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**The IDA-80 Measurement  
Evaluation Programme on Mass  
Spectrometric Isotope Dilution  
Analysis of Uranium and  
Plutonium**

**Volume III:  
Compilation of Evaluation Data**

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Projekt Kernmaterialüberwachung

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on Mass Spectrometric Isotope Dilution Analysis  
of Uranium and Plutonium

Volume III: Compilation of Evaluation Data

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\*Die Arbeiten wurden unter diesem Projekt durchgeführt, das Ende 1983 formell  
eingestellt wurde.

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## Abstract

The evaluation data derived from the measurement results of the laboratories participating in the IDA-80 programme have been compiled in tables and graphs. They concern a total of more than 2000 determinations of isotope ratios, isotope abundances and concentrations for uranium and plutonium obtained on test materials of industrial origin which contained fission products, and on fission product free synthetic reference solutions. Comparisons are made with data certified by CBNM and NBS, and estimates are given which were calculated by variance analyses for within- and between laboratory variations.

Das IDA-80 Meßprogramm zur Bewertung der massenspektrometrischen  
Isotopen-Verdünnungsanalyse von Uran und Plutonium

Volume III: Zusammenstellung der Auswertungsdaten

## Zusammenfassung

Die aus den Meßergebnissen der am IDA-80 Programm beteiligten Laboratorien gewonnenen Auswertungsdaten sind in Tabellen und Grafiken zusammengestellt. Es handelt sich insgesamt um über 2000 Isotopenverhältnis-, Isotopenhäufigkeits- und Konzentrationsbestimmungen von Uran und Plutonium. Sie wurden sowohl an spaltproduktreichen Testmaterialien industrieller Herkunft als auch an spaltproduktfreien synthetischen Referenzlösungen durchgeführt. Die Daten werden mit vom ZBKM und NBS zertifizierten Werten verglichen und mittels Varianzanalyse ermittelte Schätzwerte für Reproduzierbarkeiten und Interlaborabweichungen werden angegeben.

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The other volumes of the final report on  
The IDA-80 Measurement Evaluation Programme on Mass Spectrometric  
Isotope Dilution Analysis of Uranium and Plutonium  
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Preface

The evaluation of analytical interlaboratory measurement programmes involving various error sources of different magnitudes, e.g. isotope dilution analysis, in general is impaired by the statistical inhomogeneity of the data generated. However, since normally distributed populations are a prerequisite of the application of most statistical methods, such as variance analysis, it is customary to approach this condition as well as possible by application of outlier criteria. Also the authors proceeded in this way, which, at least at this time, seems to be the most widely accepted method. But it should be noted that the choice of test methods for extreme values or outliers from the various criteria described in the literature and the way of applying them necessarily introduce some arbitrariness in the results of evaluation. The authors sincerely hope that they succeeded in generating results which are acceptable from the statistical point of view and can serve, at the same time, to describe closely the actual 'state of practice' of isotope dilution analysis.

Attention should be paid that the data presented in this compilation are not misused due to insufficient consideration of their experimental background which is described in Volume I of this Final Report.

Acknowledgement

The comprehensive data compiled in this volume demonstrate in a particularly impressive manner the great efforts taken by all participants. This readiness to co-operate was an essential prerequisite of the performance of the programme and is highly appreciated.

The authors are indebted to Mr. Udo Bicking for his help in preparing the graphs.

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Editorial remark:

To facilitate typing and computer print-outs, the isotopes  $^{238}\text{U}$ ,  $^{239}\text{Pu}$ , etc. are written U-238, Pu-239, etc.

## 1. Introduction

Figure 1 presents schematically the layout of the IDA-80 programme with the numbering of its parts. Also the use of the three test solutions A, B, and R, is shown<sup>1)</sup>. However, complete understanding of the meaning of the data compiled in this volume of the Final Report requires more detailed knowledge of the design of the IDA-80 programme as described in Volume I /1/. Also a general description of the procedures applied in evaluating the data measured by the participants is given in chapter 2.4 of that volume.

Three main steps of evaluation can be distinguished:

- a) Establishing a uniform basis of all data reported.
- b) Separate data evaluation for each laboratory.
- c) Comparison of results with the values certified by CBNM and NBS /2/ and between the laboratories as well as the derivation of estimates for the various uncertainty components involved in the analytical technique under consideration.

The first step concerns in particular data on plutonium: the calculation of Pu-238/Pu-239 isotope ratios in the case of alpha-spectrometric Pu-238 determination and the corrections for decay of all Pu-238/Pu-239 and Pu-241/Pu-239 isotope ratio data to a common reference date<sup>2)</sup>. These calculations are described in chapter 2 of this report.

The second and third evaluation steps are presented in chapter 3 for the determinations of the various isotope ratios, isotope abundances and concentrations in a standardized form by means of Evaluation Sheets. In general, they consist of double pages: On the left pages (even page numbers) the laboratory related measurement results of all participating laboratories are given. On the right pages (odd page numbers) graphs are plotted for comparison of these results; the results of outlier considerations and the determination of medians, grand

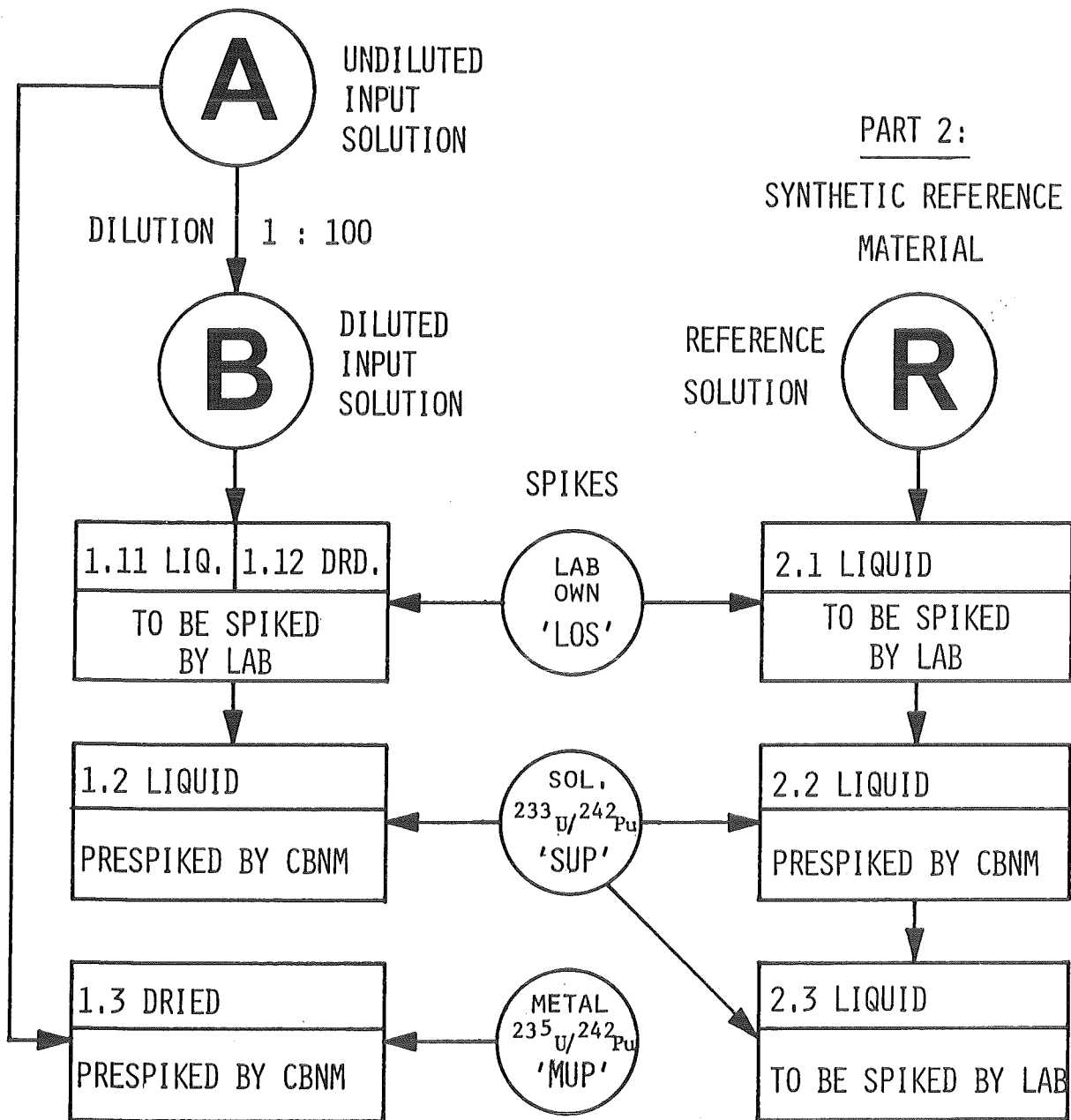
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<sup>1)</sup> The symbols BU and RU were used for unspiked samples of these test solutions, AS, BS and RS for samples already spiked by CBNM.

<sup>2)</sup> February 9, 1980; the date of sampling at the reprocessing plant was used.

PART 1:  
FISSION PRODUCT  
CONTAINING MATERIAL

○ BASE MATERIALS  
□ SAMPLES



IDA-80/FIG. 1: LAYOUT OF THE IDA-80 PROGRAMME

means and estimates of uncertainty components are compiled in tables. For those parts of the programme in which the laboratories were requested to report, in addition to the measured isotope ratio values, also isotope abundance and concentration values calculated by themselves, these data were compared in separate graphs with the results obtained by the evaluation team<sup>1)</sup>.

In general 'more' and 'less experienced' laboratories are distinguished in the graphs by different symbols: 'More experienced' laboratories are those which have performed this type of analysis frequently or even continuously for more than five years according to a statement made at the time when they confirmed their participation.

More details of data presentation are explained in chapter 3.1 preceding the evaluation sheets. The formulae and symbols used are listed in Appendix A, the values of physical constants and certified values used in the calculations are summarized in Appendix B. Finally, for completeness of documentation, an example is given in Appendix C of the complete set of evaluation data derived from the reported measurement results of a single laboratory and supplied individually to each participant.

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<sup>1)</sup> This concerns eval.sheets 45 to 66, 68, 71, 77, and 83.



## 2. Pretreatment of reported data

### 2.1 Derivation of the Pu-238/Pu-239 isotope ratio from the alpha-activity ratio Pu-238/(Pu-239+Pu-240)

In case alpha spectrometry was used for the Pu-238 isotope determination in the unspiked sample solutions BU and RU 'run means' were calculated for the Pu-238/Pu-239 isotope ratios according to <sup>1)</sup>

$$\bar{R}_{j89} = \alpha * T_{1/2}(238) * \left( \frac{1}{T_{1/2}(239)} + \frac{\bar{R}_{j09}}{T_{1/2}(240)} \right) \quad (2-1)$$

with

- $\alpha$ : reported  $\alpha$ -activity ratio Pu238/(Pu-239+Pu-240)  
 $T_{1/2}(238)$ : half-life of Pu-238: 87.74 a <sup>2)</sup>  
 $T_{1/2}(239)$ : half-life of Pu-239: 24 110 a <sup>2)</sup>  
 $T_{1/2}(240)$ : half-life of Pu-240: 6 550 a <sup>2)</sup>  
 $\bar{R}_{j09}$ : mean of Pu-240/Pu-239 isotope ratio of run j (j=1,2,3).

#### Note:

Since the laboratories reported only one  $\alpha$ -value per sample, the slight variations of the three run means  $\bar{R}_{j89}$  calculated by eq. (2-1) are only caused by the variations from run to run in the mean values  $\bar{R}_{j09}$ . Therefore, the standard deviation 'RUN' derived from the three run means  $\bar{R}_{j89}$  only reflects the uncertainty of mass-spectrometric measurements in the determination of the ratio  $\bar{R}_{j09}$ , but it does not reflect any measurement uncertainty of the Pu-238/(Pu-239+Pu-240)  $\alpha$ -activity ratio itself.

### 2.2 Correction for $\alpha$ -decay of the Pu-238 isotope

Each value R89 of the Pu-238/Pu-239 isotope ratio (scan values reported from mass spectrometric measurement or 'run' values calculated with eq. (2-1) from

<sup>1)</sup>The symbols are consistent with the nomenclature used in Appendix A: A single bar denotes the mean value of a mass spectrometric 'run'.

<sup>2)</sup>See Vol. II, p. 75 /2/.

alpha-spectrometric determination) was adjusted to the general reference date, February 9, 1980, according to

$$R89_{adj} = R89_{rep} * \text{EXP}\left(\frac{\Delta t * \ln 2}{T_{1/2}(238)}\right) \quad (2-2)$$

with

$R89_{adj}$ : Pu-238/Pu-239 ratio adjusted to reference date

$R89_{rep}$ : reported mass spectrometric measurement value of Pu-238/Pu-239 isotope ratio or in case of alpha-spectrometric determination the ratio calculated with eq. (2-1), p.4

$\Delta t$ : difference in years<sup>1)</sup> between the date of mass spectrometric measurement (or alpha spectrometric measurement) and the general reference date

$T_{1/2}(238)$ : half-life of Pu-238: 87.74a<sup>2)</sup>.

### 2.3 Correction for $\beta$ -decay of the Pu-241 isotope

Each scan value  $R19$  of the Pu-241/Pu-239 isotope ratio was adjusted to the general reference date, February 9, 1980, according to

$$R19_{adj} = R19_{rep} * \text{EXP}\left(\frac{\Delta t * \ln 2}{T_{1/2}(241)}\right) \quad (2-3)$$

with

$R19_{adj}$ : Pu-241/Pu-239 ratio adjusted to reference date

$R19_{rep}$ : reported mass-spectrometric measurement of Pu-241/Pu-239 isotope ratio

$\Delta t$ : difference in years<sup>1)</sup> between the date of mass spectrometric measurement and the general reference date

$T_{1/2}(241)$ : half-life of Pu-241: 14.4a<sup>2)</sup>.

<sup>1)</sup> Conversion from days into years was performed using the factor 1/365.25.

<sup>2)</sup> See Vol. II, p. 75 /2/.

#### 2.4 Selection of reported scan data for further evaluation

The laboratories reported eight scan values for each isotope ratio measured with one mass spectrometric filament loading ('run'). They marked those values which they considered to be outliers.

Only the first six of the non-outlier values were used in the further evaluation. This was done in order to maintain the orthogonal structure of the data basis even if one or two scan values of a run had to be omitted as outliers according to the judgement of the laboratory<sup>1)</sup>.

---

<sup>1)</sup>The evaluation team applied the Nalimov outlier criterion /5/ to each set of the eight scan values reported in order to detect erratic figures caused by writing errors but not with the purpose of data rejection for statistical reasons.

### 3. Evaluation data

#### 3.1 Explanatory remarks

In this chapter the evaluation data are presented in a standardized form on 'Evaluation Sheets'. They are self-explanatory to a great extent. Some additional explanations will be given below:

#### 'COMPILATION OF NUMERICAL DATA':

- Non-participation of laboratories is indicated by the entry 'no data reported' or by printing zero-values in all columns. If only individual quantities could not be generated due to missing data, this is indicated by a dash.
- As customary, negative values calculated for the RSDs of uncertainty components were considered as 'not significant' and indicated by zero.
- In the bottom line of the tables the numbers of the associated defining equations in Appendix A are given for reference.

#### 'UPPER GRAPH':

- The laboratory mean values with their uncertainty bars are plotted.  
These data are listed in the 'compilation of numerical data' as follows:

Eval. sheet number	Column number of the 'compil. of numerical data'	
	Lab mean	RSD of lab mean
1 to 44 (except: 1-I, 2-I, 3-I, 21-I, 22-I, 23-I); 67-2, 74-2, 75-2	7	8
45 to 66; 67-3; 68 to 73; 74-3, 75-3; 76 to 87	5	6
1-I, 2-I, 3-I; 21-I, 22-I, 23-I; 67-1, 74-1, 75-1	2	-

- The horizontal lines represent the 'agreed certified values' with their  $3\bar{s}$ -uncertainty ranges as stated by CBNM and NBS<sup>1)</sup>. The right ordinate scale shows the relative deviations of the laboratory means from these certified values. If no 'agreed certified value' was available (as for the ratios of non-main isotopes of prespiked samples), the value used as reference is specifically indicated.
- For reasons of computerized display, the actual quantities were multiplied by the factor given in brackets on top of the graph.

'TABLE BELOW THE GRAPH':

In this table the results of interlaboratory evaluation have been compiled:

- Line 2 gives the results obtained for the complete set of measurement data.
- Line 3 gives the results of evaluation obtained after elimination of laboratories furnishing extreme mean values according to the BARTSCH criterion /3/<sup>2)</sup>3).
- Line 4 gives the evaluation results obtained after further elimination of those laboratories whose mean values are burdened by exceptionally high uncertainty bars: For elimination the DIXON criterion /4/ was used ( $\alpha \leq 1\%$ ). If values had to be rejected, the remaining group of data was again tested for extreme laboratory means using the BARTSCH criterion. The laboratory codes concerning data rejected thereby were underlined<sup>3)</sup>.
- In line 5 the grand mean and the interlaboratory spread are given, calculated for the same group of laboratories as in line 4.
- A sixth line is only used in case laboratory mean values were reported by the participants themselves. If not otherwise stated, the results of evaluation from those data are given in such cases for the same laboratory group as in line 4.

---

1) See Vol. II, Chapt. II.2 and II.6 /2/.

2) Exclusion of  $x_1$  if  $|x_1 - \bar{x}| > 4s$  (for populations  $\geq 10$ ),  $\bar{x}$  and  $s$  being mean and standard deviation of the data group excluding  $x_1$ .

3) Laboratory codes are given in the sequence of rejection.

- The estimated RSDs for the uncertainty components given in the table were calculated by analyses of variances. In the table below the numbers of the corresponding formulae listed in Appendix A are given for reference:

Uncertainty component	RSD 'SCAN'	RSD 'RUN'	'BETWEEN' LABs' RSD	GRAND MEAN	INTERLAB SPREAD
Column*	6 (-)	7 (5)	8 (6)	7/line 5 (7)	8/line 5 (8)
Isotope ratios (Ev.sheets 1 to 44)	205	207	209	203	210
Isotope abundances (Ev.sheets 45 to 66)	-	215	217	213	218
Element and Pu-239 concentrations (Ev.Sheets 67 to 87)	-	223	225	221	226

\*The column numbers given in brackets refer to the additional tables presented on evaluation sheets 67, 74 and 75 for laboratory subgroups.

- As customary, negative values calculated for the RSDs of uncertainty components were considered as 'not significant' and indicated by zero.
- For the dimensions of medians and grand means (columns 4 and 7) reference is made to the agreed certified values (or reference values) printed on top of the table.
- Medians are given with the maximum number of decimals available to the evaluation team regardless of the number of decimals printed out in the 'compilation of numerical data'.

For isotope abundance and some of the concentration determinations, besides the laboratory mean values calculated by the evaluation team, data derived and reported by the laboratories themselves were available. In these cases the relative deviations of results of the evaluation team from the data reported are given in the 'compilation of numerical data' (column 8) and presented in an additional graph (' $\Delta$ -values')<sup>1)</sup>.

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<sup>1)</sup>This concerns evaluation sheets 45 to 66, 68, 71, 77 and 83.

3.2 Isotope ratio determinations

3.2.1 Uranium

(Evaluation sheets 1 to 20)



EVALUATION SHEET 1  
=====

SAMPLE AS , URANIUM-234/238 RATIOS  
DETERMINED IN PROGRAMME PART 1.3

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE RATIOS LISTED HERE MUST BE DEVIDED BY 100.00

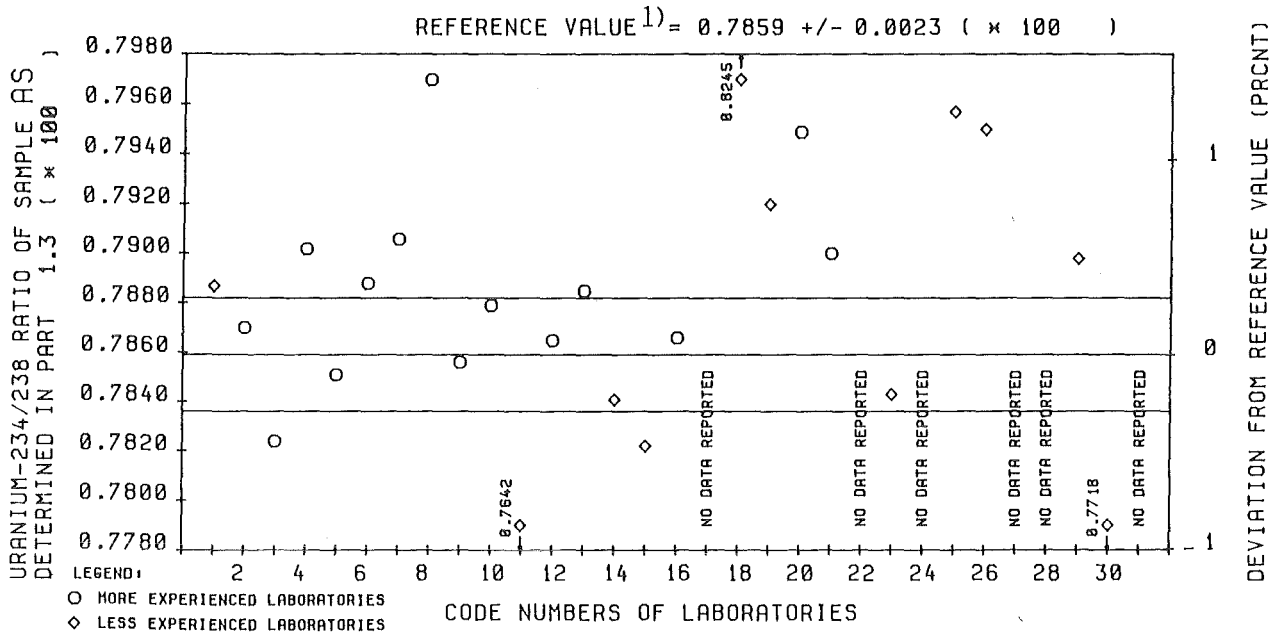
```

*****
1      21)  32)  42)  53)  63)  73)  83)
*****
LAB    RUN1  RUN2  RUN3  RSD SCAN  RSD RUN  LAB MEAN  RSD OF LAB
CODE   (%)   (%)   (%)   (%)   (%)   (%)   (%)
*****
1      0.7887 0.7680 0.7672  0.23  0.0   0.7676  0.07
2      0.7870 0.7689 0.7721  0.19  0.28  0.7705  0.21
3      0.7824 0.7783 0.7741  0.35  0.36  0.7762  0.27
4      0.7902 0.7682 0.7676  0.06  0.05  0.7679  0.04
5      0.7851 0.7597 0.7600  0.08  0.01  0.7599  0.02
6      0.7888 0.7630 0.7618  0.17  0.08  0.7624  0.08
7      0.7906 0.7821 0.7823  0.41  0.0   0.7822  0.12
8      0.7970 0.7762 0.7803  0.36  0.35  0.7782  0.27
9      0.7856 0.7710 0.7726  0.73  0.0   0.7718  0.21
10     0.7879 0.7745 0.7755  0.55  0.0   0.7750  0.16
11     0.7642 0.7627 0.7423  2.23  1.68  0.7525  1.35
12     0.7865 0.7722 0.7716  0.05  0.06  0.7719  0.04
13     0.7885 0.7675 0.7780  0.55  0.93  0.7727  0.68
14     0.7841 0.7643 0.7583  0.63  0.50  0.7613  0.40
15     0.7822 0.7705 0.7748  0.51  0.34  0.7727  0.28
16     0.7866 0.7720 0.7725  0.34  0.0   0.7723  0.10
17     -      0.7648 0.7643  0.48  0.0   0.7646  0.14
18     0.8245 0.7988 0.7943  1.20  0.0   0.7966  0.35
19     0.7920 0.7710 0.7692  0.19  0.15  0.7701  0.12
20     0.7949 0.7818 0.7853  0.23  0.30  0.7835  0.22
21     0.7900 0.7787 0.7789  0.89  0.0   0.7788  0.26
22     0.0    0.0    0.0    0.0   0.0   0.0    0.0
23     0.7843 0.7768 0.7755  0.35  0.0   0.7762  0.10
24     0.0    0.0    0.0    0.0   0.0   0.0    0.0
25     0.7957 0.7723 0.7730  0.54  0.0   0.7727  0.16
26     0.7950 0.7792 0.7790  0.02  0.01  0.7791  0.01
27     0.0    0.0    0.0    0.0   0.0   0.0    0.0
28     0.0    0.0    0.0    0.0   0.0   0.0    0.0
29     0.7898 0.7637 0.7663  0.59  0.05  0.7650  0.17
30     0.7718 0.7792 0.7753  0.54  0.28  0.7772  0.25
31     0.0    0.0    0.0    0.0   0.0   0.0    0.0
*****
REF.:   1      1      1      38      39      37      41

```

REMARKS:

- 1) Data concern all laboratory measurements on samples of 'spiking I'.
- 2) Data concern measurements on samples of 'spiking II', 'IV' or 'VI', depending on the subgroup to which the laboratory belongs (see Eval. Sheets 1-II, 1-IV and 1-VI).
- 3) Data are based on runs 2 and 3 (columns 3 and 4).



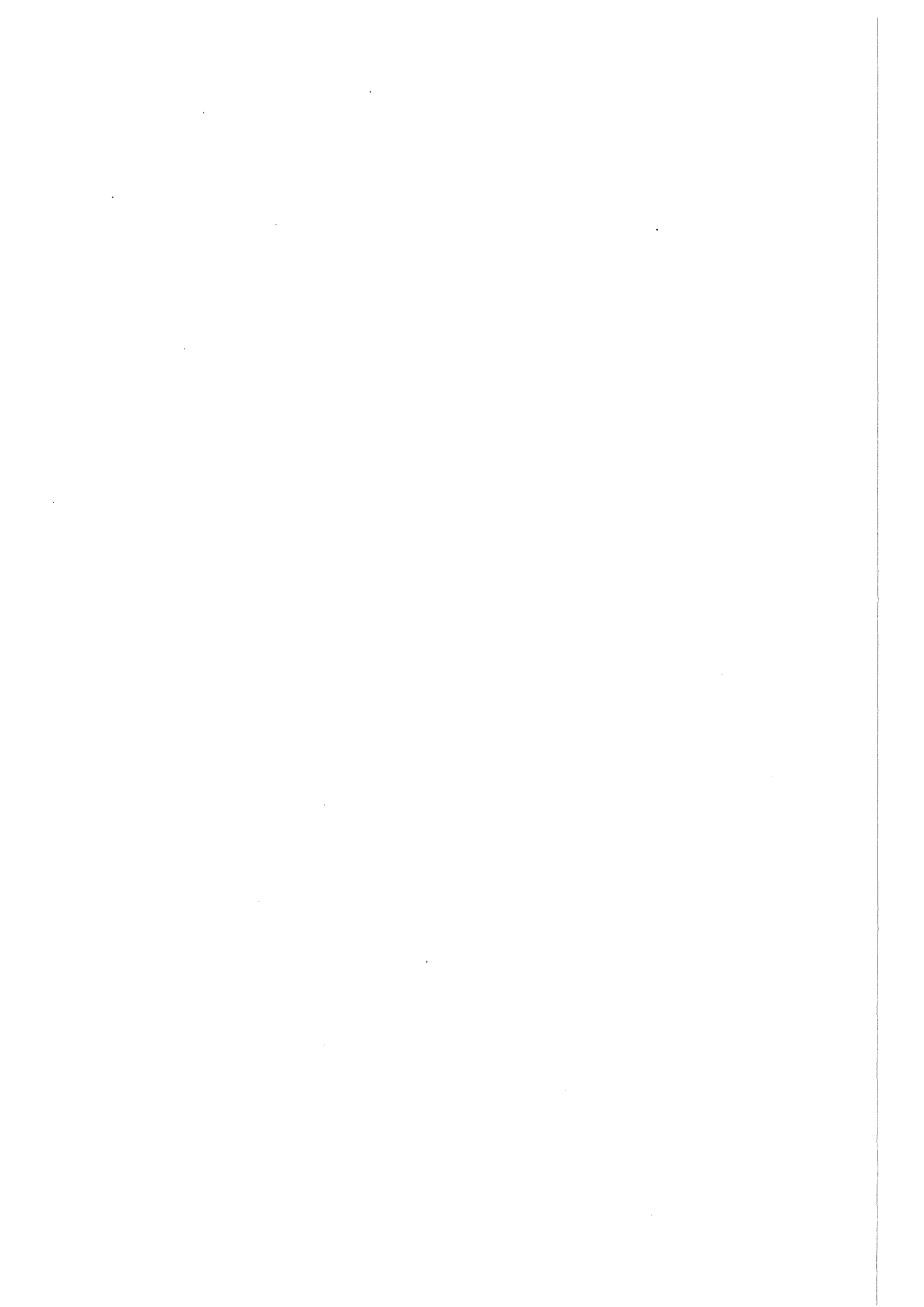
REFERENCE VALUE<sup>1)</sup> = 0.7859 ( x 100 )  
 +/- 0.0023

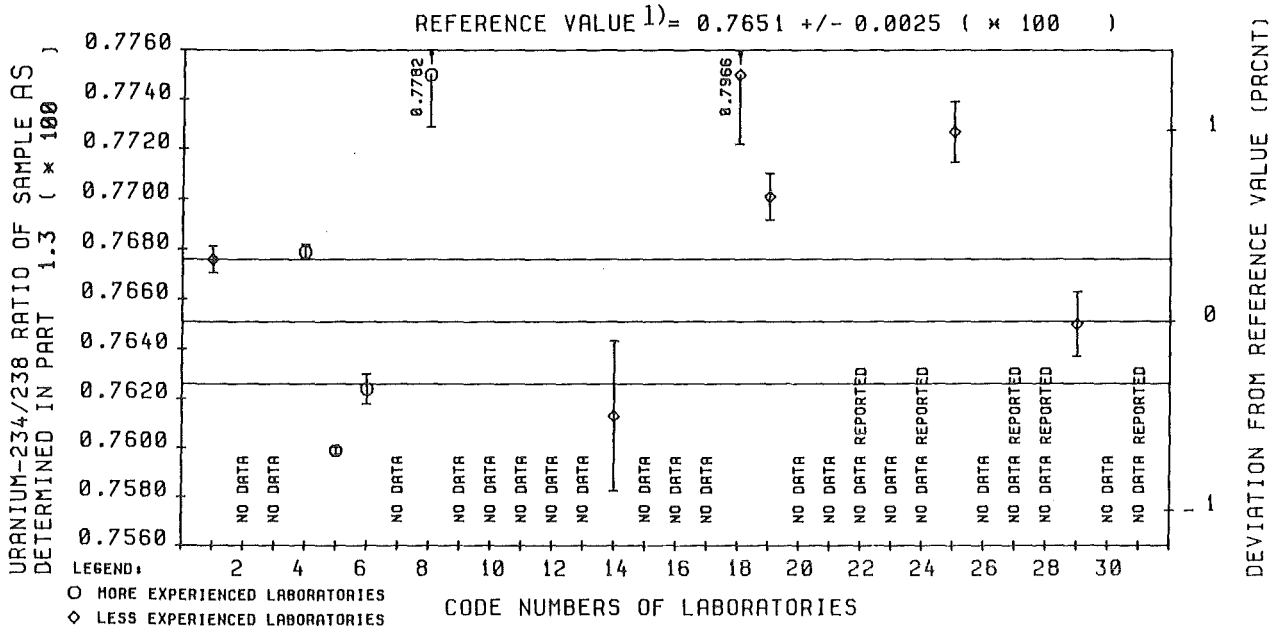
	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM REF. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	25	0,7885	0,33	-	-	-
3	EXTREME LAB MEANS ELIMINATED	18,11,30	22	0,7886	0,34	-	-	-
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	18,11,30	22	0,7886	0,34	-	-	-
5							GRAND MEAN	INTERLAB SPREAD (%)
							0,78877	0,53

**REMARKS:**

- 1) THE CALCULATED DILUTION RATIO IS USED AS REFERENCE VALUE. (SEE VOL. II, P.66).
- 2) SINCE SCAN DATA OF ONLY ONE RUN WERE AVAILABLE (COLUMN 2 OF THE 'COMPILATION OF NUMERICAL DATA'), NO UNCERTAINTY BARS ARE PRESENTED IN THE GRAPH AND NO ESTIMATES OF UNCERTAINTY COMPONENTS ARE GIVEN IN THE TABLE.

**EVALUATION SHEET 1-I :** SAMPLE AS, URANIUM-234/238 RATIOS DETERMINED IN PART 1.3 THE SAMPLE OF SPIKING I.





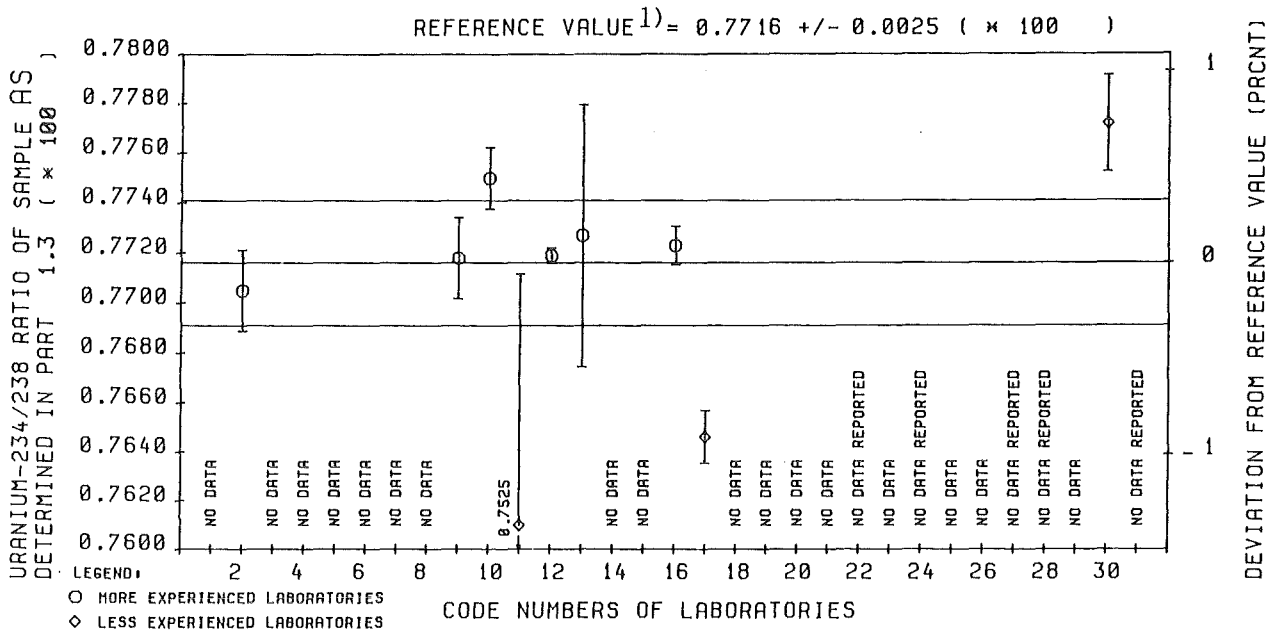
REFERENCE VALUE 1) = 0.7651 ( x 100 )  
 +/- 0.0025

1	2	3	4	5	6	7	8	
1	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM REF. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)	
2	ALL DATA	NONE	10	0.7678	0.35	0.54	0.17	1.39
3	EXTREME LAB MEANS ELIMINATED	18	9	0.7676	0.33	0.38	0.20	0.75
4	EXTREME VALUES OF LAB MEANS & RSD'S	18	9	0.7676	0.33	0.38	0.20	0.75
5	'RUN' ELIMINATED					GRAND MEAN	INTERLAB SPREAD (%)	
						0.76723	0.77	

REMARKS:

- 1) THE CALCULATED DILUTION RATIO IS USED AS REFERENCE VALUE (SEE VOL. II, P.67).
- 2) THE ENTRY 'NO DATA' IN THE GRAPH INDICATES THAT THE LABORATORY WAS NOT REQUESTED TO MEASURE THE SAMPLE.
- 3) THE ESTIMATES OF UNCERTAINTY COMPONENTS GIVEN IN THE TABLE ARE BASED ON RUNS 2 AND 3 ONLY (COLUMNS 3 AND 4 OF THE 'COMPILATION OF NUMERICAL DATA').

EVALUATION SHEET 1-II : SAMPLE AS, URANIUM-234/238 RATIOS DETERMINED IN PART 1.3 THE TWO SAMPLES OF SPIKING II



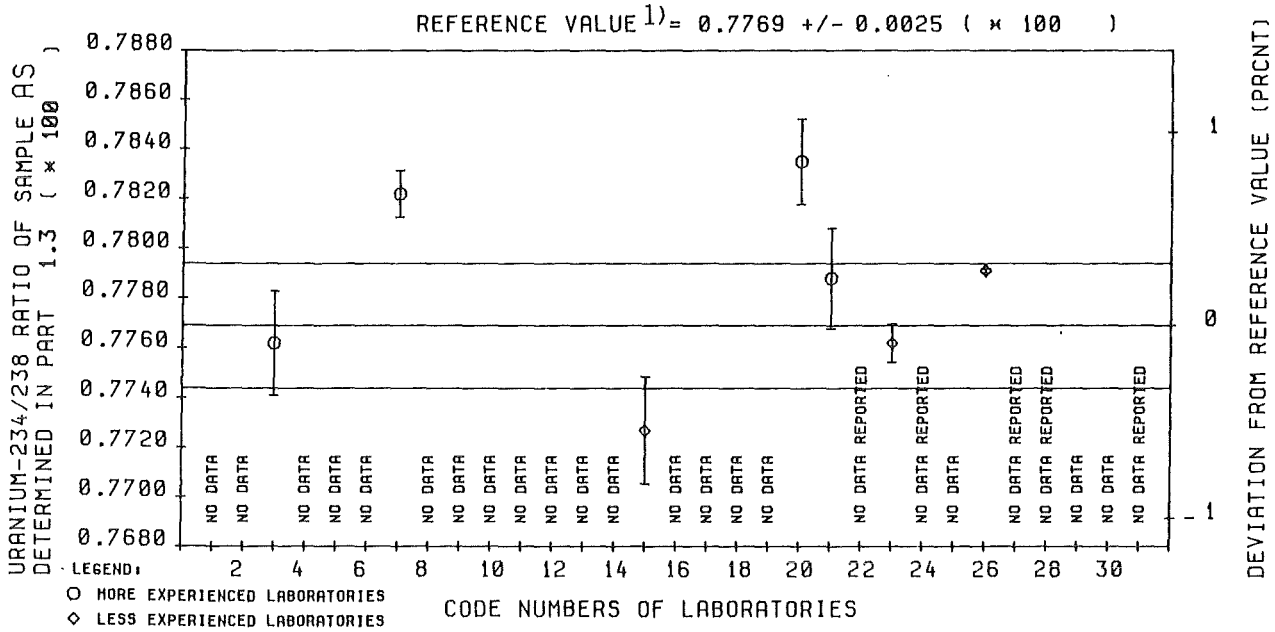
REFERENCE VALUE 1) = 0.7716 ( \* 100 )  
 +/- 0.0025

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM REF. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	9	0.7719	0.04	0.86	0.63	0.81
3	EXTREME LAB MEANS ELIMINATED	11	8	0.7721	0.07	0.48	0.34	0.39
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	11,13	7	0.7719	0.04	0.47	0.0	0.50
5							GRAND MEAN	INTERLAB SPREAD (%)
							0.77190	0.51

**REMARKS:**

- 1) THE CALCULATED DILUTION RATIO IS USED AS REFERENCE VALUE (SEE VOL. II, P.68).
- 2) THE ENTRY 'NO DATA' IN THE GRAPH INDICATES THAT THE LABORATORY WAS NOT REQUESTED TO MEASURE THE SAMPLE.
- 3) THE ESTIMATES OF UNCERTAINTY COMPONENTS GIVEN IN THE TABLE ARE BASED ON RUNS 2 AND 3 ONLY (COLUMNS 3 AND 4 OF THE 'COMPILATION OF NUMERICAL DATA').

**EVALUATION SHEET 1-IV :** SAMPLE AS, URANIUM-234/238 RATIOS DETERMINED IN PART 1.3 THE TWO SAMPLES OF SPIKING IV



REFERENCE VALUE 1) = 0.7769 ( x 100 )  
 +/- 0.0025

	1	2	3	4	5	6	7	8
		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM REF. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	7	0.7788	0.25	0.47	0.16	0.45
3	EXTREME LAB MEANS ELIMINATED	NONE	7	0.7788	0.25	0.47	0.16	0.45
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	NONE	7	0.7788	0.25	0.47	0.16	0.45
5							GRAND MEAN	INTERLAB SPREAD (%)
							0.77838	0.48

REMARKS:

- 1) THE CALCULATED DILUTION RATIO IS USED AS REFERENCE VALUE (SEE VOL. II, P. 69).
- 2) THE ENTRY 'NO DATA' IN THE GRAPH INDICATES THAT THE LABORATORY WAS NOT REQUESTED TO MEASURE THE SAMPLE.
- 3) THE ESTIMATES OF UNCERTAINTY COMPONENTS GIVEN IN THE TABLE ARE BASED ON RUNS 2 AND 3 ONLY (COLUMNS 3 AND 4 OF THE 'COMPILATION OF NUMERICAL DATA').

EVALUATION SHEET 1-VI : SAMPLE AS, URANIUM-234/238 RATIOS DETERMINED IN PART 1.3 THE TWO SAMPLES OF SPIKING VI

EVALUATION SHEET 2  
=====

SAMPLE AS , URANIUM-235/238 RATIOS

DETERMINED IN PROGRAMME PART 1.3

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE RATIOS LISTED HERE MUST BE DEVIDED BY 10.00

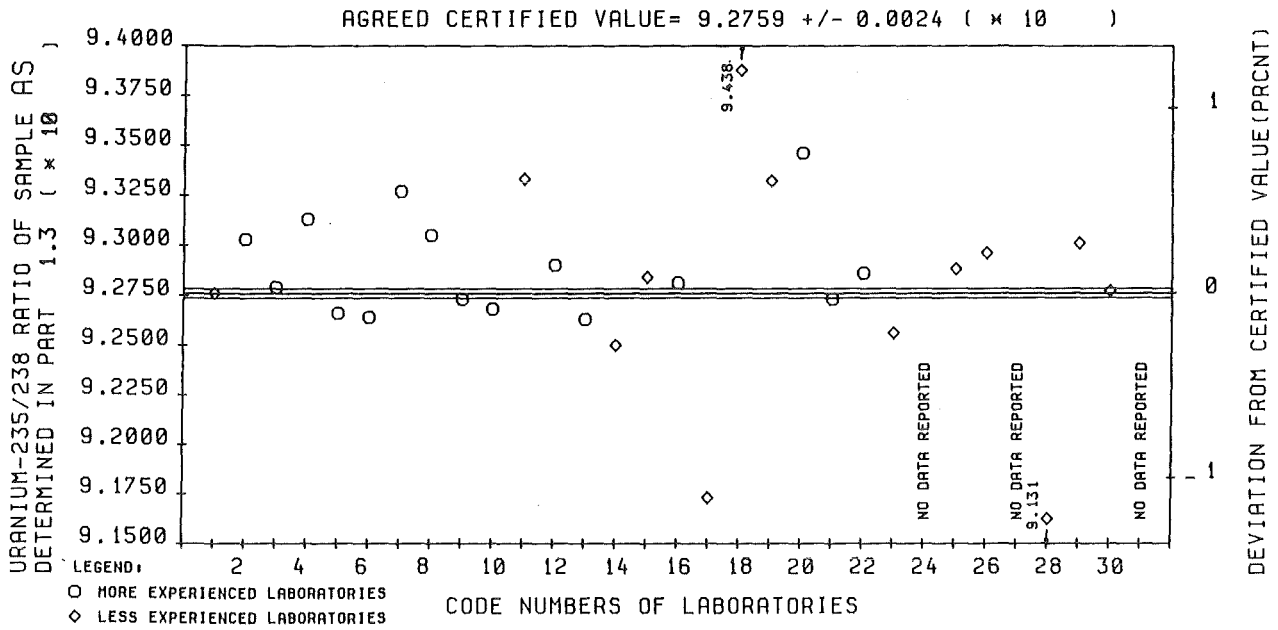
```

*****
1      2 1)   3 2)   4 2)   5 3)   6 3)   7 3)   8 3)
*****
LAB    RUN1   RUN2   RUN3   RSD SCAN  RSD RUN  LAB MEAN  RSD OF LAB
CODE   (%)    (%)    (%)    (%)    (%)    (%)    (%)
*****
1      9.276  8.987  8.982  0.13    0.0     8.985     0.04
2      9.303  9.131  9.133  0.17    0.0     9.132     0.05
3      9.279  9.180  9.168  0.03    0.09    9.174     0.06
4      9.313  9.040  9.036  0.01    0.03    9.038     0.02
5      9.266  8.982  8.976  0.02    0.04    8.979     0.03
6      9.264  8.999  8.988  0.02    0.09    8.993     0.06
7      9.327  9.231  9.230  0.20    0.0     9.231     0.06
8      9.305  9.052  9.045  0.23    0.0     9.049     0.07
9      9.273  9.109  9.112  0.14    0.0     9.110     0.04
10     9.268  9.120  9.107  0.24    0.02    9.114     0.07
11     9.333  9.210  9.195  0.43    0.0     9.202     0.13
12     9.290  9.120  9.124  0.01    0.03    9.122     0.02
13     9.263  9.061  9.146  0.18    0.66    9.104     0.47
14     9.250  9.020  8.951  0.32    0.53    8.986     0.38
15     9.284  9.176  9.173  0.03    0.02    9.174     0.02
16     9.281  9.115  9.120  0.07    0.03    9.118     0.03
17     9.173  9.054  8.976  0.69    0.54    9.015     0.43
18     9.438  9.117  9.142  0.32    0.14    9.129     0.14
19     9.332  9.057  9.059  0.09    0.0     9.058     0.03
20     9.346  9.221  9.229  0.08    0.05    9.225     0.04
21     9.273  9.154  9.206  0.21    0.39    9.180     0.28
22     9.286  9.176  9.176  0.05    0.0     9.176     0.01
23     9.256  9.178  9.184  0.05    0.05    9.181     0.04
24     0.0    0.0    0.0    0.0     0.0     0.0       0.0
25     9.288  9.018  9.027  0.04    0.07    9.022     0.05
26     9.296  9.181  9.193  0.01    0.10    9.187     0.07
27     0.0    0.0    0.0    0.0     0.0     0.0       0.0
28     9.131  9.295  9.198  0.38    0.72    9.247     0.52
29     9.301  9.021  9.018  0.01    0.02    9.020     0.01
30     9.277  9.124  9.127  0.03    0.02    9.126     0.02
31     0.0    0.0    0.0    0.0     0.0     0.0       0.0
*****
REF.:      1      1      1      38      39      37      41

```

REMARKS:

- 1) Data concern all laboratory measurements on samples of 'spiking I'.
- 2) Data concern measurements on samples of 'spiking II', 'IV' or 'VI', depending on the subgroup to which the laboratory belongs (see Eval. Sheets 2-II, 2-IV and 2-VI).
- 3) Data are based on runs 2 and 3 (columns 3 and 4).



