near the inside and outside diameters and at the midsection of the wall of the compacts; these views include about 6 to 12 fuel particles. The collective views depict the general condition of a few particles and the matrix graphite. Most of the photographs of single particles, which follow the collective views, were taken at 200X; however, a few were taken at 500X. Most pictures were made with normal lighting, although polarized light was used in a few cases.

Fig. 6.2-1. Collective view near inside diameter (left) and midsection (right) of compact 2. Magnification 50X.

Fig. 6.2-2. Collective view near outside diameter (left) and intact particle (right) near outer diameter of compact 2. Magnification: left, 50X; right, 200X.

Fig. 6.2-3. Remains of broken particle of compact 2 showing (left) buffer and pyrolytic graphite layers, and (right) distorted but intact particle. Magnification 200X.

Fig. 6.2-4. Intact particle of compact 2 shown in normal (left) and polarized (right) light. Magnification 200X.

R-69951

R-69935

50 100 MICRONS 200X
0.005 INCHES 0.010 0.015

50 100 MICRONS 200X
0.005 INCHES 0.010 0.015

Fig. 6.2-5. Intact particles of compact 2. Magnification 200X.

50 100 MICRONS 300 350
200X
0.005 INCHES 0.010 0.015

50 100 MICRONS 300 350
200X
0.005 INCHES 0.010 0.015

Fig. 6.2-6. Two intact particles of compact 2. Particle at right has abnormally small kernel and is in the path of a matrix crack. Magnification 200X.

R-69937

R-69946

50 100 MICRONS 200X
0.005 INCHES 0.010 0.015

50 100 MICRONS 200X
0.005 INCHES 0.010 0.015

Fig. 6.2-7. Particles of compact 2. Particle at right shows apparent beginning of coating crack. Magnification 200X.

R-69947

50 100 MICRONS 200X
0.005 INCHES 0.010 0.015

R-69950

50 100 MICRONS 200X
0.005 INCHES 0.010 0.015

Fig. 6.2-8. Severely cracked (left) and intact (right) particles of compact 2. Magnification 200X.

Fig. 6.2-9. Remains of cracked particle of compact 2 (right) and enlarged view of its particle coating (left). Magnification: left, 500X; right, 200X.

20 40 60 MICRONS 120 140
0.001 500X 0.005
INCHES

Fig. 6.2-10. Particle coating in compact 2. Magnification 500X.

Fig. 6.2-11. Collective views of compact 18 near inner diameter (left) and midsection (right). Magnification 50X.

75 150 MICRONS 450 525
0.005 150X INCHES 0.015

200 400 MICRONS 1200 1400
0.01 50X INCHES 0.05

Fig. 6.2-12. Collective view of compact 18 near outside diameter (right), and single particle with small kernel (left). Magnification: left, 150X; right, 50X.

R-70076

R-70063

75 150 MICRONS 450 525
0.005 150X INCHES 0.015

75 150 MICRONS 450 525
0.005 150X INCHES 0.015

Fig. 6.2-13. Single particle near outer diameter of compact 18 showing shrinkage around entire kernel viewed with normal (left) and polarized (right) light. Magnification 150X.

75 150 MICRONS 450 525
0.005 150X INCHES 0.015

75 150 MICRONS 450 525
0.005 150X INCHES 0.015

Fig. 6.2-14. Two particles near the outer diameter of compact 18 showing kernel and buffer separation. Magnification 150X.

50 100 300 350
MICRONS
200X
0.005 INCHES 0.010 0.015

50 100 300 350
MICRONS
200X
0.005 INCHES 0.010 0.015

Fig. 6.2-15. Particle near outside diameter of compact 18 viewed with polarized (left) and normal (right) light. Magnification 150X.

Fig. 6.2-16. Particle near midsection of compact 18 with crack through buffer. Magnification 150X.

75 150 MICRONS 450 525
0.005 150X INCHES 0.015

75 150 MICRONS 450 525
0.005 150X INCHES 0.015

Fig. 6.2-17. Particle near inner diameter of compact 18 with small kernel viewed with polarized (left) and normal (right) light. Magnification 150X.

Fig. 6.2-18. Graphite matrix and particle pyrocarbon near inner diameter of compact 18 viewed with polarized (left) and normal (right) light. Magnification 500X.

R-70075

R-70081

200 400 MICRONS 1200 1400
0.01 50X INCHES 0.05

200 400 MICRONS 1200 1400
0.01 50X INCHES 0.05

Fig. 6.2-19. Collective view of compact 29 near outside diameter (left) and inside diameter (right). Magnification 50X.

R-70079

200 400 MICRONS 1200 1400
0.01 50X INCHES 0.05

R-70082

50 100 MICRONS 300 350
0.005 200X INCHES 0.010 0.015

Fig. 6.2-20. Compact 29. Left, collective view near midsection shown at 50X; right, twin particle near outside diameter shown at 200X.

Fig. 6.2-21. Remains of broken particle at outside diameter of compact 29. Magnification 200X.

R-70073

50 100 MICRONS 200X 300 350
0.005 INCHES 0.010 0.015

R-70074

50 100 MICRONS 200X 300 350
0.005 INCHES 0.010 0.015

Fig. 6.2-22. Intact particle near outside diameter of compact 29 viewed with normal (left) and polarized (right) light. Magnification 200X.

Fig. 6.2-23. Intact particle near midsection of compact 29 viewed with polarized (left) and normal (right) light. Magnification 200X.

Fig. 6.2-24. Two particles at the inside diameter of compact 29 viewed under polarized (left) and normal (right) light. Magnification 200X.

Fig. 6.2-25. Intact particle near inside diameter of compact 29 viewed with polarized (left) and normal (right) light. Magnification 200X.

R-70088

20 40 60 MICRONS 100 120 140
0.001 500X INCHES 0.005

R-70087

20 40 60 MICRONS 100 120 140
0.001 500X INCHES 0.005

Fig. 6.2-26. Graphite matrix and particle pyrocarbon at inside diameter of compact 29 viewed with polarized (left) and normal (right) light. Magnification 500X.

6.3 Particle Coating Failure Fraction

Table 6.3-1 presents the results obtained for the fraction of particles that had coating failures in FO3-01 fuel. For comparison, the failure fractions previously reported² for fuel element Ell-07 and Peach Bottom archive fuel are tabulated. The failure fraction was determined by the hot-chlorine leaching method described in ref. 2 and was derived on the basis of both the thorium and the uranium that were leached from the sample. The calculated and measured Th/U ratios are also reported in Table 6.3-1. The calculated Th/U ratio was determined from data given in ref. 8. As may be noted, the failure fraction computed from the uranium leached from the sample is often significantly higher than the result based on thorium. The low result based on thorium is normally associated with a low value for the measured Th/U ratio. This effect is thought to be due to the fact that the volatility of thorium chloride is lower than that of uranium chloride, which results in incomplete collection of the thorium chloride vaporized from the sample. It should be noted that the high value obtained for the failure fraction on compact 3 was measured after this compact had been shipped to GAC for fission gas release measurements and then returned to ORNL. It is possible that some changes in the compact may have occurred during this period and later influenced the hot-chlorine leaching procedure, resulting in the high estimate of the failure fraction.

Table 6.3-1. Fraction of particles that had failed coatings in Peach Bottom fuel^a

Fuel element	Compact	Th/U ratio		Failed particle % based on	
		Calc. ^b	Meas.	Th	U
Ell-07	2	7.11	7.64	0.68	0.64
	13	7.82	4.83	0.25	0.41
	16	7.78	9.58	0.22	0.18
	28	6.94	3.68	0.33	0.63
FO3-01	2	6.51	3.54	0.17	0.31
	3	6.83	8.73	6.12	4.81
	13	8.17	6.80	1.55	1.87
	19	7.86	3.43	0.35	0.79
	28	6.46	5.43	0.27	0.33
Archive (av of 4)		5.50	5.47	0.28	0.28 ^c

^aDetermined by hot-chlorine leaching method described in ref. 2.

^bBased on data given in ref. 8.

^c0.18% due to matrix contamination.

7. REFERENCES

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• . APPENDIXES

8.1 Appendix A:* Measured Axial Distribution of
Gamma-Emitters in the Sleeve, Spine, and
Bottom Connector in Planes 1 and 2

Tables A-1 through A-18 list measured nuclide inventories along the axes of two planes of the sleeve, spine, and bottom connector in terms of curies per 3-in. segment. The listed "error" is the standard deviation in percent determined from the counting statistics. The designations (****), which occasionally appear in the "error" column, signify that an upper-limit value appears in the inventory column (see Sect. 4.2-2).

Table A-1. Axial distribution of ^{60}Co in the sleeve of element FO3-01
(corrected to October 31, 1974)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
1	0.25	7.19E-05	10.32	1.85E-04	5.43
2	0.49	4.02E-05	12.43	4.15E-05	11.74
3	0.74	2.84E-05	13.55	1.98E-05	17.55
4	0.99	2.33E-05	14.11	2.83E-05	13.44
5	1.23	2.76E-05	13.39	4.57E-05	10.97
6	1.48	1.52E-05	24.00	8.79E-05	6.90
7	1.72	2.57E-05	13.74	8.13E-05	7.62
8	1.97	2.85E-05	14.18	9.29E-05	6.68
9	2.22	2.64E-05	14.24	6.46E-05	7.86
10	2.46	2.21E-05	17.45	3.23E-05	12.41
11	2.71	2.19E-05	15.89	3.18E-05	12.07
12	2.95	3.61E-05	10.11	3.01E-05	13.25
13	3.20	2.42E-05	13.98	1.63E-05	25.62
14	3.44	1.98E-05	19.50	2.77E-05	14.14
15	3.69	2.70E-05	12.21	2.88E-05	13.18
16	3.94	2.46E-05	12.97	2.76E-05	12.88
17	4.18	1.30E-05	30.63	3.03E-05	14.84
18	4.43	3.05E-05	13.15	2.07E-05	19.98
19	4.67	2.47E-05	12.65	2.72E-05	15.71
20	4.92	2.56E-05	13.37	2.77E-05	16.20
21	5.17	2.68E-05	15.47	3.23E-05	13.44
22	5.41	2.58E-05	20.28	3.31E-05	15.11
23	5.66	3.57E-05	27.32	2.15E-05	36.06
24	5.90	5.14E-05	****	6.01E-05	17.13
25	6.15	4.69E-05	28.77	3.37E-05	21.28
26	6.40	3.25E-05	15.87	2.23E-05	17.92
27	6.64	2.82E-05	14.17	1.66E-05	26.68
28	6.89	3.72E-05	11.57	2.21E-05	19.04
29	7.13	3.31E-05	14.74	3.30E-05	13.63
30	7.38	2.72E-05	18.68	2.87E-05	15.81
31	7.62	3.03E-05	18.06	3.66E-05	12.11
32	7.87	2.60E-05	21.74	1.97E-05	23.84
33	8.12	4.16E-05	14.31	3.47E-05	13.40
34	8.36	3.00E-05	28.75	3.45E-05	18.21
35	8.61	3.97E-05	****	4.06E-05	27.26
36	8.85	8.91E-05	****	6.19E-05	37.89
37	9.10	1.35E-04	37.33	7.05E-05	****
38	9.35	7.68E-05	29.12	2.68E-05	****
39	9.59	5.65E-05	20.29	2.38E-05	****
40	9.84	2.81E-05	****	5.10E-05	21.11
41	10.08	3.95E-05	33.31	2.74E-05	****
42	10.33	4.74E-05	25.79	3.77E-05	28.17
43	10.58	4.05E-05	34.37	2.84E-05	****
44	10.82	5.11E-05	24.56	2.92E-05	31.20
45	11.07	5.63E-05	22.97	3.52E-05	30.06
46	11.31	3.46E-05	35.78	3.07E-05	****
47	11.56	3.77E-05	31.76	3.77E-05	33.26
48	11.81	6.83E-05	30.00	4.15E-05	****
49	12.05	5.14E-05	****	6.14E-05	****
50	12.30	5.00E-05	****	5.91E-05	27.54
51	12.54	4.43E-05	36.51	3.16E-05	****
52	12.79	4.98E-05	****	3.52E-05	38.69

Table A-1 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
53	13.03	5.56E-05	****	3.48E-05	****
54	13.28	5.16E-05	****	3.68E-05	****
55	13.53	5.03E-05	****	5.35E-05	29.66
56	13.77	5.98E-05	****	3.96E-05	****
57	14.02	5.44E-05	****	4.17E-05	****
58	14.26	9.94E-05	21.17	5.88E-05	30.41
59	14.51	9.33E-05	27.55	4.27E-05	****
60	14.76	7.26E-05	****	7.04E-05	38.04
61	15.00	8.85E-05	****	8.10E-05	****
62	15.25	7.93E-05	****	7.15E-05	39.02
63	15.49	6.82E-05	****	6.59E-05	34.82
64	15.74	1.04E-04	33.38	6.83E-05	****
65	15.99	1.05E-04	38.10	1.11E-04	28.31
66	16.23	9.45E-05	****	7.64E-05	****
67	16.48	1.07E-04	****	8.35E-05	****
68	16.72	1.19E-04	****	8.55E-05	****
69	16.97	1.27E-04	****	9.24E-05	****
70	17.22	1.79E-04	****	1.03E-04	****
71	17.46	2.01E-04	****	1.10E-04	****
72	17.71	1.80E-04	****	1.63E-04	****
73	17.95	2.77E-04	****	2.15E-04	****
74	18.20	2.90E-04	****	3.73E-04	26.56
75	18.44	2.06E-04	****	2.31E-04	****
76	18.69	2.49E-04	****	2.49E-04	****
77	18.94	2.66E-04	****	2.18E-04	****
78	19.18	2.03E-04	****	2.15E-04	****
79	19.43	2.70E-04	****	2.66E-04	****
80	19.67	2.70E-04	****	3.16E-04	****
81	19.92	3.11E-04	****	3.19E-04	****
82	20.17	2.75E-04	****	3.21E-04	****
83	20.41	3.50E-04	****	3.59E-04	****
84	20.66	4.29E-04	39.70	3.88E-04	****
85	20.90	3.78E-04	****	4.21E-04	****
86	21.15	4.75E-04	****	6.68E-04	38.21
87	21.40	4.03E-04	****	6.40E-04	****
88	21.64	3.53E-04	****	6.97E-04	****
89	21.89	4.35E-04	****	7.60E-04	****
90	22.13	4.72E-04	****	8.62E-04	****
91	22.38	5.31E-04	****	8.67E-04	****
92	22.62	6.13E-04	****	9.62E-04	****
93	22.87	6.91E-04	****	1.22E-03	****
94	23.12	8.53E-04	****	1.36E-03	****
95	23.36	1.07E-03	****	1.31E-03	****
96	23.61	1.11E-03	****	1.33E-03	****
97	23.85	1.23E-03	****	1.46E-03	****
98	24.10	1.53E-03	****	1.69E-03	****
99	24.35	1.65E-03	****	1.99E-03	****
100	24.59	1.49E-03	****	1.80E-03	****
101	24.84	1.74E-03	****	1.78E-03	****
102	25.08	2.19E-03	33.52	1.91E-03	****
103	25.33	1.66E-03	****	1.81E-03	****
104	25.58	1.46E-03	****	1.92E-03	****

Table A-1 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
105	25.82	1.70E-03	****	2.01E-03	****
106	26.07	1.55E-03	****	1.89E-03	****
107	26.31	1.54E-03	****	1.90E-03	****
108	26.56	1.67E-03	****	1.98E-03	****
109	26.81	1.66E-03	****	1.78E-03	****
110	27.05	1.60E-03	****	2.01E-03	****
111	27.30	1.57E-03	****	1.94E-03	****
112	27.54	1.43E-03	34.73	1.53E-03	****
113	27.79	1.02E-03	****	1.41E-03	****
114	28.03	1.09E-03	****	1.88E-03	31.48
115	28.28	1.00E-03	****	1.57E-03	****
116	28.53	8.98E-04	****	1.70E-03	****
117	28.77	1.25E-03	****	1.82E-03	****
118	29.02	2.11E-03	24.82	1.67E-03	****
119	29.26	1.17E-03	****	1.75E-03	****
120	29.51	1.18E-03	****	1.76E-03	****
121	29.76	1.22E-03	****	1.66E-03	****
122	30.19	9.35E-04	****	8.78E-04	34.51
123	30.43	1.84E-03	****	1.38E-03	****
124	30.68	1.57E-03	****	1.39E-03	****
125	30.92	1.44E-03	****	1.51E-03	****
126	31.17	1.67E-03	****	1.65E-03	****
127	31.42	1.61E-03	****	1.82E-03	****
128	31.66	1.80E-03	****	2.01E-03	****
129	31.91	1.94E-03	****	2.19E-03	****
130	32.15	1.89E-03	****	2.10E-03	****
131	32.40	2.27E-03	****	2.31E-03	****
132	32.65	2.44E-03	****	2.42E-03	****
133	32.89	2.80E-03	****	2.71E-03	****
134	33.14	3.42E-03	****	3.09E-03	****
135	33.38	3.11E-03	****	2.68E-03	****
136	33.63	3.14E-03	****	2.48E-03	****
137	33.88	2.97E-03	****	2.35E-03	****
138	34.12	3.12E-03	****	2.62E-03	****
139	34.37	3.03E-03	****	2.54E-03	****
140	34.61	2.93E-03	****	2.73E-03	****
141	34.86	2.89E-03	****	2.82E-03	****
142	35.11	3.00E-03	****	2.78E-03	****
143	35.35	2.71E-03	****	2.82E-03	****
144	35.60	2.69E-03	****	3.23E-03	****
145	35.84	2.75E-03	****	3.20E-03	****
146	36.09	2.86E-03	****	3.58E-03	****
147	36.33	2.85E-03	****	3.24E-03	****
148	36.58	2.41E-03	****	2.78E-03	38.27
149	36.83	2.30E-03	****	2.57E-03	32.72
150	37.07	2.32E-03	****	2.07E-03	****
151	37.32	2.27E-03	****	1.92E-03	****
152	37.56	2.25E-03	****	1.93E-03	****
153	37.81	2.13E-03	****	1.99E-03	****
154	38.06	2.16E-03	****	3.51E-03	23.83
155	38.30	2.18E-03	****	1.93E-03	****
156	38.55	2.10E-03	****	2.33E-03	38.19

Table A-1 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
157	38.79	2.01E-03	****	2.80E-03	29.20
158	39.04	2.30E-03	****	1.95E-03	****
159	39.29	2.20E-03	****	2.03E-03	****
160	39.53	2.20E-03	****	1.82E-03	****
161	39.78	2.14E-03	****	1.74E-03	****
162	40.02	1.92E-03	****	1.79E-03	****
163	40.27	1.91E-03	****	1.75E-03	****
164	40.52	3.32E-03	26.26	1.68E-03	****
165	40.76	2.12E-03	****	1.67E-03	****
166	41.01	2.29E-03	****	2.09E-03	34.96
167	41.25	2.37E-03	38.30	1.74E-03	****
168	41.50	3.10E-03	26.60	1.57E-03	****
169	41.74	1.91E-03	****	1.68E-03	****
170	41.99	1.77E-03	****	1.84E-03	****
171	42.24	2.25E-03	38.98	2.48E-03	****
172	42.48	2.12E-03	****	2.53E-03	****
173	42.73	2.99E-03	28.50	2.44E-03	****
174	42.97	2.33E-03	37.14	2.09E-03	****
175	43.22	2.10E-03	****	2.18E-03	****
176	43.47	1.89E-03	****	1.94E-03	****
177	43.71	2.42E-03	36.57	2.06E-03	****
178	43.96	1.94E-03	****	3.25E-03	28.14
179	44.20	2.08E-03	****	2.16E-03	****
180	44.45	1.96E-03	****	2.41E-03	****
181	44.70	1.74E-03	****	2.74E-03	37.57
182	44.94	1.96E-03	****	3.37E-03	32.75
183	45.19	2.95E-03	33.22	3.65E-03	34.27
184	45.43	3.89E-03	25.50	4.56E-03	26.60
185	45.68	3.91E-03	26.78	3.43E-03	34.77
186	45.93	3.61E-03	30.94	5.81E-03	19.29
187	46.17	3.95E-03	28.63	7.06E-03	15.92
188	46.42	6.55E-03	17.86	4.87E-03	24.67
189	46.66	1.00E-02	13.17	7.36E-03	15.39
190	46.91	9.94E-03	13.00	6.36E-03	16.05
191	47.15	1.00E-02	13.36	5.00E-03	22.43
192	47.40	7.23E-03	16.97	3.18E-03	35.31
193	47.65	1.00E-02	13.34	6.18E-03	16.71
194	47.89	1.22E-02	35.14	6.18E-03	17.61
195	48.14	1.13E-02	11.26	3.31E-03	35.75
196	48.38	1.49E-02	9.72	2.43E-03	****
197	48.63	9.10E-03	14.49	2.57E-03	****
198	48.88	3.96E-03	34.02	2.65E-03	****
199	49.12	6.63E-03	18.37	4.24E-03	31.38
200	49.37	6.75E-03	24.88	3.26E-03	****
201	49.61	8.54E-03	19.03	4.46E-03	35.54
202	49.86	6.68E-03	25.75	3.43E-03	****
203	50.11	5.57E-03	31.14	3.26E-03	****
204	50.35	4.62E-03	38.46	5.31E-03	25.80
205	50.60	1.00E-02	15.50	2.81E-03	****
206	50.84	7.01E-03	22.17	7.55E-03	16.57
207	51.09	1.10E-02	12.79	9.03E-03	15.82
208	51.33	8.44E-03	17.89	9.78E-03	15.49

Table A-1 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
209	51.58	1.45E-02	11.22	7.90E-03	22.68
210	51.83	1.47E-02	11.47	1.11E-02	15.02
211	52.07	1.44E-02	9.87	5.68E-03	29.83
212	52.32	1.26E-02	12.19	2.07E-02	9.53
213	52.56	1.40E-02	10.14	2.12E-02	10.06
214	52.81	1.13E-02	13.08	1.17E-02	18.82
215	53.06	1.25E-02	11.87	6.55E-03	31.52
216	53.30	1.41E-02	9.85	1.06E-02	17.88
217	53.55	4.34E-03	27.86	8.46E-03	22.00
218	53.79	6.85E-03	20.53	7.75E-03	21.07
219	54.04	7.67E-03	15.40	7.16E-03	22.56
220	54.29	8.22E-03	14.38	5.25E-03	26.49
221	54.53	5.52E-03	22.38	4.53E-03	32.70
222	54.78	2.97E-03	33.44	5.15E-03	31.26
223	55.02	3.38E-03	32.77	8.39E-03	17.22
224	55.27	5.86E-03	19.90	5.39E-03	26.51
225	55.52	8.44E-03	12.48	5.17E-03	27.10
226	55.76	3.40E-03	29.11	5.19E-03	23.79
227	56.01	3.15E-03	32.34	5.30E-03	23.96
228	56.25	1.20E-02	9.58	7.00E-03	18.79
229	56.50	1.61E-02	7.32	9.17E-03	13.10
230	56.74	1.88E-02	6.82	4.51E-03	26.44
231	56.99	1.52E-02	7.69	8.36E-03	14.51
232	57.24	1.08E-02	10.29	7.75E-03	16.21
233	57.48	7.49E-03	12.86	6.32E-03	20.95
234	57.73	2.84E-03	32.80	5.34E-03	25.45
235	57.97	7.32E-03	15.83	5.74E-03	23.57
236	58.22	3.53E-03	28.66	9.46E-03	14.53
237	58.47	7.01E-03	18.79	8.68E-03	16.39
238	58.71	6.14E-03	21.41	4.16E-03	36.51
239	58.96	6.01E-03	22.08	9.27E-03	15.82
240	59.20	3.78E-03	37.03	5.98E-03	24.14
241	59.45	6.93E-03	20.48	8.99E-03	15.93
242	59.70	3.76E-03	30.78	4.56E-03	33.10
243	59.94	6.59E-03	22.66	8.35E-03	16.73
244	60.37	8.24E-04	27.99	4.20E-04	****
245	60.62	5.41E-03	19.07	2.95E-03	30.13
246	60.86	7.80E-03	12.14	6.61E-03	18.45
247	61.11	8.94E-03	13.98	5.48E-03	23.79
248	61.36	6.95E-03	17.86	5.35E-03	23.00
249	61.60	4.63E-03	26.93	4.50E-03	25.43
250	61.85	5.49E-03	22.07	5.57E-03	19.94
251	62.09	4.66E-03	24.01	6.68E-03	15.47
252	62.34	4.14E-03	24.55	4.33E-03	24.50
253	62.59	3.52E-03	27.65	4.54E-03	19.78
254	62.83	5.44E-03	19.31	4.53E-03	22.34
255	63.08	7.01E-03	13.61	5.61E-03	16.45
256	63.32	8.90E-03	10.82	7.38E-03	14.34
257	63.57	1.44E-02	8.12	5.79E-03	17.30
258	63.82	9.81E-03	10.00	7.82E-03	12.62
259	64.06	6.90E-03	14.39	8.99E-03	11.06
260	64.31	5.57E-03	16.32	2.88E-03	27.45

Table A-1 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
261	64.55	3.14E-03	26.88	5.91E-03	13.78
262	64.80	5.87E-03	15.36	6.01E-03	13.63
263	65.04	4.39E-03	20.74	5.98E-03	13.64
264	65.29	4.76E-03	18.17	6.20E-03	14.18
265	65.54	6.12E-03	12.65	4.59E-03	18.34
266	65.78	6.06E-03	13.84	6.65E-03	12.09
267	66.03	8.77E-03	9.94	5.71E-03	14.07
268	66.27	6.46E-03	13.63	7.53E-03	10.85
269	66.52	6.99E-03	11.86	4.85E-03	16.95
270	66.77	6.99E-03	12.57	8.50E-03	10.44
271	67.01	6.86E-03	11.58	7.99E-03	10.30
272	67.26	4.35E-03	16.67	6.75E-03	12.62
273	67.50	4.27E-03	15.28	4.69E-03	16.78
274	67.75	3.43E-03	20.57	3.43E-03	20.59
275	68.00	2.63E-03	23.58	5.93E-03	12.36
276	68.24	2.46E-03	16.23	4.91E-03	14.50
277	68.49	2.66E-03	17.46	5.02E-03	14.33
278	68.73	3.05E-03	12.70	3.86E-03	17.60
279	68.98	5.51E-03	8.18	5.09E-03	16.03
280	69.23	6.88E-03	6.99	7.20E-03	11.98
281	69.47	1.55E-02	3.99	1.23E-02	7.50
282	69.72	2.90E-02	2.69	1.52E-02	6.72
283	69.96	2.93E-02	2.75	1.80E-02	6.12
284	70.21	4.99E-02	2.46	2.61E-02	4.85
285	70.45	2.51E-02	4.36	2.13E-02	5.15
286	70.70	1.82E-02	5.40	1.86E-02	5.64
287	70.95	1.46E-02	6.01	1.41E-02	7.35
288	71.19	1.12E-02	6.85	1.49E-02	6.27
289	71.44	6.09E-03	10.22	1.39E-02	4.15
290	71.68	7.83E-03	7.02	1.14E-02	4.57
291	71.93	8.30E-03	5.82	8.40E-03	5.42
292	72.18	8.81E-03	5.27	7.93E-03	5.55
293	72.42	6.56E-03	6.00	8.90E-03	5.15
294	72.67	5.75E-03	6.91	6.44E-03	6.34
295	72.91	7.52E-03	5.30	7.68E-03	5.13
296	73.16	3.99E-03	9.25	4.39E-03	8.20
297	73.41	3.92E-03	11.10	3.83E-03	9.28
298	73.65	6.66E-03	7.81	5.09E-03	7.57
299	73.90	6.46E-03	8.77	6.07E-03	6.86
300	74.14	7.31E-03	7.90	5.79E-03	8.11
301	74.39	7.84E-03	7.35	5.18E-03	9.15
302	74.63	6.90E-03	7.00	6.84E-03	6.74
303	74.88	5.52E-03	7.60	6.34E-03	6.61
304	75.13	5.94E-03	6.07	5.91E-03	6.91
305	75.37	6.03E-03	5.48	6.40E-03	5.90
306	75.62	5.11E-03	6.50	3.39E-03	9.56
307	75.86	5.36E-03	5.51	3.50E-03	8.38
308	76.11	4.38E-03	6.51	4.94E-03	6.00
309	76.36	2.37E-03	10.28	3.18E-03	7.84
310	76.60	3.11E-03	8.61	4.62E-03	6.03
311	76.85	3.07E-03	8.13	3.79E-03	7.98
312	77.09	3.23E-03	7.70	3.91E-03	7.61

Table A-1 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
313	77.34	2.92E-03	7.97	4.75E-03	6.41
314	77.59	1.95E-03	11.66	3.46E-03	8.49
315	77.83	2.68E-03	8.10	3.11E-03	8.40
316	78.08	2.73E-03	5.08	2.70E-03	8.23
317	78.32	3.04E-03	4.49	3.84E-03	6.14
318	78.57	2.83E-03	4.65	3.01E-03	4.17
319	78.82	3.53E-03	3.73	3.38E-03	3.79
320	79.06	4.30E-03	3.21	5.16E-03	2.86
321	79.31	4.37E-03	3.08	5.59E-03	2.76
322	79.55	6.17E-03	2.31	6.04E-03	2.56
323	79.80	6.47E-03	2.12	4.91E-03	2.75
324	80.04	6.25E-03	2.06	4.45E-03	2.71
325	80.29	5.80E-03	2.10	4.58E-03	2.54
326	80.54	5.14E-03	2.27	5.66E-03	2.09
327	80.78	5.21E-03	2.14	5.42E-03	2.11
328	81.03	4.79E-03	2.26	4.86E-03	2.18
329	81.27	4.51E-03	2.35	4.83E-03	2.17
330	81.52	3.98E-03	2.45	5.14E-03	2.07
331	81.77	3.95E-03	2.41	4.77E-03	2.13
332	82.01	4.15E-03	2.38	4.13E-03	2.31
333	82.26	3.92E-03	2.40	3.34E-03	2.53
334	82.50	3.75E-03	2.49	2.11E-03	3.48
335	82.75	3.79E-03	2.44	2.45E-03	3.27
336	83.00	3.25E-03	2.54	2.59E-03	2.91
337	83.24	2.14E-03	3.16	2.07E-03	3.47
338	83.49	1.79E-03	3.35	2.03E-03	3.26
339	83.73	1.33E-03	4.12	1.88E-03	3.16
340	83.98	1.43E-03	3.75	1.48E-03	3.63
341	84.22	1.43E-03	2.08	1.72E-03	1.78
342	84.47	1.51E-03	1.91	1.70E-03	1.73
343	84.72	1.84E-03	1.70	1.70E-03	1.72
344	84.96	2.32E-03	1.48	2.25E-03	1.44
345	85.21	1.51E-03	2.02	1.94E-03	1.56
346	85.45	1.02E-03	2.31	9.80E-04	2.22
347	85.70	9.45E-04	2.33	6.20E-04	2.97
348	85.95	8.28E-04	2.47	5.84E-04	2.94
349	86.19	6.26E-04	2.86	5.73E-04	2.91
350	86.44	5.12E-04	3.22	5.55E-04	2.99
351	86.68	4.77E-04	3.23	5.99E-04	2.74
352	86.93	5.04E-04	3.15	5.45E-04	2.98
353	87.18	3.45E-04	4.01	5.37E-04	3.00
354	87.42	3.65E-04	3.67	5.66E-04	2.77
355	87.67	3.26E-04	3.81	5.02E-04	2.93
356	87.91	3.04E-04	3.85	4.71E-04	2.96
357	88.16	2.62E-04	4.48	4.65E-04	2.97
358	88.41	1.94E-04	5.16	3.01E-04	3.90
359	88.65	1.54E-04	6.29	2.17E-04	4.61
360	88.90	1.27E-04	7.15	1.65E-04	5.93
361	89.14	1.38E-04	6.45	1.57E-04	5.63
362	89.39	1.42E-04	6.08	1.86E-04	5.47
363	89.63	1.17E-04	7.72	1.74E-04	5.91
364	89.88	1.32E-04	6.73	1.94E-04	5.34

Table A-2. Axial distribution of ^{60}Co in the spine of element F03-01
(corrected to October 31, 1974)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
1	0.25	1.03E-04	11.86	6.67E-05	14.36
2	0.49	7.80E-05	14.36	9.16E-05	12.02
3	0.74	9.52E-05	11.54	4.68E-05	25.14
4	0.99	1.11E-04	11.56	5.97E-05	20.44
5	1.23	1.13E-04	12.60	1.14E-04	11.36
6	1.48	1.54E-04	10.13	1.19E-04	11.83
7	1.72	1.88E-04	9.00	1.43E-04	10.65
8	1.97	1.88E-04	10.36	7.86E-05	22.53
9	2.22	1.65E-04	12.53	1.82E-04	10.02
10	2.46	2.04E-04	10.96	1.95E-04	10.88
11	2.71	2.42E-04	10.30	2.36E-04	9.20
12	2.95	2.06E-04	13.34	2.21E-04	10.72
13	3.20	3.00E-04	10.21	2.59E-04	9.84
14	3.44	2.32E-04	14.43	3.30E-04	7.69
15	3.69	3.93E-04	9.65	3.50E-04	8.27
16	3.94	1.25E-04	29.53	2.84E-04	10.92
17	4.18	4.54E-04	10.83	3.11E-04	10.62
18	4.43	2.02E-04	23.75	2.83E-04	12.56
19	4.67	5.29E-04	11.00	4.95E-04	8.08
20	4.92	4.32E-04	14.60	2.13E-04	18.82
21	5.17	2.91E-04	19.96	4.26E-04	10.94
22	5.41	2.70E-04	20.02	5.52E-04	13.59
23	5.66	1.15E-04	38.44	4.98E-04	15.46
24	5.90	6.87E-04	15.42	2.65E-04	28.75
25	6.15	3.75E-04	27.39	5.98E-04	13.24
26	6.40	6.46E-04	15.17	5.91E-04	13.08
27	6.64	5.92E-04	16.62	5.09E-04	16.04
28	6.89	4.48E-04	23.26	6.82E-04	12.25
29	7.13	6.57E-04	17.59	6.83E-04	12.85
30	7.38	5.44E-04	21.64	5.77E-04	14.27
31	7.62	5.86E-04	17.31	5.91E-04	15.95
32	7.87	7.24E-04	15.22	5.78E-04	15.42
33	8.12	5.65E-04	20.26	4.76E-04	19.90
34	8.36	4.51E-04	23.33	5.47E-04	20.30
35	8.61	6.92E-04	17.59	5.85E-04	14.92
36	8.85	5.50E-04	19.05	5.74E-04	17.28
37	9.10	6.56E-04	17.42	6.18E-04	15.29
38	9.35	7.62E-04	14.16	5.35E-04	21.08
39	9.59	7.34E-04	16.26	6.44E-04	16.22
40	9.84	6.12E-04	22.16	4.53E-04	24.26
41	10.08	7.71E-04	21.68	7.50E-04	14.20
42	10.33	8.55E-04	15.18	4.59E-04	22.27
43	10.58	9.53E-04	11.61	5.48E-04	19.88
44	10.82	9.13E-04	12.07	7.53E-04	14.62
45	11.07	7.36E-04	14.58	7.19E-04	15.35
46	11.31	9.30E-04	12.51	6.40E-04	21.73
47	11.56	5.89E-04	17.32	8.34E-04	15.24
48	11.81	6.51E-04	16.01	7.00E-04	17.73
49	12.05	8.17E-04	12.08	4.49E-04	31.63
50	12.30	5.12E-04	19.71	4.82E-04	29.11
51	12.54	6.74E-04	14.93	7.97E-04	17.88
52	12.79	3.68E-04	25.46	4.94E-04	30.91

Table A-2 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
53	13.03	4.34E-04	21.90	4.95E-04	26.98
54	13.28	5.50E-04	19.04	7.61E-04	17.66
55	13.53	5.45E-04	17.46	5.73E-04	27.36
56	13.77	7.50E-04	13.76	5.42E-04	27.16
57	14.02	5.13E-04	20.41	6.35E-04	20.96
58	14.26	9.13E-04	12.44	7.64E-04	19.21
59	14.51	5.22E-04	22.42	6.82E-04	22.73
60	14.76	6.52E-04	18.28	4.80E-04	30.69
61	15.00	8.92E-04	14.87	6.49E-04	24.64
62	15.25	7.23E-04	15.65	4.99E-04	34.15
63	15.49	3.50E-04	27.50	3.79E-04	****
64	15.74	4.49E-04	22.61	9.48E-04	17.12
65	15.99	7.03E-04	15.50	7.87E-04	20.44
66	16.23	9.72E-04	13.06	9.41E-04	16.54
67	16.48	8.45E-04	14.32	6.22E-04	25.96
68	16.72	7.41E-04	16.68	7.45E-04	20.72
69	16.97	8.11E-04	14.86	5.93E-04	26.31
70	17.22	5.51E-04	18.43	8.06E-04	19.44
71	17.46	7.09E-04	15.12	8.93E-04	17.51
72	17.71	6.36E-04	15.92	1.04E-03	16.36
73	17.95	4.91E-04	22.23	6.02E-04	28.68
74	18.20	7.75E-04	15.39	5.22E-04	33.18
75	18.44	5.54E-04	24.52	7.04E-04	21.94
76	18.69	5.26E-04	21.53	7.05E-04	22.52
77	18.94	6.10E-04	21.66	8.12E-04	17.24
78	19.18	9.04E-04	13.69	4.71E-04	31.11
79	19.43	8.66E-04	13.01	6.37E-04	23.50
80	19.67	2.75E-04	37.93	6.33E-04	23.36
81	19.92	3.46E-04	32.21	6.61E-04	22.59
82	20.17	7.56E-04	14.38	7.81E-04	19.67
83	20.41	6.09E-04	19.25	4.14E-04	34.61
84	20.66	5.47E-04	22.59	4.45E-04	33.47
85	20.90	6.36E-04	21.21	7.28E-04	20.25
86	21.15	6.33E-04	20.18	3.61E-04	****
87	21.40	6.69E-04	19.57	4.89E-04	34.22
88	21.64	5.57E-04	25.49	4.75E-04	34.16
89	21.89	3.43E-04	35.36	5.25E-04	29.74
90	22.13	5.98E-04	24.96	3.79E-04	****
91	22.38	4.24E-04	33.98	5.06E-04	37.07
92	22.62	3.62E-04	39.84	5.49E-04	34.73
93	22.87	1.21E-03	14.36	7.74E-04	25.32
94	23.12	1.52E-03	12.27	9.98E-04	22.41
95	23.36	1.74E-03	12.60	1.43E-03	16.77
96	23.61	1.72E-03	15.40	8.73E-04	28.26
97	23.85	2.52E-03	11.66	3.12E-03	12.90
98	24.10	3.39E-03	12.73	3.16E-03	11.86
99	24.35	7.34E-03	6.79	3.08E-03	12.50
100	24.59	8.63E-03	6.69	3.12E-03	12.74
101	24.84	7.14E-03	7.31	2.03E-03	20.80
102	25.08	4.05E-03	10.57	3.13E-03	12.59
103	25.33	2.87E-03	14.12	1.51E-03	24.84
104	25.58	1.80E-03	20.43	2.19E-03	17.10

Table A-2 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
105	25.82	1.85E-03	20.18	1.91E-03	16.73
106	26.07	2.06E-03	17.16	1.91E-03	18.75
107	26.31	1.08E-03	32.42	1.83E-03	15.88
108	26.56	1.50E-03	19.83	1.08E-03	28.35
109	26.81	7.62E-04	36.90	1.21E-03	22.09
110	27.05	1.04E-03	27.96	9.54E-04	30.56
111	27.30	8.01E-04	36.31	7.17E-04	****
112	27.54	7.08E-04	****	6.99E-04	36.87
113	27.79	1.23E-03	19.59	6.69E-04	35.30
114	28.03	7.76E-04	****	6.27E-04	****
115	28.28	1.06E-03	27.96	6.96E-04	36.87
116	28.53	6.65E-04	****	6.15E-04	****
117	28.77	8.15E-04	36.36	5.75E-04	****
118	29.02	8.37E-04	38.64	7.17E-04	37.45
119	29.26	1.30E-03	25.18	8.39E-04	29.61
120	29.51	9.25E-04	33.91	8.47E-04	33.30
121	29.94	2.49E-03	****	1.61E-03	****
122	30.19	1.53E-03	25.60	1.31E-03	31.41
123	30.43	9.66E-04	32.92	7.33E-04	****
124	30.68	8.27E-04	34.15	1.26E-03	25.90
125	30.92	1.64E-03	22.17	8.62E-04	****
126	31.17	2.22E-03	17.60	1.39E-03	24.92
127	31.42	3.31E-03	12.86	9.21E-04	****
128	31.66	2.34E-03	19.44	1.57E-03	24.62
129	31.91	1.86E-03	25.63	1.34E-03	32.64
130	32.15	1.82E-03	26.37	9.65E-04	****
131	32.40	2.08E-03	20.48	1.39E-03	31.40
132	32.65	1.52E-03	28.32	9.43E-04	****
133	32.89	1.90E-03	21.80	1.82E-03	22.87
134	33.14	1.75E-03	24.60	9.23E-04	****
135	33.38	2.59E-03	15.04	8.28E-04	****
136	33.63	2.69E-03	15.22	1.52E-03	22.60
137	33.88	1.19E-03	33.17	1.32E-03	27.80
138	34.12	2.14E-03	22.00	8.74E-04	****
139	34.37	1.86E-03	23.11	1.75E-03	22.72
140	34.61	1.52E-03	31.80	9.60E-04	****
141	34.86	1.13E-03	33.92	1.03E-03	38.68
142	35.11	3.33E-03	14.95	1.09E-03	33.18
143	35.35	2.51E-03	16.93	8.74E-04	****
144	35.60	3.11E-03	16.22	1.99E-03	17.79
145	35.84	4.74E-03	9.69	2.57E-03	15.83
146	36.09	3.86E-03	13.28	1.14E-03	34.70
147	36.33	4.44E-03	11.60	3.52E-03	14.49
148	36.58	2.10E-03	26.35	3.48E-03	13.26
149	36.83	4.50E-03	11.26	2.63E-03	18.26
150	37.07	2.53E-03	17.99	3.01E-03	14.08
151	37.32	3.10E-03	14.37	3.28E-03	13.83
152	37.56	2.90E-03	16.10	4.51E-03	9.96
153	37.81	1.78E-03	25.16	3.47E-03	13.34
154	38.06	3.46E-03	12.99	2.91E-03	16.23
155	38.30	4.19E-03	11.13	2.26E-03	18.33
156	38.55	2.93E-03	13.58	1.96E-03	21.34

Table A-2 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
157	38.79	2.62E-03	18.12	2.75E-03	13.50
158	39.04	2.68E-03	16.75	2.05E-03	15.67
159	39.29	2.88E-03	14.59	1.59E-03	21.97
160	39.53	1.85E-03	24.50	1.99E-03	17.51
161	39.78	2.80E-03	14.50	1.57E-03	23.71
162	40.02	2.21E-03	19.13	8.90E-04	38.70
163	40.27	2.46E-03	17.67	1.64E-03	21.35
164	40.52	3.53E-03	12.32	2.03E-03	17.88
165	40.76	2.78E-03	15.53	1.85E-03	18.09
166	41.01	3.14E-03	13.27	1.00E-03	33.86
167	41.25	2.72E-03	16.49	2.36E-03	14.34
168	41.50	3.57E-03	11.78	1.03E-03	33.10
169	41.74	1.91E-03	21.52	2.04E-03	16.64
170	41.99	3.03E-03	11.67	1.47E-03	22.62
171	42.24	2.96E-03	13.38	2.39E-03	15.47
172	42.48	3.31E-03	12.89	2.15E-03	17.79
173	42.73	3.29E-03	11.65	2.32E-03	15.31
174	42.97	2.51E-03	15.48	1.81E-03	20.02
175	43.22	3.28E-03	12.26	2.51E-03	14.13
176	43.47	3.51E-03	11.79	1.16E-03	31.86
177	43.71	3.27E-03	12.40	1.93E-03	19.59
178	43.96	3.28E-03	12.54	3.47E-03	11.21
179	44.20	3.89E-03	10.91	2.97E-03	12.96
180	44.45	4.28E-03	11.01	3.46E-03	12.11
181	44.70	3.95E-03	11.87	4.11E-03	11.08
182	44.94	5.13E-03	8.86	4.71E-03	10.14
183	45.19	6.27E-03	8.30	4.63E-03	10.29
184	45.43	7.08E-03	7.65	5.36E-03	8.93
185	45.68	6.00E-03	9.31	6.85E-03	7.10
186	45.93	8.49E-03	6.76	6.27E-03	8.85
187	46.17	8.04E-03	6.89	8.40E-03	6.79
188	46.42	7.36E-03	7.61	5.41E-03	9.62
189	46.66	6.98E-03	7.96	7.56E-03	7.16
190	46.91	5.69E-03	9.91	1.42E-03	37.88
191	47.15	5.87E-03	8.49	6.52E-03	7.82
192	47.40	4.17E-03	12.81	6.33E-03	8.33
193	47.65	4.83E-03	10.57	5.27E-03	9.65
194	47.89	5.12E-03	9.53	4.55E-03	10.61
195	48.14	4.56E-03	10.86	5.53E-03	8.39
196	48.38	3.46E-03	14.39	3.69E-03	14.00
197	48.63	3.65E-03	12.94	4.62E-03	9.63
198	48.88	2.04E-03	20.97	3.23E-03	13.84
199	49.12	2.35E-03	17.35	2.27E-03	18.18
200	49.37	1.45E-03	25.94	2.74E-03	14.51
201	49.61	1.84E-03	21.31	1.11E-03	37.24
202	49.86	1.61E-03	23.18	1.49E-03	24.29
203	50.11	1.85E-03	19.76	8.73E-04	****
204	50.35	8.42E-04	****	1.54E-03	22.27
205	50.60	1.02E-03	30.97	1.39E-03	22.25
206	50.84	1.26E-03	28.07	1.77E-03	15.52
207	51.09	9.81E-04	31.74	1.14E-03	23.53
208	51.33	9.23E-04	33.33	1.26E-03	21.60