AGREED CERTIFIED VALUE= 9.2759 ( x 10 )  
 +/- 0.0024

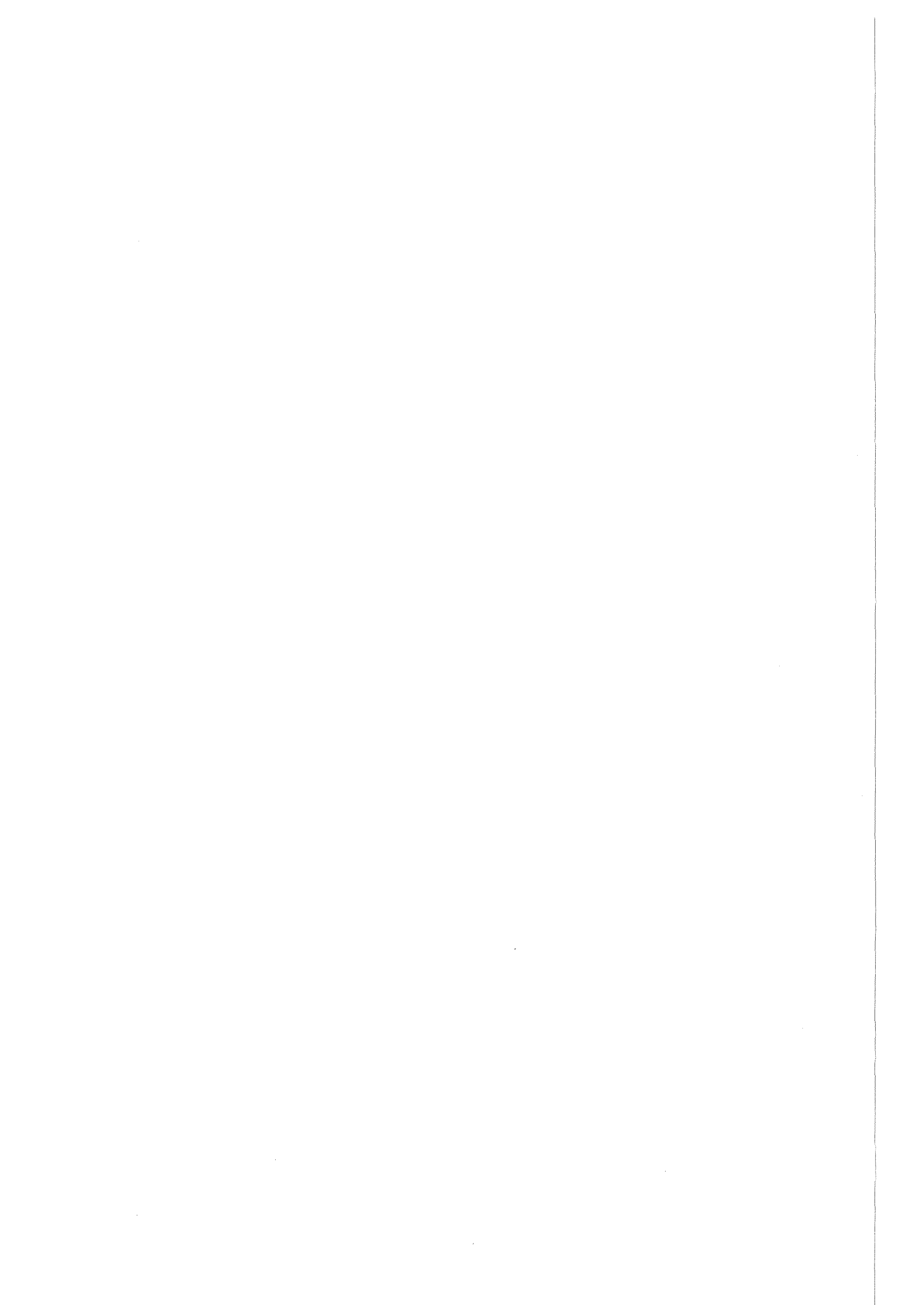
	1	2	3	4	5	6	7	8
		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
1	ALL DATA	NONE	28	9.2826	0.07	-	-	-
2	EXTREME LAB MEANS ELIMINATED	NONE	28	9.2826	0.07	-	-	-
3	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	NONE (28)	(27)	9.2826 (9.2838)	0.07 (0.08)	-	-	-
4						GRAND MEAN		INTERLAB SPREAD (%)
5						9.2847 (9.2904)	0.57 (0.48)	

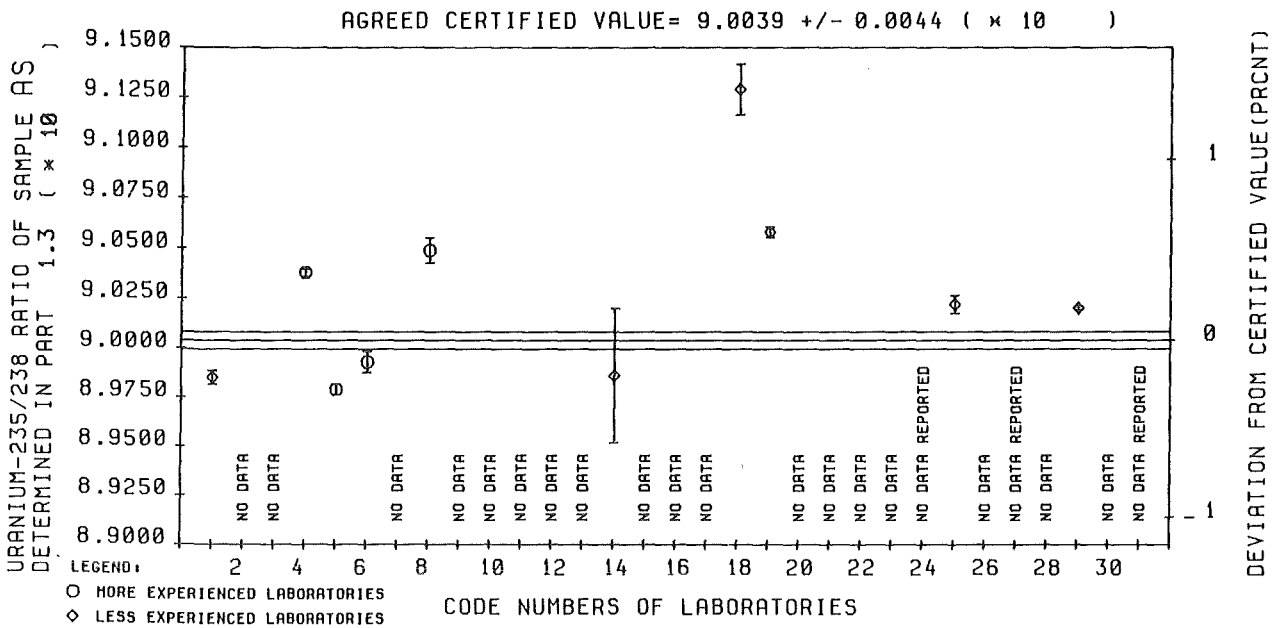
REMARKS:

- 1) SINCE SCAN DATA OF ONLY ONE RUN WERE AVAILABLE (COLUMN 2 OF THE 'COMPILATION OF NUMERICAL DATA'), NO UNCERTAINTY BARS ARE PRESENTED IN THE GRAPH AND NO ESTIMATES OF UNCERTAINTY COMPONENTS ARE GIVEN IN THE TABLE.
- 2) CALCULATIONS LEAVING OUT LABORATORY 28 (GIVEN IN BRACKETS IN THE TABLE) WERE PERFORMED FOR COMPARISON WITH PLUTONIUM DATA BASED ON THE SAME GROUP OF LABORATORIES (SEE VOL. I, P.66).

EVALUATION SHEET 2-1 : SAMPLE AS, URANIUM-235/238 RATIOS DETERMINED IN PART 1.3 THE SAMPLE OF SPIKING I







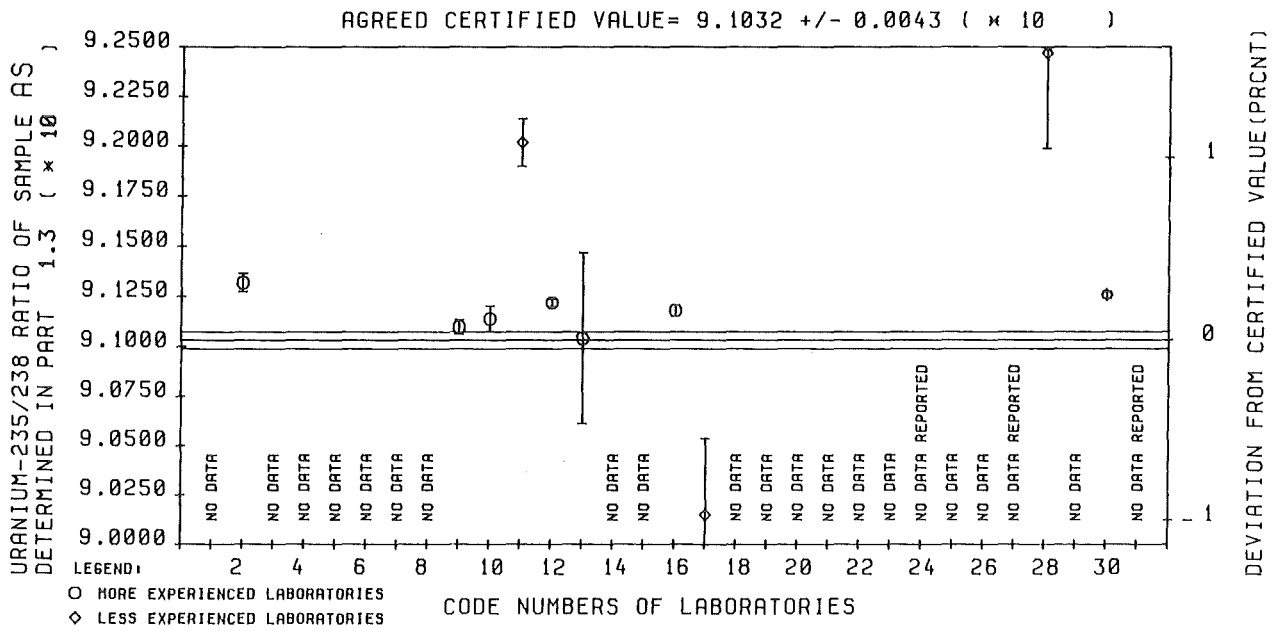
AGREED CERTIFIED VALUE= 9.0039 ( x 10 )  
 +/- 0.0044

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	10	9.021	0.19	0.17	0.17	0.49
3	EXTREME LAB MEANS ELIMINATED	NONE	10	9.021	0.19	0.17	0.17	0.49
4	EXTREME VALUES OF LAB MEANS & RSD'S	14	9	9.0223	0.20	0.14	0.06	0.51
5	'RUN' ELIMINATED						GRAND MEAN	INTERLAB SPREAD (%)
							9.0304	0.51

REMARKS:

- 1) THE ENTRY 'NO DATA' IN THE GRAPH INDICATES THAT THE LABORATORY WAS NOT REQUESTED TO MEASURE THE SAMPLE.
- 2) THE ESTIMATES OF UNCERTAINTY COMPONENTS GIVEN IN THE TABLE ARE BASED ON RUNS 2 AND 3 ONLY (COLUMNS 3 AND 4 OF THE 'COMPILATION OF NUMERICAL DATA').

EVALUATION SHEET 2-II: SAMPLE AS, URANIUM-235/238 RATIOS DETERMINED IN PART 1.3 THE TWO SAMPLES OF SPIKING II



AGREED CERTIFIED VALUE = 9.1032 ( x 10 )  
 +/- 0.0043

1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	NONE	10	9.120	0.19	0.31	0.35	0.62
3	NONE	10	9.120	0.19	0.31	0.35	0.62
4	NONE (28)	10 (9)	9.1198 (9.1175)	0.18 (0.16)	0.31	0.35	0.62
5	EXTREME LAB MEANS ELIMINATED					GRAND MEAN	INTERLAB SPREAD (%)
						9.1289 (9.1158)	0.67 (0.52)

REMARKS:

- 1) THE ENTRY 'NO DATA' IN THE GRAPH INDICATES THAT THE LABORATORY WAS NOT REQUESTED TO MEASURE THE SAMPLE.
- 2) THE ESTIMATES OF UNCERTAINTY COMPONENTS GIVEN IN THE TABLE ARE BASED ON RUNS 2 AND 3 ONLY (COLUMNS 3 AND 4 OF THE 'COMPILATION OF NUMERICAL DATA').
- 3) CALCULATIONS LEAVING OUT LABORATORY 28 (GIVEN IN BRACKETS IN THE TABLE) WERE PERFORMED FOR COMPARISON WITH PLUTONIUM DATA BASED ON THE SAME GROUP OF LABORATORIES (SEE VOL. 1, P.66).

**EVALUATION SHEET 2-IV :** SAMPLE AS, URANIUM-235/238 RATIOS DETERMINED IN PART 1.3 THE TWO SAMPLES OF SPIKING IV



EVALUATION SHEET 3

=====

SAMPLE AS , URANIUM-236/238 RATIOS

DETERMINED IN PROGRAMME PART 1.3

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE RATIOS LISTED HERE MUST BE DEVIDED BY 100.00

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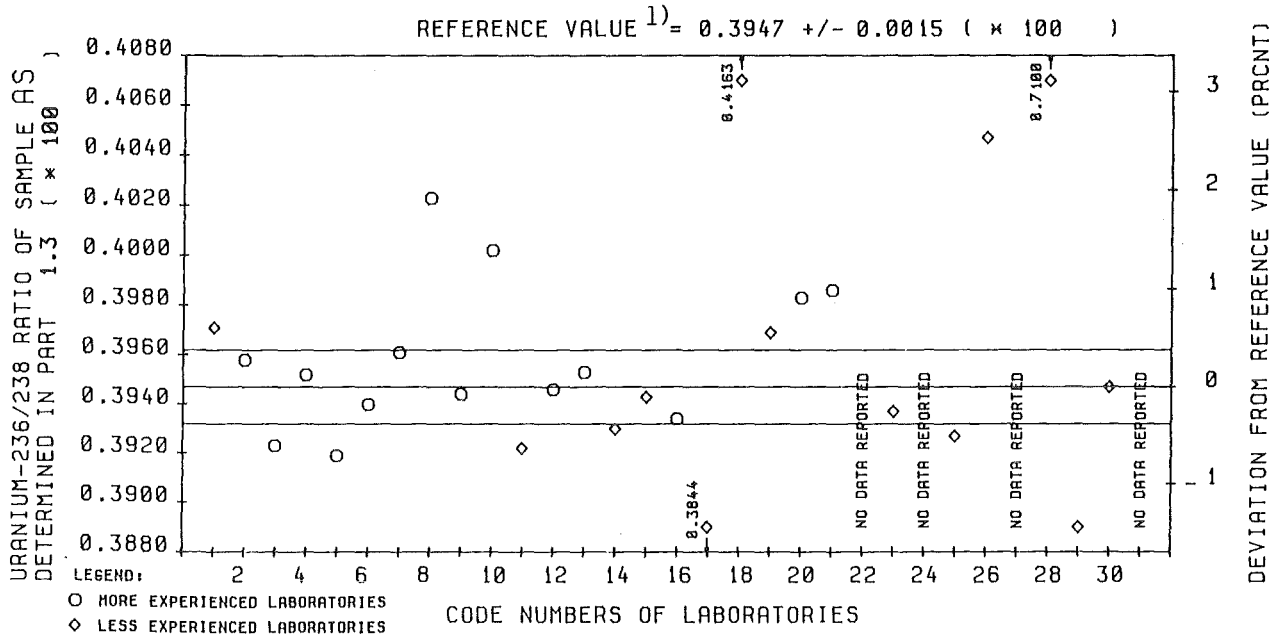
*****
1      2)      3)      4 2)      53)      6 3)      7 3)      83)
*****
LAB     RUN1     RUN2     RUN3     RSD SCAN   RSD RUN   LAB MEAN   RSD OF LAB
CODE                                (%)        (%)                                MEAN (%)
*****
1      0.3971  0.3906  0.3896  0.29      0.13      0.3901     0.12
2      0.3958  0.3889  0.3914  0.22      0.45      0.3902     0.32
3      0.3923  0.3913  0.3896  0.26      0.30      0.3904     0.23
4      0.3952  0.3903  0.3900  0.11      0.04      0.3901     0.04
5      0.3919  0.3857  0.3864  0.12      0.12      0.3861     0.09
6      0.3940  0.3872  0.3872  0.30      0.0       0.3872     0.09
7      0.3961  0.3943  0.3954  0.41      0.10      0.3949     0.14
8      0.4023  0.3963  0.3975  0.58      0.0       0.3969     0.17
9      0.3944  0.3941  0.3920  0.92      0.03      0.3931     0.27
10     0.4002  0.3973  0.3950  2.03      0.0       0.3961     0.59
11     0.3922  0.3843  0.3782  2.98      0.0       0.3812     0.86
12     0.3946  0.3910  0.3909  0.11      0.0       0.3910     0.03
13     0.3953  0.3900  0.3952  0.98      0.84      0.3926     0.66
14     0.3930  0.3892  0.3853  0.61      0.68      0.3873     0.51
15     0.3943  0.3890  0.3870  0.71      0.22      0.3880     0.26
16     0.3934  0.3911  0.3909  0.54      0.0       0.3910     0.15
17     0.3844  0.3889  0.3872  0.96      0.0       0.3881     0.28
18     0.4163  0.4138  0.4068  1.12      1.12      0.4103     0.85
19     0.3969  0.3902  0.3899  0.29      0.0       0.3900     0.08
20     0.3983  0.3940  0.3953  0.35      0.18      0.3946     0.16
21     0.3986  0.3894  0.3858  2.03      0.0       0.3876     0.59
22     0.0     0.0     0.0     0.0       0.0       0.0        0.0
23     0.3937  0.3920  0.3915  0.45      0.0       0.3917     0.13
24     0.0     0.0     0.0     0.0       0.0       0.0        0.0
25     0.3927  0.3853  0.3872  1.12      0.0       0.3862     0.32
26     0.4047  0.3960  0.3949  0.04      0.19      0.3954     0.13
27     0.0     0.0     0.0     0.0       0.0       0.0        0.0
28     0.7100  0.6686  0.7686  1.75      9.81      0.7186     6.96
29     0.3890  0.3770  0.3832  1.06      1.06      0.3801     0.81
30     0.3947  0.3894  0.3920  0.25      0.47      0.3907     0.34
31     0.0     0.0     0.0     0.0       0.0       0.0        0.0
*****

```

REF.: 1 1 1 38 39 37 41

REMARKS:

- 1) Data concern all laboratory measurements on samples of 'spiking I'.
- 2) Data concern measurements on samples of 'spiking II', 'IV' or 'VI', depending on the subgroup to which the laboratory belongs (see Eval. Sheets 3-II, 3-IV and 3-VI).
- 3) Data are based on runs 2 and 3 (columns 3 and 4).



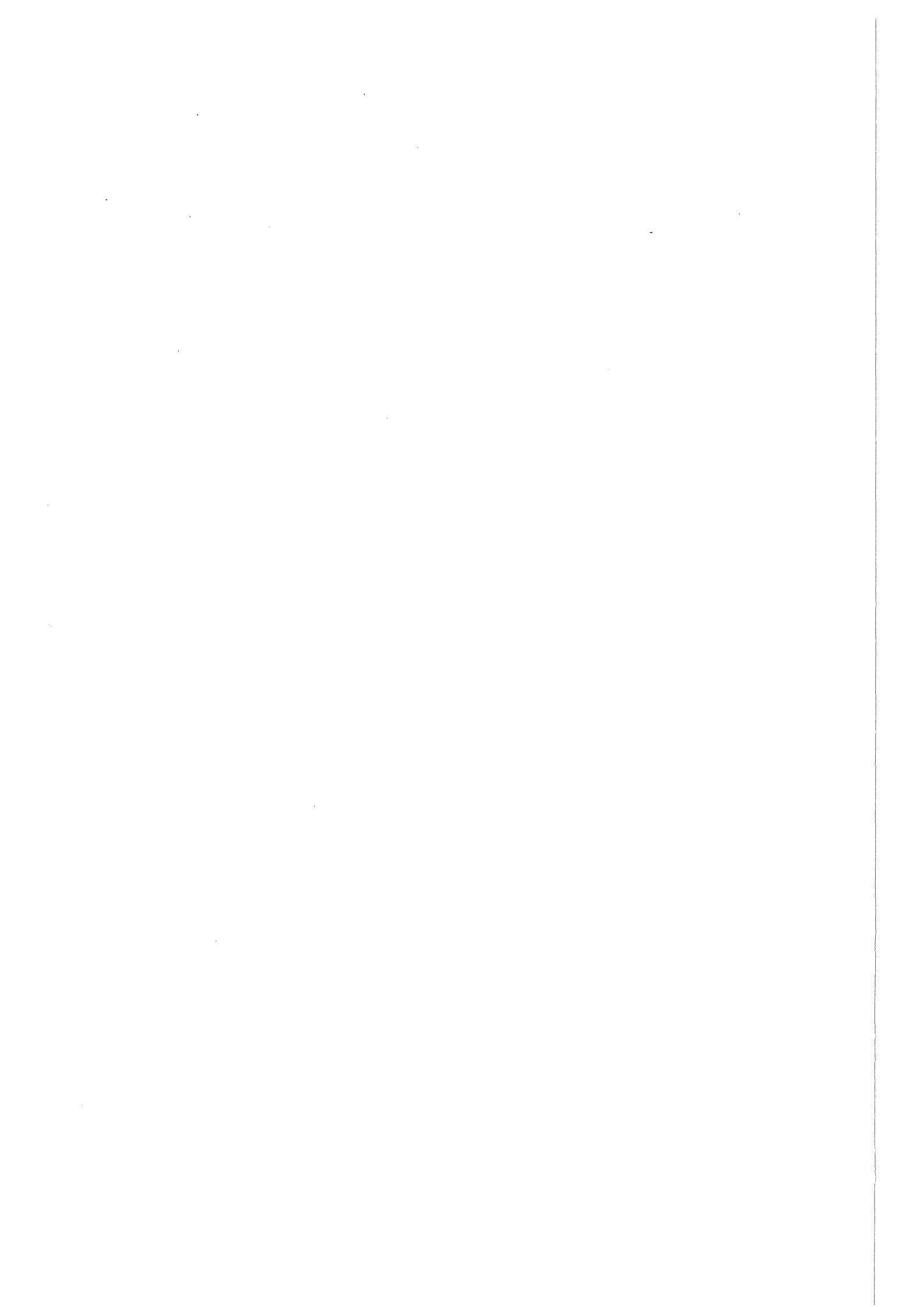
REFERENCE VALUE <sup>1)</sup> = 0.3947 ( \* 100 )  
 +/- 0.0015

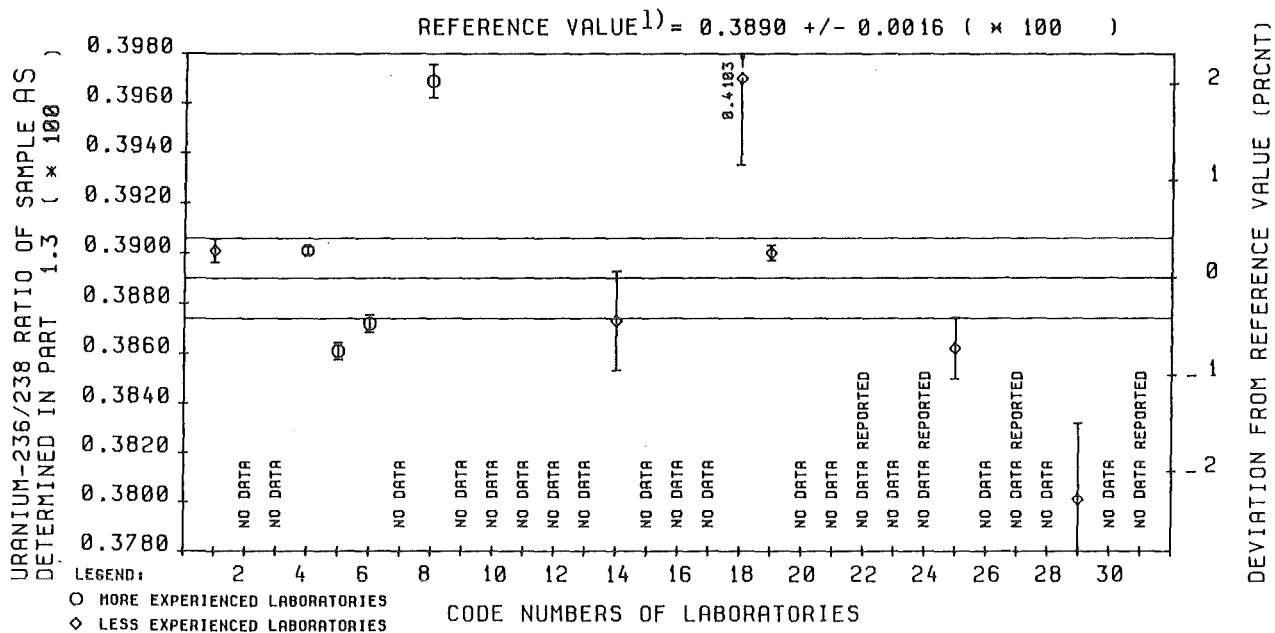
	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM REF. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	27	0.3947	0.0	-	-	-
3	EXTREME LAB MEANS ELIMINATED	28,18	25	0.3946	-0.03	-	-	-
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	28,18	25	0.3946	-0.03	-	-	-
5							GRAND MEAN	INTERLAB SPREAD (%)
							0.39500	1.03

REMARKS:

- 1) THE CALCULATED DILUTION RATIO IS USED AS REFERENCE VALUE (SEE VOL.11, P. 66).
- 2) SINCE SCAN DATA OF ONLY ONE RUN WERE AVAILABLE (COLUMN 2 OF THE 'COMPILATION OF NUMERICAL DATA'), NO UNCERTAINTY BARS ARE PRESENTED IN THE GRAPH AND NO ESTIMATES OF UNCERTAINTY COMPONENTS ARE GIVEN IN THE TABLE.

EVALUATION SHEET 3-1 : SAMPLE AS, URANIUM-236/238 RATIOS DETERMINED IN PART 1.3 THE SAMPLE OF SPIKING I





REFERENCE VALUE<sup>1)</sup> = 0.3890 ( \* 100 )  
 +/- 0.0016

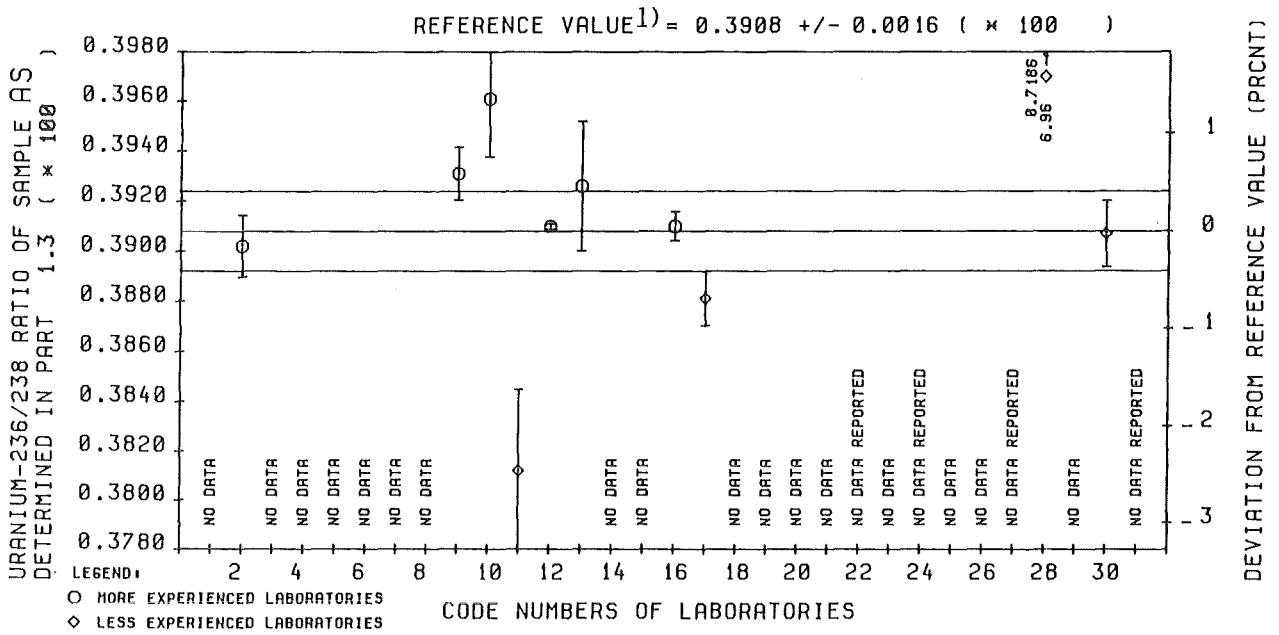
	1	2	3	4	5	6	7	8
		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM REF. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
1	ALL DATA	NONE	10	0.3886	-0.10	0.69	0.53	2.06
2	EXTREME LAB MEANS ELIMINATED	18	9	0.3873	-0.44	0.61	0.41	1.12
3	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	18	9	0.3873	-0.44	0.61	0.41	1.12
4							GRAND MEAN	INTERLAB SPREAD (%)
5							0.38823	1.17

**REMARKS:**

- 1) THE CALCULATED DILUTION RATIO IS USED AS REFERENCE VALUE (SEE VOL.II, P. 67).
- 2) THE ENTRY 'NO DATA' IN THE GRAPH INDICATES THAT THE LABORATORY WAS NOT REQUESTED TO MEASURE THE SAMPLE.
- 3) THE ESTIMATES OF UNCERTAINTY COMPONENTS GIVEN IN THE TABLE ARE BASED ON RUNS 2 AND 3 ONLY (COLUMNS 3 AND 4 OF THE 'COMPILATION OF NUMERICAL DATA').

**EVALUATION SHEET 3-II :** SAMPLE AS, URANIUM-236/238 RATIOS DETERMINED IN PART 1.3 THE TWO SAMPLES OF SPIKING II





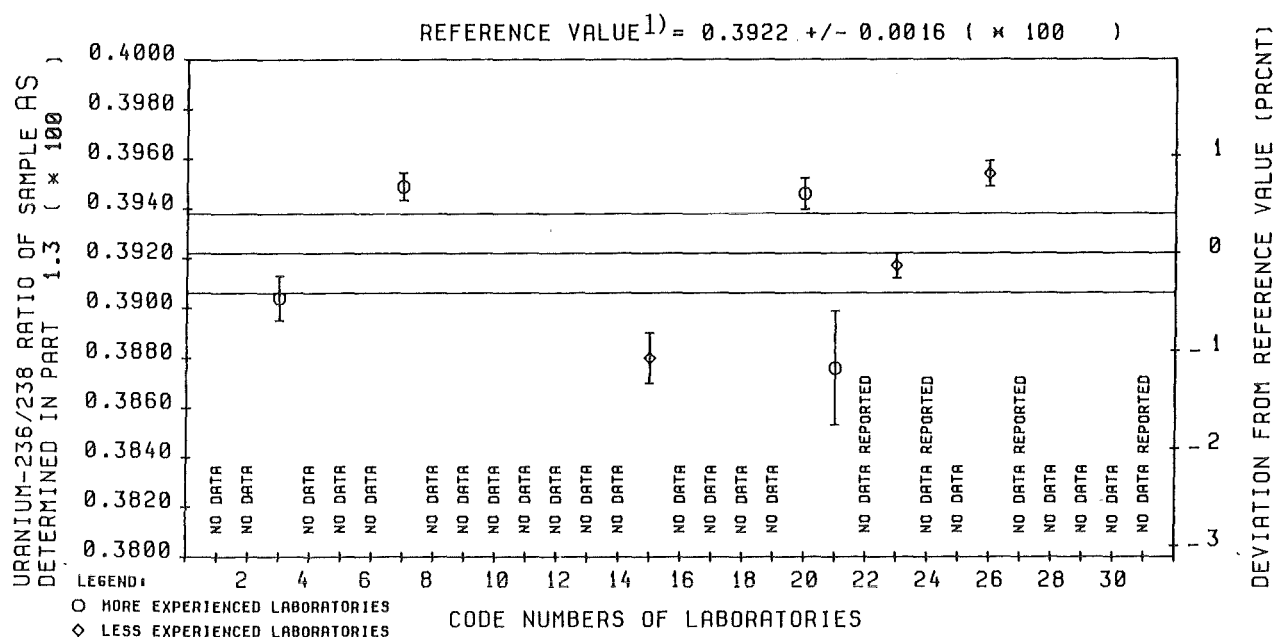
REFERENCE VALUE<sup>1)</sup> = 0.3908 ( \* 100 )  
 +/- 0.0016

	1	2	3	4	5	6	7	8
		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM REF. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	BETWEEN-LABS' RSD (%)
1		NONE	10	0.3910	0.05	1.50	5.28	24.25
2	ALL DATA							
3	EXTREME LAB MEANS ELIMINATED	28	9	0.3910	0.05	1.33	0.20	0.97
4	EXTREME VALUES OF LAB MEANS & RSD'S	28	9	0.3910	0.05	1.33	0.20	0.97
5	'RUN' ELIMINATED						GRAND MEAN	INTERLAB SPREAD (%)
							0.39044	1.06

REMARKS:

- 1) THE CALCULATED DILUTION RATIO IS USED AS REFERENCE VALUE<sup>1)</sup> (SEE VOL. II, P. 68).
- 2) THE ENTRY 'NO DATA' IN THE GRAPH INDICATES THAT THE LABORATORY WAS NOT REQUESTED TO MEASURE THE SAMPLE.
- 3) THE ESTIMATES OF UNCERTAINTY COMPONENTS GIVEN IN THE TABLE ARE BASED ON RUNS 2 AND 3 ONLY (COLUMNS 3 AND 4 OF THE 'COMPILATION OF NUMERICAL DATA').

EVALUATION SHEET 3-IV : SAMPLE AS, URANIUM-236/238 RATIOS DETERMINED IN PART 1.3 THE TWO SAMPLES OF SPIKING IV



REFERENCE VALUE<sup>1)</sup> = 0.3922 ( x 100 )  
 +/- 0.0016

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM REF. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	7	0.3917	-0.13	0.86	0.0 <sup>2)</sup>	0.81
3	EXTREME LAB MEANS ELIMINATED	NONE	7	0.3917	-0.13	0.86	0.0 <sup>2)</sup>	0.81
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	21	6	0.39315	0.24	0.42	0.18	0.74
5							GRAND MEAN	INTERLAB SPREAD (%)
							0.39253	0.76

REMARKS:

- 1) THE CALCULATED DILUTION RATIO IS USED AS REFERENCE VALUE (SEE VOL. II, P. 69).
- 2) IN THIS CASE THE UNCERTAINTY COMPONENT 'RUN' IS NOT SIGNIFICANT; THIS QUANTITY IS MASKED BY THE RELATIVELY HIGH RSD 'SCAN' VALUE OF LABORATORY 21.
- 3) THE ENTRY 'NO DATA' IN THE GRAPH INDICATES THAT THE LABORATORY WAS NOT REQUESTED TO MEASURE THE SAMPLE.
- 4) THE ESTIMATES OF UNCERTAINTY COMPONENTS GIVEN IN THE TABLE ARE BASED ON RUNS 2 AND 3 ONLY (COLUMNS 3 AND 4 OF THE 'COMPILATION OF NUMERICAL DATA').

EVALUATION SHEET 3-VI : SAMPLE AS, URANIUM-236/238 RATIOS DETERMINED IN PART 1.3 THE TWO SAMPLES OF SPIKING VI

EVALUATION SHEET 4

=====

SAMPLE BU , URANIUM-234/238 RATIOS

DETERMINED IN PROGRAMME PART 1.11

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE RATIOS LISTED HERE MUST BE DEVIDED BY 10000.00

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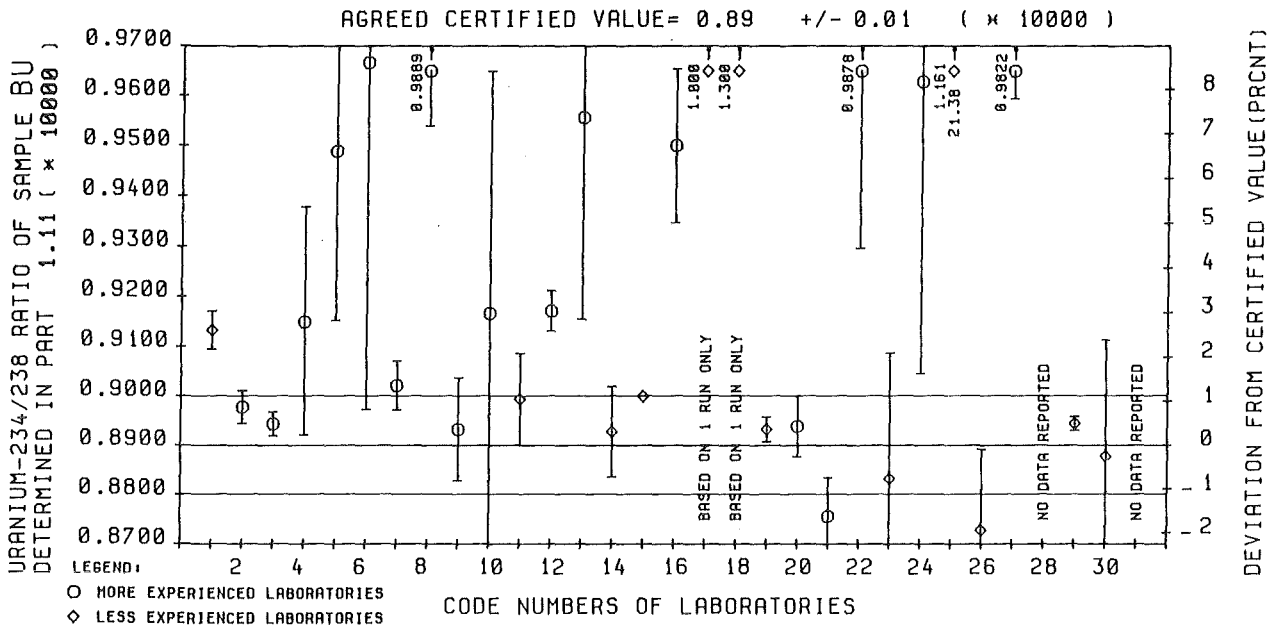
*****
  1      2      3      4      5      6      7      8
*****
LAB      RUN1    RUN2    RUN3    RSD SCAN  RSD RUN  LAB MEAN  RSD OF LAB
CODE                                (%)        (%)                                MEAN (%)
*****
  1      0.9167  0.9150  0.9083    1.78     0.0      0.9133    0.42
  2      0.9000  0.9000  0.8933    1.56     0.0      0.8978    0.37
  3      0.8950  0.8900  0.8983    0.44     0.43     0.8944    0.27
  4      0.8850  0.9000  0.9600    6.34     3.48     0.9150    2.50
  5      0.8817  0.9833  0.9817    4.72     5.83     0.9489    3.54
  6      1.0670  0.8333  1.0000   17.03    10.31     0.9667    7.18
  7      0.9017  0.9033  0.9017    2.34     0.0      0.9022    0.55
  8      1.000   0.9667  1.000    3.01     1.51     0.9889    1.12
  9      0.8817  0.8933  0.9050    4.97     0.0      0.8933    1.17
 10     0.8700  0.8667  1.0130   19.52    4.46     0.9167    5.27
 11     0.8850  0.8967  0.9167    3.37     1.13     0.8994    1.03
 12     0.9183  0.9183  0.9150    1.85     0.0      0.9172    0.44
 13     0.9000  1.0330  0.9333   15.44    3.60     0.9556    4.19
 14     0.8900  0.8883  0.9000    4.37     0.0      0.8928    1.03
 15     0.9000  0.9000  0.9000    0.0      0.0      0.9000    0.0
 16     0.9533  0.9700  0.9267    6.88     0.0      0.9500    1.62
 17      -      -      1.000    0.0 1)   0.0 1)   1.000 2)   0.0 1)
 18      -      1.300   -      9.42 3)  0.0 1)   1.300 2)   0.0 1)
 19     0.8917  0.8917  0.8967    1.19     0.0      0.8933    0.28
 20     0.9017  0.8983  0.8817    2.36     0.72     0.8939    0.69
 21     0.8850  0.8817  0.8600    3.49     0.61     0.8756    0.90
 22     0.9667  0.9583  1.0380   15.18     0.0      0.9878    3.58
 23     0.9167  0.8333  0.9000   11.00     2.18     0.8833    2.88
 24     0.9183  0.8917  1.078    5.80    10.21     0.9628    6.05
 25     0.6833  1.283   1.517   63.77   26.32     1.161    21.38
 26     0.9050  0.8617  0.8517    0.90     3.23     0.8728    1.88
 27     0.9850  0.9817  0.9800    2.41     0.0      0.9822    0.57
 28     0.0      0.0      0.0      0.0      0.0      0.0      0.0
 29     0.8967  0.8917  0.8950    0.69     0.05     0.8944    0.16
 30     0.8967  0.9233  0.8433    6.14     3.84     0.8878    2.65
 31     0.0      0.0      0.0      0.0      0.0      0.0      0.0
*****

```

REF.:        1            1            1            4            6            2            8

REMARKS:

- 1) Due to incompleteness of reported data a meaningful calculation of this quantity was not possible.
- 2) The only run mean value determined.
- 3) Based on scan values of run 2 only.



AGREED CERTIFIED VALUE = 0.89 ( x 10000 )  
 +/- 0.01

1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	17,18	0.9022	1.37	17.18	7.19	2.50
3	EXTREME LAB MEANS ELIMINATED	17,18,25	0.9011	1.25	7.91	3.48	2.82
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	17,18,25	0.9011	1.25	7.91	3.48	2.82
5						GRAND MEAN	INTERLAB SPREAD (%)
						0.91869	3.93

REMARKS:

- LABORATORIES 17 AND 18 REPORTED DATA OF ONLY ONE RUN; THEREFORE, THEY HAVE NOT BEEN CONSIDERED IN THESE CALCULATIONS.

EVALUATION SHEET 4 : SAMPLE BU, URANIUM-234/238 RATIOS DETERMINED IN PART 1.11

EVALUATION SHEET 5  
=====

SAMPLE BU , URANIUM-235/238 RATIOS

DETERMINED IN PROGRAMME PART 1.11

-----  
COMPILATION OF NUMERICAL DATA  
-----

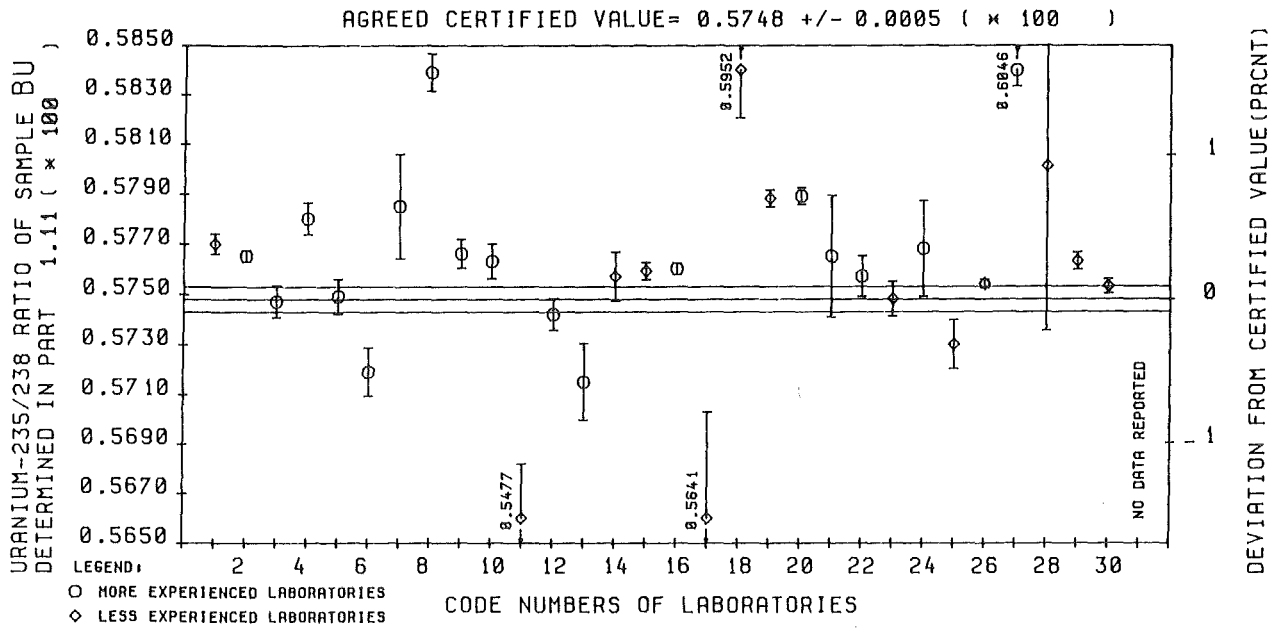
THE RATIOS LISTED HERE MUST BE DEVIDED BY 100.00

```

*****
 1         2         3         4         5         6         7         8
*****
LAB        RUN1      RUN2      RUN3      RSD SCAN  RSD RUN  LAB MEAN  RSD OF LAB
CODE                               (%)       (%)                               MEAN (%)
*****
 1      0.5772  0.5766  0.5771  0.28     0.0     0.5770  0.07
 2      0.5767  0.5767  0.5761  0.19     0.0     0.5765  0.04
 3      0.5741  0.5741  0.5759  0.26     0.15    0.5747  0.11
 4      0.5785  0.5768  0.5788  0.13     0.18    0.5780  0.11
 5      0.5762  0.5738  0.5746  0.12     0.21    0.5749  0.12
 6      0.5710  0.5708  0.5738  0.47     0.22    0.5719  0.17
 7      0.5755  0.5774  0.5824  1.04     0.45    0.5785  0.36
 8      0.5852  0.5840  0.5825  0.36     0.18    0.5839  0.13
 9      0.5765  0.5765  0.5768  0.43     0.0     0.5766  0.10
10     0.5758  0.5769  0.5762  0.50     0.0     0.5763  0.12
11     0.5455  0.5520  0.5455  0.73     0.62    0.5477  0.40
12     0.5729  0.5745  0.5751  0.03     0.19    0.5742  0.11
13     0.5720  0.5703  0.5722  1.14     0.0     0.5715  0.27
14     0.5743  0.5752  0.5777  0.51     0.22    0.5757  0.17
15     0.5762  0.5757  0.5760  0.25     0.0     0.5759  0.06
16     0.5756  0.5762  0.5762  0.18     0.0     0.5760  0.04
17     0.5555  0.5683  0.5683  1.28     1.20    0.5641  0.76
18     0.5988  0.5922  0.5945  1.07     0.36    0.5952  0.33
19     0.5783  0.5786  0.5794  0.21     0.05    0.5788  0.06
20     0.5792  0.5793  0.5781  0.18     0.08    0.5789  0.06
21     0.5792  0.5787  0.5717  1.69     0.21    0.5765  0.42
22     0.5770  0.5743  0.5757  0.49     0.13    0.5757  0.14
23     0.5762  0.5743  0.5740  0.34     0.15    0.5748  0.12
24     0.5730  0.5781  0.5792  1.01     0.40    0.5768  0.33
25     0.5747  0.5713  0.5730  0.61     0.15    0.5730  0.17
26     0.5755  0.5750  0.5755  0.05     0.05    0.5754  0.03
27     0.6033  0.6055  0.6051  0.49     0.0     0.6046  0.11
28     0.5748  0.5931  0.5723  1.54     1.85    0.5801  1.13
29     0.5757  0.5763  0.5769  0.08     0.10    0.5763  0.06
30     0.5752  0.5752  0.5755  0.20     0.0     0.5753  0.05
31     0.0     0.0     0.0     0.0     0.0     0.0     0.0
*****

```

REF.:        1            1            1            4            6            2            8



AGREED CERTIFIED VALUE = 0.5748 ( \* 100 )  
 +/- 0.0005

1	2	3	4	5	6	7	8	
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)	
2	ALL DATA	NONE	30	0.5760	0.20	0.69	0.44	1.51
3	EXTREME LAB MEANS ELIMINATED	27,11, 18,17	26	0.5760	0.20	0.65	0.39	0.35
4	EXTREME VALUES OF LAB MEANS & RSD'S	27,11, 18,17, 28, 8,	24	0.5758	0.17	0.59	0.14	0.29
5	'RUN' ELIMINATED	-				GRAND MEAN	INTERLAB SPREAD (%)	
						0.57580	0.33	

REMARKS:

EVALUATION SHEET 5 : SAMPLE BU, URANIUM-235/238 RATIOS DETERMINED IN PART 1.11

EVALUATION SHEET 6  
=====

SAMPLE BU , URANIUM-236/238 RATIOS

DETERMINED IN PROGRAMME PART 1.11

-----  
COMPILATION OF NUMERICAL DATA  
-----

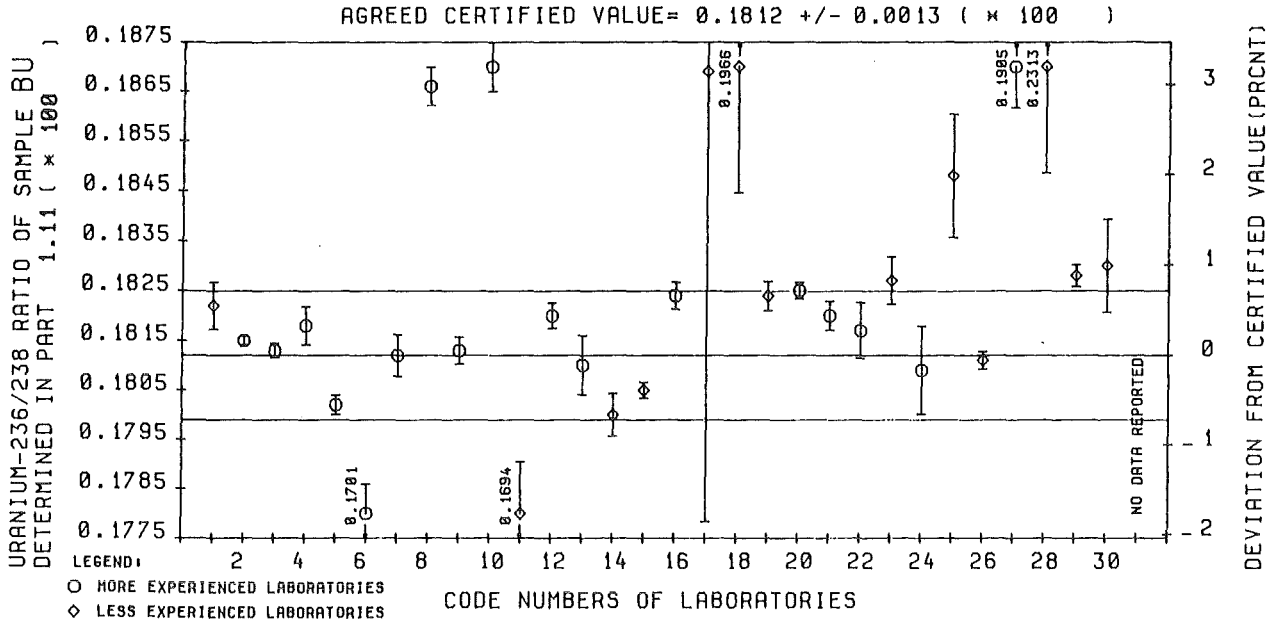
THE RATIOS LISTED HERE MUST BE DEVIDED BY 100.00

```

*****
  1      2      3      4      5      6      7      8
*****
LAB      RUN1    RUN2    RUN3    RSD SCAN  RSD RUN  LAB MEAN  RSD OF LAB
CODE                                (%)        (%)        MEAN (%)
*****
  1      0.1830  0.1814  0.1822  0.41     0.42     0.1822     0.26
  2      0.1816  0.1813  0.1816  0.17     0.06     0.1815     0.05
  3      0.1811  0.1811  0.1816  0.03     0.14     0.1813     0.08
  4      0.1817  0.1812  0.1825  0.29     0.35     0.1818     0.21
  5      0.1798  0.1805  0.1801  0.29     0.16     0.1802     0.11
  6      0.1707  0.1697  0.1698  1.47     0.0      0.1701     0.35
  7      0.1812  0.1804  0.1818  0.82     0.20     0.1812     0.23
  8      0.1868  0.1858  0.1872  0.60     0.28     0.1866     0.21
  9      0.1818  0.1811  0.1809  0.37     0.22     0.1813     0.15
 10      0.1864  0.1880  0.1864  0.75     0.36     0.1870     0.27
 11      0.1688  0.1680  0.1715  1.40     0.92     0.1694     0.62
 12      0.1822  0.1822  0.1814  0.14     0.24     0.1820     0.14
 13      0.1818  0.1813  0.1798  1.10     0.36     0.1810     0.33
 14      0.1806  0.1799  0.1796  1.00     0.0      0.1800     0.24
 15      0.1808  0.1803  0.1803  0.27     0.12     0.1805     0.09
 16      0.1819  0.1825  0.1828  0.34     0.21     0.1824     0.15
 17      0.1773  0.2050  0.1783  2.88     8.31     0.1869     4.85
 18      0.2017  0.1937  0.1945  2.62     1.96     0.1966     1.29
 19      0.1819  0.1829  0.1824  0.30     0.25     0.1824     0.16
 20      0.1825  0.1823  0.1827  0.37     0.0      0.1825     0.09
 21      0.1816  0.1823  0.1820  0.70     0.0      0.1820     0.16
 22      0.1813  0.1810  0.1828  0.65     0.46     0.1817     0.31
 23      0.1822  0.1823  0.1837  0.56     0.39     0.1827     0.26
 24      0.1823  0.1793  0.1809  2.08     0.0      0.1809     0.49
 25      0.1832  0.1860  0.1852  2.83     0.0      0.1848     0.67
 26      0.1811  0.1815  0.1808  0.07     0.17     0.1811     0.10
 27      0.1890  0.1918  0.1909  0.57     0.72     0.1905     0.44
 28      0.2306  0.2353  0.2280  2.04     1.37     0.2313     0.93
 29      0.1824  0.1831  0.1830  0.23     0.18     0.1828     0.12
 30      0.1829  0.1847  0.1814  0.59     0.86     0.1830     0.51
 31      0.0      0.0      0.0      0.0      0.0      0.0      0.0
*****

```

REF.:           1           1           1           4           6           2           8



AGREED CERTIFIED VALUE= 0.1812 ( x 100 )  
 +/- 0.0013

1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	BETWEEN-LABS' RSD (%)
2	NONE	30	0.1820	0.44	1.23	1.64	5.44
3	28	29	0.1820	0.44	1.17	1.65	2.51
4	28, 17, 18	27	0.1818	0.33	0.92	0.29	2.25
5						GRAND MEAN	INTERLAB SPREAD (%)
						0.18159	2.26

REMARKS:

EVALUATION SHEET 6 : SAMPLE BU, URANIUM-236/238 RATIOS DETERMINED IN PART 1.11



EVALUATION SHEET 7  
=====

SAMPLE BS , URANIUM-233/238 RATIOS  
DETERMINED IN PROGRAMME PART 1.2

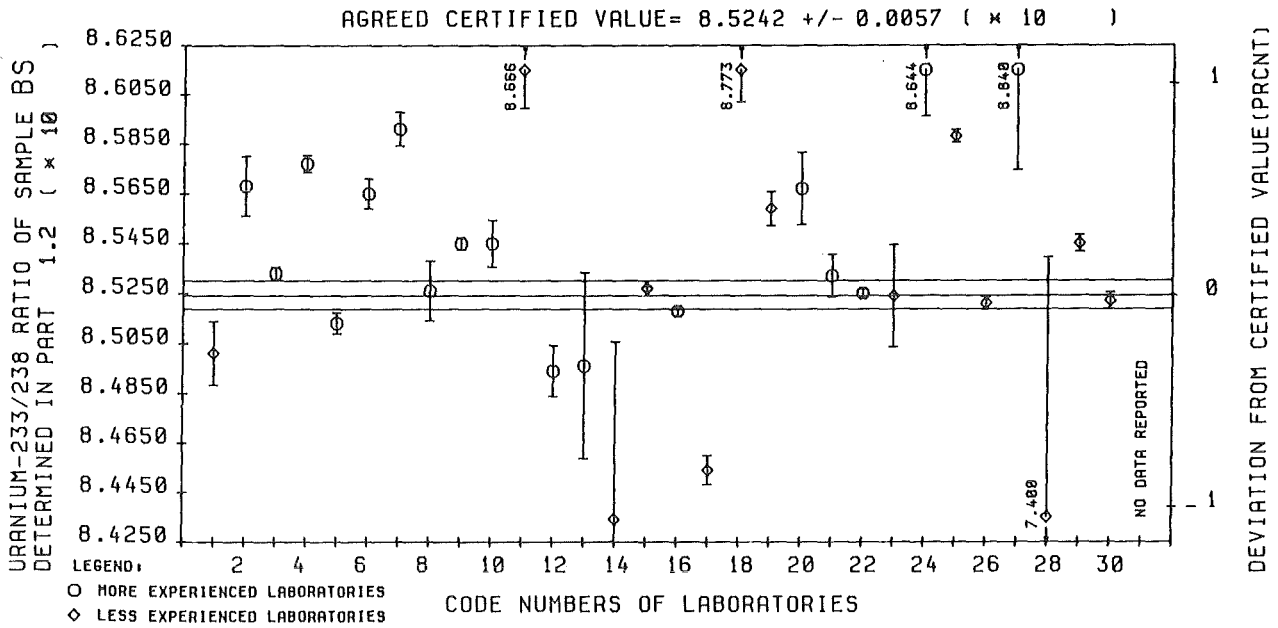
-----  
COMPILATION OF NUMERICAL DATA  
-----

THE RATIOS LISTED HERE MUST BE DEVIDED BY 10.00

*****							
1	2	3	4	5	6	7	8
*****							
LAB	RUN1	RUN2	RUN3	RSD SCAN	RSD RUN	LAB MEAN	RSD OF LAB
CODE				(%)	(%)		MEAN (%)
*****							
1	8.524	8.478	8.501	0.19	0.26	8.501	0.15
2	8.572	8.546	8.586	0.17	0.23	8.568	0.14
3	8.532	8.529	8.538	0.03	0.05	8.533	0.03
4	8.572	8.577	8.583	0.02	0.06	8.577	0.04
5	8.519	8.515	8.506	0.02	0.08	8.513	0.05
6	8.564	8.576	8.555	0.02	0.12	8.565	0.07
7	8.594	8.579	8.601	0.16	0.12	8.591	0.08
8	8.526	8.518	8.534	0.60	0.0	8.526	0.14
9	8.543	8.546	8.545	0.11	0.0	8.545	0.03
10	8.562	8.543	8.531	0.23	0.16	8.545	0.11
11	8.693	8.663	8.640	0.39	0.26	8.666	0.18
12	8.479	8.513	8.489	0.03	0.20	8.494	0.12
13	8.532	8.535	8.420	0.47	0.75	8.496	0.44
14	8.302	8.452	8.547	0.54	1.45	8.434	0.85
15	8.526	8.528	8.528	0.02	0.01	8.527	0.01
16	8.521	8.515	8.517	0.04	0.03	8.518	0.02
17	8.451	8.447	8.462	0.30	0.0	8.454	0.07
18	8.795	8.775	8.749	0.24	0.24	8.773	0.15
19	8.546	8.561	8.570	0.11	0.14	8.559	0.08
20	8.550	8.596	8.556	0.25	0.27	8.567	0.17
21	8.518	8.528	8.548	0.14	0.17	8.532	0.10
22	8.529	8.524	8.523	0.02	0.04	8.525	0.02
23	8.554	8.485	8.534	0.06	0.41	8.524	0.24
24	8.607	8.666	8.661	0.72	0.24	8.644	0.22
25	8.591	8.583	8.592	0.06	0.05	8.588	0.03
26	8.524	8.523	8.515	0.01	0.05	8.521	0.03
27	8.876	8.883	8.759	0.29	0.78	8.840	0.46
28	7.501	7.508	7.191	0.96	2.42	7.400	1.41
29	8.538	8.548	8.549	0.02	0.07	8.545	0.04
30	8.515	8.525	8.525	0.04	0.06	8.522	0.04
31	0.0	0.0	0.0	0.0	0.0	0.0	0.0

\*\*\*\*\*

REF.: 1 1 1 4 6 2 8



AGREED CERTIFIED VALUE= 8.5242 ( x 10 )  
 +/- 0.0057

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	30	8,533	0.10	0.30	0.53	2.65
3	EXTREME LAB MEANS ELIMINATED	28,27, 18	27	8,532	0.09	0.27	0.34	0.54
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	28,27, 18,14, 13	25	8,533	0.11	0.24	0.16	0.52
5							GRAND MEAN	INTERLAB SPREAD (%)
							8.5460	0.53

REMARKS:

EVALUATION SHEET 7 : SAMPLE BS, URANIUM-233/238 RATIOS DETERMINED IN PART 1.2

EVALUATION SHEET 8

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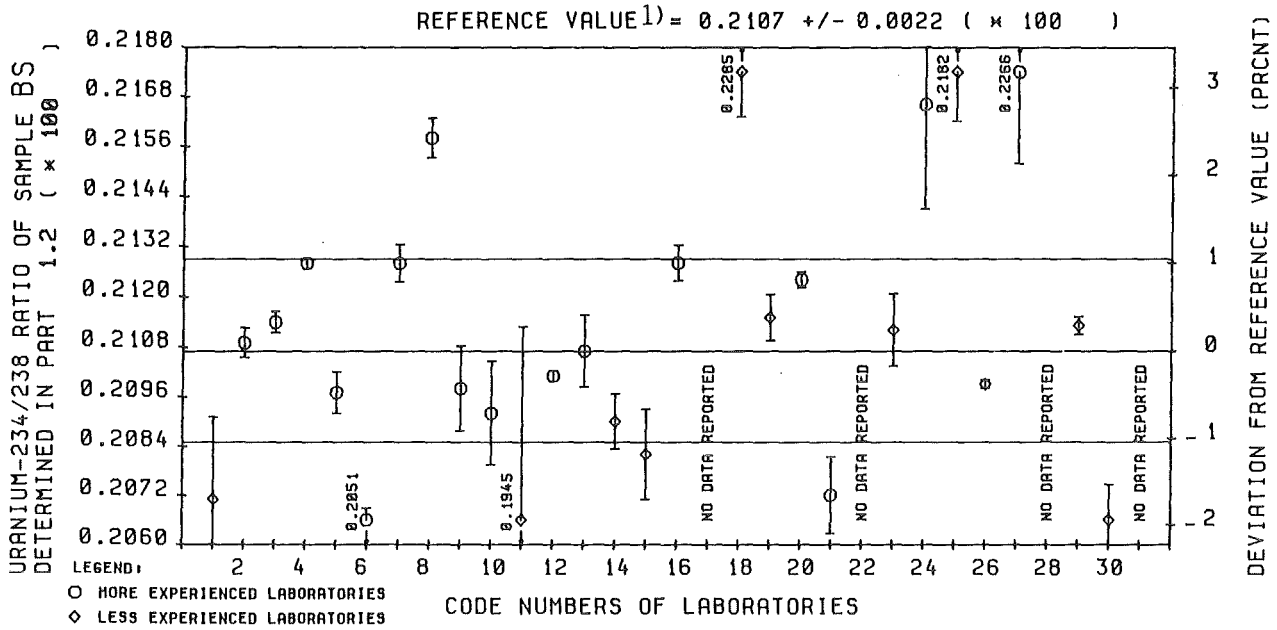
SAMPLE BS , URANIUM-234/238 RATIOS

DETERMINED IN PROGRAMME PART 1.2

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE RATIOS LISTED HERE MUST BE DEVIDED BY 100.00

```
*****
 1          2          3          4          5          6          7          8
*****
LAB        RUN1      RUN2      RUN3      RSD SCAN  RSD RUN  LAB MEAN  RSD OF LAB
CODE                               (%)        (%)                               MEAN (%)
*****
 1      0.2031  0.2096  0.2086   0.41     1.66     0.2071     0.97
 2      0.2104  0.2116  0.2108   0.28     0.27     0.2109     0.17
 3      0.2109  0.2116  0.2116   0.05     0.20     0.2114     0.12
 4      0.2130  0.2125  0.2129   0.15     0.09     0.2128     0.06
 5      0.2088  0.2098  0.2105   0.47     0.36     0.2097     0.24
 6      0.2055  0.2052  0.2045   0.25     0.23     0.2051     0.14
 7      0.2131  0.2119  0.2133   0.65     0.25     0.2128     0.21
 8      0.2153  0.2162  0.2158   0.92     0.0      0.2158     0.22
 9      0.2116  0.2080  0.2098   1.70     0.48     0.2098     0.49
10      0.2085  0.2097  0.2092   2.54     0.0      0.2092     0.60
11      0.2008  0.1973  0.1853   1.76     4.12     0.1945     2.41
12      0.2098  0.2103  0.2101   0.25     0.04     0.2101     0.06
13      0.2100  0.2112  0.2108   1.73     0.0      0.2107     0.41
14      0.2095  0.2099  0.2077   0.99     0.38     0.2090     0.32
15      0.2060  0.2090  0.2095   1.00     0.81     0.2082     0.53
16      0.2127  0.2134  0.2122   0.83     0.0      0.2128     0.20
17      0.0      0.0      0.0      0.0      0.0      0.0      0.0
18      0.2307  0.2272  0.2277   0.76     0.77     0.2285     0.48
19      0.2106  0.2112  0.2125   0.32     0.42     0.2115     0.26
20      0.2122  0.2125  0.2125   0.39     0.0      0.2124     0.09
21      0.2074  0.2054  0.2087   1.18     0.62     0.2072     0.45
22      0.0      0.0      0.0      0.0      0.0      0.0      0.0
23      0.2127  0.2097  0.2113   0.62     0.66     0.2112     0.41
24      0.2149  0.2134  0.2216   1.80     1.87     0.2166     1.16
25      0.2183  0.2182  0.2180   2.34     0.0      0.2182     0.55
26      0.2101  0.2097  0.2098   0.10     0.08     0.2099     0.05
27      0.2283  0.2294  0.2222   1.76     1.55     0.2266     0.98
28      0.0      0.0      0.0      0.0      0.0      0.0      0.0
29      0.2114  0.2116  0.2109   0.22     0.16     0.2113     0.10
30      0.2071  0.2049  0.2078   0.53     0.70     0.2066     0.42
31      0.0      0.0      0.0      0.0      0.0      0.0      0.0
*****
REF.:      1          1          1          4          6          2          8
```



REFERENCE VALUE<sup>1)</sup> = 0.2107 ( x 100 )  
 +/- 0.0022

1	2	3	4	5	6	7	8	
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM REF. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)	
2	ALL DATA	NONE	27	0.2109	0.10	1.14	0.95	2.93
3	EXTREME LAB MEANS ELIMINATED	NONE	27	0.2109	0.10	1.14	0.95	2.93
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	11	26	0.21105	0.17	1.11	0.62	2.52
5						GRAND MEAN	INTERLAB SPREAD (%)	
						0.21213	2.56	

REMARKS:

1) THE CALCULATED DILUTION RATIO IS USED AS REFERENCE VALUE (SEE VOL.11, P. 60).

EVALUATION SHEET 9

=====

SAMPLE BS , URANIUM-235/238 RATIOS

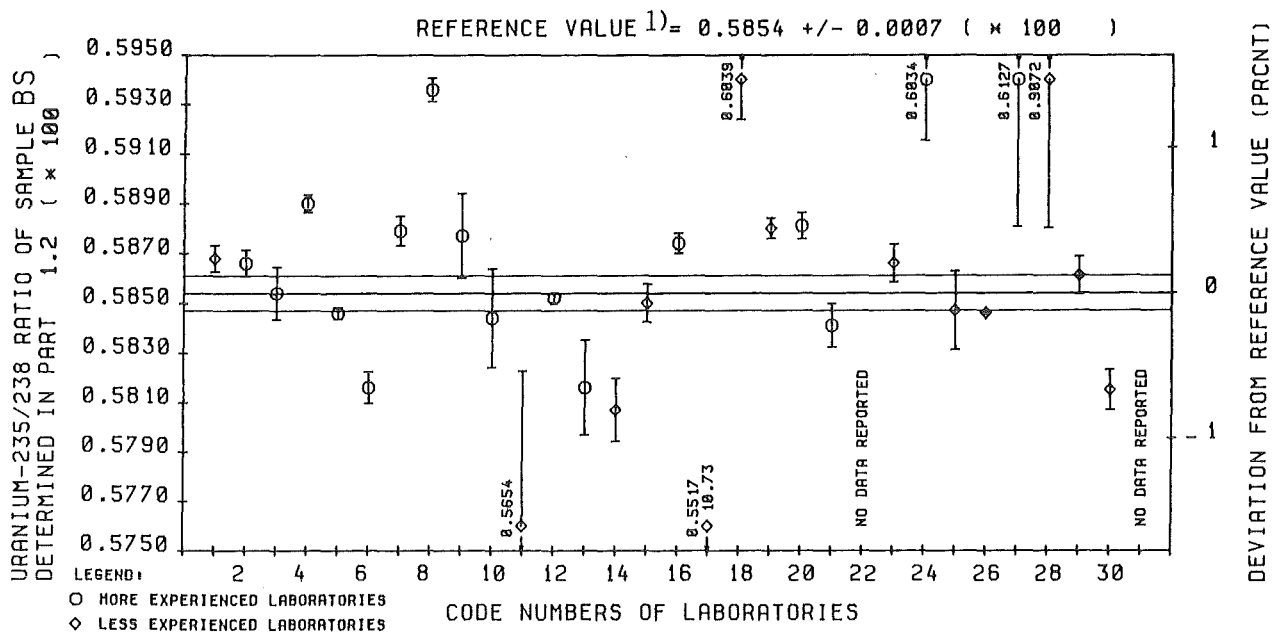
DETERMINED IN PROGRAMME PART 1.2

-----  
COMPILED OF NUMERICAL DATA  
-----

THE RATIOS LISTED HERE MUST BE DEVIDED BY 100.00

```
*****
 1      2      3      4      5      6      7      8
*****
LAB     RUN1   RUN2   RUN3   RSD SCAN  RSD RUN  LAB MEAN  RSD OF LAB
CODE                                (%)      (%)      MEAN (%)
*****
 1      0.5860  0.5878  0.5866  0.26     0.11     0.5868     0.09
 2      0.5861  0.5866  0.5872  0.36     0.0      0.5866     0.09
 3      0.5833  0.5864  0.5866  0.25     0.30     0.5854     0.18
 4      0.5886  0.5892  0.5893  0.26     0.0      0.5890     0.06
 5      0.5845  0.5842  0.5850  0.14     0.04     0.5846     0.04
 6      0.5822  0.5823  0.5803  0.10     0.19     0.5816     0.11
 7      0.5890  0.5877  0.5870  0.39     0.05     0.5879     0.10
 8      0.5937  0.5937  0.5935  0.32     0.0      0.5936     0.08
 9      0.5881  0.5874  0.5876  1.23     0.0      0.5877     0.29
10      0.5837  0.5831  0.5863  1.45     0.0      0.5844     0.34
11      0.5762  0.5655  0.5545  1.46     1.82     0.5654     1.11
12      0.5848  0.5853  0.5853  0.07     0.04     0.5852     0.03
13      0.5837  0.5833  0.5777  0.75     0.49     0.5816     0.33
14      0.5808  0.5800  0.5813  0.92     0.0      0.5807     0.22
15      0.5848  0.5862  0.5840  0.54     0.0      0.5850     0.13
16      0.5873  0.5869  0.5880  0.28     0.0      0.5874     0.07
17      0.4333  0.6083  0.6133  7.54    18.33     0.5517    10.73
18      0.6072  0.6018  0.6028  0.57     0.41     0.6039     0.27
19      0.5885  0.5880  0.5876  0.29     0.0      0.5880     0.07
20      0.5878  0.5892  0.5875  0.27     0.11     0.5881     0.09
21      0.5837  0.5836  0.5851  0.65     0.0      0.5841     0.15
22      0.0      0.0      0.0      0.0      0.0      0.0      0.0
23      0.5863  0.5853  0.5880  0.47     0.13     0.5866     0.13
24      0.5991  0.6033  0.6076  1.09     0.55     0.6034     0.41
25      0.5872  0.5818  0.5852  0.70     0.36     0.5847     0.27
26      0.5845  0.5846  0.5846  0.02     0.01     0.5846     0.01
27      0.6112  0.6236  0.6031  0.81     1.65     0.6127     0.97
28      0.9172  0.8965  0.9079  1.69     0.91     0.9072     0.66
29      0.5869  0.5868  0.5846  0.29     0.19     0.5861     0.13
30      0.5820  0.5800  0.5826  0.38     0.18     0.5815     0.14
31      0.0      0.0      0.0      0.0      0.0      0.0      0.0
*****
```

REF.: 1 1 1 4 6 2 8



REFERENCE VALUE 1) = 0.5854 ( x 100 )  
 +/- 0.0007

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM REF. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	29	0.5861	0.12	1.51	3.19	9.97
3	EXTREME LAB MEANS ELIMINATED	28.17	27	0.5861	0.12	0.66	0.49	1.42
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	28.17, 11.27	25	0.5861	0.12	0.61	0.12	0.96
5							GRAND MEAN	INTERLAB SPREAD (%)
							0.58714	0.97

REMARKS:

1) THE CALCULATED DILUTION RATIO IS USED AS REFERENCE VALUE (SEE VOL. II, P. 60).

EVALUATION SHEET 10  
=====

SAMPLE BS , URANIUM-236/238 RATIOS  
DETERMINED IN PROGRAMME PART 1.2

-----  
COMPILATION OF NUMERICAL DATA  
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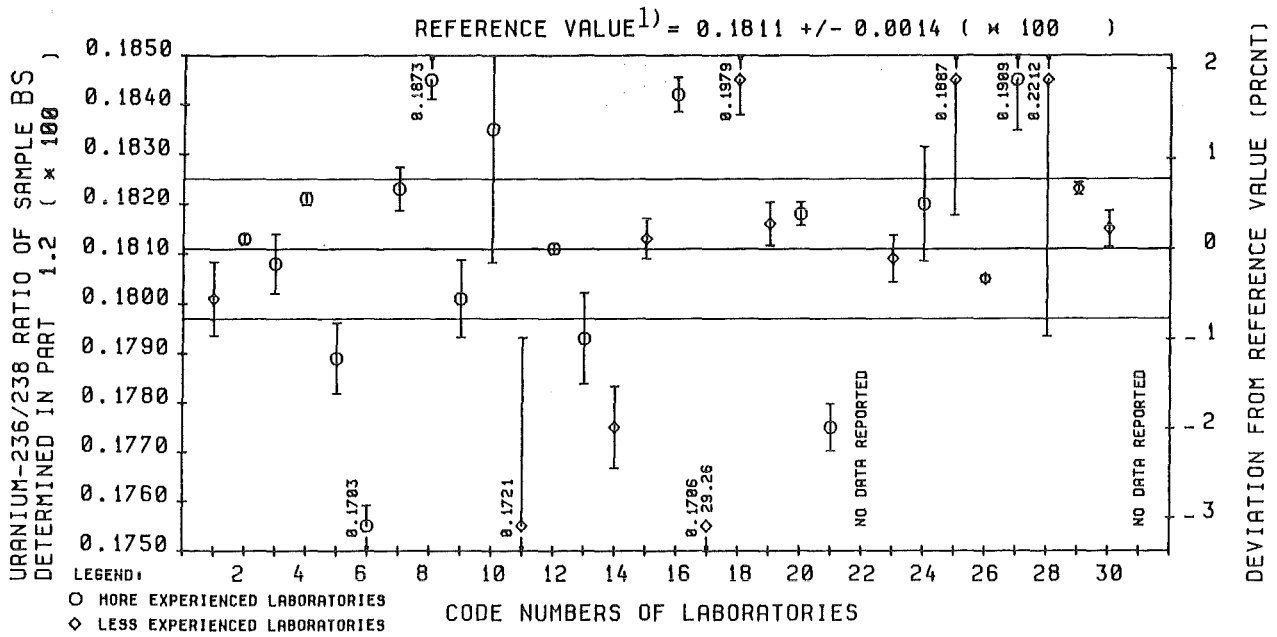
THE RATIOS LISTED HERE MUST BE DEVIDED BY 100.00

```

*****
1      2      3      4      5      6      7      8
*****
LAB    RUN1   RUN2   RUN3   RSD SCAN  RSD RUN  LAB MEAN  RSD OF LAB
CODE                                     (%)      (%)                                     MEAN (%)
*****
1      0.1787 0.1812 0.1803 0.42      0.69      0.1801      0.41
2      0.1812 0.1814 0.1813 0.20      0.0       0.1813      0.05
3      0.1796 0.1814 0.1814 0.07      0.58      0.1808      0.33
4      0.1821 0.1819 0.1823 0.24      0.06      0.1821      0.07
5      0.1776 0.1790 0.1801 0.64      0.64      0.1789      0.40
6      0.1708 0.1705 0.1695 0.37      0.38      0.1703      0.24
7      0.1832 0.1818 0.1820 0.49      0.36      0.1823      0.24
8      0.1867 0.1880 0.1872 0.59      0.27      0.1873      0.21
9      0.1808 0.1790 0.1805 1.81      0.0       0.1801      0.43
10     0.1842 0.1803 0.1859 6.21      0.0       0.1835      1.46
11     0.1778 0.1735 0.1648 2.42      3.72      0.1721      2.22
12     0.1810 0.1813 0.1810 0.17      0.07      0.1811      0.06
13     0.1793 0.1808 0.1777 1.49      0.64      0.1793      0.51
14     0.1772 0.1778 0.1774 1.99      0.0       0.1775      0.47
15     0.1817 0.1812 0.1812 0.93      0.0       0.1813      0.22
16     0.1836 0.1848 0.1841 0.77      0.10      0.1842      0.19
17     0.0750 0.2433 0.1933 16.03     50.26     0.1706      29.26
18     0.1982 0.1967 0.1988 1.54      0.0       0.1979      0.36
19     0.1817 0.1809 0.1824 0.39      0.38      0.1816      0.24
20     0.1818 0.1819 0.1816 0.55      0.0       0.1818      0.13
21     0.1770 0.1770 0.1784 1.16      0.0       0.1775      0.27
22     0.0     0.0     0.0     0.0       0.0       0.0         0.0
23     0.1813 0.1800 0.1815 0.91      0.26      0.1809      0.26
24     0.1833 0.1797 0.1831 1.01      1.02      0.1820      0.63
25     0.1877 0.1845 0.1938 4.23      1.83      0.1887      1.45
26     0.1806 0.1804 0.1806 0.07      0.05      0.1805      0.04
27     0.1914 0.1923 0.1889 1.27      0.77      0.1909      0.54
28     0.2180 0.2143 0.2313 5.01      3.48      0.2212      2.33
29     0.1822 0.1824 0.1822 0.30      0.0       0.1823      0.07
30     0.1818 0.1809 0.1818 0.84      0.0       0.1815      0.20
31     0.0     0.0     0.0     0.0       0.0       0.0         0.0
*****

```

REF.: 1 1 1 4 6 2 8



REFERENCE VALUE<sup>1)</sup> = 0.1811 ( x 100 )  
 +/- 0.0014

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM REF. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	29	0.1813	0.17	3.45	8.77	0.0 <sup>2)</sup>
3	EXTREME LAB MEANS ELIMINATED	28	28	0.1813	0.17	3.34	8.96	0.0 <sup>2)</sup>
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	28,17	27	0.1813	0.17	1.77	0.74	2.83
5							GRAND MEAN	INTERLAB SPREAD (%)
							0.18177	2.89

REMARKS:

- 1) THE CALCULATED DILUTION RATIO IS USED AS REFERENCE VALUE (SEE VOL. II, P.60).
- 2) IN THIS CASE THE UNCERTAINTY COMPONENT 'BETWEEN LABS' IS NOT SIGNIFICANT; THIS QUANTITY IS MASKED BY THE RELATIVELY HIGH RSD 'RUN' VALUE OF LABORATORY 17.



EVALUATION SHEET 11  
=====

SAMPLE RU , URANIUM-234/238 RATIOS

DETERMINED IN PROGRAMME PART 2.1

-----  
COMPILATION OF NUMERICAL DATA  
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THE RATIOS LISTED HERE MUST BE DEVIDED BY 10000.00

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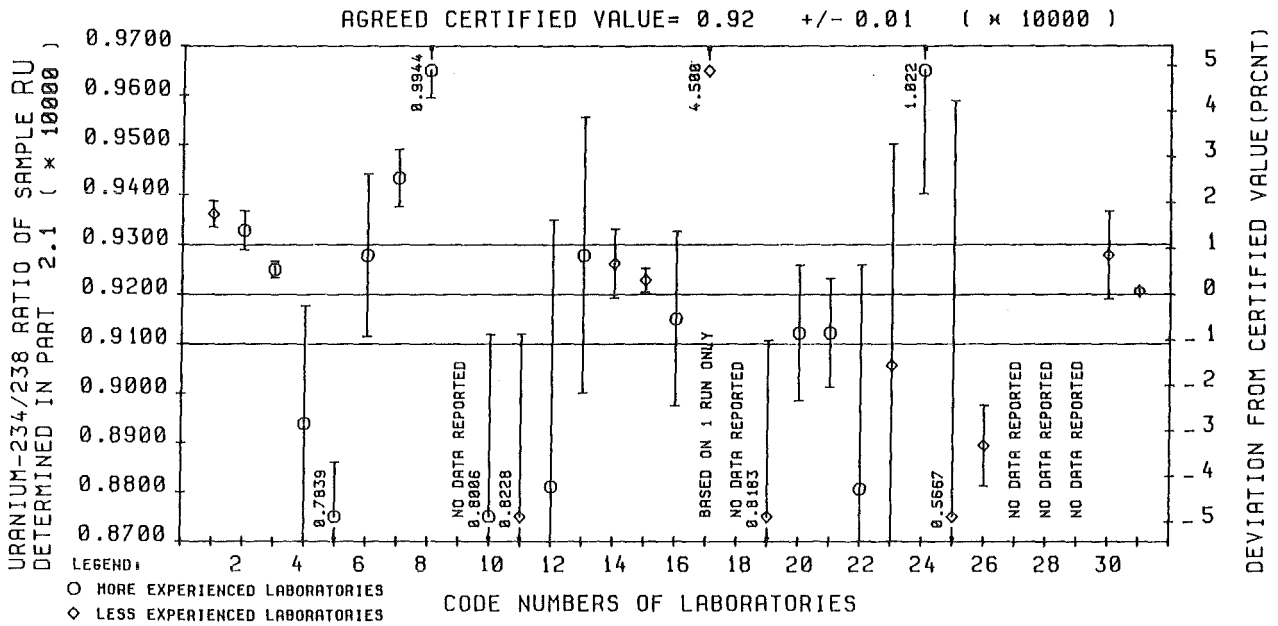
*****
1      2      3      4      5      6      7      8
*****
LAB    RUN1    RUN2    RUN3    RSD SCAN  RSD RUN  LAB MEAN  RSD OF LAB
CODE                                     (%)      (%)      MEAN (%)
*****
1      0.9400  0.9367  0.9317  1.18     0.0     0.9361    0.28
2      0.9250  0.9367  0.9367  1.24     0.51    0.9328    0.42
3      0.9267  0.9217  0.9267  0.52     0.23    0.9250    0.18
4      0.8500  0.9317  0.9000  5.58     4.00    0.8939    2.66
5      0.7800  0.7867  0.7850  5.97     0.0     0.7839    1.41
6      0.9167  0.9167  0.9500  7.45     0.0     0.9278    1.76
7      0.9450  0.9433  0.9417  2.59     0.0     0.9433    0.61
8      0.9833  1.0000  1.0000  2.37     0.0     0.9944    0.56
9      0.0     0.0     0.0     0.0     0.0     0.0     0.0
10     0.7633  0.7950  0.8433  19.55    0.0     0.8006    4.61
11     0.8233  0.7583  0.8867  7.13     7.24    0.8228    4.50
12     0.7817  0.9667  0.8950  8.90     9.94    0.8811    6.11
13     0.9833  0.9000  0.9000  11.42    2.27    0.9278    2.99
14     0.9383  0.9233  0.9167  3.20     0.0     0.9261    0.75
15     0.9267  0.9233  0.9183  0.66     0.37    0.9228    0.26
16     0.9300  0.8800  0.9350  4.29     2.82    0.9150    1.92
17     4.500   -       -       18.591)  0.02)  4.5003)  0.02)
18     0.0     0.0     0.0     0.0     0.0     0.0     0.0
19     0.7867  0.8883  0.7800  18.53    0.0     0.8183    4.37
20     0.9233  0.8850  0.9283  4.08     2.00    0.9122    1.50
21     0.8967  0.9067  0.9333  5.02     0.35    0.9122    1.20
22     0.8150  0.8883  0.9383  12.58    0.0     0.8806    5.14
23     0.9500  0.8167  0.9500  7.98     7.85    0.9056    4.91
24     1.063   0.9667  1.037   5.97     0.0     1.022     2.44
25     0.5000  0.4667  0.7333  52.08    14.33   0.5667    14.80
26     0.9033  0.8750  0.8900  1.19     1.52    0.8894    0.92
27     0.0     0.0     0.0     0.0     0.0     0.0     0.0
28     0.0     0.0     0.0     0.0     0.0     0.0     0.0
29     0.0     0.0     0.0     0.0     0.0     0.0     0.0
30     0.9283  0.9167  0.9383  4.04     0.0     0.9278    0.95
31     0.9217  0.9200  0.9200  0.26     0.0     0.9206    0.06
*****

```

REF.: 1 1 1 4 6 2 8

REMARKS:

- 1) Based on scan values of run 1 only.
- 2) Due to incompleteness of reported data a meaningful calculation of this quantity was not possible.
- 3) The only run mean value determined.



AGREED CERTIFIED VALUE= 0.92 +/- 0.01 ( x 10000 )

	1	2	3	4	5	6	7	8
		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
1	ALL DATA	17	25	0.9150	-0.54	7.27	3.09	9.18
3	EXTREME LAB MEANS ELIMINATED	17, 25	24	0.9178	-0.24	7.41	3.13	5.53
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	17, 25	24	0.9178	-0.24	7.41	3.13	5.53
5							GRAND MEAN	INTERLAB SPREAD (%)
							0.90508	6.07

REMARKS:

- LABORATORY 17 REPORTED SCAN DATA OF ONLY ONE RUN; THEREFORE, IT HAS NOT BEEN CONSIDERED IN THESE CALCULATIONS.

EVALUATION SHEET 1 2  
=====

SAMPLE RU , URANIUM-235/238 RATIOS  
DETERMINED IN PROGRAMME PART 2.1

-----  
COMPILATION OF NUMERICAL DATA  
-----

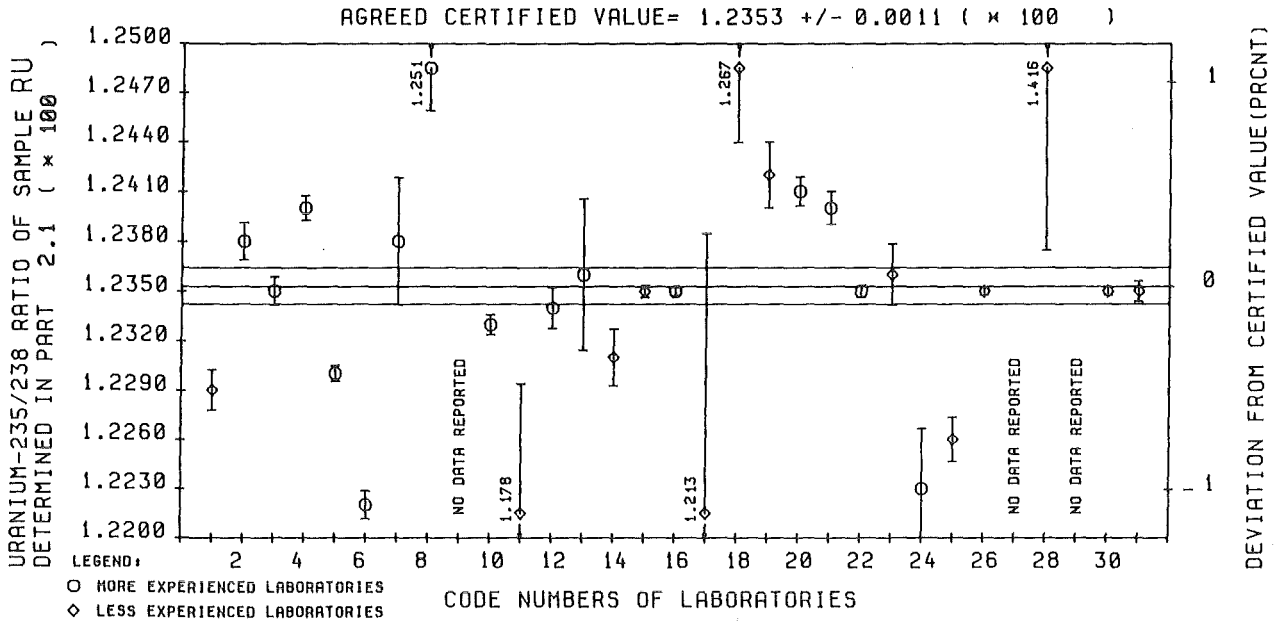
THE RATIOS LISTED HERE MUST BE DEVIDED BY 100.00

```

*****
1      2      3      4      5      6      7      8
*****
LAB    RUN1   RUN2   RUN3   RSD SCAN  RSD RUN  LAB MEAN  RSD OF LAB
CODE                                     (%)      (%)      MEAN (%)
*****
1      1.229  1.227  1.231  0.24     0.14     1.229    0.10
2      1.236  1.238  1.239  0.18     0.14     1.238    0.09
3      1.237  1.234  1.236  0.13     0.11     1.235    0.07
4      1.240  1.241  1.238  0.14     0.09     1.240    0.06
5      1.230  1.230  1.229  0.15     0.0      1.230    0.04
6      1.224  1.221  1.222  0.06     0.12     1.222    0.07
7      1.232  1.245  1.237  0.54     0.49     1.238    0.31
8      1.246  1.255  1.253  0.23     0.35     1.251    0.21
9      0.0    0.0    0.0    0.0      0.0      0.0      0.0
10     1.232  1.233  1.233  0.20     0.0      1.233    0.05
11     1.164  1.190  1.181  0.53     1.13     1.178    0.67
12     1.232  1.236  1.235  0.29     0.13     1.234    0.10
13     1.240  1.242  1.227  0.83     0.55     1.236    0.37
14     1.234  1.229  1.230  0.42     0.16     1.231    0.14
15     1.236  1.235  1.235  0.10     0.02     1.235    0.03
16     1.235  1.234  1.235  0.04     0.04     1.235    0.02
17     1.240  1.182  1.218  1.31     2.37     1.213    1.40
18     1.276  1.261  1.263  0.57     0.57     1.267    0.36
19     1.245  1.238  1.242  0.51     0.19     1.242    0.16
20     1.242  1.239  1.241  0.28     0.0      1.241    0.07
21     1.239  1.241  1.238  0.35     0.0      1.240    0.08
22     1.234  1.234  1.237  0.08     0.0      1.235    0.03
23     1.233  1.235  1.240  0.26     0.23     1.236    0.15
24     1.223  1.220  1.225  0.75     0.0      1.223    0.30
25     1.226  1.223  1.228  0.45     0.02     1.226    0.11
26     1.235  1.235  1.235  0.03     0.04     1.235    0.02
27     0.0    0.0    0.0    0.0      0.0      0.0      0.0
28     1.378  1.402  1.468  1.91     0.0      1.416    0.78
29     0.0    0.0    0.0    0.0      0.0      0.0      0.0
30     1.235  1.236  1.236  0.07     0.0      1.235    0.02
31     1.235  1.235  1.234  0.22     0.0      1.235    0.05
*****

```

REF.: 1 1 1 4 6 2 8



AGREED CERTIFIED VALUE= 1.2353 ( x 100 )  
 +/- 0.0011

1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	NONE	28	1.235	0.0	0.60	0.87	2.97
3	28,11, 18	25	1.235	0.0	0.42	0.50	0.52
4	28,11, 18,17	24	1.2351	-0.02	0.34	0.18	0.48
5						GRAND MEAN INTERLAB SPREAD (%)	
						1.2348	0.50

REMARKS:

EVALUATION SHEET 12 : SAMPLE RU, URANIUM-235/238 RATIOS DETERMINED IN PART 2.1

EVALUATION SHEET 13

=====

SAMPLE RU , URANIUM-236/238 RATIOS

DETERMINED IN PROGRAMME PART 2.1

-----  
COMPILATION OF NUMERICAL DATA  
-----

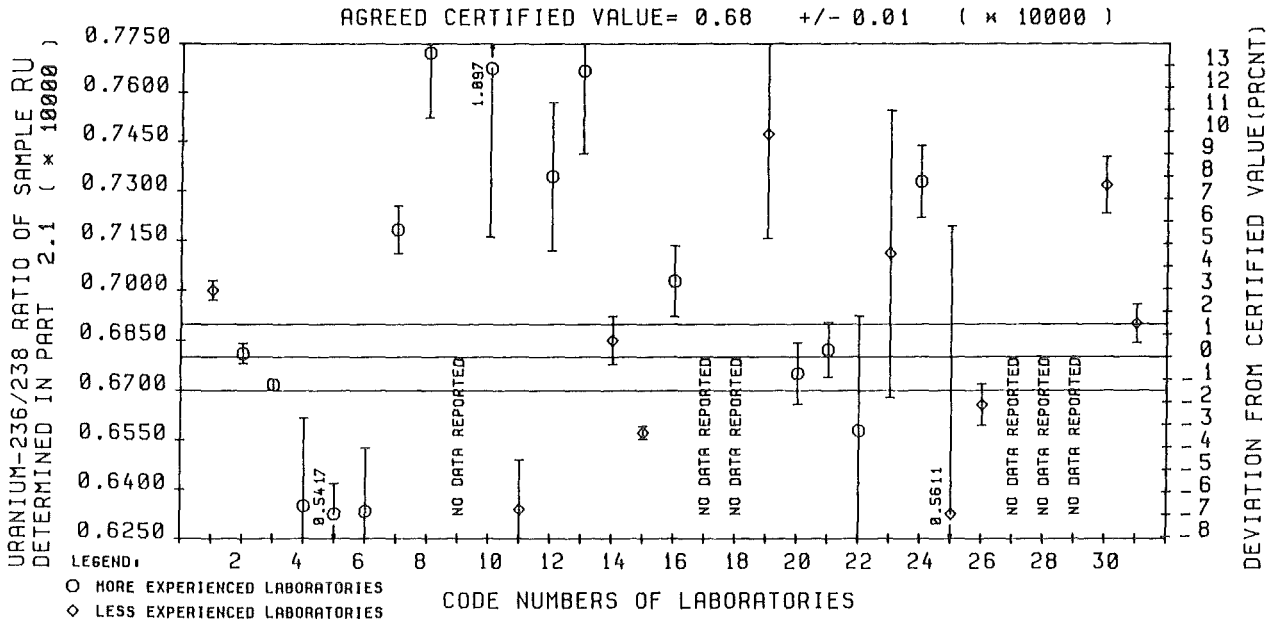
THE RATIOS LISTED HERE MUST BE DEVIDED BY 10000.00

```

*****
 1         2         3         4         5         6         7         8
*****
LAB      RUN1      RUN2      RUN3      RSD SCAN      RSD RUN      LAB MEAN      RSD OF LAB
CODE                                           (%)          (%)
*****
 1      0.7000    0.7017    0.6983     1.79         0.0          0.7000        0.42
 2      0.6833    0.6750    0.6850     1.22         0.61         0.6811        0.45
 3      0.6750    0.6700    0.6700     0.47         0.38         0.6717        0.25
 4      0.6500    0.6717    0.5833    11.02         5.69         0.6350        4.19
 5      0.5533    0.5483    0.5233     6.31         1.47         0.5417        1.71
 6      0.6000    0.6667    0.6333    12.00         1.92         0.6333        3.04
 7      0.7300    0.7050    0.7200     3.66         0.92         0.7183        1.01
 8      0.7833    0.7333    0.8000     4.92         4.02         0.7722        2.59
 9      0.0        0.0        0.0         0.0          0.0          0.0           0.0
10     1.002     1.178     1.110     13.10         6.11         1.097         4.69
11     0.6100    0.6617    0.6300     4.48         3.68         0.6339        2.37
12     0.7400    0.7517    0.7117    13.01         0.0          0.7344        3.07
13     0.8167    0.7500    0.7333     9.33         4.31         0.7667        3.32
14     0.6733    0.6833    0.6983     3.49         1.16         0.6850        1.06
15     0.6600    0.6583    0.6533     1.12         0.26         0.6572        0.30
16     0.7150    0.6817    0.7117     6.40         0.06         0.7028        1.51
17     0.0        0.0        0.0         0.0          0.0          0.0           0.0
18     0.0        0.0        0.0         0.0          0.0          0.0           0.0
19     0.7967    0.7567    0.6883    15.91         3.40         0.7472        4.23
20     0.6817    0.6567    0.6867     3.97         1.75         0.6750        1.37
21     0.6717    0.6850    0.6900     5.14         0.0          0.6822        1.21
22     0.6933    0.6100    0.6700    12.87         0.0          0.6578        5.25
23     0.7833    0.6333    0.7167     9.61         9.81         0.7111        6.10
24     0.7750    0.7550    0.6683     3.66         0.0          0.7328        1.49
25     0.4167    0.7167    0.5500    15.15        26.06         0.5611       15.47
26     0.6767    0.6550    0.6650     1.66         1.48         0.6656        0.94
27     0.0        0.0        0.0         0.0          0.0          0.0           0.0
28     0.0        0.0        0.0         0.0          0.0          0.0           0.0
29     0.0        0.0        0.0         0.0          0.0          0.0           0.0
30     0.7367    0.7150    0.7433     4.63         0.73         0.7317        1.17
31     0.7000    0.6900    0.6800     0.0          1.45         0.6900        0.84
*****

```

REF.:           1           1           1           4           6           2           8



AGREED CERTIFIED VALUE= 0.68 +/- 0.01 ( x 10000 )

1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	NONE	25	0.6850	0.74	8.17	3.73	13.70
3	10	24	0.6836	0.53	7.56	3.42	7.39
4	10, 25	23	0.6850	0.74	7.54	3.41	6.96
5						GRAND MEAN	INTERLAB SPREAD (%)
						0.68812	7.44

REMARKS:

EVALUATION SHEET 14  
=====

SAMPLE RS , URANIUM-233/238 RATIOS

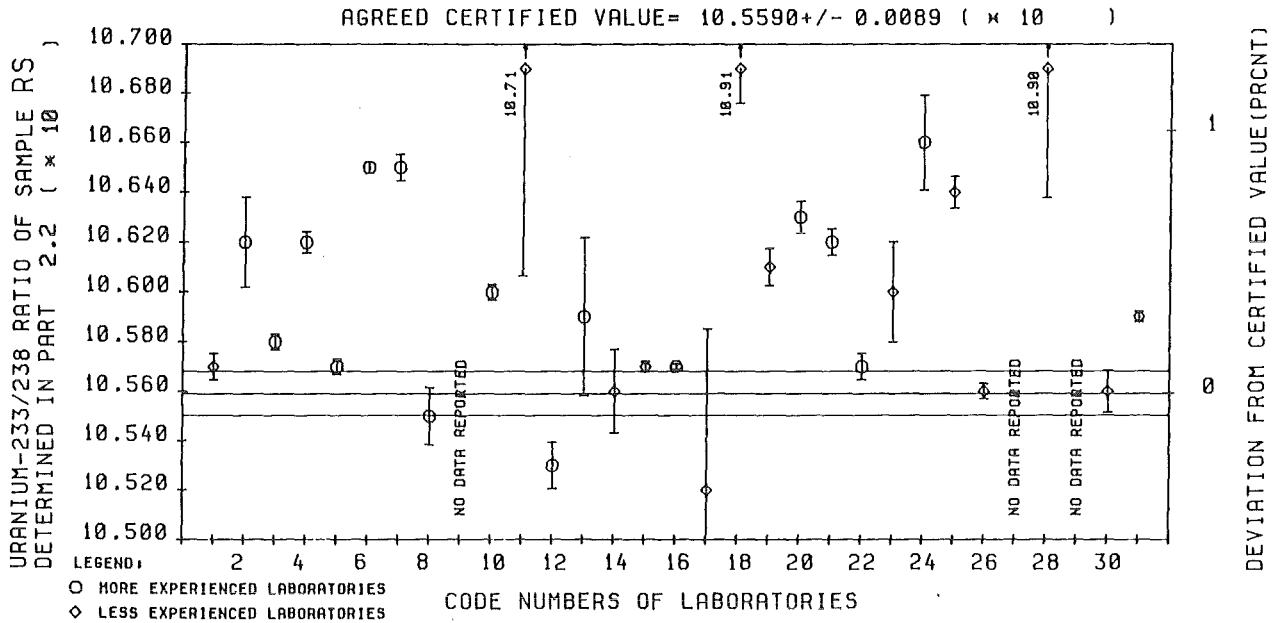
DETERMINED IN PROGRAMME PART 2.2

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE RATIOS LISTED HERE MUST BE DEVIDED BY 10.00