Table A-2 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
209	51.58	6.81E-04	****	7.47E-04	37.79
210	51.83	6.81E-04	****	8.42E-04	29.73
211	52.07	5.42E-04	****	5.69E-04	****
212	52.32	6.02E-04	39.02	5.14E-04	****
213	52.56	5.50E-04	35.99	4.67E-04	****
214	52.81	4.39E-04	****	4.17E-04	****
215	53.06	4.70E-04	****	4.13E-04	****
216	53.30	6.16E-04	26.62	4.35E-04	****
217	53.55	5.30E-04	31.93	4.18E-04	35.19
218	53.79	7.21E-04	25.23	4.76E-04	34.40
219	54.04	6.59E-04	25.21	4.07E-04	****
220	54.29	4.92E-04	36.00	5.21E-04	31.93
221	54.53	3.78E-04	****	6.25E-04	25.90
222	54.78	6.54E-04	21.32	3.52E-04	****
223	55.02	5.47E-04	26.36	3.44E-04	****
224	55.27	3.56E-04	****	4.23E-04	31.28
225	55.52	3.84E-04	****	5.17E-04	21.32
226	55.76	3.43E-04	****	4.00E-04	****
227	56.01	3.20E-04	****	3.01E-04	****
228	56.25	3.29E-04	****	4.42E-04	33.77
229	56.50	3.25E-04	33.41	3.50E-04	****
230	56.74	3.69E-04	****	2.96E-04	****
231	56.99	3.71E-04	****	2.96E-04	****
232	57.24	4.14E-04	****	2.97E-04	****
233	57.48	3.75E-04	****	5.11E-04	37.36
234	57.73	4.33E-04	****	3.90E-04	****
235	57.97	4.05E-04	****	4.32E-04	****
236	58.22	6.41E-04	32.39	3.20E-04	****
237	58.47	5.60E-04	****	6.06E-04	22.87
238	58.71	5.18E-04	****	6.43E-04	26.61
239	58.96	6.34E-04	****	5.78E-04	****
240	59.20	8.19E-04	****	6.38E-04	****
241	59.64	2.81E-04	****	2.39E-04	****
242	59.88	8.92E-04	****	9.43E-04	****
243	60.13	6.23E-04	****	5.61E-04	****
244	60.37	6.89E-04	****	5.67E-04	****
245	60.62	6.23E-04	****	7.99E-04	22.92
246	60.86	6.96E-04	****	5.18E-04	****
247	61.11	4.95E-04	****	5.78E-04	33.44
248	61.36	5.59E-04	****	4.67E-04	****
249	61.60	4.91E-04	****	3.90E-04	****
250	61.85	5.54E-04	****	3.24E-04	39.74
251	62.09	3.98E-04	****	3.05E-04	****
252	62.34	3.83E-04	****	3.02E-04	****
253	62.59	3.49E-04	****	2.89E-04	****
254	62.83	3.24E-04	****	2.89E-04	****
255	63.08	3.07E-04	****	2.58E-04	39.85
256	63.32	2.90E-04	****	2.52E-04	****
257	63.57	3.79E-04	28.38	2.15E-04	****
258	63.82	2.46E-04	****	2.32E-04	****
259	64.06	2.38E-04	****	1.79E-04	****
260	64.31	2.10E-04	****	2.02E-04	****

Table A-2 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
261	64.55	2.06E-04	****	1.89E-04	****
262	64.80	2.05E-04	****	1.86E-04	****
263	65.04	1.95E-04	****	1.56E-04	****
264	65.29	1.91E-04	****	1.53E-04	****
265	65.54	1.77E-04	****	1.60E-04	****
266	65.78	1.79E-04	****	1.41E-04	****
267	66.03	1.45E-04	****	1.58E-04	****
268	66.27	1.47E-04	****	1.49E-04	****
269	66.52	1.03E-04	****	1.31E-04	****
270	66.77	1.54E-04	27.63	1.47E-04	34.09
271	67.01	1.11E-04	39.75	1.07E-04	****
272	67.26	9.72E-05	****	1.30E-04	37.76
273	67.50	1.47E-04	28.00	1.55E-04	28.67
274	67.75	1.86E-04	19.87	1.15E-04	39.58
275	68.00	8.73E-05	****	1.37E-04	31.89
276	68.24	1.22E-04	34.72	1.35E-04	32.77
277	68.49	1.10E-04	****	1.71E-04	28.06
278	68.73	2.07E-04	21.36	2.14E-04	19.94
279	68.98	2.71E-04	14.24	2.43E-04	16.40
280	69.23	2.97E-04	12.48	3.93E-04	9.37
281	69.47	3.59E-04	11.29	4.46E-04	10.05
282	69.72	7.06E-04	6.97	9.25E-04	4.84
283	69.96	9.32E-04	5.88	1.22E-03	4.36
284	70.21	1.73E-03	3.56	1.69E-03	3.38
285	70.45	1.89E-03	3.28	2.40E-03	2.63
286	70.70	2.21E-03	3.00	2.68E-03	2.57
287	70.95	2.55E-03	2.71	3.18E-03	2.26
288	71.19	3.07E-03	2.35	3.44E-03	2.18
289	71.44	3.20E-03	2.35	3.92E-03	2.04
290	71.68	3.66E-03	2.12	4.15E-03	1.97
291	71.93	4.03E-03	2.04	4.91E-03	1.74
292	72.18	4.44E-03	1.94	5.06E-03	1.71
293	72.42	4.78E-03	1.81	5.43E-03	1.69
294	72.67	5.07E-03	1.75	5.51E-03	1.67
295	72.91	5.17E-03	1.76	5.90E-03	1.59
296	73.16	5.31E-03	1.75	6.07E-03	1.53
297	73.41	5.43E-03	1.78	5.43E-03	1.72
298	73.65	5.45E-03	1.85	5.39E-03	1.73
299	73.90	4.84E-03	2.16	4.62E-03	2.01
300	74.14	4.45E-03	2.34	4.75E-03	1.88
301	74.39	3.90E-03	2.62	3.96E-03	2.11
302	74.63	3.97E-03	2.48	3.40E-03	2.35
303	74.88	3.67E-03	2.43	3.49E-03	2.30
304	75.13	3.39E-03	2.52	3.70E-03	2.08
305	75.37	3.16E-03	2.57	3.49E-03	2.07
306	75.62	2.85E-03	2.57	3.32E-03	2.04
307	75.86	2.65E-03	2.45	2.96E-03	2.11
308	76.11	2.35E-03	2.52	2.62E-03	2.15
309	76.36	1.86E-03	2.78	2.04E-03	2.46
310	76.60	1.55E-03	3.05	1.45E-03	3.00
311	76.85	1.31E-03	3.49	1.18E-03	3.34
312	77.09	1.35E-03	3.26	1.08E-03	3.53

Table A-2 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
313	77.34	1.24E-03	3.59	1.20E-03	3.17
314	77.59	1.27E-03	3.36	1.23E-03	3.08
315	77.83	1.39E-03	3.15	1.38E-03	2.80
316	78.08	1.61E-03	2.72	1.48E-03	2.87
317	78.32	1.88E-03	2.42	1.76E-03	1.35
318	78.57	2.16E-03	1.20	2.10E-03	1.25
319	78.82	2.47E-03	1.12	3.77E-03	2.02
320	79.06	2.76E-03	1.05	2.67E-03	1.06
321	79.31	2.98E-03	1.01	2.91E-03	1.02
322	79.55	3.04E-03	0.99	2.89E-03	1.02
323	79.80	2.80E-03	1.02	2.58E-03	1.08
324	80.04	2.45E-03	1.08	2.34E-03	1.10
325	80.29	2.27E-03	1.11	2.13E-03	1.15
326	80.54	2.08E-03	1.15	1.97E-03	1.19
327	80.78	1.84E-03	1.25	1.83E-03	1.23
328	81.03	1.90E-03	1.17	1.77E-03	1.22
329	81.27	1.88E-03	1.16	1.74E-03	1.22
330	81.52	1.92E-03	1.14	1.73E-03	1.21
331	81.77	1.97E-03	1.11	1.84E-03	1.16
332	82.01	2.21E-03	1.05	2.12E-03	1.06
333	82.26	2.50E-03	0.99	2.44E-03	1.00
334	82.50	2.77E-03	0.95	2.65E-03	0.98
335	82.75	2.75E-03	0.97	2.61E-03	0.99
336	83.00	2.48E-03	1.01	2.38E-03	1.03
337	83.24	2.10E-03	1.10	2.05E-03	1.10
338	83.49	1.73E-03	1.20	1.66E-03	1.22
339	83.73	1.48E-03	1.26	1.44E-03	1.27
340	83.98	1.30E-03	1.34	1.24E-03	1.38
341	84.22	1.17E-03	1.40	1.11E-03	1.44
342	84.47	1.10E-03	1.43	1.05E-03	1.47
343	84.72	1.11E-03	1.41	9.98E-04	1.53
344	84.96	1.37E-03	1.26	1.22E-03	1.36
345	85.21	2.02E-03	1.03	1.83E-03	1.08
346	85.45	3.09E-03	0.84	2.58E-03	0.91
347	85.70	3.60E-03	0.78	2.92E-03	0.86
348	85.95	3.57E-03	0.78	2.64E-03	0.91
349	86.19	3.07E-03	0.84	2.37E-03	0.94
350	86.44	2.57E-03	0.91	1.93E-03	1.05
351	86.68	2.03E-03	1.02	1.53E-03	1.18
352	86.93	1.59E-03	1.15	1.27E-03	1.29
353	87.18	1.30E-03	1.26	1.03E-03	1.41
354	87.42	1.04E-03	1.40	8.17E-04	1.58
355	87.67	7.61E-04	1.65	5.47E-04	2.01
356	87.91	5.73E-04	1.88	4.04E-04	2.39
357	88.16	3.99E-04	2.36	3.36E-04	2.46
358	88.41	2.84E-04	2.79	2.53E-04	2.81
359	88.65	1.70E-04	3.66	1.43E-04	4.05
360	88.90	1.55E-04	3.58	1.24E-04	4.37

Table A-3. Axial distribution of ^{110m}Ag in the sleeve of element FO3-01
(corrected to October 31, 1974)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
1	0.25	2.69E-04	34.34	5.23E-04	11.40
2	0.49	2.70E-04	18.25	1.52E-04	20.12
3	0.74	1.87E-04	24.32	1.21E-04	17.65
4	0.99	1.04E-04	****	1.05E-04	26.83
5	1.23	2.24E-04	23.83	1.17E-04	19.86
6	1.48	2.14E-04	19.99	1.51E-04	16.32
7	1.72	1.12E-04	****	2.03E-04	14.73
8	1.97	1.71E-04	31.58	8.22E-05	30.75
9	2.22	1.78E-04	29.18	1.72E-04	14.77
10	2.46	2.61E-04	18.79	1.10E-04	22.38
11	2.71	3.59E-04	15.30	1.80E-04	15.78
12	2.95	2.68E-04	21.17	5.03E-04	7.57
13	3.20	2.24E-04	21.77	2.96E-04	10.88
14	3.44	2.60E-04	16.77	1.19E-04	22.42
15	3.69	3.14E-04	16.25	2.60E-04	9.81
16	3.94	2.27E-04	23.66	2.98E-04	10.48
17	4.18	3.25E-04	16.10	2.24E-04	13.84
18	4.43	3.08E-04	17.15	1.73E-04	14.29
19	4.67	2.01E-04	25.53	1.59E-04	18.42
20	4.92	2.96E-04	21.52	1.40E-04	22.76
21	5.17	2.54E-04	23.33	8.42E-05	****
22	5.41	4.19E-04	23.48	4.93E-04	8.63
23	5.66	2.88E-03	8.59	4.08E-03	2.69
24	5.90	8.38E-03	7.26	9.74E-03	1.74
25	6.15	4.39E-03	7.92	4.23E-03	2.48
26	6.40	3.21E-04	30.66	4.74E-04	8.42
27	6.64	2.10E-04	35.84	3.30E-04	10.20
28	6.89	3.03E-04	26.34	3.53E-04	9.82
29	7.13	2.58E-04	34.57	2.14E-04	19.03
30	7.38	4.43E-04	23.45	1.53E-04	28.05
31	7.62	3.82E-04	29.55	2.14E-04	18.95
32	7.87	3.95E-04	29.36	1.86E-04	27.04
33	8.12	4.27E-04	30.84	3.46E-04	13.28
34	8.36	5.98E-04	33.26	3.86E-04	15.70
35	8.61	1.00E-03	****	2.23E-03	6.59
36	8.85	1.31E-02	7.79	1.05E-02	3.04
37	9.10	2.51E-02	5.14	2.26E-02	2.37
38	9.35	1.57E-03	38.87	3.08E-04	****
39	9.59	6.87E-04	****	2.78E-04	****
40	9.84	6.32E-04	****	2.78E-04	****
41	10.08	5.93E-04	****	2.47E-04	****
42	10.33	5.74E-04	****	2.63E-04	****
43	10.58	5.29E-04	****	2.63E-04	****
44	10.82	6.34E-04	****	2.93E-04	****
45	11.07	6.27E-04	****	2.86E-04	****
46	11.31	6.95E-04	****	3.79E-04	37.01
47	11.56	7.76E-04	****	7.14E-04	23.96
48	11.81	3.62E-03	14.02	7.61E-03	3.85
49	12.05	7.13E-03	8.61	2.51E-02	1.96
50	12.30	1.21E-03	****	2.63E-03	8.11
51	12.54	1.12E-03	****	3.86E-04	****
52	12.79	1.11E-03	****	4.19E-04	****

Table A-3 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
53	13.03	1.19E-03	****	4.21E-04	****
54	13.28	1.29E-03	****	4.17E-04	****
55	13.53	1.36E-03	****	4.95E-04	****
56	13.77	1.49E-03	****	5.08E-04	****
57	14.02	1.53E-03	****	4.84E-04	****
58	14.26	1.46E-03	****	5.19E-04	****
59	14.51	1.82E-03	39.69	8.15E-04	30.45
60	14.76	1.06E-02	7.91	1.00E-02	4.16
61	15.00	2.48E-02	4.50	3.04E-02	2.20
62	15.25	3.79E-03	25.67	5.68E-03	3.77
63	15.49	1.91E-03	****	1.68E-03	17.85
64	15.74	7.77E-03	13.29	3.39E-03	11.16
65	15.99	2.37E-03	35.72	4.53E-03	8.98
66	16.23	5.33E-03	18.70	5.46E-03	8.59
67	16.48	4.17E-03	25.26	6.83E-03	7.14
68	16.72	1.11E-02	12.77	6.79E-03	7.84
69	16.97	1.09E-02	14.35	7.63E-03	7.16
70	17.22	1.50E-02	15.65	7.09E-03	8.47
71	17.46	1.12E-02	23.10	6.54E-03	10.09
72	17.71	1.72E-02	16.93	7.47E-03	15.28
73	17.95	3.17E-02	10.17	1.78E-02	7.52
74	18.20	2.04E-02	16.13	1.81E-02	9.32
75	18.44	1.20E-02	24.48	1.01E-02	12.86
76	18.69	1.32E-02	22.04	8.03E-03	19.30
77	18.94	7.31E-03	****	1.18E-02	12.00
78	19.18	1.66E-02	18.87	9.47E-03	17.54
79	19.43	1.84E-02	18.85	8.89E-03	17.29
80	19.67	1.35E-02	27.72	1.72E-02	10.76
81	19.92	2.33E-02	16.53	1.38E-02	12.57
82	20.17	1.65E-02	24.37	1.24E-02	14.66
83	20.41	1.83E-02	23.55	1.52E-02	13.37
84	20.66	2.24E-02	20.68	2.02E-02	10.31
85	20.90	3.64E-02	12.64	2.15E-02	10.94
86	21.15	2.69E-02	20.80	1.27E-02	23.04
87	21.40	3.41E-02	16.05	2.86E-02	13.33
88	21.64	3.32E-02	15.30	1.65E-02	21.12
89	21.89	2.67E-02	20.96	2.86E-02	14.36
90	22.13	2.42E-02	19.87	2.15E-02	20.86
91	22.38	2.85E-02	24.30	3.62E-02	17.16
92	22.62	3.30E-02	24.13	1.89E-02	28.13
93	22.87	2.56E-02	35.82	4.87E-02	15.45
94	23.12	4.30E-02	25.27	2.46E-02	24.93
95	23.36	3.49E-02	35.84	3.27E-02	26.64
96	23.61	7.69E-02	18.43	3.25E-02	22.46
97	23.85	6.77E-02	25.19	2.07E-02	****
98	24.10	5.94E-02	33.70	2.22E-02	36.61
99	24.35	4.83E-02	****	5.88E-02	16.94
100	24.59	4.43E-02	****	4.54E-02	20.14
101	24.84	4.32E-02	****	8.26E-02	12.11
102	25.08	9.25E-02	21.43	4.20E-02	23.58
103	25.33	4.64E-02	****	5.19E-02	23.26
104	25.58	6.60E-02	30.66	4.89E-02	20.01

Table A-3 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
105	25.82	7.94E-02	26.27	7.79E-02	13.47
106	26.07	6.87E-02	30.63	6.66E-02	18.77
107	26.31	6.81E-02	31.63	3.56E-02	25.91
108	26.56	6.57E-02	31.16	4.19E-02	28.87
109	26.81	4.70E-02	****	5.31E-02	18.15
110	27.05	6.70E-02	32.54	6.18E-02	19.54
111	27.30	4.57E-02	****	5.54E-02	22.44
112	27.54	3.37E-02	****	4.15E-02	19.81
113	27.79	4.04E-02	32.37	5.09E-02	18.15
114	28.03	2.74E-02	****	3.72E-02	20.29
115	28.28	3.64E-02	35.58	3.44E-02	22.15
116	28.53	2.90E-02	****	6.59E-02	16.01
117	28.77	3.11E-02	****	4.69E-02	23.11
118	29.02	5.08E-02	29.79	2.83E-02	29.97
119	29.26	5.27E-02	28.59	5.43E-02	21.05
120	29.51	5.47E-02	27.71	4.48E-02	19.06
121	29.76	6.30E-02	25.21	6.82E-02	15.45
122	30.19	2.16E-04	****	7.14E-03	****
123	30.43	5.24E-04	36.12	4.51E-02	21.38
124	30.68	3.37E-04	****	2.23E-02	38.89
125	30.92	4.91E-04	30.98	2.95E-02	32.52
126	31.17	3.54E-04	****	4.30E-02	24.23
127	31.42	6.13E-04	27.78	4.88E-02	22.91
128	31.66	3.83E-04	****	2.64E-02	****
129	31.91	5.75E-04	34.39	4.27E-02	30.86
130	32.15	7.03E-04	29.47	5.36E-02	24.89
131	32.40	4.84E-04	****	4.22E-02	33.61
132	32.65	5.26E-04	****	6.85E-02	21.54
133	32.89	6.45E-04	****	6.01E-02	28.95
134	33.14	7.35E-04	****	5.07E-02	35.14
135	33.38	1.02E-03	32.40	7.65E-02	21.31
136	33.63	7.01E-04	****	7.41E-02	21.32
137	33.88	6.82E-04	****	6.38E-02	23.87
138	34.12	6.70E-04	****	5.73E-02	27.43
139	34.37	6.64E-04	****	3.27E-02	****
140	34.61	6.62E-04	****	5.34E-02	29.58
141	34.86	6.50E-04	****	5.36E-02	30.18
142	35.11	6.43E-04	****	3.68E-02	****
143	35.35	8.44E-04	34.86	3.69E-02	****
144	35.60	6.27E-04	****	6.81E-02	26.59
145	35.84	6.34E-04	****	4.07E-02	****
146	36.09	6.61E-04	****	8.44E-02	24.00
147	36.33	6.32E-04	****	8.40E-02	22.34
148	36.58	5.55E-04	****	3.09E-02	****
149	36.83	5.26E-04	****	2.89E-02	31.09
150	37.07	5.13E-04	****	2.74E-02	****
151	37.32	5.10E-04	****	4.44E-02	26.17
152	37.56	4.98E-04	****	5.61E-02	20.59
153	37.81	4.87E-04	****	2.53E-02	****
154	38.06	4.89E-04	****	6.42E-02	17.41
155	38.30	4.70E-04	****	5.53E-02	20.49
156	38.55	8.17E-04	26.42	2.49E-02	****

Table A-3 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
157	38.79	4.76E-04	****	2.52E-02	****
158	39.04	2.46E-03	****	3.06E-02	37.79
159	39.29	2.52E-03	****	7.13E-02	17.16
160	39.53	2.26E-03	****	5.26E-02	22.72
161	39.78	2.17E-03	****	2.28E-02	****
162	40.02	2.09E-03	****	5.08E-02	19.49
163	40.27	2.02E-03	****	5.21E-02	19.22
164	40.52	2.14E-03	****	2.27E-02	****
165	40.76	2.18E-03	****	4.96E-02	20.32
166	41.01	2.15E-03	****	2.20E-02	****
167	41.25	3.00E-03	32.89	3.06E-02	32.03
168	41.50	2.72E-03	36.31	4.05E-02	24.57
169	41.74	2.04E-03	****	3.77E-02	27.18
170	41.99	1.97E-03	****	3.72E-02	30.73
171	42.24	2.04E-03	****	2.94E-02	****
172	42.48	2.16E-03	****	3.23E-02	****
173	42.73	2.25E-03	****	2.93E-02	****
174	42.97	2.20E-03	****	3.73E-02	34.28
175	43.22	3.85E-03	26.66	2.61E-02	****
176	43.47	2.18E-03	****	2.62E-02	****
177	43.71	2.17E-03	****	2.80E-02	****
178	43.96	2.15E-03	****	2.71E-02	****
179	44.20	2.61E-03	38.03	2.69E-02	****
180	44.45	1.94E-03	****	3.58E-02	36.05
181	44.70	1.96E-03	****	2.72E-02	****
182	44.94	2.40E-03	37.38	2.97E-02	****
183	45.19	2.43E-03	39.34	4.81E-02	31.24
184	45.43	2.25E-03	****	4.62E-02	32.68
185	45.68	2.28E-03	****	2.93E-02	****
186	45.93	2.29E-03	****	2.87E-02	****
187	46.17	2.35E-03	****	3.28E-02	39.22
188	46.42	3.13E-03	36.59	2.80E-02	****
189	46.66	2.48E-03	****	2.78E-02	****
190	46.91	2.49E-03	****	2.68E-02	****
191	47.15	2.53E-03	****	2.54E-02	****
192	47.40	2.61E-03	****	5.07E-02	23.10
193	47.65	1.63E-02	****	2.65E-02	****
194	47.89	6.84E-02	****	2.75E-02	****
195	48.14	1.68E-02	****	2.70E-02	****
196	48.38	1.82E-02	****	2.90E-02	****
197	48.63	1.79E-02	****	2.91E-02	****
198	48.88	1.88E-02	****	3.09E-02	****
199	49.12	1.89E-02	****	3.41E-02	****
200	49.37	2.76E-02	34.62	3.68E-02	****
201	49.61	2.23E-02	****	3.88E-02	****
202	49.86	2.29E-02	****	4.06E-02	****
203	50.11	2.29E-02	****	3.85E-02	****
204	50.35	2.20E-02	****	4.62E-02	35.43
205	50.60	2.10E-02	****	3.26E-02	****
206	50.84	2.03E-02	****	2.97E-02	****
207	51.09	1.89E-02	****	3.26E-02	****
208	51.33	1.87E-02	****	4.62E-02	35.68

Table A-3 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
209	51.58	1.91E-02	****	3.80E-02	****
210	51.83	1.92E-02	****	3.93E-02	****
211	52.07	1.86E-02	****	4.04E-02	****
212	52.32	6.63E-02	****	4.44E-02	****
213	52.56	8.04E-02	36.37	4.71E-02	****
214	52.81	6.46E-02	****	4.57E-02	****
215	53.06	6.41E-02	****	4.50E-02	****
216	53.30	6.11E-02	****	4.36E-02	****
217	53.55	6.21E-02	****	4.08E-02	****
218	53.79	6.09E-02	****	3.99E-02	****
219	54.04	5.66E-02	****	3.73E-02	****
220	54.29	5.58E-02	****	3.57E-02	****
221	54.53	5.81E-02	****	3.50E-02	****
222	54.78	5.77E-02	****	4.97E-02	34.50
223	55.02	5.58E-02	****	3.55E-02	****
224	55.27	5.52E-02	****	3.24E-02	****
225	55.52	5.14E-02	****	3.18E-02	****
226	55.76	5.08E-02	****	2.91E-02	****
227	56.01	4.71E-02	****	2.83E-02	****
228	56.25	4.67E-02	****	2.65E-02	****
229	56.50	4.69E-02	****	2.62E-02	****
230	56.74	4.57E-02	****	2.56E-02	****
231	56.99	4.32E-02	****	2.55E-02	****
232	57.24	4.41E-02	****	2.86E-02	****
233	57.48	4.89E-02	****	3.08E-02	****
234	57.73	5.44E-02	****	5.27E-02	26.73
235	57.97	5.30E-02	****	3.22E-02	****
236	58.22	5.97E-02	****	3.35E-02	****
237	58.47	6.84E-02	****	3.62E-02	****
238	58.71	6.84E-02	****	3.72E-02	****
239	58.96	6.80E-02	****	3.57E-02	****
240	59.20	8.16E-02	37.70	3.47E-02	****
241	59.45	6.92E-02	****	3.28E-02	****
242	59.70	7.36E-02	****	3.28E-02	****
243	59.94	7.30E-02	****	3.36E-02	****
244	60.37	5.89E-03	****	5.31E-03	37.93
245	60.62	2.28E-02	****	2.66E-02	****
246	60.86	2.38E-02	****	2.94E-02	****
247	61.11	2.82E-02	****	3.19E-02	****
248	61.36	4.32E-02	33.83	3.05E-02	****
249	61.60	3.01E-02	****	2.81E-02	****
250	61.85	2.93E-02	****	2.57E-02	****
251	62.09	3.72E-02	32.66	2.50E-02	****
252	62.34	2.43E-02	****	2.27E-02	****
253	62.59	2.38E-02	****	2.24E-02	****
254	62.83	2.31E-02	****	2.16E-02	****
255	63.08	2.21E-02	****	2.08E-02	****
256	63.32	2.11E-02	****	2.15E-02	****
257	63.57	2.09E-02	****	2.13E-02	****
258	63.82	1.90E-02	****	1.96E-02	****
259	64.06	2.11E-02	****	2.10E-02	****
260	64.31	2.01E-02	****	1.91E-02	****

Table A-3 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
261	64.55	1.90E-02	****	1.92E-02	****
262	64.80	1.81E-02	****	1.76E-02	****
263	65.04	1.90E-02	****	1.82E-02	****
264	65.29	1.86E-02	****	1.72E-02	****
265	65.54	1.86E-02	****	1.70E-02	****
266	65.78	1.81E-02	****	1.72E-02	****
267	66.03	1.73E-02	****	1.66E-02	****
268	66.27	1.71E-02	****	1.73E-02	****
269	66.52	1.75E-02	****	1.76E-02	****
270	66.77	1.67E-02	****	1.73E-02	****
271	67.01	1.54E-02	****	1.54E-02	****
272	67.26	1.52E-02	****	1.66E-02	****
273	67.50	1.53E-02	****	1.66E-02	****
274	67.75	1.48E-02	****	1.57E-02	****
275	68.00	1.47E-02	****	1.57E-02	****
276	68.24	1.04E-02	****	1.62E-02	****
277	68.49	1.02E-02	****	1.57E-02	****
278	68.73	9.65E-03	****	1.53E-02	****
279	68.98	9.10E-03	****	1.56E-02	****
280	69.23	9.13E-03	****	1.48E-02	****
281	69.47	9.20E-03	****	1.51E-02	****
282	69.72	1.20E-02	37.07	1.57E-02	****
283	69.96	1.01E-02	****	1.52E-02	****
284	70.21	1.60E-02	****	1.54E-02	****
285	70.45	1.75E-02	****	1.54E-02	****
286	70.70	1.69E-02	****	1.41E-02	****
287	70.95	1.63E-02	****	1.38E-02	****
288	71.19	1.47E-02	****	1.32E-02	****
289	71.44	1.31E-02	****	8.78E-03	****
290	71.68	1.08E-02	****	7.95E-03	****
291	71.93	8.59E-03	****	6.93E-03	****
292	72.18	7.60E-03	****	6.69E-03	****
293	72.42	7.28E-03	****	6.83E-03	****
294	72.67	1.15E-02	26.54	6.50E-03	****
295	72.91	6.47E-03	****	6.45E-03	****
296	73.16	7.01E-03	****	6.55E-03	****
297	73.41	8.98E-03	****	6.54E-03	****
298	73.65	1.07E-02	****	7.52E-03	****
299	73.90	1.89E-02	28.51	8.08E-03	****
300	74.14	1.17E-02	****	8.72E-03	****
301	74.39	1.10E-02	****	9.04E-03	****
302	74.63	9.35E-03	****	8.76E-03	****
303	74.88	7.78E-03	****	8.05E-03	****
304	75.13	6.07E-03	****	7.30E-03	****
305	75.37	7.26E-03	33.96	1.12E-02	29.14
306	75.62	4.77E-03	****	5.91E-03	****
307	75.86	4.28E-03	****	7.40E-03	30.01
308	76.11	6.45E-03	28.50	4.14E-03	****
309	76.36	5.46E-03	32.72	3.71E-03	36.99
310	76.60	4.57E-03	****	4.27E-03	****
311	76.85	6.16E-03	34.06	5.05E-03	****
312	77.09	5.65E-03	34.31	7.72E-03	31.64

Table A-3 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
313	77.34	5.53E-03	31.79	5.04E-03	****
314	77.59	3.33E-03	****	4.43E-03	****
315	77.83	3.18E-03	****	4.13E-03	****
316	78.08	8.30E-03	14.25	3.31E-03	****
317	78.32	3.90E-03	27.48	2.94E-03	****
318	78.57	3.47E-03	29.57	2.03E-03	****
319	78.82	3.57E-03	27.32	1.84E-03	35.76
320	79.06	1.85E-03	****	1.97E-03	****
321	79.31	4.07E-03	21.23	4.98E-03	18.22
322	79.55	3.07E-03	25.34	3.44E-03	27.13
323	79.80	2.05E-03	32.25	2.29E-03	35.70
324	80.04	1.33E-03	****	2.84E-03	23.87
325	80.29	3.05E-03	18.56	2.74E-03	22.21
326	80.54	1.16E-03	****	2.59E-03	20.96
327	80.78	2.06E-03	25.00	2.42E-03	19.82
328	81.03	2.43E-03	20.02	1.16E-03	29.59
329	81.27	8.57E-04	37.95	1.08E-03	31.06
330	81.52	1.52E-03	28.98	1.43E-03	23.60
331	81.77	1.34E-03	32.62	2.54E-03	15.96
332	82.01	8.81E-04	****	2.50E-03	15.58
333	82.26	1.61E-03	26.14	2.12E-03	17.57
334	82.50	1.68E-03	21.74	2.98E-03	11.64
335	82.75	2.76E-03	13.74	2.27E-03	18.62
336	83.00	2.90E-03	11.30	1.06E-03	26.93
337	83.24	2.97E-03	9.79	1.97E-03	15.15
338	83.49	2.51E-03	10.42	2.60E-03	10.77
339	83.73	3.40E-03	7.54	1.43E-03	14.93
340	83.98	3.58E-03	7.34	1.74E-03	11.87
341	84.22	2.56E-03	5.57	1.74E-03	7.14
342	84.47	2.71E-03	4.99	1.81E-03	6.56
343	84.72	2.66E-03	4.99	1.96E-03	5.96
344	84.96	2.90E-03	4.68	2.22E-03	5.26
345	85.21	3.18E-03	4.12	2.09E-03	5.35
346	85.45	3.55E-03	3.43	3.29E-03	3.47
347	85.70	3.24E-03	3.76	3.37E-03	3.27
348	85.95	2.71E-03	3.90	3.21E-03	3.23
349	86.19	2.94E-03	3.44	3.04E-03	3.20
350	86.44	2.80E-03	3.45	3.08E-03	3.09
351	86.68	2.80E-03	3.39	3.12E-03	2.96
352	86.93	2.93E-03	3.24	2.94E-03	3.05
353	87.18	2.38E-03	3.73	3.16E-03	2.82
354	87.42	2.29E-03	3.75	2.88E-03	3.01
355	87.67	2.41E-03	3.32	2.65E-03	3.06
356	87.91	2.25E-03	3.52	2.57E-03	3.16
357	88.16	2.30E-03	3.49	2.46E-03	3.20
358	88.41	2.89E-03	2.97	2.66E-03	3.00
359	88.65	3.58E-03	2.57	3.03E-03	2.73
360	88.90	4.16E-03	2.24	3.28E-03	2.59
361	89.14	4.27E-03	2.18	3.42E-03	2.52
362	89.39	4.31E-03	2.14	4.25E-03	2.20
363	89.63	4.26E-03	2.21	4.49E-03	2.11
364	89.88	4.32E-03	2.19	4.73E-03	2.11

Table A-4. Axial distribution of ^{110m}Ag in the spine of element FO3-01
(corrected to October 31, 1974)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
1	0.25	8.97E-04	10.91	3.59E-04	20.92
2	0.49	1.45E-03	7.89	6.30E-04	13.66
3	0.74	2.47E-03	5.30	1.58E-03	6.83
4	0.99	4.56E-03	3.48	2.07E-03	5.94
5	1.23	5.91E-03	3.14	3.53E-03	4.03
6	1.48	7.89E-03	2.57	4.45E-03	3.73
7	1.72	1.06E-02	2.24	5.66E-03	3.30
8	1.97	1.31E-02	2.05	5.89E-03	3.37
9	2.22	1.64E-02	1.82	8.11E-03	2.73
10	2.46	1.92E-02	1.73	9.25E-03	2.60
11	2.71	2.12E-02	1.68	1.16E-02	2.29
12	2.95	2.47E-02	1.66	1.13E-02	2.48
13	3.20	2.84E-02	1.60	1.32E-02	2.35
14	3.44	3.14E-02	1.63	1.35E-02	2.49
15	3.69	3.35E-02	1.69	1.43E-02	2.46
16	3.94	3.28E-02	1.84	1.46E-02	2.57
17	4.18	3.52E-02	1.94	1.56E-02	2.71
18	4.43	3.48E-02	2.08	1.63E-02	2.86
19	4.67	3.35E-02	2.35	1.76E-02	2.82
20	4.92	2.90E-02	2.77	1.86E-02	2.90
21	5.17	2.03E-02	3.96	1.61E-02	3.55
22	5.41	7.93E-03	8.90	1.56E-02	5.52
23	5.66	6.95E-03	10.44	1.32E-02	6.44
24	5.90	2.56E-02	4.58	1.22E-02	6.62
25	6.15	2.24E-02	5.10	9.85E-03	8.18
26	6.40	2.16E-02	5.53	1.03E-02	7.71
27	6.64	1.98E-02	6.03	1.00E-02	7.76
28	6.89	1.83E-02	6.50	7.93E-03	10.13
29	7.13	2.08E-02	6.29	7.21E-03	11.32
30	7.38	1.73E-02	7.31	6.65E-03	12.62
31	7.62	1.66E-02	7.41	6.06E-03	13.31
32	7.87	1.33E-02	9.18	6.54E-03	12.92
33	8.12	1.73E-02	7.44	5.68E-03	15.06
34	8.36	1.32E-02	9.52	5.84E-03	14.90
35	8.61	9.36E-03	13.44	4.36E-03	20.21
36	8.85	1.02E-02	11.32	4.22E-03	25.29
37	9.10	9.65E-03	10.50	4.65E-03	24.79
38	9.35	1.01E-02	10.33	2.72E-03	35.89
39	9.59	1.02E-02	11.97	6.76E-03	14.05
40	9.84	5.00E-03	26.28	4.42E-03	22.15
41	10.08	8.56E-03	21.71	4.25E-03	21.66
42	10.33	8.75E-03	15.01	3.39E-03	35.26
43	10.58	5.54E-03	17.87	7.67E-03	16.23
44	10.82	5.87E-03	17.47	7.04E-03	18.54
45	11.07	5.98E-03	17.41	5.08E-03	28.22
46	11.31	6.58E-03	18.16	5.95E-03	24.56
47	11.56	8.19E-03	12.86	4.46E-03	33.44
48	11.81	5.91E-03	16.67	7.66E-03	20.10
49	12.05	4.18E-03	19.37	6.32E-03	26.35
50	12.30	6.80E-03	15.63	7.51E-03	22.59
51	12.54	3.89E-03	22.79	7.14E-03	22.66
52	12.79	7.31E-03	14.73	7.52E-03	21.81

Table A-4 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
53	13.03	3.82E-03	23.11	3.61E-03	****
54	13.28	7.41E-03	14.60	3.49E-03	****
55	13.53	6.43E-03	16.84	4.62E-03	37.23
56	13.77	3.45E-03	32.03	3.93E-03	****
57	14.02	5.91E-03	19.61	8.23E-03	21.22
58	14.26	3.92E-03	30.53	4.01E-03	****
59	14.51	4.95E-03	24.40	5.92E-03	30.30
60	14.76	6.49E-03	19.13	3.95E-03	****
61	15.00	3.11E-03	****	4.06E-03	****
62	15.25	5.19E-03	24.59	5.30E-03	35.56
63	15.49	4.24E-03	26.91	4.13E-03	****
64	15.74	2.48E-03	****	4.22E-03	****
65	15.99	2.61E-03	****	6.46E-03	28.26
66	16.23	3.87E-03	32.02	5.68E-03	31.39
67	16.48	3.06E-03	****	3.85E-03	****
68	16.72	2.90E-03	****	3.73E-03	****
69	16.97	3.95E-03	29.87	4.03E-03	****
70	17.22	2.59E-03	****	4.18E-03	****
71	17.46	2.23E-03	****	4.13E-03	****
72	17.71	2.21E-03	****	4.26E-03	****
73	17.95	2.53E-03	****	4.36E-03	****
74	18.20	3.33E-03	38.34	4.28E-03	****
75	18.44	2.91E-03	****	4.02E-03	****
76	18.69	2.82E-03	****	4.06E-03	****
77	18.94	2.86E-03	****	3.81E-03	****
78	19.18	3.74E-03	34.45	3.83E-03	****
79	19.43	2.72E-03	****	3.87E-03	****
80	19.67	2.63E-03	****	3.91E-03	****
81	19.92	2.65E-03	****	3.93E-03	****
82	20.17	2.72E-03	****	3.76E-03	****
83	20.41	2.74E-03	****	3.48E-03	****
84	20.66	2.95E-03	****	3.63E-03	****
85	20.90	3.11E-03	****	3.84E-03	****
86	21.15	3.09E-03	****	4.23E-03	****
87	21.40	3.37E-03	****	4.22E-03	****
88	21.64	3.28E-03	****	4.16E-03	****
89	21.89	3.33E-03	****	4.27E-03	****
90	22.13	3.31E-03	****	4.65E-03	****
91	22.38	3.46E-03	****	4.72E-03	****
92	22.62	3.69E-03	****	4.91E-03	****
93	22.87	3.90E-03	****	4.92E-03	****
94	23.12	4.61E-03	****	5.19E-03	****
95	23.36	5.23E-03	****	5.84E-03	****
96	23.61	7.60E-03	35.27	6.45E-03	****
97	23.85	6.14E-03	****	7.10E-03	****
98	24.10	6.14E-03	****	7.95E-03	****
99	24.35	6.55E-03	****	7.66E-03	****
100	24.59	6.94E-03	****	7.15E-03	****
101	24.84	6.97E-03	****	7.73E-03	****
102	25.08	7.07E-03	****	7.44E-03	****
103	25.33	7.37E-03	****	7.24E-03	****
104	25.58	7.32E-03	****	7.39E-03	****

Table A-4 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
105	25.82	7.53E-03	****	7.92E-03	****
106	26.07	7.21E-03	****	7.40E-03	****
107	26.31	7.53E-03	****	7.30E-03	****
108	26.56	6.88E-03	****	7.30E-03	****
109	26.81	7.00E-03	****	7.48E-03	****
110	27.05	6.96E-03	****	7.09E-03	****
111	27.30	6.82E-03	****	6.83E-03	****
112	27.54	7.28E-03	****	6.45E-03	****
113	27.79	7.42E-03	****	6.46E-03	****
114	28.03	7.18E-03	****	6.36E-03	****
115	28.28	7.17E-03	****	6.42E-03	****
116	28.53	7.06E-03	****	6.16E-03	****
117	28.77	7.35E-03	****	6.70E-03	****
118	29.02	7.70E-03	****	6.90E-03	****
119	29.26	8.56E-03	****	7.00E-03	****
120	29.51	8.27E-03	****	7.66E-03	****
121	29.94	3.03E-02	****	2.01E-02	****
122	30.19	9.84E-03	****	1.06E-02	****
123	30.43	7.17E-03	****	9.30E-03	****
124	30.68	6.32E-03	****	9.25E-03	****
125	30.92	6.93E-03	****	9.65E-03	****
126	31.17	8.03E-03	****	1.01E-02	****
127	31.42	9.63E-03	****	1.03E-02	****
128	31.66	1.02E-02	****	1.12E-02	****
129	31.91	1.08E-02	****	1.15E-02	****
130	32.15	1.13E-02	****	1.15E-02	****
131	32.40	1.09E-02	****	1.06E-02	****
132	32.65	1.08E-02	****	1.07E-02	****
133	32.89	1.17E-02	****	1.01E-02	****
134	33.14	1.03E-02	****	9.77E-03	****
135	33.38	1.06E-02	****	1.00E-02	****
136	33.63	1.06E-02	****	9.86E-03	****
137	33.88	1.05E-02	****	9.98E-03	****
138	34.12	1.07E-02	****	9.83E-03	****
139	34.37	1.03E-02	****	9.89E-03	****
140	34.61	1.05E-02	****	9.77E-03	****
141	34.86	1.10E-02	****	9.43E-03	****
142	35.11	1.01E-02	****	9.63E-03	****
143	35.35	1.07E-02	****	9.66E-03	****
144	35.60	1.10E-02	****	1.00E-02	****
145	35.84	1.07E-02	****	9.69E-03	****
146	36.09	1.09E-02	****	9.96E-03	****
147	36.33	1.05E-02	****	1.00E-02	****
148	36.58	1.09E-02	****	1.00E-02	****
149	36.83	9.86E-03	****	9.35E-03	****
150	37.07	9.56E-03	****	9.27E-03	****
151	37.32	9.33E-03	****	8.73E-03	****
152	37.56	1.00E-02	****	9.22E-03	****
153	37.81	1.00E-02	****	8.61E-03	****
154	38.06	1.02E-02	****	8.81E-03	****
155	38.30	9.00E-03	****	8.22E-03	****
156	38.55	9.10E-03	****	8.26E-03	****