```
*****  
 1      2      3      4      5      6      7      8  
*****  
LAB     RUN1   RUN2   RUN3   RSD SCAN  RSD RUN  LAB MEAN  RSD OF LAB  
CODE                                (%)      (%)      MEAN (%)  
*****  
 1      10.58  10.57  10.56  0.11     0.07     10.57     0.05  
 2      10.65  10.63  10.59  0.19     0.28     10.62     0.17  
 3      10.59  10.58  10.57  0.04     0.05     10.58     0.03  
 4      10.61  10.63  10.62  0.16     0.03     10.62     0.04  
 5      10.58  10.57  10.57  0.07     0.03     10.57     0.03  
 6      10.64  10.65  10.65  0.04     0.04     10.65     0.02  
 7      10.65  10.66  10.64  0.18     0.05     10.65     0.05  
 8      10.53  10.54  10.57  0.34     0.12     10.55     0.11  
 9      0.0    0.0    0.0    0.0     0.0     0.0     0.0  
10      10.59  10.59  10.60  0.11     0.04     10.60     0.03  
11      10.55  10.78  10.81  0.69     1.31     10.71     0.78  
12      10.53  10.55  10.52  0.17     0.14     10.53     0.09  
13      10.57  10.66  10.55  0.46     0.48     10.59     0.30  
14      10.56  10.53  10.59  0.69     0.0     10.56     0.16  
15      10.58  10.57  10.57  0.06     0.03     10.57     0.02  
16      10.57  10.57  10.58  0.03     0.01     10.57     0.01  
17      10.58  10.59  10.39  0.50     1.06     10.52     0.62  
18      10.89  10.90  10.93  0.20     0.21     10.91     0.13  
19      10.61  10.62  10.59  0.17     0.11     10.61     0.07  
20      10.63  10.65  10.63  0.19     0.06     10.63     0.06  
21      10.63  10.61  10.61  0.16     0.05     10.62     0.05  
22      10.57  10.58  10.56  0.02     0.08     10.57     0.05  
23      10.56  10.63  10.62  0.07     0.33     10.60     0.19  
24      10.68  10.62  10.68  0.33     0.29     10.66     0.18  
25      10.63  10.65  10.65  0.05     0.10     10.64     0.06  
26      10.56  10.56  10.56  0.03     0.04     10.56     0.03  
27      0.0    0.0    0.0    0.0     0.0     0.0     0.0  
28      10.78  10.95  10.99  0.58     0.79     10.90     0.48  
29      0.0    0.0    0.0    0.0     0.0     0.0     0.0  
30      10.55  10.57  10.54  0.03     0.14     10.56     0.08  
31      10.59  10.59  10.58  0.03     0.03     10.59     0.02  
*****
```

REF.: 1 1 1 4 6 2 8



AGREED CERTIFIED VALUE =  $10.5590 \pm 0.0089$  (  $\times 10$  )

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	28	10.595	0.34	0.31	0.40	0.83
3	EXTREME LAB MEANS ELIMINATED	18.28	26	10.590	0.29	0.27	0.37	0.35
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	18.28 11.17	24	10.5909	0.30	0.22	0.16	0.32
5							GRAND MEAN 10.5947	INTERLAB SPREAD (%) 0.34

REMARKS:



EVALUATION SHEET 15  
=====

SAMPLE RS , URANIUM-234/238 RATIOS

DETERMINED IN PROGRAMME PART 2.2

-----  
COMPILATION OF NUMERICAL DATA  
-----

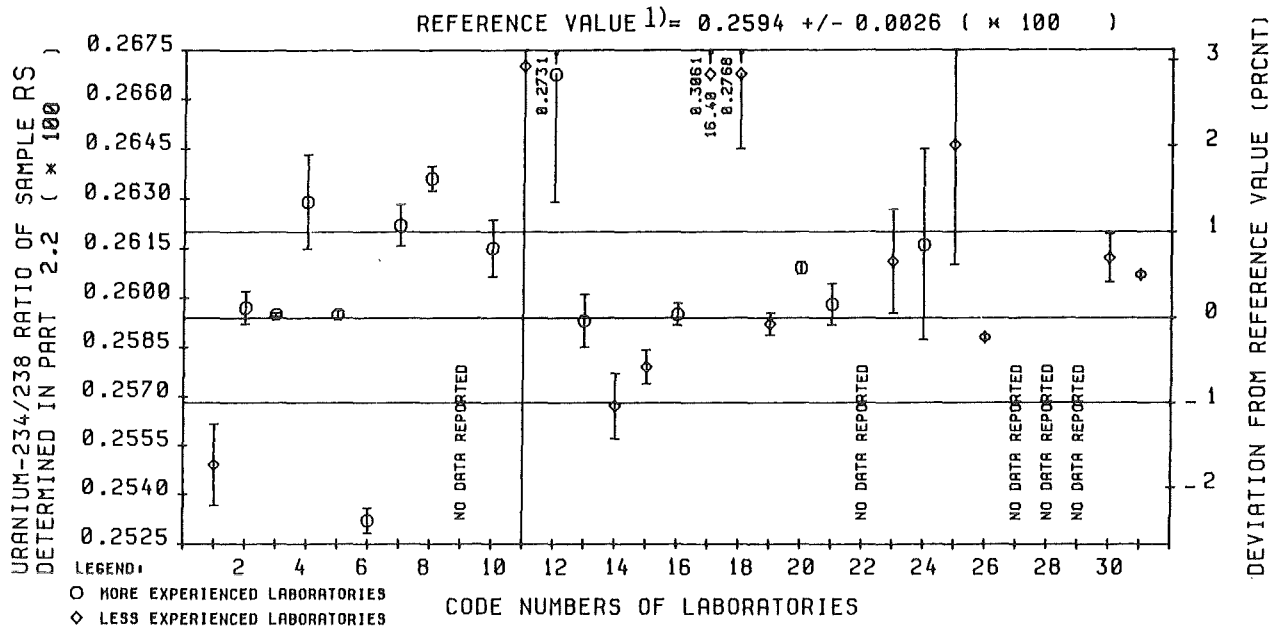
THE RATIOS LISTED HERE MUST BE DEVIDED BY 100.00

```

*****
1      2      3      4      5      6      7      8
*****
LAB    RUN1   RUN2   RUN3   RSD SCAN  RSD RUN  LAB MEAN  RSD OF LAB
CODE          (%)      (%)          MEAN (%)
*****
1      0.2574  0.2537  0.2536  0.29     0.83     0.2549    0.49
2      0.2605  0.2597  0.2588  0.33     0.31     0.2597    0.19
3      0.2594  0.2596  0.2596  0.04     0.04     0.2595    0.02
4      0.2606  0.2626  0.2654  0.15     0.92     0.2629    0.54
5      0.2593  0.2597  0.2595  0.19     0.0      0.2595    0.05
6      0.2532  0.2538  0.2525  0.40     0.21     0.2532    0.15
7      0.2620  0.2633  0.2611  0.76     0.27     0.2622    0.24
8      0.2638  0.2632  0.2637  0.58     0.0      0.2636    0.14
9      0.0      0.0     0.0     0.0      0.0      0.0       0.0
10     0.2600  0.2620  0.2626  1.39     0.0      0.2615    0.33
11     0.3172  0.2328  0.2510  6.99     16.38    0.2670    9.60
12     0.2805  0.2675  0.2712  0.63     2.43     0.2731    1.41
13     0.2603  0.2597  0.2578  1.32     0.0      0.2593    0.31
14     0.2582  0.2548  0.2571  1.50     0.29     0.2567    0.39
15     0.2583  0.2578  0.2575  0.86     0.0      0.2579    0.20
16     0.2591  0.2595  0.2598  0.54     0.0      0.2595    0.13
17     0.2717  0.2417  0.4050  7.31     28.25    0.3061    16.40
18     0.2805  0.2727  0.2773  1.70     1.24     0.2768    0.82
19     0.2597  0.2590  0.2590  0.55     0.0      0.2592    0.13
20     0.2606  0.2610  0.2610  0.31     0.0      0.2609    0.07
21     0.2594  0.2610  0.2590  0.68     0.31     0.2598    0.24
22     0.0      0.0     0.0     0.0      0.0      0.0       0.0
23     0.2635  0.2615  0.2582  1.23     0.90     0.2611    0.60
24     0.2673  0.2597  0.2579  1.20     1.84     0.2616    1.10
25     0.2708  0.2645  0.2583  1.88     2.23     0.2646    1.36
26     0.2587  0.2588  0.2589  0.13     0.0      0.2588    0.03
27     0.0      0.0     0.0     0.0      0.0      0.0       0.0
28     0.0      0.0     0.0     0.0      0.0      0.0       0.0
29     0.0      0.0     0.0     0.0      0.0      0.0       0.0
30     0.2620  0.2619  0.2598  0.34     0.46     0.2612    0.28
31     0.2607  0.2608  0.2605  0.12     0.02     0.2607    0.03
*****

```

REF.: 1 1 1 4 6 2 8



REFERENCE VALUE 1) = 0.2594 ( \* 100 )  
 +/- 0.0026

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM REF. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	26	0.2608	0.54	2.34	7.27	0.0 <sup>2)</sup>
3	EXTREME LAB MEANS ELIMINATED	17,18, 12	23	0.2598	0.15	1.71	3.57	0.0 <sup>3)</sup>
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	17,18, 12,11, 25	21	0.25975	0.13	0.79	0.56	0.89
5							GRAND MEAN	INTERLAB SPREAD (%)
							0.25970	0.96

**REMARKS:**

- 1) THE CALCULATED DILUTION RATIO IS USED AS REFERENCE VALUE (SEE VOL. II, P.64).
- 2) IN THIS CASE, THE UNCERTAINTY COMPONENT 'BETWEEN LABS' IS NOT SIGNIFICANT; THIS QUANTITY IS MASKED BY THE RELATIVELY HIGH RSD 'RUN' VALUES OF LABORATORIES 11 AND 17.
- 3) IN THIS CASE THE UNCERTAINTY COMPONENT 'BETWEEN LABS' IS NOT SIGNIFICANT; THIS QUANTITY IS MASKED BY THE RELATIVELY HIGH RSD 'RUN' VALUE OF LABORATORY 11.

EVALUATION SHEET 1.6  
=====

SAMPLE RS , URANIUM-235/238 RATIOS

DETERMINED IN PROGRAMME PART 2.2

-----  
COMPILATION OF NUMERICAL DATA  
-----

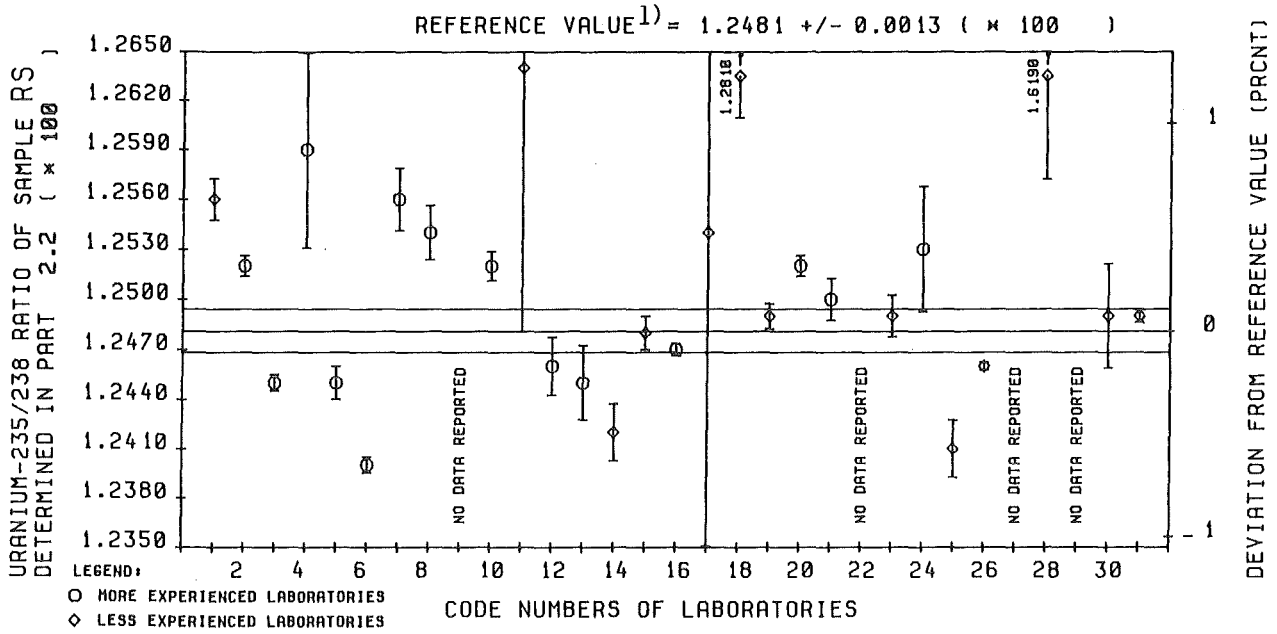
THE RATIOS LISTED HERE MUST BE DEVIDED BY 100.00

```

*****
 1         2         3         4         5         6         7         8
*****
LAB      RUN1      RUN2      RUN3      RSD SCAN      RSD RUN      LAB MEAN      RSD OF LAB
CODE                                           (%)          (%)          MEAN (%)
*****
 1      1.259      1.254      1.256      0.24          0.15          1.256          0.10
 2      1.253      1.251      1.252      0.19          0.02          1.252          0.05
 3      1.244      1.246      1.246      0.14          0.05          1.245          0.04
 4      1.251      1.256      1.271      0.08          0.82          1.259          0.47
 5      1.244      1.243      1.246      0.07          0.13          1.245          0.08
 6      1.239      1.241      1.240      0.11          0.06          1.240          0.04
 7      1.259      1.254      1.253      0.25          0.24          1.256          0.15
 8      1.258      1.253      1.253      0.41          0.15          1.254          0.13
 9      0.0         0.0         0.0         0.0           0.0           0.0           0.0
10      1.252      1.251      1.253      0.30          0.0           1.252          0.07
11      1.293      1.238      1.262      1.54          2.09          1.264          1.26
12      1.248      1.248      1.243      0.15          0.23          1.246          0.14
13      1.245      1.248      1.240      0.70          0.13          1.245          0.18
14      1.242      1.245      1.239      0.45          0.15          1.242          0.14
15      1.248      1.248      1.247      0.36          0.0           1.248          0.08
16      1.247      1.247      1.247      0.13          0.0           1.247          0.03
17      1.238      1.292      1.232      1.78          2.52          1.254          1.51
18      1.282      1.276      1.284      0.58          0.26          1.281          0.20
19      1.249      1.248      1.249      0.24          0.0           1.249          0.06
20      1.252      1.254      1.252      0.19          0.04          1.252          0.05
21      1.252      1.249      1.249      0.42          0.0           1.250          0.10
22      0.0         0.0         0.0         0.0           0.0           0.0           0.0
23      1.247      1.247      1.251      0.33          0.10          1.249          0.10
24      1.260      1.248      1.250      0.65          0.44          1.253          0.30
25      1.244      1.240      1.239      0.61          0.0           1.241          0.14
26      1.247      1.246      1.246      0.04          0.04          1.246          0.02
27      0.0         0.0         0.0         0.0           0.0           0.0           0.0
28      1.609      1.608      1.639      1.66          0.0           1.619          0.39
29      0.0         0.0         0.0         0.0           0.0           0.0           0.0
30      1.247      1.255      1.244      0.35          0.42          1.249          0.25
31      1.249      1.249      1.250      0.12          0.0           1.249          0.03
*****

```

REF.:           1           1           1           4           6           2           8



REFERENCE VALUE<sup>1)</sup> = 1.2481 ( x 100 )  
 +/- 0.0013

1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM REF. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	NONE	27	1.249	0.07	0.82	0.70	5.62
3	28,18	25	1.249	0.07	0.59	0.72	0.18
4	28,18, 17,11	23	1.24883	0.06	0.34	0.23	0.37
5						GRAND MEAN	INTERLAB SPREAD (%)
						1.24891	0.40

REMARKS:

1) THE CALCULATED DILUTION RATIO IS USED AS REFERENCE VALUE (SEE VOL. II, P.64).

EVALUATION SHEET 17  
=====

SAMPLE RS , URANIUM-236/238 RATIOS

DETERMINED IN PROGRAMME PART 2.2

-----  
COMPILATION OF NUMERICAL DATA  
-----

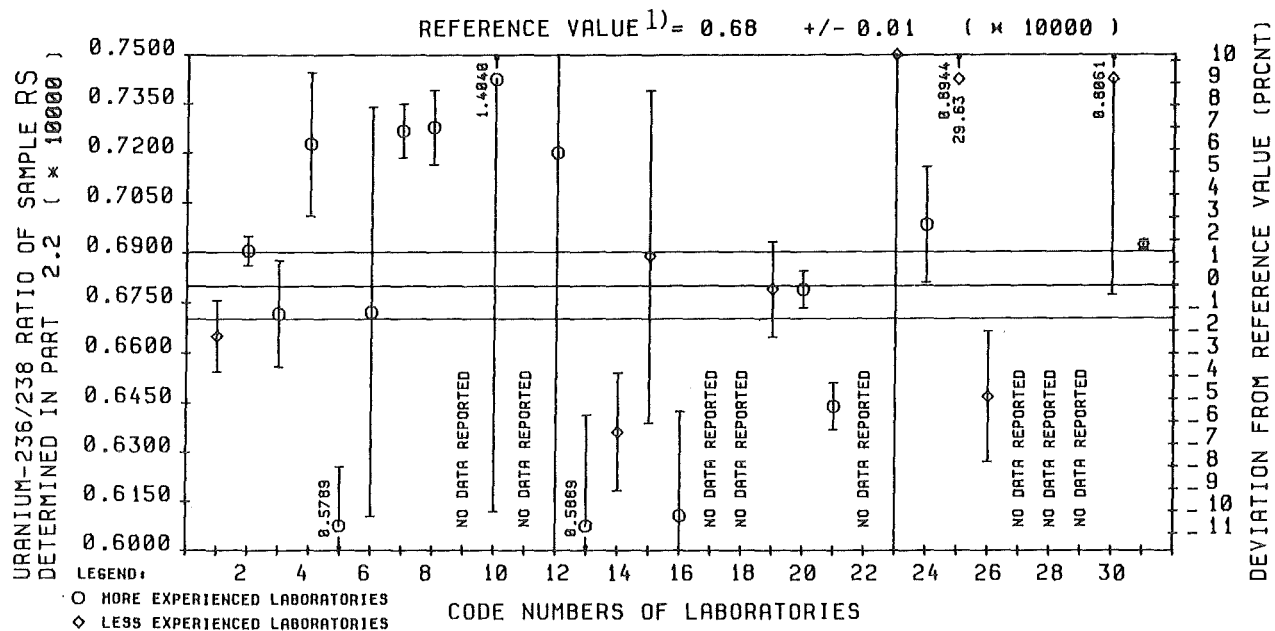
THE RATIOS LISTED HERE MUST BE DEVIDED BY 10000.00

```

*****
1      2      3      4      5      6      7      8
*****
LAB    RUN1   RUN2   RUN3   RSD SCAN  RSD RUN  LAB MEAN  RSD OF LAB
CODE                                     (%)      (%)                                     MEAN (%)
*****
1      0.6450  0.6817  0.6683  3.04     2.50     0.6650   1.61
2      0.6817  0.6950  0.6950  1.17     1.01     0.6906   0.64
3      0.6733  0.6983  0.6433  0.72     4.09     0.6717   2.37
4      0.6800  0.7367  0.7517  4.32     4.92     0.7228   3.02
5      0.5583  0.6150  0.5633  3.61     5.21     0.5789   3.13
6      0.7500  0.7167  0.5500  14.29    14.83    0.6722   9.20
7      0.7283  0.7400  0.7117  2.65     1.63     0.7267   1.13
8      0.7333  0.7167  0.7333  6.64     0.0      0.7278   1.56
9      0.0      0.0      0.0      0.0      0.0      0.0      0.0
10     1.507    1.562    1.145    20.88    13.68    1.404    9.31
11     0.0      0.0      0.0      0.0      0.0      0.0      0.0
12     0.9417  0.6983  0.5200  15.11    18.74    0.7200   16.97
13     0.6500  0.5333  0.5833  22.21    4.07     0.5889   5.74
14     0.6717  0.6217  0.6150  10.12    2.58     0.6361   2.81
15     0.7833  0.6500  0.6333  30.83    0.0      0.6889   7.27
16     0.5850  0.5883  0.6583  22.07    0.0      0.6106   5.20
17     0.0      0.0      0.0      0.0      0.0      0.0      0.0
18     0.0      0.0      0.0      0.0      0.0      0.0      0.0
19     0.6900  0.6800  0.6667  8.93     0.0      0.6789   2.10
20     0.6717  0.6883  0.6767  3.46     0.0      0.6789   0.82
21     0.6417  0.6550  0.6350  4.67     0.0      0.6439   1.10
22     0.0      0.0      0.0      0.0      0.0      0.0      0.0
23     1.033    0.7000  0.5167  16.92    34.23    0.7500   20.16
24     0.7300  0.6950  0.6700  3.04     4.13     0.6983   2.49
25     1.367    0.4500  0.8667  66.34    43.58    0.8944   29.63
26     0.6083  0.6583  0.6733  2.79     5.14     0.6467   3.04
27     0.0      0.0      0.0      0.0      0.0      0.0      0.0
28     0.0      0.0      0.0      0.0      0.0      0.0      0.0
29     0.0      0.0      0.0      0.0      0.0      0.0      0.0
30     0.6817  0.9033  0.8333  10.52    13.38    0.8061   8.12
31     0.6917  0.6917  0.6933  0.83     0.0      0.6922   0.20
*****

```

REF.: 1 1 1 4 6 2 8



REFERENCE VALUE 1) = 0.68 +/- 0.01 ( x 10000 )

1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM REF. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	NONE	23	0.6889	1.31	13.89	12.08	19.94
3	10	22	0.6839	0.57	11.89	11.84	4.32
4	10	22	0.6839	0.57	11.89	11.84	4.32
5						GRAND MEAN	INTERLAB SPREAD (%)
						0.69044	8.56

REMARKS:

1) THE CALCULATED DILUTION RATIO IS USED AS REFERENCE VALUE (SEE VOL. II, P.64).

EVALUATION SHEET 18  
=====

SAMPLE SUP , URANIUM-234/233 RATIOS

DETERMINED IN PROGRAMME PART 2.3

-----  
COMPILATION OF NUMERICAL DATA  
-----

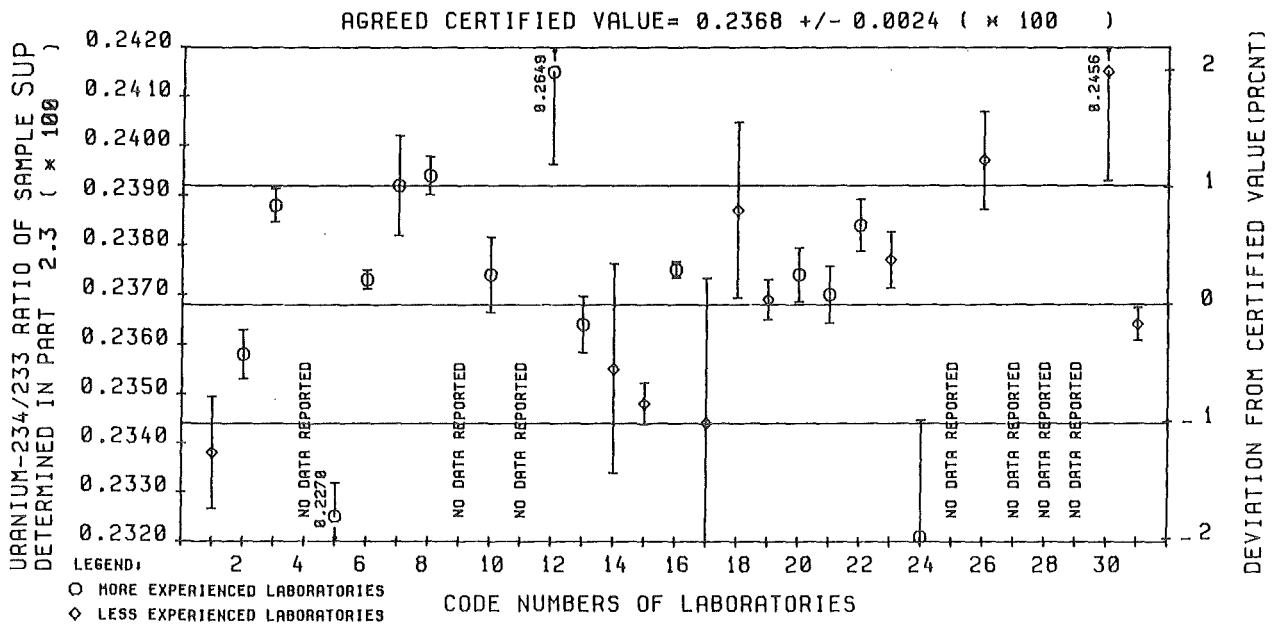
THE RATIOS LISTED HERE MUST BE DEVIDED BY 100.00

```

*****
1      2      3      4      5      6      7      8
*****
LAB    RUN1   RUN2   RUN3   RSD SCAN  RSD RUN  LAB MEAN  RSD OF LAB
CODE                                     (%)      (%)      MEAN (%)
*****
1      0.2326  0.2361  0.2326  0.42     0.83     0.2338   0.49
2      0.2367  0.2354  0.2351  0.57     0.28     0.2358   0.21
3      0.2385  0.2389  0.2391  0.59     0.0      0.2388   0.14
4      0.0      0.0     0.0     0.0      0.0      0.0      0.0
5      0.2263  0.2284  0.2264  0.25     0.50     0.2270   0.30
6      0.2373  0.2370  0.2377  0.24     0.10     0.2373   0.08
7      0.2382  0.2382  0.2412  1.48     0.39     0.2392   0.42
8      0.2398  0.2398  0.2387  0.42     0.22     0.2394   0.16
9      0.0      0.0     0.0     0.0      0.0      0.0      0.0
10     0.2378  0.2370  0.2374  1.36     0.0      0.2374   0.32
11     0.0      0.0     0.0     0.0      0.0      0.0      0.0
12     0.2611  0.2671  0.2664  0.39     1.22     0.2649   0.71
13     0.2360  0.2357  0.2375  0.79     0.26     0.2364   0.24
14     0.2373  0.2378  0.2312  1.82     1.38     0.2355   0.90
15     0.2350  0.2347  0.2348  0.75     0.0      0.2348   0.18
16     0.2373  0.2374  0.2379  0.18     0.10     0.2375   0.07
17     0.2300  0.2333  0.2400  1.27     2.11     0.2344   1.25
18     0.2395  0.2400  0.2365  3.14     0.0      0.2387   0.74
19     0.2366  0.2365  0.2377  0.37     0.25     0.2369   0.17
20     0.2364  0.2381  0.2377  0.53     0.33     0.2374   0.23
21     0.2368  0.2365  0.2376  1.00     0.0      0.2370   0.24
22     0.2387  0.2376  0.2388  0.94     0.0      0.2384   0.22
23     0.2372  0.2385  0.2373  1.01     0.0      0.2377   0.24
24     0.2308  0.2289  0.2367  0.91     1.72     0.2321   1.02
25     0.0      0.0     0.0     0.0      0.0      0.0      0.0
26     0.2401  0.2411  0.2378  0.06     0.72     0.2397   0.41
27     0.0      0.0     0.0     0.0      0.0      0.0      0.0
28     0.0      0.0     0.0     0.0      0.0      0.0      0.0
29     0.0      0.0     0.0     0.0      0.0      0.0      0.0
30     0.2475  0.2481  0.2412  1.02     1.50     0.2456   0.90
31     0.2361  0.2370  0.2360  0.60     0.0      0.2364   0.14
*****

```

REF.: 1 1 1 4 6 2 8



AGREED CERTIFIED VALUE= 0.2368 ( x 100 )  
 +/- 0.0024

1	2	3	4	5	6	7	8	
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)	
2	ALL DATA	NONE	24	0.2374	0.23	1.06	0.75	2.73
3	EXTREME LAB MEANS ELIMINATED	12	23	0.2373	0.21	1.09	0.72	1.34
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	12	23	0.2373	0.21	1.09	0.72	1.34
5						GRAND MEAN	INTERLAB SPREAD (%)	
						0.23683	1.43	

REMARKS:



EVALUATION SHEET 19

=====

SAMPLE SUP , URANIUM-235/233 RATIOS

DETERMINED IN PROGRAMME PART 2.3

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE RATIOS LISTED HERE MUST BE DEVIDED BY 1000.00

```

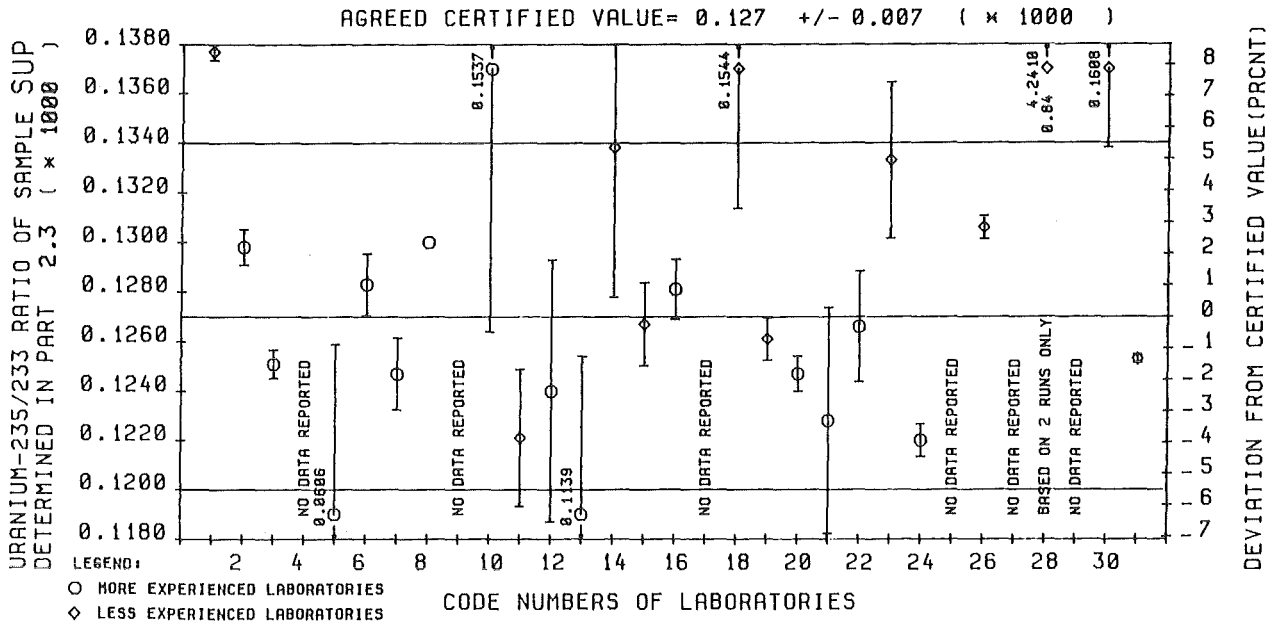
*****
 1         2         3         4         5         6         7         8
*****
LAB      RUN1      RUN2      RUN3      RSD SCAN  RSD RUN  LAB MEAN  RSD OF LAB
CODE                                (%)        (%)                                MEAN (%)
*****
 1      0.1380    0.1377    0.1375    1.04      0.0      0.1377    0.25
 2      0.1300    0.1307    0.1287    2.38      0.0      0.1298    0.56
 3      0.1240    0.1252    0.1260    0.19      0.80     0.1251    0.46
 4      0.0       0.0       0.0       0.0       0.0      0.0       0.0
 5      0.0482    0.0720    0.0617    2.77     19.69    0.0606   11.38
 6      0.1300    0.1267    0.1283    4.11      0.0      0.1283    0.97
 7      0.1248    0.1247    0.1245    4.98      0.0      0.1247    1.17
 8      0.1300    0.1300    0.1300    0.0       0.0      0.1300    0.0
 9      0.0       0.0       0.0       0.0       0.0      0.0       0.0
10     0.1507    0.1460    0.1643   29.25     0.0      0.1537    6.90
11     0.1207    0.1275    0.1182    2.60     3.81     0.1221    2.28
12     0.1265    0.1317    0.1138    3.30     7.28     0.1240    4.27
13     0.1067    0.1267    0.1083    8.93     9.04     0.1139    5.63
14     0.1403    0.1393    0.1218    9.44     6.75     0.1338    4.49
15     0.1283    0.1233    0.1283    3.53     1.77     0.1267    1.32
16     0.1287    0.1273    0.1283    4.05     0.0      0.1281    0.95
17     0.0       0.0       0.0       0.0       0.0      0.0       0.0
18     0.1433    0.1617    0.1583    9.60     4.96     0.1544    3.65
19     0.1270    0.1268    0.1243    2.19     0.78     0.1261    0.68
20     0.1250    0.1253    0.1238    2.40     0.0      0.1247    0.57
21     0.1150    0.1308    0.1225    6.51     5.88     0.1228    3.72
22     0.1287    0.1222    0.1290    5.40     2.10     0.1266    1.76
23     0.1367    0.1300    0.1333   10.00     0.0      0.1333    2.36
24     0.1232    0.1220    0.1208    1.96     0.52     0.1220    0.55
25     0.0       0.0       0.0       0.0       0.0      0.0       0.0
26     0.1297    0.1312    0.1310    0.63     0.57     0.1306    0.36
27     0.0       0.0       0.0       0.0       0.0      0.0       0.0
28     4.2210    4.2600    -         2.911)  0.01)  4.24101)  0.841)
29     0.0       0.0       0.0       0.0       0.0      0.0       0.0
30     0.1632    0.1648    0.1545    3.59     3.12     0.1608    1.99
31     0.1250    0.1255    0.1255    0.55     0.06     0.1253    0.13
*****

```

REF.:           1           1           1           4           6           2           8

REMARKS:

1) Based on data of runs 1 and 2 only.



AGREED CERTIFIED VALUE= 0.127 ( x 1000 )  
 +/- 0.007

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	28	24	0.1267	-0.24	8.76	2.80	13.90
3	EXTREME LAB MEANS ELIMINATED	28,5	23	0.1267	-0.24	8.75	2.04	8.31
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	28,5	23	0.1267	-0.24	8.75	2.04	8.31
5							GRAND MEAN	INTERLAB SPREAD (%)
							0.13063	8.64

REMARKS:

- LABORATORY 28 REPORTED SCAN DATA OF ONLY TWO RUNS; THEREFORE, IT HAS NOT BEEN CONSIDERED IN THESE CALCULATIONS.

EVALUATION SHEET 20

=====

SAMPLE SUP , URANIUM-238/233 RATIOS

DETERMINED IN PROGRAMME PART 2.3

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE RATIOS LISTED HERE MUST BE DEVIDED BY 1000.00

```

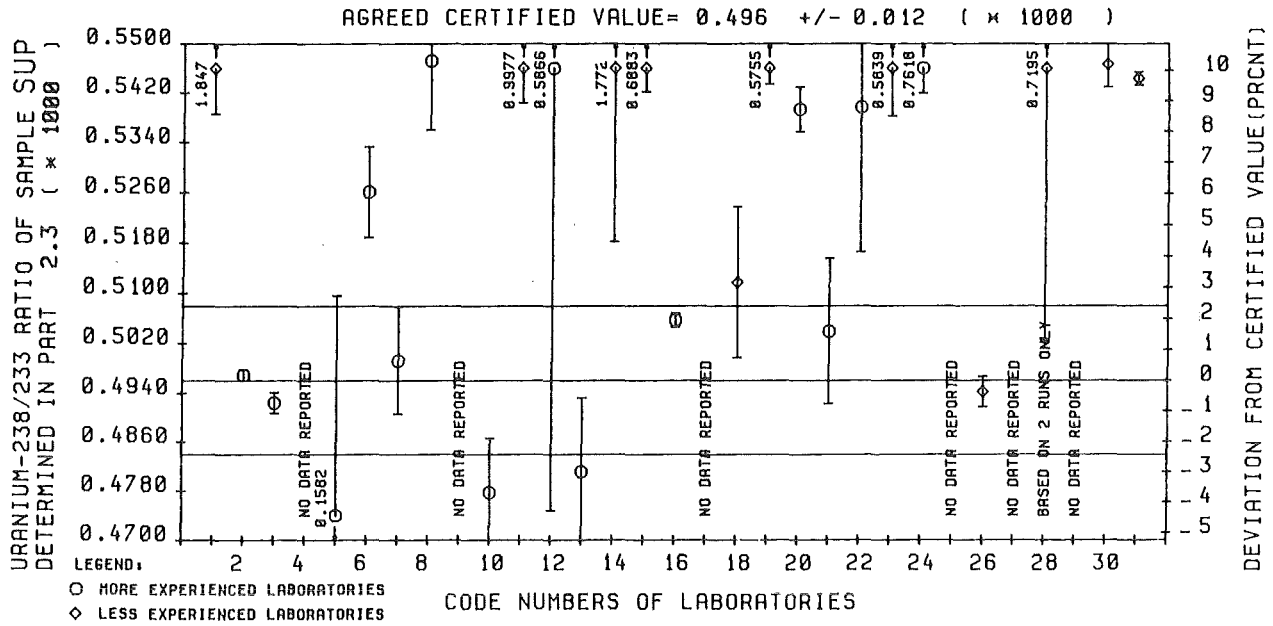
*****
1      2      3      4      5      6      7      8
*****
LAB    RUN1   RUN2   RUN3   RSD SCAN  RSD RUN  LAB MEAN  RSD OF LAB
CODE                                     (%)      (%)      MEAN (%)
*****
1      1.834   1.859   1.849   0.31      0.67      1.847      0.40
2      0.4972  0.4963  0.4972  0.75      0.0       0.4969      0.18
3      0.4893  0.4927  0.4953  0.10      0.61      0.4924      0.35
4      0.0      0.0     0.0     0.0       0.0       0.0         0.0
5      0.0960  0.2193  0.1592  4.21      38.95     0.1582      22.51
6      0.5383  0.5267  0.5133  1.34      2.31      0.5261      1.37
7      0.4932  0.4942  0.5103  7.32      0.0       0.4992      1.73
8      0.5300  0.5433  0.5683  1.35      3.51      0.5472      2.05
9      0.0      0.0     0.0     0.0       0.0       0.0         0.0
10     0.4735  0.4870  0.4727  7.91      0.0       0.4777      1.86
11     0.9915  1.0090  0.9927  0.66      0.94      0.9977      0.57
12     0.7227  0.5547  0.4823  1.68      21.01     0.5866      12.14
13     0.4617  0.5033  0.4783  2.99      4.18      0.4811      2.52
14     1.793   1.806   1.717   4.26      2.08      1.772       1.57
15     0.6950  0.6817  0.6883  0.67      0.93      0.6883      0.56
16     0.5075  0.5047  0.5050  0.91      0.0       0.5057      0.22
17     0.0      0.0     0.0     0.0       0.0       0.0         0.0
18     0.4883  0.5183  0.5283  3.86      3.75      0.5117      2.35
19     0.5738  0.5807  0.5720  0.96      0.69      0.5755      0.46
20     0.5368  0.5465  0.5345  1.98      0.86      0.5393      0.68
21     0.4870  0.4985  0.5262  3.42      3.74      0.5039      2.31
22     0.5372  0.5807  0.5010  2.40      7.33      0.5396      4.27
23     0.5900  0.5933  0.5683  2.80      2.02      0.5839      1.34
24     0.7692  0.7612  0.7550  1.31      0.76      0.7618      0.54
25     0.0      0.0     0.0     0.0       0.0       0.0         0.0
26     0.4990  0.4908  0.4927  0.30      0.86      0.4942      0.50
27     0.0      0.0     0.0     0.0       0.0       0.0         0.0
28     0.6872  0.7517  -        14.031)  6.351)  0.71951)  6.051)
29     0.0      0.0     0.0     0.0       0.0       0.0         0.0
30     0.5538  0.5413  0.5447  1.62      0.98      0.5466      0.68
31     0.5428  0.5465  0.5437  0.60      0.25      0.5443      0.20
*****

```

REF.: 1 1 1 4 6 2 8

REMARKS:

1) Based on data of runs 1 and 2 only.

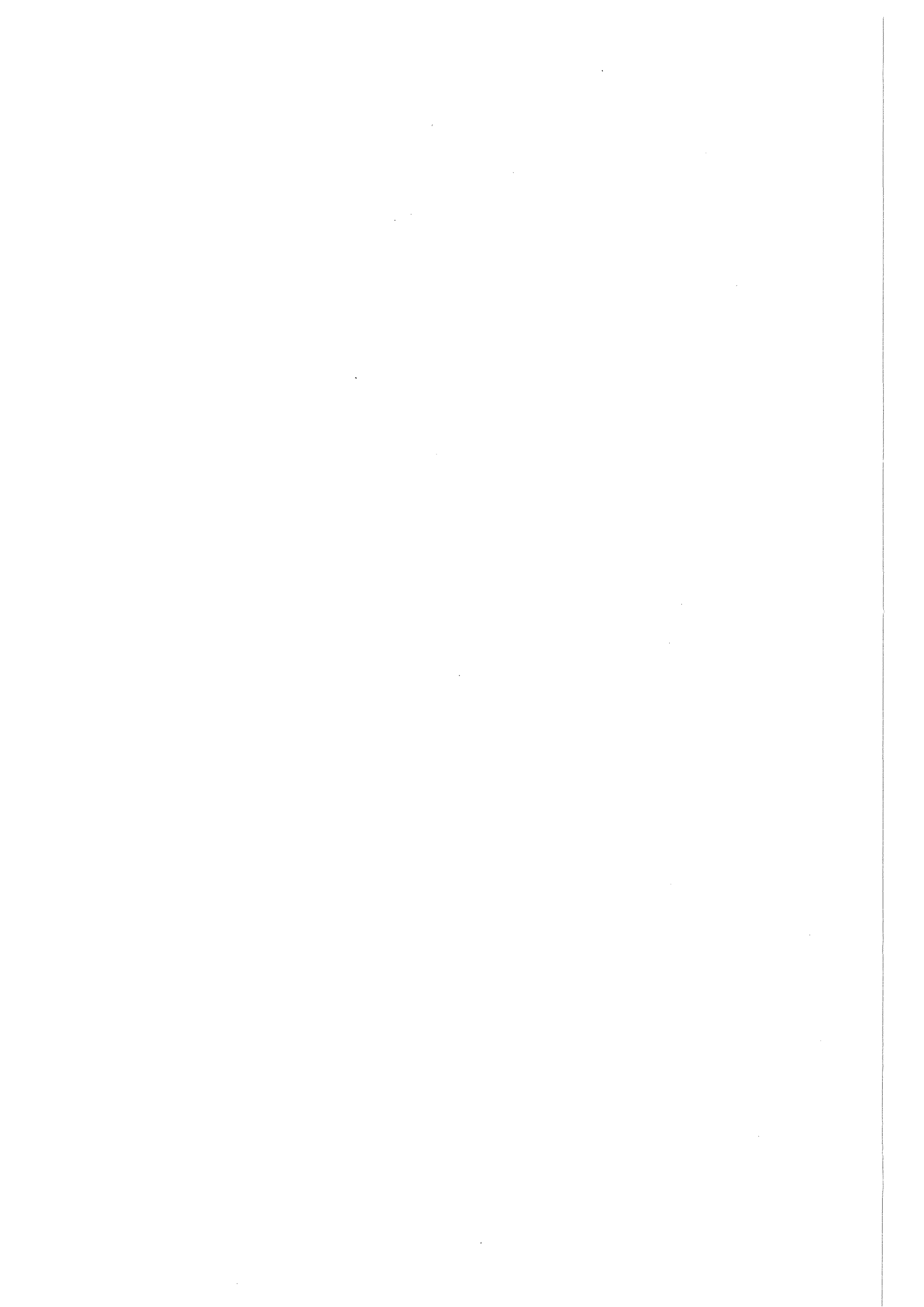


AGREED CERTIFIED VALUE= 0.496 ( x 1000 )  
 +/- 0.012

1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	28	0.5395	8.77	3.17	4.77	58.53
3	EXTREME LAB MEANS ELIMINATED	28,14,5, 11,1,24,15	0.5087	2.56	3.04	6.08	5.50
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	28,14,5, 11,1,24, 15,12	0.5117	3.17	3.11	2.61	5.87
5						GRAND MEAN INTERLAB SPREAD (%)	
						0.52149	6.10

**REMARKS:**

- LABORATORY 28 REPORTED SCAN DATA OF ONLY TWO RUNS; THEREFORE, IT HAS NOT BEEN CONSIDERED IN THESE CALCULATIONS.



3.2.2 Plutonium

(Evaluation sheets 21 to 44)

EVALUATION SHEET 21  
=====

SAMPLE AS , PLUTONIUM-240/239 RATIOS  
DETERMINED IN PROGRAMME PART 1.3

-----  
COMPILATION OF NUMERICAL DATA  
-----