Table A-4 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
157	38.79	9.54E-03	****	8.40E-03	****
158	39.04	9.92E-03	****	7.96E-03	****
159	39.29	1.06E-02	****	8.52E-03	****
160	39.53	1.07E-02	****	8.52E-03	****
161	39.78	9.73E-03	****	7.72E-03	****
162	40.02	9.51E-03	****	7.14E-03	****
163	40.27	9.34E-03	****	6.97E-03	****
164	40.52	8.77E-03	****	6.75E-03	****
165	40.76	8.33E-03	****	7.00E-03	****
166	41.01	7.90E-03	****	6.94E-03	****
167	41.25	8.26E-03	****	6.76E-03	****
168	41.50	7.59E-03	****	6.55E-03	****
169	41.74	7.40E-03	****	6.67E-03	****
170	41.99	7.16E-03	****	7.05E-03	****
171	42.24	7.48E-03	****	7.04E-03	****
172	42.48	7.21E-03	****	7.19E-03	****
173	42.73	7.37E-03	****	6.89E-03	****
174	42.97	7.61E-03	****	7.24E-03	****
175	43.22	7.39E-03	****	7.23E-03	****
176	43.47	7.24E-03	****	7.22E-03	****
177	43.71	6.96E-03	****	7.10E-03	****
178	43.96	6.97E-03	****	7.15E-03	****
179	44.20	7.07E-03	****	7.33E-03	****
180	44.45	6.62E-03	****	6.79E-03	****
181	44.70	6.34E-03	****	7.36E-03	****
182	44.94	6.47E-03	****	7.07E-03	****
183	45.19	6.78E-03	****	7.23E-03	****
184	45.43	6.70E-03	****	7.31E-03	****
185	45.68	7.46E-03	****	7.73E-03	****
186	45.93	7.58E-03	****	7.70E-03	****
187	46.17	7.91E-03	****	7.70E-03	****
188	46.42	8.48E-03	****	8.38E-03	****
189	46.66	8.33E-03	****	8.40E-03	****
190	46.91	8.38E-03	****	7.85E-03	****
191	47.15	8.57E-03	****	8.33E-03	****
192	47.40	9.05E-03	****	8.31E-03	****
193	47.65	8.83E-03	****	8.44E-03	****
194	47.89	8.96E-03	****	8.33E-03	****
195	48.14	9.30E-03	****	8.38E-03	****
196	48.38	9.22E-03	****	8.52E-03	****
197	48.63	9.41E-03	****	8.43E-03	****
198	48.88	9.72E-03	****	8.57E-03	****
199	49.12	1.00E-02	****	9.14E-03	****
200	49.37	9.56E-03	****	8.79E-03	****
201	49.61	9.52E-03	****	8.63E-03	****
202	49.86	9.39E-03	****	8.69E-03	****
203	50.11	1.38E-02	30.47	8.69E-03	****
204	50.35	9.22E-03	****	7.90E-03	****
205	50.60	8.44E-03	****	7.55E-03	****
206	50.84	8.19E-03	****	6.92E-03	****
207	51.09	7.60E-03	****	6.59E-03	****
208	51.33	7.46E-03	****	6.48E-03	****

Table A-4 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
209	51.58	7.44E-03	****	6.26E-03	****
210	51.83	6.94E-03	****	6.03E-03	****
211	52.07	6.15E-03	****	5.76E-03	****
212	52.32	5.41E-03	****	5.15E-03	****
213	52.56	4.99E-03	****	4.89E-03	****
214	52.81	4.64E-03	****	4.17E-03	****
215	53.06	3.79E-03	****	3.86E-03	****
216	53.30	4.21E-03	****	3.82E-03	****
217	53.55	3.99E-03	****	3.66E-03	****
218	53.79	3.84E-03	****	3.82E-03	****
219	54.04	3.91E-03	****	3.46E-03	****
220	54.29	3.96E-03	****	3.81E-03	****
221	54.53	3.66E-03	****	3.57E-03	****
222	54.78	3.80E-03	****	3.58E-03	****
223	55.02	3.90E-03	****	3.16E-03	****
224	55.27	3.58E-03	****	3.19E-03	****
225	55.52	3.60E-03	****	3.50E-03	****
226	55.76	3.95E-03	****	3.34E-03	****
227	56.01	4.48E-03	37.11	3.48E-03	****
228	56.25	4.20E-03	****	3.71E-03	****
229	56.50	3.95E-03	****	3.91E-03	****
230	56.74	4.30E-03	****	3.89E-03	****
231	56.99	4.14E-03	****	3.97E-03	****
232	57.24	4.65E-03	****	3.89E-03	****
233	57.48	4.81E-03	****	4.01E-03	****
234	57.73	5.38E-03	****	4.49E-03	****
235	57.97	5.77E-03	****	4.64E-03	****
236	58.22	6.13E-03	****	4.65E-03	****
237	58.47	6.58E-03	****	5.25E-03	****
238	58.71	6.67E-03	****	5.85E-03	****
239	58.96	7.90E-03	****	6.88E-03	****
240	59.20	1.00E-02	****	8.59E-03	****
241	59.64	2.82E-03	****	2.21E-03	****
242	59.88	1.16E-02	****	1.10E-02	****
243	60.13	8.06E-03	****	6.62E-03	****
244	60.37	7.79E-03	****	5.62E-03	****
245	60.62	8.03E-03	****	5.79E-03	****
246	60.86	7.66E-03	****	6.48E-03	****
247	61.11	7.05E-03	****	5.79E-03	****
248	61.36	7.36E-03	****	7.41E-03	35.12
249	61.60	7.06E-03	****	5.65E-03	****
250	61.85	6.65E-03	****	5.26E-03	****
251	62.09	6.16E-03	****	3.93E-03	****
252	62.34	5.14E-03	****	4.01E-03	****
253	62.59	4.53E-03	****	3.78E-03	****
254	62.83	4.16E-03	****	3.60E-03	****
255	63.08	4.05E-03	****	3.33E-03	****
256	63.32	3.76E-03	****	3.17E-03	****
257	63.57	3.41E-03	****	3.04E-03	****
258	63.82	3.05E-03	****	2.79E-03	****
259	64.06	2.89E-03	****	2.68E-03	****
260	64.31	2.76E-03	****	2.46E-03	****

Table A-4 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
261	64.55	2.53E-03	****	2.46E-03	****
262	64.80	2.53E-03	****	2.35E-03	****
263	65.04	2.49E-03	****	2.31E-03	****
264	65.29	2.44E-03	****	2.20E-03	****
265	65.54	2.29E-03	****	2.15E-03	****
266	65.78	2.08E-03	****	2.04E-03	****
267	66.03	2.04E-03	****	1.92E-03	****
268	66.27	1.80E-03	****	1.80E-03	****
269	66.52	1.24E-03	****	1.77E-03	****
270	66.77	1.13E-03	****	1.30E-03	****
271	67.01	1.08E-03	****	1.21E-03	****
272	67.26	1.06E-03	****	1.19E-03	****
273	67.50	1.00E-03	****	1.16E-03	****
274	67.75	9.69E-04	****	1.11E-03	****
275	68.00	9.93E-04	****	1.10E-03	****
276	68.24	1.07E-03	****	1.06E-03	****
277	68.49	1.14E-03	****	1.19E-03	****
278	68.73	1.01E-03	****	1.07E-03	****
279	68.98	8.72E-04	****	9.07E-04	****
280	69.23	8.08E-04	****	8.34E-04	****
281	69.47	8.44E-04	****	8.45E-04	****
282	69.72	9.28E-04	****	8.73E-04	****
283	69.96	9.35E-04	****	8.16E-04	****
284	70.21	8.86E-04	****	7.84E-04	****
285	70.45	8.55E-04	****	7.69E-04	****
286	70.70	8.46E-04	****	7.67E-04	****
287	70.95	8.37E-04	****	7.57E-04	****
288	71.19	8.13E-04	****	7.74E-04	****
289	71.44	7.95E-04	****	7.69E-04	****
290	71.68	7.94E-04	****	7.81E-04	****
291	71.93	7.95E-04	****	7.85E-04	****
292	72.18	8.20E-04	****	7.94E-04	****
293	72.42	8.09E-04	****	8.07E-04	****
294	72.67	8.09E-04	****	8.10E-04	****
295	72.91	8.02E-04	****	8.21E-04	****
296	73.16	8.13E-04	****	7.83E-04	****
297	73.41	8.61E-04	****	8.07E-04	****
298	73.65	1.02E-03	****	8.52E-04	****
299	73.90	1.22E-03	****	8.87E-04	****
300	74.14	1.28E-03	****	9.09E-04	****
301	74.39	1.35E-03	****	8.74E-04	****
302	74.63	1.24E-03	****	8.69E-04	****
303	74.88	1.06E-03	****	8.72E-04	****
304	75.13	1.05E-03	****	7.95E-04	****
305	75.37	9.24E-04	****	6.62E-04	****
306	75.62	8.08E-04	****	5.94E-04	****
307	75.86	6.63E-04	****	5.30E-04	****
308	76.11	5.93E-04	****	4.61E-04	****
309	76.36	5.42E-04	****	4.31E-04	****
310	76.60	5.41E-04	****	4.19E-04	****
311	76.85	5.52E-04	****	3.99E-04	****
312	77.09	5.53E-04	****	3.87E-04	****

Table A-4 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
313	77.34	5.37E-04	****	3.86E-04	****
314	77.59	4.78E-04	****	3.72E-04	****
315	77.83	4.35E-04	****	3.58E-04	****
316	78.08	3.99E-04	****	3.62E-04	****
317	78.32	3.88E-04	****	2.10E-04	****
318	78.57	2.18E-04	****	2.23E-04	****
319	78.82	2.21E-04	****	7.37E-04	****
320	79.06	2.29E-04	****	2.29E-04	****
321	79.31	2.37E-04	****	2.30E-04	****
322	79.55	2.38E-04	****	2.30E-04	****
323	79.80	2.23E-04	****	2.17E-04	****
324	80.04	2.14E-04	****	2.03E-04	****
325	80.29	2.05E-04	****	2.02E-04	****
326	80.54	1.96E-04	****	1.99E-04	****
327	80.78	1.89E-04	****	1.89E-04	****
328	81.03	1.81E-04	****	1.77E-04	****
329	81.27	1.70E-04	****	1.70E-04	****
330	81.52	1.63E-04	****	1.61E-04	****
331	81.77	1.59E-04	****	1.60E-04	****
332	82.01	1.63E-04	****	1.61E-04	****
333	82.26	1.72E-04	****	1.72E-04	****
334	82.50	1.79E-04	****	1.82E-04	****
335	82.75	1.92E-04	****	1.93E-04	****
336	83.00	1.86E-04	****	1.85E-04	****
337	83.24	1.75E-04	****	1.74E-04	****
338	83.49	1.58E-04	****	1.58E-04	****
339	83.73	1.46E-04	****	1.42E-04	****
340	83.98	1.34E-04	****	1.34E-04	****
341	84.22	1.25E-04	****	1.24E-04	****
342	84.47	1.20E-04	****	1.17E-04	****
343	84.72	1.17E-04	****	1.14E-04	****
344	84.96	1.18E-04	****	1.11E-04	****
345	85.21	1.36E-04	****	1.28E-04	****
346	85.45	1.61E-04	****	1.44E-04	****
347	85.70	1.72E-04	****	1.48E-04	****
348	85.95	1.67E-04	****	1.44E-04	****
349	86.19	1.56E-04	****	1.34E-04	****
350	86.44	1.42E-04	****	1.26E-04	****
351	86.68	1.29E-04	****	1.19E-04	****
352	86.93	1.16E-04	****	1.08E-04	****
353	87.18	1.09E-04	****	9.97E-05	****
354	87.42	9.79E-05	****	8.99E-05	****
355	87.67	8.55E-05	****	7.77E-05	****
356	87.91	7.46E-05	****	7.10E-05	****
357	88.16	7.03E-05	****	6.75E-05	****
358	88.41	6.65E-05	****	6.01E-05	****
359	88.65	6.15E-05	****	5.75E-05	****
360	88.90	5.80E-05	****	5.78E-05	****

Table A-5. Axial distribution of ^{134}Cs in the sleeve of element F03-01
(corrected to October 31, 1974)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
1	0.25	8.18E-03	0.66	1.20E-02	0.55
2	0.49	1.48E-03	1.62	2.26E-03	1.25
3	0.74	1.08E-03	1.85	1.59E-03	1.48
4	0.99	1.62E-03	1.44	1.84E-03	1.36
5	1.23	2.14E-03	1.26	2.44E-03	1.18
6	1.48	2.34E-03	1.22	2.88E-03	1.08
7	1.72	2.35E-03	1.22	2.99E-03	1.07
8	1.97	2.73E-03	1.13	2.84E-03	1.10
9	2.22	2.37E-03	1.21	2.59E-03	1.16
10	2.46	2.14E-03	1.28	2.49E-03	1.18
11	2.71	2.94E-03	1.07	3.41E-03	0.99
12	2.95	5.02E-03	0.83	5.28E-03	0.81
13	3.20	2.79E-03	1.12	2.93E-03	1.08
14	3.44	1.81E-03	1.39	1.88E-03	1.36
15	3.69	1.90E-03	1.35	2.13E-03	1.27
16	3.94	2.11E-03	1.28	2.28E-03	1.24
17	4.18	2.46E-03	1.20	2.46E-03	1.20
18	4.43	2.82E-03	1.12	2.70E-03	1.16
19	4.67	3.51E-03	1.02	3.33E-03	1.04
20	4.92	4.03E-03	0.97	3.63E-03	1.01
21	5.17	4.48E-03	0.91	4.07E-03	0.96
22	5.41	8.08E-03	0.69	7.22E-03	0.73
23	5.66	3.58E-02	0.37	2.16E-02	0.44
24	5.90	5.80E-02	0.42	3.35E-02	0.37
25	6.15	4.76E-02	0.35	1.74E-02	0.49
26	6.40	1.02E-02	0.62	3.79E-03	1.03
27	6.64	6.27E-03	0.78	2.98E-03	1.15
28	6.89	7.55E-03	0.71	4.03E-03	0.97
29	7.13	9.19E-03	0.65	5.33E-03	0.85
30	7.38	1.09E-02	0.60	6.41E-03	0.78
31	7.62	1.23E-02	0.57	6.77E-03	0.77
32	7.87	1.25E-02	0.57	7.09E-03	0.76
33	8.12	1.43E-02	0.55	8.13E-03	0.71
34	8.36	2.42E-02	0.45	1.42E-02	0.56
35	8.61	5.01E-02	0.44	3.67E-02	0.39
36	8.85	1.66E-01	0.36	7.10E-02	0.34
37	9.10	2.06E-01	0.34	1.15E-01	0.41
38	9.35	1.04E-01	0.43	2.77E-02	0.78
39	9.59	3.45E-02	0.71	1.21E-02	1.19
40	9.84	2.68E-02	0.79	1.22E-02	1.20
41	10.08	2.26E-02	0.87	1.17E-02	1.23
42	10.33	2.09E-02	0.91	1.24E-02	1.19
43	10.58	2.13E-02	0.90	1.28E-02	1.17
44	10.82	2.26E-02	0.87	1.48E-02	1.09
45	11.07	2.28E-02	0.92	1.68E-02	1.03
46	11.31	2.74E-02	0.81	1.97E-02	0.95
47	11.56	3.50E-02	0.72	2.18E-02	0.90
48	11.81	5.24E-02	0.59	2.80E-02	0.82
49	12.05	7.37E-02	0.51	3.90E-02	0.72
50	12.30	7.46E-02	0.51	3.34E-02	0.75
51	12.54	6.18E-02	0.56	2.86E-02	0.81
52	12.79	6.45E-02	0.55	3.19E-02	0.76

Table A-5 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
53	13.03	6.67E-02	0.55	3.42E-02	0.74
54	13.28	7.51E-02	0.52	3.82E-02	0.71
55	13.53	8.66E-02	0.49	4.24E-02	0.68
56	13.77	9.28E-02	0.48	4.32E-02	0.68
57	14.02	9.41E-02	0.48	4.40E-02	0.68
58	14.26	9.04E-02	0.49	4.42E-02	0.68
59	14.51	9.12E-02	0.49	4.75E-02	0.66
60	14.76	9.21E-02	0.49	6.63E-02	0.57
61	15.00	1.18E-01	0.45	9.39E-02	0.50
62	15.25	1.17E-01	0.46	8.47E-02	0.53
63	15.49	1.03E-01	0.48	7.21E-02	0.55
64	15.74	1.23E-01	0.45	8.67E-02	0.52
65	15.99	1.35E-01	0.44	9.59E-02	0.50
66	16.23	1.51E-01	0.42	1.01E-01	0.50
67	16.48	1.62E-01	0.41	1.07E-01	0.48
68	16.72	1.82E-01	0.41	1.16E-01	0.47
69	16.97	1.91E-01	0.40	1.27E-01	0.47
70	17.22	1.83E-01	0.80	1.46E-01	0.44
71	17.46	2.10E-01	0.76	1.70E-01	0.42
72	17.71	2.52E-01	0.69	1.61E-01	0.86
73	17.95	2.83E-01	0.66	1.92E-01	0.79
74	18.20	4.12E-01	0.55	3.65E-01	0.58
75	18.44	2.59E-01	0.69	2.79E-01	0.66
76	18.69	2.79E-01	0.66	3.30E-01	0.61
77	18.94	3.11E-01	0.63	3.53E-01	0.60
78	19.18	3.39E-01	0.60	4.09E-01	0.56
79	19.43	3.88E-01	0.57	4.36E-01	0.54
80	19.67	4.37E-01	0.54	4.68E-01	0.53
81	19.92	4.59E-01	0.54	5.25E-01	0.50
82	20.17	4.83E-01	0.52	5.52E-01	0.49
83	20.41	5.43E-01	0.50	6.37E-01	0.46
84	20.66	5.84E-01	0.49	6.73E-01	0.46
85	20.90	6.43E-01	0.47	7.97E-01	0.43
86	21.15	7.97E-01	0.43	1.21E+00	0.37
87	21.40	7.40E-01	0.45	1.41E+00	0.35
88	21.64	6.54E-01	0.47	1.35E+00	0.36
89	21.89	7.15E-01	0.46	1.49E+00	0.35
90	22.13	8.28E-01	0.44	1.71E+00	0.34
91	22.38	9.61E-01	0.41	1.95E+00	0.48
92	22.62	1.11E+00	0.40	2.18E+00	0.46
93	22.87	1.32E+00	0.37	2.48E+00	0.44
94	23.12	1.57E+00	0.36	2.72E+00	0.43
95	23.36	1.94E+00	0.49	2.93E+00	0.41
96	23.61	2.31E+00	0.45	3.24E+00	0.40
97	23.85	2.75E+00	0.42	3.40E+00	0.39
98	24.10	3.37E+00	0.39	3.84E+00	0.38
99	24.35	3.83E+00	0.37	4.32E+00	0.36
100	24.59	3.47E+00	0.39	3.96E+00	0.37
101	24.84	3.44E+00	0.39	3.90E+00	0.37
102	25.08	3.46E+00	0.39	4.19E+00	0.37
103	25.33	3.58E+00	0.39	4.14E+00	0.37
104	25.58	3.49E+00	0.39	4.24E+00	0.36

Table A-5 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
105	25.82	3.56E+00	0.39	4.30E+00	0.37
106	26.07	3.63E+00	0.38	4.36E+00	0.37
107	26.31	3.64E+00	0.39	4.41E+00	0.36
108	26.56	3.55E+00	0.39	4.28E+00	0.37
109	26.81	3.65E+00	0.38	4.26E+00	0.36
110	27.05	3.69E+00	0.38	4.35E+00	0.37
111	27.30	3.57E+00	0.39	4.52E+00	0.36
112	27.54	2.53E+00	0.44	3.52E+00	0.39
113	27.79	1.89E+00	0.50	2.91E+00	0.42
114	28.03	1.80E+00	0.51	3.04E+00	0.41
115	28.28	1.96E+00	0.49	3.32E+00	0.40
116	28.53	2.03E+00	0.49	3.76E+00	0.38
117	28.77	2.19E+00	0.46	3.97E+00	0.38
118	29.02	2.45E+00	0.44	4.03E+00	0.37
119	29.26	2.49E+00	0.44	4.08E+00	0.37
120	29.51	2.48E+00	0.44	3.90E+00	0.37
121	29.76	2.50E+00	0.45	3.70E+00	0.38
122	30.19	1.38E+00	0.59	3.43E-01	1.18
123	30.43	3.88E+00	0.37	3.25E+00	0.41
124	30.68	2.91E+00	0.42	2.93E+00	0.42
125	30.92	2.89E+00	0.42	3.21E+00	0.40
126	31.17	3.16E+00	0.41	3.52E+00	0.40
127	31.42	3.36E+00	0.40	3.81E+00	0.38
128	31.66	3.56E+00	0.39	4.26E+00	0.37
129	31.91	3.87E+00	0.38	4.49E+00	0.37
130	32.15	4.01E+00	0.37	4.63E+00	0.36
131	32.40	4.34E+00	0.37	4.84E+00	0.36
132	32.65	4.91E+00	0.36	5.07E+00	0.35
133	32.89	5.87E+00	0.34	5.88E+00	0.34
134	33.14	6.76E+00	0.33	6.37E+00	0.33
135	33.38	6.56E+00	0.33	5.65E+00	0.34
136	33.63	6.41E+00	0.33	5.40E+00	0.35
137	33.88	6.23E+00	0.33	5.22E+00	0.35
138	34.12	6.19E+00	0.34	5.35E+00	0.35
139	34.37	6.12E+00	0.34	5.24E+00	0.35
140	34.61	6.04E+00	0.34	5.37E+00	0.35
141	34.86	6.03E+00	0.34	5.47E+00	0.35
142	35.11	5.87E+00	0.34	5.73E+00	0.34
143	35.35	5.70E+00	0.35	5.98E+00	0.34
144	35.60	5.69E+00	0.34	6.23E+00	0.33
145	35.84	5.71E+00	0.34	6.43E+00	0.33
146	36.09	5.98E+00	0.34	7.10E+00	0.32
147	36.33	5.92E+00	0.34	6.54E+00	0.33
148	36.58	5.09E+00	0.35	4.74E+00	0.37
149	36.83	4.84E+00	0.36	4.00E+00	0.39
150	37.07	4.61E+00	0.37	3.97E+00	0.39
151	37.32	4.57E+00	0.37	3.85E+00	0.39
152	37.56	4.56E+00	0.37	3.74E+00	0.39
153	37.81	4.42E+00	0.37	3.65E+00	0.40
154	38.06	4.28E+00	0.37	3.68E+00	0.40
155	38.30	4.30E+00	0.37	3.67E+00	0.40
156	38.55	4.33E+00	0.37	3.70E+00	0.39

Table A-5 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
157	38.79	4.37E+00	0.37	3.72E+00	0.39
158	39.04	4.57E+00	0.36	3.87E+00	0.39
159	39.29	4.69E+00	0.36	3.95E+00	0.39
160	39.53	4.19E+00	0.37	3.87E+00	0.38
161	39.78	3.77E+00	0.39	3.38E+00	0.40
162	40.02	3.73E+00	0.39	3.21E+00	0.41
163	40.27	3.79E+00	0.39	3.13E+00	0.41
164	40.52	3.88E+00	0.38	3.17E+00	0.42
165	40.76	3.90E+00	0.38	3.20E+00	0.42
166	41.01	3.93E+00	0.39	3.18E+00	0.41
167	41.25	3.89E+00	0.38	2.84E+00	0.44
168	41.50	3.75E+00	0.39	3.13E+00	0.42
169	41.74	3.53E+00	0.40	3.23E+00	0.41
170	41.99	3.49E+00	0.40	3.68E+00	0.40
171	42.24	3.73E+00	0.39	4.63E+00	0.36
172	42.48	3.99E+00	0.38	5.11E+00	0.35
173	42.73	4.02E+00	0.38	4.51E+00	0.37
174	42.97	4.01E+00	0.39	4.20E+00	0.38
175	43.22	3.98E+00	0.38	4.09E+00	0.38
176	43.47	3.95E+00	0.39	4.08E+00	0.38
177	43.71	3.86E+00	0.39	4.23E+00	0.38
178	43.96	3.82E+00	0.39	4.15E+00	0.38
179	44.20	3.66E+00	0.39	4.08E+00	0.38
180	44.45	3.30E+00	0.41	4.23E+00	0.38
181	44.70	3.41E+00	0.41	4.28E+00	0.37
182	44.94	3.41E+00	0.41	4.50E+00	0.37
183	45.19	3.59E+00	0.40	5.00E+00	0.35
184	45.43	3.91E+00	0.40	5.10E+00	0.36
185	45.68	4.14E+00	0.38	4.64E+00	0.37
186	45.93	4.11E+00	0.38	4.18E+00	0.38
187	46.17	4.21E+00	0.38	3.98E+00	0.39
188	46.42	4.39E+00	0.37	3.95E+00	0.39
189	46.66	4.36E+00	0.37	3.82E+00	0.39
190	46.91	4.53E+00	0.37	3.74E+00	0.39
191	47.15	4.64E+00	0.37	3.66E+00	0.40
192	47.40	4.63E+00	0.37	3.56E+00	0.40
193	47.65	4.52E+00	0.38	3.73E+00	0.40
194	47.89	4.34E+00	1.60	3.84E+00	0.40
195	48.14	4.54E+00	0.37	4.05E+00	0.38
196	48.38	4.80E+00	0.36	4.29E+00	0.38
197	48.63	4.80E+00	0.37	4.41E+00	0.38
198	48.88	5.12E+00	0.36	4.55E+00	0.37
199	49.12	5.09E+00	0.36	5.15E+00	0.36
200	49.37	5.54E+00	0.35	5.66E+00	0.35
201	49.61	5.92E+00	0.34	6.24E+00	0.35
202	49.86	6.21E+00	0.34	6.22E+00	0.34
203	50.11	6.23E+00	0.34	5.90E+00	0.34
204	50.35	5.96E+00	0.35	5.44E+00	0.35
205	50.60	5.62E+00	0.35	4.96E+00	0.36
206	50.84	5.31E+00	0.36	4.55E+00	0.37
207	51.09	4.88E+00	0.37	4.80E+00	0.36
208	51.33	4.92E+00	0.37	5.31E+00	0.36

Table A-5 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
209	51.58	5.14E+00	0.36	5.69E+00	0.35
210	51.83	4.95E+00	0.36	6.11E+00	0.34
211	52.07	4.67E+00	0.37	6.47E+00	0.33
212	52.32	4.32E+00	0.38	6.83E+00	0.33
213	52.56	4.29E+00	0.38	7.19E+00	0.33
214	52.81	4.27E+00	0.38	7.25E+00	0.32
215	53.06	4.19E+00	0.38	6.98E+00	0.33
216	53.30	4.03E+00	0.38	6.53E+00	0.34
217	53.55	3.84E+00	0.41	6.19E+00	0.34
218	53.79	3.80E+00	0.39	5.90E+00	0.34
219	54.04	3.63E+00	0.40	5.47E+00	0.35
220	54.29	3.51E+00	0.40	5.06E+00	0.37
221	54.53	3.61E+00	0.40	5.38E+00	0.35
222	54.78	3.38E+00	0.42	5.15E+00	0.36
223	55.02	3.36E+00	0.41	4.76E+00	0.37
224	55.27	2.95E+00	0.44	4.40E+00	0.38
225	55.52	2.74E+00	0.45	4.19E+00	0.39
226	55.76	2.57E+00	0.46	4.01E+00	0.39
227	56.01	2.43E+00	0.47	3.78E+00	0.40
228	56.25	2.27E+00	0.48	3.41E+00	0.41
229	56.50	2.12E+00	0.50	3.21E+00	0.42
230	56.74	1.94E+00	0.52	3.08E+00	0.43
231	56.99	1.83E+00	0.54	3.30E+00	0.42
232	57.24	1.92E+00	0.52	3.74E+00	0.40
233	57.48	2.39E+00	0.48	4.16E+00	0.38
234	57.73	2.73E+00	0.45	4.57E+00	0.37
235	57.97	3.24E+00	0.42	4.86E+00	0.36
236	58.22	4.09E+00	0.38	5.22E+00	0.35
237	58.47	4.57E+00	0.37	5.49E+00	0.35
238	58.71	4.92E+00	0.36	5.68E+00	0.34
239	58.96	4.77E+00	0.36	5.46E+00	0.35
240	59.20	4.61E+00	0.37	5.34E+00	0.35
241	59.45	4.77E+00	0.36	5.12E+00	0.36
242	59.70	4.99E+00	0.37	5.07E+00	0.36
243	59.94	5.04E+00	0.36	5.08E+00	0.36
244	60.37	1.30E-01	2.04	6.03E-03	16.25
245	60.62	3.53E+00	0.39	3.98E+00	0.38
246	60.86	3.54E+00	0.40	4.35E+00	0.37
247	61.11	3.95E+00	0.39	4.00E+00	0.39
248	61.36	4.34E+00	0.37	4.05E+00	0.39
249	61.60	4.20E+00	0.38	3.69E+00	0.40
250	61.85	4.06E+00	0.38	3.33E+00	0.42
251	62.09	3.52E+00	0.40	2.96E+00	0.44
252	62.34	3.27E+00	0.41	2.64E+00	0.45
253	62.59	2.99E+00	0.43	2.36E+00	0.48
254	62.83	2.78E+00	0.45	2.19E+00	0.49
255	63.08	2.64E+00	0.45	2.05E+00	0.50
256	63.32	2.54E+00	0.45	2.05E+00	0.50
257	63.57	2.33E+00	0.47	1.96E+00	0.52
258	63.82	2.27E+00	0.47	2.23E+00	0.47
259	64.06	2.04E+00	0.50	1.97E+00	0.52
260	64.31	1.91E+00	0.52	1.73E+00	0.54

Table A-5 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
261	64.55	1.99E+00	0.50	1.77E+00	0.53
262	64.80	1.97E+00	0.50	1.71E+00	0.54
263	65.04	1.93E+00	0.51	1.69E+00	0.54
264	65.29	1.84E+00	0.52	1.54E+00	0.56
265	65.54	1.67E+00	0.54	1.45E+00	0.58
266	65.78	1.61E+00	0.55	1.39E+00	0.59
267	66.03	1.51E+00	0.56	1.47E+00	0.58
268	66.27	1.40E+00	0.59	1.45E+00	0.58
269	66.52	1.36E+00	0.59	1.45E+00	0.59
270	66.77	1.31E+00	0.61	1.46E+00	0.58
271	67.01	1.44E+00	0.58	1.65E+00	0.54
272	67.26	1.25E+00	0.61	1.58E+00	0.55
273	67.50	1.15E+00	0.64	1.50E+00	0.57
274	67.75	1.08E+00	0.65	1.44E+00	0.58
275	68.00	1.04E+00	0.67	1.42E+00	0.58
276	68.24	9.17E-01	0.47	1.46E+00	0.57
277	68.49	8.63E-01	0.46	1.33E+00	0.59
278	68.73	7.66E-01	0.49	1.29E+00	0.60
279	68.98	6.97E-01	0.50	1.30E+00	0.61
280	69.23	6.73E-01	0.51	1.26E+00	0.60
281	69.47	6.70E-01	0.52	1.28E+00	0.60
282	69.72	6.51E-01	0.53	1.31E+00	0.60
283	69.96	9.78E-01	0.44	1.47E+00	0.56
284	70.21	1.92E+00	0.34	1.45E+00	0.56
285	70.45	2.24E+00	0.34	1.26E+00	0.60
286	70.70	2.22E+00	0.33	1.16E+00	0.63
287	70.95	2.09E+00	0.33	1.04E+00	0.65
288	71.19	1.88E+00	0.34	9.56E-01	0.68
289	71.44	1.75E+00	0.35	8.21E-01	0.45
290	71.68	1.44E+00	0.36	7.40E-01	0.48
291	71.93	1.05E+00	0.40	6.36E-01	0.50
292	72.18	9.90E-01	0.41	6.94E-01	0.47
293	72.42	9.60E-01	0.40	7.39E-01	0.45
294	72.67	8.72E-01	0.42	7.49E-01	0.45
295	72.91	8.66E-01	0.42	7.57E-01	0.44
296	73.16	1.05E+00	0.39	8.66E-01	0.42
297	73.41	1.34E+00	0.36	9.03E-01	0.41
298	73.65	1.65E+00	0.34	1.01E+00	0.39
299	73.90	1.80E+00	0.33	1.14E+00	0.38
300	74.14	1.77E+00	0.33	1.20E+00	0.38
301	74.39	1.51E+00	0.35	1.22E+00	0.37
302	74.63	1.18E+00	0.38	1.17E+00	0.37
303	74.88	8.76E-01	0.42	1.03E+00	0.40
304	75.13	6.29E-01	0.48	9.51E-01	0.40
305	75.37	5.26E-01	0.51	9.64E-01	0.40
306	75.62	4.68E-01	0.53	7.66E-01	0.43
307	75.86	4.23E-01	0.55	6.03E-01	0.47
308	76.11	3.93E-01	0.56	4.40E-01	0.55
309	76.36	4.70E-01	0.52	4.19E-01	0.55
310	76.60	5.41E-01	0.49	5.05E-01	0.50
311	76.85	5.47E-01	0.49	6.50E-01	0.45
312	77.09	4.75E-01	0.52	7.09E-01	0.44

Table A-5 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
313	77.34	3.84E-01	0.56	6.59E-01	0.45
314	77.59	3.18E-01	0.65	5.58E-01	0.48
315	77.83	2.85E-01	0.64	4.22E-01	0.54
316	78.08	2.74E-01	0.38	3.16E-01	0.61
317	78.32	2.57E-01	0.37	2.50E-01	0.68
318	78.57	2.47E-01	0.37	2.26E-01	0.39
319	78.82	2.31E-01	0.38	2.09E-01	0.39
320	79.06	1.97E-01	0.39	2.00E-01	0.39
321	79.31	2.09E-01	0.39	2.16E-01	0.39
322	79.55	1.66E-01	0.41	2.22E-01	0.37
323	79.80	9.50E-02	0.52	1.82E-01	0.40
324	80.04	8.05E-02	0.56	1.47E-01	0.42
325	80.29	7.71E-02	0.57	1.17E-01	0.46
326	80.54	7.38E-02	0.56	9.25E-02	0.50
327	80.78	7.09E-02	0.57	6.92E-02	0.57
328	81.03	7.77E-02	0.54	5.99E-02	0.60
329	81.27	7.85E-02	0.53	6.13E-02	0.59
330	81.52	8.06E-02	0.52	5.81E-02	0.63
331	81.77	7.51E-02	0.53	5.41E-02	0.61
332	82.01	6.39E-02	0.57	4.93E-02	0.64
333	82.26	6.05E-02	0.59	5.31E-02	0.62
334	82.50	8.89E-02	0.49	8.62E-02	0.49
335	82.75	6.29E-02	0.57	8.98E-02	0.48
336	83.00	4.11E-02	0.70	6.15E-02	0.57
337	83.24	3.49E-02	0.74	5.14E-02	0.61
338	83.49	2.80E-02	0.81	3.63E-02	0.72
339	83.73	2.33E-02	0.89	2.22E-02	0.91
340	83.98	2.42E-02	0.86	1.46E-02	1.12
341	84.22	2.07E-02	0.52	1.26E-02	0.65
342	84.47	1.71E-02	0.55	9.69E-03	0.79
343	84.72	1.54E-02	0.58	8.24E-03	0.79
344	84.96	1.38E-02	0.61	7.68E-03	0.81
345	85.21	1.43E-02	0.59	8.36E-03	0.77
346	85.45	1.54E-02	0.55	9.97E-03	0.69
347	85.70	1.34E-02	0.59	9.72E-03	0.69
348	85.95	1.17E-02	0.63	8.09E-03	0.75
349	86.19	1.08E-02	0.64	6.86E-03	0.81
350	86.44	1.04E-02	0.66	5.88E-03	0.86
351	86.68	1.04E-02	0.64	5.09E-03	0.93
352	86.93	1.15E-02	0.62	4.78E-03	0.96
353	87.18	1.10E-02	0.62	5.01E-03	0.92
354	87.42	9.92E-03	0.64	5.00E-03	0.92
355	87.67	9.06E-03	0.68	4.81E-03	0.93
356	87.91	8.64E-03	0.69	4.38E-03	0.97
357	88.16	8.04E-03	0.71	4.44E-03	0.96
358	88.41	9.09E-03	0.67	5.80E-03	0.82
359	88.65	9.26E-03	0.66	6.95E-03	0.75
360	88.90	7.98E-03	0.71	6.70E-03	0.77
361	89.14	6.95E-03	0.75	6.28E-03	0.79
362	89.39	6.68E-03	0.77	7.05E-03	0.76
363	89.63	6.65E-03	0.77	7.28E-03	0.75
364	89.88	6.64E-03	0.77	7.30E-03	0.75

Table A-6. Axial distribution of ^{134}Cs in the spine of element F03-01
(corrected to October 31, 1974)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
1	0.25	8.38E-03	1.10	4.01E-03	1.65
2	0.49	9.07E-03	1.06	3.50E-03	1.79
3	0.74	8.09E-03	1.15	4.35E-03	1.60
4	0.99	9.91E-03	1.04	4.71E-03	1.54
5	1.23	1.03E-02	1.01	4.86E-03	1.54
6	1.48	1.06E-02	1.01	4.92E-03	1.56
7	1.72	1.14E-02	0.98	5.57E-03	1.48
8	1.97	1.35E-02	0.92	7.23E-03	1.26
9	2.22	1.71E-02	0.83	9.13E-03	1.15
10	2.46	2.21E-02	0.73	1.32E-02	0.95
11	2.71	2.90E-02	0.65	1.82E-02	0.81
12	2.95	4.05E-02	0.56	2.45E-02	0.71
13	3.20	5.70E-02	0.49	3.19E-02	0.63
14	3.44	7.34E-02	0.44	4.10E-02	0.56
15	3.69	9.50E-02	0.41	5.03E-02	0.52
16	3.94	1.12E-01	0.38	5.89E-02	0.49
17	4.18	1.28E-01	0.37	7.27E-02	0.46
18	4.43	1.49E-01	0.36	8.53E-02	0.43
19	4.67	1.59E-01	0.36	9.53E-02	0.43
20	4.92	1.54E-01	0.39	1.06E-01	0.41
21	5.17	1.27E-01	0.47	1.21E-01	0.39
22	5.41	8.55E-02	0.66	1.12E-01	0.80
23	5.66	4.99E-02	1.04	1.21E-01	0.78
24	5.90	2.17E-01	0.58	1.12E-01	0.80
25	6.15	2.33E-01	0.57	1.25E-01	0.76
26	6.40	2.54E-01	0.54	1.26E-01	0.76
27	6.64	2.68E-01	0.53	1.30E-01	0.75
28	6.89	2.75E-01	0.53	1.42E-01	0.72
29	7.13	3.03E-01	0.50	1.60E-01	0.68
30	7.38	3.20E-01	0.50	1.80E-01	0.64
31	7.62	3.39E-01	0.48	1.87E-01	0.64
32	7.87	3.43E-01	0.48	2.04E-01	0.60
33	8.12	3.63E-01	0.47	2.10E-01	0.60
34	8.36	3.71E-01	0.47	2.27E-01	0.58
35	8.61	3.85E-01	0.46	2.42E-01	0.57
36	8.85	3.54E-01	0.48	2.66E-01	0.54
37	9.10	2.71E-01	0.54	2.99E-01	0.52
38	9.35	2.67E-01	0.54	2.92E-01	0.52
39	9.59	3.58E-01	0.48	2.84E-01	0.54
40	9.84	4.62E-01	0.44	2.83E-01	0.53
41	10.08	5.78E-01	0.40	2.82E-01	0.53
42	10.33	4.22E-01	0.45	2.94E-01	0.52
43	10.58	3.01E-01	0.51	3.29E-01	0.50
44	10.82	2.98E-01	0.52	3.49E-01	0.49
45	11.07	3.32E-01	0.50	3.80E-01	0.47
46	11.31	3.03E-01	0.52	3.98E-01	0.47
47	11.56	2.33E-01	0.59	4.21E-01	0.46
48	11.81	1.89E-01	0.64	4.40E-01	0.45
49	12.05	2.02E-01	0.63	4.71E-01	0.44
50	12.30	2.36E-01	0.58	4.89E-01	0.43
51	12.54	2.54E-01	0.56	4.71E-01	0.44
52	12.79	2.47E-01	0.57	4.67E-01	0.45

Table A-6 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
53	13.03	2.43E-01	0.58	4.65E-01	0.45
54	13.28	2.67E-01	0.56	4.54E-01	0.45
55	13.53	2.65E-01	0.55	4.83E-01	0.44
56	13.77	2.68E-01	0.55	5.24E-01	0.42
57	14.02	2.81E-01	0.54	5.24E-01	0.43
58	14.26	2.88E-01	0.54	5.38E-01	0.42
59	14.51	2.98E-01	0.53	5.20E-01	0.43
60	14.76	3.24E-01	0.52	5.12E-01	0.43
61	15.00	3.84E-01	0.48	5.25E-01	0.44
62	15.25	3.49E-01	0.50	5.37E-01	0.43
63	15.49	2.80E-01	0.54	5.46E-01	0.43
64	15.74	2.55E-01	0.57	5.65E-01	0.42
65	15.99	2.96E-01	0.54	5.39E-01	0.43
66	16.23	3.46E-01	0.50	5.19E-01	0.44
67	16.48	3.87E-01	0.48	5.20E-01	0.43
68	16.72	3.51E-01	0.50	5.25E-01	0.43
69	16.97	3.12E-01	0.52	5.38E-01	0.43
70	17.22	2.92E-01	0.53	5.63E-01	0.42
71	17.46	2.54E-01	0.57	5.69E-01	0.41
72	17.71	2.59E-01	0.56	5.86E-01	0.41
73	17.95	2.97E-01	0.54	6.02E-01	0.41
74	18.20	3.54E-01	0.49	5.88E-01	0.42
75	18.44	3.80E-01	0.49	5.68E-01	0.42
76	18.69	3.84E-01	0.48	5.56E-01	0.43
77	18.94	3.70E-01	0.49	5.33E-01	0.43
78	19.18	3.67E-01	0.49	5.21E-01	0.43
79	19.43	3.43E-01	0.51	5.23E-01	0.43
80	19.67	3.33E-01	0.50	5.21E-01	0.43
81	19.92	3.31E-01	0.51	5.32E-01	0.43
82	20.17	3.40E-01	0.50	5.20E-01	0.43
83	20.41	3.54E-01	0.49	4.96E-01	0.44
84	20.66	3.79E-01	0.48	4.82E-01	0.44
85	20.90	4.03E-01	0.47	5.19E-01	0.44
86	21.15	4.34E-01	0.45	5.89E-01	0.41
87	21.40	4.74E-01	0.45	6.03E-01	0.40
88	21.64	4.78E-01	0.44	6.09E-01	0.40
89	21.89	4.53E-01	0.45	6.16E-01	0.41
90	22.13	4.60E-01	0.45	6.57E-01	0.40
91	22.38	4.86E-01	0.44	6.82E-01	0.39
92	22.62	5.39E-01	0.42	7.09E-01	0.38
93	22.87	6.02E-01	0.40	7.29E-01	0.38
94	23.12	6.88E-01	0.39	7.94E-01	0.38
95	23.36	7.71E-01	0.38	8.81E-01	0.36
96	23.61	8.71E-01	0.36	9.63E-01	0.35
97	23.85	9.15E-01	0.36	1.12E+00	0.50
98	24.10	9.17E-01	0.54	1.19E+00	0.49
99	24.35	9.36E-01	0.54	1.19E+00	0.49
100	24.59	9.63E-01	0.53	1.12E+00	0.50
101	24.84	9.48E-01	0.54	1.15E+00	0.49
102	25.08	9.59E-01	0.54	1.20E+00	0.49
103	25.33	1.06E+00	0.51	1.21E+00	0.49
104	25.58	1.11E+00	0.50	1.23E+00	0.48

Table A-6 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
105	25.82	1.15E+00	0.49	1.24E+00	0.48
106	26.07	1.16E+00	0.49	1.23E+00	0.48
107	26.31	1.15E+00	0.49	1.17E+00	0.49
108	26.56	1.10E+00	0.50	1.15E+00	0.49
109	26.81	1.09E+00	0.50	1.11E+00	0.50
110	27.05	1.05E+00	0.51	1.13E+00	0.50
111	27.30	1.07E+00	0.51	1.10E+00	0.50
112	27.54	1.17E+00	0.49	1.02E+00	0.52
113	27.79	1.21E+00	0.48	1.01E+00	0.52
114	28.03	1.16E+00	0.49	1.01E+00	0.52
115	28.28	1.15E+00	0.49	9.97E-01	0.52
116	28.53	1.17E+00	0.49	9.91E-01	0.53
117	28.77	1.22E+00	0.48	1.02E+00	0.52
118	29.02	1.30E+00	0.47	1.04E+00	0.51
119	29.26	1.34E+00	0.46	1.10E+00	0.50
120	29.51	1.35E+00	0.46	1.26E+00	0.48
121	29.94	5.32E+00	0.30	3.72E+00	0.32
122	30.19	1.67E+00	0.43	1.82E+00	0.41
123	30.43	1.07E+00	0.52	1.48E+00	0.45
124	30.68	8.87E-01	0.56	1.47E+00	0.45
125	30.92	1.01E+00	0.53	1.57E+00	0.44
126	31.17	1.19E+00	0.48	1.67E+00	0.43
127	31.42	1.50E+00	0.44	1.75E+00	0.42
128	31.66	1.73E+00	0.42	1.84E+00	0.41
129	31.91	1.79E+00	0.41	1.82E+00	0.42
130	32.15	1.85E+00	0.41	1.87E+00	0.42
131	32.40	1.81E+00	0.42	1.75E+00	0.42
132	32.65	1.83E+00	0.42	1.64E+00	0.44
133	32.89	1.85E+00	0.41	1.60E+00	0.44
134	33.14	1.69E+00	0.43	1.54E+00	0.45
135	33.38	1.68E+00	0.42	1.57E+00	0.44
136	33.63	1.72E+00	0.42	1.58E+00	0.44
137	33.88	1.68E+00	0.43	1.52E+00	0.45
138	34.12	1.67E+00	0.43	1.54E+00	0.45
139	34.37	1.67E+00	0.43	1.52E+00	0.45
140	34.61	1.68E+00	0.44	1.51E+00	0.45
141	34.86	1.67E+00	0.43	1.49E+00	0.45
142	35.11	1.61E+00	0.44	1.46E+00	0.46
143	35.35	1.65E+00	0.43	1.48E+00	0.45
144	35.60	1.76E+00	0.43	1.55E+00	0.45
145	35.84	1.71E+00	0.43	1.56E+00	0.44
146	36.09	1.69E+00	0.43	1.56E+00	0.44
147	36.33	1.65E+00	0.43	1.54E+00	0.45
148	36.58	1.68E+00	0.43	1.50E+00	0.46
149	36.83	1.60E+00	0.43	1.45E+00	0.45
150	37.07	1.51E+00	0.45	1.37E+00	0.47
151	37.32	1.43E+00	0.46	1.33E+00	0.48
152	37.56	1.52E+00	0.45	1.33E+00	0.47
153	37.81	1.57E+00	0.44	1.28E+00	0.48
154	38.06	1.53E+00	0.46	1.26E+00	0.48
155	38.30	1.41E+00	0.46	1.23E+00	0.49
156	38.55	1.41E+00	0.46	1.21E+00	0.49