```

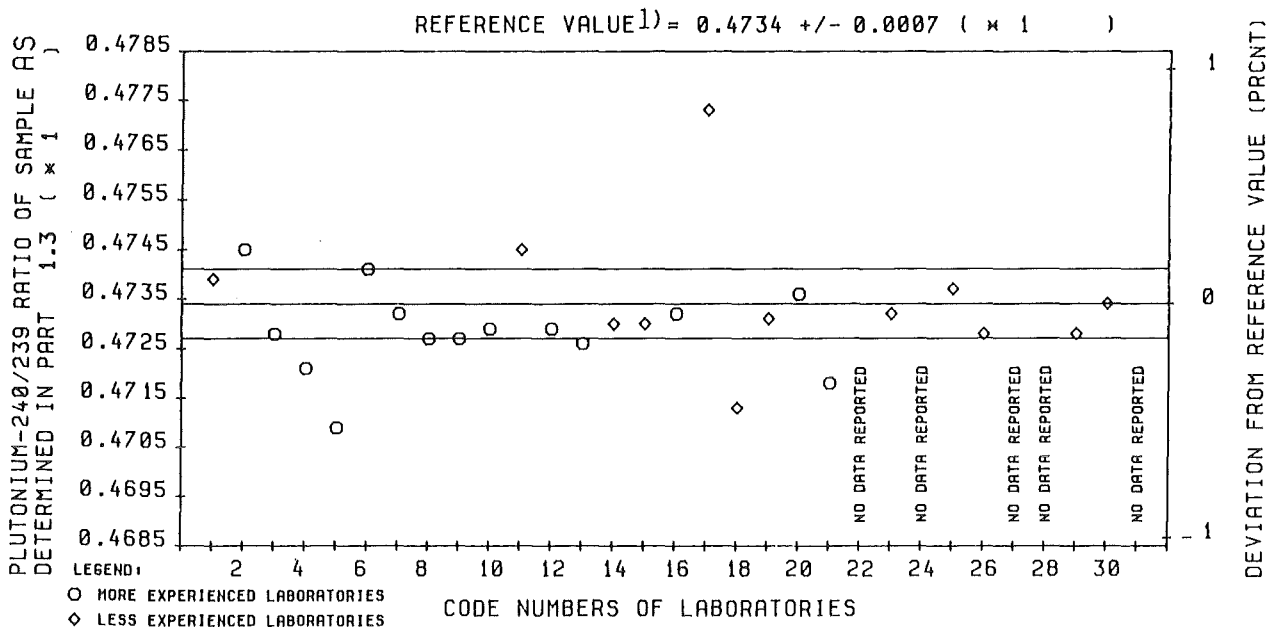
*****
1      2 1)  3 2)  4 2)  5 3)  6 3)  7 3)  8 3)
*****
LAB    RUN1  RUN2  RUN3  RSD SCAN  RSD RUN  LAB MEAN  RSD OF LAB
CODE   (%)   (%)   (%)   (%)   (%)   (%)   (%)   (%)
*****
1      0.4739 0.4700 0.4703  0.20  0.0   0.4702  0.06
2      0.4745 0.4703 0.4711  0.25  0.07  0.4707  0.09
3      0.4728 0.4713 0.4711  0.04  0.01  0.4712  0.01
4      0.4721 0.4699 0.4708  0.06  0.14  0.4703  0.10
5      0.4709 0.4620 0.4656  0.47  0.50  0.4638  0.38
6      0.4741 0.4709 0.4707  0.19  0.0   0.4708  0.06
7      0.4732 0.4712 0.4716  0.13  0.03  0.4714  0.04
8      0.4727 0.4703 0.4692  0.27  0.13  0.4698  0.12
9      0.4727 0.4706 0.4700  0.17  0.05  0.4703  0.06
10     0.4729 0.4712 0.4711  0.03  0.0   0.4712  0.01
11     0.4745 0.4658 0.4693  0.85  0.40  0.4676  0.37
12     0.4729 0.4698 0.4715  0.18  0.24  0.4706  0.18
13     0.4726 0.4705 0.4735  0.51  0.40  0.4720  0.32
14     0.4730 0.4697 0.4740  0.05  0.64  0.4718  0.45
15     0.4730 0.4709 0.4710  0.23  0.0   0.4709  0.07
16     0.4732 0.4706 0.4705  0.04  0.0   0.4706  0.01
17     0.4773 0.4704 0.4709  0.17  0.04  0.4707  0.06
18     0.4713 0.4688 0.4676  0.21  0.16  0.4682  0.13
19     0.4731 0.4701 0.4716  0.05  0.23  0.4709  0.16
20     0.4736 0.4713 0.4720  0.07  0.10  0.4717  0.07
21     0.4718 0.4712 0.4716  0.18  0.0   0.4714  0.05
22     0.0    0.0    0.0    0.0   0.0   0.0    0.0
23     0.4732 0.4713 0.4714  0.04  0.01  0.4714  0.01
24     0.0    0.0    0.0    0.0   0.0   0.0    0.0
25     0.4737 0.4707 0.4700  0.10  0.10  0.4704  0.07
26     0.4728 0.4712 0.4710  0.01  0.03  0.4711  0.02
27     0.0    0.0    0.0    0.0   0.0   0.0    0.0
28     0.0    0.0    0.0    0.0   0.0   0.0    0.0
29     0.4728 0.4701 0.4698  0.08  0.03  0.4699  0.03
30     0.4734 0.4700 0.4712  0.07  0.17  0.4706  0.12
31     0.0    0.0    0.0    0.0   0.0   0.0    0.0
*****

```

REF.:           1           1           1           38           39           37           41

REMARKS:

- 1) Data concern all laboratory measurements on samples of 'spiking I'.
- 2) Data concern measurements on samples of 'spiking II', 'IV' or 'VI', depending on the subgroup to which the laboratory belongs (see Eval. Sheets 21-II, 21-IV and 21-VI).
- 3) Data are based on runs 2 and 3 (columns 3 and 4).



REFERENCE VALUE<sup>1)</sup> = 0.4734 ( x 1 )  
 +/- 0.0007

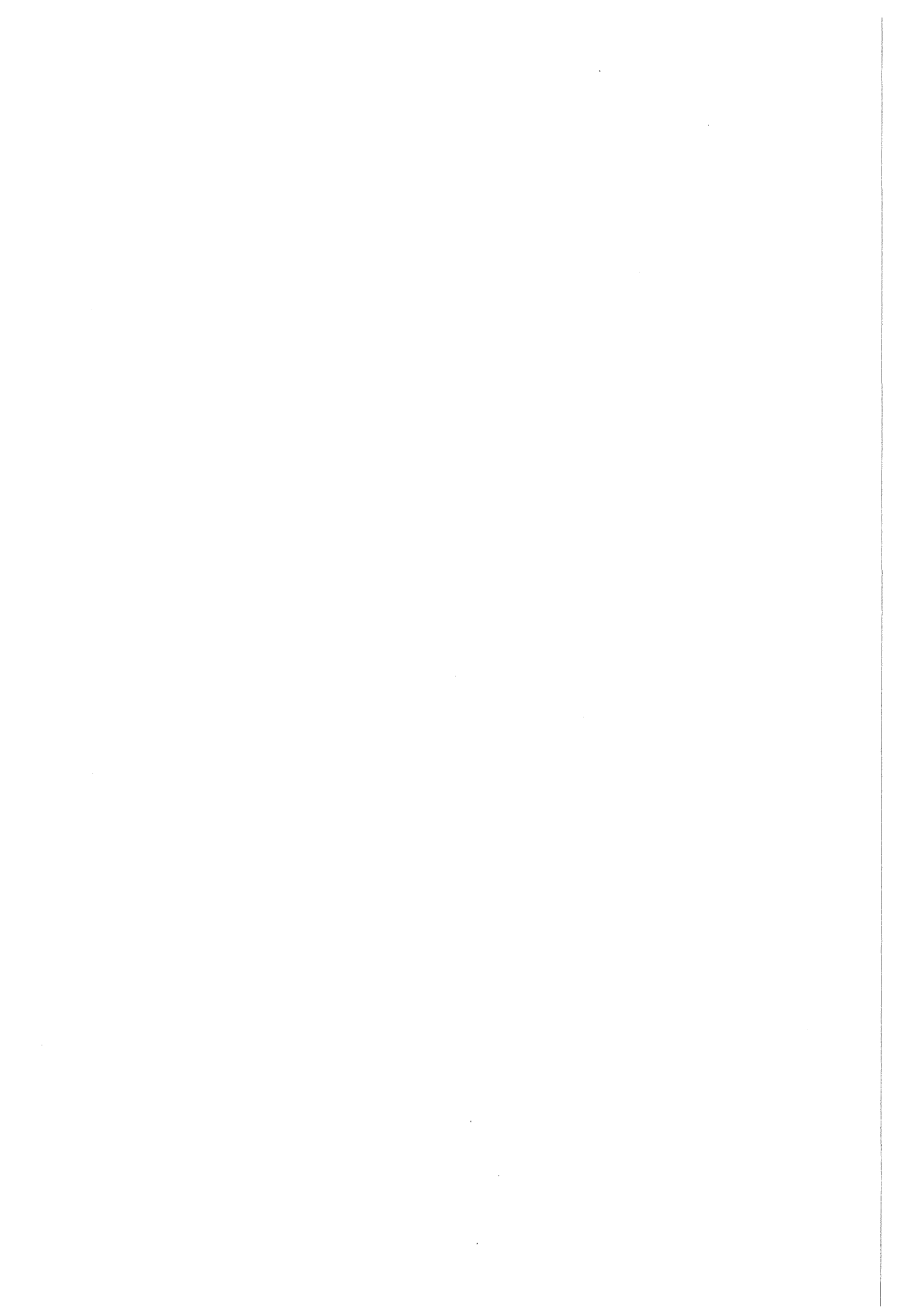
	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM REF. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	26	0,4730	-0,08	-	-	-
3	EXTREME LAB MEANS ELIMINATED	17	25	0,4730	-0,08	-	-	-
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	17	25	0,4730	-0,08	-	-	-
5							GRAND MEAN	INTERLAB SPREAD (%)
							0,47299	0,18

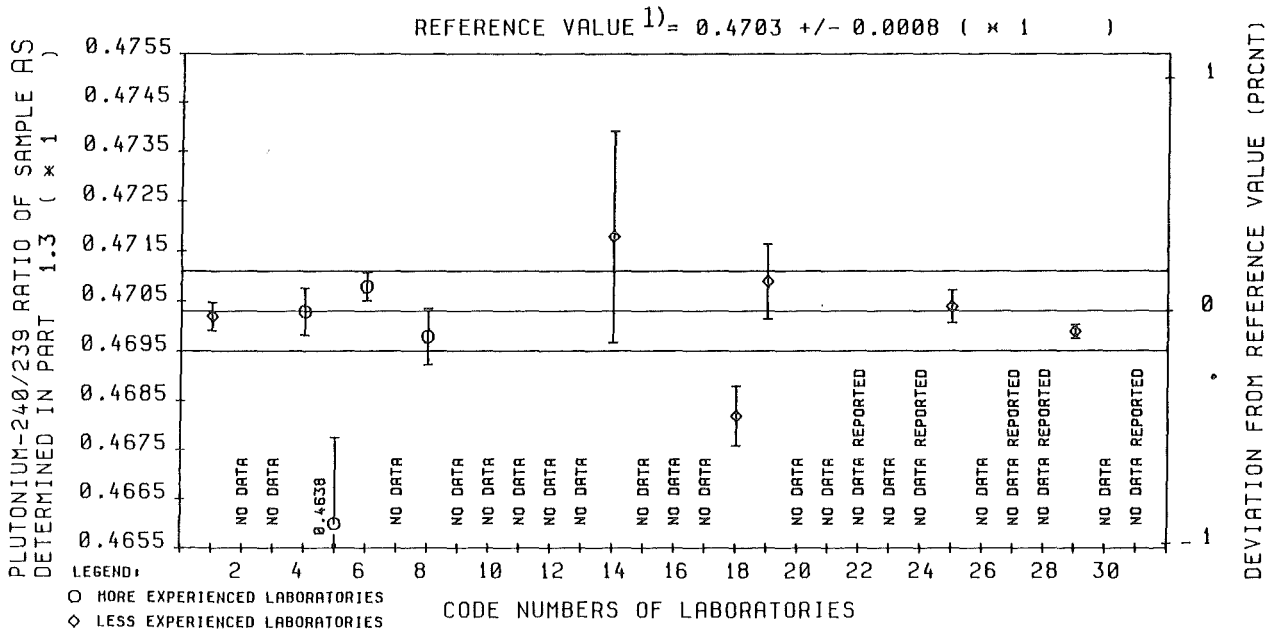
REMARKS:

- 1) THE CALCULATED DILUTION RATIO IS USED AS REFERENCE VALUE (SEE VOL. II, P.70).
- 2) SINCE SCAN DATA OF ONLY ONE RUN WERE AVAILABLE (COLUMN 2 OF THE 'COMPILATION OF NUMERICAL DATA'), NO UNCERTAINTY BARS ARE PRESENTED IN THE GRAPH AND NO ESTIMATES OF UNCERTAINTY COMPONENTS ARE GIVEN IN THE TABLE.

EVALUATION SHEET 21-1 : SAMPLE AS, PLUTONIUM-240/239 RATIOS DETERMINED IN PART 1.3 THE SAMPLE OF SPIKING I







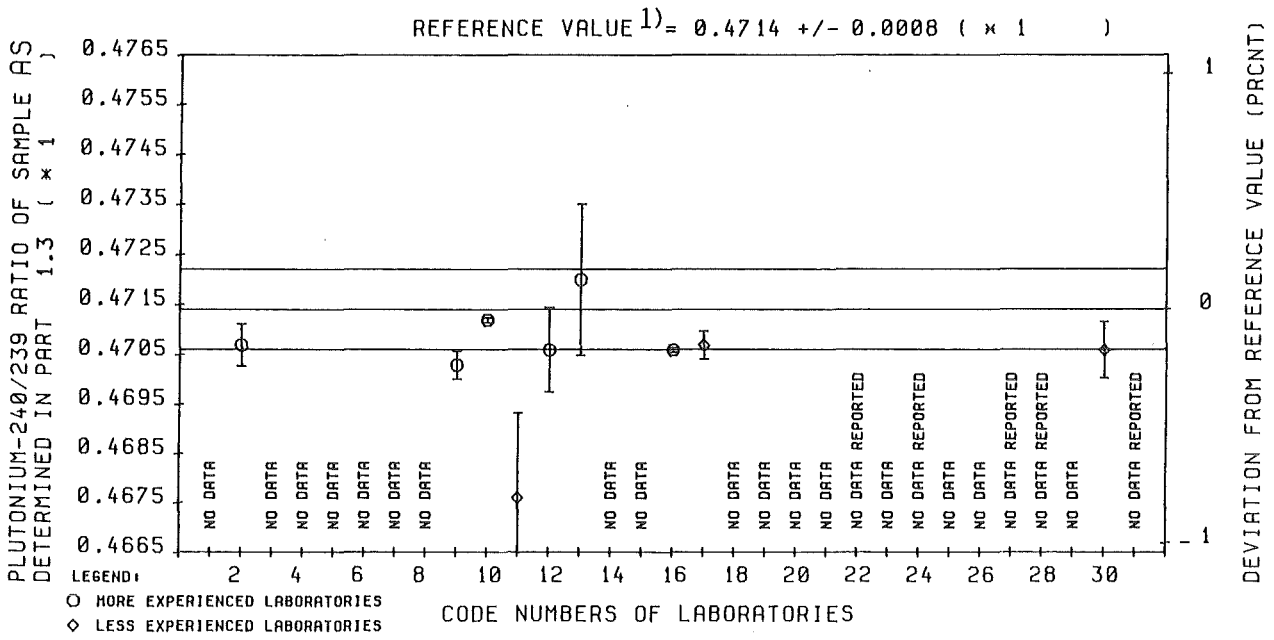
REFERENCE VALUE <sup>1)</sup> = 0.4703 ( x 1 )  
 +/- 0.0008

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM REF. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	10	0.47035	0.01	0.21	0.28	0.44
3	EXTREME LAB MEANS ELIMINATED	5	9	0.4703	0.0	0.16	0.25	0.11
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	5,14	8	0.47025	-0.01	0.17	0.12	0.15
5							GRAND MEAN	INTERLAB SPREAD (%)
							0.47006	0.18

REMARKS:

- 1) THE CALCULATED DILUTION RATIO IS USED AS REFERENCE VALUE (SEE VOL.II, P.71).
- 2) THE ENTRY 'NO DATA' IN THE GRAPH INDICATES THAT THE LABORATORY WAS NOT REQUESTED TO MEASURE THE SAMPLE.
- 3) THE ESTIMATES OF UNCERTAINTY COMPONENTS GIVEN IN THE TABLE ARE BASED ON RUNS 2 AND 3 ONLY (COLUMNS 3 AND 4 OF THE 'COMPILATION OF NUMERICAL DATA').

EVALUATION SHEET 21-II : SAMPLE AS, PLUTONIUM-240/239 RATIOS DETERMINED IN PART 1.3 THE TWO SAMPLES OF SPIKING II



REFERENCE VALUE<sup>1)</sup> = 0.4714 ( x 1 )  
 +/- 0.0008

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM REF. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	9	0.4706	-0.17	0.36	0.22	0.18
3	EXTREME LAB MEANS ELIMINATED	11	8	0.47065	-0.16	0.24	0.18	0.0
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	11	8	0.47065	-0.16	0.24	0.18	0.0
5							GRAND MEAN	INTERLAB SPREAD (%)
							0.47084	0.11

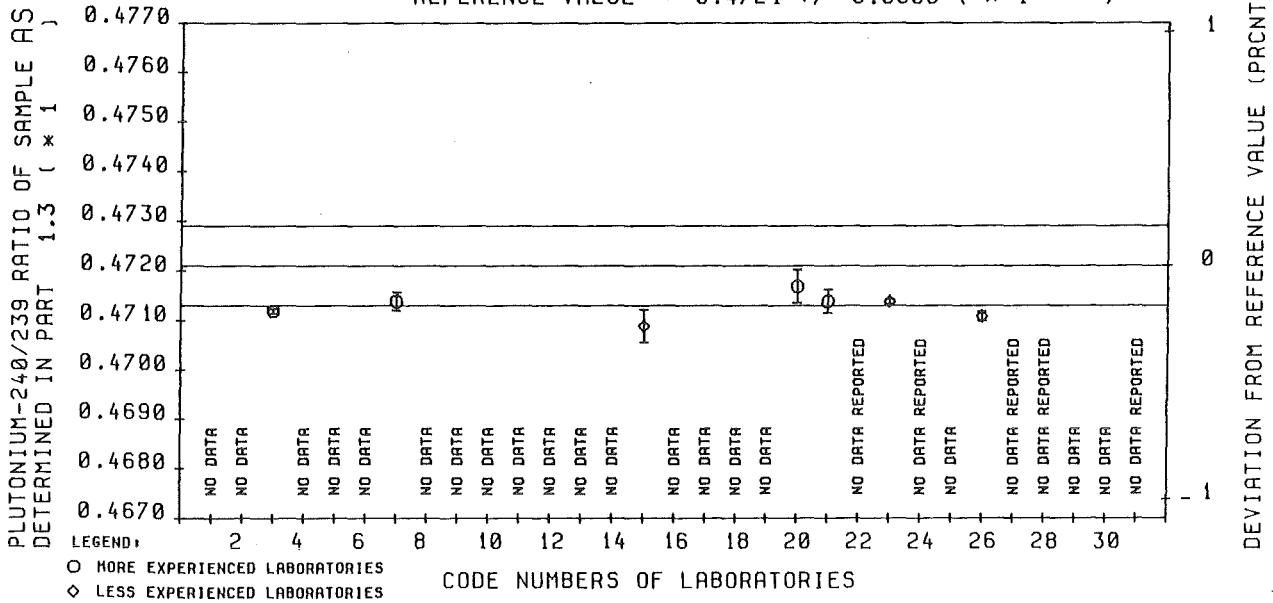
REMARKS:

- 1) THE CALCULATED DILUTION RATIO IS USED AS REFERENCE VALUE (SEE VOL.II, P.72).
- 2) THE ENTRY 'NO DATA' IN THE GRAPH INDICATES THAT THE LABORATORY WAS NOT REQUESTED TO MEASURE THE SAMPLE.
- 3) THE ESTIMATES OF UNCERTAINTY COMPONENTS GIVEN IN THE TABLE ARE BASED ON RUNS 2 AND 3 ONLY (COLUMNS 3 AND 4 OF THE 'COMPILATION OF NUMERICAL DATA').

EVALUATION SHEET 21-IV:

SAMPLE AS, PLUTONIUM-240/239 RATIOS DETERMINED IN PART 1.3 THE TWO SAMPLES OF SPIKING IV

REFERENCE VALUE<sup>1)</sup> = 0.4721 +/- 0.0008 ( x 1 )



REFERENCE VALUE<sup>1)</sup> = 0.4721 ( x 1 )  
 +/- 0.0008

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM REF. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	7	0.47136	-0.16	0.13	0.02	0.04
3	EXTREME LAB MEANS ELIMINATED	NONE	7	0.47136	-0.16	0.13	0.02	0.04
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	NONE	7	0.47136	-0.16	0.13	0.02	0.04
5							GRAND MEAN	INTERLAB SPREAD (%)
							0.47129	0.05

REMARKS:

- 1) THE CALCULATED DILUTION RATIO IS USED AS REFERENCE VALUE (SEE VOL. II, P.73).
- 2) THE ENTRY 'NO DATA' IN THE GRAPH INDICATES THAT THE LABORATORY WAS NOT REQUESTED TO MEASURE THE SAMPLE.
- 3) THE ESTIMATES OF UNCERTAINTY COMPONENTS GIVEN IN THE TABLE ARE BASED ON RUNS 2 AND 3 ONLY (COLUMNS 3 AND 4 OF THE 'COMPILATION OF NUMERICAL DATA').

EVALUATION SHEET 21-VI : SAMPLE AS, PLUTONIUM-240/239 RATIOS DETERMINED IN PART 1.3 THE TWO SAMPLES OF SPIKING VI

EVALUATION SHEET 22

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SAMPLE AS , PLUTONIUM-241/239 RATIOS

DETERMINED IN PROGRAMME PART 1.3

-----  
COMPILATION OF NUMERICAL DATA  
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THE RATIOS LISTED HERE MUST BE DEVIDED BY 10.00

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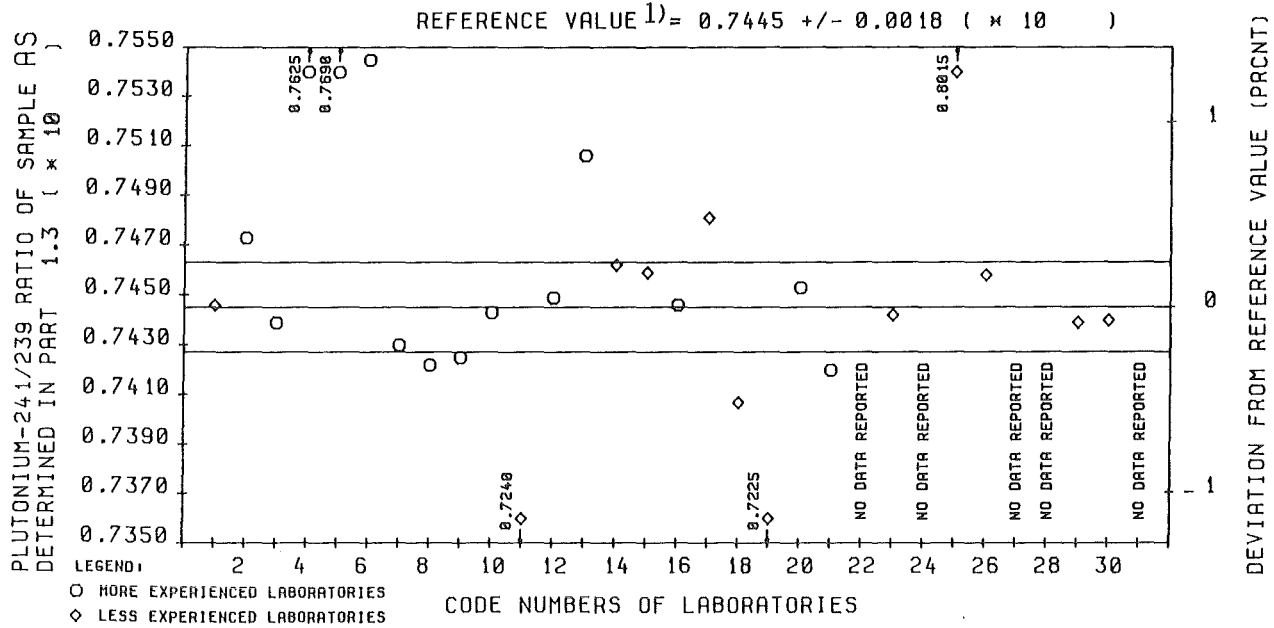
*****
1      2 1)   3 2)   4 2)   5 3)   6 3)   7 3)   8 3)
*****
LAB    RUN1   RUN2   RUN3   RSD SCAN   RSD RUN   LAB MEAN   RSD OF LAB
CODE                                (%)         (%)                                MEAN (%)
*****
1      0.7446  0.7392  0.7389   0.16      0.0      0.7390     0.05
2      0.7473  0.7388  0.7380   0.20      0.0      0.7384     0.06
3      0.7439  0.7393  0.7389   0.06      0.02     0.7391     0.02
4      0.7625  0.7373  0.7394   0.10      0.19     0.7384     0.14
5      0.7690  0.7374  0.7636   1.16     2.42     0.7505     1.74
6      0.7545  0.7457  0.7451   0.19      0.0      0.7454     0.06
7      0.7430  0.7401  0.7427   0.29      0.22     0.7414     0.18
8      0.7422  0.7345  0.7352   0.46      0.0      0.7348     0.13
9      0.7425  0.7366  0.7355   0.34      0.0      0.7361     0.10
10     0.7443  0.7423  0.7429   0.16      0.0      0.7426     0.05
11     0.7240  0.7143  0.7192   1.26      0.0      0.7167     0.36
12     0.7449  0.7381  0.7404   0.36     0.17     0.7392     0.16
13     0.7506  0.7354  0.7389   1.76      0.0      0.7371     0.51
14     0.7462  0.7286  0.7349   0.25     0.60     0.7318     0.43
15     0.7459  0.7376  0.7415   1.17      0.0      0.7396     0.34
16     0.7446  0.7389  0.7396   0.11     0.04     0.7392     0.04
17     0.7481  0.7326  0.7383   0.19     0.54     0.7355     0.38
18     0.7407  0.7364  0.7339   0.31     0.21     0.7352     0.17
19     0.7225  0.7173  0.7147   0.43     0.18     0.7160     0.18
20     0.7453  0.7389  0.7399   0.15     0.08     0.7394     0.07
21     0.7420  0.7377  0.7395   0.26     0.14     0.7386     0.12
22     0.0      0.0      0.0      0.0      0.0      0.0      0.0
23     0.7442  0.7396  0.7406   0.16     0.07     0.7401     0.07
24     0.0      0.0      0.0      0.0      0.0      0.0      0.0
25     0.8015  0.7935  0.7925   0.11     0.07     0.7930     0.06
26     0.7458  0.7389  0.7386   0.05     0.01     0.7387     0.02
27     0.0      0.0      0.0      0.0      0.0      0.0      0.0
28     0.0      0.0      0.0      0.0      0.0      0.0      0.0
29     0.7439  0.7355  0.7352   0.10      0.0      0.7353     0.03
30     0.7440  0.7416  0.7401   0.17     0.12     0.7408     0.10
31     0.0      0.0      0.0      0.0      0.0      0.0      0.0
*****

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REF.: 1 1 1 38 39 37 41

REMARKS:

- 1) Data concern all laboratory measurements on samples of 'spiking I'.
- 2) Data concern measurements on samples of 'spiking II', 'IV' or 'VI', depending on the subgroup to which the laboratory belongs (see Eval. Sheets 22-II, 22-IV and 22-VI).
- 3) Data are based on runs 2 and 3 (columns 3 and 4).



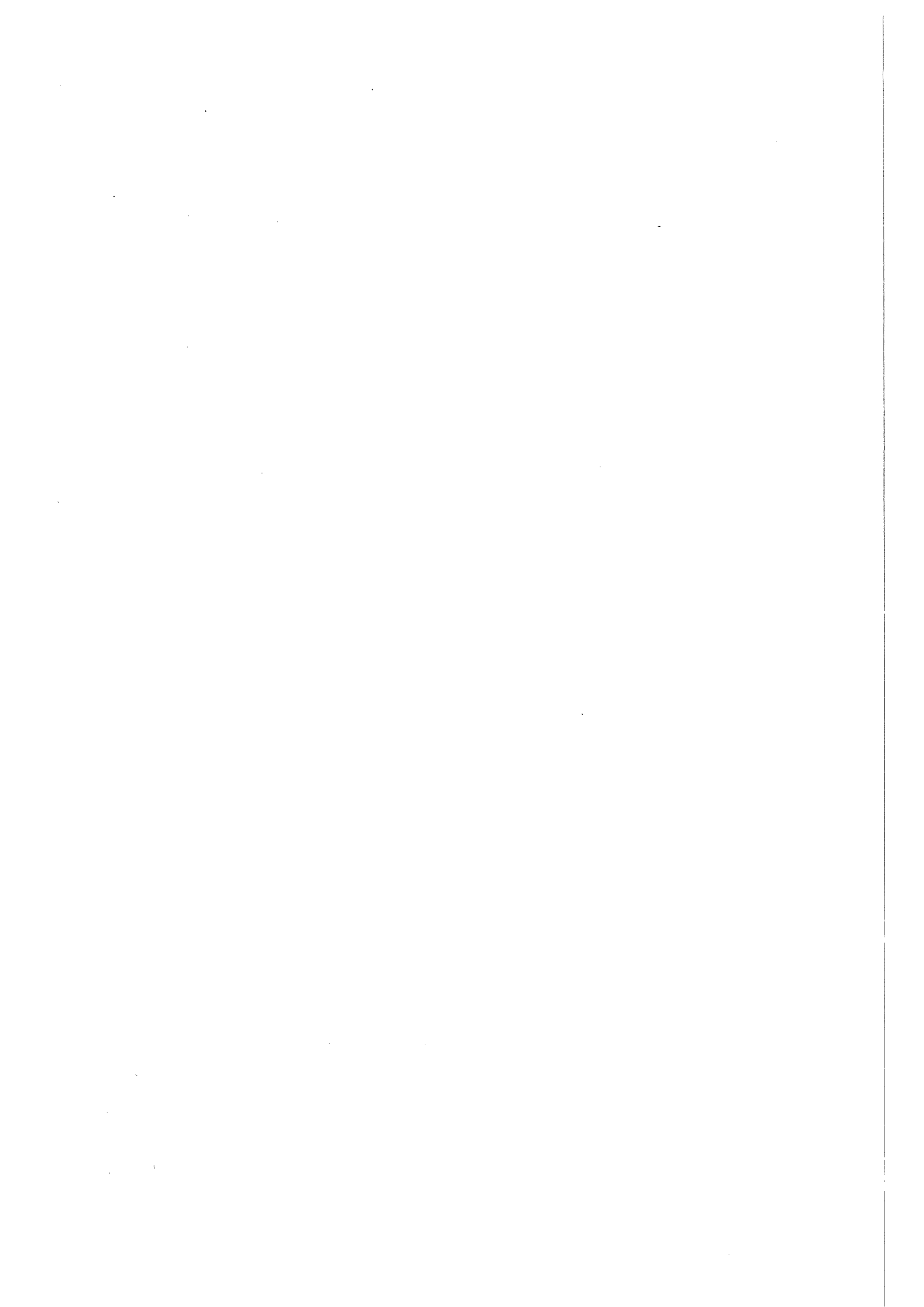
REFERENCE VALUE 1) = 0.7445 ( \* 10 )  
 +/- 0.0018

1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM REF. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	0.7446	0.01	-	-	-
3	EXTREME LAB MEANS ELIMINATED	25	0.7446	0.01	-	-	-
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	25	0.7446	0.01	-	-	-
5						GRAND MEAN	INTERLAB SPREAD (%)
						0.74506	1.23

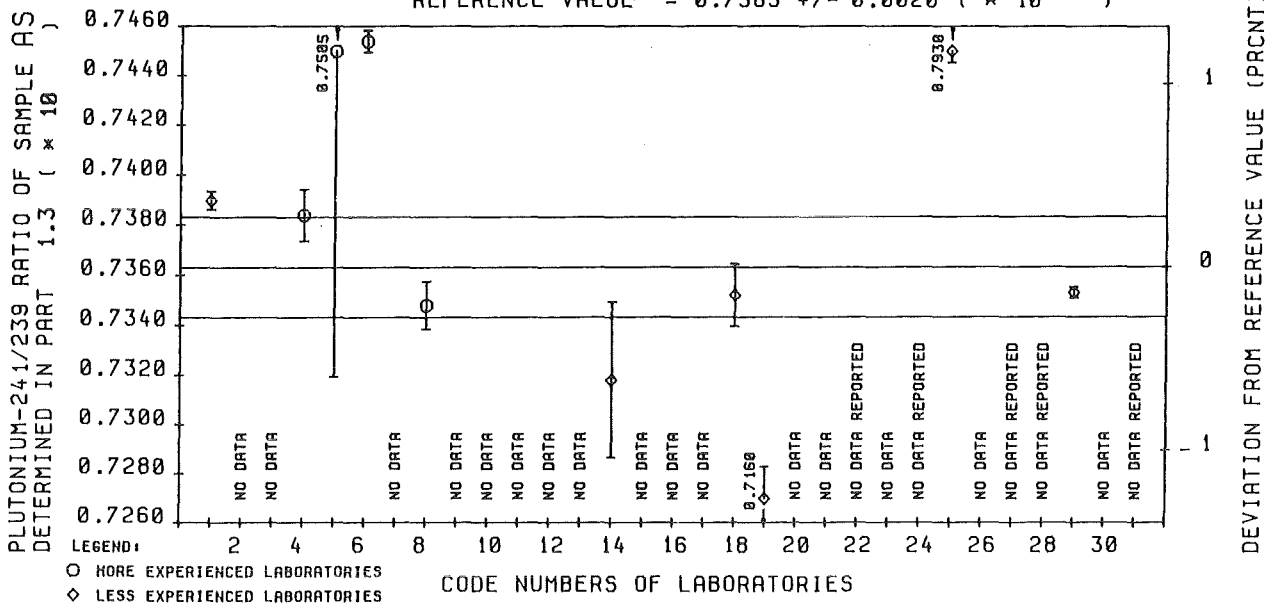
REMARKS:

- 1) THE CALCULATED DILUTION RATIO IS USED AS REFERENCE VALUE (SEE VOL. II, P.70),
- 2) SINCE SCAN DATA OF ONLY ONE RUN WERE AVAILABLE (COLUMN 2 OF THE 'COMPILATION OF NUMERICAL DATA'), NO UNCERTAINTY BARS ARE PRESENTED IN THE GRAPH AND NO ESTIMATES OF UNCERTAINTY COMPONENTS ARE GIVEN IN THE TABLE.

EVALUATION SHEET 22-1 : SAMPLE AS, PLUTONIUM-241/239 RATIOS DETERMINED IN PART 1.3 THE SAMPLE OF SPIKING I



REFERENCE VALUE<sup>1)</sup> = 0.7363 +/- 0.0020 ( x 10 )



REFERENCE VALUE<sup>1)</sup> = 0.7363 ( x 10 )  
 +/- 0.0020

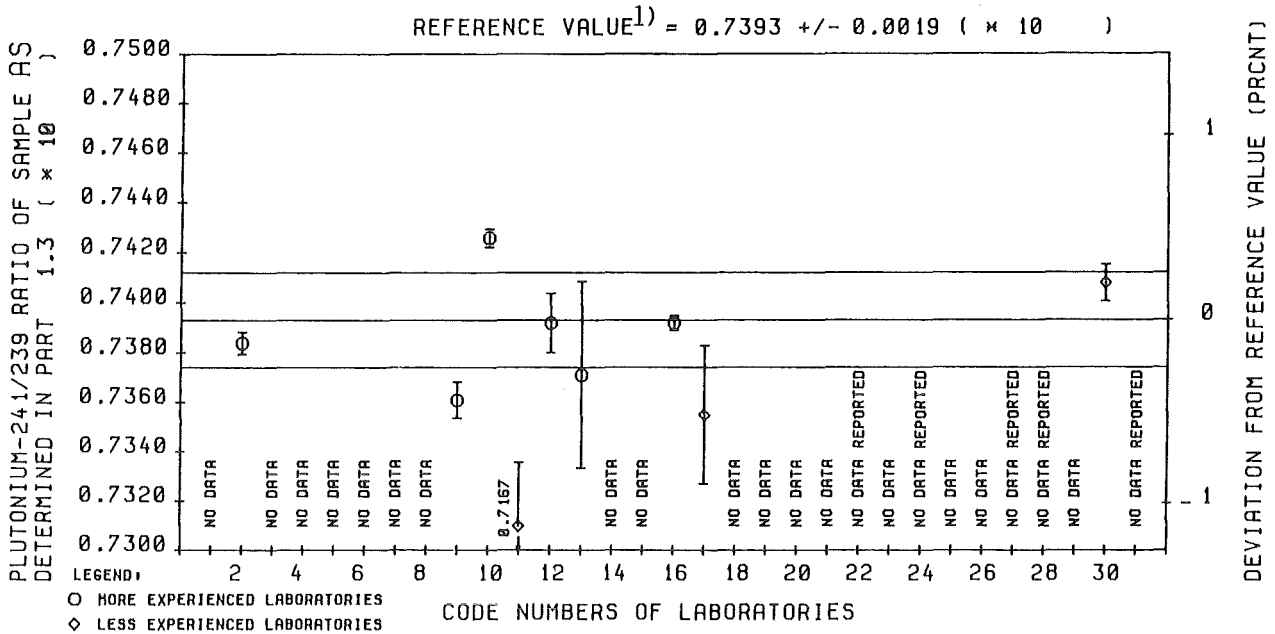
1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM REF. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	NONE	10	0.73685	0.07	0.45	0.81	2.65
3	25	9	0.7353	-0.14	0.48	0.86	1.15
4	25, 14	7	0.7353	-0.14	0.29	0.11	1.24
5						GRAND MEAN	INTERLAB SPREAD (%)
						0.73487	1.24

REMARKS:

- 1) THE CALCULATED DILUTION RATIO IS USED AS REFERENCE VALUE (SEE VOL. II, P.71).
- 2) THE ENTRY 'NO DATA' IN THE GRAPH INDICATES THAT THE LABORATORY WAS NOT REQUESTED TO MEASURE THE SAMPLE.
- 3) THE ESTIMATES OF UNCERTAINTY COMPONENTS GIVEN IN THE TABLE ARE BASED ON RUNS 2 AND 3 ONLY (COLUMNS 3 AND 4 OF THE 'COMPILATION OF NUMERICAL DATA').

EVALUATION SHEET 22-11 : SAMPLE AS, PLUTONIUM-241/239 RATIOS DETERMINED IN PART 1.3 THE TWO SAMPLES OF SPIKING II





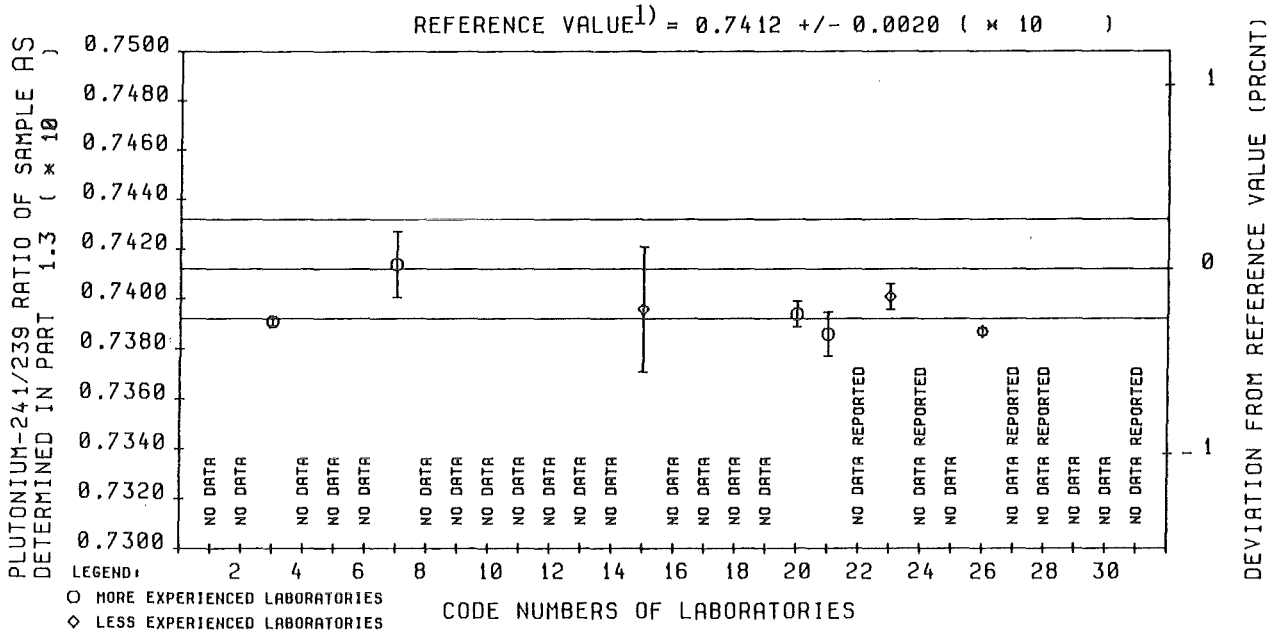
REFERENCE VALUE<sup>1)</sup> = 0.7393 ( x 10 )  
 +/- 0.0019

	1	2	3	4	5	6	7	8
		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM REF. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
1	ALL DATA	NONE	9	0.7384	-0.12	0.75	0.0 <sup>2)</sup>	1.02
3	EXTREME LAB MEANS ELIMINATED	11	8	0.7388	-0.07	0.66	0.0 <sup>2)</sup>	0.27
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	11	8	0.7388	-0.07	0.66	0.0 <sup>2)</sup>	0.27
5							GRAND MEAN	INTERLAB SPREAD (%)
							0.73861	0.32

REMARKS:

- 1) THE CALCULATED DILUTION RATIO IS USED AS REFERENCE VALUE (SEE VOL. II, P.72).
- 2) IN THIS CASE THE UNCERTAINTY COMPONENT 'RUN' IS NOT SIGNIFICANT; THIS QUANTITY IS MASKED BY THE RELATIVELY HIGH VALUE OF THE 'SCAN' COMPONENT.
- 3) THE ENTRY 'NO DATA' IN THE GRAPH INDICATES THAT THE LABORATORY WAS NOT REQUESTED TO MEASURE THE SAMPLE.
- 4) THE ESTIMATES OF UNCERTAINTY COMPONENTS GIVEN IN THE TABLE ARE BASED ON RUNS 2 AND 3 ONLY (COLUMNS 3 AND 4 OF THE 'COMPILATION OF NUMERICAL DATA').

EVALUATION SHEET 22-IV : SAMPLE AS, PLUTONIUM-241/239 RATIOS DETERMINED IN PART 1.3 THE TWO SAMPLES OF SPIKING IV



REFERENCE VALUE<sup>1)</sup> = 0.7412 ( x 10 )  
 +/- 0.0020

	1	2	3	4	5	6	7	8
		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM REF. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	7	0.7394	-0.24	0.48	0.0 <sup>2)</sup>	0.09
3	EXTREME LAB MEANS ELIMINATED	NONE	7	0.7394	-0.24	0.48	0.0 <sup>2)</sup>	0.09
4	EXTREME VALUES OF LAB MEANS & RSD'S	NONE	7	0.7394	-0.24	0.48	0.0 <sup>2)</sup>	0.09
5	'RUN' ELIMINATED						GRAND MEAN	INTERLAB SPREAD (%)
							0.73956	0.14

REMARKS:

- 1) THE CALCULATED DILUTION RATIO IS USED AS REFERENCE VALUE (SEE VOL. II, P.73).
- 2) IN THIS CASE THE UNCERTAINTY COMPONENT 'RUN' IS NOT SIGNIFICANT; THIS QUANTITY IS MASKED BY THE RELATIVELY HIGH VALUE OF THE 'SCAN' COMPONENT.
- 3) THE ENTRY 'NO DATA' IN THE GRAPH INDICATES THAT THE LABORATORY WAS NOT REQUESTED TO MEASURE THE SAMPLE.
- 4) THE ESTIMATES OF UNCERTAINTY COMPONENTS GIVEN IN THE TABLE ARE BASED ON RUNS 2 AND 3 ONLY (COLUMNS 3 AND 4 OF THE 'COMPILATION OF NUMERICAL DATA').

EVALUATION SHEET 22-VI :

SAMPLE AS, PLUTONIUM-241/239 RATIOS DETERMINED IN PART 1.3 THE TWO SAMPLES OF SPIKING VI

EVALUATION SHEET 23

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SAMPLE AS , PLUTONIUM-242/239 RATIOS

DETERMINED IN PROGRAMME PART 1.3

-----  
COMPILED OF NUMERICAL DATA  
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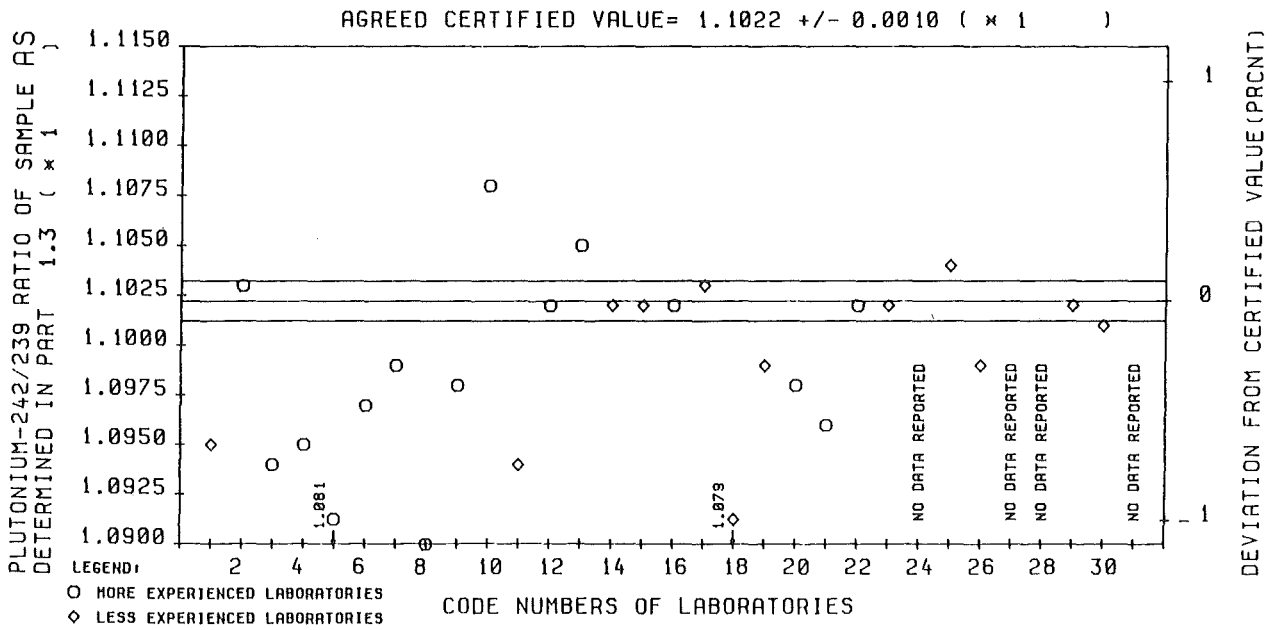
*****
1      2 1)    3 2)    4 2)    5 3)    6 3)    7 3)    8 3)
*****
LAB    RUN1    RUN2    RUN3    RSD SCAN    RSD RUN    LAB MEAN    RSD OF LAB
CODE                                     (%)         (%)         MEAN (%)
*****
1      1.095    1.064    1.061    0.23    0.15    1.062    0.12
2      1.103    1.076    1.075    0.10    0.02    1.075    0.03
3      1.094    1.076    1.077    0.02    0.01    1.076    0.01
4      1.095    1.069    1.073    0.14    0.24    1.071    0.18
5      1.081    1.049    1.055    0.37    0.34    1.052    0.26
6      1.097    1.067    1.065    0.19    0.0    1.066    0.06
7      1.099    1.081    1.082    0.13    0.04    1.082    0.05
8      1.090    1.064    1.057    0.29    0.45    1.061    0.33
9      1.098    1.073    1.073    0.06    0.02    1.073    0.02
10     1.108    1.086    1.086    0.15    0.0    1.086    0.04
11     1.094    1.067    1.082    0.93    0.91    1.074    0.70
12     1.102    1.080    1.079    0.12    0.09    1.080    0.07
13     1.105    1.076    1.090    0.33    0.95    1.083    0.68
14     1.102    1.065    1.078    0.03    0.85    1.071    0.60
15     1.102    1.081    1.085    0.10    0.27    1.083    0.19
16     1.102    1.077    1.076    0.04    0.03    1.076    0.02
17     1.103    1.078    1.076    0.21    0.07    1.077    0.08
18     1.079    1.059    1.050    0.41    0.55    1.055    0.41
19     1.099    1.069    1.085    0.08    1.07    1.077    0.75
20     1.098    1.081    1.081    0.14    0.0    1.081    0.04
21     1.096    1.082    1.081    0.37    0.0    1.082    0.11
22     1.102    1.083    1.083    0.07    0.02    1.083    0.02
23     1.102    1.083    1.085    0.09    0.08    1.084    0.06
24     0.0      0.0      0.0      0.0     0.0     0.0      0.0
25     1.104    1.072    1.072    0.16    0.0     1.072    0.05
26     1.099    1.081    1.080    0.02    0.05    1.081    0.03
27     0.0      0.0      0.0      0.0     0.0     0.0      0.0
28     0.0      0.0      0.0      0.0     0.0     0.0      0.0
29     1.102    1.068    1.068    0.05    0.0     1.068    0.01
30     1.101    1.076    1.077    0.07    0.06    1.077    0.05
31     0.0      0.0      0.0      0.0     0.0     0.0      0.0
*****

```

REF.:           1           1           1           38           39           37           41

REMARKS:

- 1) Data concern all laboratory measurements on samples of 'spiking I'.
- 2) Data concern measurements on samples of 'spiking II', 'IV' or 'VI', depending on the subgroup to which the laboratory belongs (see Eval. Sheets 23-II, 23-IV and 23-VI).
- 3) Data are based on runs 2 and 3 (columns 3 and 4).



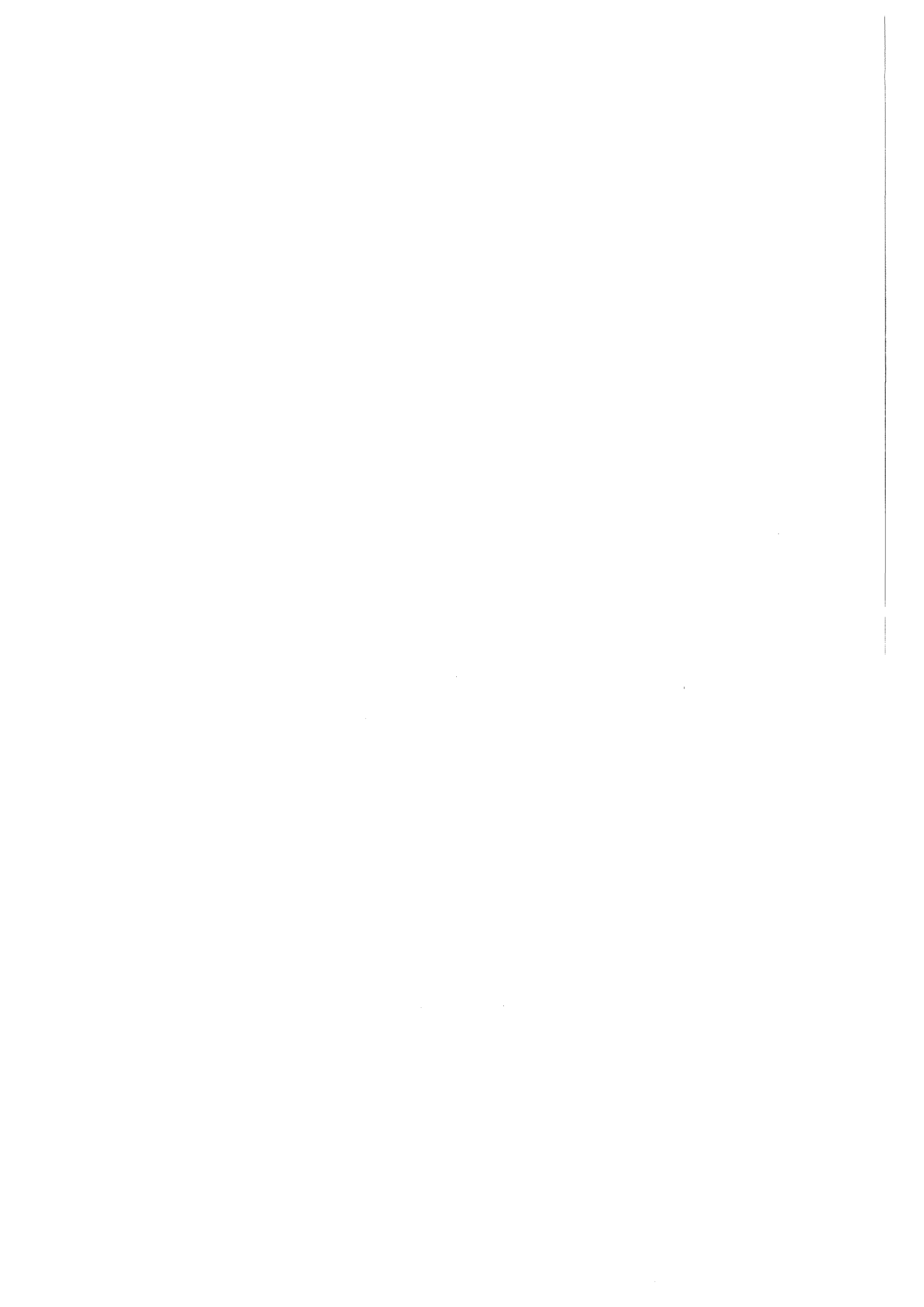
AGREED CERTIFIED VALUE= 1.1022 ( x 1 )  
 +/- 0.0010

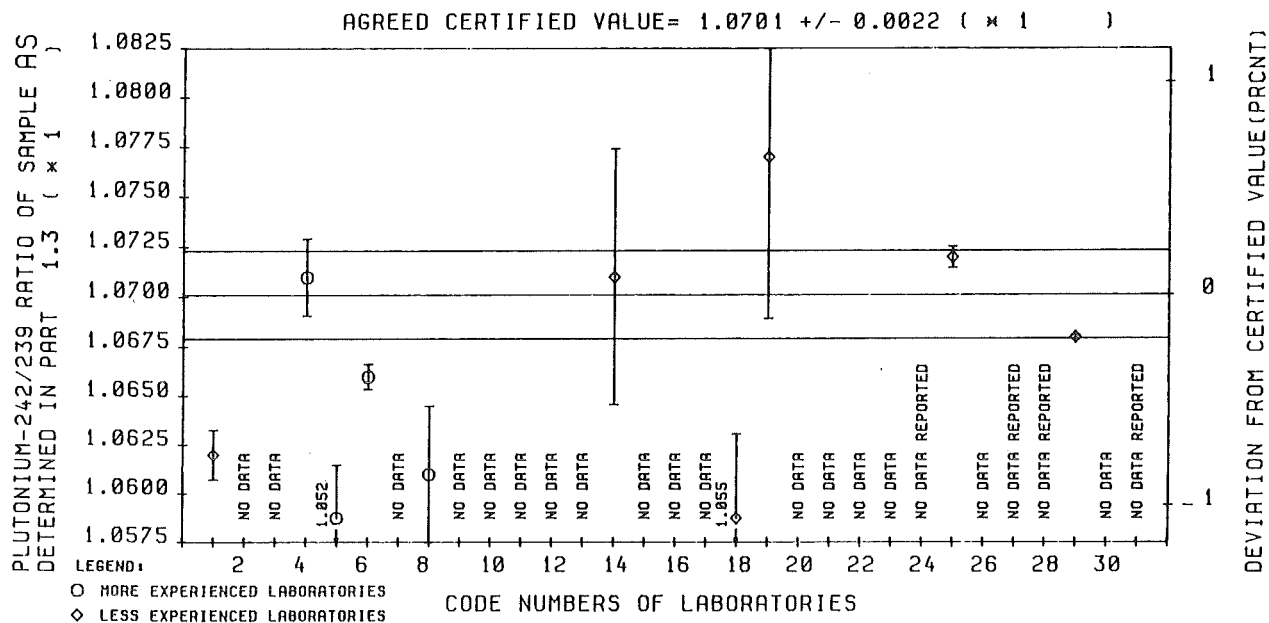
1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	NONE	27	1.09870	-0.32	-	-	-
3	NONE	27	1.09870	-0.32	-	-	-
4	NONE	27	1.09870	-0.32	-	-	-
5					GRAND MEAN		INTERLAB SPREAD (%)
					1.09822		0.60

REMARKS:

- 1) SINCE SCAN DATA OF ONLY ONE RUN WERE AVAILABLE (COLUMN 2 OF THE 'COMPILATION OF NUMERICAL DATA'), NO UNCERTAINTY BARS ARE PRESENTED IN THE GRAPH AND NO ESTIMATES OF UNCERTAINTY COMPONENTS ARE GIVEN IN THE TABLE.

EVALUATION SHEET 23-1 : SAMPLE AS, PLUTONIUM-242/239 RATIOS DETERMINED IN PART 1.3 THE SAMPLE OF SPIKING I





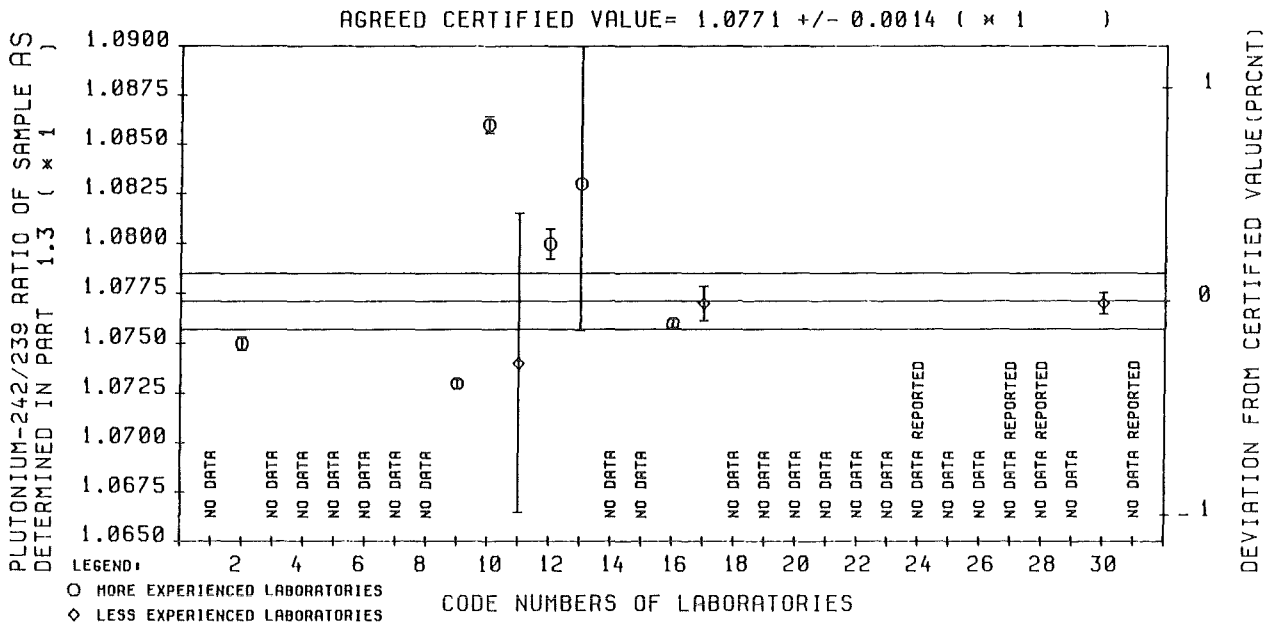
AGREED CERTIFIED VALUE= 1.0701 ( \* 1 )  
 +/- 0.0022

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	10	1.0668	-0.31	0.23	0.51	0.65
3	EXTREME LAB MEANS ELIMINATED	NONE	10	1.0668	-0.31	0.23	0.51	0.65
4	EXTREME VALUES OF LAB MEANS & RSD'S	NONE	10	1.0668	-0.31	0.23	0.51	0.65
5	'RUN' ELIMINATED						GRAND MEAN	INTERLAB SPREAD (%)
							1.06550	0.74

**REMARKS:**

- 1) THE ENTRY 'NO DATA' IN THE GRAPH INDICATES THAT THE LABORATORY WAS NOT REQUESTED TO MEASURE THE SAMPLE.
- 2) THE ESTIMATES OF UNCERTAINTY COMPONENTS GIVEN IN THE TABLE ARE BASED ON RUNS 2 AND 5 ONLY (COLUMNS 3 AND 4 OF THE 'COMPILATION OF NUMERICAL DATA').

**EVALUATION SHEET 23-II:** SAMPLE AS, PLUTONIUM-242/239 RATIOS DETERMINED IN PART 1.3 THE TWO SAMPLES OF SPIKING II



AGREED CERTIFIED VALUE= 1.0771 ( x 1 )  
 +/- 0.0014

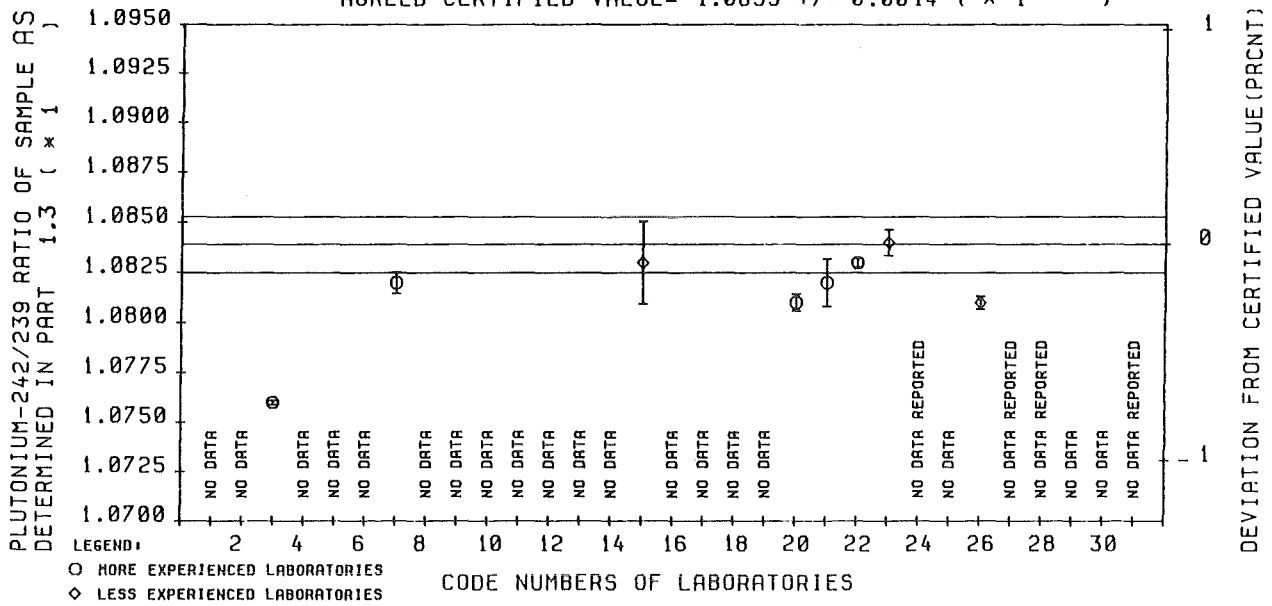
1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	9	1.0766	-0.05	0.35	0.44
3	EXTREME LAB MEANS ELIMINATED	NONE	9	1.0766	-0.05	0.35	0.44
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	NONE	9	1.0766	-0.05	0.35	0.44
5						GRAND MEAN	INTERLAB SPREAD (%)
						1.07789	0.39

REMARKS:

- 1) THE ENTRY 'NO DATA' IN THE GRAPH INDICATES THAT THE LABORATORY WAS NOT REQUESTED TO MEASURE THE SAMPLE.
- 2) THE ESTIMATES OF UNCERTAINTY COMPONENTS GIVEN IN THE TABLE ARE BASED ON RUNS 2 AND 3 ONLY (COLUMNS 3 AND 4 OF THE 'COMPILATION OF NUMERICAL DATA').

EVALUATION SHEET 23-IV : SAMPLE AS, PLUTONIUM-242/239 RATIOS DETERMINED IN PART 1.3 THE TWO SAMPLES OF SPIKING IV

AGREED CERTIFIED VALUE = 1.0839 +/- 0.0014 ( x 1 )



AGREED CERTIFIED VALUE = 1.0839 +/- 0.0014 ( x 1 )

1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	NONE	8	1.0816	-0.21	0.16	0.09	0.19
3	EXTREME LAB MEANS ELIMINATED	7	1.08165	-0.21	0.17	0.10	0.07
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	7	1.08165	-0.21	0.17	0.10	0.07
5						GRAND MEAN	INTERLAB SPREAD (%)
						1.08228	0.11

REMARKS:

- 1) THE ENTRY 'NO DATA' IN THE GRAPH INDICATES THAT THE LABORATORY WAS NOT REQUESTED TO MEASURE THE SAMPLE.
- 2) THE ESTIMATES OF UNCERTAINTY COMPONENTS GIVEN IN THE TABLE ARE BASED ON RUNS 2 AND 3 ONLY (COLUMNS 3 AND 4 OF THE 'COMPILATION OF NUMERICAL DATA').

EVALUATION SHEET 23-VI : SAMPLE AS, PLUTONIUM-242/239 RATIOS DETERMINED IN PART 1.3 THE TWO SAMPLES OF SPIKING VI



EVALUATION SHEET 24  
=====

SAMPLE BU , PLUTONIUM-238/239 RATIOS  
DETERMINED IN PROGRAMME PART 1.11

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE RATIOS LISTED HERE MUST BE DEVIDED BY 100.00

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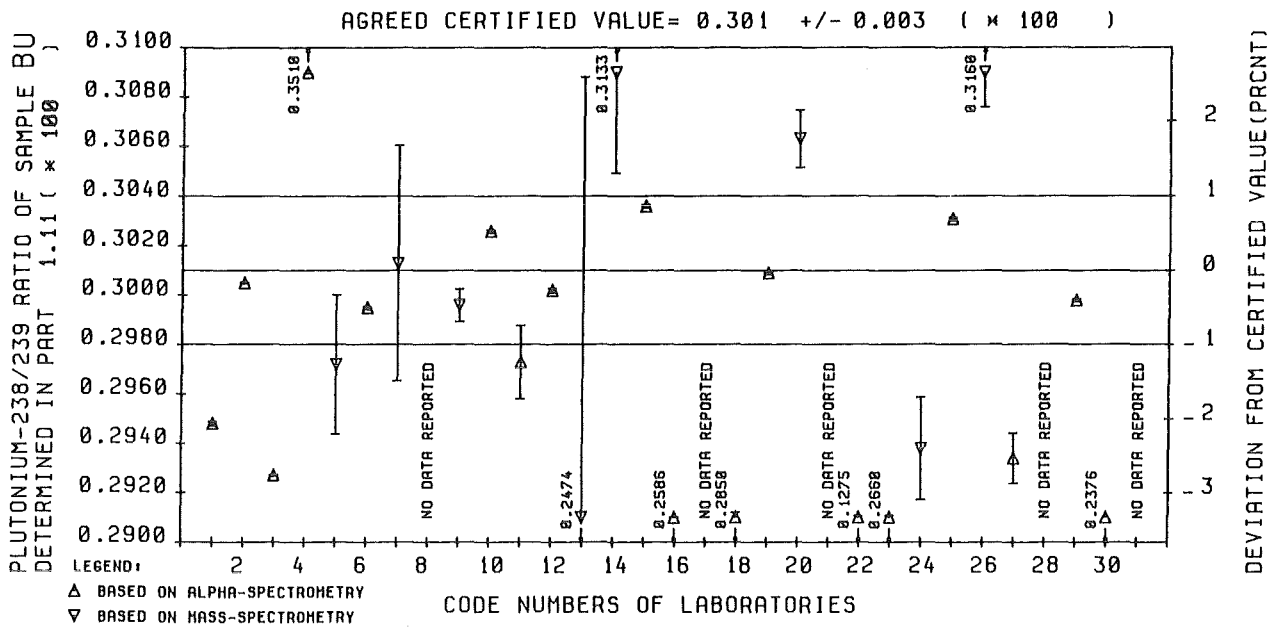
*****
 1          2          3          4          5 1)      6 1)      7          8 1)
*****
LAB          RUN1      RUN2      RUN3      RSD SCAN      RSD RUN      LAB MEAN      RSD OF LAB
CODE                                     (%)          (%)          MEAN (%)
*****
 1      0.2946  0.2948  0.2949      0.0          0.06          0.2948      0.03
 2      0.3006  0.3005  0.3005      0.0          0.02          0.3005      0.01
 3      0.2927  0.2927  0.2927      0.0          0.01          0.2927      0.01
 4      0.3510  0.3510  0.3509      0.0          0.01          0.3510      0.01
 5      0.3018  0.2926  0.2971      4.02         0.0          0.2972      0.95
 6      0.2994  0.2994  0.2996      0.0          0.04          0.2995      0.02
 7      0.2996  0.3102  0.2943      6.69         0.0          0.3013      1.58
 8      0.0          0.0          0.0          0.0          0.0          0.0          0.0
 9      0.2998  0.2983  0.3006      0.81         0.19          0.2996      0.22
10      0.3026  0.3025  0.3027      0.0          0.03          0.3026      0.02
11      0.2961  0.2957  0.3003      0.0          0.86          0.2973      0.50
12      0.3003  0.3003  0.3000      0.0          0.05          0.3002      0.03
13      0.2624  0.2680  0.2119      6.51        12.19          0.2474      7.20
14      0.3103  0.3083  0.3214      0.0          2.25          0.3133      1.30
15      0.3037  0.3037  0.3035      0.0          0.04          0.3036      0.02
16      0.2586  0.2586  0.2586      0.0          0.01          0.2586      0.01
17      0.0          0.0          0.0          0.0          0.0          0.0          0.0
18      0.2852  0.2851  0.2846      0.0          0.12          0.2850      0.07
19 2)    0.3008  0.3009  0.3010      0.0          0.03          0.3009      0.02
20 2)    0.3051  0.3086  0.3053      0.70         0.59          0.3063      0.38
21      0.0          0.0          0.0          0.0          0.0          0.0          0.0
22      0.1275  0.1276  0.1274      0.0          0.10          0.1275      0.06
23      0.2661  0.2661  0.2659      0.0          0.05          0.2660      0.03
24 2)    0.2957  0.2960  0.2896      1.88         0.96          0.2938      0.71
25      0.3033  0.3031  0.3031      0.0          0.03          0.3031      0.02
26      0.3142  0.3188  0.3148      1.00         0.67          0.3160      0.45
27      0.2944  0.2914  0.2944      0.0          0.60          0.2934      0.35
28      0.0          0.0          0.0          0.0          0.0          0.0          0.0
29      0.2999  0.2999  0.2997      0.0          0.03          0.2998      0.02
30      0.2376  0.2376  0.2376      0.0          0.0          0.2376      0.0
31      0.0          0.0          0.0          0.0          0.0          0.0          0.0
*****

```

REF.: 1 1 1 4 6 2 8

REMARKS:

- 1) Data of laboratories using alpha spectrometry (see Eval.Sheet 25) are not comparable to those of the other laboratories.
- 2) The laboratory determined the Pu-238 isotope by alpha and by mass spectrometry (see Eval.Sheets 25 and 26). For the data given here, please refer to the Eval. Sheet 53, "compilation of numerical data", remark 2.



AGREED CERTIFIED VALUE = 0.301 +/- 0.003 ( x 100 )

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	26	0.29955	-0.48	-	2.28	13.66
3	EXTREME LAB MEANS ELIMINATED	22	25	0.2996	-0.47	-	2.28	7.56
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	22,13	24	0.2997	-0.43	-	0.90	7.00
5							GRAND MEAN	INTERLAB SPREAD (%)
							0.29642	7.02

REMARKS:

- 1) SINCE NO 'SCAN' VALUES WERE AVAILABLE FOR ALPHA-SPECTROMETRIC DETERMINATION, NO ESTIMATES OF THE 'SCAN' UNCERTAINTY COMPONENT ARE GIVEN IN THE TABLE.

EVALUATION SHEET 25  
=====

SAMPLE BU , PLUTONIUM-238/239 RATIOS

DETERMINED IN PROGRAMME PART 1.11

USING ALPHA-SPECTROMETRY

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE RATIOS LISTED HERE MUST BE DEVIDED BY 100.00

```

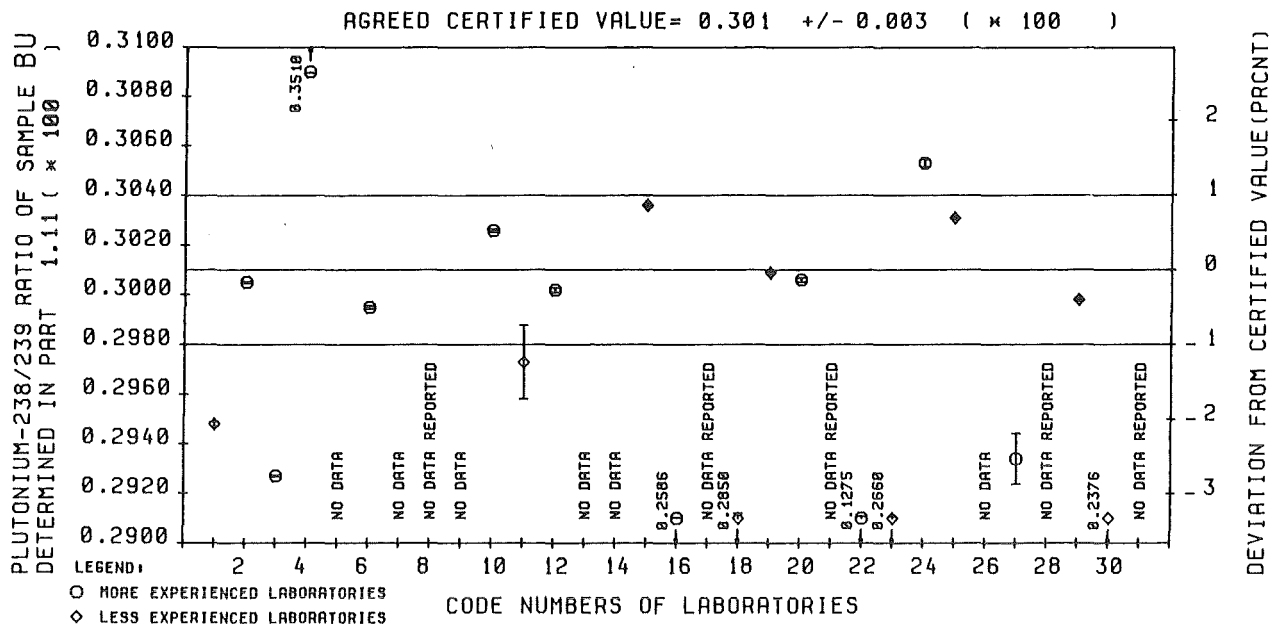
*****
 1          2          3          4          5 1)        6 1)          7          8 1)
*****
LAB      RUN1      RUN2      RUN3      RSD SCAN      RSD RUN      LAB MEAN      RSD OF LAB
CODE                                (%)            (%)            MEAN (%)
*****
 1      0.2946    0.2948    0.2949    0.0           0.06         0.2948         0.03
 2      0.3006    0.3005    0.3005    0.0           0.02         0.3005         0.01
 3      0.2927    0.2927    0.2927    0.0           0.01         0.2927         0.01
 4      0.3510    0.3510    0.3509    0.0           0.01         0.3510         0.01
 5      NO DATA
 6      0.2994    0.2994    0.2996    0.0           0.04         0.2995         0.02
 7      NO DATA
 8      NO DATA REPORTED
 9      NO DATA
10      0.3026    0.3025    0.3027    0.0           0.03         0.3026         0.02
11      0.2961    0.2957    0.3003    0.0           0.86         0.2973         0.50
12      0.3003    0.3003    0.3000    0.0           0.05         0.3002         0.03
13      NO DATA
14      NO DATA
15      0.3037    0.3037    0.3035    0.0           0.04         0.3036         0.02
16      0.2586    0.2586    0.2586    0.0           0.01         0.2586         0.01
17      NO DATA REPORTED
18      0.2852    0.2851    0.2846    0.0           0.12         0.2850         0.07
19      0.3008    0.3009    0.3010    0.0           0.03         0.3009         0.02
20      0.3005    0.3005    0.3008    0.0           0.06         0.3006         0.03
21      NO DATA REPORTED
22      0.1275    0.1276    0.1274    0.0           0.10         0.1275         0.06
23      0.2661    0.2661    0.2659    0.0           0.05         0.2660         0.03
24      0.3055    0.3055    0.3050    0.0           0.08         0.3053         0.05
25      0.3033    0.3031    0.3031    0.0           0.03         0.3031         0.02
26      NO DATA
27      0.2944    0.2914    0.2944    0.0           0.60         0.2934         0.35
28      NO DATA REPORTED
29      0.2999    0.2999    0.2997    0.0           0.03         0.2998         0.02
30      0.2376    0.2376    0.2376    0.0           0.0          0.2376         0.0
31      NO DATA REPORTED
*****

```

REF.:           1           1           1           4           6           2           8

REMARKS:

- 1) Not comparable to data obtained by laboratories using mass spectrometry only (Eval.Sheet 26).
- 2) The entry 'no data' indicates that the laboratory determined the Pu-238/Pu-239 ratio by mass spectrometry (see Eval.Sheet 26).



AGREED CERTIFIED VALUE = 0.301 +/- 0.003 ( x 100 )

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	20	0.29965	-0.45	-	0.25	15.14
3	EXTREME LAB MEANS ELIMINATED	22	19	0.2998	-0.40	-	0.24	7.67
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	22, 11, 27	17	0.3002	-0.27	-	0.05	8.13
5							GRAND MEAN	INTERLAB SPREAD (%)
							0.29422	8.13

**REMARKS:**

- PLEASE NOTE THAT THE ESTIMATES OF THE RSDs GIVEN IN COLUMNS 7 AND 8 OF THE TABLE ARE NOT COMPARABLE TO THOSE DERIVED FROM DIRECT MASS-SPECTROMETRIC MEASUREMENTS (EVAL. SHEET 26), SINCE FOR THE ALPHA-ACTIVITY RATIO PU-238/(PU-239+PU-240) ONLY ONE VALUE WAS REPORTED PER LABORATORY, THE MEASUREMENT UNCERTAINTY OF THIS QUANTITY CONTRIBUTES TO THE 'BETWEEN-LABS' RSD, THE RSD 'RUN' VALUE REFLECTS IN THIS CASE ONLY THE SMALL SPREAD OF THE MASS-SPECTROMETRIC PU-240/PU-239 RATIO DETERMINATION.

**EVALUATION SHEET 25 : SAMPLE BU, PLUTONIUM-238/239 RATIOS DETERMINED IN PART 1.11 USING ALPHA-SPECTROMETRY ONLY**

EVALUATION SHEET 26  
=====

SAMPLE BU , PLUTONIUM-238/239 RATIOS  
DETERMINED IN PROGRAMME PART 1.11  
USING MASS-SPECTROMETRY

-----  
COMPILED OF NUMERICAL DATA  
-----

THE RATIOS LISTED HERE MUST BE DEVIDED BY 100.00

\*\*\*\*\*  
1 2 3 4 5 6 7 8  
\*\*\*\*\*  
LAB RUN1 RUN2 RUN3 RSD SCAN RSD RUN LAB MEAN RSD OF LAB  
CODE (%) (%) MEAN (%)  
\*\*\*\*\*

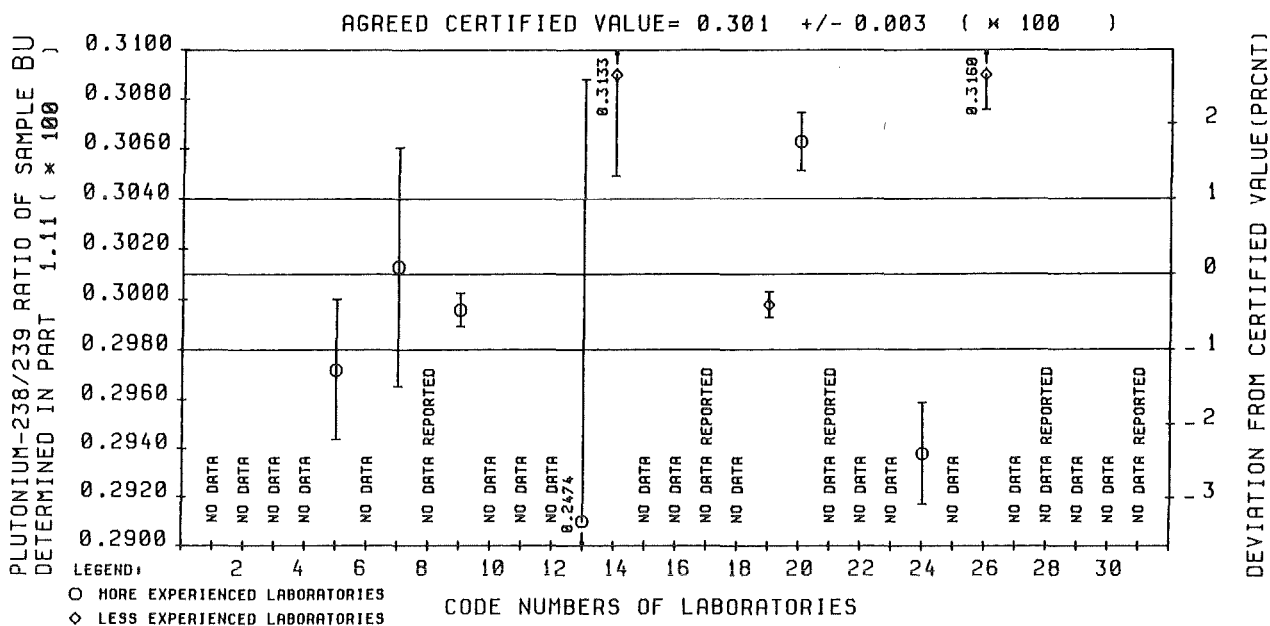
1								
2								
3								
4								
5	0.3018	0.2926	0.2971	4.02	0.0	0.2972	0.95	
6								
7	0.2996	0.3102	0.2943	6.69	0.0	0.3013	1.58	
8								
9	0.2998	0.2983	0.3006	0.81	0.19	0.2996	0.22	
10								
11								
12								
13	0.2624	0.2680	0.2119	6.51	12.19	0.2474	7.20	
14	0.3103	0.3083	0.3214	0.0 <sup>1)</sup>	2.25	0.3133	1.30	
15								
16								
17								
18								
19	0.2993	0.3007	0.2995	0.74	0.0	0.2998	0.17	
20	0.3051	0.3086	0.3053	0.70	0.59	0.3063	0.38	
21								
22								
23								
24	0.2957	0.2960	0.2896	1.88	0.96	0.2938	0.71	
25								
26	0.3142	0.3188	0.3148	1.00	0.67	0.3160	0.45	
27								
28								
29								
30								
31								

\*\*\*\*\*

REF.: 1 1 1 4 6 2 8

REMARKS:

- 1) The laboratory did not report scan data but run means only.
- 2) The entry 'no data' indicates that the laboratory determined the Pu-238 isotope by alpha-spectrometry (see Eval.Sheet 25).



AGREED CERTIFIED VALUE= 0.301 +/- 0.003 ( x 100 )

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	9	0.2972	-1.26	-1)	3.75	6.39
3	EXTREME LAB MEANS ELIMINATED	13	8	0.3034	0.80	-1)	1.48	2.43
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	13,14	7	0.2998	-0.39	3.08	0.42	2.27
5							GRAND MEAN	INTERLAB SPREAD (%)
							0.30200	2.40

REMARKS:

- LABORATORY 14 REPORTED THREE RUN-MEAN VALUES BUT NO SCAN DATA, THEREFORE, NO RSD 'SCAN' VALUES WERE CALCULATED FOR THE LABORATORY GROUPS CONSIDERED IN LINES 2 AND 3 OF THE TABLE.

EVALUATION SHEET 27  
=====

SAMPLE BU , PLUTONIUM-240/239 RATIOS

DETERMINED IN PROGRAMME PART 1.11

-----  
COMPILATION OF NUMERICAL DATA  
-----

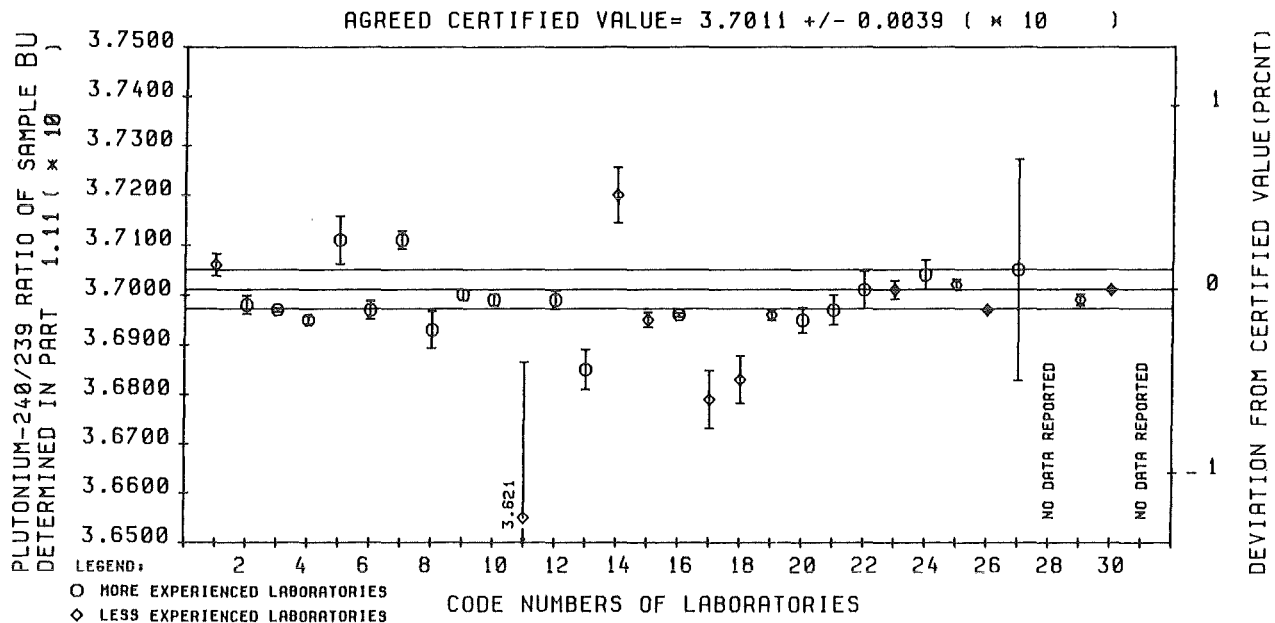
THE RATIOS LISTED HERE MUST BE DEVIDED BY 10.00

\*\*\*\*\*

1	2	3	4	5	6	7	8
LAB	RUN1	RUN2	RUN3	RSD SCAN	RSD RUN	LAB MEAN	RSD OF LAB
CODE				(%)	(%)		MEAN (%)
1	3.702	3.705	3.710	0.10	0.09	3.706	0.06
2	3.699	3.699	3.696	0.21	0.0	3.698	0.05
3	3.698	3.697	3.697	0.03	0.02	3.697	0.01
4	3.695	3.695	3.694	0.10	0.0	3.695	0.02
5	3.714	3.710	3.708	0.56	0.0	3.711	0.13
6	3.696	3.697	3.700	0.20	0.0	3.697	0.05
7	3.708	3.712	3.713	0.19	0.0	3.711	0.05
8	3.691	3.700	3.688	0.31	0.12	3.693	0.10
9	3.699	3.703	3.700	0.13	0.0	3.700	0.03
10	3.698	3.697	3.701	0.07	0.04	3.699	0.03
11	3.593	3.585	3.683	0.98	1.45	3.621	0.87
12	3.701	3.701	3.696	0.19	0.04	3.699	0.05
13	3.690	3.677	3.688	0.29	0.15	3.685	0.11
14	3.716	3.730	3.713	0.62	0.0	3.720	0.15
15	3.697	3.697	3.692	0.12	0.05	3.695	0.04
16	3.694	3.696	3.696	0.04	0.02	3.696	0.01
17	3.672	3.691	3.675	0.37	0.23	3.679	0.16
18	3.690	3.685	3.674	0.54	0.0	3.683	0.13
19	3.695	3.696	3.698	0.05	0.04	3.696	0.03
20	3.693	3.693	3.699	0.31	0.0	3.695	0.07
21	3.691	3.702	3.697	0.24	0.10	3.697	0.08
22	3.700	3.708	3.696	0.31	0.11	3.701	0.10
23	3.703	3.702	3.697	0.08	0.07	3.701	0.05
24	3.707	3.707	3.698	0.29	0.08	3.704	0.08
25	3.704	3.701	3.700	0.09	0.04	3.702	0.03
26	3.697	3.697	3.697	0.02	0.0	3.697	0.01
27	3.728	3.661	3.727	0.45	1.02	3.705	0.60
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	3.700	3.700	3.697	0.06	0.04	3.699	0.03
30	3.700	3.701	3.701	0.06	0.0	3.701	0.01
31	0.0	0.0	0.0	0.0	0.0	0.0	0.0

\*\*\*\*\*

REF.: 1 1 1 4 6 2 8



AGREED CERTIFIED VALUE= 3.7011 ( x 10 )  
 +/- 0.0039

1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	NONE	29	3.698	-0.08	0.32	0.33	0.40
3	EXTREME LAB MEANS ELIMINATED	11	3.6995	-0.04	0.27	0.20	0.17
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	11,27	3.6981	-0.08	0.26	0.05	0.21
5						GRAND MEAN	INTERLAB SPREAD (%)
						3.6984	0.22

REMARKS:



EVALUATION SHEET 28  
=====

SAMPLE BU , PLUTONIUM-241/239 RATIOS

DETERMINED IN PROGRAMME PART 1.11

-----  
COMPILATION OF NUMERICAL DATA  
-----

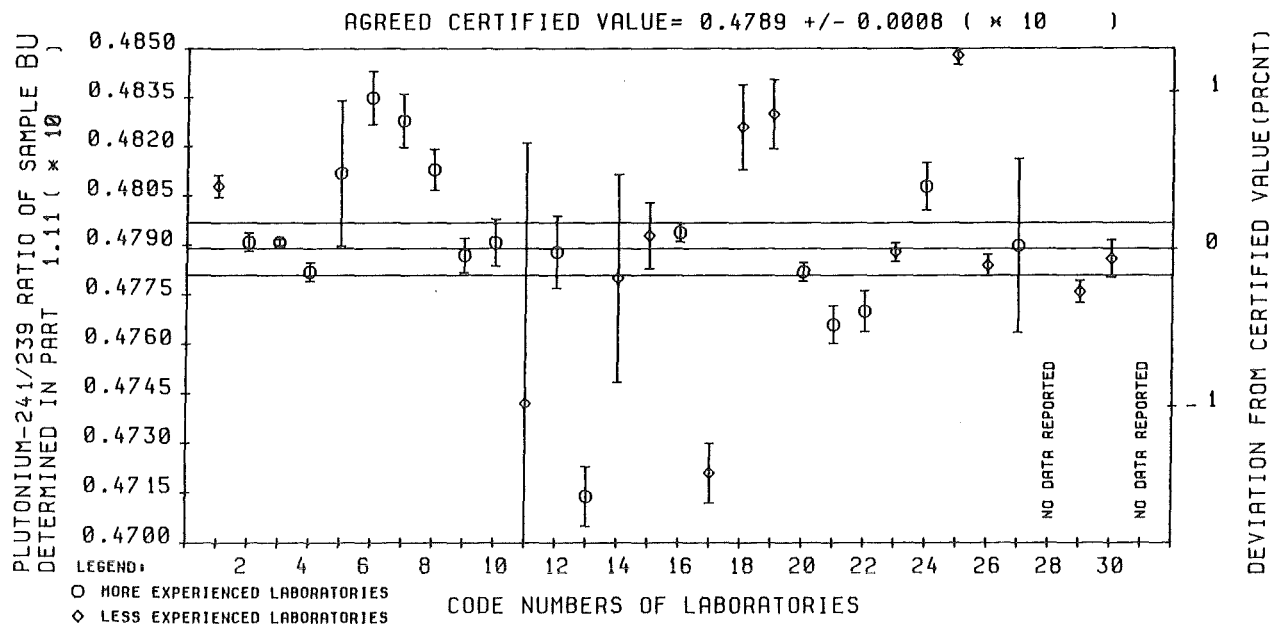
THE RATIOS LISTED HERE MUST BE DEVIDED BY 10.00

```

*****
1      2      3      4      5      6      7      8
*****
LAB    RUN1   RUN2   RUN3   RSD SCAN  RSD RUN  LAB MEAN  RSD OF LAB
CODE                                     (%)      (%)      MEAN (%)
*****
1      0.4803  0.4815  0.4807  0.23     0.08     0.4808     0.07
2      0.4793  0.4792  0.4787  0.24     0.0      0.4791     0.06
3      0.4792  0.4790  0.4791  0.06     0.01     0.4791     0.02
4      0.4779  0.4788  0.4779  0.14     0.09     0.4782     0.06
5      0.4785  0.4795  0.4856  1.38     0.56     0.4812     0.46
6      0.4824  0.4829  0.4852  0.25     0.28     0.4835     0.17
7      0.4844  0.4819  0.4820  0.45     0.24     0.4828     0.17
8      0.4823  0.4814  0.4802  0.32     0.18     0.4813     0.13
9      0.4781  0.4787  0.4794  0.45     0.0      0.4787     0.11
10     0.4798  0.4777  0.4798  0.28     0.22     0.4791     0.15
11     0.4584  0.4821  0.4821  3.72     2.45     0.4742     1.67
12     0.4799  0.4788  0.4778  0.99     0.0      0.4788     0.23
13     0.4710  0.4712  0.4719  0.82     0.0      0.4714     0.19
14     0.4828  0.4721  0.4789  1.84     0.86     0.4780     0.66
15     0.4794  0.4810  0.4776  0.28     0.34     0.4793     0.21
16     0.4793  0.4789  0.4799  0.14     0.08     0.4794     0.06
17     0.4712  0.4714  0.4736  0.81     0.0      0.4721     0.19
18     0.4834  0.4831  0.4812  1.13     0.0      0.4826     0.27
19     0.4814  0.4826  0.4850  0.25     0.36     0.4830     0.22
20     0.4779  0.4783  0.4784  0.27     0.0      0.4782     0.06
21     0.4773  0.4761  0.4763  0.53     0.0      0.4766     0.12
22     0.4771  0.4768  0.4772  0.57     0.0      0.4770     0.13
23     0.4787  0.4794  0.4784  0.18     0.08     0.4788     0.06
24     0.4809  0.4806  0.4809  0.62     0.0      0.4808     0.15
25     0.4852  0.4849  0.4842  0.19     0.06     0.4848     0.06
26     0.4779  0.4781  0.4790  0.09     0.12     0.4784     0.07
27     0.4821  0.4737  0.4812  0.55     0.93     0.4790     0.55
28     0.0      0.0      0.0      0.0      0.0      0.0      0.0
29     0.4774  0.4783  0.4772  0.12     0.12     0.4776     0.07
30     0.4780  0.4781  0.4797  0.08     0.21     0.4786     0.12
31     0.0      0.0      0.0      0.0      0.0      0.0      0.0
*****

```

REF.: 1 1 1 4 6 2 8



AGREED CERTIFIED VALUE = 0.4789 ( x 10 )  
 +/- 0.0008

1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	NONE	29	0.4790	0.02	0.93	0.52	0.52
3	EXTREME LAB MEANS ELIMINATED	29	0.4790	0.02	0.93	0.52	0.52
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	11	0.47905	0.03	0.64	0.27	0.58
5						GRAND MEAN INTERLAB SPREAD (%)	
						0.47922	0.62

REMARKS:

EVALUATION SHEET 29  
=====

SAMPLE BU , PLUTONIUM-242/239 RATIOS

DETERMINED IN PROGRAMME PART 1.11

-----  
COMPILATION OF NUMERICAL DATA  
-----

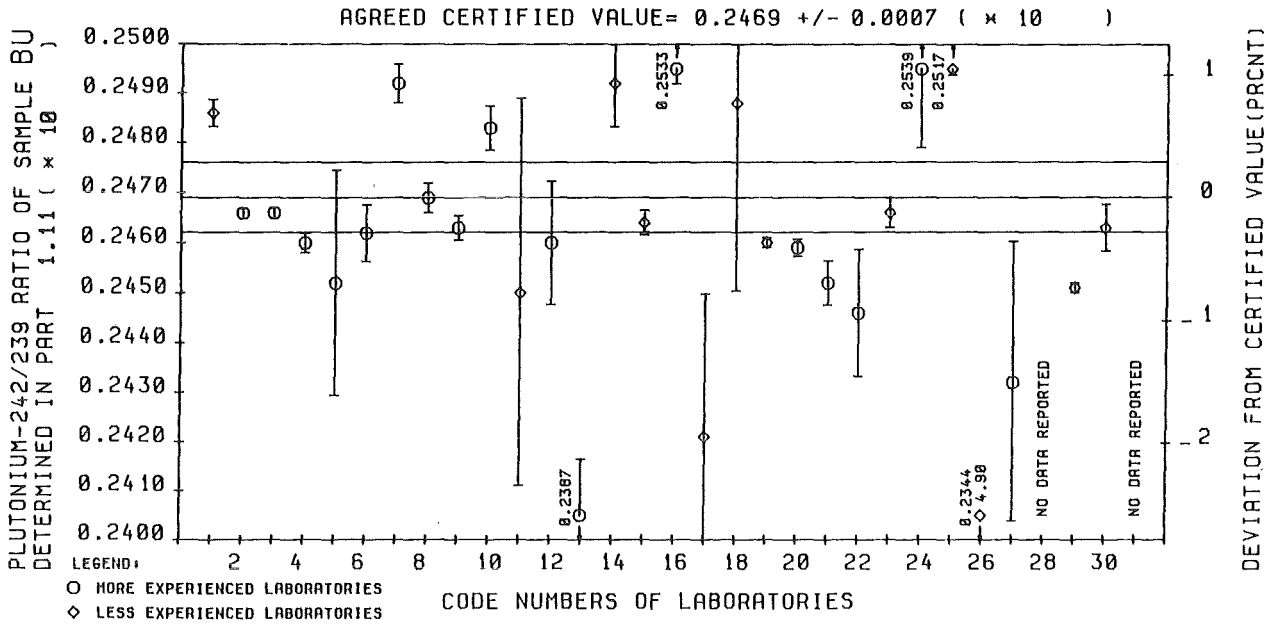
THE RATIOS LISTED HERE MUST BE DEVIDED BY 10.00

```

*****
1      2      3      4      5      6      7      8
*****
LAB    RUN1   RUN2   RUN3   RSD SCAN  RSD RUN  LAB MEAN  RSD OF LAB
CODE                                     (%)      (%)      MEAN (%)
*****
1      0.2492  0.2483  0.2484  0.20     0.18     0.2486     0.11
2      0.2467  0.2466  0.2465  0.17     0.0      0.2466     0.04
3      0.2466  0.2465  0.2468  0.07     0.05     0.2466     0.04
4      0.2457  0.2463  0.2459  0.12     0.13     0.2460     0.08
5      0.2458  0.2410  0.2488  1.21     1.52     0.2452     0.92
6      0.2458  0.2456  0.2474  0.39     0.37     0.2462     0.23
7      0.2491  0.2486  0.2500  0.53     0.17     0.2492     0.16
8      0.2470  0.2463  0.2473  0.48     0.06     0.2469     0.12
9      0.2458  0.2465  0.2465  0.44     0.0      0.2463     0.10
10     0.2488  0.2474  0.2486  0.64     0.17     0.2483     0.18
11     0.2395  0.2430  0.2525  4.56     2.02     0.2450     1.59
12     0.2476  0.2468  0.2435  0.76     0.82     0.2460     0.50
13     0.2407  0.2388  0.2367  1.06     0.72     0.2387     0.48
14     0.2478  0.2508  0.2490  1.35     0.27     0.2492     0.35
15     0.2460  0.2468  0.2464  0.44     0.0      0.2464     0.10
16     0.2536  0.2535  0.2527  0.44     0.10     0.2533     0.12
17     0.2465  0.2367  0.2431  1.23     2.00     0.2421     1.19
18     0.2457  0.2562  0.2443  1.32     2.56     0.2488     1.51
19     0.2458  0.2461  0.2461  0.12     0.05     0.2460     0.04
20     0.2461  0.2456  0.2458  0.28     0.0      0.2459     0.07
21     0.2457  0.2449  0.2449  0.76     0.0      0.2452     0.18
22     0.2420  0.2462  0.2455  0.72     0.85     0.2446     0.52
23     0.2466  0.2470  0.2460  0.18     0.19     0.2466     0.12
24     0.2531  0.2569  0.2516  1.13     0.98     0.2539     0.63
25     0.2517  0.2519  0.2514  0.22     0.02     0.2517     0.05
26     0.2452  0.2114  0.2465  0.31     8.48     0.2344     4.90
27     0.2456  0.2376  0.2464  0.99     1.96     0.2432     1.16
28     0.0      0.0      0.0      0.0      0.0      0.0      0.0
29     0.2451  0.2452  0.2451  0.16     0.0      0.2451     0.04
30     0.2456  0.2461  0.2472  0.17     0.33     0.2463     0.19
31     0.0      0.0      0.0      0.0      0.0      0.0      0.0
*****

```

REF.: 1 1 1 4 6 2 8



AGREED CERTIFIED VALUE= 0.2469 ( x 10 )  
 +/- 0.0007

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	29	0.2463	-0.24	1.09	1.75	1.13
3	EXTREME LAB MEANS ELIMINATED	NONE	29	0.2463	-0.24	1.09	1.75	1.13
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	26	28	0.2463	-0.24	1.10	0.92	1.10
5							GRAND MEAN	INTERLAB SPREAD (%)
							0.24671	1.25

REMARKS:

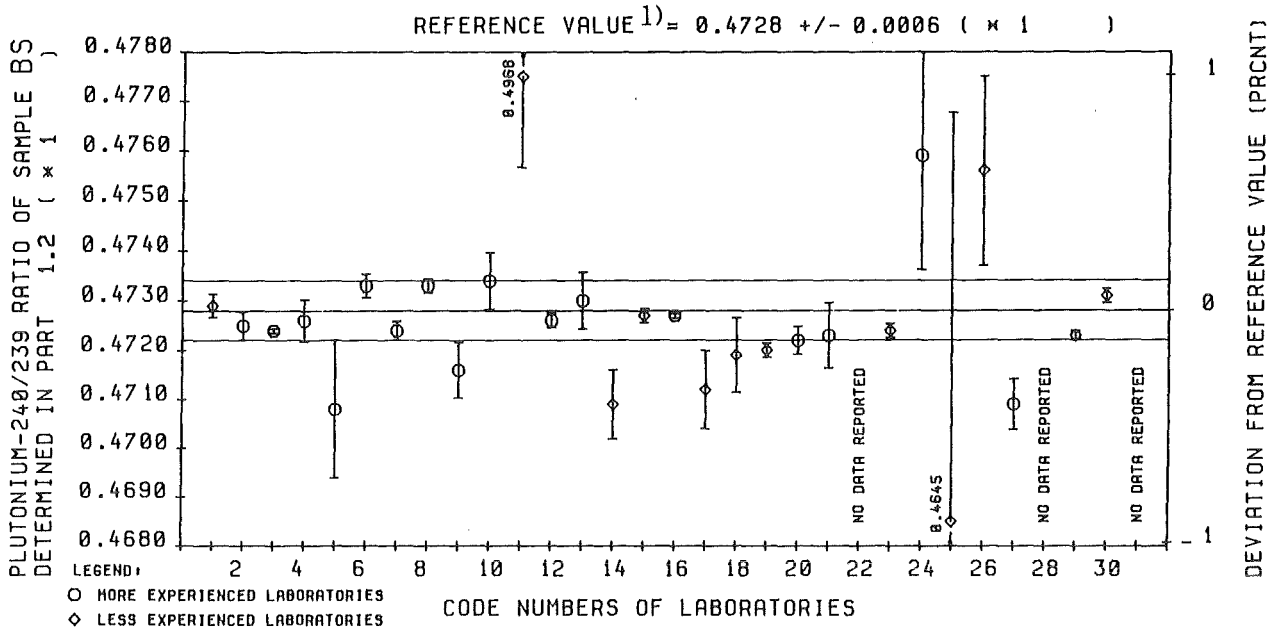
EVALUATION SHEET 30  
=====

SAMPLE BS , PLUTONIUM-240/239 RATIOS  
DETERMINED IN PROGRAMME PART 1.2

-----  
COMPILATION OF NUMERICAL DATA  
-----