Table A-6 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
157	38.79	1.48E+00	0.45	1.18E+00	0.50
158	39.04	1.57E+00	0.44	1.19E+00	0.50
159	39.29	1.67E+00	0.43	1.22E+00	0.49
160	39.53	1.68E+00	0.43	1.18E+00	0.50
161	39.78	1.55E+00	0.44	1.09E+00	0.51
162	40.02	1.48E+00	0.45	1.02E+00	0.53
163	40.27	1.44E+00	0.46	9.91E-01	0.54
164	40.52	1.35E+00	0.47	9.36E-01	0.55
165	40.76	1.27E+00	0.48	9.24E-01	0.55
166	41.01	1.20E+00	0.49	9.08E-01	0.55
167	41.25	1.14E+00	0.50	8.82E-01	0.56
168	41.50	1.13E+00	0.52	8.65E-01	0.56
169	41.74	1.06E+00	0.52	8.90E-01	0.56
170	41.99	1.03E+00	0.52	9.38E-01	0.54
171	42.24	1.02E+00	0.53	1.02E+00	0.52
172	42.48	1.03E+00	0.52	1.07E+00	0.51
173	42.73	1.05E+00	0.51	1.07E+00	0.52
174	42.97	1.05E+00	0.52	1.04E+00	0.52
175	43.22	1.05E+00	0.52	1.03E+00	0.52
176	43.47	1.02E+00	0.52	1.02E+00	0.53
177	43.71	9.96E-01	0.53	1.00E+00	0.53
178	43.96	9.92E-01	0.53	1.01E+00	0.52
179	44.20	1.00E+00	0.52	1.08E+00	0.52
180	44.45	9.33E-01	0.54	1.05E+00	0.52
181	44.70	8.13E-01	0.58	1.03E+00	0.52
182	44.94	7.94E-01	0.59	1.04E+00	0.52
183	45.19	8.29E-01	0.57	1.02E+00	0.52
184	45.43	8.78E-01	0.56	1.02E+00	0.52
185	45.68	9.95E-01	0.52	1.05E+00	0.51
186	45.93	1.08E+00	0.50	1.08E+00	0.51
187	46.17	1.13E+00	0.49	1.10E+00	0.51
188	46.42	1.18E+00	0.49	1.14E+00	0.50
189	46.66	1.20E+00	0.48	1.16E+00	0.50
190	46.91	1.22E+00	0.49	1.13E+00	0.50
191	47.15	1.26E+00	0.48	1.14E+00	0.50
192	47.40	1.29E+00	0.47	1.16E+00	0.50
193	47.65	1.34E+00	0.47	1.21E+00	0.49
194	47.89	1.36E+00	0.47	1.21E+00	0.49
195	48.14	1.40E+00	0.46	1.24E+00	0.49
196	48.38	1.40E+00	0.45	1.19E+00	0.49
197	48.63	1.48E+00	0.45	1.18E+00	0.49
198	48.88	1.58E+00	0.43	1.27E+00	0.48
199	49.12	1.64E+00	0.43	1.36E+00	0.47
200	49.37	1.62E+00	0.43	1.38E+00	0.46
201	49.61	1.58E+00	0.43	1.37E+00	0.46
202	49.86	1.56E+00	0.44	1.35E+00	0.46
203	50.11	1.47E+00	0.45	1.29E+00	0.47
204	50.35	1.39E+00	0.45	1.18E+00	0.49
205	50.60	1.31E+00	0.47	1.06E+00	0.51
206	50.84	1.24E+00	0.48	9.90E-01	0.53
207	51.09	1.19E+00	0.48	9.29E-01	0.55
208	51.33	1.16E+00	0.49	9.02E-01	0.55

Table A-6 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
209	51.58	1.11E+00	0.51	8.95E-01	0.56
210	51.83	1.00E+00	0.52	8.28E-01	0.57
211	52.07	8.98E-01	0.55	7.40E-01	0.60
212	52.32	7.52E-01	0.59	6.58E-01	0.63
213	52.56	5.99E-01	0.66	5.53E-01	0.68
214	52.81	4.79E-01	0.73	4.47E-01	0.75
215	53.06	4.22E-01	0.77	3.79E-01	0.80
216	53.30	3.90E-01	0.80	3.37E-01	0.85
217	53.55	3.73E-01	0.82	3.12E-01	0.89
218	53.79	3.55E-01	0.84	2.94E-01	0.91
219	54.04	3.45E-01	0.85	2.78E-01	0.94
220	54.29	3.38E-01	0.86	2.56E-01	0.98
221	54.53	3.25E-01	0.87	2.51E-01	0.98
222	54.78	3.18E-01	0.88	2.37E-01	1.02
223	55.02	3.13E-01	0.90	2.33E-01	1.03
224	55.27	3.16E-01	0.89	2.33E-01	1.02
225	55.52	3.19E-01	0.88	2.49E-01	0.99
226	55.76	3.34E-01	0.88	2.63E-01	0.98
227	56.01	3.61E-01	0.84	2.96E-01	0.91
228	56.25	3.76E-01	0.81	3.13E-01	0.89
229	56.50	3.88E-01	0.80	3.29E-01	0.87
230	56.74	4.05E-01	0.79	3.42E-01	0.86
231	56.99	4.34E-01	0.78	3.46E-01	0.85
232	57.24	4.59E-01	0.74	3.62E-01	0.84
233	57.48	4.85E-01	0.73	3.57E-01	0.85
234	57.73	5.46E-01	0.72	3.67E-01	0.84
235	57.97	6.11E-01	0.66	3.97E-01	0.80
236	58.22	6.75E-01	0.64	4.35E-01	0.77
237	58.47	7.60E-01	0.60	4.95E-01	0.73
238	58.71	8.77E-01	0.56	6.23E-01	0.66
239	58.96	1.11E+00	0.51	8.77E-01	0.56
240	59.20	1.55E+00	0.44	1.28E+00	0.47
241	59.64	2.44E-01	1.02	1.17E-01	1.50
242	59.88	2.07E+00	0.39	1.94E+00	0.40
243	60.13	1.24E+00	0.47	9.36E-01	0.53
244	60.37	1.24E+00	0.47	7.05E-01	0.61
245	60.62	1.25E+00	0.47	7.09E-01	0.61
246	60.86	1.18E+00	0.48	8.89E-01	0.55
247	61.11	1.14E+00	0.49	8.08E-01	0.57
248	61.36	1.12E+00	0.49	7.39E-01	0.59
249	61.60	1.05E+00	0.50	6.88E-01	0.61
250	61.85	9.76E-01	0.52	6.33E-01	0.63
251	62.09	8.80E-01	0.55	5.82E-01	0.39
252	62.34	7.96E-01	0.36	5.71E-01	0.40
253	62.59	7.07E-01	0.37	5.50E-01	0.41
254	62.83	6.49E-01	0.38	5.28E-01	0.41
255	63.08	6.17E-01	0.39	4.83E-01	0.42
256	63.32	5.60E-01	0.40	4.44E-01	0.44
257	63.57	5.06E-01	0.41	4.02E-01	0.45
258	63.82	4.44E-01	0.43	3.72E-01	0.47
259	64.06	3.95E-01	0.45	3.47E-01	0.48
260	64.31	3.76E-01	0.46	3.28E-01	0.49

Table A-6 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
261	64.55	3.65E-01	0.47	3.14E-01	0.50
262	64.80	3.53E-01	0.47	2.99E-01	0.51
263	65.04	3.32E-01	0.48	2.77E-01	0.52
264	65.29	3.09E-01	0.50	2.61E-01	0.54
265	65.54	2.83E-01	0.51	2.42E-01	0.55
266	65.78	2.53E-01	0.54	2.24E-01	0.57
267	66.03	2.16E-01	0.58	1.99E-01	0.61
268	66.27	1.69E-01	0.65	1.74E-01	0.64
269	66.52	1.37E-01	0.39	1.54E-01	0.67
270	66.77	1.16E-01	0.41	1.46E-01	0.37
271	67.01	1.06E-01	0.42	1.37E-01	0.38
272	67.26	9.95E-02	0.43	1.31E-01	0.38
273	67.50	9.37E-02	0.44	1.26E-01	0.38
274	67.75	8.75E-02	0.46	1.21E-01	0.39
275	68.00	9.48E-02	0.44	1.17E-01	0.39
276	68.24	1.09E-01	0.41	1.21E-01	0.39
277	68.49	1.27E-01	0.39	1.34E-01	0.37
278	68.73	9.40E-02	0.44	1.12E-01	0.41
279	68.98	6.33E-02	0.51	7.49E-02	0.47
280	69.23	5.53E-02	0.54	6.11E-02	0.51
281	69.47	5.97E-02	0.53	6.36E-02	0.50
282	69.72	7.36E-02	0.48	6.83E-02	0.49
283	69.96	7.25E-02	0.49	6.21E-02	0.51
284	70.21	6.20E-02	0.52	4.96E-02	0.55
285	70.45	5.89E-02	0.53	5.05E-02	0.54
286	70.70	6.31E-02	0.50	5.46E-02	0.52
287	70.95	6.40E-02	0.50	5.38E-02	0.52
288	71.19	5.86E-02	0.52	5.48E-02	0.52
289	71.44	5.48E-02	0.53	5.52E-02	0.51
290	71.68	5.23E-02	0.55	5.29E-02	0.53
291	71.93	5.36E-02	0.55	5.42E-02	0.52
292	72.18	5.85E-02	0.51	5.82E-02	0.49
293	72.42	5.80E-02	0.51	6.40E-02	0.48
294	72.67	6.29E-02	0.49	6.84E-02	0.45
295	72.91	6.17E-02	0.49	6.74E-02	0.46
296	73.16	5.80E-02	0.51	5.83E-02	0.49
297	73.41	6.82E-02	0.48	6.64E-02	0.47
298	73.65	9.32E-02	0.43	7.67E-02	0.45
299	73.90	1.24E-01	0.39	8.35E-02	0.44
300	74.14	1.38E-01	0.38	8.00E-02	0.44
301	74.39	1.40E-01	0.38	7.75E-02	0.45
302	74.63	1.24E-01	0.39	7.65E-02	0.45
303	74.88	1.07E-01	0.42	8.20E-02	0.44
304	75.13	1.05E-01	0.41	6.82E-02	0.47
305	75.37	9.29E-02	0.42	4.81E-02	0.53
306	75.62	8.14E-02	0.43	3.85E-02	0.58
307	75.86	6.09E-02	0.49	3.15E-02	0.63
308	76.11	4.77E-02	0.53	2.26E-02	0.73
309	76.36	4.18E-02	0.56	1.75E-02	0.83
310	76.60	4.33E-02	0.56	1.77E-02	0.82
311	76.85	4.66E-02	0.54	1.36E-02	0.94
312	77.09	4.45E-02	0.54	1.16E-02	1.02

Table A-6 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
313	77.34	3.99E-02	0.56	9.85E-03	1.11
314	77.59	2.87E-02	0.65	6.50E-03	1.40
315	77.83	1.98E-02	0.77	4.63E-03	1.69
316	78.08	1.43E-02	0.90	4.40E-03	1.69
317	78.32	9.76E-03	1.10	6.38E-03	0.76
318	78.57	6.71E-03	0.73	6.04E-03	0.79
319	78.82	5.81E-03	0.80	1.13E-02	1.32
320	79.06	5.15E-03	0.86	5.74E-03	0.80
321	79.31	4.08E-03	1.01	4.05E-03	1.00
322	79.55	3.72E-03	1.05	3.52E-03	1.09
323	79.80	3.83E-03	1.01	3.52E-03	1.06
324	80.04	3.49E-03	1.06	3.38E-03	1.06
325	80.29	2.98E-03	1.16	3.03E-03	1.12
326	80.54	2.56E-03	1.26	2.54E-03	1.34
327	80.78	2.23E-03	1.36	2.17E-03	1.35
328	81.03	1.97E-03	1.41	1.80E-03	1.50
329	81.27	1.76E-03	1.46	1.53E-03	1.62
330	81.52	1.63E-03	1.52	1.48E-03	1.63
331	81.77	1.37E-03	1.66	1.20E-03	1.84
332	82.01	1.52E-03	1.56	1.29E-03	1.72
333	82.26	1.60E-03	1.52	1.34E-03	1.71
334	82.50	1.71E-03	1.51	1.42E-03	1.73
335	82.75	1.66E-03	1.59	1.47E-03	1.76
336	83.00	1.60E-03	1.62	1.32E-03	1.83
337	83.24	1.55E-03	1.62	1.21E-03	1.91
338	83.49	1.31E-03	1.73	1.08E-03	1.99
339	83.73	1.21E-03	1.77	1.05E-03	1.93
340	83.98	1.11E-03	1.80	9.64E-04	1.96
341	84.22	9.80E-04	1.89	9.21E-04	1.95
342	84.47	8.72E-04	1.99	8.66E-04	1.96
343	84.72	8.21E-04	2.00	7.54E-04	2.13
344	84.96	7.53E-04	2.17	7.02E-04	2.25
345	85.21	7.14E-04	2.25	6.91E-04	2.28
346	85.45	6.82E-04	2.47	6.54E-04	2.51
347	85.70	6.98E-04	2.52	6.27E-04	2.58
348	85.95	6.98E-04	2.41	6.46E-04	2.51
349	86.19	7.12E-04	2.28	6.50E-04	2.35
350	86.44	7.19E-04	2.26	6.31E-04	2.37
351	86.68	7.22E-04	2.14	6.42E-04	2.26
352	86.93	7.20E-04	2.07	6.45E-04	2.16
353	87.18	7.24E-04	1.98	6.40E-04	2.08
354	87.42	6.96E-04	1.99	6.17E-04	2.05
355	87.67	6.71E-04	1.94	6.19E-04	2.03
356	87.91	7.01E-04	1.83	5.71E-04	2.07
357	88.16	6.53E-04	1.93	5.53E-04	2.07
358	88.41	6.27E-04	1.90	5.16E-04	2.16
359	88.65	5.53E-04	2.03	4.81E-04	2.19
360	88.90	5.32E-04	2.04	4.47E-04	2.28

Table A-7. Axial distribution of ^{137}Cs in the sleeve of element FO3-01
(corrected to October 31, 1974)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
1	0.25	7.14E-03	0.57	1.05E-02	0.48
2	0.49	1.33E-03	1.34	2.00E-03	1.10
3	0.74	1.20E-03	1.37	1.73E-03	1.13
4	0.99	1.89E-03	1.07	2.11E-03	1.02
5	1.23	2.63E-03	0.91	2.91E-03	0.86
6	1.48	2.93E-03	0.86	3.38E-03	0.80
7	1.72	2.98E-03	0.85	3.40E-03	0.80
8	1.97	3.35E-03	0.81	3.19E-03	0.83
9	2.22	2.93E-03	0.86	2.91E-03	0.86
10	2.46	2.32E-03	0.98	2.62E-03	0.91
11	2.71	2.58E-03	0.93	3.09E-03	0.85
12	2.95	3.73E-03	0.78	4.06E-03	0.75
13	3.20	2.35E-03	0.98	2.51E-03	0.95
14	3.44	1.84E-03	1.10	1.83E-03	1.10
15	3.69	1.97E-03	1.06	2.02E-03	1.06
16	3.94	2.15E-03	1.03	2.25E-03	1.00
17	4.18	2.62E-03	0.92	2.42E-03	0.97
18	4.43	2.98E-03	0.87	2.90E-03	0.88
19	4.67	3.54E-03	0.81	3.57E-03	0.80
20	4.92	4.10E-03	0.75	3.91E-03	0.77
21	5.17	4.62E-03	0.71	4.18E-03	0.75
22	5.41	6.59E-03	0.62	6.19E-03	0.63
23	5.66	2.32E-02	0.38	1.54E-02	0.43
24	5.90	3.07E-02	0.54	2.34E-02	0.37
25	6.15	3.24E-02	0.34	1.21E-02	0.48
26	6.40	6.85E-03	0.62	3.01E-03	0.94
27	6.64	4.34E-03	0.77	2.42E-03	1.05
28	6.89	5.13E-03	0.71	3.14E-03	0.91
29	7.13	6.42E-03	0.64	4.31E-03	0.78
30	7.38	7.77E-03	0.59	5.09E-03	0.72
31	7.62	8.40E-03	0.57	5.45E-03	0.70
32	7.87	8.68E-03	0.57	5.41E-03	0.70
33	8.12	9.66E-03	0.55	6.25E-03	0.67
34	8.36	1.56E-02	0.46	9.63E-03	0.55
35	8.61	1.71E-02	0.91	2.37E-02	0.40
36	8.85	1.04E-01	0.39	4.61E-02	0.35
37	9.10	1.28E-01	0.36	7.39E-02	0.44
38	9.35	6.16E-02	0.46	1.71E-02	0.83
39	9.59	2.08E-02	0.76	8.16E-03	1.20
40	9.84	1.60E-02	0.85	8.02E-03	1.21
41	10.08	1.42E-02	0.90	7.47E-03	1.27
42	10.33	1.28E-02	0.96	7.80E-03	1.24
43	10.58	1.29E-02	0.96	8.30E-03	1.20
44	10.82	1.38E-02	0.93	9.75E-03	1.10
45	11.07	1.41E-02	0.92	1.07E-02	1.05
46	11.31	1.69E-02	0.85	1.22E-02	0.99
47	11.56	2.17E-02	0.76	1.36E-02	0.96
48	11.81	3.24E-02	0.64	1.63E-02	0.78
49	12.05	4.57E-02	0.56	2.23E-02	0.68
50	12.30	4.44E-02	0.55	2.07E-02	0.79
51	12.54	3.60E-02	0.60	1.71E-02	0.86
52	12.79	3.73E-02	0.60	1.90E-02	0.82

Table A-7 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
53	13.03	3.87E-02	0.60	2.01E-02	0.80
54	13.28	4.26E-02	0.57	2.26E-02	0.77
55	13.53	4.86E-02	0.54	2.49E-02	0.74
56	13.77	5.37E-02	0.52	2.49E-02	0.74
57	14.02	5.31E-02	0.53	2.46E-02	0.75
58	14.26	5.10E-02	0.54	2.51E-02	0.75
59	14.51	5.15E-02	0.54	2.71E-02	0.74
60	14.76	5.50E-02	0.54	3.95E-02	0.63
61	15.00	7.33E-02	0.48	5.37E-02	0.48
62	15.25	6.74E-02	0.50	4.95E-02	0.57
63	15.49	5.93E-02	0.53	4.10E-02	0.63
64	15.74	7.18E-02	0.50	4.99E-02	0.58
65	15.99	7.90E-02	0.48	5.38E-02	0.56
66	16.23	8.51E-02	0.47	5.82E-02	0.55
67	16.48	7.55E-02	0.57	6.04E-02	0.55
68	16.72	7.88E-02	0.60	6.72E-02	0.53
69	16.97	8.15E-02	0.61	7.28E-02	0.52
70	17.22	1.06E-01	0.89	8.20E-02	0.50
71	17.46	1.26E-01	0.81	9.58E-02	0.48
72	17.71	1.44E-01	0.77	9.39E-02	0.95
73	17.95	1.71E-01	0.71	1.13E-01	0.87
74	18.20	2.42E-01	0.61	2.07E-01	0.64
75	18.44	1.46E-01	0.78	1.59E-01	0.74
76	18.69	1.62E-01	0.73	1.86E-01	0.68
77	18.94	1.78E-01	0.70	2.01E-01	0.66
78	19.18	1.97E-01	0.66	2.27E-01	0.62
79	19.43	2.19E-01	0.64	2.47E-01	0.60
80	19.67	2.51E-01	0.60	2.67E-01	0.58
81	19.92	2.64E-01	0.59	2.97E-01	0.56
82	20.17	2.75E-01	0.58	3.14E-01	0.54
83	20.41	3.10E-01	0.55	3.61E-01	0.52
84	20.66	3.40E-01	0.53	3.81E-01	0.50
85	20.90	3.74E-01	0.52	4.56E-01	0.48
86	21.15	4.59E-01	0.48	6.83E-01	0.41
87	21.40	4.28E-01	0.49	8.05E-01	0.39
88	21.64	3.79E-01	0.52	7.73E-01	0.40
89	21.89	4.14E-01	0.50	8.64E-01	0.39
90	22.13	4.82E-01	0.48	9.63E-01	0.38
91	22.38	5.47E-01	0.46	1.13E+00	0.53
92	22.62	6.37E-01	0.43	1.24E+00	0.51
93	22.87	7.49E-01	0.42	1.41E+00	0.49
94	23.12	6.76E-01	0.54	1.56E+00	0.47
95	23.36	1.09E+00	0.54	1.67E+00	0.46
96	23.61	1.32E+00	0.50	1.83E+00	0.44
97	23.85	1.57E+00	0.47	1.94E+00	0.44
98	24.10	1.88E+00	0.44	2.19E+00	0.41
99	24.35	2.18E+00	0.42	2.48E+00	0.40
100	24.59	1.98E+00	0.43	2.25E+00	0.41
101	24.84	1.95E+00	0.43	2.24E+00	0.42
102	25.08	1.99E+00	0.43	2.38E+00	0.41
103	25.33	2.02E+00	0.43	2.36E+00	0.40
104	25.58	1.97E+00	0.43	2.39E+00	0.40

Table A-7 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
105	25.82	2.02E+00	0.43	2.44E+00	0.40
106	26.07	2.06E+00	0.42	2.47E+00	0.40
107	26.31	2.04E+00	0.43	2.50E+00	0.40
108	26.56	1.98E+00	0.43	2.44E+00	0.40
109	26.81	2.07E+00	0.42	2.41E+00	0.41
110	27.05	2.08E+00	0.43	2.43E+00	0.40
111	27.30	1.99E+00	0.43	2.55E+00	0.39
112	27.54	1.43E+00	0.49	1.97E+00	0.43
113	27.79	1.06E+00	0.55	1.67E+00	0.46
114	28.03	1.02E+00	0.56	1.70E+00	0.46
115	28.28	1.12E+00	0.54	1.87E+00	0.44
116	28.53	1.17E+00	0.53	2.08E+00	0.42
117	28.77	1.22E+00	0.52	2.24E+00	0.41
118	29.02	1.38E+00	0.50	2.25E+00	0.41
119	29.26	1.42E+00	0.49	2.28E+00	0.41
120	29.51	1.42E+00	0.49	2.22E+00	0.41
121	29.76	1.41E+00	0.49	2.10E+00	0.42
122	30.19	7.87E-01	0.65	1.95E-01	1.29
123	30.43	2.21E+00	0.42	1.80E+00	0.45
124	30.68	1.66E+00	0.47	1.62E+00	0.47
125	30.92	1.64E+00	0.46	1.79E+00	0.46
126	31.17	1.79E+00	0.45	1.95E+00	0.44
127	31.42	1.88E+00	0.44	2.11E+00	0.43
128	31.66	1.97E+00	0.44	2.42E+00	0.42
129	31.91	2.17E+00	0.43	2.48E+00	0.41
130	32.15	2.24E+00	0.42	2.59E+00	0.40
131	32.40	2.41E+00	0.42	2.72E+00	0.40
132	32.65	2.76E+00	0.40	2.82E+00	0.40
133	32.89	3.29E+00	0.38	3.26E+00	0.38
134	33.14	3.80E+00	0.36	3.58E+00	0.37
135	33.38	3.71E+00	0.37	3.17E+00	0.38
136	33.63	3.58E+00	0.37	3.08E+00	0.38
137	33.88	3.52E+00	0.37	2.89E+00	0.39
138	34.12	3.49E+00	0.37	2.98E+00	0.39
139	34.37	3.44E+00	0.38	2.94E+00	0.39
140	34.61	3.37E+00	0.38	2.98E+00	0.39
141	34.86	3.33E+00	0.38	3.01E+00	0.39
142	35.11	3.32E+00	0.38	3.21E+00	0.38
143	35.35	3.20E+00	0.39	3.36E+00	0.38
144	35.60	3.20E+00	0.38	3.49E+00	0.37
145	35.84	3.16E+00	0.39	3.59E+00	0.37
146	36.09	3.32E+00	0.38	3.91E+00	0.36
147	36.33	3.26E+00	0.38	3.63E+00	0.37
148	36.58	2.80E+00	0.40	2.62E+00	0.41
149	36.83	2.69E+00	0.41	2.23E+00	0.43
150	37.07	2.58E+00	0.41	2.20E+00	0.43
151	37.32	2.54E+00	0.41	2.18E+00	0.43
152	37.56	2.53E+00	0.41	2.13E+00	0.44
153	37.81	2.44E+00	0.41	2.05E+00	0.44
154	38.06	2.39E+00	0.42	2.07E+00	0.44
155	38.30	2.36E+00	0.42	2.04E+00	0.44
156	38.55	2.32E+00	0.43	2.07E+00	0.44

Table A-7 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
157	38.79	2.39E+00	0.42	2.11E+00	0.44
158	39.04	2.54E+00	0.41	2.12E+00	0.44
159	39.29	2.60E+00	0.40	2.24E+00	0.43
160	39.53	2.29E+00	0.42	2.20E+00	0.43
161	39.78	2.09E+00	0.44	1.91E+00	0.45
162	40.02	2.05E+00	0.44	1.81E+00	0.46
163	40.27	2.12E+00	0.43	1.75E+00	0.47
164	40.52	2.17E+00	0.43	1.79E+00	0.46
165	40.76	2.13E+00	0.44	1.79E+00	0.46
166	41.01	2.17E+00	0.43	1.78E+00	0.46
167	41.25	2.13E+00	0.44	1.58E+00	0.49
168	41.50	2.04E+00	0.44	1.76E+00	0.47
169	41.74	1.95E+00	0.45	1.81E+00	0.46
170	41.99	1.93E+00	0.45	2.07E+00	0.44
171	42.24	2.05E+00	0.44	2.59E+00	0.41
172	42.48	2.20E+00	0.43	2.84E+00	0.40
173	42.73	2.24E+00	0.43	2.52E+00	0.41
174	42.97	2.23E+00	0.43	2.32E+00	0.42
175	43.22	2.19E+00	0.44	2.25E+00	0.43
176	43.47	2.17E+00	0.43	2.28E+00	0.43
177	43.71	2.13E+00	0.44	2.33E+00	0.42
178	43.96	2.16E+00	0.44	2.31E+00	0.43
179	44.20	2.02E+00	0.45	2.29E+00	0.42
180	44.45	1.85E+00	0.46	2.37E+00	0.42
181	44.70	1.89E+00	0.46	2.42E+00	0.42
182	44.94	1.89E+00	0.46	2.52E+00	0.42
183	45.19	2.01E+00	0.45	2.81E+00	0.40
184	45.43	2.16E+00	0.44	2.87E+00	0.39
185	45.68	2.29E+00	0.43	2.59E+00	0.41
186	45.93	2.31E+00	0.43	2.35E+00	0.42
187	46.17	2.36E+00	0.43	2.22E+00	0.43
188	46.42	2.42E+00	0.42	2.19E+00	0.44
189	46.66	2.40E+00	0.42	2.12E+00	0.44
190	46.91	2.46E+00	0.42	2.09E+00	0.44
191	47.15	2.52E+00	0.41	2.04E+00	0.45
192	47.40	2.51E+00	0.42	1.97E+00	0.45
193	47.65	2.46E+00	0.42	2.06E+00	0.45
194	47.89	2.50E+00	1.70	2.14E+00	0.44
195	48.14	2.50E+00	0.42	2.27E+00	0.43
196	48.38	2.67E+00	0.41	2.43E+00	0.42
197	48.63	2.65E+00	0.41	2.44E+00	0.42
198	48.88	2.83E+00	0.40	2.49E+00	0.42
199	49.12	2.78E+00	0.41	2.86E+00	0.40
200	49.37	3.08E+00	0.39	3.20E+00	0.39
201	49.61	3.28E+00	0.38	3.39E+00	0.38
202	49.86	3.46E+00	0.38	3.45E+00	0.38
203	50.11	3.46E+00	0.38	3.29E+00	0.39
204	50.35	3.33E+00	0.38	3.04E+00	0.39
205	50.60	3.15E+00	0.39	2.70E+00	0.41
206	50.84	3.01E+00	0.39	2.55E+00	0.41
207	51.09	2.76E+00	0.40	2.66E+00	0.41
208	51.33	2.76E+00	0.41	2.93E+00	0.40

Table A-7 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
209	51.58	2.85E+00	0.40	3.15E+00	0.39
210	51.83	2.79E+00	0.40	3.39E+00	0.38
211	52.07	2.61E+00	0.42	3.58E+00	0.37
212	52.32	2.49E+00	0.42	3.79E+00	0.37
213	52.56	2.41E+00	0.42	3.97E+00	0.37
214	52.81	2.38E+00	0.43	4.11E+00	0.37
215	53.06	2.35E+00	0.42	3.92E+00	0.37
216	53.30	2.27E+00	0.43	3.65E+00	0.37
217	53.55	2.24E+00	0.43	3.47E+00	0.38
218	53.79	2.19E+00	0.43	3.36E+00	0.38
219	54.04	2.08E+00	0.44	3.12E+00	0.39
220	54.29	1.99E+00	0.45	2.88E+00	0.40
221	54.53	2.06E+00	0.45	3.02E+00	0.39
222	54.78	1.93E+00	0.46	2.88E+00	0.40
223	55.02	1.91E+00	0.46	2.65E+00	0.41
224	55.27	1.66E+00	0.49	2.47E+00	0.42
225	55.52	1.55E+00	0.50	2.35E+00	0.43
226	55.76	1.45E+00	0.51	2.22E+00	0.43
227	56.01	1.36E+00	0.52	2.08E+00	0.44
228	56.25	1.29E+00	0.54	1.93E+00	0.46
229	56.50	1.21E+00	0.56	1.84E+00	0.47
230	56.74	1.10E+00	0.58	1.72E+00	0.48
231	56.99	1.05E+00	0.59	1.87E+00	0.47
232	57.24	1.10E+00	0.58	2.10E+00	0.44
233	57.48	1.34E+00	0.53	2.38E+00	0.42
234	57.73	1.53E+00	0.51	2.57E+00	0.41
235	57.97	1.83E+00	0.46	2.75E+00	0.40
236	58.22	2.31E+00	0.42	2.93E+00	0.39
237	58.47	2.55E+00	0.41	3.09E+00	0.39
238	58.71	2.74E+00	0.40	3.13E+00	0.39
239	58.96	2.67E+00	0.41	3.06E+00	0.39
240	59.20	2.52E+00	0.41	2.98E+00	0.39
241	59.45	2.64E+00	0.41	2.87E+00	0.39
242	59.70	2.77E+00	0.40	2.86E+00	0.40
243	59.94	2.83E+00	0.40	2.89E+00	0.39
244	60.37	7.34E-02	2.21	3.81E-03	15.91
245	60.62	2.00E+00	0.43	2.25E+00	0.41
246	60.86	1.99E+00	0.44	2.47E+00	0.41
247	61.11	2.22E+00	0.43	2.28E+00	0.43
248	61.36	2.46E+00	0.41	2.30E+00	0.43
249	61.60	2.39E+00	0.42	2.10E+00	0.43
250	61.85	2.33E+00	0.42	1.89E+00	0.45
251	62.09	2.01E+00	0.44	1.73E+00	0.47
252	62.34	1.87E+00	0.45	1.53E+00	0.49
253	62.59	1.75E+00	0.46	1.37E+00	0.51
254	62.83	1.62E+00	0.48	1.29E+00	0.53
255	63.08	1.55E+00	0.48	1.22E+00	0.54
256	63.32	1.49E+00	0.49	1.20E+00	0.55
257	63.57	1.38E+00	0.51	1.14E+00	0.56
258	63.82	1.36E+00	0.50	1.31E+00	0.51
259	64.06	1.18E+00	0.55	1.15E+00	0.55
260	64.31	1.14E+00	0.55	1.00E+00	0.59

Table A-7 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
261	64.55	1.18E+00	0.54	1.05E+00	0.57
262	64.80	1.18E+00	0.54	1.02E+00	0.58
263	65.04	1.16E+00	0.54	1.00E+00	0.58
264	65.29	1.10E+00	0.56	9.11E-01	0.61
265	65.54	1.00E+00	0.59	8.75E-01	0.62
266	65.78	9.48E-01	0.60	8.60E-01	0.62
267	66.03	9.15E-01	0.61	8.65E-01	0.62
268	66.27	8.58E-01	0.63	8.73E-01	0.62
269	66.52	8.20E-01	0.64	8.79E-01	0.61
270	66.77	7.90E-01	0.65	8.70E-01	0.62
271	67.01	8.91E-01	0.60	1.00E+00	0.56
272	67.26	7.46E-01	0.66	9.58E-01	0.58
273	67.50	6.92E-01	0.69	9.23E-01	0.59
274	67.75	6.70E-01	0.70	8.99E-01	0.60
275	68.00	6.46E-01	0.71	8.63E-01	0.61
276	68.24	5.73E-01	0.48	8.95E-01	0.60
277	68.49	5.31E-01	0.49	8.17E-01	0.63
278	68.73	4.80E-01	0.51	7.89E-01	0.64
279	68.98	4.28E-01	0.54	7.86E-01	0.64
280	69.23	4.11E-01	0.54	7.74E-01	0.64
281	69.47	4.16E-01	0.54	7.94E-01	0.63
282	69.72	3.99E-01	0.55	8.00E-01	0.63
283	69.96	6.00E-01	0.45	9.14E-01	0.58
284	70.21	1.19E+00	0.36	9.07E-01	0.59
285	70.45	1.38E+00	0.35	7.91E-01	0.63
286	70.70	1.38E+00	0.35	7.23E-01	0.65
287	70.95	1.30E+00	0.35	6.36E-01	0.70
288	71.19	1.19E+00	0.36	5.95E-01	0.72
289	71.44	1.10E+00	0.35	5.19E-01	0.47
290	71.68	9.14E-01	0.38	4.72E-01	0.49
291	71.93	6.58E-01	0.41	4.05E-01	0.51
292	72.18	6.20E-01	0.42	4.37E-01	0.49
293	72.42	6.16E-01	0.41	4.73E-01	0.47
294	72.67	5.51E-01	0.43	4.85E-01	0.46
295	72.91	5.47E-01	0.43	4.91E-01	0.45
296	73.16	6.78E-01	0.40	5.60E-01	0.42
297	73.41	8.63E-01	0.37	5.82E-01	0.42
298	73.65	1.07E+00	0.34	6.51E-01	0.41
299	73.90	1.15E+00	0.34	7.31E-01	0.39
300	74.14	1.16E+00	0.34	7.58E-01	0.39
301	74.39	9.78E-01	0.36	7.97E-01	0.38
302	74.63	7.82E-01	0.39	7.66E-01	0.38
303	74.88	5.79E-01	0.43	6.73E-01	0.40
304	75.13	4.24E-01	0.48	6.27E-01	0.41
305	75.37	3.58E-01	0.51	6.34E-01	0.40
306	75.62	3.22E-01	0.53	5.17E-01	0.43
307	75.86	2.94E-01	0.54	4.00E-01	0.47
308	76.11	2.79E-01	0.55	2.99E-01	0.53
309	76.36	3.33E-01	0.52	2.92E-01	0.54
310	76.60	3.74E-01	0.48	3.45E-01	0.50
311	76.85	3.81E-01	0.48	4.43E-01	0.45
312	77.09	3.35E-01	0.50	4.94E-01	0.43

Table A-7 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
313	77.34	2.74E-01	0.55	4.57E-01	0.44
314	77.59	2.29E-01	0.60	3.94E-01	0.47
315	77.83	2.12E-01	0.61	2.97E-01	0.53
316	78.08	2.00E-01	0.36	2.22E-01	0.60
317	78.32	1.87E-01	0.36	1.82E-01	0.65
318	78.57	1.83E-01	0.36	1.63E-01	0.37
319	78.82	1.70E-01	0.36	1.51E-01	0.38
320	79.06	1.46E-01	0.38	1.46E-01	0.37
321	79.31	1.55E-01	0.36	1.58E-01	0.36
322	79.55	1.25E-01	0.39	1.66E-01	0.35
323	79.80	7.21E-02	0.50	1.38E-01	0.38
324	80.04	6.25E-02	0.52	1.12E-01	0.40
325	80.29	6.01E-02	0.52	8.95E-02	0.43
326	80.54	5.80E-02	0.52	7.23E-02	0.46
327	80.78	5.64E-02	0.52	5.51E-02	0.52
328	81.03	6.07E-02	0.50	4.73E-02	0.56
329	81.27	6.25E-02	0.48	4.88E-02	0.54
330	81.52	6.51E-02	0.47	4.82E-02	0.54
331	81.77	6.05E-02	0.48	4.41E-02	0.56
332	82.01	5.24E-02	0.51	4.12E-02	0.57
333	82.26	5.00E-02	0.53	4.51E-02	0.55
334	82.50	7.54E-02	0.43	7.32E-02	0.43
335	82.75	5.43E-02	0.50	7.56E-02	0.42
336	83.00	3.56E-02	0.61	5.22E-02	0.50
337	83.24	3.09E-02	0.64	4.36E-02	0.54
338	83.49	2.49E-02	0.70	3.14E-02	0.63
339	83.73	2.22E-02	0.74	1.99E-02	0.78
340	83.98	2.32E-02	0.71	1.37E-02	0.94
341	84.22	1.97E-02	0.43	1.17E-02	0.56
342	84.47	1.68E-02	0.45	9.55E-03	0.61
343	84.72	1.54E-02	0.47	7.97E-03	0.66
344	84.96	1.38E-02	0.49	7.79E-03	0.65
345	85.21	1.48E-02	0.46	8.41E-03	0.62
346	85.45	1.66E-02	0.43	1.03E-02	0.54
347	85.70	1.47E-02	0.45	1.05E-02	0.53
348	85.95	1.26E-02	0.48	9.01E-03	0.57
349	86.19	1.18E-02	0.49	7.77E-03	0.61
350	86.44	1.14E-02	0.50	6.76E-03	0.64
351	86.68	1.16E-02	0.49	5.95E-03	0.68
352	86.93	1.28E-02	0.47	4.11E-03	0.95
353	87.18	1.18E-02	0.48	4.33E-03	0.91
354	87.42	1.10E-02	0.49	4.23E-03	0.93
355	87.67	1.04E-02	0.50	4.77E-03	0.66
356	87.91	9.78E-03	0.52	3.86E-03	0.95
357	88.16	9.59E-03	0.51	5.28E-03	0.70
358	88.41	1.08E-02	0.49	6.55E-03	0.62
359	88.65	1.15E-02	0.47	8.37E-03	0.55
360	88.90	9.96E-03	0.50	8.37E-03	0.55
361	89.14	7.70E-03	0.52	8.04E-03	0.55
362	89.39	7.43E-03	0.53	6.45E-03	0.73
363	89.63	8.58E-03	0.54	6.55E-03	0.73
364	89.88	5.86E-03	0.79	6.69E-03	0.72

Table A-8. Axial distribution of ^{137}Cs in the spine of element F03-01
(corrected to October 31, 1974)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
1	0.25	6.40E-03	1.02	2.35E-03	1.88
2	0.49	6.26E-03	1.06	2.17E-03	1.98
3	0.74	6.13E-03	1.08	2.47E-03	1.97
4	0.99	5.26E-03	1.42	2.79E-03	1.40
5	1.23	6.68E-03	0.91	3.21E-03	1.31
6	1.48	6.87E-03	0.90	3.14E-03	1.33
7	1.72	7.27E-03	0.88	3.40E-03	1.28
8	1.97	8.54E-03	0.82	4.08E-03	1.18
9	2.22	1.07E-02	0.74	6.12E-03	0.97
10	2.46	1.39E-02	0.66	8.30E-03	0.84
11	2.71	1.82E-02	0.58	1.17E-02	0.71
12	2.95	2.44E-02	0.51	1.84E-02	0.68
13	3.20	4.24E-02	0.46	2.27E-02	0.62
14	3.44	5.38E-02	0.43	2.85E-02	0.57
15	3.69	6.69E-02	0.40	3.40E-02	0.52
16	3.94	7.79E-02	0.38	3.97E-02	0.50
17	4.18	8.69E-02	0.37	4.84E-02	0.46
18	4.43	1.00E-01	0.36	5.60E-02	0.44
19	4.67	1.05E-01	0.37	6.30E-02	0.42
20	4.92	1.01E-01	0.39	6.88E-02	0.42
21	5.17	8.43E-02	0.48	7.77E-02	0.40
22	5.41	5.26E-02	0.72	7.21E-02	0.82
23	5.66	3.15E-02	1.08	8.06E-02	0.79
24	5.90	1.39E-01	0.60	7.25E-02	0.82
25	6.15	1.45E-01	0.59	7.79E-02	0.79
26	6.40	1.58E-01	0.57	8.06E-02	0.78
27	6.64	1.67E-01	0.56	8.15E-02	0.78
28	6.89	1.73E-01	0.55	9.24E-02	0.72
29	7.13	1.90E-01	0.52	9.95E-02	0.71
30	7.38	1.97E-01	0.52	1.09E-01	0.68
31	7.62	2.07E-01	0.51	1.16E-01	0.66
32	7.87	2.08E-01	0.52	1.25E-01	0.64
33	8.12	2.18E-01	0.50	1.28E-01	0.63
34	8.36	2.25E-01	0.50	1.42E-01	0.60
35	8.61	2.31E-01	0.50	1.45E-01	0.60
36	8.85	2.14E-01	0.51	1.59E-01	0.58
37	9.10	1.62E-01	0.58	1.77E-01	0.55
38	9.35	1.62E-01	0.57	1.73E-01	0.56
39	9.59	2.13E-01	0.51	1.72E-01	0.56
40	9.84	2.79E-01	0.46	1.72E-01	0.56
41	10.08	3.39E-01	0.43	1.69E-01	0.56
42	10.33	2.53E-01	0.48	1.78E-01	0.56
43	10.58	1.81E-01	0.55	2.00E-01	0.53
44	10.82	1.79E-01	0.55	2.07E-01	0.52
45	11.07	2.00E-01	0.53	2.26E-01	0.50
46	11.31	1.81E-01	0.56	2.36E-01	0.50
47	11.56	1.37E-01	0.62	2.51E-01	0.49
48	11.81	1.11E-01	0.69	2.63E-01	0.48
49	12.05	1.22E-01	0.66	2.85E-01	0.47
50	12.30	1.40E-01	0.63	2.89E-01	0.46
51	12.54	1.49E-01	0.61	2.77E-01	0.47
52	12.79	1.47E-01	0.61	2.75E-01	0.47

Table A-8 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
53	13.03	1.45E-01	0.63	2.73E-01	0.48
54	13.28	1.54E-01	0.60	2.66E-01	0.48
55	13.53	1.56E-01	0.60	2.81E-01	0.47
56	13.77	1.58E-01	0.59	3.10E-01	0.46
57	14.02	1.63E-01	0.59	3.10E-01	0.45
58	14.26	1.71E-01	0.57	3.16E-01	0.46
59	14.51	1.76E-01	0.58	3.08E-01	0.46
60	14.76	1.90E-01	0.56	3.01E-01	0.46
61	15.00	2.22E-01	0.52	3.16E-01	0.45
62	15.25	2.02E-01	0.55	3.16E-01	0.46
63	15.49	1.64E-01	0.59	3.21E-01	0.45
64	15.74	1.50E-01	0.61	3.30E-01	0.45
65	15.99	1.74E-01	0.58	3.15E-01	0.45
66	16.23	2.01E-01	0.54	3.04E-01	0.46
67	16.48	2.18E-01	0.53	2.99E-01	0.46
68	16.72	2.03E-01	0.54	3.07E-01	0.46
69	16.97	1.77E-01	0.57	3.18E-01	0.45
70	17.22	1.68E-01	0.58	3.28E-01	0.45
71	17.46	1.45E-01	0.62	3.29E-01	0.45
72	17.71	1.49E-01	0.62	3.39E-01	0.44
73	17.95	1.72E-01	0.59	3.44E-01	0.44
74	18.20	2.05E-01	0.54	3.38E-01	0.44
75	18.44	2.17E-01	0.53	3.26E-01	0.45
76	18.69	2.16E-01	0.53	3.17E-01	0.46
77	18.94	2.07E-01	0.54	3.06E-01	0.46
78	19.18	2.04E-01	0.54	3.02E-01	0.46
79	19.43	1.92E-01	0.55	3.01E-01	0.46
80	19.67	1.92E-01	0.55	3.00E-01	0.46
81	19.92	1.88E-01	0.56	3.07E-01	0.46
82	20.17	1.90E-01	0.56	3.01E-01	0.46
83	20.41	1.97E-01	0.55	2.83E-01	0.47
84	20.66	2.13E-01	0.53	2.76E-01	0.48
85	20.90	2.29E-01	0.52	2.99E-01	0.47
86	21.15	2.45E-01	0.50	3.40E-01	0.44
87	21.40	2.66E-01	0.48	3.43E-01	0.44
88	21.64	2.72E-01	0.48	3.45E-01	0.44
89	21.89	2.54E-01	0.50	3.50E-01	0.44
90	22.13	2.58E-01	0.49	3.70E-01	0.43
91	22.38	2.75E-01	0.48	3.87E-01	0.42
92	22.62	3.03E-01	0.46	4.05E-01	0.42
93	22.87	3.37E-01	0.45	4.11E-01	0.42
94	23.12	3.83E-01	0.43	4.50E-01	0.40
95	23.36	4.37E-01	0.41	4.87E-01	0.40
96	23.61	4.88E-01	0.40	5.38E-01	0.38
97	23.85	5.03E-01	0.39	6.31E-01	0.55
98	24.10	5.14E-01	0.60	6.81E-01	0.53
99	24.35	5.22E-01	0.59	6.68E-01	0.54
100	24.59	5.33E-01	0.59	6.40E-01	0.55
101	24.84	5.26E-01	0.59	6.27E-01	0.55
102	25.08	5.43E-01	0.58	6.84E-01	0.53
103	25.33	5.88E-01	0.56	6.62E-01	0.54
104	25.58	6.16E-01	0.56	6.73E-01	0.54

Table A-8 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
105	25.82	6.34E-01	0.55	6.92E-01	0.53
106	26.07	6.51E-01	0.54	6.87E-01	0.53
107	26.31	6.38E-01	0.55	6.54E-01	0.54
108	26.56	6.18E-01	0.55	6.40E-01	0.55
109	26.81	6.09E-01	0.55	6.22E-01	0.55
110	27.05	5.83E-01	0.57	6.34E-01	0.54
111	27.30	5.99E-01	0.56	6.22E-01	0.55
112	27.54	6.46E-01	0.54	5.65E-01	0.58
113	27.79	6.74E-01	0.53	5.57E-01	0.58
114	28.03	6.38E-01	0.54	5.59E-01	0.58
115	28.28	6.35E-01	0.55	5.43E-01	0.58
116	28.53	6.48E-01	0.54	5.43E-01	0.58
117	28.77	6.90E-01	0.53	5.58E-01	0.57
118	29.02	7.05E-01	0.52	5.77E-01	0.57
119	29.26	7.37E-01	0.51	6.04E-01	0.56
120	29.51	7.64E-01	0.51	6.99E-01	0.53
121	29.94	2.97E+00	0.32	2.06E+00	0.35
122	30.19	9.35E-01	0.47	1.01E+00	0.46
123	30.43	5.92E-01	0.57	8.35E-01	0.49
124	30.68	5.02E-01	0.61	8.15E-01	0.50
125	30.92	5.57E-01	0.58	8.71E-01	0.48
126	31.17	6.67E-01	0.54	9.29E-01	0.47
127	31.42	8.21E-01	0.49	9.65E-01	0.46
128	31.66	9.53E-01	0.47	1.02E+00	0.46
129	31.91	9.86E-01	0.46	1.01E+00	0.46
130	32.15	1.01E+00	0.46	1.02E+00	0.46
131	32.40	9.82E-01	0.48	9.84E-01	0.46
132	32.65	1.00E+00	0.46	9.10E-01	0.48
133	32.89	1.04E+00	0.45	8.83E-01	0.49
134	33.14	9.37E-01	0.47	8.62E-01	0.49
135	33.38	9.38E-01	0.47	8.68E-01	0.49
136	33.63	9.46E-01	0.48	8.60E-01	0.49
137	33.88	9.28E-01	0.48	8.43E-01	0.49
138	34.12	9.30E-01	0.48	8.53E-01	0.49
139	34.37	9.33E-01	0.47	8.31E-01	0.50
140	34.61	9.25E-01	0.48	8.39E-01	0.49
141	34.86	9.20E-01	0.48	8.20E-01	0.50
142	35.11	8.90E-01	0.49	8.02E-01	0.51
143	35.35	9.17E-01	0.48	8.13E-01	0.50
144	35.60	9.55E-01	0.47	8.69E-01	0.49
145	35.84	9.47E-01	0.47	8.49E-01	0.50
146	36.09	9.35E-01	0.47	8.53E-01	0.49
147	36.33	9.17E-01	0.48	8.51E-01	0.50
148	36.58	9.25E-01	0.48	8.33E-01	0.50
149	36.83	8.69E-01	0.49	7.88E-01	0.51
150	37.07	8.15E-01	0.50	7.53E-01	0.52
151	37.32	7.88E-01	0.51	7.24E-01	0.53
152	37.56	8.17E-01	0.50	7.29E-01	0.52
153	37.81	8.60E-01	0.49	7.13E-01	0.53
154	38.06	8.58E-01	0.49	6.88E-01	0.54
155	38.30	7.64E-01	0.51	6.64E-01	0.55
156	38.55	7.60E-01	0.52	6.63E-01	0.55

Table A-8 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
157	38.79	8.12E-01	0.50	6.52E-01	0.55
158	39.04	8.62E-01	0.49	6.51E-01	0.55
159	39.29	9.11E-01	0.48	6.65E-01	0.54
160	39.53	9.19E-01	0.48	6.56E-01	0.55
161	39.78	8.55E-01	0.49	5.97E-01	0.57
162	40.02	8.12E-01	0.50	5.59E-01	0.59
163	40.27	7.88E-01	0.51	5.37E-01	0.60
164	40.52	7.35E-01	0.52	5.17E-01	0.61
165	40.76	7.07E-01	0.53	5.06E-01	0.61
166	41.01	6.55E-01	0.55	4.98E-01	0.62
167	41.25	6.30E-01	0.55	4.83E-01	0.62
168	41.50	6.06E-01	0.56	4.88E-01	0.62
169	41.74	5.83E-01	0.57	4.94E-01	0.61
170	41.99	5.59E-01	0.58	5.12E-01	0.60
171	42.24	5.61E-01	0.58	5.56E-01	0.58
172	42.48	5.72E-01	0.57	5.93E-01	0.57
173	42.73	5.73E-01	0.57	5.77E-01	0.58
174	42.97	5.85E-01	0.57	5.70E-01	0.57
175	43.22	5.74E-01	0.57	5.57E-01	0.58
176	43.47	5.64E-01	0.58	5.52E-01	0.59
177	43.71	5.43E-01	0.59	5.43E-01	0.59
178	43.96	5.43E-01	0.59	5.63E-01	0.58
179	44.20	5.43E-01	0.59	5.72E-01	0.58
180	44.45	5.13E-01	0.60	5.72E-01	0.58
181	44.70	4.48E-01	0.64	5.72E-01	0.58
182	44.94	4.39E-01	0.65	5.74E-01	0.58
183	45.19	4.58E-01	0.63	5.65E-01	0.58
184	45.43	4.84E-01	0.62	5.54E-01	0.58
185	45.68	5.37E-01	0.60	5.78E-01	0.57
186	45.93	5.87E-01	0.57	6.02E-01	0.56
187	46.17	6.09E-01	0.56	6.02E-01	0.56
188	46.42	6.36E-01	0.55	6.21E-01	0.56
189	46.66	6.45E-01	0.55	6.20E-01	0.56
190	46.91	6.61E-01	0.54	6.16E-01	0.57
191	47.15	6.86E-01	0.54	6.28E-01	0.55
192	47.40	6.96E-01	0.53	6.43E-01	0.55
193	47.65	7.17E-01	0.52	6.56E-01	0.54
194	47.89	7.39E-01	0.52	6.80E-01	0.54
195	48.14	7.49E-01	0.52	6.86E-01	0.54
196	48.38	7.68E-01	0.51	6.60E-01	0.55
197	48.63	7.97E-01	0.50	6.47E-01	0.55
198	48.88	8.59E-01	0.49	7.03E-01	0.53
199	49.12	8.92E-01	0.48	7.55E-01	0.52
200	49.37	8.91E-01	0.48	7.65E-01	0.51
201	49.61	8.81E-01	0.48	7.61E-01	0.51
202	49.86	8.49E-01	0.49	7.46E-01	0.51
203	50.11	8.09E-01	0.50	7.06E-01	0.52
204	50.35	7.78E-01	0.51	6.48E-01	0.54
205	50.60	7.26E-01	0.52	5.87E-01	0.57
206	50.84	6.76E-01	0.54	5.39E-01	0.59
207	51.09	6.71E-01	0.53	5.07E-01	0.60
208	51.33	6.43E-01	0.54	5.01E-01	0.60

Table A-8 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
209	51.58	6.04E-01	0.56	4.88E-01	0.61
210	51.83	5.55E-01	0.58	4.55E-01	0.63
211	52.07	5.01E-01	0.60	4.18E-01	0.65
212	52.32	4.19E-01	0.65	3.66E-01	0.69
213	52.56	3.37E-01	0.71	3.03E-01	0.75
214	52.81	2.73E-01	0.79	2.46E-01	0.83
215	53.06	2.37E-01	0.84	2.06E-01	0.90
216	53.30	2.18E-01	0.89	1.86E-01	0.94
217	53.55	2.05E-01	0.91	1.72E-01	0.98
218	53.79	2.02E-01	0.91	1.67E-01	0.99
219	54.04	1.95E-01	0.93	1.52E-01	1.05
220	54.29	1.88E-01	0.95	1.46E-01	1.06
221	54.53	1.83E-01	0.97	1.37E-01	1.10
222	54.78	1.82E-01	0.96	1.33E-01	1.11
223	55.02	1.78E-01	0.97	1.31E-01	1.12
224	55.27	1.73E-01	0.99	1.33E-01	1.11
225	55.52	1.81E-01	0.96	1.39E-01	1.09
226	55.76	1.88E-01	0.94	1.55E-01	1.03
227	56.01	2.03E-01	0.91	1.64E-01	1.01
228	56.25	2.09E-01	0.90	1.78E-01	0.97
229	56.50	2.18E-01	0.88	1.87E-01	0.96
230	56.74	2.31E-01	0.86	1.96E-01	0.93
231	56.99	2.43E-01	0.85	1.99E-01	0.92
232	57.24	2.57E-01	0.82	2.02E-01	0.92
233	57.48	2.68E-01	0.81	2.00E-01	0.93
234	57.73	3.00E-01	0.77	2.08E-01	0.91
235	57.97	3.39E-01	0.73	2.18E-01	0.89
236	58.22	3.84E-01	0.69	2.40E-01	0.85
237	58.47	4.27E-01	0.66	2.79E-01	0.80
238	58.71	4.83E-01	0.62	3.45E-01	0.73
239	58.96	6.32E-01	0.55	5.04E-01	0.61
240	59.20	9.01E-01	0.47	7.53E-01	0.51
241	59.64	1.51E+00	1.05	7.26E-02	1.53
242	59.88	1.16E+00	0.43	1.11E+00	0.43
243	60.13	6.80E-01	0.52	5.16E-01	0.59
244	60.37	6.90E-01	0.52	3.92E-01	0.67
245	60.62	6.81E-01	0.53	4.05E-01	0.66
246	60.86	6.53E-01	0.53	5.04E-01	0.59
247	61.11	6.22E-01	0.55	4.63E-01	0.62
248	61.36	6.18E-01	0.54	4.14E-01	0.65
249	61.60	5.87E-01	0.56	3.82E-01	0.68
250	61.85	5.46E-01	0.58	3.52E-01	0.71
251	62.09	5.04E-01	0.59	3.32E-01	0.43
252	62.34	4.56E-01	0.39	3.23E-01	0.45
253	62.59	4.03E-01	0.40	3.13E-01	0.44
254	62.83	3.74E-01	0.42	3.08E-01	0.44
255	63.08	3.53E-01	0.42	2.84E-01	0.45
256	63.32	3.22E-01	0.43	2.61E-01	0.46
257	63.57	2.90E-01	0.45	2.34E-01	0.48
258	63.82	2.57E-01	0.47	2.13E-01	0.51
259	64.06	2.29E-01	0.49	1.99E-01	0.52
260	64.31	2.18E-01	0.50	1.94E-01	0.52

Table A-8 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
261	64.55	2.14E-01	0.50	1.85E-01	0.53
262	64.80	2.07E-01	0.51	1.75E-01	0.54
263	65.04	1.92E-01	0.52	1.64E-01	0.56
264	65.29	1.82E-01	0.53	1.56E-01	0.57
265	65.54	1.67E-01	0.55	1.45E-01	0.58
266	65.78	1.50E-01	0.58	1.32E-01	0.61
267	66.03	1.30E-01	0.61	1.18E-01	0.66
268	66.27	9.92E-02	0.69	1.02E-01	0.69
269	66.52	8.14E-02	0.41	8.96E-02	0.73
270	66.77	6.84E-02	0.43	8.88E-02	0.40
271	67.01	6.28E-02	0.45	8.12E-02	0.41
272	67.26	5.84E-02	0.47	7.83E-02	0.41
273	67.50	5.61E-02	0.46	7.56E-02	0.41
274	67.75	5.22E-02	0.48	7.35E-02	0.41
275	68.00	5.69E-02	0.46	6.95E-02	0.42
276	68.24	6.46E-02	0.44	7.27E-02	0.42
277	68.49	7.71E-02	0.41	8.17E-02	0.39
278	68.73	5.81E-02	0.46	6.79E-02	0.42
279	68.98	3.86E-02	0.54	4.51E-02	0.50
280	69.23	3.44E-02	0.57	3.63E-02	0.55
281	69.47	3.70E-02	0.55	3.98E-02	0.52
282	69.72	4.68E-02	0.50	4.32E-02	0.43
283	69.96	4.62E-02	0.51	3.91E-02	0.52
284	70.21	3.89E-02	0.54	3.04E-02	0.58
285	70.45	3.69E-02	0.55	3.16E-02	0.57
286	70.70	3.95E-02	0.53	3.40E-02	0.54
287	70.95	3.97E-02	0.52	3.35E-02	0.54
288	71.19	3.68E-02	0.54	3.42E-02	0.54
289	71.44	3.33E-02	0.56	3.46E-02	0.53
290	71.68	3.25E-02	0.56	3.31E-02	0.54
291	71.93	3.25E-02	0.58	3.42E-02	0.53
292	72.18	3.74E-02	0.53	3.74E-02	0.51
293	72.42	3.71E-02	0.52	4.11E-02	0.49
294	72.67	3.99E-02	0.50	4.42E-02	0.47
295	72.91	3.90E-02	0.51	4.30E-02	0.47
296	73.16	3.80E-02	0.52	3.80E-02	0.50
297	73.41	4.42E-02	0.49	4.26E-02	0.48
298	73.65	5.97E-02	0.44	4.84E-02	0.46
299	73.90	8.00E-02	0.40	5.29E-02	0.44
300	74.14	8.78E-02	0.39	5.21E-02	0.45
301	74.39	9.09E-02	0.39	5.00E-02	0.46
302	74.63	8.14E-02	0.40	4.95E-02	0.46
303	74.88	6.87E-02	0.42	5.39E-02	0.44
304	75.13	6.91E-02	0.41	4.47E-02	0.47
305	75.37	6.18E-02	0.42	3.19E-02	0.54
306	75.62	5.35E-02	0.44	2.56E-02	0.58
307	75.86	4.11E-02	0.48	2.11E-02	0.63
308	76.11	3.18E-02	0.52	1.51E-02	0.73
309	76.36	2.81E-02	0.55	1.16E-02	0.83
310	76.60	3.02E-02	0.53	1.18E-02	0.81
311	76.85	3.17E-02	0.52	9.46E-03	0.91
312	77.09	3.09E-02	0.53	7.65E-03	1.04

Table A-8 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
313	77.34	2.72E-02	0.56	6.71E-03	1.10
314	77.59	2.01E-02	0.63	4.15E-03	1.45
315	77.83	1.36E-02	0.77	3.02E-03	1.73
316	78.08	1.00E-02	0.88	2.85E-03	1.77
317	78.32	6.76E-03	1.09	4.44E-03	0.75
318	78.57	4.68E-03	0.71	4.15E-03	0.79
319	78.82	4.01E-03	0.79	7.55E-03	1.28
320	79.06	3.57E-03	0.90	4.00E-03	0.79
321	79.31	2.82E-03	1.01	2.72E-03	1.02
322	79.55	2.66E-03	1.04	2.33E-03	1.12
323	79.80	2.63E-03	1.03	2.46E-03	1.05
324	80.04	2.37E-03	1.07	2.36E-03	1.08
325	80.29	2.10E-03	1.17	2.11E-03	1.15
326	80.54	1.73E-03	1.32	1.71E-03	1.30
327	80.78	1.47E-03	1.41	1.47E-03	1.45
328	81.03	1.37E-03	1.43	1.19E-03	1.55
329	81.27	1.26E-03	1.49	1.02E-03	1.83
330	81.52	1.08E-03	1.62	9.21E-04	1.75
331	81.77	9.35E-04	1.71	7.18E-04	2.08
332	82.01	9.89E-04	1.63	8.12E-04	1.87
333	82.26	1.11E-03	1.58	8.69E-04	1.82
334	82.50	1.17E-03	1.59	1.02E-03	1.73
335	82.75	1.13E-03	1.63	9.62E-04	1.83
336	83.00	1.09E-03	1.67	8.95E-04	2.00
337	83.24	1.06E-03	1.65	8.31E-04	1.94
338	83.49	8.85E-04	1.82	7.22E-04	2.05
339	83.73	8.13E-04	1.82	6.74E-04	2.03
340	83.98	7.28E-04	1.91	6.56E-04	2.04
341	84.22	6.27E-04	2.04	5.57E-04	2.13
342	84.47	5.90E-04	2.05	5.16E-04	2.21
343	84.72	5.21E-04	2.20	4.63E-04	2.37
344	84.96	5.05E-04	2.26	4.48E-04	2.44
345	85.21	4.61E-04	2.44	3.95E-04	2.70
346	85.45	4.32E-04	2.72	3.73E-04	2.97
347	85.70	4.37E-04	2.80	3.98E-04	2.87
348	85.95	4.49E-04	2.66	4.06E-04	2.81
349	86.19	4.80E-04	2.40	4.03E-04	2.80
350	86.44	4.46E-04	2.47	3.41E-04	2.90
351	86.68	4.83E-04	2.26	3.64E-04	2.62
352	86.93	4.87E-04	2.15	4.15E-04	2.26
353	87.18	5.08E-04	2.07	3.82E-04	2.35
354	87.42	4.67E-04	2.09	3.68E-04	2.29
355	87.67	4.86E-04	1.95	3.71E-04	2.33
356	87.91	4.99E-04	1.84	3.69E-04	2.21
357	88.16	4.65E-04	1.94	3.60E-04	2.18
358	88.41	4.04E-04	2.08	3.08E-04	2.39
359	88.65	4.08E-04	1.97	2.63E-04	2.66
360	88.90	3.02E-04	2.49	2.68E-04	2.53

Table A-9. Axial distribution of ^{144}Ce in the sleeve of element F03-01
(corrected to October 31, 1974)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
1	0.25	5.27E-02	1.00	9.07E-02	0.69
2	0.49	6.41E-03	5.08	9.75E-03	3.66
3	0.74	4.86E-03	6.73	7.91E-03	4.24
4	0.99	8.86E-03	4.08	8.88E-03	4.00
5	1.23	1.26E-02	3.03	1.18E-02	3.49
6	1.48	1.32E-02	2.87	1.62E-02	2.49
7	1.72	1.53E-02	2.81	1.70E-02	2.41
8	1.97	1.53E-02	2.70	1.43E-02	3.32
9	2.22	1.22E-02	3.21	1.31E-02	3.10
10	2.46	8.95E-03	4.51	9.18E-03	4.08
11	2.71	7.25E-03	5.43	1.08E-02	3.90
12	2.95	6.21E-03	6.33	6.45E-03	6.18
13	3.20	7.46E-03	5.71	1.98E-03	24.49
14	3.44	6.69E-03	5.76	5.14E-03	7.47
15	3.69	5.69E-03	6.87	5.52E-03	7.50
16	3.94	5.72E-03	7.04	6.45E-03	6.31
17	4.18	6.26E-03	6.68	8.13E-03	5.43
18	4.43	6.70E-03	7.13	8.45E-03	5.14
19	4.67	1.11E-02	4.27	1.05E-02	4.49
20	4.92	1.14E-02	4.33	1.16E-02	4.21
21	5.17	1.29E-02	4.02	1.15E-02	4.42
22	5.41	1.36E-02	5.04	1.19E-02	4.58
23	5.66	1.08E-02	8.66	1.51E-02	4.53
24	5.90	7.42E-03	18.35	9.11E-03	8.14
25	6.15	6.88E-03	15.93	6.90E-03	9.19
26	6.40	7.98E-03	9.33	6.20E-03	8.37
27	6.64	6.06E-03	11.74	3.75E-03	13.00
28	6.89	2.92E-03	18.04	4.24E-03	12.55
29	7.13	4.88E-03	11.93	7.70E-03	7.70
30	7.38	7.51E-03	8.22	1.09E-02	5.65
31	7.62	8.56E-03	7.90	1.12E-02	5.99
32	7.87	6.21E-03	10.55	9.26E-03	7.06
33	8.12	1.04E-02	8.62	9.30E-03	8.02
34	8.36	1.13E-02	9.12	7.95E-03	8.87
35	8.61	1.20E-02	13.01	5.21E-03	17.00
36	8.85	2.45E-02	16.17	1.18E-02	13.51
37	9.10	2.27E-02	19.01	1.44E-02	22.94
38	9.35	1.91E-02	17.24	4.24E-03	38.35
39	9.59	7.11E-03	36.71	4.74E-03	****
40	9.84	1.19E-02	21.12	1.04E-02	22.17
41	10.08	9.90E-03	25.50	5.89E-03	39.97
42	10.33	5.40E-03	****	4.94E-03	****
43	10.58	1.16E-02	22.12	5.05E-03	****
44	10.82	1.42E-02	18.61	1.41E-02	17.95
45	11.07	1.52E-02	17.81	8.68E-03	30.26
46	11.31	1.97E-02	14.42	1.40E-02	19.50
47	11.56	1.91E-02	15.68	5.83E-03	34.78
48	11.81	1.09E-02	21.50	6.19E-03	****
49	12.05	1.97E-02	18.17	1.92E-02	16.86
50	12.30	1.92E-02	18.87	1.20E-02	22.73
51	12.54	2.39E-02	15.02	1.93E-02	12.83
52	12.79	8.37E-03	31.82	1.62E-02	15.85

Table A-9 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
53	13.03	2.09E-02	18.36	1.20E-02	20.63
54	13.28	3.31E-02	12.04	1.57E-02	17.42
55	13.53	2.95E-02	14.17	2.53E-02	14.71
56	13.77	2.71E-02	16.04	1.81E-02	21.17
57	14.02	2.59E-02	17.25	8.07E-03	****
58	14.26	2.83E-02	15.92	2.85E-02	14.13
59	14.51	2.05E-02	22.55	2.16E-02	19.35
60	14.76	2.79E-02	17.30	1.45E-02	28.82
61	15.00	2.29E-02	22.82	1.29E-02	27.52
62	15.25	3.76E-02	14.00	1.01E-02	****
63	15.49	3.36E-02	15.72	1.68E-02	22.38
64	15.74	2.48E-02	22.68	3.15E-02	16.61
65	15.99	3.33E-02	17.64	2.12E-02	25.58
66	16.23	2.36E-02	26.16	1.15E-02	****
67	16.48	3.94E-02	16.40	1.20E-02	****
68	16.72	3.67E-02	18.53	4.11E-02	14.88
69	16.97	4.06E-02	17.57	5.17E-02	12.34
70	17.22	5.42E-02	29.85	1.39E-02	****
71	17.46	4.57E-02	37.10	1.49E-02	****
72	17.71	3.79E-02	****	3.43E-02	****
73	17.95	1.03E-01	17.91	5.62E-02	31.25
74	18.20	4.30E-02	****	7.67E-02	25.50
75	18.44	5.69E-02	33.14	6.91E-02	27.47
76	18.69	6.42E-02	30.31	4.07E-02	****
77	18.94	6.06E-02	33.09	6.35E-02	32.18
78	19.18	4.38E-02	****	7.26E-02	29.21
79	19.43	7.96E-02	26.94	8.03E-02	27.21
80	19.67	1.15E-01	19.20	1.04E-01	21.54
81	19.92	4.85E-02	****	6.31E-02	37.33
82	20.17	7.52E-02	31.26	5.00E-02	****
83	20.41	8.85E-02	27.74	1.05E-01	24.20
84	20.66	1.35E-01	18.78	9.77E-02	27.04
85	20.90	9.00E-02	29.63	9.10E-02	31.14
86	21.15	6.10E-02	****	7.07E-02	****
87	21.40	1.21E-01	23.43	7.37E-02	****
88	21.64	7.84E-02	36.03	7.67E-02	****
89	21.89	6.27E-02	****	2.01E-01	18.94
90	22.13	6.69E-02	****	8.39E-02	****
91	22.38	1.18E-01	28.29	2.24E-01	31.21
92	22.62	7.66E-02	****	1.51E-01	****
93	22.87	8.27E-02	****	2.59E-01	30.10
94	23.12	1.95E-01	21.87	1.73E-01	****
95	23.36	1.54E-01	****	1.81E-01	****
96	23.61	1.65E-01	****	2.28E-01	38.85
97	23.85	1.78E-01	****	2.41E-01	38.03
98	24.10	2.53E-01	36.09	2.07E-01	****
99	24.35	2.06E-01	****	4.89E-01	21.05
100	24.59	4.77E-01	19.53	2.13E-01	****
101	24.84	4.44E-01	21.05	3.29E-01	30.30
102	25.08	2.48E-01	37.99	3.78E-01	27.15
103	25.33	2.53E-01	37.70	2.18E-01	****
104	25.58	3.70E-01	25.61	4.45E-01	23.28

Table A-9 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
105	25.82	2.89E-01	33.49	2.14E-01	****
106	26.07	2.82E-01	34.30	3.57E-01	29.54
107	26.31	4.47E-01	21.49	2.18E-01	****
108	26.56	3.51E-01	27.15	4.05E-01	25.81
109	26.81	4.53E-01	21.29	3.21E-01	32.30
110	27.05	2.84E-01	34.09	2.13E-01	****
111	27.30	5.16E-01	18.27	4.73E-01	22.28
112	27.54	1.77E-01	****	4.23E-01	22.40
113	27.79	2.53E-01	29.66	2.43E-01	36.41
114	28.03	1.57E-01	****	2.37E-01	37.80
115	28.28	1.60E-01	****	2.40E-01	38.54
116	28.53	1.62E-01	****	1.97E-01	****
117	28.77	1.63E-01	****	2.09E-01	****
118	29.02	1.70E-01	****	2.09E-01	****
119	29.26	1.71E-01	****	3.20E-01	30.35
120	29.51	1.72E-01	****	2.02E-01	****
121	29.76	2.05E-01	39.25	1.94E-01	****
122	30.19	1.60E-01	****	1.56E-01	38.01
123	30.43	3.65E-01	26.86	1.94E-01	****
124	30.68	1.90E-01	****	2.29E-01	39.61
125	30.92	4.34E-01	21.28	5.21E-01	18.25
126	31.17	3.22E-01	29.27	2.06E-01	****
127	31.42	2.84E-01	34.27	5.21E-01	20.07
128	31.66	3.42E-01	29.52	3.18E-01	34.64
129	31.91	6.42E-01	16.35	2.35E-01	****
130	32.15	4.60E-01	23.66	2.40E-01	****
131	32.40	2.43E-01	****	2.47E-01	****
132	32.65	3.20E-01	37.84	3.36E-01	37.03
133	32.89	2.74E-01	****	5.49E-01	24.29
134	33.14	5.14E-01	28.03	2.96E-01	****
135	33.38	6.19E-01	23.13	4.54E-01	29.29
136	33.63	3.01E-01	****	2.69E-01	****
137	33.88	2.99E-01	****	7.60E-01	16.89
138	34.12	2.88E-01	****	2.76E-01	****
139	34.37	4.12E-01	34.03	2.76E-01	****
140	34.61	2.95E-01	****	2.68E-01	****
141	34.86	4.39E-01	31.49	2.72E-01	****
142	35.11	5.31E-01	25.82	4.87E-01	27.84
143	35.35	4.68E-01	29.09	2.94E-01	****
144	35.60	4.24E-01	32.03	2.88E-01	****
145	35.84	5.82E-01	23.26	2.95E-01	****
146	36.09	2.95E-01	****	3.18E-01	****
147	36.33	5.95E-01	22.96	6.05E-01	23.53
148	36.58	3.87E-01	33.25	5.58E-01	22.29
149	36.83	4.63E-01	27.05	2.39E-01	****
150	37.07	4.34E-01	28.42	2.92E-01	39.48
151	37.32	2.50E-01	****	2.34E-01	****
152	37.56	4.35E-01	27.97	2.40E-01	****
153	37.81	2.55E-01	****	4.64E-01	24.03
154	38.06	4.37E-01	27.05	4.74E-01	23.35
155	38.30	2.41E-01	****	2.37E-01	****
156	38.55	2.41E-01	****	2.37E-01	****

Table A-9 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
157	38.79	3.71E-01	31.70	2.37E-01	****
158	39.04	2.57E-01	****	3.48E-01	32.37
159	39.29	4.56E-01	26.53	3.13E-01	36.43
160	39.53	3.57E-01	32.29	4.31E-01	26.05
161	39.78	2.94E-01	37.92	2.21E-01	****
162	40.02	3.86E-01	28.50	2.24E-01	****
163	40.27	4.18E-01	26.63	3.57E-01	29.22
164	40.52	4.06E-01	27.62	4.97E-01	20.92
165	40.76	2.31E-01	****	2.22E-01	****
166	41.01	2.31E-01	****	2.15E-01	****
167	41.25	2.39E-01	****	2.23E-01	****
168	41.50	3.35E-01	33.00	2.24E-01	****
169	41.74	3.09E-01	35.23	2.82E-01	37.53
170	41.99	2.31E-01	****	2.97E-01	37.50
171	42.24	2.97E-01	37.45	5.04E-01	24.05
172	42.48	4.83E-01	23.60	2.69E-01	****
173	42.73	3.24E-01	35.76	5.02E-01	24.07
174	42.97	3.22E-01	36.03	2.43E-01	****
175	43.22	4.90E-01	23.56	2.39E-01	****
176	43.47	3.34E-01	34.38	2.50E-01	****
177	43.71	3.03E-01	37.63	5.18E-01	22.77
178	43.96	2.43E-01	****	2.42E-01	****
179	44.20	2.40E-01	****	2.41E-01	****
180	44.45	2.25E-01	****	5.99E-01	19.88
181	44.70	2.25E-01	****	2.56E-01	****
182	44.94	5.02E-01	21.74	3.43E-01	35.47
183	45.19	4.85E-01	22.99	2.62E-01	****
184	45.43	4.79E-01	23.97	2.74E-01	****
185	45.68	2.42E-01	****	2.53E-01	****
186	45.93	2.51E-01	****	3.49E-01	34.18
187	46.17	5.29E-01	22.45	5.56E-01	21.16
188	46.42	4.77E-01	25.44	2.41E-01	****
189	46.66	2.49E-01	****	2.48E-01	****
190	46.91	2.51E-01	****	2.47E-01	****
191	47.15	5.40E-01	22.86	4.54E-01	25.33
192	47.40	2.65E-01	****	2.42E-01	****
193	47.65	6.60E-01	18.70	2.37E-01	****
194	47.89	1.11E+00	****	3.23E-01	36.28
195	48.14	4.37E-01	28.47	4.07E-01	29.32
196	48.38	5.28E-01	24.13	3.82E-01	31.89
197	48.63	2.62E-01	****	2.53E-01	****
198	48.88	4.63E-01	28.18	2.59E-01	****
199	49.12	3.98E-01	32.91	8.28E-01	15.82
200	49.37	4.11E-01	33.13	4.23E-01	32.68
201	49.61	2.89E-01	****	4.88E-01	29.26
202	49.86	2.96E-01	****	5.66E-01	25.37
203	50.11	3.07E-01	****	2.88E-01	****
204	50.35	3.00E-01	****	4.97E-01	27.25
205	50.60	4.52E-01	30.39	4.76E-01	27.08
206	50.84	3.81E-01	35.33	4.26E-01	29.49
207	51.09	4.07E-01	32.00	3.69E-01	34.81
208	51.33	4.60E-01	28.24	2.74E-01	****

Table A-9 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
209	51.58	4.38E-01	30.25	5.29E-01	26.03
210	51.83	4.17E-01	31.14	6.82E-01	20.82
211	52.07	2.69E-01	****	4.40E-01	33.31
212	52.32	2.54E-01	****	3.20E-01	****
213	52.56	6.25E-01	19.38	4.85E-01	31.77
214	52.81	3.47E-01	34.83	5.29E-01	29.28
215	53.06	2.55E-01	****	4.86E-01	31.32
216	53.30	3.29E-01	35.65	3.00E-01	****
217	53.55	2.38E-01	****	2.93E-01	****
218	53.79	4.90E-01	23.32	2.85E-01	****
219	54.04	2.38E-01	****	2.84E-01	****
220	54.29	2.34E-01	****	3.81E-01	33.95
221	54.53	2.27E-01	****	2.78E-01	****
222	54.78	3.60E-01	30.43	5.53E-01	23.54
223	55.02	2.85E-01	37.26	2.59E-01	****
224	55.27	3.91E-01	26.66	5.36E-01	22.48
225	55.52	3.31E-01	30.30	2.50E-01	****
226	55.76	3.98E-01	24.53	3.51E-01	32.53
227	56.01	1.96E-01	****	2.36E-01	****
228	56.25	1.99E-01	****	2.20E-01	****
229	56.50	2.41E-01	37.92	3.93E-01	26.55
230	56.74	1.89E-01	****	2.68E-01	38.68
231	56.99	1.87E-01	****	2.24E-01	****
232	57.24	1.83E-01	****	3.89E-01	28.35
233	57.48	1.99E-01	****	2.35E-01	****
234	57.73	2.51E-01	39.32	3.07E-01	37.81
235	57.97	2.09E-01	****	2.57E-01	****
236	58.22	2.26E-01	****	3.97E-01	31.49
237	58.47	2.40E-01	****	2.73E-01	****
238	58.71	2.57E-01	****	2.66E-01	****
239	58.96	2.53E-01	****	2.71E-01	****
240	59.20	4.14E-01	28.26	2.67E-01	****
241	59.45	3.65E-01	33.10	2.61E-01	****
242	59.70	2.57E-01	****	4.39E-01	27.72
243	59.94	4.80E-01	25.93	3.65E-01	33.34
244	60.37	1.60E-01	28.66	6.38E-02	****
245	60.62	1.89E-01	****	3.37E-01	28.85
246	60.86	1.91E-01	****	4.06E-01	25.92
247	61.11	2.72E-01	37.65	2.32E-01	****
248	61.36	2.27E-01	****	2.90E-01	37.23
249	61.60	3.31E-01	32.18	4.63E-01	22.39
250	61.85	2.22E-01	****	2.05E-01	****
251	62.09	2.02E-01	****	4.85E-01	19.73
252	62.34	2.75E-01	34.58	4.83E-01	18.92
253	62.59	2.84E-01	32.26	2.49E-01	35.50
254	62.83	1.90E-01	****	1.77E-01	****
255	63.08	2.31E-01	37.59	1.74E-01	****
256	63.32	1.75E-01	****	2.83E-01	29.87
257	63.57	1.77E-01	****	1.77E-01	****
258	63.82	3.54E-01	22.74	2.57E-01	32.28
259	64.06	1.64E-01	****	1.74E-01	****
260	64.31	2.14E-01	36.65	1.62E-01	****

Table A-9 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
261	64.55	1.60E-01	****	1.66E-01	****
262	64.80	3.69E-01	20.85	1.64E-01	****
263	65.04	2.21E-01	34.63	1.62E-01	****
264	65.29	2.28E-01	32.76	1.57E-01	****
265	65.54	2.18E-01	33.58	1.50E-01	****
266	65.78	1.48E-01	****	1.53E-01	****
267	66.03	1.50E-01	****	1.53E-01	****
268	66.27	1.48E-01	****	1.53E-01	****
269	66.52	2.58E-01	26.33	1.48E-01	****
270	66.77	1.38E-01	****	1.51E-01	****
271	67.01	1.41E-01	****	1.50E-01	****
272	67.26	1.38E-01	****	1.52E-01	****
273	67.50	2.48E-01	25.59	2.26E-01	31.15
274	67.75	2.47E-01	24.96	3.06E-01	22.64
275	68.00	1.30E-01	****	1.41E-01	****
276	68.24	7.73E-02	****	2.30E-01	29.68
277	68.49	1.82E-01	19.25	1.43E-01	****
278	68.73	1.77E-01	19.15	1.39E-01	****
279	68.98	1.02E-01	31.96	1.96E-01	33.17
280	69.23	6.84E-02	****	1.37E-01	****
281	69.47	6.53E-02	****	2.34E-01	27.47
282	69.72	6.74E-02	****	1.37E-01	****
283	69.96	1.07E-01	31.90	2.03E-01	31.69
284	70.21	9.12E-02	****	1.37E-01	****
285	70.45	9.96E-02	****	1.33E-01	****
286	70.70	2.28E-01	20.83	1.30E-01	****
287	70.95	2.30E-01	19.79	1.25E-01	****
288	71.19	2.07E-01	20.90	1.21E-01	****
289	71.44	8.36E-02	****	1.40E-01	22.89
290	71.68	7.48E-02	****	6.46E-02	****
291	71.93	6.52E-02	****	6.06E-02	****
292	72.18	6.43E-02	****	5.82E-02	****
293	72.42	9.00E-02	32.63	8.53E-02	33.26
294	72.67	9.97E-02	28.07	7.87E-02	35.67
295	72.91	5.72E-02	****	9.44E-02	29.56
296	73.16	1.08E-01	27.35	5.84E-02	****
297	73.41	1.20E-01	27.08	6.12E-02	****
298	73.65	1.68E-01	21.28	1.09E-01	27.52
299	73.90	1.71E-01	21.90	6.76E-02	****
300	74.14	7.79E-02	****	1.23E-01	26.21
301	74.39	7.27E-02	****	1.72E-01	18.91
302	74.63	8.21E-02	38.64	6.54E-02	****
303	74.88	1.55E-01	17.97	1.04E-01	28.59
304	75.13	1.35E-01	18.02	1.08E-01	26.41
305	75.37	9.46E-02	23.94	8.12E-02	34.36
306	75.62	6.88E-02	31.14	1.09E-01	22.92
307	75.86	7.02E-02	28.82	4.66E-02	****
308	76.11	7.82E-02	25.01	6.30E-02	32.71
309	76.36	9.45E-02	21.21	7.71E-02	26.00
310	76.60	4.28E-02	****	4.48E-02	****
311	76.85	4.24E-02	****	8.39E-02	26.76
312	77.09	5.82E-02	33.67	4.69E-02	****

Table A-9 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
313	77.34	3.89E-02	****	4.72E-02	****
314	77.59	6.12E-02	27.98	6.08E-02	34.08
315	77.83	4.36E-02	37.25	5.94E-02	31.43
316	78.08	6.08E-02	13.89	3.60E-02	****
317	78.32	5.77E-02	13.73	4.91E-02	32.01
318	78.57	4.66E-02	16.45	6.19E-02	12.23
319	78.82	4.09E-02	14.36	4.55E-02	15.92
320	79.06	1.40E-02	****	5.41E-02	12.96
321	79.31	1.38E-02	****	3.89E-02	17.83
322	79.55	3.28E-02	18.67	1.39E-02	****
323	79.80	2.52E-02	21.47	3.42E-02	18.34
324	80.04	3.01E-02	16.85	2.35E-02	24.11
325	80.29	2.50E-02	19.38	2.61E-02	19.93
326	80.54	9.62E-03	****	1.38E-02	35.06
327	80.78	3.62E-02	9.53	9.15E-03	****
328	81.03	4.28E-02	8.40	9.19E-03	32.81
329	81.27	3.38E-02	9.74	1.43E-02	24.38
330	81.52	4.06E-02	8.40	1.13E-02	25.06
331	81.77	3.21E-02	9.62	9.83E-03	27.84
332	82.01	3.42E-02	9.08	9.63E-03	27.45
333	82.26	2.64E-02	10.91	1.58E-02	17.59
334	82.50	3.46E-02	9.75	1.21E-02	22.63
335	82.75	3.28E-02	9.05	2.16E-02	17.74
336	83.00	3.44E-02	9.05	1.30E-02	19.35
337	83.24	2.72E-02	8.81	1.47E-02	16.13
338	83.49	2.45E-02	9.16	9.71E-03	22.59
339	83.73	5.11E-02	4.52	1.01E-02	20.96
340	83.98	1.01E-01	2.51	1.41E-02	13.93
341	84.22	2.77E-02	4.11	1.75E-02	5.80
342	84.47	2.65E-02	3.86	1.57E-02	5.81
343	84.72	2.41E-02	4.04	1.33E-02	6.21
344	84.96	2.43E-02	3.86	1.45E-02	6.05
345	85.21	2.76E-02	3.45	1.79E-02	5.62
346	85.45	2.75E-02	3.38	1.33E-02	6.00
347	85.70	2.58E-02	3.47	1.47E-02	6.32
348	85.95	2.53E-02	3.38	1.82E-02	4.32
349	86.19	2.25E-02	3.46	1.86E-02	4.21
350	86.44	2.15E-02	3.51	1.60E-02	4.89
351	86.68	3.41E-02	2.23	1.33E-02	4.91
352	86.93	5.58E-02	1.47	1.69E-02	3.81
353	87.18	1.70E-02	4.09	1.76E-02	3.75
354	87.42	1.60E-02	4.01	1.93E-02	3.20
355	87.67	1.89E-02	3.48	1.99E-02	3.57
356	87.91	1.87E-02	3.42	1.77E-02	3.40
357	88.16	2.16E-02	2.89	1.60E-02	3.70
358	88.41	2.29E-02	2.61	1.55E-02	3.61
359	88.65	2.21E-02	2.78	1.63E-02	3.47
360	88.90	1.84E-02	3.06	2.00E-02	2.90
361	89.14	1.69E-02	3.21	2.03E-02	2.82
362	89.39	2.16E-02	2.64	2.47E-02	2.40
363	89.63	2.15E-02	2.67	2.69E-02	2.51
364	89.88	2.26E-02	2.84	2.67E-02	2.27

Table A-10. Axial distribution of ^{144}Ce in the spine of element F03-01
(corrected to October 31, 1974)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
1	0.25	1.33E-02	6.45	2.07E-03	****
2	0.49	2.21E-03	****	2.12E-03	****
3	0.74	2.28E-03	****	2.24E-03	****
4	0.99	3.59E-03	30.94	2.31E-03	****
5	1.23	2.48E-03	****	2.31E-03	****
6	1.48	2.48E-03	****	4.18E-03	28.21
7	1.72	2.71E-03	****	3.54E-03	35.20
8	1.97	2.89E-03	****	3.91E-03	33.75
9	2.22	3.82E-03	37.94	2.91E-03	****
10	2.46	3.38E-03	****	3.13E-03	****
11	2.71	5.19E-03	33.18	3.41E-03	****
12	2.95	3.97E-03	****	7.16E-03	25.48
13	3.20	9.22E-03	23.60	7.46E-03	26.54
14	3.44	8.77E-03	27.92	7.82E-03	27.45
15	3.69	1.41E-02	19.46	1.19E-02	19.51
16	3.94	6.43E-03	****	1.00E-02	25.11
17	4.18	1.12E-02	29.34	7.30E-03	38.00
18	4.43	1.85E-02	19.41	1.33E-02	22.47
19	4.67	7.98E-03	****	6.59E-03	****
20	4.92	1.98E-02	21.03	7.02E-03	****
21	5.17	1.88E-02	23.73	1.41E-02	25.86
22	5.41	1.04E-02	****	1.64E-02	****
23	5.66	1.08E-02	****	2.75E-02	29.11
24	5.90	1.93E-02	****	2.78E-02	27.76
25	6.15	3.35E-02	29.31	3.30E-02	24.21
26	6.40	2.17E-02	****	1.70E-02	****
27	6.64	2.22E-02	****	1.79E-02	****
28	6.89	5.29E-02	20.23	1.85E-02	****
29	7.13	3.21E-02	34.88	1.94E-02	****
30	7.38	2.47E-02	****	2.01E-02	****
31	7.62	3.32E-02	35.75	4.67E-02	20.68
32	7.87	2.58E-02	****	2.14E-02	****
33	8.12	2.56E-02	****	2.20E-02	****
34	8.36	2.71E-02	****	3.09E-02	34.42
35	8.61	4.11E-02	31.66	2.35E-02	****
36	8.85	4.36E-02	29.27	2.44E-02	****
37	9.10	5.19E-02	22.71	3.93E-02	30.34
38	9.35	3.36E-02	35.36	2.53E-02	****
39	9.59	3.45E-02	37.96	2.55E-02	****
40	9.84	5.96E-02	24.30	2.55E-02	****
41	10.08	5.68E-02	27.74	2.55E-02	****
42	10.33	4.12E-02	34.45	3.27E-02	37.58
43	10.58	2.76E-02	****	2.77E-02	****
44	10.82	7.28E-02	17.84	3.71E-02	36.14
45	11.07	2.89E-02	****	4.15E-02	33.58
46	11.31	2.84E-02	****	4.20E-02	34.15
47	11.56	3.87E-02	32.19	3.15E-02	****
48	11.81	2.46E-02	****	5.93E-02	25.58
49	12.05	2.62E-02	****	6.10E-02	25.68
50	12.30	4.35E-02	29.51	3.37E-02	****
51	12.54	4.35E-02	30.17	3.36E-02	****
52	12.79	2.82E-02	****	5.66E-02	28.01