```
*****  
1      2      3      4      5      6      7      8  
*****  
LAB    RUN1   RUN2   RUN3   RSD SCAN  RSD RUN  LAB MEAN  RSD OF LAB  
CODE                   (%)      (%)      MEAN (%)  
*****  
1      0.4732  0.4731  0.4725  0.20     0.03     0.4729    0.05  
2      0.4722  0.4730  0.4722  0.15     0.08     0.4725    0.06  
3      0.4723  0.4725  0.4724  0.03     0.01     0.4724    0.01  
4      0.4732  0.4718  0.4728  0.39     0.0      0.4726    0.09  
5      0.4715  0.4680  0.4728  0.37     0.50     0.4708    0.30  
6      0.4733  0.4737  0.4728  0.07     0.09     0.4733    0.05  
7      0.4723  0.4727  0.4723  0.15     0.0      0.4724    0.04  
8      0.4733  0.4730  0.4734  0.11     0.02     0.4733    0.03  
9      0.4719  0.4705  0.4723  0.32     0.15     0.4716    0.12  
10     0.4738  0.4734  0.4730  0.49     0.0      0.4734    0.12  
11     0.4950  0.5005  0.4950  1.38     0.30     0.4968    0.37  
12     0.4726  0.4729  0.4724  0.08     0.04     0.4726    0.03  
13     0.4740  0.4729  0.4721  0.26     0.18     0.4730    0.12  
14     0.4697  0.4708  0.4721  0.25     0.23     0.4709    0.15  
15     0.4723  0.4729  0.4728  0.12     0.03     0.4727    0.03  
16     0.4728  0.4728  0.4726  0.04     0.02     0.4727    0.01  
17     0.4696  0.4720  0.4720  0.24     0.28     0.4712    0.17  
18     0.4716  0.4733  0.4709  0.37     0.22     0.4719    0.16  
19     0.4721  0.4718  0.4722  0.13     0.0      0.4720    0.03  
20     0.4725  0.4725  0.4716  0.09     0.10     0.4722    0.06  
21     0.4735  0.4721  0.4712  0.29     0.22     0.4723    0.14  
22     0.0      0.0      0.0      0.0      0.0      0.0      0.0  
23     0.4727  0.4723  0.4723  0.03     0.05     0.4724    0.03  
24     0.4735  0.4805  0.4738  0.33     0.82     0.4759    0.48  
25     0.4724  0.4480  0.4731  0.06     3.08     0.4645    1.78  
26     0.4794  0.4740  0.4734  0.05     0.70     0.4756    0.40  
27     0.4716  0.4710  0.4699  0.16     0.17     0.4709    0.11  
28     0.0      0.0      0.0      0.0      0.0      0.0      0.0  
29     0.4721  0.4723  0.4724  0.10     0.0      0.4723    0.02  
30     0.4729  0.4733  0.4732  0.08     0.03     0.4731    0.03  
31     0.0      0.0      0.0      0.0      0.0      0.0      0.0  
*****
```

REF.:           1           1           1           4           6           2           8



REFERENCE VALUE<sup>1)</sup> = 0.4728 ( x 1 )  
 +/- 0.0006

1	2	3	4	5	6	7	8	
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM REF. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)	
2	ALL DATA	NONE	28	0.47246	-0.07	0.35	0.63	0.99
3	EXTREME LAB MEANS ELIMINATED	11,25	26	0.47246	-0.07	0.23	0.26	0.20
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	11,25	26	0.47246	-0.07	0.23	0.26	0.20
5						GRAND MEAN	INTERLAB SPREAD (%)	
						0.47257	0.25	

REMARKS:

1) THE CALCULATED DILUTION RATIO IS USED AS REFERENCE VALUE (SEE VOL. II, P. 61).

EVALUATION SHEET 31  
=====

SAMPLE BS , PLUTONIUM-241/239 RATIOS

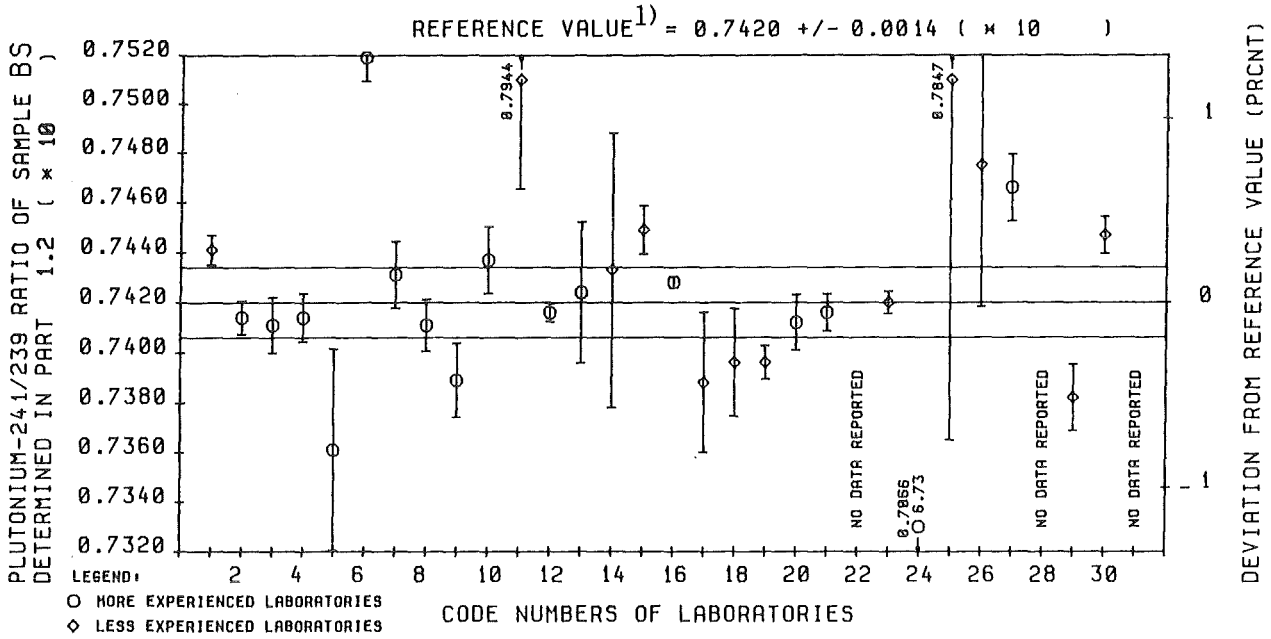
DETERMINED IN PROGRAMME PART 1.2

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE RATIOS LISTED HERE MUST BE DEVIDED BY 10.00

```
*****
  1      2      3      4      5      6      7      8
*****
LAB      RUN1    RUN2    RUN3    RSD SCAN  RSD RUN  LAB MEAN  RSD OF LAB
CODE                                (%)        (%)                                MEAN (%)
*****
  1      0.7429  0.7445  0.7449    0.23    0.11    0.7441    0.08
  2      0.7426  0.7415  0.7402    0.14    0.15    0.7414    0.09
  3      0.7420  0.7424  0.7390    0.06    0.25    0.7411    0.15
  4      0.7411  0.7399  0.7432    0.30    0.19    0.7414    0.13
  5      0.7389  0.7281  0.7412    1.15    0.82    0.7361    0.55
  6      0.7511  0.7538  0.7507    0.07    0.23    0.7519    0.13
  7      0.7408  0.7432  0.7455    0.36    0.28    0.7431    0.18
  8      0.7431  0.7401  0.7401    0.26    0.21    0.7411    0.14
  9      0.7402  0.7404  0.7362    0.85    0.0    0.7389    0.20
 10     0.7426  0.7442  0.7443    0.78    0.0    0.7437    0.18
 11     0.7951  0.7910  0.7971    2.39    0.0    0.7944    0.56
 12     0.7414  0.7423  0.7410    0.08    0.09    0.7416    0.05
 13     0.7478  0.7409  0.7385    0.47    0.63    0.7424    0.38
 14     0.7503  0.7391  0.7404    3.14    0.0    0.7433    0.74
 15     0.7430  0.7461  0.7457    0.45    0.13    0.7449    0.13
 16     0.7424  0.7431  0.7429    0.08    0.04    0.7428    0.03
 17     0.7399  0.7431  0.7335    0.68    0.60    0.7388    0.38
 18     0.7375  0.7438  0.7375    0.74    0.39    0.7396    0.29
 19     0.7402  0.7398  0.7387    0.38    0.0    0.7396    0.09
 20     0.7412  0.7432  0.7393    0.21    0.25    0.7412    0.15
 21     0.7428  0.7402  0.7417    0.22    0.15    0.7416    0.10
 22     0.0      0.0      0.0      0.0     0.0     0.0      0.0
 23     0.7428  0.7414  0.7417    0.11    0.09    0.7420    0.06
 24     0.6119  0.7615  0.7464    1.76    11.63   0.7066    6.73
 25     0.7985  0.7557  0.8000    0.12    3.20    0.7847    1.85
 26     0.7586  0.7438  0.7401    0.21    1.31    0.7475    0.76
 27     0.7467  0.7489  0.7442    0.19    0.30    0.7466    0.18
 28     0.0      0.0      0.0      0.0     0.0     0.0      0.0
 29     0.7390  0.7399  0.7356    0.46    0.24    0.7382    0.18
 30     0.7432  0.7452  0.7456    0.08    0.17    0.7447    0.10
 31     0.0      0.0      0.0      0.0     0.0     0.0      0.0
*****
```

REF.:           1           1           1           4           6           2           8



REFERENCE VALUE<sup>1)</sup> = 0.7420 ( x 10 )  
 +/- 0.0014

	1	2	3	4	5	6	7	8
		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM REF. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	28	0.7418	-0.03	0.93	2.20	1.52
3	EXTREME LAB MEANS ELIMINATED	11,25, 24	25	0.7416	-0.05	0.78	0.33	0.35
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	11,25, 24	25	0.7416	-0.05	0.78	0.33	0.35
5							GRAND MEAN	INTERLAB SPREAD (%)
							0.74230	0.44

REMARKS:

1) THE CALCULATED DILUTION RATIO IS USED AS REFERENCE VALUE (SEE VOL. II, P.61).



EVALUATION SHEET 32  
=====

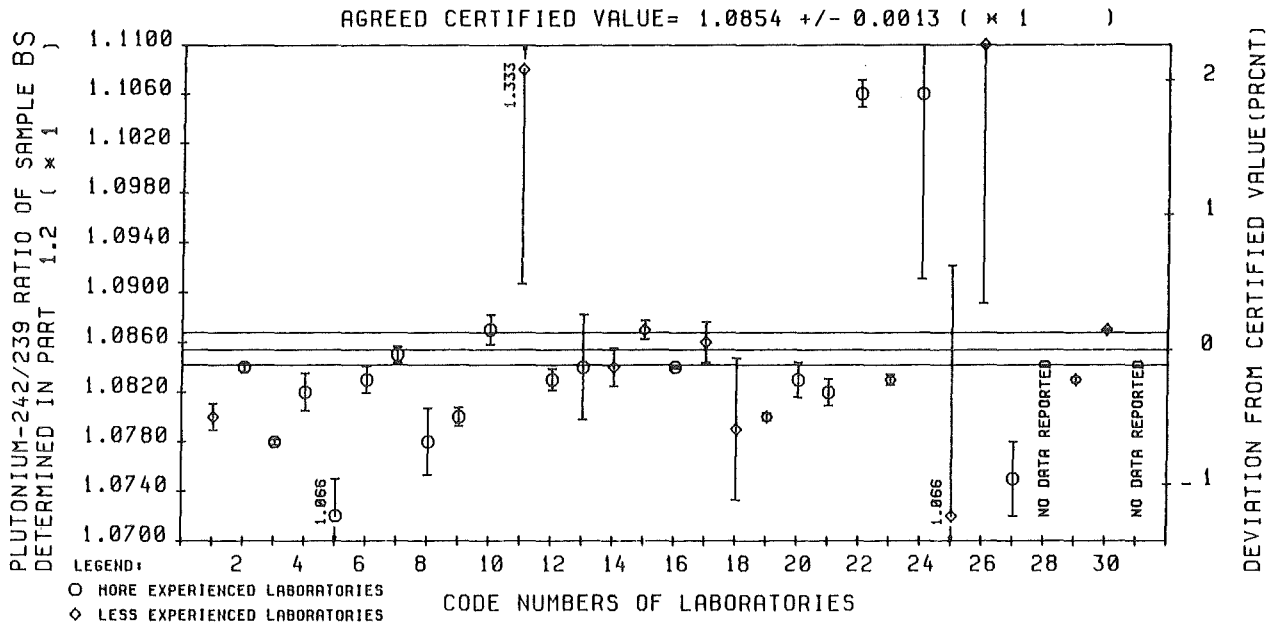
SAMPLE BS , PLUTONIUM-242/239 RATIOS

DETERMINED IN PROGRAMME PART 1.2

-----  
COMPILED OF NUMERICAL DATA  
-----

```
*****  
1      2      3      4      5      6      7      8  
*****  
LAB    RUN1   RUN2   RUN3   RSD SCAN  RSD RUN  LAB MEAN  RSD OF LAB  
CODE                   (%)      (%)                   MEAN (%)  
*****  
1      1.080  1.082  1.078  0.22     0.15     1.080     0.10  
2      1.084  1.084  1.084  0.12     0.0      1.084     0.03  
3      1.078  1.079  1.078  0.02     0.03     1.078     0.02  
4      1.081  1.081  1.085  0.24     0.22     1.082     0.14  
5      1.068  1.070  1.060  0.31     0.47     1.066     0.28  
6      1.082  1.085  1.081  0.12     0.16     1.083     0.10  
7      1.083  1.085  1.085  0.13     0.08     1.085     0.06  
8      1.082  1.079  1.073  0.25     0.42     1.078     0.25  
9      1.079  1.080  1.082  0.31     0.0      1.080     0.07  
10     1.087  1.089  1.086  0.46     0.0      1.087     0.11  
11     1.307  1.366  1.326  0.83     2.22     1.333     1.30  
12     1.083  1.085  1.082  0.05     0.13     1.083     0.08  
13     1.092  1.080  1.079  0.57     0.63     1.084     0.39  
14     1.086  1.085  1.081  0.47     0.16     1.084     0.14  
15     1.088  1.085  1.087  0.17     0.10     1.087     0.07  
16     1.084  1.085  1.084  0.05     0.0      1.084     0.01  
17     1.082  1.087  1.088  0.22     0.24     1.086     0.15  
18     1.080  1.088  1.068  0.26     0.91     1.079     0.53  
19     1.081  1.080  1.080  0.09     0.03     1.080     0.03  
20     1.083  1.085  1.080  0.15     0.22     1.083     0.13  
21     1.083  1.080  1.083  0.12     0.16     1.082     0.10  
22     1.108  1.105  1.104  0.37     0.07     1.106     0.10  
23     1.084  1.082  1.083  0.02     0.07     1.083     0.04  
24     1.079  1.131  1.108  0.43     2.33     1.106     1.35  
25     1.085  1.026  1.087  0.05     3.27     1.066     1.89  
26     1.151  1.091  1.087  0.03     3.25     1.110     1.88  
27     1.073  1.080  1.070  0.21     0.47     1.075     0.28  
28     0.0    0.0    0.0    0.0     0.0     0.0      0.0  
29     1.082  1.083  1.083  0.09     0.0     1.083     0.02  
30     1.087  1.087  1.087  0.04     0.01     1.087     0.01  
31     0.0    0.0    0.0    0.0     0.0     0.0      0.0  
*****
```

REF.: 1 1 1 4 6 2 8



AGREED CERTIFIED VALUE= 1.0854 ( x 1 )  
 +/- 0.0013

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	29	1.0829	-0.23	0.31	1.12	4.28
3	EXTREME LAB MEANS ELIMINATED	11	28	1.0829	-0.23	0.25	1.02	0.67
4	EXTREME VALUES OF LAB MEANS & RSD'S	11, 25, 26, 24, 22, 5	23	1.0826	-0.26	0.24	0.29	0.23
5	'RUN' ELIMINATED						GRAND MEAN	INTERLAB SPREAD (%)
							1.08247	0.29

REMARKS:

- 1) FOR EXCLUSION OF LABORATORIES 24, 25 AND 26 DUE TO THEIR RELATIVELY HIGH 'RUN' RSDs, EXTENSION OF THE DIXON CRITERION TO A POPULATION ABOVE N = 25 (THE UPPER LIMIT USUALLY TREATED IN THE LITERATURE) WAS REQUIRED. THE EXPRESSION  $R_{32} = (X_N - X_{N-3}) / (X_N - X_3)$  WAS USED FOR TESTING IN THESE CASES.

EVALUATION SHEET 33  
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SAMPLE RU , PLUTONIUM-238/239 RATIOS  
DETERMINED IN PROGRAMME PART 2.1

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COMPILATION OF NUMERICAL DATA  
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THE RATIOS LISTED HERE MUST BE DEVIDED BY 100.00

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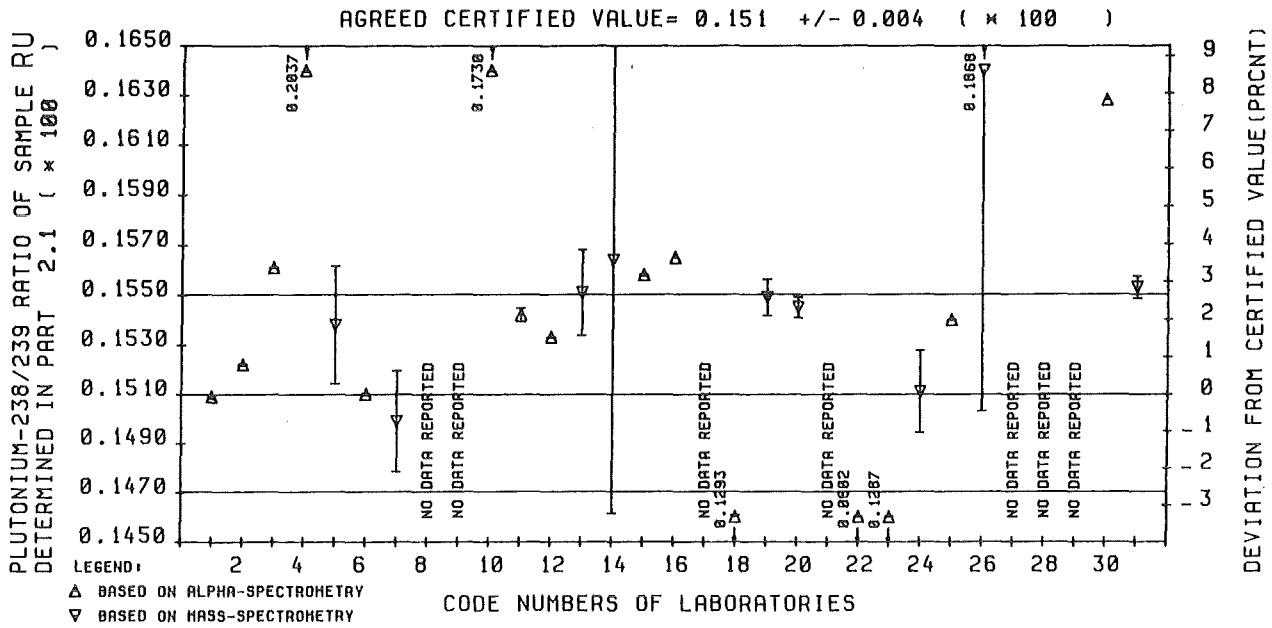
*****
1      2      3      4      5 1)    6 1)    7      8 1)
*****
LAB    RUN1   RUN2   RUN3   RSD SCAN  RSD RUN  LAB MEAN  RSD OF LAB
CODE                                (%)      (%)      MEAN (%)
*****
1      0.1509  0.1510  0.1508  0.0      0.08    0.1509  0.05
2      0.1522  0.1522  0.1521  0.0      0.03    0.1522  0.02
3      0.1561  0.1560  0.1561  0.0      0.02    0.1561  0.01
4      0.2036  0.2037  0.2037  0.0      0.04    0.2037  0.02
5      0.1537  0.1552  0.1525  6.54    0.0     0.1538  1.54
6      0.1510  0.1509  0.1510  0.0      0.03    0.1510  0.02
7      0.1481  0.1501  0.1514  5.81    0.0     0.1499  1.37
8      0.0     0.0     0.0     0.0     0.0     0.0     0.0
9      0.0     0.0     0.0     0.0     0.0     0.0     0.0
10     0.1731  0.1730  0.1730  0.0      0.03    0.1730  0.02
11     0.1547  0.1542  0.1538  0.0      0.31    0.1542  0.18
12     0.1533  0.1532  0.1533  0.0      0.03    0.1533  0.01
13     0.1554  0.1578  0.1521  4.71    0.0     0.1551  1.11
14     0.1395  0.1547  0.1749  0.0     11.36   0.1564  6.56
15     0.1558  0.1557  0.1558  0.0      0.04    0.1558  0.02
16     0.1565  0.1565  0.1565  0.0      0.0     0.1565  0.0
17     0.0     0.0     0.0     0.0     0.0     0.0     0.0
18     0.1294  0.1294  0.1292  0.0      0.10    0.1293  0.06
19     0.1534  0.1557  0.1555  1.31    0.62    0.1549  0.47
20 2)  0.1547  0.1545  0.1542  1.16    0.0     0.1545  0.27
21     0.0     0.0     0.0     0.0     0.0     0.0     0.0
22     0.0602  0.0602  0.0602  0.0      0.02    0.0602  0.01
23     0.1287  0.1287  0.1287  0.0      0.03    0.1287  0.02
24 2)  0.1544  0.1492  0.1496  1.33    1.85    0.1511  1.11
25     0.1539  0.1540  0.1540  0.0      0.02    0.1540  0.01
26     0.1836  0.1649  0.2120  2.21    12.67   0.1868  7.33
27     0.0     0.0     0.0     0.0     0.0     0.0     0.0
28     0.0     0.0     0.0     0.0     0.0     0.0     0.0
29     0.0     0.0     0.0     0.0     0.0     0.0     0.0
30     0.1628  0.1628  0.1628  0.0      0.0     0.1628  0.0
31     0.1558  0.1547  0.1555  1.25    0.0     0.1553  0.29
*****

```

REF.:           1           1           1           4           6           2           8

REMARKS:

- 1) Data of laboratories using alpha spectrometry (see Eval.Sheet 34) are not comparable to those of the other laboratories.
- 2) The laboratory determined the Pu-238 isotope by alpha and by mass spectrometry (see Eval.Sheets 34 and 35). For the data given here, please refer to the Eval.Sheet 60, "compilation of numerical data", remark 2.



AGREED CERTIFIED VALUE= 0.151 ( x 100 )  
 +/- 0.004

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	24	0.1547	2.45	- 1)	4.02	16.05
3	EXTREME LAB MEANS ELIMINATED	22, 4	22	0.1547	2.45	- 1)	4.15	7.14
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	22, 4, 26, 14	20	0.15435	2.22	- 1)	0.71	6.21
5							GRAND MEAN	INTERLAB SPREAD (%)
							0.15262	6.23

**REMARKS:**

- 1) SINCE NO 'SCAN' VALUES WERE AVAILABLE FOR ALPHA-SPECTROMETRIC DETERMINATION, NO ESTIMATES OF THE 'SCAN' UNCERTAINTY COMPONENT ARE GIVEN IN THE TABLE.

EVALUATION SHEET 34  
=====

SAMPLE RU , PLUTONIUM-238/239 RATIOS

DETERMINED IN PROGRAMME PART 2.1

USING ALPHA-SPECTROMETRY

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE RATIOS LISTED HERE MUST BE DEVIDED BY 100.00

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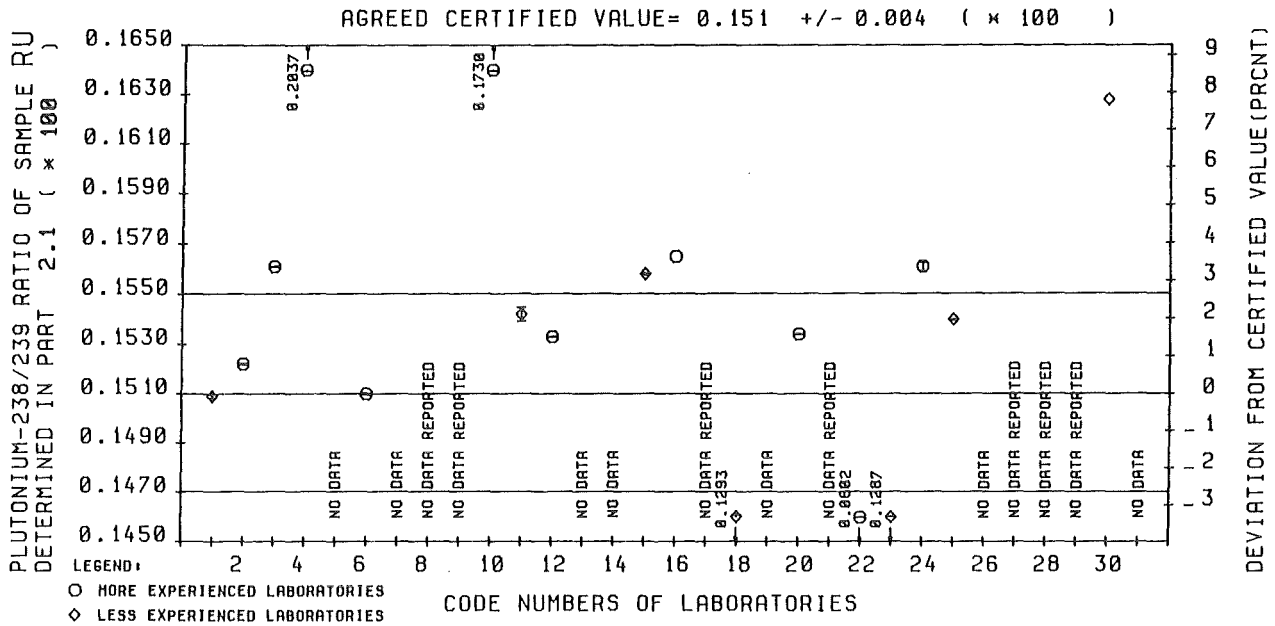
*****
1      2      3      4      5 1)  6 1)  7      8 1)
*****
LAB    RUN1   RUN2   RUN3   RSD SCAN  RSD RUN  LAB MEAN  RSD OF LAB
CODE   (%)    (%)    (%)    (%)    (%)    (%)    (%)
*****
1      0.1509  0.1510  0.1508  0.0      0.08    0.1509    0.05
2      0.1522  0.1522  0.1521  0.0      0.03    0.1522    0.02
3      0.1561  0.1560  0.1561  0.0      0.02    0.1561    0.01
4      0.2036  0.2037  0.2037  0.0      0.04    0.2037    0.02
5      NO DATA
6      0.1510  0.1509  0.1510  0.0      0.03    0.1510    0.02
7      NO DATA
8      NO DATA REPORTED
9      NO DATA REPORTED
10     0.1731  0.1730  0.1730  0.0      0.03    0.1730    0.02
11     0.1547  0.1542  0.1538  0.0      0.31    0.1542    0.18
12     0.1533  0.1532  0.1533  0.0      0.03    0.1533    0.01
13     NO DATA
14     NO DATA
15     0.1558  0.1557  0.1558  0.0      0.04    0.1558    0.02
16     0.1565  0.1565  0.1565  0.0      0.0      0.1565    0.0
17     NO DATA REPORTED
18     0.1294  0.1294  0.1292  0.0      0.10    0.1293    0.06
19     NO DATA
20     0.1534  0.1534  0.1534  0.0      0.01    0.1534    0.01
21     NO DATA REPORTED
22     0.0602  0.0602  0.0602  0.0      0.02    0.0602    0.01
23     0.1287  0.1287  0.1287  0.0      0.03    0.1287    0.02
24     0.1558  0.1564  0.1560  0.0      0.19    0.1561    0.11
25     0.1539  0.1540  0.1540  0.0      0.02    0.1540    0.01
26     NO DATA
27     NO DATA REPORTED
28     NO DATA REPORTED
29     NO DATA REPORTED
30     0.1628  0.1628  0.1628  0.0      0.0      0.1628    0.0
31     NO DATA
*****

```

REF. 1 1 1 4 6 2 8

REMARKS:

- 1) Not comparable to data obtained by laboratories using mass spectrometry only (Eval. Sheet 35).
- 2) The entry 'no data' indicates that the laboratory determined the Pu-238/Pu-239 ratio by mass spectrometry (see Eval.Sheet 35).



AGREED CERTIFIED VALUE = 0.151 ( x 100 )  
 +/- 0.004

1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	NONE	17	0.1540	1.99	-	0.10	18.80
3	4,22	15	0.1540	1.99	-	0.10	7.22
4	4,22	15	0.1540	1.99	-	0.10	7.22
5						GRAND MEAN	INTERLAB SPREAD (%)
						0.15249	7.22

REMARKS:

- PLEASE NOTE THAT THE ESTIMATES OF THE RSDs GIVEN IN COLUMNS 7 AND 8 OF THE TABLE ARE NOT COMPARABLE TO THOSE DERIVED FROM DIRECT MASS-SPECTROMETRIC MEASUREMENTS (EVAL. SHEET 35), SINCE FOR THE ALPHA-ACTIVITY RATIO PU-238/(PU-239+PU-240) ONLY ONE VALUE WAS REPORTED PER LABORATORY, THE MEASUREMENT UNCERTAINTY OF THIS QUANTITY CONTRIBUTES TO THE 'BETWEEN-LABS' RSD, THE RSD 'RUN' VALUE REFLECTS IN THIS CASE ONLY THE SMALL SPREAD OF THE MASS-SPECTROMETRIC PU-240/PU-239 RATIO DETERMINATION.

EVALUATION SHEET <sup>34</sup> : SAMPLE RU, PLUTONIUM-238/239 RATIOS DETERMINED IN PART 2.1 USING ALPHA-SPECTROMETRY ONLY

EVALUATION SHEET 35  
=====

SAMPLE RU , PLUTONIUM-238/239 RATIOS

DETERMINED IN PROGRAMME PART 2.1

USING MASS-SPECTROMETRY

-----  
COMPILED OF NUMERICAL DATA  
-----

THE RATIOS LISTED HERE MUST BE DEVIDED BY 100.00

\*\*\*\*\*  
1 2 3 4 5 6 7 8  
\*\*\*\*\*  
LAB RUN1 RUN2 RUN3 RSD SCAN RSD RUN LAB MEAN RSD OF LAB  
CODE (%) (%) MEAN (%)  
\*\*\*\*\*

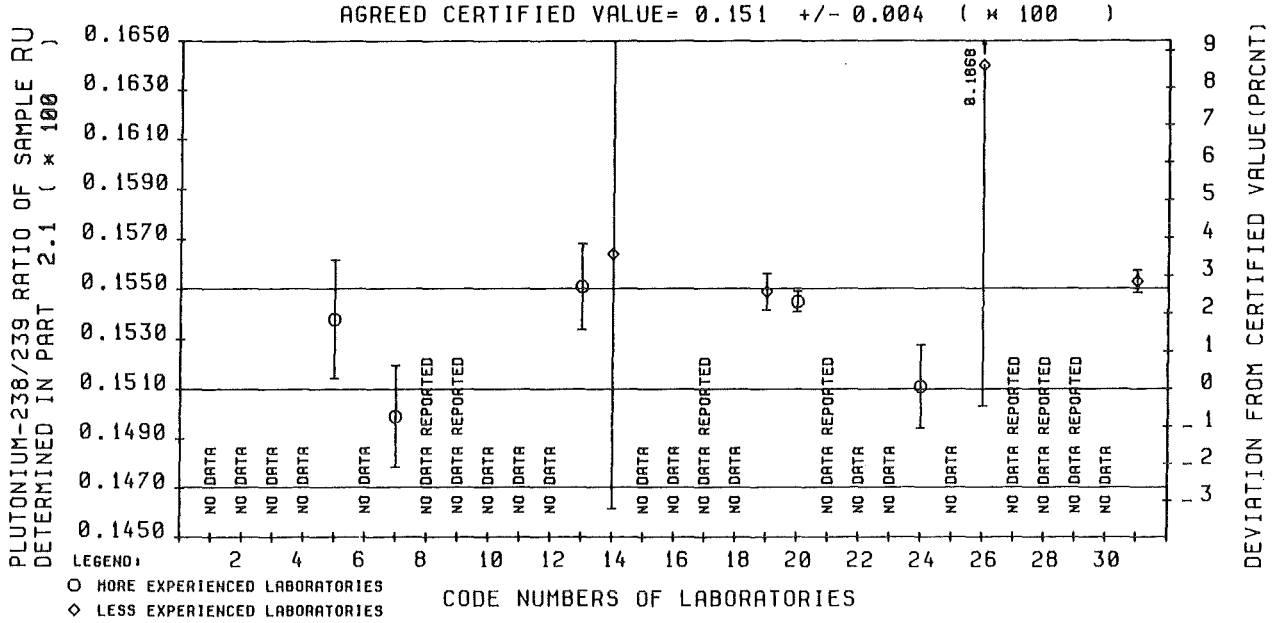
1									
2									
3									
4									
5	0.1537	0.1552	0.1525	6.54		0.0	0.1538		1.54
6									
7	0.1481	0.1501	0.1514	5.81		0.0	0.1499		1.37
8									
9									
10									
11									
12									
13	0.1554	0.1578	0.1521	4.71		0.0	0.1551		1.11
14	0.1395	0.1547	0.1749	0.0 1)		11.36	0.1564		6.56
15									
16									
17									
18									
19	0.1534	0.1557	0.1555	1.31		0.62	0.1549		0.47
20	0.1547	0.1545	0.1542	1.16		0.0	0.1545		0.27
21									
22									
23									
24	0.1544	0.1492	0.1496	1.33		1.85	0.1511		1.11
25									
26	0.1836	0.1649	0.2120	2.21		12.67	0.1868		7.33
27									
28									
29									
30									
31	0.1558	0.1547	0.1555	1.25		0.0	0.1553		0.29

\*\*\*\*\*

REF.: 1 1 1 4 6 2 8

REMARKS:

- 1) The laboratory did not report scan data but run means only.
- 2) The entry 'no data' indicates that the laboratory determined the Pu-238 isotope by alpha-spectrometry (see Eval.Sheet 34).



AGREED CERTIFIED VALUE = 0.151 ( x 100 )  
 +/- 0.004

1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	9	0.1549	2.58	- 1)	6.35
3	EXTREME LAB MEANS ELIMINATED	26	8	0.1547	2.45	- 1)	4.23
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	26,14	7	0.1545	2.32	3.86	0,0 2)
5						GRAND MEAN	INTERLAB SPREAD (%)
						0.15351	1.40

REMARKS:

- 1) LABORATORY 14 REPORTED THREE RUN-MEAN VALUES BUT NO SCAN DATA. THEREFORE, NO RSD 'SCAN' VALUES WERE CALCULATED FOR THE LABORATORY GROUPS CONSIDERED IN LINES 2 AND 3 OF THE TABLE.
- 2) IN THIS CASE THE UNCERTAINTY COMPONENT 'RUN' IS NOT SIGNIFICANT; THIS QUANTITY IS MASKED BY THE RELATIVELY HIGH VALUE OF THE 'SCAN' COMPONENT.



EVALUATION SHEET 36

=====

SAMPLE RU , PLUTONIUM-240/239 RATIOS

DETERMINED IN PROGRAMME PART 2.1

-----  
COMPILATION OF NUMERICAL DATA  
-----

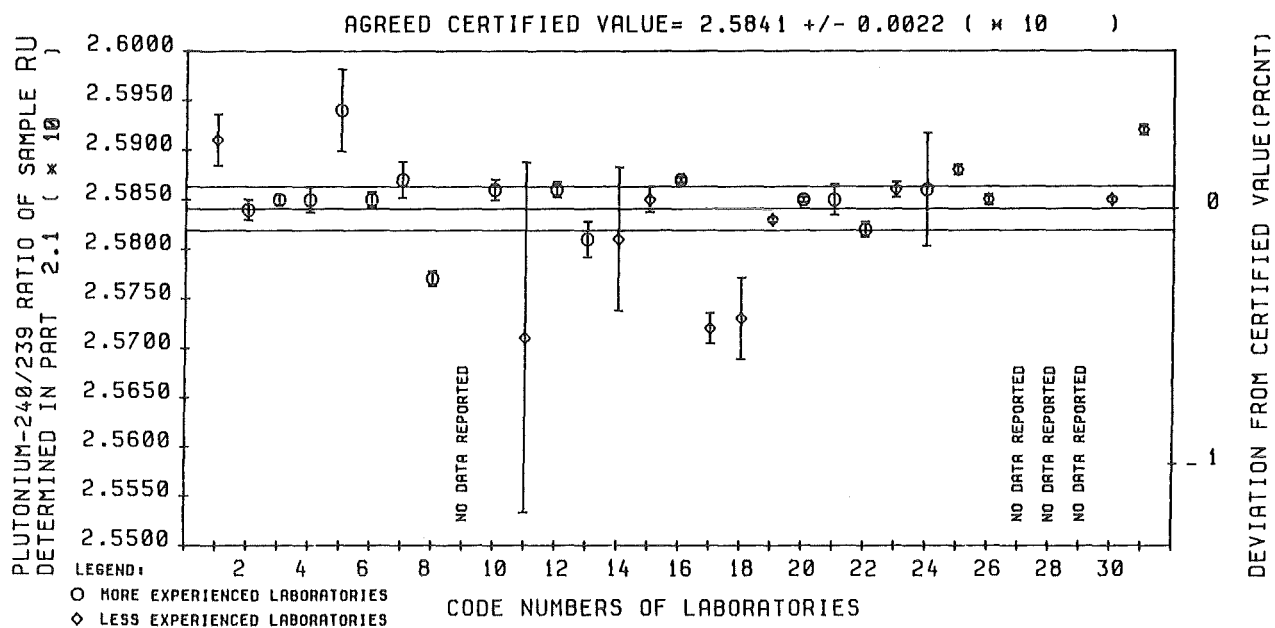
THE RATIOS LISTED HERE MUST BE DEVIDED BY 10.00

```

*****
 1         2         3         4         5         6         7         8
*****
LAB      RUN1      RUN2      RUN3      RSD SCAN  RSD RUN  LAB MEAN  RSD OF LAB
CODE                                (%)        (%)                                MEAN (%)
*****
 1         2.591    2.596    2.587    0.13     0.16     2.591     0.10
 2         2.584    2.586    2.583    0.07     0.05     2.584     0.04
 3         2.586    2.584    2.585    0.03     0.04     2.585     0.02
 4         2.583    2.587    2.586    0.03     0.08     2.585     0.05
 5         2.597    2.586    2.599    0.45     0.20     2.594     0.16
 6         2.586    2.583    2.586    0.07     0.05     2.585     0.03
 7         2.588    2.583    2.589    0.31     0.0      2.587     0.07
 8         2.577    2.578    2.578    0.14     0.0      2.577     0.03
 9         0.0      0.0      0.0      0.0      0.0      0.0      0.0
10        2.587    2.585    2.584    0.18     0.0      2.586     0.04
11        2.588    2.569    2.555    2.92     0.0      2.571     0.69
12        2.586    2.584    2.586    0.11     0.03     2.586     0.03
13        2.578    2.584    2.582    0.25     0.08     2.581     0.07
14        2.595    2.575    2.572    0.56     0.42     2.581     0.28
15        2.586    2.582    2.585    0.09     0.07     2.585     0.05
16        2.586    2.587    2.587    0.04     0.0      2.587     0.01
17        2.574    2.569    2.573    0.26     0.0      2.572     0.06
18        2.576    2.576    2.567    0.66     0.0      2.573     0.16
19        2.583    2.583    2.583    0.06     0.0      2.583     0.01
20        2.586    2.585    2.585    0.06     0.0      2.585     0.01
21        2.583    2.587    2.585    0.26     0.0      2.585     0.06
22        2.582    2.584    2.582    0.12     0.01     2.582     0.03
23        2.586    2.587    2.584    0.07     0.05     2.586     0.03
24        2.578    2.598    2.583    0.09     0.39     2.586     0.22
25        2.587    2.588    2.589    0.05     0.03     2.588     0.02
26        2.585    2.585    2.586    0.07     0.0      2.585     0.02
27        0.0      0.0      0.0      0.0      0.0      0.0      0.0
28        0.0      0.0      0.0      0.0      0.0      0.0      0.0
29        0.0      0.0      0.0      0.0      0.0      0.0      0.0
30        2.585    2.585    2.584    0.06     0.01     2.585     0.01
31        2.592    2.593    2.591    0.09     0.02     2.592     0.02
*****

```

REF.: 1 1 1 4 6 2 8



AGREED CERTIFIED VALUE = 2.5841 +/- 0.0022 ( x 10 )

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	27	2.585	0.03	0.60	0.0 1)	0.18
3	EXTREME LAB MEANS ELIMINATED	NONE	27	2.585	0.03	0.60	0.0 1)	0.18
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	11	26	2.5851	0.04	0.24	0.12	0.17
5							GRAND MEAN	INTERLAB SPREAD (%)
							2.5845	0.19

REMARKS:

1) IN THIS CASE THE UNCERTAINTY COMPONENT 'RUN' IS NOT SIGNIFICANT; THIS QUANTITY IS MASKED BY THE RELATIVELY HIGH RSD 'SCAN' VALUE OF LABORATORY 11.

EVALUATION SHEET 37  
=====

SAMPLE RU , PLUTONIUM-241/239 RATIOS

DETERMINED IN PROGRAMME PART 2.1

-----  
COMPILATION OF NUMERICAL DATA  
-----

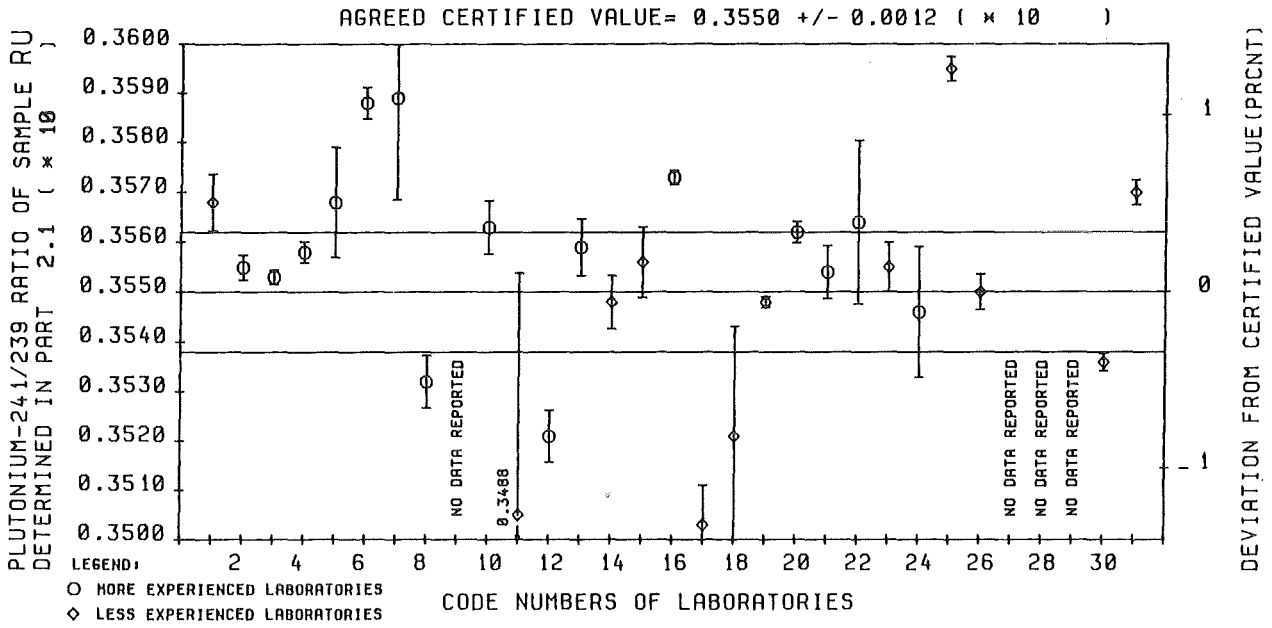
THE RATIOS LISTED HERE MUST BE DEVIDED BY 10.00

```

*****
 1          2          3          4          5          6          7          8
*****
LAB        RUN1      RUN2      RUN3      RSD SCAN  RSD RUN  LAB MEAN  RSD OF LAB
CODE                               (%)        (%)                               MEAN (%)
*****
 1      0.3557  0.3569  0.3577  0.18     0.27     0.3568     0.16
 2      0.3552  0.3553  0.3560  0.25     0.07     0.3555     0.07
 3      0.3556  0.3551  0.3552  0.05     0.07     0.3553     0.04
 4      0.3554  0.3561  0.3557  0.07     0.10     0.3558     0.06
 5      0.3568  0.3548  0.3587  0.79     0.43     0.3568     0.31
 6      0.3589  0.3582  0.3593  0.11     0.15     0.3588     0.09
 7      0.3586  0.3556  0.3627  0.81     0.94     0.3589     0.57
 8      0.3521  0.3536  0.3539  0.32     0.23     0.3532     0.15
 9      0.0      0.0     0.0     0.0     0.0     0.0      0.0
10     0.3563  0.3559  0.3568  0.64     0.0     0.3563     0.15
11     0.3458  0.3511  0.3494  5.95     0.0     0.3488     1.40
12     0.3531  0.3512  0.3521  0.15     0.26     0.3521     0.15
13     0.3561  0.3563  0.3553  0.69     0.0     0.3559     0.16
14     0.3556  0.3545  0.3545  0.65     0.0     0.3548     0.15
15     0.3544  0.3556  0.3569  0.56     0.25     0.3556     0.20
16     0.3574  0.3574  0.3573  0.15     0.0     0.3573     0.04
17     0.3489  0.3505  0.3516  0.57     0.32     0.3503     0.23
18     0.3562  0.3515  0.3486  0.82     1.03     0.3521     0.63
19     0.3549  0.3550  0.3546  0.14     0.01     0.3548     0.03
20     0.3565  0.3563  0.3558  0.27     0.0     0.3562     0.06
21     0.3552  0.3558  0.3551  0.65     0.0     0.3554     0.15
22     0.3556  0.3540  0.3595  0.51     0.77     0.3564     0.46
23     0.3555  0.3564  0.3547  0.14     0.23     0.3555     0.14
24     0.3529  0.3571  0.3538  0.29     0.62     0.3546     0.37
25     0.3589  0.3598  0.3597  0.27     0.07     0.3595     0.07
26     0.3555  0.3543  0.3551  0.20     0.15     0.3550     0.10
27     0.0      0.0     0.0     0.0     0.0     0.0      0.0
28     0.0      0.0     0.0     0.0     0.0     0.0      0.0
29     0.0      0.0     0.0     0.0     0.0     0.0      0.0
30     0.3540  0.3535  0.3534  0.12     0.08     0.3536     0.05
31     0.3575  0.3570  0.3566  0.27     0.07     0.3570     0.07
*****

```

REF.:           1           1           1           4           6           2           8



AGREED CERTIFIED VALUE = 0.3550 ( x 10 )  
 +/- 0.0012

1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	NONE	27	0.3555	0.14	1.21	0.0 <sup>1)</sup>	0.64
3	NONE	27	0.3555	0.14	1.21	0.0 <sup>1)</sup>	0.64
4	11	26	0.35555	0.15	0.45	0.37	0.54
5						GRAND MEAN	INTERLAB SPREAD (%)
						0.35552	0.59

REMARKS:

- 1) IN THIS CASE THE UNCERTAINTY COMPONENT 'RUN' IS NOT SIGNIFICANT; THIS QUANTITY IS MASKED BY THE RELATIVELY HIGH RSD 'SCAN' VALUE OF LABORATORY 11.

EVALUATION SHEET 38  
=====

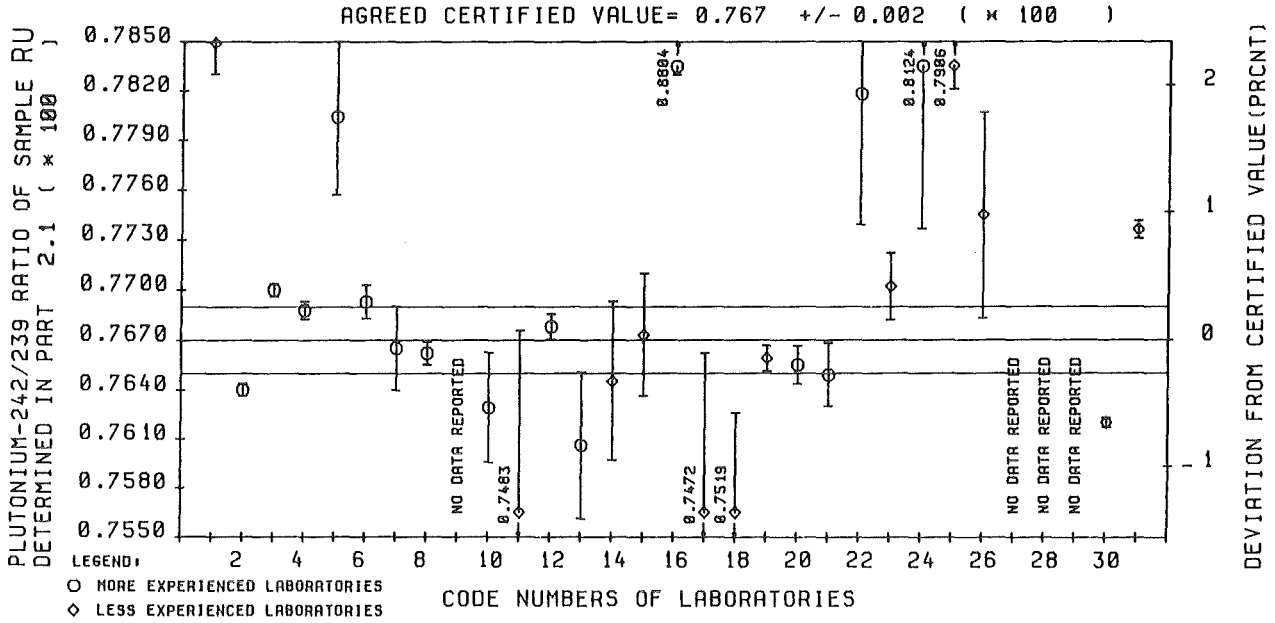
SAMPLE RU , PLUTONIUM-242/239 RATIOS  
DETERMINED IN PROGRAMME PART 2.1

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE RATIOS LISTED HERE MUST BE DEVIDED BY 100.00