Table A-10 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
53	13.03	2.72E-02	****	3.38E-02	****
54	13.28	2.88E-02	****	6.84E-02	23.07
55	13.53	2.91E-02	****	3.47E-02	****
56	13.77	2.96E-02	****	3.59E-02	****
57	14.02	3.63E-02	38.83	6.10E-02	27.92
58	14.26	2.92E-02	****	5.97E-02	28.90
59	14.51	3.10E-02	****	6.82E-02	25.09
60	14.76	3.19E-02	****	3.63E-02	****
61	15.00	3.32E-02	****	3.69E-02	****
62	15.25	4.18E-02	36.34	5.71E-02	30.86
63	15.49	2.93E-02	****	5.11E-02	34.58
64	15.74	7.33E-02	19.10	3.65E-02	****
65	15.99	4.61E-02	31.98	3.60E-02	****
66	16.23	3.26E-02	****	3.52E-02	****
67	16.48	3.37E-02	****	3.55E-02	****
68	16.72	3.19E-02	****	3.59E-02	****
69	16.97	3.20E-02	****	3.64E-02	****
70	17.22	3.14E-02	****	3.69E-02	****
71	17.46	3.01E-02	****	8.30E-02	21.73
72	17.71	4.24E-02	33.80	1.00E-01	18.16
73	17.95	3.06E-02	****	4.81E-02	38.30
74	18.20	3.30E-02	****	8.65E-02	21.20
75	18.44	3.40E-02	****	5.34E-02	34.08
76	18.69	5.91E-02	26.95	6.33E-02	28.44
77	18.94	3.36E-02	****	5.19E-02	34.28
78	19.18	3.35E-02	****	6.23E-02	28.26
79	19.43	5.64E-02	27.32	4.43E-02	39.89
80	19.67	3.27E-02	****	3.75E-02	****
81	19.92	3.27E-02	****	4.94E-02	35.99
82	20.17	3.86E-02	39.96	3.75E-02	****
83	20.41	3.21E-02	****	8.09E-02	21.55
84	20.66	3.39E-02	****	5.22E-02	33.16
85	20.90	3.49E-02	****	5.76E-02	31.07
86	21.15	4.86E-02	34.66	4.00E-02	****
87	21.40	3.71E-02	****	6.62E-02	28.75
88	21.64	5.89E-02	29.82	5.85E-02	32.68
89	21.89	3.70E-02	****	5.45E-02	35.61
90	22.13	3.59E-02	****	4.23E-02	****
91	22.38	7.92E-02	22.51	1.02E-01	19.70
92	22.62	8.47E-02	21.73	9.30E-02	22.24
93	22.87	5.72E-02	33.92	8.12E-02	25.82
94	23.12	7.47E-02	27.26	4.63E-02	****
95	23.36	4.45E-02	****	9.33E-02	24.55
96	23.61	1.00E-01	22.74	5.12E-02	****
97	23.85	7.49E-02	31.39	8.43E-02	****
98	24.10	8.13E-02	****	8.67E-02	****
99	24.35	8.22E-02	****	1.11E-01	38.12
100	24.59	7.99E-02	****	8.59E-02	****
101	24.84	8.28E-02	****	8.89E-02	****
102	25.08	1.48E-01	26.51	1.30E-01	32.72
103	25.33	8.62E-02	****	1.70E-01	25.03
104	25.58	1.11E-01	36.95	1.67E-01	25.57

Table A-10 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
105	25.82	8.54E-02	****	1.24E-01	34.62
106	26.07	8.91E-02	****	1.18E-01	36.24
107	26.31	1.12E-01	37.16	1.34E-01	31.41
108	26.56	8.36E-02	****	1.49E-01	27.76
109	26.81	8.62E-02	****	8.81E-02	****
110	27.05	8.19E-02	****	1.50E-01	27.55
111	27.30	1.53E-01	26.15	8.72E-02	****
112	27.54	8.82E-02	****	8.48E-02	****
113	27.79	8.89E-02	****	2.22E-01	17.54
114	28.03	1.24E-01	32.94	1.21E-01	32.71
115	28.28	8.36E-02	****	1.22E-01	31.99
116	28.53	8.75E-02	****	8.37E-02	****
117	28.77	8.87E-02	****	1.08E-01	36.23
118	29.02	1.62E-01	25.96	8.47E-02	****
119	29.26	9.10E-02	****	1.53E-01	26.32
120	29.51	8.84E-02	****	9.07E-02	****
121	29.94	1.83E-01	****	2.79E-01	24.31
122	30.19	1.01E-01	****	1.07E-01	****
123	30.43	8.96E-02	****	1.00E-01	****
124	30.68	8.58E-02	****	1.01E-01	****
125	30.92	8.98E-02	****	1.03E-01	****
126	31.17	9.44E-02	****	1.69E-01	29.14
127	31.42	1.03E-01	****	1.08E-01	****
128	31.66	1.05E-01	****	1.90E-01	27.70
129	31.91	1.08E-01	****	1.99E-01	26.72
130	32.15	1.14E-01	****	1.85E-01	29.25
131	32.40	1.14E-01	****	1.12E-01	****
132	32.65	1.15E-01	****	1.06E-01	****
133	32.89	1.15E-01	****	1.08E-01	****
134	33.14	1.12E-01	****	1.06E-01	****
135	33.38	1.07E-01	****	1.04E-01	****
136	33.63	1.09E-01	****	1.40E-01	35.87
137	33.88	1.12E-01	****	1.07E-01	****
138	34.12	1.12E-01	****	1.08E-01	****
139	34.37	1.12E-01	****	1.07E-01	****
140	34.61	1.12E-01	****	1.07E-01	****
141	34.86	1.12E-01	****	1.42E-01	35.24
142	35.11	1.11E-01	****	1.06E-01	****
143	35.35	1.08E-01	****	1.07E-01	****
144	35.60	1.15E-01	****	1.08E-01	****
145	35.84	1.91E-01	28.13	1.05E-01	****
146	36.09	1.14E-01	****	1.08E-01	****
147	36.33	1.12E-01	****	1.08E-01	****
148	36.58	1.12E-01	****	1.06E-01	****
149	36.83	1.05E-01	****	1.04E-01	****
150	37.07	1.07E-01	****	1.02E-01	****
151	37.32	1.05E-01	****	1.01E-01	****
152	37.56	1.06E-01	****	1.01E-01	****
153	37.81	1.08E-01	****	1.00E-01	****
154	38.06	1.07E-01	****	9.91E-02	****
155	38.30	1.04E-01	****	9.87E-02	****
156	38.55	1.03E-01	****	9.92E-02	****

Table A-10 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
157	38.79	1.05E-01	****	9.76E-02	****
158	39.04	1.07E-01	****	9.74E-02	****
159	39.29	1.09E-01	****	9.77E-02	****
160	39.53	1.09E-01	****	9.62E-02	****
161	39.78	1.06E-01	****	1.44E-01	30.29
162	40.02	1.03E-01	****	9.11E-02	****
163	40.27	1.01E-01	****	8.99E-02	****
164	40.52	9.93E-02	****	8.50E-02	****
165	40.76	9.72E-02	****	8.41E-02	****
166	41.01	9.49E-02	****	8.67E-02	****
167	41.25	9.31E-02	****	8.56E-02	****
168	41.50	9.15E-02	****	8.50E-02	****
169	41.74	9.01E-02	****	8.50E-02	****
170	41.99	8.87E-02	****	8.63E-02	****
171	42.24	8.87E-02	****	8.44E-02	****
172	42.48	8.88E-02	****	8.91E-02	****
173	42.73	1.08E-01	38.82	8.89E-02	****
174	42.97	8.88E-02	****	8.45E-02	****
175	43.22	1.13E-01	37.00	1.18E-01	34.83
176	43.47	8.77E-02	****	8.75E-02	****
177	43.71	8.71E-02	****	8.70E-02	****
178	43.96	8.70E-02	****	8.75E-02	****
179	44.20	8.63E-02	****	8.78E-02	****
180	44.45	8.49E-02	****	8.44E-02	****
181	44.70	8.22E-02	****	8.43E-02	****
182	44.94	8.08E-02	****	8.71E-02	****
183	45.19	8.21E-02	****	1.18E-01	34.41
184	45.43	8.34E-02	****	8.62E-02	****
185	45.68	8.67E-02	****	1.25E-01	32.95
186	45.93	1.10E-01	37.80	1.14E-01	36.63
187	46.17	9.02E-02	****	8.63E-02	****
188	46.42	1.37E-01	31.44	8.83E-02	****
189	46.66	1.23E-01	35.32	1.18E-01	36.44
190	46.91	9.32E-02	****	9.24E-02	****
191	47.15	9.47E-02	****	9.19E-02	****
192	47.40	9.61E-02	****	9.32E-02	****
193	47.65	9.72E-02	****	1.24E-01	35.68
194	47.89	1.51E-01	30.38	9.52E-02	****
195	48.14	9.90E-02	****	9.53E-02	****
196	48.38	9.98E-02	****	9.45E-02	****
197	48.63	9.75E-02	****	9.07E-02	****
198	48.88	1.04E-01	****	9.66E-02	****
199	49.12	1.04E-01	****	9.87E-02	****
200	49.37	1.31E-01	37.56	9.97E-02	****
201	49.61	1.04E-01	****	2.32E-01	19.97
202	49.86	1.02E-01	****	9.78E-02	****
203	50.11	1.00E-01	****	9.50E-02	****
204	50.35	9.75E-02	****	8.87E-02	****
205	50.60	1.70E-01	25.85	8.78E-02	****
206	50.84	9.14E-02	****	8.43E-02	****
207	51.09	1.33E-01	31.38	8.16E-02	****
208	51.33	8.74E-02	****	7.98E-02	****

Table A-10 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
209	51.58	8.52E-02	****	9.84E-02	37.69
210	51.83	8.15E-02	****	7.31E-02	****
211	52.07	7.69E-02	****	1.13E-01	30.05
212	52.32	7.17E-02	****	6.89E-02	****
213	52.56	6.60E-02	****	6.41E-02	****
214	52.81	5.92E-02	****	6.02E-02	****
215	53.06	7.36E-02	37.14	5.63E-02	****
216	53.30	6.90E-02	38.52	5.38E-02	****
217	53.55	5.54E-02	****	5.29E-02	****
218	53.79	5.41E-02	****	5.15E-02	****
219	54.04	5.35E-02	****	5.01E-02	****
220	54.29	5.31E-02	****	4.92E-02	****
221	54.53	5.29E-02	****	4.88E-02	****
222	54.78	5.16E-02	****	4.78E-02	****
223	55.02	5.17E-02	****	4.75E-02	****
224	55.27	5.15E-02	****	4.81E-02	****
225	55.52	5.20E-02	****	4.85E-02	****
226	55.76	9.54E-02	25.96	4.95E-02	****
227	56.01	5.33E-02	****	5.10E-02	****
228	56.25	5.46E-02	****	5.25E-02	****
229	56.50	5.57E-02	****	5.31E-02	****
230	56.74	5.52E-02	****	5.43E-02	****
231	56.99	5.88E-02	****	5.53E-02	****
232	57.24	8.71E-02	32.75	5.63E-02	****
233	57.48	6.24E-02	****	5.72E-02	****
234	57.73	6.50E-02	****	5.83E-02	****
235	57.97	6.84E-02	****	6.08E-02	****
236	58.22	7.19E-02	****	6.29E-02	****
237	58.47	7.43E-02	****	6.50E-02	****
238	58.71	7.83E-02	****	8.24E-02	39.75
239	58.96	8.50E-02	****	7.74E-02	****
240	59.20	1.57E-01	28.65	8.75E-02	****
241	59.64	4.46E-02	****	3.65E-02	****
242	59.88	1.02E-01	****	9.97E-02	****
243	60.13	8.43E-02	****	1.05E-01	34.12
244	60.37	1.01E-01	39.41	6.97E-02	****
245	60.62	1.35E-01	29.42	7.06E-02	****
246	60.86	7.98E-02	****	7.57E-02	****
247	61.11	8.14E-02	****	7.36E-02	****
248	61.36	8.08E-02	****	7.08E-02	****
249	61.60	7.87E-02	****	6.81E-02	****
250	61.85	7.62E-02	****	6.62E-02	****
251	62.09	1.08E-01	22.87	6.62E-02	26.55
252	62.34	1.87E-01	8.59	1.14E-01	12.87
253	62.59	1.00E-01	14.16	1.23E-01	12.20
254	62.83	1.02E-01	16.97	9.55E-02	13.85
255	63.08	5.06E-02	33.26	9.76E-02	15.92
256	63.32	4.18E-02	38.29	3.16E-02	****
257	63.57	4.74E-02	31.97	3.00E-02	****
258	63.82	3.05E-02	****	2.90E-02	****
259	64.06	4.83E-02	28.11	2.76E-02	****
260	64.31	2.81E-02	****	5.70E-02	21.97

Table A-10 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
261	64.55	2.70E-02	34.22	2.61E-02	****
262	64.80	4.32E-02	20.97	2.54E-02	****
263	65.04	1.14E-01	8.72	4.09E-02	28.02
264	65.29	1.29E-01	7.16	2.39E-02	****
265	65.54	1.64E-01	5.72	3.14E-02	34.42
266	65.78	1.04E-01	8.48	2.13E-02	****
267	66.03	4.17E-02	17.64	2.87E-02	34.37
268	66.27	3.03E-02	30.87	1.99E-02	****
269	66.52	1.08E-02	28.72	1.90E-02	****
270	66.77	1.96E-02	20.72	1.85E-02	23.70
271	67.01	1.35E-02	28.81	8.96E-03	****
272	67.26	1.21E-02	31.10	1.07E-02	38.03
273	67.50	1.49E-02	24.70	8.21E-03	****
274	67.75	1.30E-02	27.40	1.11E-02	34.89
275	68.00	2.03E-02	17.84	8.14E-03	****
276	68.24	2.37E-02	12.85	8.20E-03	****
277	68.49	3.20E-02	10.53	1.84E-02	21.59
278	68.73	2.22E-02	16.27	1.58E-02	23.65
279	68.98	4.49E-02	6.24	1.33E-02	25.02
280	69.23	4.10E-02	6.78	1.01E-02	30.72
281	69.47	3.15E-02	8.49	5.49E-03	37.14
282	69.72	3.38E-02	8.24	1.27E-02	24.53
283	69.96	7.59E-03	30.35	1.84E-02	16.30
284	70.21	1.03E-02	29.93	9.90E-03	28.67
285	70.45	1.27E-02	23.48	1.21E-02	22.99
286	70.70	1.46E-02	20.29	8.06E-03	34.64
287	70.95	1.52E-02	19.28	1.25E-02	21.85
288	71.19	1.77E-02	16.21	8.31E-03	32.72
289	71.44	1.48E-02	18.83	5.58E-03	****
290	71.68	1.20E-02	22.91	5.65E-03	****
291	71.93	1.40E-02	19.57	8.33E-03	31.76
292	72.18	7.04E-03	39.59	8.76E-03	30.41
293	72.42	9.92E-03	21.15	1.33E-02	20.27
294	72.67	1.57E-02	17.50	1.20E-02	22.58
295	72.91	1.25E-02	21.93	1.08E-02	24.73
296	73.16	5.82E-03	****	5.34E-03	****
297	73.41	9.81E-03	29.49	1.08E-02	24.76
298	73.65	9.23E-03	35.12	6.10E-03	****
299	73.90	9.82E-03	37.65	1.26E-02	23.74
300	74.14	8.00E-03	****	1.04E-02	28.83
301	74.39	2.97E-02	13.38	1.64E-02	18.31
302	74.63	2.10E-02	15.21	1.31E-02	22.94
303	74.88	1.72E-02	15.53	2.44E-02	12.36
304	75.13	1.57E-02	16.50	1.20E-02	17.57
305	75.37	1.40E-02	16.82	4.99E-03	****
306	75.62	7.80E-03	27.54	7.99E-03	27.53
307	75.86	5.10E-03	****	8.17E-03	24.75
308	76.11	6.05E-03	37.26	6.74E-03	27.51
309	76.36	6.01E-03	34.84	7.48E-03	23.16
310	76.60	4.44E-03	****	6.98E-03	24.29
311	76.85	7.79E-03	26.68	3.44E-03	****
312	77.09	7.55E-03	26.85	3.22E-03	****

Table A-10 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
313	77.34	1.17E-02	16.39	2.92E-03	36.09
314	77.59	8.03E-03	21.74	4.79E-03	29.15
315	77.83	3.19E-03	****	2.79E-03	****
316	78.08	6.65E-03	21.02	4.21E-03	29.38
317	78.32	3.30E-03	39.20	2.84E-03	21.36
318	78.57	3.08E-03	18.79	2.58E-03	23.64
319	78.82	2.84E-03	19.81	4.36E-03	****
320	79.06	1.64E-03	25.91	1.93E-03	20.63
321	79.31	2.45E-03	22.42	3.90E-03	13.89
322	79.55	3.87E-03	13.82	2.98E-03	17.75
323	79.80	3.77E-03	13.48	1.72E-03	29.69
324	80.04	1.02E-03	****	1.73E-03	21.70
325	80.29	1.78E-03	20.63	1.38E-03	25.41
326	80.54	2.00E-03	16.73	2.12E-03	17.06
327	80.78	1.76E-03	18.25	2.17E-03	15.89
328	81.03	2.88E-03	13.11	2.86E-03	11.49
329	81.27	2.42E-03	12.57	2.50E-03	12.35
330	81.52	2.53E-03	11.29	2.28E-03	12.73
331	81.77	2.37E-03	12.14	3.22E-03	9.05
332	82.01	2.97E-03	9.44	2.15E-03	12.50
333	82.26	2.61E-03	10.44	3.19E-03	8.99
334	82.50	3.75E-03	8.54	2.96E-03	9.71
335	82.75	4.26E-03	7.44	3.71E-03	8.08
336	83.00	4.36E-03	7.24	3.86E-03	8.17
337	83.24	5.20E-03	6.16	3.55E-03	8.16
338	83.49	4.27E-03	6.64	4.40E-03	6.77
339	83.73	3.84E-03	6.87	3.88E-03	6.82
340	83.98	4.34E-03	5.79	4.21E-03	5.95
341	84.22	4.21E-03	5.64	4.58E-03	5.16
342	84.47	3.87E-03	5.74	3.89E-03	5.74
343	84.72	3.54E-03	6.27	3.43E-03	6.17
344	84.96	3.97E-03	5.16	3.62E-03	5.68
345	85.21	3.86E-03	5.18	3.38E-03	5.93
346	85.45	3.99E-03	5.14	3.66E-03	5.36
347	85.70	3.83E-03	5.01	4.00E-03	4.72
348	85.95	4.01E-03	4.66	3.29E-03	6.04
349	86.19	4.15E-03	4.42	3.92E-03	4.71
350	86.44	3.10E-03	5.55	3.03E-03	5.60
351	86.68	2.38E-03	6.84	2.88E-03	5.71
352	86.93	2.72E-03	6.77	3.50E-03	4.51
353	87.18	2.49E-03	6.22	2.77E-03	6.21
354	87.42	2.36E-03	5.95	2.28E-03	6.02
355	87.67	2.16E-03	5.91	2.03E-03	7.28
356	87.91	2.00E-03	6.21	1.66E-03	7.12
357	88.16	2.14E-03	5.88	1.84E-03	6.57
358	88.41	2.08E-03	6.49	1.67E-03	6.64
359	88.65	1.40E-03	7.91	1.70E-03	7.33
360	88.90	1.59E-03	6.82	1.73E-03	5.86

Table A-11. Axial distribution of ^{154}Eu in the sleeve of element F03-01
(corrected to October 31, 1974)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
1	0.25	2.40E-04	8.02	3.54E-04	7.02
2	0.49	6.47E-05	16.34	1.09E-04	11.67
3	0.74	3.44E-05	23.77	5.92E-05	15.90
4	0.99	4.45E-05	15.41	4.43E-05	16.26
5	1.23	3.19E-05	24.53	5.66E-05	16.05
6	1.48	4.68E-05	17.79	6.46E-05	14.68
7	1.72	3.55E-05	22.70	6.29E-05	17.70
8	1.97	5.61E-05	15.23	3.50E-05	30.95
9	2.22	5.22E-05	16.55	6.70E-05	15.46
10	2.46	4.32E-05	20.91	4.39E-05	23.82
11	2.71	3.71E-05	22.87	4.16E-05	19.60
12	2.95	3.90E-05	19.89	3.46E-05	27.93
13	3.20	3.83E-05	18.10	4.94E-05	18.49
14	3.44	2.33E-05	30.35	3.14E-05	22.96
15	3.69	2.52E-05	31.30	2.36E-05	35.67
16	3.94	1.90E-05	****	2.93E-05	28.84
17	4.18	2.25E-05	36.10	3.50E-05	22.43
18	4.43	3.87E-05	19.17	2.80E-05	32.45
19	4.67	3.44E-05	25.78	1.93E-05	****
20	4.92	5.54E-05	17.96	5.29E-05	18.03
21	5.17	3.64E-05	29.77	2.25E-05	****
22	5.41	5.64E-05	22.62	3.20E-05	38.76
23	5.66	6.56E-05	****	4.66E-05	****
24	5.90	1.53E-04	****	6.75E-05	****
25	6.15	8.50E-05	****	4.60E-05	****
26	6.40	5.07E-05	22.81	2.25E-05	****
27	6.64	4.78E-05	20.85	1.99E-05	****
28	6.89	4.13E-05	24.33	2.19E-05	****
29	7.13	4.38E-05	28.03	5.85E-05	17.39
30	7.38	5.20E-05	23.13	2.84E-05	****
31	7.62	7.46E-05	19.21	3.22E-05	38.27
32	7.87	3.32E-05	****	3.59E-05	28.71
33	8.12	7.04E-05	20.84	2.69E-05	****
34	8.36	6.87E-05	34.09	3.74E-05	****
35	8.61	1.57E-04	32.95	7.30E-05	****
36	8.85	2.75E-04	****	1.56E-04	****
37	9.10	3.17E-04	****	2.17E-04	****
38	9.35	1.45E-04	****	7.11E-05	****
39	9.59	6.59E-05	****	4.38E-05	****
40	9.84	6.87E-05	****	5.36E-05	****
41	10.08	6.06E-05	****	6.33E-05	****
42	10.33	7.07E-05	****	5.96E-05	****
43	10.58	6.60E-05	****	4.42E-05	****
44	10.82	7.37E-05	****	6.16E-05	****
45	11.07	9.02E-05	31.10	6.34E-05	****
46	11.31	6.63E-05	****	6.91E-05	****
47	11.56	7.40E-05	****	7.91E-05	****
48	11.81	1.19E-04	****	1.07E-04	****
49	12.05	1.51E-04	****	1.73E-04	****
50	12.30	1.71E-04	29.97	1.20E-04	34.25
51	12.54	1.25E-04	36.06	9.34E-05	****
52	12.79	1.24E-04	****	1.07E-04	34.52

Table A-11 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
53	13.03	1.28E-04	****	8.24E-05	****
54	13.28	1.47E-04	39.23	1.54E-04	27.44
55	13.53	1.40E-04	****	1.23E-04	36.24
56	13.77	1.63E-04	****	1.05E-04	****
57	14.02	1.56E-04	****	1.16E-04	****
58	14.26	1.47E-04	****	1.09E-04	****
59	14.51	1.64E-04	****	1.22E-04	****
60	14.76	2.17E-04	****	1.81E-04	****
61	15.00	2.65E-04	****	2.71E-04	****
62	15.25	2.37E-04	****	1.77E-04	****
63	15.49	2.43E-04	35.15	1.59E-04	****
64	15.74	2.45E-04	****	1.88E-04	****
65	15.99	2.63E-04	****	2.04E-04	****
66	16.23	2.88E-04	****	2.27E-04	****
67	16.48	3.13E-04	****	2.38E-04	****
68	16.72	3.49E-04	****	2.62E-04	****
69	16.97	3.69E-04	****	2.54E-04	****
70	17.22	5.76E-04	****	2.87E-04	****
71	17.46	5.76E-04	****	3.42E-04	****
72	17.71	5.77E-04	****	4.25E-04	****
73	17.95	7.18E-04	****	6.12E-04	39.88
74	18.20	8.52E-04	****	6.37E-04	****
75	18.44	6.80E-04	****	5.50E-04	****
76	18.69	5.38E-04	****	6.48E-04	****
77	18.94	6.49E-04	****	6.55E-04	****
78	19.18	7.42E-04	****	7.09E-04	****
79	19.43	7.12E-04	****	8.45E-04	****
80	19.67	7.90E-04	****	7.69E-04	****
81	19.92	8.48E-04	****	9.02E-04	****
82	20.17	9.67E-04	****	9.19E-04	****
83	20.41	8.86E-04	****	9.52E-04	****
84	20.66	1.05E-03	****	9.15E-04	****
85	20.90	1.20E-03	****	1.21E-03	****
86	21.15	1.22E-03	****	1.71E-03	****
87	21.40	1.21E-03	****	2.04E-03	****
88	21.64	1.12E-03	****	2.04E-03	****
89	21.89	1.21E-03	****	2.33E-03	****
90	22.13	1.40E-03	****	2.66E-03	****
91	22.38	1.59E-03	****	2.40E-03	****
92	22.62	1.70E-03	****	2.76E-03	****
93	22.87	2.16E-03	****	3.06E-03	****
94	23.12	2.57E-03	****	3.53E-03	****
95	23.36	2.78E-03	****	3.94E-03	****
96	23.61	3.34E-03	****	4.31E-03	****
97	23.85	3.78E-03	****	4.57E-03	****
98	24.10	4.46E-03	****	5.15E-03	****
99	24.35	5.14E-03	****	5.44E-03	****
100	24.59	4.71E-03	****	5.37E-03	****
101	24.84	4.52E-03	****	5.29E-03	****
102	25.08	4.63E-03	****	5.71E-03	****
103	25.33	4.55E-03	****	5.81E-03	****
104	25.58	4.42E-03	****	5.71E-03	****

Table A-11 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
105	25.82	4.73E-03	****	5.95E-03	****
106	26.07	5.01E-03	****	5.50E-03	****
107	26.31	4.92E-03	****	5.84E-03	****
108	26.56	4.59E-03	****	6.03E-03	****
109	26.81	5.12E-03	****	5.25E-03	****
110	27.05	5.22E-03	****	5.86E-03	****
111	27.30	4.53E-03	****	5.80E-03	****
112	27.54	3.47E-03	****	4.74E-03	****
113	27.79	2.80E-03	****	4.06E-03	****
114	28.03	2.76E-03	****	4.26E-03	****
115	28.28	3.29E-03	****	4.93E-03	****
116	28.53	2.94E-03	****	9.59E-03	24.78
117	28.77	2.94E-03	****	5.85E-03	****
118	29.02	3.65E-03	****	5.64E-03	****
119	29.26	3.63E-03	****	5.61E-03	****
120	29.51	3.77E-03	****	5.27E-03	****
121	29.76	3.56E-03	****	4.93E-03	****
122	30.19	2.55E-03	****	2.59E-03	29.76
123	30.43	5.37E-03	****	4.45E-03	****
124	30.68	4.33E-03	****	4.34E-03	****
125	30.92	4.79E-03	****	4.50E-03	****
126	31.17	4.51E-03	****	5.31E-03	****
127	31.42	4.62E-03	****	5.57E-03	****
128	31.66	5.39E-03	****	5.96E-03	****
129	31.91	5.45E-03	****	6.54E-03	****
130	32.15	5.54E-03	****	6.84E-03	****
131	32.40	6.41E-03	****	7.32E-03	****
132	32.65	7.27E-03	****	7.69E-03	****
133	32.89	8.19E-03	****	8.67E-03	****
134	33.14	1.04E-02	****	9.65E-03	****
135	33.38	1.01E-02	****	8.42E-03	****
136	33.63	9.91E-03	****	1.16E-02	30.68
137	33.88	1.45E-02	28.17	8.01E-03	****
138	34.12	9.25E-03	****	8.45E-03	****
139	34.37	9.27E-03	****	1.48E-02	24.90
140	34.61	9.51E-03	****	1.47E-02	25.70
141	34.86	9.02E-03	****	8.59E-03	****
142	35.11	8.90E-03	****	8.66E-03	****
143	35.35	8.77E-03	****	9.11E-03	****
144	35.60	8.62E-03	****	9.38E-03	****
145	35.84	8.85E-03	****	9.41E-03	****
146	36.09	8.85E-03	****	1.13E-02	****
147	36.33	8.66E-03	****	9.89E-03	****
148	36.58	7.69E-03	****	8.15E-03	****
149	36.83	7.53E-03	****	6.89E-03	****
150	37.07	7.18E-03	****	6.35E-03	****
151	37.32	9.72E-03	31.00	1.21E-02	22.06
152	37.56	9.93E-03	30.12	6.12E-03	****
153	37.81	8.09E-03	33.70	1.31E-02	19.36
154	38.06	6.81E-03	****	6.79E-03	37.49
155	38.30	6.59E-03	****	6.43E-03	39.86
156	38.55	5.89E-03	****	1.25E-02	20.77

Table A-11 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
157	38.79	6.50E-03	****	6.36E-03	****
158	39.04	6.78E-03	****	1.45E-02	21.79
159	39.29	9.36E-03	32.87	6.31E-03	****
160	39.53	6.12E-03	****	8.25E-03	31.62
161	39.78	1.03E-02	24.32	5.81E-03	****
162	40.02	6.40E-03	****	6.31E-03	38.98
163	40.27	5.82E-03	****	7.50E-03	31.31
164	40.52	6.42E-03	****	8.89E-03	27.48
165	40.76	1.10E-02	27.65	5.84E-03	****
166	41.01	1.24E-02	24.55	1.01E-02	24.17
167	41.25	1.84E-02	16.47	5.01E-03	****
168	41.50	1.07E-02	29.13	6.40E-03	34.48
169	41.74	9.98E-03	27.35	5.34E-03	****
170	41.99	1.43E-02	18.41	7.45E-03	36.21
171	42.24	1.01E-02	27.74	1.60E-02	22.38
172	42.48	1.42E-02	20.59	1.68E-02	20.69
173	42.73	2.82E-02	12.79	3.80E-02	10.35
174	42.97	2.02E-02	18.13	4.99E-02	7.83
175	43.22	2.88E-02	11.69	3.88E-02	9.64
176	43.47	2.37E-02	13.95	1.25E-02	29.69
177	43.71	2.51E-02	14.09	5.41E-02	7.09
178	43.96	2.64E-02	13.47	3.51E-02	11.20
179	44.20	9.53E-03	31.53	4.31E-02	8.95
180	44.45	2.95E-02	11.16	3.88E-02	9.75
181	44.70	2.62E-02	12.20	5.09E-02	8.27
182	44.94	1.19E-02	23.35	3.86E-02	11.32
183	45.19	1.87E-02	16.32	2.52E-02	16.97
184	45.43	1.22E-02	20.21	3.63E-02	12.06
185	45.68	1.15E-02	29.41	3.34E-02	12.58
186	45.93	1.43E-02	22.87	6.90E-02	6.54
187	46.17	1.65E-02	20.80	7.05E-02	7.30
188	46.42	2.88E-02	12.84	1.01E-01	5.51
189	46.66	1.21E-02	29.42	1.22E-01	4.35
190	46.91	4.45E-02	9.22	1.15E-01	4.83
191	47.15	3.24E-02	13.13	1.16E-01	4.60
192	47.40	3.82E-02	11.11	1.12E-01	4.53
193	47.65	4.93E-02	9.40	1.13E-01	4.30
194	47.89	4.52E-02	****	1.06E-01	4.58
195	48.14	5.57E-02	7.76	9.87E-02	5.09
196	48.38	5.84E-02	7.78	6.71E-02	6.66
197	48.63	8.39E-02	5.83	8.17E-02	6.31
198	48.88	4.04E-02	10.53	1.29E-01	4.30
199	49.12	9.20E-02	6.14	1.08E-01	5.46
200	49.37	1.08E-01	5.33	1.10E-01	5.78
201	49.61	1.28E-01	5.07	1.29E-01	5.10
202	49.86	1.51E-01	4.61	1.20E-01	5.63
203	50.11	1.45E-01	4.91	1.00E-01	6.42
204	50.35	1.43E-01	4.68	1.16E-01	5.33
205	50.60	1.07E-01	6.11	1.22E-01	4.75
206	50.84	1.29E-01	4.98	1.25E-01	4.66
207	51.09	1.23E-01	4.83	1.52E-01	4.02
208	51.33	1.43E-01	4.25	1.59E-01	4.22

Table A-11 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
209	51.58	1.40E-01	4.90	1.61E-01	4.27
210	51.83	1.66E-01	4.08	1.66E-01	4.38
211	52.07	2.21E-01	3.30	1.99E-01	3.97
212	52.32	2.08E-01	3.39	1.88E-01	4.64
213	52.56	1.74E-01	3.82	2.62E-01	3.42
214	52.81	1.58E-01	3.97	2.55E-01	3.65
215	53.06	1.59E-01	4.11	2.58E-01	3.65
216	53.30	2.08E-01	3.22	2.90E-01	3.21
217	53.55	2.57E-01	2.80	2.83E-01	3.14
218	53.79	2.62E-01	2.72	3.01E-01	2.88
219	54.04	2.69E-01	2.67	3.15E-01	2.75
220	54.29	2.79E-01	2.57	3.60E-01	2.50
221	54.53	3.11E-01	2.50	3.66E-01	2.46
222	54.78	3.92E-01	2.15	4.78E-01	2.16
223	55.02	3.22E-01	2.40	4.99E-01	2.09
224	55.27	4.87E-01	1.86	4.60E-01	2.09
225	55.52	4.12E-01	2.00	4.60E-01	2.04
226	55.76	3.94E-01	2.02	4.26E-01	2.16
227	56.01	3.93E-01	2.02	4.48E-01	2.01
228	56.25	4.03E-01	1.94	4.48E-01	1.96
229	56.50	4.07E-01	1.96	4.37E-01	2.01
230	56.74	4.11E-01	1.92	4.21E-01	2.03
231	56.99	4.11E-01	1.93	4.30E-01	2.01
232	57.24	3.94E-01	1.97	4.58E-01	1.99
233	57.48	4.29E-01	1.93	4.09E-01	2.20
234	57.73	4.89E-01	1.79	2.09E-01	3.29
235	57.97	3.08E-01	2.32	2.42E-01	3.00
236	58.22	2.05E-01	3.18	2.29E-01	3.30
237	58.47	2.50E-01	2.97	1.99E-01	3.76
238	58.71	1.89E-01	3.60	2.20E-01	3.44
239	58.96	1.73E-01	3.85	2.05E-01	3.68
240	59.20	1.93E-01	3.40	1.87E-01	3.84
241	59.45	2.09E-01	3.34	1.52E-01	4.43
242	59.70	2.33E-01	3.17	1.72E-01	3.78
243	59.94	2.39E-01	3.16	1.62E-01	4.07
244	60.37	8.96E-03	11.96	5.17E-03	15.59
245	60.62	1.35E-01	3.79	2.40E-01	2.80
246	60.86	1.10E-01	4.63	1.88E-01	3.37
247	61.11	4.17E-01	2.10	5.55E-01	1.83
248	61.36	4.09E-01	2.21	4.31E-01	2.23
249	61.60	3.85E-01	2.24	4.33E-01	2.02
250	61.85	3.60E-01	2.32	4.04E-01	2.08
251	62.09	3.46E-01	2.28	3.96E-01	2.02
252	62.34	3.39E-01	2.27	3.99E-01	2.01
253	62.59	3.37E-01	2.23	4.08E-01	1.96
254	62.83	3.41E-01	2.21	4.06E-01	1.94
255	63.08	3.38E-01	2.17	4.31E-01	1.86
256	63.32	3.34E-01	2.17	4.62E-01	1.79
257	63.57	3.91E-01	1.98	4.82E-01	1.76
258	63.82	2.22E-01	2.74	2.86E-01	2.28
259	64.06	4.85E-01	1.75	4.32E-01	1.87
260	64.31	4.43E-01	1.83	4.22E-01	1.84

Table A-11 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
261	64.55	4.08E-01	1.84	3.67E-01	1.96
262	64.80	3.65E-01	1.99	3.48E-01	2.05
263	65.04	3.72E-01	1.96	3.19E-01	2.18
264	65.29	3.73E-01	1.99	3.38E-01	2.04
265	65.54	3.79E-01	1.97	3.61E-01	1.93
266	65.78	3.84E-01	1.93	3.45E-01	2.02
267	66.03	3.65E-01	2.04	3.35E-01	2.02
268	66.27	3.99E-01	1.83	3.20E-01	2.10
269	66.52	4.25E-01	1.78	3.52E-01	1.99
270	66.77	4.36E-01	1.73	3.24E-01	2.31
271	67.01	3.00E-01	2.15	2.37E-01	2.38
272	67.26	3.62E-01	1.94	3.35E-01	2.02
273	67.50	3.52E-01	1.96	3.31E-01	2.01
274	67.75	3.35E-01	1.94	3.11E-01	2.12
275	68.00	3.19E-01	2.01	3.02E-01	2.17
276	68.24	3.01E-01	1.31	3.05E-01	2.14
277	68.49	3.01E-01	1.28	3.01E-01	2.13
278	68.73	2.84E-01	1.30	3.06E-01	2.09
279	68.98	2.83E-01	1.29	2.83E-01	2.17
280	69.23	2.71E-01	1.31	2.53E-01	2.51
281	69.47	2.61E-01	1.35	2.80E-01	2.19
282	69.72	2.65E-01	1.32	3.01E-01	2.08
283	69.96	1.78E-01	1.69	2.02E-01	2.57
284	70.21	1.54E-01	2.34	1.73E-01	2.74
285	70.45	2.18E-01	2.00	2.22E-01	2.51
286	70.70	1.91E-01	2.15	2.15E-01	2.47
287	70.95	1.87E-01	2.06	1.97E-01	2.66
288	71.19	1.64E-01	2.19	1.97E-01	2.54
289	71.44	1.53E-01	2.12	1.67E-01	1.73
290	71.68	1.20E-01	2.29	1.40E-01	1.86
291	71.93	8.95E-02	2.50	1.26E-01	1.87
292	72.18	5.83E-02	3.09	1.06E-01	2.05
293	72.42	2.54E-02	6.27	7.98E-02	2.43
294	72.67	2.31E-02	5.39	5.38E-02	3.04
295	72.91	2.17E-02	5.54	3.67E-02	3.93
296	73.16	1.52E-02	7.17	2.42E-02	5.16
297	73.41	9.26E-03	12.83	1.34E-02	8.07
298	73.65	1.34E-02	10.25	3.63E-02	4.07
299	73.90	3.06E-02	6.06	5.97E-02	3.03
300	74.14	7.51E-02	3.35	6.62E-02	3.14
301	74.39	1.42E-01	2.05	7.50E-02	2.83
302	74.63	1.60E-01	1.78	8.33E-02	2.58
303	74.88	1.09E-01	2.47	8.84E-02	2.45
304	75.13	1.07E-01	2.00	7.45E-02	2.59
305	75.37	7.87E-02	2.37	5.33E-02	3.15
306	75.62	5.39E-02	2.67	3.26E-02	3.96
307	75.86	3.08E-02	3.64	2.01E-02	5.24
308	76.11	1.69E-02	5.69	2.18E-02	4.41
309	76.36	1.40E-02	5.88	1.74E-02	5.26
310	76.60	2.67E-02	4.13	2.51E-02	4.30
311	76.85	2.99E-02	3.77	3.59E-02	3.57
312	77.09	2.86E-02	3.80	3.41E-02	3.72

Table A-11 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
313	77.34	2.58E-02	4.00	3.53E-02	3.73
314	77.59	2.19E-02	4.44	3.99E-02	3.32
315	77.83	1.97E-02	4.37	3.35E-02	3.38
316	78.08	1.48E-02	3.27	2.41E-02	3.88
317	78.32	1.22E-02	3.59	1.67E-02	4.89
318	78.57	1.15E-02	3.70	1.35E-02	3.13
319	78.82	1.34E-02	3.08	1.46E-02	2.89
320	79.06	1.82E-02	2.41	1.82E-02	2.38
321	79.31	1.36E-02	2.89	1.40E-02	3.01
322	79.55	1.36E-02	2.82	1.19E-02	3.20
323	79.80	2.35E-02	1.83	1.86E-02	2.28
324	80.04	2.28E-02	1.76	1.35E-02	2.57
325	80.29	1.95E-02	1.91	1.21E-02	2.53
326	80.54	1.65E-02	2.08	1.14E-02	2.55
327	80.78	1.26E-02	2.40	1.01E-02	2.61
328	81.03	1.06E-02	2.53	9.20E-03	2.70
329	81.27	8.68E-03	2.78	7.47E-03	3.12
330	81.52	7.32E-03	3.24	7.23E-03	3.01
331	81.77	6.16E-03	3.55	6.42E-03	3.22
332	82.01	6.51E-03	3.27	6.92E-03	3.03
333	82.26	7.47E-03	2.97	5.47E-03	3.55
334	82.50	6.82E-03	3.43	3.12E-03	5.11
335	82.75	9.51E-03	2.70	5.72E-03	3.56
336	83.00	8.18E-03	2.79	6.89E-03	3.01
337	83.24	5.47E-03	3.38	6.88E-03	2.96
338	83.49	3.44E-03	4.35	5.92E-03	3.22
339	83.73	2.79E-03	4.51	4.14E-03	3.84
340	83.98	1.98E-03	5.61	3.14E-03	4.03
341	84.22	1.62E-03	3.74	2.19E-03	2.94
342	84.47	1.37E-03	4.07	1.93E-03	3.13
343	84.72	1.35E-03	3.95	2.09E-03	2.73
344	84.96	1.49E-03	3.58	2.21E-03	2.61
345	85.21	1.08E-03	4.42	1.56E-03	3.31
346	85.45	7.77E-04	5.20	8.16E-04	5.14
347	85.70	1.00E-03	4.32	8.24E-04	5.17
348	85.95	8.74E-04	4.66	9.91E-04	4.00
349	86.19	7.37E-04	4.87	8.35E-04	4.44
350	86.44	5.41E-04	6.03	8.05E-04	4.29
351	86.68	4.07E-04	7.47	6.33E-04	5.18
352	86.93	3.69E-04	7.81	5.56E-04	5.42
353	87.18	2.55E-04	9.52	3.25E-04	8.44
354	87.42	2.06E-04	10.47	3.49E-04	7.26
355	87.67	2.17E-04	10.02	3.21E-04	7.16
356	87.91	2.54E-04	8.00	2.22E-04	9.90
357	88.16	7.54E-05	27.86	1.87E-04	10.54
358	88.41	1.23E-04	15.94	1.34E-04	14.60
359	88.65	1.60E-04	12.99	1.75E-04	11.14
360	88.90	7.38E-05	26.09	1.09E-04	16.81
361	89.14	1.23E-04	16.68	8.10E-05	25.81
362	89.39	9.09E-05	21.92	1.85E-04	11.66
363	89.63	1.34E-04	15.33	1.57E-04	13.53
364	89.88	9.08E-05	21.96	1.51E-04	14.27

Table A-12. Axial distribution of ^{154}Eu in the spine of element FO3-01
(corrected to October 31, 1974)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
1	0.25	2.05E-04	13.82	2.68E-04	11.93
2	0.49	2.21E-04	16.43	2.74E-04	13.17
3	0.74	2.44E-04	14.23	1.21E-04	29.64
4	0.99	2.22E-04	16.55	2.65E-04	14.29
5	1.23	2.52E-04	16.14	2.79E-04	13.20
6	1.48	2.31E-04	19.45	3.53E-04	11.90
7	1.72	2.69E-04	17.61	2.74E-04	15.51
8	1.97	2.35E-04	20.87	2.87E-04	15.09
9	2.22	3.49E-04	14.97	2.08E-04	20.62
10	2.46	3.28E-04	17.12	3.24E-04	15.78
11	2.71	2.76E-04	24.07	3.47E-04	16.08
12	2.95	1.84E-04	39.83	3.06E-04	19.60
13	3.20	1.93E-04	****	3.81E-04	15.91
14	3.44	2.86E-04	34.68	3.79E-04	17.02
15	3.69	3.11E-04	33.78	2.77E-04	26.34
16	3.94	4.37E-04	27.19	1.79E-04	****
17	4.18	2.86E-04	****	2.06E-04	33.18
18	4.43	6.60E-04	21.74	2.75E-04	34.81
19	4.67	3.56E-04	****	2.78E-04	36.96
20	4.92	3.60E-04	****	3.45E-04	33.15
21	5.17	3.77E-04	****	4.65E-04	28.13
22	5.41	3.14E-04	****	5.16E-04	31.97
23	5.66	2.88E-04	****	4.03E-04	****
24	5.90	5.17E-04	****	3.90E-04	****
25	6.15	4.77E-04	****	4.06E-04	****
26	6.40	5.28E-04	****	4.14E-04	****
27	6.64	5.47E-04	****	3.78E-04	****
28	6.89	5.87E-04	****	3.50E-04	****
29	7.13	5.96E-04	****	4.13E-04	****
30	7.38	6.27E-04	****	3.96E-04	****
31	7.62	6.16E-04	****	3.76E-04	****
32	7.87	5.70E-04	****	4.00E-04	****
33	8.12	6.43E-04	****	4.38E-04	****
34	8.36	5.92E-04	****	4.80E-04	****
35	8.61	6.44E-04	****	6.67E-04	28.77
36	8.85	6.34E-04	****	5.29E-04	****
37	9.10	5.69E-04	****	5.41E-04	****
38	9.35	6.01E-04	38.88	9.40E-04	23.56
39	9.59	5.76E-04	****	6.03E-04	37.14
40	9.84	7.28E-04	****	5.08E-04	****
41	10.08	8.70E-04	****	4.74E-04	****
42	10.33	7.18E-04	****	5.32E-04	****
43	10.58	5.60E-04	****	6.05E-04	****
44	10.82	5.67E-04	****	5.67E-04	****
45	11.07	7.32E-04	36.91	8.54E-04	32.75
46	11.31	5.51E-04	****	6.92E-04	****
47	11.56	4.88E-04	****	1.16E-03	25.49
48	11.81	5.85E-04	35.33	6.95E-04	****
49	12.05	4.59E-04	****	7.19E-04	****
50	12.30	4.88E-04	****	8.19E-04	****
51	12.54	5.60E-04	38.99	7.68E-04	****
52	12.79	5.43E-04	****	7.95E-04	****

Table A-12 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
53	13.03	4.96E-04	****	8.00E-04	****
54	13.28	6.56E-04	35.16	7.95E-04	****
55	13.53	5.43E-04	****	1.13E-03	28.84
56	13.77	5.81E-04	39.38	8.14E-04	****
57	14.02	5.72E-04	36.95	9.77E-04	39.64
58	14.26	5.49E-04	****	9.01E-04	****
59	14.51	5.61E-04	****	8.07E-04	****
60	14.76	6.08E-04	****	8.19E-04	****
61	15.00	9.14E-04	29.23	8.57E-04	****
62	15.25	6.60E-04	****	8.67E-04	****
63	15.49	5.80E-04	****	9.13E-04	****
64	15.74	5.64E-04	****	9.36E-04	****
65	15.99	5.58E-04	****	9.24E-04	****
66	16.23	6.07E-04	****	7.97E-04	****
67	16.48	7.06E-04	****	7.83E-04	****
68	16.72	6.42E-04	****	8.92E-04	****
69	16.97	5.53E-04	****	9.49E-04	****
70	17.22	5.33E-04	****	9.23E-04	****
71	17.46	5.69E-04	38.99	9.08E-04	****
72	17.71	5.38E-04	****	8.44E-04	****
73	17.95	6.37E-04	38.95	9.68E-04	****
74	18.20	6.50E-04	****	9.22E-04	****
75	18.44	6.83E-04	****	9.25E-04	****
76	18.69	6.53E-04	****	8.58E-04	****
77	18.94	6.11E-04	****	8.97E-04	****
78	19.18	6.40E-04	****	8.71E-04	****
79	19.43	6.09E-04	****	9.02E-04	****
80	19.67	6.20E-04	****	8.39E-04	****
81	19.92	5.74E-04	****	8.68E-04	****
82	20.17	6.22E-04	****	8.20E-04	****
83	20.41	6.31E-04	****	8.21E-04	****
84	20.66	5.97E-04	****	8.05E-04	****
85	20.90	6.35E-04	****	8.36E-04	****
86	21.15	7.52E-04	****	9.06E-04	****
87	21.40	9.49E-04	36.37	9.58E-04	****
88	21.64	8.01E-04	****	9.47E-04	****
89	21.89	8.01E-04	****	9.99E-04	****
90	22.13	7.23E-04	****	1.01E-03	****
91	22.38	1.37E-03	25.30	1.05E-03	****
92	22.62	8.77E-04	****	1.04E-03	****
93	22.87	9.42E-04	****	1.12E-03	****
94	23.12	1.03E-03	****	1.25E-03	****
95	23.36	1.22E-03	****	1.28E-03	****
96	23.61	1.34E-03	****	1.46E-03	****
97	23.85	1.41E-03	****	1.56E-03	****
98	24.10	1.27E-03	****	1.80E-03	****
99	24.35	1.54E-03	****	1.82E-03	****
100	24.59	2.73E-03	24.70	1.78E-03	****
101	24.84	1.75E-03	****	1.87E-03	****
102	25.08	1.68E-03	****	1.82E-03	****
103	25.33	1.98E-03	38.50	2.56E-03	33.77
104	25.58	1.79E-03	****	1.93E-03	****

Table A-12 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
105	25.82	3.17E-03	23.96	2.71E-03	30.70
106	26.07	1.92E-03	****	2.92E-03	27.30
107	26.31	1.72E-03	****	1.71E-03	****
108	26.56	2.12E-03	32.00	1.90E-03	****
109	26.81	1.61E-03	****	1.87E-03	****
110	27.05	1.41E-03	****	1.83E-03	****
111	27.30	1.69E-03	****	2.06E-03	37.34
112	27.54	2.06E-03	35.30	1.46E-03	****
113	27.79	1.93E-03	****	1.88E-03	****
114	28.03	1.84E-03	****	2.72E-03	25.79
115	28.28	2.10E-03	****	2.12E-03	34.80
116	28.53	1.88E-03	****	3.52E-03	22.81
117	28.77	2.13E-03	39.79	3.41E-03	21.53
118	29.02	1.93E-03	****	3.33E-03	22.72
119	29.26	1.84E-03	****	2.03E-03	38.87
120	29.51	1.84E-03	****	2.03E-03	****
121	29.94	7.04E-03	****	4.74E-03	****
122	30.19	2.48E-03	****	2.52E-03	****
123	30.43	1.94E-03	****	2.28E-03	****
124	30.68	1.81E-03	****	1.96E-03	****
125	30.92	2.46E-03	30.21	2.97E-03	31.04
126	31.17	2.68E-03	37.66	2.48E-03	****
127	31.42	4.10E-03	28.74	2.42E-03	****
128	31.66	5.01E-03	22.98	5.97E-03	20.12
129	31.91	4.62E-03	27.15	2.80E-03	****
130	32.15	5.09E-03	24.76	2.91E-03	****
131	32.40	3.39E-03	36.95	2.92E-03	****
132	32.65	3.54E-03	37.06	5.22E-03	23.19
133	32.89	3.33E-03	****	4.63E-03	23.28
134	33.14	3.94E-03	33.14	2.84E-03	****
135	33.38	3.24E-03	27.97	3.54E-03	33.81
136	33.63	6.33E-03	22.51	2.79E-03	****
137	33.88	5.38E-03	24.23	5.82E-03	20.31
138	34.12	6.73E-03	19.40	5.01E-03	21.75
139	34.37	8.84E-03	15.18	7.01E-03	18.54
140	34.61	9.10E-03	14.32	5.76E-03	19.69
141	34.86	8.64E-03	17.16	3.22E-03	33.68
142	35.11	3.99E-03	30.28	6.66E-03	19.26
143	35.35	8.60E-03	15.51	4.64E-03	26.42
144	35.60	9.75E-03	13.34	5.92E-03	19.51
145	35.84	2.71E-03	****	4.26E-03	29.08
146	36.09	3.78E-03	32.48	2.82E-03	****
147	36.33	2.72E-03	****	2.51E-03	****
148	36.58	2.61E-03	****	4.77E-03	21.34
149	36.83	2.65E-03	****	4.09E-03	24.57
150	37.07	2.64E-03	****	3.29E-03	33.36
151	37.32	5.31E-03	21.76	4.24E-03	25.72
152	37.56	3.41E-03	31.67	2.56E-03	****
153	37.81	3.79E-03	29.49	2.28E-03	****
154	38.06	5.09E-03	21.01	3.88E-03	23.65
155	38.30	2.30E-03	****	4.96E-03	18.51
156	38.55	2.50E-03	39.01	2.77E-03	32.87

Table A-12 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
157	38.79	2.99E-03	38.42	2.87E-03	32.40
158	39.04	4.23E-03	27.56	2.25E-03	****
159	39.29	3.91E-03	30.31	5.69E-03	19.15
160	39.53	8.48E-03	15.98	5.90E-03	15.76
161	39.78	6.67E-03	17.34	4.63E-03	22.78
162	40.02	8.32E-03	15.73	6.97E-03	14.98
163	40.27	7.07E-03	18.68	7.15E-03	15.09
164	40.52	1.09E-02	13.00	6.95E-03	16.51
165	40.76	5.76E-03	23.85	1.12E-02	10.42
166	41.01	1.12E-02	12.49	1.09E-02	11.86
167	41.25	1.19E-02	11.17	1.18E-02	10.21
168	41.50	1.39E-02	8.84	1.39E-02	8.31
169	41.74	1.45E-02	8.52	1.05E-02	10.64
170	41.99	9.30E-03	12.03	8.03E-03	14.03
171	42.24	9.03E-03	12.58	7.88E-03	13.53
172	42.48	6.42E-03	18.29	9.49E-03	11.84
173	42.73	1.04E-02	9.95	9.19E-03	10.77
174	42.97	8.06E-03	13.75	9.61E-03	11.20
175	43.22	9.78E-03	11.41	1.13E-02	9.54
176	43.47	6.45E-03	19.07	8.30E-03	14.18
177	43.71	9.57E-03	12.47	1.14E-02	11.10
178	43.96	8.53E-03	12.91	1.20E-02	10.30
179	44.20	8.14E-03	13.57	7.13E-03	16.71
180	44.45	6.83E-03	17.60	1.14E-02	10.17
181	44.70	6.79E-03	14.40	1.02E-02	10.40
182	44.94	4.93E-03	19.80	7.04E-03	14.42
183	45.19	7.70E-03	13.12	9.04E-03	11.11
184	45.43	8.08E-03	13.16	6.78E-03	16.33
185	45.68	7.08E-03	15.53	8.29E-03	13.25
186	45.93	6.88E-03	17.34	5.84E-03	19.96
187	46.17	9.07E-03	12.11	7.96E-03	15.62
188	46.42	8.87E-03	14.40	7.33E-03	16.13
189	46.66	1.54E-02	8.83	1.22E-02	10.75
190	46.91	1.12E-02	11.21	1.31E-02	10.76
191	47.15	1.08E-02	13.57	1.49E-02	9.55
192	47.40	1.58E-02	9.82	1.44E-02	9.44
193	47.65	1.92E-02	8.27	1.62E-02	8.42
194	47.89	1.98E-02	7.77	1.34E-02	11.39
195	48.14	2.35E-02	6.95	1.64E-02	9.42
196	48.38	2.06E-02	7.97	1.91E-02	7.85
197	48.63	1.98E-02	8.46	1.70E-02	8.71
198	48.88	1.45E-02	10.62	1.34E-02	10.20
199	49.12	1.69E-02	9.96	1.23E-02	11.85
200	49.37	1.74E-02	9.43	1.47E-02	10.01
201	49.61	2.15E-02	7.83	1.64E-02	9.44
202	49.86	2.31E-02	7.50	2.04E-02	7.66
203	50.11	2.19E-02	7.26	1.80E-02	7.98
204	50.35	1.72E-02	10.04	1.28E-02	11.69
205	50.60	1.68E-02	9.13	1.10E-02	11.75
206	50.84	1.89E-02	7.21	1.64E-02	7.40
207	51.09	1.85E-02	7.66	1.31E-02	9.47
208	51.33	2.26E-02	6.23	1.87E-02	7.18

Table A-12 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
209	51.58	1.75E-02	8.37	2.24E-02	6.41
210	51.83	2.02E-02	7.04	2.01E-02	7.38
211	52.07	1.56E-02	8.97	2.04E-02	6.82
212	52.32	1.95E-02	6.82	2.03E-02	6.70
213	52.56	1.33E-02	9.18	1.86E-02	6.71
214	52.81	1.75E-02	6.89	1.77E-02	7.08
215	53.06	1.72E-02	6.91	1.79E-02	6.78
216	53.30	1.86E-02	6.57	2.00E-02	6.27
217	53.55	1.59E-02	8.07	1.79E-02	7.15
218	53.79	2.09E-02	5.91	1.81E-02	6.79
219	54.04	2.13E-02	6.31	2.08E-02	6.09
220	54.29	2.07E-02	6.04	2.03E-02	6.62
221	54.53	2.22E-02	5.87	1.81E-02	7.19
222	54.78	2.04E-02	6.23	2.17E-02	5.55
223	55.02	1.39E-02	8.33	1.82E-02	6.51
224	55.27	1.85E-02	6.01	1.49E-02	7.55
225	55.52	1.36E-02	8.80	1.25E-02	8.83
226	55.76	1.76E-02	6.44	1.51E-02	7.29
227	56.01	1.88E-02	6.52	1.22E-02	10.09
228	56.25	1.95E-02	6.16	1.51E-02	7.77
229	56.50	1.74E-02	7.69	1.49E-02	8.48
230	56.74	2.08E-02	6.17	2.18E-02	5.99
231	56.99	2.21E-02	6.14	1.68E-02	7.96
232	57.24	2.66E-02	5.59	2.57E-02	5.33
233	57.48	3.11E-02	5.03	2.54E-02	6.17
234	57.73	3.26E-02	5.07	2.87E-02	5.47
235	57.97	3.05E-02	5.34	2.82E-02	5.40
236	58.22	2.79E-02	5.69	2.53E-02	5.88
237	58.47	2.72E-02	5.29	2.62E-02	5.72
238	58.71	2.51E-02	5.89	2.48E-02	5.73
239	58.96	2.09E-02	7.53	2.49E-02	6.06
240	59.20	2.19E-02	7.69	2.56E-02	6.47
241	59.64	3.14E-03	16.70	1.22E-03	29.02
242	59.88	2.33E-02	8.32	2.38E-02	7.81
243	60.13	2.34E-02	6.60	2.15E-02	7.12
244	60.37	2.11E-02	7.85	1.93E-02	7.50
245	60.62	2.01E-02	7.83	1.96E-02	7.22
246	60.86	2.41E-02	6.49	2.39E-02	6.97
247	61.11	2.32E-02	6.69	2.45E-02	6.73
248	61.36	2.58E-02	6.47	2.45E-02	6.22
249	61.60	2.88E-02	5.38	2.90E-02	5.22
250	61.85	2.46E-02	6.62	2.52E-02	5.63
251	62.09	2.74E-02	5.50	1.71E-02	5.25
252	62.34	2.45E-02	3.93	2.06E-02	4.15
253	62.59	2.35E-02	3.86	2.04E-02	4.04
254	62.83	2.17E-02	3.96	2.09E-02	3.84
255	63.08	1.93E-02	4.42	2.08E-02	3.82
256	63.32	2.33E-02	3.66	2.11E-02	3.77
257	63.57	2.42E-02	3.47	2.21E-02	3.47
258	63.82	2.58E-02	3.32	2.43E-02	3.11
259	64.06	2.69E-02	3.06	2.32E-02	3.37
260	64.31	2.50E-02	3.14	2.32E-02	3.27

Table A-12 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
261	64.55	2.37E-02	3.24	2.29E-02	3.30
262	64.80	2.53E-02	3.09	2.24E-02	3.20
263	65.04	2.19E-02	3.38	2.34E-02	3.19
264	65.29	2.16E-02	3.35	2.47E-02	2.95
265	65.54	2.23E-02	3.19	2.19E-02	3.25
266	65.78	2.19E-02	3.25	2.24E-02	3.20
267	66.03	2.28E-02	3.02	2.15E-02	3.33
268	66.27	2.17E-02	3.12	2.14E-02	3.22
269	66.52	2.16E-02	1.70	2.21E-02	3.03
270	66.77	2.25E-02	1.54	2.26E-02	1.66
271	67.01	2.37E-02	1.52	2.33E-02	1.60
272	67.26	2.46E-02	1.45	2.48E-02	1.52
273	67.50	2.39E-02	1.46	2.42E-02	1.53
274	67.75	2.32E-02	1.45	2.58E-02	1.42
275	68.00	2.29E-02	1.45	2.52E-02	1.44
276	68.24	2.21E-02	1.57	2.43E-02	1.47
277	68.49	2.36E-02	1.54	2.40E-02	1.55
278	68.73	2.47E-02	1.41	2.64E-02	1.39
279	68.98	2.40E-02	1.35	2.72E-02	1.28
280	69.23	2.40E-02	1.32	2.47E-02	1.33
281	69.47	2.35E-02	1.34	2.45E-02	1.33
282	69.72	2.45E-02	1.36	2.40E-02	1.35
283	69.96	2.48E-02	1.35	2.26E-02	1.37
284	70.21	2.30E-02	1.40	2.16E-02	1.36
285	70.45	2.02E-02	1.48	1.82E-02	1.51
286	70.70	1.84E-02	1.55	1.63E-02	1.59
287	70.95	1.69E-02	1.59	1.50E-02	1.66
288	71.19	1.35E-02	2.03	1.45E-02	1.69
289	71.44	1.55E-02	1.67	1.47E-02	1.67
290	71.68	1.50E-02	1.68	1.40E-02	1.72
291	71.93	1.38E-02	1.77	1.25E-02	1.84
292	72.18	1.20E-02	1.93	8.69E-03	2.73
293	72.42	1.05E-02	2.09	9.54E-03	2.19
294	72.67	9.46E-03	2.20	8.52E-03	2.38
295	72.91	7.34E-03	2.65	7.34E-03	2.51
296	73.16	7.39E-03	2.56	6.79E-03	2.58
297	73.41	7.66E-03	2.55	7.28E-03	2.54
298	73.65	9.27E-03	2.50	9.37E-03	2.25
299	73.90	1.25E-02	2.24	1.10E-02	2.08
300	74.14	1.50E-02	2.12	1.21E-02	2.03
301	74.39	1.65E-02	2.05	1.32E-02	1.86
302	74.63	1.63E-02	1.92	1.32E-02	1.87
303	74.88	1.43E-02	1.98	1.16E-02	2.08
304	75.13	1.25E-02	2.09	8.76E-03	2.53
305	75.37	1.09E-02	2.18	8.56E-03	2.14
306	75.62	9.59E-03	2.20	6.80E-03	2.45
307	75.86	7.32E-03	2.50	6.07E-03	2.48
308	76.11	6.78E-03	2.38	5.39E-03	2.55
309	76.36	6.31E-03	2.43	5.57E-03	2.46
310	76.60	7.10E-03	2.33	6.13E-03	2.29
311	76.85	8.63E-03	2.08	6.94E-03	2.11
312	77.09	9.34E-03	1.98	7.43E-03	2.04

Table A-12 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
313	77.34	9.85E-03	1.86	7.27E-03	2.12
314	77.59	8.81E-03	1.98	7.03E-03	2.11
315	77.83	7.61E-03	2.04	6.64E-03	2.08
316	78.08	6.50E-03	2.18	5.65E-03	2.30
317	78.32	5.49E-03	2.40	6.89E-03	1.12
318	78.57	6.03E-03	1.20	6.40E-03	1.19
319	78.82	6.03E-03	1.20	6.53E-03	3.71
320	79.06	6.98E-03	1.10	6.69E-03	1.12
321	79.31	7.90E-03	1.03	7.52E-03	1.04
322	79.55	7.73E-03	1.05	5.19E-03	1.63
323	79.80	7.44E-03	1.03	7.18E-03	1.05
324	80.04	7.26E-03	1.04	7.00E-03	1.07
325	80.29	7.25E-03	1.04	7.29E-03	1.03
326	80.54	7.17E-03	1.03	7.27E-03	1.01
327	80.78	6.88E-03	1.03	6.82E-03	1.04
328	81.03	6.01E-03	1.09	5.99E-03	1.09
329	81.27	4.96E-03	1.21	5.08E-03	1.18
330	81.52	4.42E-03	1.26	4.43E-03	1.26
331	81.77	3.79E-03	1.36	3.84E-03	1.34
332	82.01	3.49E-03	1.42	3.30E-03	1.47
333	82.26	3.68E-03	1.38	3.64E-03	1.38
334	82.50	4.53E-03	1.26	4.13E-03	1.34
335	82.75	5.45E-03	1.15	5.08E-03	1.19
336	83.00	5.54E-03	1.04	5.37E-03	1.15
337	83.24	3.33E-03	2.03	5.02E-03	1.18
338	83.49	4.62E-03	1.21	4.43E-03	1.24
339	83.73	3.89E-03	1.31	3.74E-03	1.32
340	83.98	3.32E-03	1.39	3.05E-03	1.48
341	84.22	2.81E-03	1.50	2.56E-03	1.61
342	84.47	2.46E-03	1.59	2.26E-03	1.65
343	84.72	2.24E-03	1.67	1.98E-03	1.77
344	84.96	1.92E-03	1.81	1.84E-03	1.86
345	85.21	1.29E-03	2.75	1.59E-03	2.04
346	85.45	1.35E-03	2.43	1.33E-03	2.35
347	85.70	1.18E-03	2.55	1.05E-03	2.73
348	85.95	9.62E-04	2.97	9.76E-04	2.77
349	86.19	1.01E-03	2.80	8.76E-04	2.93
350	86.44	8.96E-04	2.96	9.32E-04	2.80
351	86.68	9.02E-04	2.87	7.90E-04	3.14
352	86.93	8.14E-04	2.96	7.33E-04	3.15
353	87.18	6.96E-04	3.17	6.05E-04	3.42
354	87.42	5.42E-04	3.63	5.39E-04	3.63
355	87.67	5.43E-04	3.59	4.15E-04	4.22
356	87.91	4.84E-04	3.81	4.79E-04	3.51
357	88.16	4.77E-04	3.59	4.32E-04	3.76
358	88.41	4.21E-04	3.95	3.71E-04	4.17
359	88.65	3.48E-04	4.26	3.56E-04	3.92
360	88.90	2.98E-04	4.46	3.05E-04	4.51

Table A-13. Axial distribution of ^{60}Co in bottom connector
of element FO3-01

(corrected to October 31, 1974)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
1	0.12	2.57E-05	12.1	8.66E-05	6.8
2	0.37	3.44E-05	10.2	1.28E-05	31.0
3	0.61	5.19E-05	8.2	2.08E-05	18.1
4	0.86	6.31E-05	7.5	2.51E-05	15.8
5	1.11	5.96E-05	7.4	2.81E-05	15.3
6	1.35	5.01E-05	11.0	2.54E-05	17.5
7	1.60	7.68E-05	7.4	4.04E-05	12.0
8	1.84	8.95E-05	6.3	1.97E-05	27.1
9	2.09	9.53E-05	6.4	4.10E-05	12.4
10	2.34	1.13E-04	5.4	3.93E-05	12.8
11	2.58	1.02E-04	6.1	2.70E-05	16.4
12	2.83	1.09E-04	6.1	3.18E-05	14.1
13	3.07	8.96E-05	6.8	3.11E-05	13.2
14	3.32	5.50E-05	10.4	2.03E-05	21.3
15	3.57	7.25E-05	6.9	2.26E-05	16.5
16	3.81	7.67E-05	6.5	2.46E-05	14.3
17	4.06	5.21E-05	9.0	1.90E-05	18.1
18	4.30	5.41E-05	8.0	1.35E-05	25.2
19	4.55	4.86E-05	8.3	1.04E-05	24.0
20	4.80	2.96E-05	12.8	1.35E-05	23.9
21	5.04	1.87E-05	20.5	9.94E-06	27.3
22	5.29	2.94E-05	11.0	1.52E-05	21.4
23	5.53	2.95E-05	11.0	1.26E-05	26.7
24	5.78	2.88E-05	12.9	1.53E-05	22.8
25	6.02	3.07E-05	10.8	1.22E-05	30.5
26	6.27	1.08E-05	36.4	3.15E-05	13.5
27	6.52	3.77E-05	10.5	3.49E-05	13.4
28	6.76	4.50E-05	9.4	3.41E-05	14.9
29	7.01	6.37E-05	7.8	5.93E-05	10.6
30	7.25	7.16E-05	7.5	6.65E-05	9.9
31	7.50	7.91E-05	8.3	8.28E-05	9.9
32	7.75	9.29E-05	7.2	8.78E-05	9.6
33	7.99	1.31E-04	5.8	8.04E-05	11.6
34	8.24	1.63E-04	5.4	1.41E-04	8.5
35	8.48	1.90E-04	4.9	2.19E-04	7.5
36	8.73	1.84E-04	5.4	2.47E-04	9.5
37	8.98	2.35E-04	4.6	3.67E-04	8.9
38	9.22	3.55E-04	3.9	3.23E-04	12.6
39	9.47	5.13E-04	3.4	3.60E-04	13.2
40	9.71	2.03E-04	10.6	3.45E-04	22.6
41	9.96	6.56E-04	5.8	8.52E-04	13.1
42	10.20	6.09E-04	6.8	1.76E-02	9.7
43	10.45	6.20E-04	7.9	2.22E+00	0.9
44	10.70	1.11E-03	8.1	1.56E-03	7.3
45	10.94	5.83E-03	6.5	1.19E-03	7.0
46	11.19	3.09E-04	19.7	1.33E-03	5.1
47	11.43	2.01E-03	4.4	2.08E-03	3.3
48	11.68	1.81E-03	3.5	1.63E-03	3.8
49	11.93	1.85E-03	3.5	1.21E-03	4.1

Table A-13 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
50	12.17	3.39E-03	2.3	1.20E-03	4.3
51	12.42	2.76E-03	2.6	1.71E-03	1.9
52	12.66	2.76E-03	1.4	1.85E-03	1.7
53	12.91	2.48E-03	1.4	1.83E-03	1.6
54	13.16	2.42E-03	1.4	1.90E-03	1.6
55	13.40	2.37E-03	1.4	1.89E-03	1.6
56	13.65	2.55E-03	1.3	2.01E-03	1.5
57	13.89	2.50E-03	1.3	1.99E-03	1.5
58	14.14	2.37E-03	1.3	1.80E-03	1.6
59	14.39	2.41E-03	1.3	1.81E-03	1.5
60	14.63	2.29E-03	1.3	1.84E-03	1.5
61	14.88	2.20E-03	1.3	2.10E-03	1.4
62	15.12	2.21E-03	1.3	2.05E-03	1.4
63	15.37	2.28E-03	1.3	2.05E-03	1.4
64	15.61	2.30E-03	1.3	2.04E-03	1.4
65	15.86	2.30E-03	1.3	2.28E-03	1.3
66	16.11	2.17E-03	1.3	2.07E-03	1.4
67	16.35	2.20E-03	1.3	2.04E-03	1.4
68	16.60	2.33E-03	1.3	2.12E-03	1.4
69	16.84	2.27E-03	1.3	2.23E-03	1.3
70	17.09	2.35E-03	1.2	2.15E-03	1.3
71	17.34	2.37E-03	1.3	2.41E-03	1.3
72	17.58	2.45E-03	1.2	2.19E-03	1.4
73	17.83	2.42E-03	1.2	2.45E-03	1.3
74	18.07	2.37E-03	1.3	2.33E-03	1.3
75	18.32	2.47E-03	1.2	2.51E-03	1.3
76	18.57	2.46E-03	1.2	2.32E-03	1.4
77	18.81	2.57E-03	1.2	2.34E-03	1.4
78	19.06	2.65E-03	1.2	2.34E-03	1.4
79	19.30	2.83E-03	1.1	2.05E-03	1.4
80	19.55	2.87E-03	1.1	1.68E-03	1.5
81	19.79	2.71E-03	1.2	1.71E-03	1.5
82	20.04	2.61E-03	1.2	1.71E-03	1.5
83	20.29	2.41E-03	1.3	1.70E-03	1.5
84	20.53	2.16E-03	1.3	1.61E-03	1.5
85	20.78	1.90E-03	1.4	1.69E-03	1.5
86	21.02	1.91E-03	1.4	1.72E-03	1.5
87	21.27	1.90E-03	1.4	1.63E-03	1.6
88	21.52	1.91E-03	1.4	1.62E-03	1.6
89	21.76	1.85E-03	1.4	1.40E-03	1.9
90	22.01	1.88E-03	1.4	6.32E-05	****
91	22.25	1.89E-03	1.4	7.81E-04	2.3
92	22.50	1.83E-03	1.4	8.25E-04	2.0
93	22.75	1.87E-03	1.4	6.46E-04	3.0
94	22.99	1.75E-03	1.6	6.08E-04	3.0
95	23.24	1.32E-03	2.4	2.97E-04	4.2
96	23.48	6.86E-04	4.4	9.49E-06	****
97	23.73	9.03E-04	2.6	4.07E-06	****
98	23.98	7.95E-04	2.5	3.10E-06	****

Table A-14. Axial distribution of ^{110m}Ag in bottom connector
of element FO3-01
(corrected to October 31, 1974)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
1	0.12	2.98E-05	****	4.67E-05	****
2	0.37	3.13E-05	****	4.15E-05	****
3	0.61	3.72E-05	****	4.48E-05	****
4	0.86	4.27E-05	****	5.04E-05	****
5	1.11	3.94E-05	****	5.47E-05	****
6	1.35	4.60E-05	****	5.53E-05	****
7	1.60	5.20E-05	****	6.05E-05	****
8	1.84	5.30E-05	****	6.29E-05	****
9	2.09	5.97E-05	****	6.67E-05	****
10	2.34	6.08E-05	****	6.24E-05	****
11	2.58	6.11E-05	****	6.74E-05	****
12	2.83	6.16E-05	****	6.28E-05	****
13	3.07	6.27E-05	****	6.07E-05	****
14	3.32	6.17E-05	****	5.91E-05	****
15	3.57	5.72E-05	****	5.36E-05	****
16	3.81	5.93E-05	****	5.28E-05	****
17	4.06	5.36E-05	****	5.26E-05	****
18	4.30	5.08E-05	****	4.61E-05	****
19	4.55	5.04E-05	****	4.90E-05	****
20	4.80	4.80E-05	****	4.50E-05	****
21	5.04	4.79E-05	****	7.43E-05	27.5
22	5.29	4.66E-05	****	5.00E-05	****
23	5.53	4.77E-05	****	5.27E-05	****
24	5.78	4.69E-05	****	5.71E-05	****
25	6.02	4.75E-05	****	6.51E-05	****
26	6.27	5.14E-05	****	7.57E-05	****
27	6.52	5.38E-05	****	8.68E-05	****
28	6.76	6.17E-05	****	9.69E-05	****
29	7.01	6.53E-05	****	1.19E-04	****
30	7.25	8.14E-05	****	1.37E-04	****
31	7.50	9.03E-05	****	1.66E-04	****
32	7.75	1.03E-04	****	1.88E-04	****
33	7.99	1.19E-04	****	2.26E-04	****
34	8.24	1.45E-04	****	2.71E-04	****
35	8.48	1.70E-04	****	3.43E-04	****
36	8.73	2.03E-04	****	4.26E-04	****
37	8.98	2.38E-04	****	5.64E-04	****
38	9.22	2.90E-04	****	8.95E-04	****
39	9.47	3.58E-04	****	1.20E-03	****
40	9.71	6.66E-04	****	1.69E-03	****
41	9.96	1.15E-03	35.4	2.62E-03	****
42	10.20	1.20E-03	****	3.56E-02	****
43	10.45	1.69E-03	****	1.17E-01	****
44	10.70	2.62E-03	****	2.36E-03	****
45	10.94	9.67E-03	****	1.57E-03	****
46	11.19	5.85E-04	****	1.17E-03	****
47	11.43	2.31E-03	****	9.86E-04	****
48	11.68	1.51E-03	****	8.01E-04	****
49	11.93	1.15E-03	****	6.66E-04	****

Table A-14 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
50	12.17	9.59E-04	****	5.83E-04	****
51	12.42	7.91E-04	****	3.70E-04	****
52	12.66	4.80E-04	****	3.45E-04	****
53	12.91	4.17E-04	****	3.17E-04	****
54	13.16	3.82E-04	****	2.97E-04	****
55	13.40	3.55E-04	****	2.83E-04	****
56	13.65	3.35E-04	****	2.77E-04	****
57	13.89	3.11E-04	****	2.69E-04	****
58	14.14	2.95E-04	****	2.55E-04	****
59	14.39	2.82E-04	****	2.57E-04	****
60	14.63	2.71E-04	****	2.53E-04	****
61	14.88	2.64E-04	****	2.53E-04	****
62	15.12	2.59E-04	****	2.53E-04	****
63	15.37	2.61E-04	****	2.52E-04	****
64	15.61	2.62E-04	****	2.52E-04	****
65	15.86	2.59E-04	****	2.58E-04	****
66	16.11	2.53E-04	****	2.63E-04	****
67	16.35	2.47E-04	****	2.59E-04	****
68	16.60	2.55E-04	****	2.60E-04	****
69	16.84	2.56E-04	****	2.60E-04	****
70	17.09	2.63E-04	****	2.62E-04	****
71	17.34	2.64E-04	****	2.72E-04	****
72	17.58	2.59E-04	****	2.63E-04	****
73	17.83	2.64E-04	****	2.71E-04	****
74	18.07	2.65E-04	****	2.78E-04	****
75	18.32	2.79E-04	****	2.84E-04	****
76	18.57	2.79E-04	****	2.86E-04	****
77	18.81	2.79E-04	****	2.98E-04	****
78	19.06	2.84E-04	****	2.93E-04	****
79	19.30	2.89E-04	****	2.43E-04	****
80	19.55	2.92E-04	****	1.87E-04	****
81	19.79	2.97E-04	****	1.75E-04	****
82	20.04	2.95E-04	****	1.74E-04	****
83	20.29	2.75E-04	****	1.73E-04	****
84	20.53	2.32E-04	****	1.77E-04	****
85	20.78	1.90E-04	****	1.78E-04	****
86	21.02	1.83E-04	****	1.86E-04	****
87	21.27	1.81E-04	****	1.84E-04	****
88	21.52	1.82E-04	****	1.92E-04	****
89	21.76	1.83E-04	****	2.43E-04	****
90	22.01	1.86E-04	****	6.05E-04	****
91	22.25	1.90E-04	****	3.49E-04	****
92	22.50	1.94E-04	****	1.80E-04	****
93	22.75	1.95E-04	****	1.60E-04	****
94	22.99	2.33E-04	****	1.46E-04	****
95	23.24	4.12E-04	****	9.77E-05	****
96	23.48	4.76E-04	****	3.90E-05	****
97	23.73	2.94E-04	****	2.66E-05	****
98	23.98	2.10E-04	****	2.05E-05	****

Table A-15. Axial distribution of ^{134}Cs in bottom connector
of element FO3-01
(corrected to October 31, 1974)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
1	0.12	7.12E-06	****	2.78E-04	3.6
2	0.37	8.27E-06	****	7.39E-05	8.0
3	0.61	1.40E-04	5.3	6.29E-05	8.9
4	0.86	1.90E-04	4.6	5.46E-05	10.3
5	1.11	5.01E-05	11.6	4.02E-05	14.6
6	1.35	5.62E-05	11.5	4.40E-05	13.8
7	1.60	2.70E-05	20.2	5.56E-05	11.8
8	1.84	3.39E-05	16.7	3.87E-05	16.6
9	2.09	1.93E-05	29.5	4.00E-05	15.1
10	2.34	2.28E-05	23.3	3.72E-05	19.8
11	2.58	4.56E-05	15.6	3.43E-05	18.0
12	2.83	3.04E-05	24.3	3.53E-05	18.1
13	3.07	3.00E-05	24.5	3.30E-05	22.6
14	3.32	4.16E-05	17.9	3.08E-05	20.1
15	3.57	4.80E-05	16.1	3.72E-05	17.3
16	3.81	2.00E-05	29.5	3.65E-05	17.4
17	4.06	4.12E-05	19.0	3.02E-05	25.6
18	4.30	4.91E-05	16.0	2.49E-05	24.1
19	4.55	2.92E-05	26.4	3.60E-05	18.4
20	4.80	6.46E-05	11.3	3.28E-05	22.1
21	5.04	2.90E-05	23.0	3.64E-05	23.1
22	5.29	3.79E-05	18.4	4.73E-05	19.4
23	5.53	2.03E-05	32.2	2.28E-05	****
24	5.78	3.85E-05	23.0	2.34E-05	37.3
25	6.02	2.51E-05	30.3	3.77E-05	33.5
26	6.27	3.72E-05	27.6	3.07E-05	****
27	6.52	2.47E-05	34.3	3.49E-05	****
28	6.76	3.65E-05	31.7	6.66E-05	27.0
29	7.01	6.94E-05	18.4	4.44E-05	****
30	7.25	5.41E-05	27.0	5.07E-05	****
31	7.50	4.46E-05	36.8	6.94E-05	38.9
32	7.75	3.99E-05	****	6.58E-05	****
33	7.99	4.47E-05	****	7.56E-05	****
34	8.24	5.09E-05	****	8.87E-05	****
35	8.48	5.79E-05	****	1.06E-04	****
36	8.73	9.87E-05	31.4	1.25E-04	****
37	8.98	7.80E-05	****	1.58E-04	****
38	9.22	9.10E-05	****	2.94E-04	****
39	9.47	1.08E-04	****	9.81E-04	18.2
40	9.71	2.36E-04	****	4.70E-04	****
41	9.96	2.92E-04	****	6.61E-04	****
42	10.20	3.65E-04	****	9.78E-03	34.2
43	10.45	4.74E-04	****	1.93E-02	****
44	10.70	6.68E-04	****	5.84E-04	****
45	10.94	2.61E-03	****	1.26E-03	14.6
46	11.19	1.41E-04	****	9.79E-04	12.9
47	11.43	5.80E-04	****	1.42E-03	8.5
48	11.68	8.65E-04	17.3	1.39E-03	7.7
49	11.93	1.19E-03	10.7	1.58E-03	6.0

Table A-15 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
50	12.17	1.28E-03	8.9	1.34E-03	6.2
51	12.42	1.11E-03	8.8	1.22E-03	3.7
52	12.66	1.26E-03	4.5	1.55E-03	2.9
53	12.91	1.18E-03	4.2	1.55E-03	2.6
54	13.16	1.27E-03	3.7	1.46E-03	2.6
55	13.40	1.50E-03	3.0	1.69E-03	2.2
56	13.65	1.55E-03	2.8	1.73E-03	2.1
57	13.89	1.61E-03	2.4	1.74E-03	2.0
58	14.14	1.65E-03	2.3	1.79E-03	1.9
59	14.39	1.73E-03	2.2	1.89E-03	1.7
60	14.63	1.77E-03	2.0	2.04E-03	1.7
61	14.88	1.83E-03	1.9	2.18E-03	1.6
62	15.12	1.84E-03	1.8	2.25E-03	1.5
63	15.37	1.97E-03	1.7	2.29E-03	1.5
64	15.61	2.06E-03	1.7	2.39E-03	1.5
65	15.86	2.16E-03	1.6	2.44E-03	1.4
66	16.11	2.16E-03	1.6	2.49E-03	1.5
67	16.35	2.16E-03	1.6	2.56E-03	1.5
68	16.60	2.30E-03	1.5	2.68E-03	1.3
69	16.84	2.36E-03	1.4	3.02E-03	1.2
70	17.09	2.48E-03	1.4	3.05E-03	1.2
71	17.34	2.59E-03	1.4	3.36E-03	1.2
72	17.58	2.69E-03	1.3	3.32E-03	1.2
73	17.83	2.88E-03	1.3	3.42E-03	1.2
74	18.07	2.89E-03	1.3	4.34E-03	1.0
75	18.32	2.94E-03	1.3	5.32E-03	1.0
76	18.57	3.04E-03	1.2	5.48E-03	0.7
77	18.81	3.21E-03	1.2	6.47E-03	0.7
78	19.06	3.50E-03	1.2	6.60E-03	0.6
79	19.30	3.67E-03	1.2	3.53E-03	0.9
80	19.55	3.87E-03	1.2	9.50E-04	2.6
81	19.79	4.40E-03	0.8	5.51E-04	3.5
82	20.04	4.81E-03	0.8	5.03E-04	3.9
83	20.29	4.40E-03	0.8	6.57E-04	3.4
84	20.53	2.30E-03	1.1	8.05E-04	2.8
85	20.78	7.22E-04	3.1	1.14E-03	2.3
86	21.02	5.35E-04	3.7	1.55E-03	1.9
87	21.27	4.97E-04	3.9	1.86E-03	1.8
88	21.52	7.40E-04	3.1	2.40E-03	1.6
89	21.76	7.04E-04	3.2	2.21E-03	2.2
90	22.01	8.49E-04	2.8	1.03E-02	1.5
91	22.25	1.04E-03	2.5	3.67E-02	0.4
92	22.50	1.10E-03	2.5	9.87E-03	0.7
93	22.75	1.44E-03	2.3	8.46E-03	0.7
94	22.99	7.51E-03	0.8	8.27E-03	0.7
95	23.24	3.45E-02	0.5	4.75E-03	0.9
96	23.48	5.46E-02	0.4	3.32E-04	3.6
97	23.73	3.10E-02	0.4	2.55E-05	26.5
98	23.98	1.77E-02	0.5	2.05E-05	26.8

Table A-16. Axial distribution of ^{137}Cs in bottom connector
of element FO3-01
(corrected to October 31, 1974)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
1	0.12	4.97E-06	****	2.33E-04	3.1
2	0.37	6.06E-06	****	5.36E-05	8.1
3	0.61	1.20E-04	4.6	3.56E-05	11.3
4	0.86	1.70E-04	3.8	4.08E-05	10.4
5	1.11	5.64E-05	7.7	4.09E-05	10.4
6	1.35	3.93E-05	10.6	3.36E-05	13.0
7	1.60	2.21E-05	18.0	3.40E-05	13.0
8	1.84	2.96E-05	14.0	4.10E-05	12.0
9	2.09	3.61E-05	11.6	3.20E-05	14.5
10	2.34	2.33E-05	19.1	1.91E-05	27.6
11	2.58	1.63E-05	26.6	3.44E-05	14.8
12	2.83	3.23E-05	15.6	2.52E-05	21.3
13	3.07	2.14E-05	24.3	3.41E-05	14.1
14	3.32	2.35E-05	19.4	2.88E-05	15.9
15	3.57	3.39E-05	14.0	4.49E-05	11.1
16	3.81	2.07E-05	21.1	1.40E-05	29.8
17	4.06	3.83E-05	13.4	2.15E-05	19.6
18	4.30	2.67E-05	16.1	1.79E-05	23.5
19	4.55	3.36E-05	14.3	3.05E-05	14.7
20	4.80	1.23E-05	32.8	2.30E-05	19.2
21	5.04	1.96E-05	23.8	1.71E-05	26.3
22	5.29	3.02E-05	15.4	2.21E-05	24.7
23	5.53	4.69E-05	11.8	1.75E-05	28.3
24	5.78	3.03E-05	19.3	1.98E-05	37.6
25	6.02	2.79E-05	22.1	3.01E-05	26.9
26	6.27	2.55E-05	20.3	1.94E-05	****
27	6.52	1.56E-05	****	2.15E-05	****
28	6.76	4.33E-05	16.8	2.50E-05	****
29	7.01	3.70E-05	22.1	2.83E-05	****
30	7.25	2.04E-05	****	7.09E-05	21.0
31	7.50	4.56E-05	22.6	3.79E-05	****
32	7.75	2.53E-05	****	4.17E-05	****
33	7.99	4.63E-05	28.2	6.12E-05	37.9
34	8.24	3.30E-05	****	5.88E-05	****
35	8.48	5.04E-05	34.3	7.07E-05	****
36	8.73	6.92E-05	29.5	8.46E-05	****
37	8.98	5.16E-05	****	1.08E-04	****
38	9.22	6.07E-05	****	1.94E-04	****
39	9.47	7.33E-05	****	1.07E-03	9.5
40	9.71	1.51E-04	****	3.24E-04	****
41	9.96	1.96E-04	****	4.59E-04	****
42	10.20	2.50E-04	****	1.86E-02	17.4
43	10.45	3.21E-04	****	1.43E-02	****
44	10.70	4.65E-04	****	4.06E-04	****
45	10.94	2.24E-03	37.4	5.96E-04	22.7
46	11.19	9.62E-05	****	5.22E-04	20.2
47	11.43	5.31E-04	35.6	4.46E-04	20.1
48	11.68	2.82E-04	****	4.14E-04	18.2
49	11.93	2.27E-04	****	3.59E-04	17.9

Table A-16 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
50	12.17	2.79E-04	31.7	2.40E-04	19.5
51	12.42	1.59E-04	****	1.91E-04	13.7
52	12.66	2.04E-04	17.0	2.38E-04	12.3
53	12.91	2.80E-04	12.6	1.68E-04	13.0
54	13.16	1.45E-04	17.1	1.24E-04	15.3
55	13.40	1.07E-04	20.1	2.19E-04	10.3
56	13.65	2.19E-04	12.1	3.10E-04	6.3
57	13.89	1.08E-04	17.6	2.10E-04	8.3
58	14.14	2.29E-04	8.8	2.55E-04	6.6
59	14.39	1.78E-04	10.1	2.25E-04	7.1
60	14.63	1.60E-04	10.6	2.06E-04	7.6
61	14.88	1.43E-04	11.4	2.70E-04	6.3
62	15.12	2.17E-04	8.5	2.45E-04	6.4
63	15.37	1.49E-04	10.8	2.72E-04	5.9
64	15.61	2.10E-04	7.8	2.16E-04	6.9
65	15.86	1.59E-04	9.5	2.24E-04	6.8
66	16.11	1.74E-04	8.8	2.38E-04	6.6
67	16.35	1.68E-04	9.0	2.43E-04	6.4
68	16.60	1.64E-04	8.8	2.85E-04	5.7
69	16.84	1.90E-04	8.2	3.51E-04	4.8
70	17.09	1.41E-04	10.1	3.64E-04	4.6
71	17.34	1.68E-04	8.4	5.58E-04	3.3
72	17.58	1.55E-04	9.1	5.90E-04	3.1
73	17.83	1.97E-04	8.0	6.30E-04	3.1
74	18.07	1.89E-04	7.9	9.64E-04	2.2
75	18.32	2.29E-04	7.2	1.70E-03	1.5
76	18.57	2.39E-04	6.7	1.94E-03	1.4
77	18.81	2.69E-04	6.2	2.48E-03	1.2
78	19.06	3.59E-04	4.8	2.63E-03	1.2
79	19.30	6.22E-04	3.1	1.18E-03	1.8
80	19.55	6.94E-04	2.9	3.00E-04	4.4
81	19.79	7.18E-04	2.8	1.20E-04	8.9
82	20.04	9.16E-04	2.4	1.18E-04	9.1
83	20.29	1.02E-03	2.2	1.64E-04	7.0
84	20.53	5.74E-04	2.9	3.30E-04	4.1
85	20.78	1.66E-04	7.0	4.75E-04	3.2
86	21.02	9.32E-05	11.4	6.95E-04	2.5
87	21.27	9.46E-05	11.6	9.29E-04	2.1
88	21.52	1.47E-04	7.9	1.13E-03	1.9
89	21.76	1.49E-04	7.8	1.34E-03	2.3
90	22.01	1.91E-04	6.3	7.97E-03	1.3
91	22.25	3.09E-04	4.6	2.74E-02	0.4
92	22.50	3.41E-04	4.3	7.18E-03	0.6
93	22.75	5.08E-04	3.3	6.09E-03	0.7
94	22.99	6.91E-03	0.7	5.93E-03	0.7
95	23.24	2.82E-02	0.4	3.38E-03	0.8
96	23.48	4.09E-02	0.3	2.30E-04	3.5
97	23.73	2.25E-02	0.4	2.26E-05	17.4
98	23.98	1.23E-02	0.5	1.29E-05	25.8

Table A-17. Axial distribution of ^{144}Ce in bottom connector
of element FO3-01
(corrected to October 31, 1974)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
1	0.12	1.16E-03	****	1.05E-03	12.0
2	0.37	1.15E-03	****	3.28E-04	****
3	0.61	1.44E-03	****	3.46E-04	****
4	0.86	1.53E-03	****	3.66E-04	****
5	1.11	1.71E-03	****	3.88E-04	****
6	1.35	1.78E-03	****	4.02E-04	****
7	1.60	1.84E-03	****	4.06E-04	****
8	1.84	1.96E-03	****	4.35E-04	****
9	2.09	2.06E-03	****	4.43E-04	****
10	2.34	2.25E-03	****	4.58E-04	****
11	2.58	2.30E-03	****	4.81E-04	****
12	2.83	2.35E-03	****	5.16E-04	****
13	3.07	2.51E-03	****	5.17E-04	****
14	3.32	2.35E-03	****	5.55E-04	****
15	3.57	2.42E-03	****	5.60E-04	****
16	3.81	2.19E-03	****	6.10E-04	****
17	4.06	2.21E-03	****	6.38E-04	****
18	4.30	2.16E-03	****	6.62E-04	****
19	4.55	2.19E-03	****	6.90E-04	****
20	4.80	2.12E-03	****	7.31E-04	****
21	5.04	2.35E-03	****	7.68E-04	****
22	5.29	2.30E-03	****	8.23E-04	****
23	5.53	2.41E-03	****	9.39E-04	****
24	5.78	2.64E-03	****	1.00E-03	****
25	6.02	2.66E-03	****	1.07E-03	****
26	6.27	2.84E-03	****	1.14E-03	****
27	6.52	3.29E-03	****	1.22E-03	****
28	6.76	3.60E-03	****	1.31E-03	****
29	7.01	3.94E-03	****	1.40E-03	****
30	7.25	4.46E-03	****	1.52E-03	****
31	7.50	5.04E-03	****	1.65E-03	****
32	7.75	5.48E-03	****	1.76E-03	****
33	7.99	6.28E-03	****	1.93E-03	****
34	8.24	7.29E-03	****	2.13E-03	****
35	8.48	8.77E-03	****	2.38E-03	****
36	8.73	1.01E-02	****	2.66E-03	****
37	8.98	1.19E-02	****	3.07E-03	****
38	9.22	1.42E-02	****	6.72E-03	****
39	9.47	1.71E-02	****	1.17E-02	23.6
40	9.71	3.59E-02	****	8.86E-03	****
41	9.96	4.50E-02	****	1.08E-02	****
42	10.20	5.85E-02	****	2.57E-01	23.3
43	10.45	7.85E-02	****	1.66E-01	****
44	10.70	1.12E-01	****	9.08E-03	****
45	10.94	4.35E-01	****	7.27E-03	****
46	11.19	2.37E-02	****	6.57E-03	****
47	11.43	9.81E-02	****	5.94E-03	****
48	11.68	6.77E-02	****	7.02E-03	36.1
49	11.93	5.20E-02	****	5.03E-03	****

Table A-17 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
50	12.17	4.35E-02	****	4.54E-03	****
51	12.42	3.66E-02	****	1.97E-03	****
52	12.66	2.05E-02	****	1.89E-03	****
53	12.91	1.78E-02	****	1.82E-03	****
54	13.16	1.56E-02	****	2.13E-03	37.7
55	13.40	1.44E-02	****	1.55E-03	****
56	13.65	1.31E-02	****	1.78E-03	38.8
57	13.89	1.19E-02	****	1.45E-03	****
58	14.14	1.10E-02	****	1.32E-03	****
59	14.39	1.05E-02	****	1.26E-03	****
60	14.63	9.86E-03	****	1.61E-03	35.2
61	14.88	9.45E-03	****	2.20E-03	24.5
62	15.12	9.13E-03	****	1.17E-03	32.0
63	15.37	9.03E-03	****	9.92E-04	36.7
64	15.61	8.92E-03	****	1.05E-03	****
65	15.86	8.57E-03	****	1.04E-03	****
66	16.11	8.33E-03	****	1.39E-03	33.6
67	16.35	8.42E-03	****	1.00E-03	****
68	16.60	8.45E-03	****	1.31E-03	36.1
69	16.84	8.38E-03	****	1.72E-03	20.9
70	17.09	8.51E-03	****	1.78E-03	18.8
71	17.34	8.46E-03	****	4.31E-03	8.6
72	17.58	8.48E-03	****	3.49E-03	11.1
73	17.83	8.50E-03	****	3.82E-03	10.2
74	18.07	8.73E-03	****	6.90E-03	6.2
75	18.32	8.67E-03	****	1.23E-02	3.6
76	18.57	8.67E-03	****	1.51E-02	3.2
77	18.81	8.87E-03	****	1.54E-02	3.0
78	19.06	9.08E-03	****	1.21E-02	4.0
79	19.30	9.30E-03	****	4.06E-03	10.2
80	19.55	9.51E-03	****	1.43E-03	30.4
81	19.79	9.58E-03	****	8.79E-04	****
82	20.04	9.61E-03	****	8.92E-04	****
83	20.29	8.96E-03	****	9.23E-04	****
84	20.53	7.51E-03	****	9.61E-04	****
85	20.78	6.31E-03	****	1.01E-03	****
86	21.02	6.08E-03	****	1.10E-03	****
87	21.27	6.14E-03	****	1.18E-03	****
88	21.52	6.25E-03	****	1.29E-03	****
89	21.76	6.37E-03	****	1.70E-03	****
90	22.01	6.37E-03	****	4.13E-03	****
91	22.25	6.65E-03	****	9.34E-03	9.3
92	22.50	6.97E-03	****	2.43E-03	31.2
93	22.75	7.51E-03	****	1.24E-03	38.1
94	22.99	2.15E-02	20.7	1.24E-03	****
95	23.24	5.41E-02	15.9	8.58E-04	****
96	23.48	5.94E-02	19.7	4.86E-04	****
97	23.73	1.84E-02	38.9	4.45E-04	****
98	23.98	1.10E-02	****	4.28E-04	****

Table A-18. Axial distribution of ^{154}Eu in bottom connector
of element FO3-01
(corrected to October 31, 1974)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
1	0.12	7.15E-06	****	1.38E-05	****
2	0.37	8.60E-06	****	1.15E-05	****
3	0.61	1.12E-05	****	1.15E-05	****
4	0.86	1.10E-05	****	1.42E-05	****
5	1.11	1.09E-05	****	1.46E-05	****
6	1.35	1.31E-05	****	1.40E-05	****
7	1.60	1.33E-05	****	1.46E-05	****
8	1.84	1.57E-05	****	1.74E-05	****
9	2.09	1.63E-05	****	1.69E-05	****
10	2.34	1.46E-05	****	1.60E-05	****
11	2.58	1.77E-05	****	1.53E-05	****
12	2.83	1.58E-05	****	1.21E-05	****
13	3.07	1.67E-05	****	1.26E-05	****
14	3.32	1.57E-05	****	1.44E-05	****
15	3.57	1.21E-05	****	1.26E-05	****
16	3.81	1.26E-05	****	1.36E-05	****
17	4.06	1.11E-05	****	1.12E-05	****
18	4.30	1.14E-05	****	9.50E-06	****
19	4.55	1.03E-05	****	7.77E-06	****
20	4.80	1.03E-05	****	6.52E-06	****
21	5.04	9.17E-06	****	7.00E-06	****
22	5.29	7.37E-06	****	9.64E-06	****
23	5.53	8.88E-06	****	1.04E-05	****
24	5.78	8.92E-06	****	1.04E-05	****
25	6.02	9.94E-06	****	1.05E-05	****
26	6.27	1.03E-05	****	1.18E-05	****
27	6.52	1.09E-05	****	1.59E-05	****
28	6.76	1.19E-05	****	1.72E-05	****
29	7.01	1.49E-05	****	1.87E-05	****
30	7.25	1.29E-05	****	1.87E-05	****
31	7.50	1.79E-05	****	2.26E-05	****
32	7.75	1.84E-05	****	2.70E-05	****
33	7.99	2.18E-05	****	3.47E-05	****
34	8.24	2.02E-05	****	4.22E-05	****
35	8.48	2.43E-05	****	5.37E-05	****
36	8.73	3.00E-05	****	7.53E-05	****
37	8.98	3.34E-05	****	1.09E-04	****
38	9.22	4.34E-05	****	1.11E-04	****
39	9.47	5.94E-05	****	1.84E-04	****
40	9.71	7.38E-05	****	3.11E-04	****
41	9.96	1.13E-04	****	6.23E-04	****
42	10.20	1.89E-04	****	7.66E-03	****
43	10.45	3.38E-04	****	2.65E-02	****
44	10.70	6.26E-04	****	5.59E-04	****
45	10.94	2.19E-03	****	2.93E-04	****
46	11.19	1.55E-04	****	2.19E-04	****
47	11.43	5.37E-04	****	2.28E-04	31.1
48	11.68	3.00E-04	****	2.74E-04	24.5
49	11.93	2.59E-04	36.6	2.95E-04	20.0

Table A-18 (continued)

Location	Distance (in.)	Plane 1		Plane 2	
		Inventory (Ci/3 in.)	Error (%)	Inventory (Ci/3 in.)	Error (%)
50	12.17	1.79E-04	****	1.73E-04	33.1
51	12.42	2.23E-04	29.4	1.42E-04	22.3
52	12.66	2.26E-04	21.1	3.12E-04	11.4
53	12.91	2.36E-04	17.3	2.58E-04	11.3
54	13.16	2.71E-04	12.6	2.36E-04	13.6
55	13.40	2.76E-04	13.2	3.53E-04	8.6
56	13.65	2.88E-04	11.2	2.72E-04	10.6
57	13.89	2.80E-04	12.5	3.72E-04	7.9
58	14.14	3.21E-04	9.3	3.72E-04	7.4
59	14.39	2.66E-04	11.4	3.47E-04	8.0
60	14.63	2.58E-04	11.0	3.46E-04	8.1
61	14.88	3.58E-04	8.1	2.54E-04	10.9
62	15.12	3.41E-04	7.8	3.98E-04	6.6
63	15.37	3.75E-04	7.7	3.88E-04	7.0
64	15.61	3.49E-04	8.2	3.87E-04	7.0
65	15.86	3.11E-04	8.6	3.95E-04	6.9
66	16.11	3.27E-04	8.3	4.76E-04	5.8
67	16.35	3.68E-04	7.7	4.47E-04	6.3
68	16.60	4.56E-04	6.3	4.78E-04	6.0
69	16.84	4.25E-04	6.4	4.94E-04	5.7
70	17.09	3.64E-04	7.7	4.44E-04	6.5
71	17.34	4.79E-04	6.0	5.04E-04	5.7
72	17.58	4.86E-04	5.9	4.80E-04	6.5
73	17.83	4.20E-04	6.8	4.81E-04	6.0
74	18.07	4.69E-04	6.2	5.93E-04	5.3
75	18.32	5.01E-04	6.0	6.42E-04	5.2
76	18.57	5.02E-04	5.8	5.35E-04	6.1
77	18.81	5.00E-04	6.1	5.05E-04	6.5
78	19.06	5.19E-04	5.9	5.86E-04	5.6
79	19.30	5.11E-04	6.2	6.36E-04	4.9
80	19.55	6.50E-04	5.2	6.69E-04	4.5
81	19.79	5.63E-04	5.8	6.26E-04	4.7
82	20.04	5.41E-04	6.0	6.70E-04	4.7
83	20.29	6.11E-04	5.6	6.96E-04	4.3
84	20.53	6.54E-04	4.6	7.08E-04	4.3
85	20.78	6.95E-04	4.2	6.31E-04	5.0
86	21.02	6.92E-04	4.4	7.15E-04	4.5
87	21.27	6.37E-04	4.7	8.06E-04	4.1
88	21.52	6.36E-04	4.6	8.07E-04	4.2
89	21.76	6.98E-04	4.5	7.28E-04	5.1
90	22.01	6.97E-04	4.4	1.54E-04	29.5
91	22.25	8.55E-04	3.8	2.08E-04	19.6
92	22.50	8.66E-04	3.8	2.60E-04	9.6
93	22.75	8.57E-04	4.1	1.55E-04	14.9
94	22.99	8.39E-04	4.7	2.47E-04	8.5
95	23.24	6.46E-04	9.6	8.06E-05	17.6
96	23.48	5.34E-04	11.3	1.66E-05	36.3
97	23.73	3.55E-04	10.4	1.02E-05	****
98	23.98	2.02E-04	12.9	5.39E-06	****

8.2 Appendix B: Update of Fission Product Inventories in the Fuel Compacts of Elements E06-01 and E11-07

Tables B-1 through B-4 give revised results for the inventories of fission products in the fuel compacts of elements E06-01 and E11-07. Table B-1 lists inventory values measured in specimens that were core-drilled from compacts 8, 18, and 27 of element E06-01 and is meant to replace Table 4.9 of ref. 1. This revision was made because it was found that the original results were in error by a few percent. The inventories of the core-drilled specimen were measured by comparison with standard sources of ^{60}Co and ^{137}Cs as described in ref. 1. Remeasurement of the standard sources showed that their activity values were slightly in error, which in turn caused errors in the inventories derived for the core-drilled specimen. The revised inventories given in Table B-1 reflect the new activity values found for the standard sources.

It should be noted that Table B-1 includes the standard deviations (expressed as percentages of the mean) for the three observations made on each of the compacts. It is interesting to note that these standard deviations are not very large for any of the nuclides, indicating that the nuclide concentrations were fairly uniform throughout the fuel bodies. This uniformity of activities is consistent with the findings given in ref. 1 that little, if any, of the fission products migrated and escaped from the fuel of E06-01.

Table B-2 lists revised inventory values for fission products measured in intact compacts of E06-01 and is meant to replace Table 4.8 of ref. 1. Since these results were based on those compacts that were standardized with the core-drilled specimen, the revised values reflect the corrections made in the ^{60}Co and ^{137}Cs standards mentioned above. Counting statistics errors were not included in Table 4.8 of ref. 1; however, they are given in Table B-2.

Table B-3 gives the fission product inventories for compacts 9, 16, 25, 26, and 28 obtained by measuring specimens that were core-drilled from these compacts. Standard deviations were also tabulated. These

Table B-1. Fission products in core-drilled specimens
of EO6-01 fuel compacts^a
(curies per compact as of January 6, 1972)

Compact	Specimen	Fission product						
		⁹⁵ Zr	¹⁰⁶ Ru	¹²⁵ Sb	¹³⁴ Cs	¹³⁷ Cs	¹⁴⁴ Ce	¹⁵⁴ Eu
8	1	154	7.78	0.29	4.43	5.99	95	0.092
	2	171	8.45	0.38	4.63	6.38	104	0.10
	3	174	8.41	0.35	4.86	6.44	99	0.09
	Mean	166	8.21	0.34	4.64	6.27	99	0.094
	%SD ^b	6.5	4.6	13.0	4.6	3.9	4.5	5.6
18	1	186	9.37	0.40	5.68	7.08	111	0.11
	2	182	8.43	0.37	5.11	6.33	99	0.11
	3	189	8.39	0.42	5.50	6.99	114	0.13
	Mean	185	8.73	0.40	5.43	6.80	108	0.12
	%SD ^b	1.9	6.3	6.3	5.4	6.0	7.3	9.9
27	1	112	5.62	0.25	2.42	4.36	69	0.04
	2	132	6.34	0.27	2.76	4.98	78	0.05
	3	110	5.75	0.26	2.56	4.57	72	0.06
	Mean	118	5.90	0.26	2.58	4.70	73	0.05
	%SD ^b	10	6.5	3.8	6.6	6.7	6.3	20.0

^aThese data supersede those given in Table 4.9 of ref. 1.

^b%SD denotes the standard deviation expressed as a percentage of the mean value.

Table B-2. Fission product inventories in element EO6-01 fuel compacts^a
(curies per compact as of January 6, 1972)

Compact	ZR95	% RSD ^b	RU103	% RSD ^b	RU106	% RSD ^b	SB125	% RSD ^b	CS134	% RSD ^b	CS137	% RSD ^b	CE144	% RSD ^b	EU154	% RSD ^b
1	1.13E+02	1.0	7.35E+01	13.7	5.37E+00	1.6	2.02E-01	13.0	1.45E+00	0.9	4.24E+00	0.4	6.84E+01	1.5	2.85E-02	19.8
2	1.13E+02	0.2	5.70E+01	3.9	5.21E+00	0.4	2.11E-01	3.1	1.67E+00	0.1	4.07E+00	0.1	6.59E+01	0.3	3.82E-02	3.4
3	1.10E+02	1.0	4.13E+01	21.3	5.06E+00	1.6	1.96E-01	13.3	1.89E+00	0.6	3.90E+00	0.4	6.25E+01	1.5	3.30E-02	17.6
4	1.33E+02	0.9	6.26E+01	16.7	5.99E+00	1.5	2.34E-01	13.3	2.57E+00	0.5	4.78E+00	0.4	7.69E+01	1.4	6.84E-02	9.7
5	1.51E+02	0.8	6.29E+01	17.9	6.91E+00	1.5	2.47E-01	14.4	3.27E+00	0.5	5.41E+00	0.4	8.58E+01	1.4	6.85E-02	10.6
6	1.73E+02	0.8	1.09E+02	12.5	7.86E+00	1.4	2.70E-01	12.5	4.00E+00	0.4	6.09E+00	0.3	9.78E+01	1.3	9.50E-02	8.3
7	1.71E+02	1.0	1.09E+02	16.1	7.54E+00	1.8	2.73E-01	17.1	4.18E+00	0.5	5.97E+00	0.4	9.49E+01	1.7	7.28E-02	14.1
8	1.73E+02	1.0	6.14E+01	25.7	7.92E+00	1.8	3.40E-01	14.0	4.52E+00	0.5	6.20E+00	0.4	9.61E+01	1.7	8.27E-02	12.8
9	2.17E+02	0.9	9.69E+01	18.5	1.02E+01	1.6	4.33E-01	12.2	5.68E+00	0.5	7.48E+00	0.4	1.23E+02	1.5	1.47E-01	8.0
10	1.92E+02	1.0	6.63E+01	25.8	9.06E+00	1.7	4.17E-01	12.8	5.28E+00	0.5	6.90E+00	0.4	1.12E+02	1.6	9.93E-02	11.0
11	1.97E+02	1.0	9.90E+01	17.4	9.11E+00	1.7	3.15E-01	17.4	5.48E+00	0.5	6.95E+00	0.4	1.09E+02	1.6	1.21E-01	9.3
12	1.05E+02	1.3	4.91E+01	25.1	5.14E+00	2.1	1.88E-01	18.5	3.01E+00	0.6	3.78E+00	0.5	6.19E+01	2.0	6.36E-02	12.5
13	2.18E+02	0.9	1.13E+02	15.9	9.75E+00	1.6	3.47E-01	14.6	6.14E+00	0.4	7.55E+00	0.4	1.23E+02	1.5	1.19E-01	9.6
14	2.09E+02	0.9	5.71E+01	29.2	9.46E+00	1.7	2.00E-01	16.0	6.02E+00	0.4	7.34E+00	0.4	1.18E+02	1.5	1.21E-01	9.6
15	1.89E+02	1.0	5.81E+01	27.2	8.81E+00	1.7	3.79E-01	13.3	5.35E+00	0.5	6.66E+00	0.4	1.05E+02	1.6	1.33E-01	8.6
16	1.93E+02	1.0	8.92E+01	19.3	8.84E+00	1.7	3.64E-01	13.3	5.49E+00	0.5	6.78E+00	0.4	1.13E+02	1.5	1.29E-01	9.3
17	1.87E+02	1.0	6.90E+01	24.2	8.32E+00	1.7	3.45E-01	13.5	5.22E+00	0.5	6.51E+00	0.4	1.03E+02	1.6	1.22E-01	8.4
18	1.95E+02	1.0	7.80E+01	21.9	8.53E+00	1.7	3.52E-01	13.5	5.36E+00	0.5	6.72E+00	0.4	1.08E+02	1.6	1.38E-01	8.3
19	1.85E+02	1.0	1.03E+02	17.2	8.47E+00	1.7	3.10E-01	15.1	5.17E+00	0.5	6.59E+00	0.4	1.06E+02	1.6	1.17E-01	9.4
20	1.98E+02	1.0	7.63E+01	24.2	9.05E+00	1.6	3.20E-01	15.1	5.47E+00	0.5	6.95E+00	0.4	1.14E+02	1.5	1.23E-01	9.3
21	1.87E+02	0.3	8.40E+01	6.6	8.76E+00	0.5	3.44E-01	5.5	5.12E+00	0.2	6.67E+00	0.1	1.05E+02	0.5	1.09E-01	3.2
22	1.78E+02	1.0	7.48E+01	21.8	8.08E+00	1.7	2.33E-01	18.2	4.78E+00	0.5	6.35E+00	0.4	1.04E+02	1.6	9.22E-02	11.5
23	1.80E+02	1.0	9.84E+01	17.7	8.26E+00	1.7	3.18E-01	14.4	4.80E+00	0.5	6.63E+00	0.4	1.04E+02	1.6	9.22E-02	11.7
24	1.61E+02	1.1	7.20E+01	21.5	7.51E+00	1.8	3.11E-01	13.9	4.11E+00	0.5	5.94E+00	0.4	9.27E+01	1.7	8.49E-02	12.4
25	1.55E+02	0.9	4.41E+01	99.0	7.15E+00	1.9	2.17E-01	17.6	3.64E+00	0.6	5.49E+00	0.5	8.73E+01	1.7	7.65E-02	12.0
26	1.44E+02	0.9	6.26E+01	17.5	6.53E+00	1.4	2.58E-01	12.6	3.08E+00	0.6	5.19E+00	0.4	8.36E+01	1.3	6.96E-02	10.0
27	1.37E+02	0.9	5.52E+01	19.6	6.48E+00	1.4	2.49E-01	12.0	2.83E+00	0.5	5.09E+00	0.4	8.01E+01	1.4	6.59E-02	11.0
28	1.21E+02	0.9	5.47E+01	18.2	5.61E+00	1.5	2.38E-01	12.5	2.21E+00	0.6	4.47E+00	0.4	7.16E+01	1.5	4.31E-02	15.2
29	9.87E+01	1.0	6.14E+01	15.1	4.50E+00	1.7	2.06E-01	12.5	1.56E+00	0.7	3.59E+00	0.4	5.68E+01	1.6	3.02E-02	16.9
30	1.15E+02	0.9	4.74E+01	20.0	5.17E+00	1.6	1.75E-01	15.1	1.55E+00	0.7	4.25E+00	0.4	6.89E+01	1.4	4.33E-02	12.3
SUM	4.91E+03		2.18E+03		2.24E+02		8.50E+00		1.21E+02		1.74E+02		2.80E+03		2.63E+00	

^aThe one-sigma counting statistics error.

^bThese data supersede those given in Table 4.8 of ref. 1.

Table B-3. Fission products in core-drilled specimens
of Ell-07 fuel compacts
(curies per compact as of September 16, 1973)

Compact	Specimen	Fission product						
		^{95}Zr	^{106}Ru	^{125}Sb	^{134}Cs	^{137}Cs	^{144}Ce	^{154}Eu
9	1	202	10.5	0.54	35.1	23.5	123	0.36
	2	268	12.6	0.71	45.4	30.5	177	0.45
	3	184	8.9	0.38	35.5	23.4	105	0.28
	4	179	9.1	0.48	26.3	18.5	106	0.34
	5	196	9.5	0.47	27.2	18.6	112	0.35
	Mean	206	10.1	0.52	33.9	22.9	125	0.36
	%SD ^a	17	15.0	24.0	23.0	21.0	24	17.0
16	1	228	11.8	0.60	21.1	14.9	143	0.43
	2	223	10.6	0.69	10.7	8.6	127	0.37
	3	238	12.0	0.67	18.2	13.0	141	0.36
	4	268	13.5	0.86	10.1	9.2	165	0.30
	5	250	12.8	0.85	5.7	6.0	153	0.06
	Mean	241	12.2	0.73	13.1	10.3	146	0.30
	%SD ^a	7.5	9.0	16.0	48.0	34.0	9	48.0
25	1		8.4	0.47	12.4	10.9	101	0.24
	2		9.1	0.54	10.8	9.8	103	0.26
	3		9.3	0.52	13.5	11.9	101	0.27
	4		8.7	0.49	8.5	8.2	102	0.26
	Mean		8.86	0.50	11.3	10.2	102	0.25
	%SD ^a		4.5	5.6	19.0	16.0	1.1	5.1
26	1		7.2	0.40	9.1	8.7	85	0.22
	2		8.9	0.43	11.7	11.0	99	0.24
	3		7.3	0.42	9.5	9.2	86	0.22
	4		7.7	0.41	8.7	8.5	90	0.22
	Mean		7.8	0.42	9.7	9.4	90	0.22
	%SD ^a		10.0	3.6	14.0	12.0	7.3	4.2
28	1	153	7.0	0.36	6.07	7.8	85	0.14
	2	194	8.7	0.38	8.42	9.7	103	0.18
	3	175	7.6	0.40	7.16	8.6	92	0.16
	4	151	7.1	0.36	6.53	7.8	84	0.14
	5	173	8.1	0.39	7.46	8.8	96	0.18
	Mean	169	7.7	0.38	7.13	9.54	92	0.16
	%SD ^a	11	9.0	4.9	13.0	9.2	8.6	12.0

^a%SD denotes the standard deviation expressed as a percentage of the mean.

results were not given in ref. 2. Table B-4 lists the revised fission product inventories measured in intact compacts and is meant to replace Table 4.2-1 of ref. 2.

The inventories originally published in ref. 2 were slightly in error, partly because of the errors in the comparator standards mentioned above and partly because of inadequate sampling and standardization by the core-drilling procedure. It should be noted that the original inventories were based solely on measurements on specimens taken from compacts 9, 16, and 28. The reader will note from the standard deviations in Table B-3 that some of the nuclides (e.g., ^{134}Cs , ^{137}Cs , and ^{154}Eu) were highly variable throughout the fuel bodies of compacts 9 and 16. These compacts operated at relatively high temperatures, and the variations apparently reflect the migration of these nuclides throughout and from the compacts. The original inventories derived for the intact compacts were based only on measurements on core-drilled specimens that exhibited small standard deviations. The standardization procedure was therefore based primarily on the specimen taken from compact 28. Core-drilled specimens were later taken from compacts 25 and 26, and the results were combined with the previous results to yield a better standardization for the measurements on intact compacts. The new inventories given in Table B-4 reflect improved accuracies in both the sampling procedure (i.e., additional core-drilled specimen taken) and the standards to which the core specimen were compared.

Table B-4. Fission product inventories in element E11-07 fuel compacts^a
(curies per compact on September 16, 1973)

Compact No.	ZR95	ZER ^b	RU103	ZER ^b	RU106	ZER ^b	AG110	ZER ^b	SB125	ZER ^b	CS134	ZER ^b	CS137	ZER ^b	CE141	ZER ^b	CE144	ZER ^b	EU154	ZER ^b	PA233	ZER ^b
1	1.21E+02	0.2	5.03E+01	1.6	5.78E+00	2.0	1.67E-02	* ^c	2.68E-01	14.0	4.11E+00	0.3	7.25E+00	0.2	1.03E+02	4.2	6.90E+01	1.0	9.28E-02	5.9	6.30E+02	1.0
2	1.33E+02	0.3	5.99E+01	2.0	6.27E+00	3.0	6.20E-02	16.0	2.68E-01	20.0	6.93E+00	0.3	9.06E+00	0.3	1.06E+02	6.6	7.92E+01	1.5	1.39E-01	7.4	8.28E+02	1.5
3	1.44E+02	0.3	5.65E+01	1.6	6.98E+00	3.0	3.36E-02	36.0	2.68E-01	18.0	8.30E+00	0.4	9.34E+00	0.3	1.21E+02	6.0	8.39E+01	1.5	1.76E-01	6.0	9.42E+02	1.4
4	1.81E+02	0.3	7.67E+01	1.4	8.74E+00	3.6	5.01E-02	*	5.10E-01	15.0	1.29E+01	0.2	1.27E+01	0.3	1.31E+02	5.5	1.11E+02	1.4	2.50E-01	5.1	1.10E+03	1.2
5	1.86E+02	0.3	8.62E+01	1.4	9.39E+00	2.7	3.61E-02	*	5.01E-01	15.0	1.53E+01	0.2	1.36E+01	0.3	1.47E+02	5.8	1.12E+02	1.4	2.78E-01	4.8	1.18E+03	1.2
6	2.23E+02	0.2	1.02E+02	1.3	1.14E+01	2.5	3.61E-02	*	6.89E-01	18.0	2.14E+01	0.2	1.72E+01	0.2	1.76E+02	5.3	1.32E+02	1.2	3.43E-01	4.5	1.49E+03	1.1
7	1.96E+02	0.3	8.98E+01	1.4	1.01E+01	2.8	3.61E-02	*	3.58E-01	18.0	2.27E+01	0.2	1.70E+01	0.2	1.80E+02	5.7	1.11E+02	1.4	3.43E-01	4.6	1.36E+03	1.2
8	2.18E+02	0.1	9.99E+01	1.6	1.12E+01	1.6	3.61E-02	*	5.45E-01	9.4	2.08E+01	0.2	1.60E+01	0.1	1.85E+02	3.2	1.30E+02	0.8	3.99E-01	2.6	1.59E+03	0.7
9	2.32E+02	0.1	9.28E+01	0.9	1.17E+01	2.2	3.61E-02	*	6.89E-01	11.0	2.77E+01	0.1	1.98E+01	0.1	1.99E+02	3.3	1.33E+02	0.8	3.99E-01	2.8	1.61E+03	0.6
10	2.51E+02	0.1	1.02E+02	0.4	1.27E+01	1.0	3.61E-02	*	7.16E-01	3.8	1.93E+01	0.1	1.49E+01	0.1	2.17E+02	1.4	1.47E+02	0.3	3.71E-01	1.4	1.80E+03	0.3
11	2.41E+02	0.2	1.04E+02	1.1	1.19E+01	3.0	3.61E-02	*	7.07E-01	11.0	8.37E+00	0.3	8.15E+00	0.3	2.05E+02	4.0	1.36E+02	1.2	1.48E-01	7.8	1.81E+03	0.8
12	2.46E+02	0.1	1.08E+02	0.8	1.21E+01	2.1	3.61E-02	*	7.42E-01	7.8	1.99E+01	0.2	1.47E+01	0.1	2.23E+02	2.9	1.43E+02	0.7	3.80E-01	2.6	1.88E+03	0.6
13	2.42E+02	0.2	1.06E+02	1.2	1.20E+01	2.3	3.61E-02	*	7.78E-01	11.0	1.73E+01	0.2	1.31E+01	0.2	2.14E+02	4.4	1.40E+02	1.2	3.15E-01	4.7	1.90E+03	0.9
14	2.34E+02	0.2	9.37E+01	1.2	1.24E+01	2.2	3.61E-02	*	6.35E-01	15.0	1.32E+01	0.4	1.03E+01	0.3	2.12E+02	4.2	1.35E+02	1.2	3.52E-01	4.1	1.76E+03	0.9
15	2.57E+02	0.1	1.07E+02	0.3	1.23E+01	0.9	3.61E-02	*	7.78E-01	3.2	7.83E+00	0.2	7.61E+00	0.1	2.46E+02	1.2	1.46E+02	0.3	1.39E-01	2.7	1.84E+03	0.2
16	2.57E+02	0.2	1.13E+02	1.1	1.30E+01	2.1	3.61E-02	*	7.96E-01	8.8	8.04E+00	0.4	7.80E+00	0.3	2.48E+02	3.9	1.50E+02	1.1	1.57E-01	8.2	1.99E+03	0.8
17	2.57E+02	0.1	1.10E+02	0.7	1.26E+01	1.8	3.61E-02	*	7.51E-01	6.7	6.44E+00	0.3	6.83E+00	0.2	2.46E+02	2.3	1.47E+02	0.7	1.85E-02	8.0	1.98E+03	0.5
18	2.67E+02	0.1	1.23E+02	0.7	1.33E+01	1.8	3.61E-02	*	8.14E-01	6.4	7.88E+00	0.4	7.94E+00	0.2	2.48E+02	2.4	1.56E+02	0.6	1.20E-01	2.1	2.08E+03	0.5
19	2.56E+02	0.1	1.19E+02	0.7	1.30E+01	1.5	3.61E-02	*	8.05E-01	7.0	7.50E+00	0.4	7.59E+00	0.2	2.50E+02	2.3	1.46E+02	0.7	1.29E-01	6.3	1.93E+03	0.5
20	2.80E+02	0.1	1.20E+02	0.3	1.31E+01	1.1	3.61E-02	*	8.23E-01	3.3	8.04E+00	0.2	8.22E+00	0.1	2.57E+02	1.0	1.51E+02	0.3	2.50E-01	1.8	2.27E+03	0.2
21	2.46E+02	0.2	1.10E+02	1.1	1.19E+01	2.2	3.61E-02	*	6.44E-01	11.0	6.38E+00	0.7	6.89E+00	0.3	1.96E+02	4.0	1.40E+02	1.1	1.85E-01	6.0	1.75E+03	0.9
22	2.73E+02	0.1	1.23E+02	0.3	1.34E+01	1.1	3.61E-02	*	8.23E-01	3.1	5.64E+00	0.2	6.80E+00	0.1	2.24E+02	1.2	1.54E+02	0.3	1.85E-01	10.7	1.91E+03	0.2
23	2.31E+02	0.1	1.07E+02	0.3	1.12E+01	0.7	3.61E-02	*	6.08E-01	3.9	5.97E+00	0.2	6.58E+00	0.1	2.21E+02	1.2	1.32E+02	0.3	1.11E-01	3.4	1.77E+03	0.2
24	2.33E+02	0.1	1.07E+02	0.7	1.13E+01	2.8	3.61E-02	*	6.53E-01	7.4	9.49E+00	0.3	9.15E+00	0.2	2.18E+02	2.5	1.28E+02	0.7	1.39E-01	4.0	1.66E+03	0.5
25	1.97E+02	0.1	9.16E+01	0.4	9.32E+00	0.9	3.61E-02	*	5.28E-01	5.0	9.70E+00	0.1	9.18E+00	0.1	1.98E+02	1.7	1.10E+02	0.4	2.78E-01	1.6	1.44E+03	0.3
26	1.84E+02	0.4	8.50E+01	2.0	8.34E+00	4.1	3.61E-02	*	4.47E-01	5.0	9.71E+00	0.5	9.57E+00	0.4	1.51E+02	8.4	1.03E+02	2.0	2.22E-01	6.0	1.28E+03	1.6
27	1.87E+02	0.2	8.77E+01	1.0	8.46E+00	2.2	3.61E-02	*	3.93E-01	14.0	8.80E+00	0.3	9.73E+00	0.2	1.53E+02	4.5	1.05E+02	1.1	2.13E-01	4.7	1.25E+03	0.9
28	1.66E+02	0.1	7.92E+01	0.4	7.62E+00	1.2	3.61E-02	*	4.11E-01	5.1	6.87E+00	0.2	8.56E+00	0.1	1.49E+02	1.6	9.12E+01	0.4	1.76E-01	2.1	1.15E+03	0.3
29	1.61E+02	0.1	7.56E+01	0.4	7.17E+00	0.9	3.61E-02	*	3.58E-01	5.8	5.58E+00	0.2	8.17E+00	0.1	1.38E+02	1.7	8.92E+01	0.4	1.48E-01	2.3	9.73E+02	0.4
30	1.39E+02	0.1	6.56E+01	0.4	6.25E+00	1.0	3.61E-02	*	3.49E-01	5.9	4.18E+00	0.2	7.29E+00	0.1	1.21E+02	1.8	7.85E+01	0.5	1.11E-01	2.7	7.79E+02	0.4
SUM	6.45E+03		2.86E+03		3.15E+02		1.10E+00		1.76E+01		3.36E+02		3.11E+02		5.69E+03		3.70E+03		6.57E+00		4.60E+04	

^aThese data supersede those given in Table 4.2-1 of ref. 2.

^bThe one-sigma counting statistics error.

^cThe * signifies upper-limit value.

8.3 Appendix C: Update of Primary Circuit Report (ORNL-5188);
 Estimates of ^{134}Cs and ^{137}Cs in Peach Bottom HTGR
 Steam Generators at End of Life

This appendix presents some corrections for and additions to information published in ORNL-5188 (ref. 4), which dealt with the Peach Bottom HTGR primary coolant circuit. The principal concern of this appendix is to provide estimates of the amounts of ^{134}Cs and ^{137}Cs that were in the steam generators after final shutdown of the reactor.

8.3.1 Miscellaneous errata and additions

The total amounts of ^{134}Cs and ^{137}Cs in the diffusion tube section (including inlet jet, diffusion tubes, and manifolds) of the CC sampler were incorrectly summed in Table 3.2-5 of ref. 4. The appropriate corrections can be made by substituting 13.24 for 8.23 in the case of ^{134}Cs and substituting 8.33 for 5.33 in the case of ^{137}Cs . Then, for the amount of ^{134}Cs in the total sampler, substitute 14.57 for 9.56; and for ^{137}Cs , substitute 9.58 for 6.94.

Values for the measured amounts of ^{90}Sr on the impactor plates of the CD sampler were omitted from Table 3.2-6; these results are as follows:

<u>Plate No.</u>	<u>^{90}Sr (μCi)</u>
1	6E-3
2	1E-3
3	<1E-3
4	<1E-3
5	<1E-3

8.3.2 Inventories of ^{134}Cs and ^{137}Cs in Peach Bottom HTGR steam generators at final shutdown

Although gamma spectra of the steam generator in loop 1 were acquired several times during the operation of core 2 (see ref. 4), it was not possible to derive the amounts of gamma-emitters in the steam generator because of its inner mechanical complexity. However, we have made use

of data obtained with coolant samplers (see Sect. 3, ref. 4) to estimate the amounts of ^{134}Cs and ^{137}Cs that were in both steam generators at final shutdown of the reactor. The method of estimation and results are presented below. The method of estimation involved determining the concentration of cesium in the coolant above and below the steam generator and assuming that the difference was due to deposition in the steam generator.

Coolant samplers CC and CD were operated simultaneously upstream and downstream of the loop 1 steam generator between March 17 and May 7, 1971. Each of these samplers operated for 1834 hr. The upstream sampler, designated CC, had a coolant throughput of 216 kg of helium, while the downstream sampler, labeled CD, had a throughput of 319 kg. The activity of ^{137}Cs that was found in the upstream sampler, as given above, was .55 μCi . Since the connecting tube between the diffusion tube section and the filter section of the sampler had been operated prior to the operation of this sampler, we will not include the amount of ^{137}Cs found in the connecting tube as part of the total found in the CC sampler. Thus the total amount of ^{137}Cs in the sampler was 9.52 μCi minus 0.72 (connecting tube value given in Table 3.2-5 of ref. 4), or 8.80 μCi . The concentration of ^{137}Cs in the coolant upstream of the steam generator was therefore 8.80 μCi / 216 kg, or 0.0407 μCi of ^{137}Cs per kilogram of coolant. Downstream of the steam generator, the ^{137}Cs concentration in the coolant was 4.00 μCi (in sampler) / 319 kg coolant, or 0.0125 $\mu\text{Ci/kg}$. These data were taken from Tables 3.1-1 and 3.2-6 of ref. 4. From these data we can estimate the fraction of the ^{137}Cs that entered the steam generator which deposited, viz.:

$$\frac{0.0407 - 0.0125}{0.0407} = 0.69.$$

An examination of the results found from coolant samplers operated in the spring of 1973 and gamma scans of the Peach Bottom ducting in September 1973 (Fig. 2.4-1 and Table 3.2-3 of ref. 4) reveals that no significant increases of ^{137}Cs in the coolant and on the walls of ducts

had occurred until after September 1973. The reactor was shut down in September 1973 and did not resume power operation until January 5, 1974. Between January 5, 1974, and October 31, 1974, the reactor operated 4697 equivalent full-power hours (195.7 EFPDs). Since the CC and CD coolant samplers operated for 1834 hr (a significant fraction of the total operating time of the reactor in 1974), we assume that the concentration of ^{137}Cs in the coolant as found from the CC sampler was roughly representative of the concentration over the total operating time in 1974. From these data and the rate of coolant flow into both steam generators (2.1×10^5 kg/hr), we can estimate the amount of ^{137}Cs that deposited on both steam generators in 1974, namely:

$$\begin{aligned} ^{137}\text{Cs deposited} &= 0.0407 (\mu\text{Ci/kg}) \cdot 0.69 \cdot 2.1 \times 10^5 (\text{kg/hr}) \cdot 4697 \text{ hr} \\ &= 3.0 \times 10^7 \\ &= 30 \text{ Ci.} \end{aligned}$$

The amount of ^{137}Cs that was in the steam generators prior to 1974 can be estimated if we assume that the ^{137}Cs in the steam generators increased in 1974 by a factor of 4 as did the amount on the cold duct (see Fig. 2.4-1, ref. 4). Thus the "old" ^{137}Cs is given by:

$$\frac{30 + \text{"old"} ^{137}\text{Cs}}{\text{"old"} ^{137}\text{Cs}} = 4,$$

and

$$\text{"old"} ^{137}\text{Cs} = 10 \text{ Ci.}$$

We estimate therefore that the Peach Bottom steam generators contained approximately 40 Ci of ^{137}Cs at end of life.

The activity of ^{134}Cs in the steam generators can best be estimated by assuming that the $^{137}\text{Cs}/^{134}\text{Cs}$ ratio in the steam generators is the same as that on the cold duct. The ratio found experimentally just downstream of the loop 1 steam generator was 0.83 (location 1, Table 2.3-4, ref. 4). The activity of ^{134}Cs on each steam generator was therefore approximately $40/0.83 = \sim 48$ Ci.

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