```
*****
 1      2      3      4      5      6      7      8
*****
LAB     RUN1   RUN2   RUN3   RSD SCAN  RSD RUN  LAB MEAN  RSD OF LAB
CODE                                (%)        (%)        MEAN (%)
*****
 1      0.7813  0.7876  0.7859  0.70     0.30     0.7849     0.24
 2      0.7636  0.7642  0.7642  0.21     0.0      0.7640     0.05
 3      0.7708  0.7695  0.7698  0.11     0.08     0.7700     0.05
 4      0.7677  0.7696  0.7690  0.16     0.10     0.7688     0.07
 5      0.7780  0.7815  0.7817  2.53     0.0      0.7804     0.60
 6      0.7690  0.7677  0.7712  0.18     0.22     0.7693     0.13
 7      0.7622  0.7661  0.7710  1.19     0.31     0.7665     0.33
 8      0.7648  0.7673  0.7663  0.32     0.10     0.7662     0.09
 9      0.0      0.0      0.0      0.0      0.0      0.0        0.0
10     0.7688  0.7572  0.7627  1.66     0.35     0.7629     0.44
11     0.7483  0.7583  0.7383  6.29     0.0      0.7483     1.48
12     0.7692  0.7666  0.7674  0.36     0.09     0.7678     0.10
13     0.7683  0.7607  0.7527  2.07     0.59     0.7606     0.59
14     0.7740  0.7607  0.7588  0.88     1.02     0.7645     0.63
15     0.7670  0.7647  0.7703  2.03     0.0      0.7673     0.48
16     0.8810  0.8794  0.8809  0.18     0.07     0.8804     0.06
17     0.7383  0.7367  0.7667  1.53     2.17     0.7472     1.30
18     0.7642  0.7452  0.7465  1.00     1.35     0.7519     0.81
19     0.7660  0.7644  0.7672  0.35     0.11     0.7659     0.10
20     0.7668  0.7663  0.7632  0.42     0.19     0.7655     0.15
21     0.7643  0.7660  0.7643  1.05     0.0      0.7649     0.25
22     0.7690  0.7888  0.7875  4.29     0.0      0.7818     1.01
23     0.7715  0.7728  0.7662  0.48     0.41     0.7702     0.26
24     0.7987  0.8314  0.8070  0.30     2.09     0.8124     1.21
25     0.7910  0.7917  0.7892  0.75     0.0      0.7906     0.18
26     0.7842  0.7631  0.7763  0.70     1.35     0.7745     0.80
27     0.0      0.0      0.0      0.0      0.0      0.0        0.0
28     0.0      0.0      0.0      0.0      0.0      0.0        0.0
29     0.0      0.0      0.0      0.0      0.0      0.0        0.0
30     0.7625  0.7616  0.7619  0.12     0.04     0.7620     0.04
31     0.7738  0.7741  0.7730  0.30     0.0      0.7736     0.07
*****
```

REF.: 1 1 1 4 6 2 8



AGREED CERTIFIED VALUE = 0.767 +/- 0.002 ( x 100 )

1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	NONE	27	0.7673	0.04	1.75	0.52	3.20
3	16.24	25	0.7665	-0.07	1.83	0.32	1.24
4	16.24	25	0.7665	-0.07	1.83	0.32	1.24
5						GRAND MEAN	INTERLAB SPREAD (%)
						0.76758	1.32

REMARKS:

EVALUATION SHEET 39

=====

SAMPLE RS , PLUTONIUM-240/239 RATIOS

DETERMINED IN PROGRAMME PART 2.2

-----  
COMPILATION OF NUMERICAL DATA  
-----

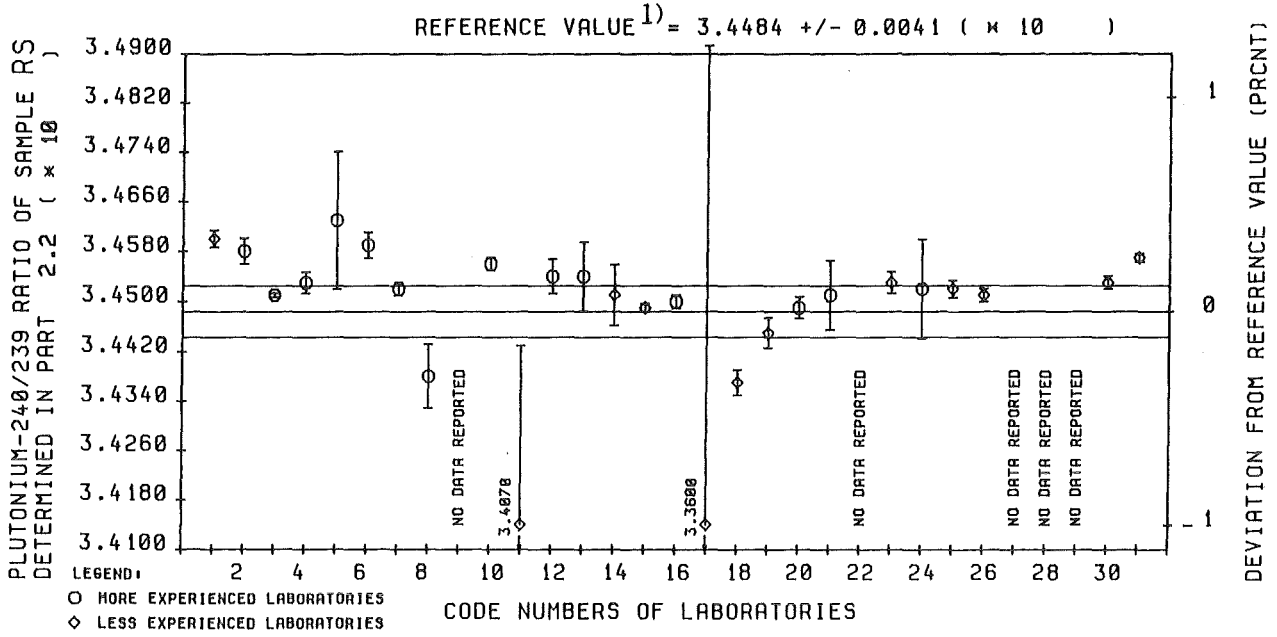
THE RATIOS LISTED HERE MUST BE DEVIDED BY 10.00

```

*****
 1      2      3      4      5      6      7      8
*****
LAB     RUN1    RUN2    RUN3    RSD SCAN  RSD RUN  LAB MEAN  RSD OF LAB
CODE                                (%)      (%)      MEAN (%)
*****
 1      3.460    3.458    3.462    0.16     0.0      3.460     0.04
 2      3.460    3.459    3.454    0.12     0.08     3.458     0.06
 3      3.451    3.450    3.451    0.02     0.01     3.451     0.01
 4      3.455    3.450    3.455    0.06     0.09     3.453     0.05
 5      3.441    3.475    3.473    0.49     0.51     3.463     0.32
 6      3.460    3.462    3.455    0.21     0.06     3.459     0.06
 7      3.453    3.453    3.450    0.13     0.0      3.452     0.03
 8      3.436    3.448    3.431    0.29     0.24     3.438     0.15
 9      0.0      0.0      0.0      0.0      0.0      0.0      0.0
10     3.455    3.456    3.458    0.09     0.03     3.456     0.03
11     3.367    3.390    3.463    2.16     1.19     3.407     0.85
12     3.454    3.453    3.454    0.34     0.0      3.454     0.08
13     3.465    3.447    3.452    0.45     0.21     3.454     0.16
14     3.458    3.454    3.442    0.22     0.22     3.451     0.14
15     3.449    3.447    3.450    0.07     0.02     3.449     0.02
16     3.449    3.451    3.452    0.03     0.04     3.450     0.03
17     3.205    3.445    3.429    0.27     3.99     3.360     2.30
18     3.434    3.436    3.441    0.21     0.05     3.437     0.06
19     3.446    3.448    3.440    0.13     0.10     3.445     0.07
20     3.447    3.451    3.449    0.20     0.0      3.449     0.05
21     3.440    3.456    3.457    0.23     0.26     3.451     0.16
22     0.0      0.0      0.0      0.0      0.0      0.0      0.0
23     3.452    3.450    3.456    0.05     0.08     3.453     0.05
24     3.452    3.438    3.465    0.52     0.34     3.452     0.23
25     3.455    3.451    3.450    0.09     0.07     3.452     0.04
26     3.453    3.449    3.449    0.03     0.06     3.451     0.03
27     0.0      0.0      0.0      0.0      0.0      0.0      0.0
28     0.0      0.0      0.0      0.0      0.0      0.0      0.0
29     0.0      0.0      0.0      0.0      0.0      0.0      0.0
30     3.451    3.454    3.453    0.05     0.05     3.453     0.03
31     3.457    3.457    3.457    0.08     0.0      3.457     0.02
*****

```

REF.:           1           1           1           4           6           2           8



REFERENCE VALUE<sup>1)</sup> = 3.4484 ( x 10 )  
 +/- 0.0041

1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM REF. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	26	3.452	0.10	0.48	0.81
3	EXTREME LAB MEANS ELIMINATED	17,11	24	3.452	0.10	0.23	0.16
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	17,11, 5	23	3.4521	0.11	0.21	0.13
						GRAND MEAN	INTERLAB SPREAD (%)
						3.4515	0.16

REMARKS:

1) THE CALCULATED DILUTION RATIO IS USED AS REFERENCE VALUE (SEE VOL.II, P.65).



EVALUATION SHEET 40  
=====

SAMPLE RS , PLUTONIUM-241/239 RATIOS

DETERMINED IN PROGRAMME PART 2.2

-----  
COMPILATION OF NUMERICAL DATA  
-----

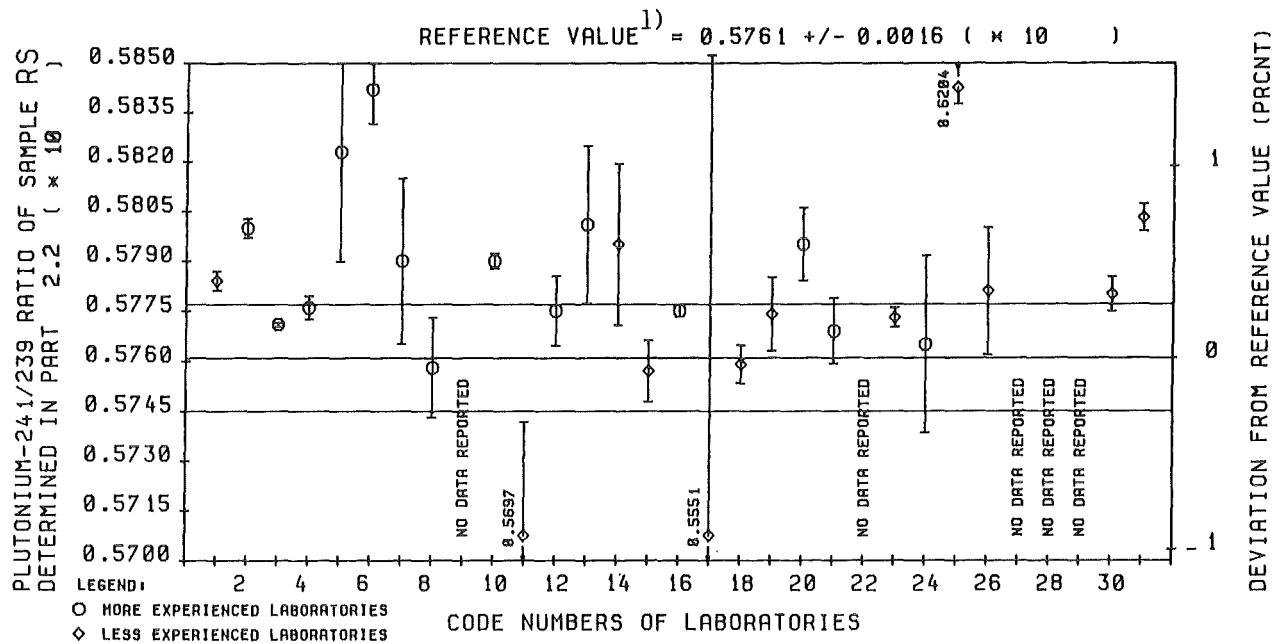
THE RATIOS LISTED HERE MUST BE DEVIDED BY 10.00

```

*****
 1         2         3         4         5         6         7         8
*****
LAB        RUN1      RUN2      RUN3      RSD SCAN  RSD RUN  LAB MEAN  RSD OF LAB
CODE                               (%)        (%)                               MEAN (%)
*****
 1      0.5782  0.5785  0.5786  0.22    0.0    0.5784    0.05
 2      0.5801  0.5800  0.5801  0.20    0.0    0.5800    0.05
 3      0.5770  0.5772  0.5772  0.06    0.0    0.5771    0.01
 4      0.5781  0.5770  0.5775  0.20    0.06   0.5776    0.06
 5      0.5760  0.5837  0.5872  0.77    0.93   0.5823    0.57
 6      0.5864  0.5832  0.5832  0.16    0.31   0.5842    0.18
 7      0.5759  0.5839  0.5772  0.24    0.74   0.5790    0.43
 8      0.5756  0.5786  0.5734  0.36    0.43   0.5758    0.26
 9      0.0     0.0     0.0     0.0     0.0    0.0     0.0
10     0.5787  0.5789  0.5795  0.17    0.0    0.5790    0.04
11     0.5645  0.5686  0.5761  1.86    0.70   0.5697    0.60
12     0.5795  0.5770  0.5760  0.58    0.21   0.5775    0.18
13     0.5848  0.5777  0.5777  0.64    0.65   0.5801    0.41
14     0.5794  0.5754  0.5838  0.48    0.69   0.5795    0.42
15     0.5748  0.5776  0.5747  0.46    0.21   0.5757    0.16
16     0.5776  0.5777  0.5772  0.12    0.01   0.5775    0.03
17     0.5266  0.5738  0.5649  0.60    4.51   0.5551    2.61
18     0.5747  0.5763  0.5766  0.36    0.09   0.5759    0.10
19     0.5782  0.5788  0.5753  0.39    0.28   0.5774    0.19
20     0.5778  0.5792  0.5816  0.35    0.30   0.5795    0.19
21     0.5756  0.5789  0.5764  0.34    0.26   0.5769    0.17
22     0.0     0.0     0.0     0.0     0.0    0.0     0.0
23     0.5767  0.5776  0.5776  0.13    0.08   0.5773    0.05
24     0.5787  0.5713  0.5797  0.47    0.77   0.5765    0.46
25     0.6210  0.6206  0.6197  0.35    0.0    0.6204    0.08
26     0.5819  0.5760  0.5764  0.23    0.57   0.5781    0.33
27     0.0     0.0     0.0     0.0     0.0    0.0     0.0
28     0.0     0.0     0.0     0.0     0.0    0.0     0.0
29     0.0     0.0     0.0     0.0     0.0    0.0     0.0
30     0.5773  0.5790  0.5776  0.05    0.16   0.5780    0.09
31     0.5810  0.5797  0.5803  0.24    0.06   0.5803    0.07
*****

```

REF.:           1           1           1           4           6           2           8



REFERENCE VALUE<sup>1)</sup> = 0.5761 ( x 10 )  
 +/- 0.0016

1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM REF. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	NONE	26	0.5778	0.30	0.52	0.95	1.63
3	25,17,11	23	0.5780	0.33	0.37	0.41	0.26
4	25,17,11	23	0.5780	0.33	0.37	0.41	0.26
5						GRAND MEAN	INTERLAB SPREAD (%)
						0.57842	0.36

REMARKS:

1) THE CALCULATED DILUTION RATIO IS USED AS REFERENCE VALUE (SEE VOL. II, P.65).

EVALUATION SHEET 41  
=====

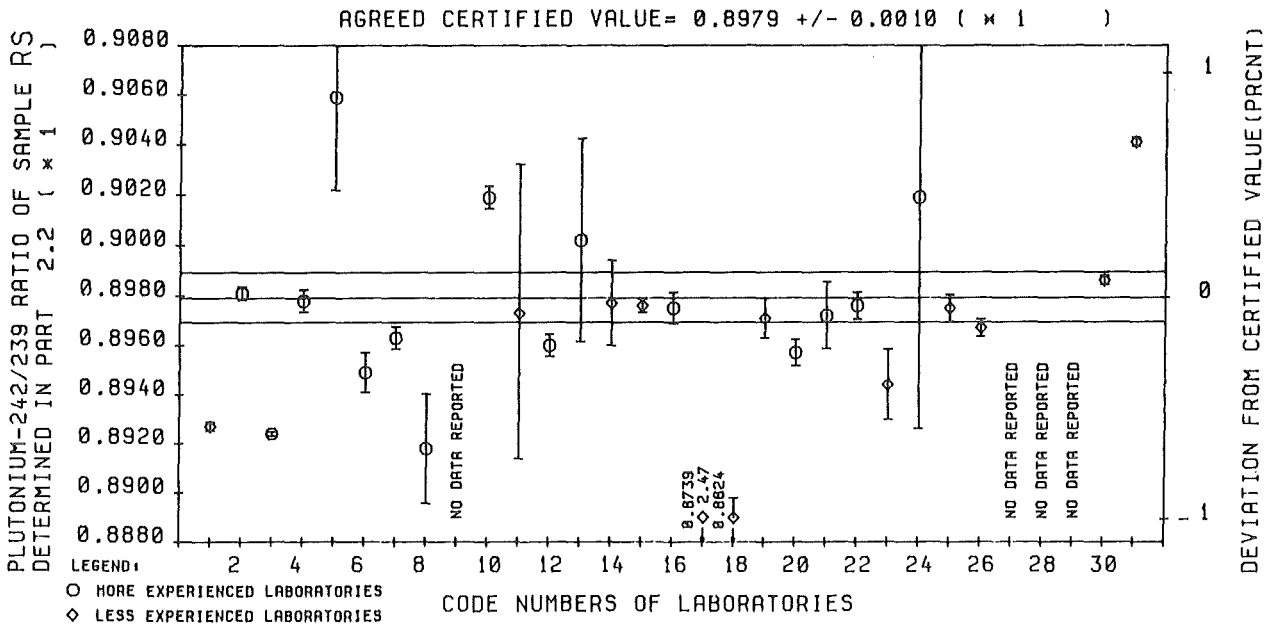
SAMPLE RS , PLUTONIUM-242/239 RATIOS

DETERMINED IN PROGRAMME PART 2.2'

-----  
COMPILATION OF NUMERICAL DATA  
-----

*****							
1	2	3	4	5	6	7	8
*****							
LAB	RUN1	RUN2	RUN3	RSD SCAN	RSD RUN	LAB MEAN	RSD OF LAB
CODE				(%)	(%)		MEAN (%)
*****							
1	0.8928	0.8930	0.8923	0.09	0.02	0.8927	0.02
2	0.8981	0.8977	0.8984	0.13	0.0	0.8981	0.03
3	0.8924	0.8923	0.8925	0.02	0.01	0.8924	0.01
4	0.8982	0.8981	0.8969	0.13	0.06	0.8978	0.05
5	0.8985	0.9098	0.9093	0.41	0.69	0.9059	0.41
6	0.8963	0.8949	0.8936	0.15	0.14	0.8949	0.09
7	0.8961	0.8971	0.8956	0.13	0.07	0.8963	0.05
8	0.8946	0.8935	0.8874	0.36	0.41	0.8918	0.25
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.9011	0.9022	0.9026	0.17	0.05	0.9019	0.05
11	0.8875	0.8965	0.9080	1.32	1.01	0.8973	0.66
12	0.8956	0.8955	0.8970	0.17	0.06	0.8960	0.05
13	0.9082	0.8977	0.8947	0.33	0.78	0.9002	0.45
14	0.9004	0.8982	0.8946	0.14	0.32	0.8977	0.19
15	0.8971	0.8977	0.8981	0.08	0.05	0.8976	0.03
16	0.8963	0.8979	0.8983	0.03	0.12	0.8975	0.07
17	0.8309	0.8986	0.8921	0.27	4.27	0.8739	2.47
18	0.8808	0.8829	0.8835	0.18	0.14	0.8824	0.09
19	0.8979	0.8979	0.8956	0.22	0.12	0.8971	0.09
20	0.8950	0.8958	0.8962	0.24	0.0	0.8957	0.06
21	0.8947	0.8992	0.8977	0.12	0.25	0.8972	0.15
22	0.8977	0.8985	0.8967	0.21	0.06	0.8976	0.06
23	0.8933	0.8927	0.8972	0.13	0.27	0.8944	0.16
24	0.9170	0.8849	0.9037	0.16	1.79	0.9019	1.03
25	0.8982	0.8978	0.8965	0.03	0.10	0.8975	0.06
26	0.8972	0.8969	0.8961	0.02	0.06	0.8967	0.04
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.8985	0.8990	0.8984	0.04	0.03	0.8986	0.02
31	0.9044	0.9040	0.9040	0.07	0.0	0.9041	0.02
*****							

REF.: 1 1 1 4 6 2 8



AGREED CERTIFIED VALUE= 0.8979 ( x 1 )  
 +/- 0.0010

1	2	3	4	5	6	7	8	
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)	
2	ALL DATA	NONE	27	0.8973	-0.07	0.31	0.93	0.43
3	EXTREME LAB MEANS ELIMINATED	17,18	25	0.8975	-0.04	0.32	0.48	0.23
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	17,18, 24	24	0.8974	-0.06	0.32	0.33	0.30
5						GRAND MEAN	INTERLAB SPREAD (%)	
						0.89737	0.37	

REMARKS:

EVALUATION SHEET 42  
=====

SAMPLE SUP , PLUTONIUM-239/242 RATIOS

DETERMINED IN PROGRAMME PART 2.3

-----  
COMPILATION OF NUMERICAL DATA  
-----

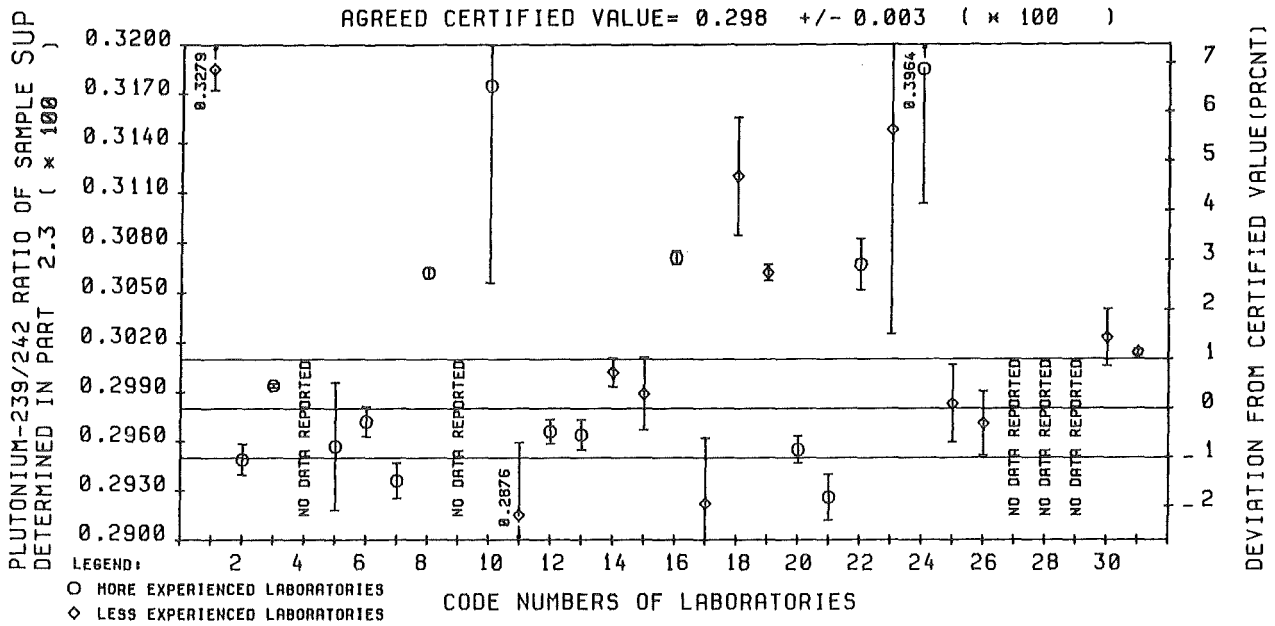
THE RATIOS LISTED HERE MUST BE DEVIDED BY 100.00

```

*****
  1      2      3      4      5      6      7      8
*****
LAB      RUN1    RUN2    RUN3    RSD SCAN  RSD RUN  LAB MEAN  RSD OF LAB
CODE                                (%)      (%)                                MEAN (%)
*****
  1      0.3274  0.3303  0.3259  0.98     0.55     0.3279    0.39
  2      0.2950  0.2965  0.2932  0.47     0.52     0.2949    0.32
  3      0.2995  0.2993  0.2995  0.16     0.0      0.2994    0.04
  4      0.2972  0.2972  0.2972  0.0      0.0      0.0       0.0
  5      0.2922  0.2962  0.2988  5.59     0.0      0.2957    1.32
  6      0.2960  0.2990  0.2965  0.64     0.47     0.2972    0.31
  7      0.2921  0.2939  0.2949  1.58     0.0      0.2936    0.37
  8      0.3067  0.3063  0.3057  0.40     0.04     0.3062    0.10
  9      0.0     0.0     0.0     0.0      0.0      0.0       0.0
 10     0.3408  0.3017  0.3099  4.89     6.18     0.3175    3.75
 11     0.2870  0.2802  0.2955  3.84     2.16     0.2876    1.54
 12     0.2959  0.2959  0.2981  1.06     0.02     0.2966    0.25
 13     0.2967  0.2975  0.2950  1.32     0.0      0.2964    0.31
 14     0.3008  0.3000  0.2997  1.23     0.0      0.3002    0.29
 15     0.2992  0.2975  0.3000  3.14     0.0      0.2989    0.74
 16     0.3075  0.3069  0.3069  0.57     0.0      0.3071    0.13
 17     0.3000  0.2867  0.2900  1.02     2.34     0.2922    1.37
 18     0.3183  0.3060  0.3117  2.36     1.73     0.3120    1.14
 19     0.3070  0.3053  0.3064  0.52     0.18     0.3062    0.16
 20     0.2952  0.2956  0.2959  1.21     0.0      0.2955    0.28
 21     0.2952  0.2922  0.2905  1.61     0.50     0.2926    0.48
 22     0.3076  0.3050  0.3074  2.12     0.0      0.3067    0.50
 23     0.3388  0.3072  0.2983  2.47     6.69     0.3148    3.91
 24     0.3803  0.4022  0.4068  0.30     3.57     0.3964    2.06
 25     0.2965  0.2955  0.3030  3.00     0.60     0.2983    0.79
 26     0.2980  0.2999  0.2933  0.61     1.12     0.2971    0.66
 27     0.0     0.0     0.0     0.0      0.0      0.0       0.0
 28     0.0     0.0     0.0     0.0      0.0      0.0       0.0
 29     0.0     0.0     0.0     0.0      0.0      0.0       0.0
 30     0.3006  0.3057  0.3004  0.35     0.98     0.3023    0.57
 31     0.3014  0.3011  0.3016  0.25     0.0      0.3014    0.06
*****

```

REF.: 1 1 1 4 6 2 8



AGREED CERTIFIED VALUE = 0.298 +/- 0.003 ( x 100 )

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	26	0.29915	0.39	2.13	2.15	6.63
3	EXTREME LAB MEANS ELIMINATED	24	25	0.2989	0.30	2.20	2.01	2.74
4	EXTREME VALUES OF LAB MEANS & RSD'S	24, 23	22	0.29775	-0.08	1.99	0.66	1.87
5	'RUN' ELIMINATED	10, 1					GRAND MEAN	INTERLAB SPREAD (%)
							0.29900	1.96

REMARKS:

EVALUATION SHEET 43  
=====

SAMPLE SUP , PLUTONIUM-240/242 RATIOS  
DETERMINED IN PROGRAMME PART 2.3

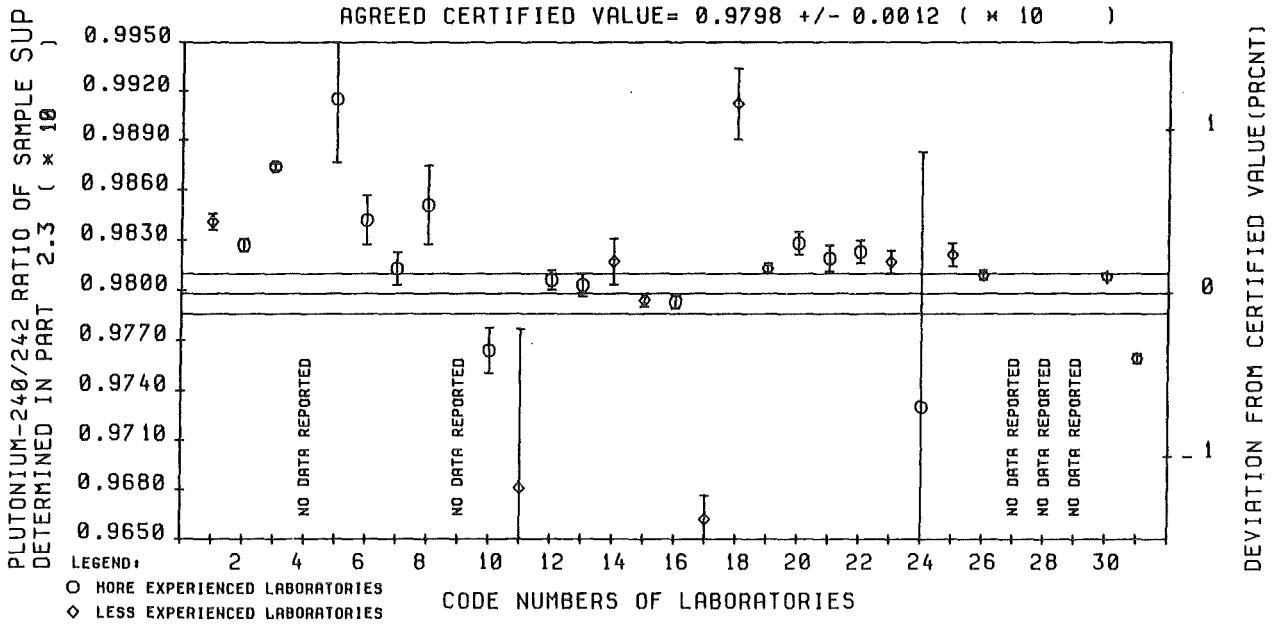
-----  
COMPILATION OF NUMERICAL DATA  
-----

THE RATIOS LISTED HERE MUST BE DEVIDED BY 10.00

*****							
1	2	3	4	5	6	7	8
*****							
LAB	RUN1	RUN2	RUN3	RSD SCAN	RSD RUN	LAB MEAN	RSD OF LAB
CODE				(%)	(%)		MEAN (%)
*****							
1	0.9847	0.9845	0.9830	0.16	0.07	0.9841	0.05
2	0.9830	0.9827	0.9823	0.18	0.0	0.9827	0.04
3	0.9870	0.9873	0.9878	0.05	0.04	0.9874	0.02
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.9845	0.9979	0.9922	0.69	0.61	0.9915	0.39
6	0.9825	0.9871	0.9829	0.22	0.25	0.9842	0.15
7	0.9830	0.9796	0.9813	0.34	0.10	0.9813	0.10
8	0.9805	0.9886	0.9862	0.27	0.41	0.9851	0.24
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.9737	0.9776	0.9777	0.49	0.12	0.9764	0.14
11	0.9835	0.9505	0.9703	1.04	1.66	0.9681	0.99
12	0.9816	0.9803	0.9798	0.14	0.08	0.9806	0.06
13	0.9800	0.9808	0.9802	0.29	0.0	0.9803	0.07
14	0.9845	0.9808	0.9799	0.46	0.16	0.9817	0.14
15	0.9800	0.9788	0.9795	0.15	0.02	0.9794	0.04
16	0.9795	0.9798	0.9786	0.06	0.06	0.9793	0.04
17	0.9663	0.9687	0.9637	0.36	0.21	0.9662	0.15
18	0.9928	0.9938	0.9869	0.39	0.34	0.9912	0.22
19	0.9814	0.9807	0.9818	0.12	0.03	0.9813	0.03
20	0.9829	0.9818	0.9837	0.28	0.0	0.9828	0.07
21	0.9821	0.9812	0.9823	0.34	0.0	0.9819	0.08
22	0.9817	0.9820	0.9832	0.28	0.0	0.9823	0.07
23	0.9824	0.9822	0.9803	0.13	0.10	0.9817	0.07
24	0.9425	0.9872	0.9895	0.34	2.72	0.9730	1.57
25	0.9808	0.9828	0.9827	0.10	0.11	0.9821	0.07
26	0.9805	0.9815	0.9806	0.04	0.05	0.9809	0.03
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.9810	0.9809	0.9805	0.08	0.0	0.9808	0.02
31	0.9756	0.9762	0.9759	0.11	0.0	0.9759	0.03

\*\*\*\*\*

REF.:	1	1	1	4	6	2	8
-------	---	---	---	---	---	---	---



AGREED CERTIFIED VALUE =  $0.9798 (\times 10)$   
 $\pm 0.0012$

1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	NONE	26	0.9815	0.17	0.35	0.65	0.44
3	NONE	26	0.9815	0.17	0.35	0.65	0.44
4	24, 11	23	0.9817	0.19	0.29	0.19	0.36
5	17					GRAND MEAN	INTERLAB SPREAD (%)
						0.98238	0.38

REMARKS:

EVALUATION SHEET <sup>43</sup> : SAMPLE SUP, PLUTONIUM-240/242 RATIOS DETERMINED IN PART 2.3



EVALUATION SHEET 44  
=====

SAMPLE SUP , PLUTONIUM-241/242 RATIOS

DETERMINED IN PROGRAMME PART 2.3

-----  
COMPILATION OF NUMERICAL DATA  
-----

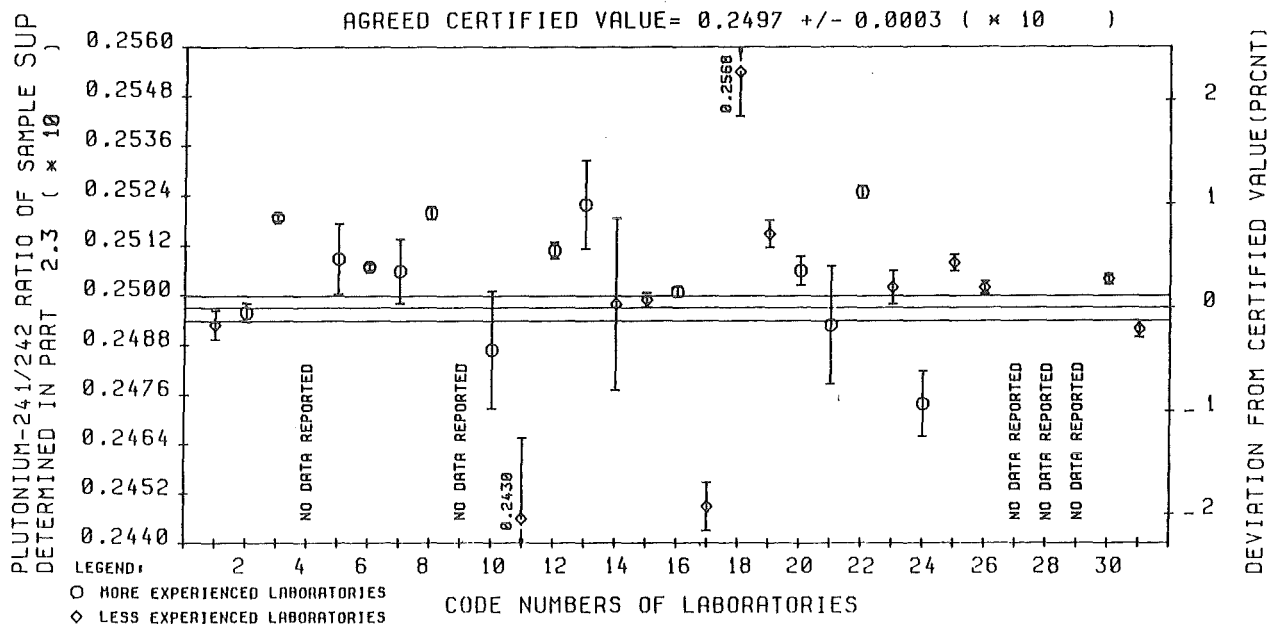
THE RATIOS LISTED HERE MUST BE DEVIDED BY 10.00

```

*****
1      2      3      4      5      6      7      8
*****
LAB    RUN1   RUN2   RUN3   RSD SCAN  RSD RUN  LAB MEAN  RSD OF LAB
CODE                                     (%)      (%)      MEAN (%)
*****
1      0.2500  0.2491  0.2489  0.43      0.16      0.2493      0.14
2      0.2500  0.2496  0.2492  0.27      0.11      0.2496      0.09
3      0.2518  0.2518  0.2520  0.07      0.04      0.2519      0.03
4      0.0      0.0      0.0      0.0       0.0       0.0         0.0
5      0.2501  0.2520  0.2505  1.44      0.0       0.2509      0.34
6      0.2507  0.2509  0.2506  0.10      0.04      0.2507      0.03
7      0.2495  0.2503  0.2521  0.75      0.44      0.2506      0.31
8      0.2522  0.2520  0.2517  0.25      0.0       0.2520      0.06
9      0.0      0.0      0.0      0.0       0.0       0.0         0.0
10     0.2460  0.2494  0.2508  1.08      0.89      0.2487      0.57
11     0.2467  0.2400  0.2422  2.19      1.08      0.2430      0.81
12     0.2507  0.2512  0.2513  0.18      0.12      0.2511      0.08
13     0.2506  0.2542  0.2517  1.00      0.60      0.2522      0.42
14     0.2457  0.2515  0.2523  0.61      1.42      0.2498      0.83
15     0.2497  0.2499  0.2499  0.28      0.0       0.2499      0.07
16     0.2504  0.2501  0.2500  0.09      0.07      0.2501      0.05
17     0.2458  0.2449  0.2438  0.47      0.36      0.2449      0.24
18     0.2582  0.2546  0.2576  0.59      0.69      0.2568      0.42
19     0.2517  0.2519  0.2508  0.23      0.21      0.2515      0.13
20     0.2500  0.2512  0.2506  0.46      0.16      0.2506      0.14
21     0.2468  0.2518  0.2494  0.99      0.91      0.2493      0.57
22     0.2525  0.2523  0.2527  0.24      0.0       0.2525      0.06
23     0.2505  0.2507  0.2494  0.45      0.22      0.2502      0.16
24     0.2488  0.2472  0.2461  0.35      0.53      0.2474      0.32
25     0.2510  0.2507  0.2509  0.33      0.0       0.2508      0.08
26     0.2505  0.2502  0.2499  0.15      0.09      0.2502      0.06
27     0.0      0.0      0.0      0.0       0.0       0.0         0.0
28     0.0      0.0      0.0      0.0       0.0       0.0         0.0
29     0.0      0.0      0.0      0.0       0.0       0.0         0.0
30     0.2502  0.2504  0.2506  0.20      0.0       0.2504      0.05
31     0.2491  0.2496  0.2489  0.23      0.11      0.2492      0.08
*****

```

REF.: 1 1 1 4 6 2 8

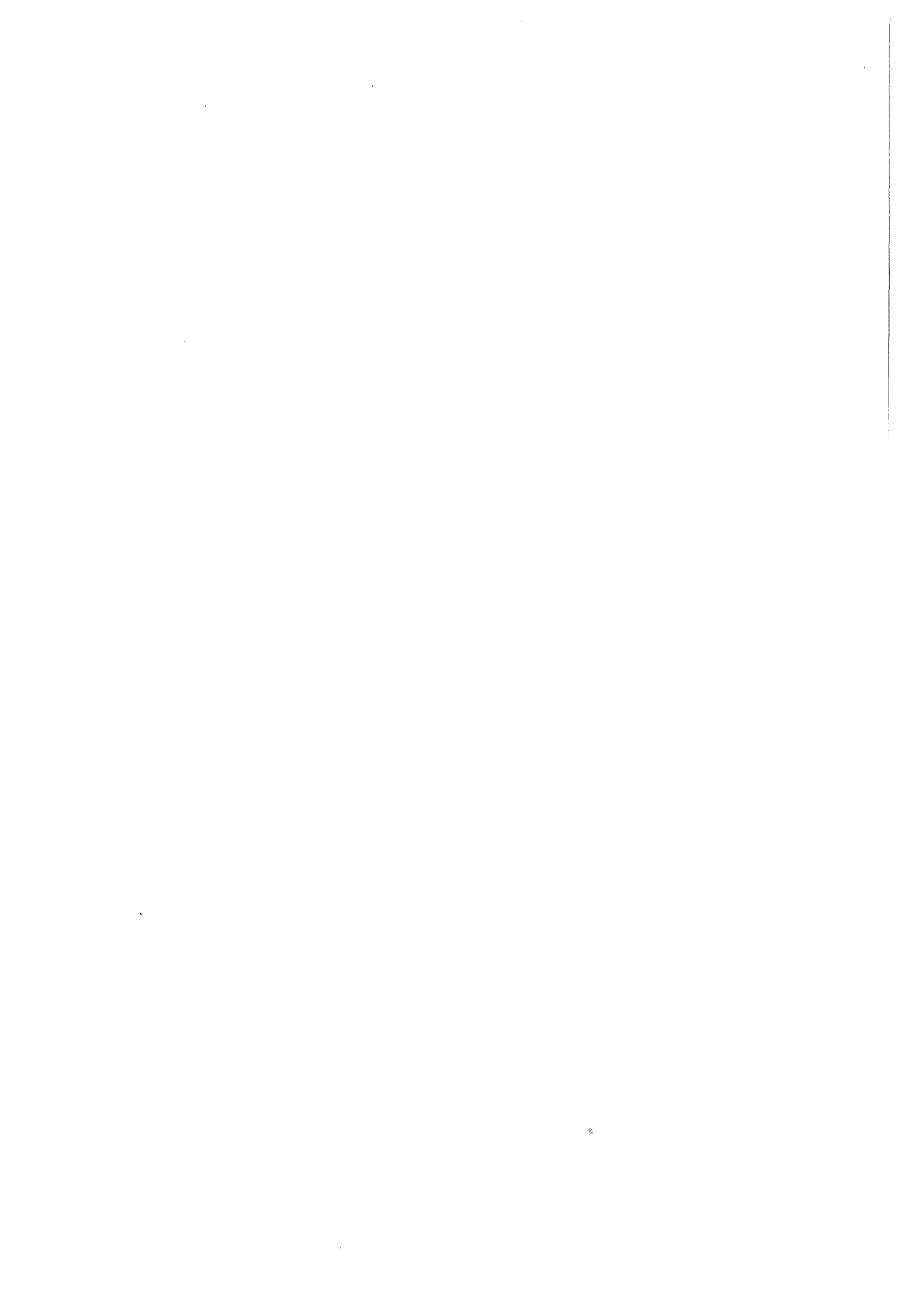


AGREED CERTIFIED VALUE = 0.2497 ( x 10 )  
 +/- 0.0003

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'SCAN' (AVERAGE) (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	26	0.2503	0.24	0.70	0.49	0.95
3	EXTREME LAB MEANS ELIMINATED	NONE	26	0.2503	0.24	0.70	0.49	0.95
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	NONE	26	0.2503	0.24	0.70	0.49	0.95
5							GRAND MEAN	INTERLAB SPREAD (%)
							0.25014	1.00

REMARKS:

EVALUATION SHEET 44 : SAMPLE SUP, PLUTONIUM-241/242 RATIOS DETERMINED IN PART 2.3



3.3 Isotope abundance determinations

3.3.1 Uranium

(Evaluation sheets 45 to 52)

EVALUATION SHEET 45  
=====

SOLUTION B, URANIUM-234 ABUNDANCES

DETERMINED IN PROGRAMME PART 1.11

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS WEIGHT-%

```

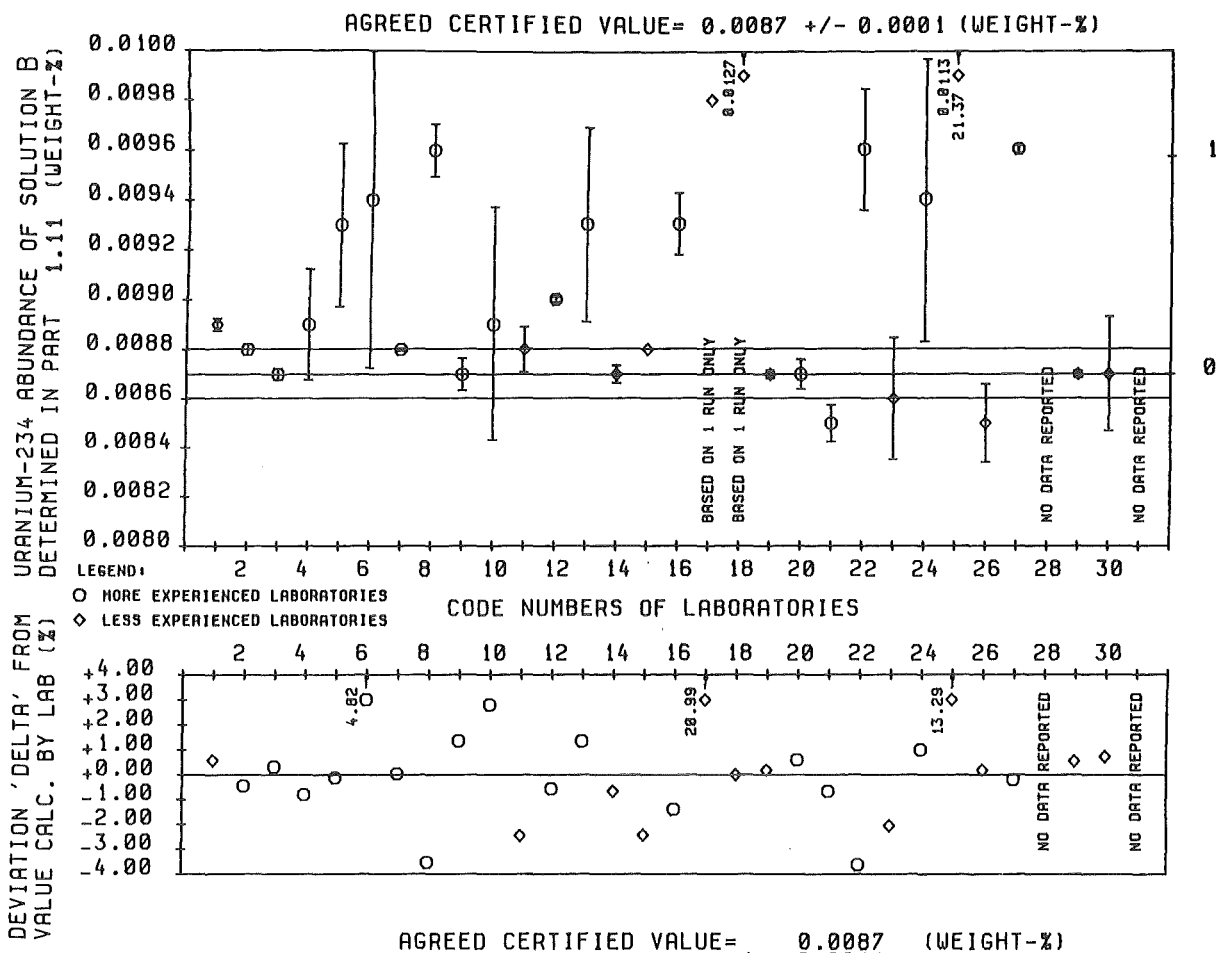
*****
  1      2      3      4      5      6      7      8
*****
LAB      RUN1    RUN2    RUN3 MEAN CALC. RSD OF LAB MEAN CALC. REL. DEV.
CODE                                BY ET.    MEAN (%)  BY LAB    FROM THAT
*****
  1      0.0089  0.0089  0.0089  0.0089    0.28    0.0089    0.58
  2      0.0088  0.0088  0.0087  0.0088    0.25    0.0088   -0.45
  3      0.0087  0.0087  0.0088  0.0087    0.27    0.0087    0.32
  4      0.0086  0.0088  0.0094  0.0089    2.50    0.0090   -0.80
  5      0.0086  0.0096  0.0096  0.0093    3.54    0.0093   -0.12
  6      0.0104  0.0081  0.0098  0.0094    7.18    0.0090    4.82
  7      0.0088  0.0088  0.0088  0.0088    0.06    0.0088    0.04
  8      0.0098  0.0094  0.0098  0.0096    1.12    0.0100   -3.52
  9      0.0086  0.0087  0.0088  0.0087    0.75    0.0086    1.36
 10      0.0085  0.0085  0.0099  0.0089    5.27    0.0087    2.80
 11      0.0086  0.0088  0.0089  0.0088    1.03    0.0090   -2.45
 12      0.0090  0.0090  0.0089  0.0090    0.12    0.0090   -0.56
 13      0.0088  0.0101  0.0091  0.0093    4.19    0.0092    1.35
 14      0.0087  0.0087  0.0088  0.0087    0.41    0.0088   -0.67
 15      0.0088  0.0088  0.0088  0.0088    0.0     0.0090   -2.42
 16      0.0093  0.0095  0.0090  0.0093    1.33    0.0094   -1.39
 17      -      -      0.0098  0.00981)  0.02)  0.0081   20.99
 18      -      0.0127  -      0.01271)  0.02)  0.0127    0.0
 19      0.0087  0.0087  0.0087  0.0087    0.19    0.0087    0.19
 20      0.0088  0.0088  0.0086  0.0087    0.69    0.0087    0.60
 21      0.0086  0.0086  0.0084  0.0085    0.89    0.0086   -0.66
 22      0.0094  0.0094  0.0101  0.0096    2.57    0.0100   -3.62
 23      0.0089  0.0081  0.0088  0.0086    2.88    0.0088   -2.05
 24      0.0090  0.0087  0.0105  0.0094    6.05    0.0093    1.01
 25      0.0067  0.0125  0.0148  0.0113   21.37    0.0100   13.29
 26      0.0088  0.0084  0.0083  0.0085    1.88    0.0085    0.19
 27      0.0096  0.0096  0.0096  0.0096    0.15    0.0096   -0.20
 28      0.0     0.0     0.0     0.0     0.0     0.0     0.0
 29      0.0087  0.0087  0.0087  0.0087    0.16    0.0087    0.55
 30      0.0087  0.0090  0.0082  0.0087    2.65    0.0086    0.73
 31      0.0     0.0     0.0     0.0     0.0     0.0     0.0
*****

```

REF.: 19 19 19 20 23 - 24

REMARKS:

- 1) The only run mean value determined.
- 2) Due to incompleteness of reported data a meaningful calculation of this quantity was not possible.



DEVIATION FROM CERTIFIED VALUE (10\*PRCNT)

	1	2	3	4	5	6	7	8
		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	17, 18	27	0.0088	1.15		10.01	2.66
3	EXTREME LAB MEANS ELIMINATED	17, 18 25	26	0.0088	1.15		4.77	2.91
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	17, 18 25	26	0.0088	1.15		4.77	2.91
5	REPORTED VALUES						GRAND MEAN	INTERLAB SPREAD (%)
							0.00896	4.01
6	REPORTED VALUES	17, 18, 25	26	0.00885	1.72		0.00899	4.50

REMARKS:

- LABORATORIES 17 AND 18 REPORTED DATA OF ONLY ONE RUN; THEREFORE, THEY HAVE NOT BEEN CONSIDERED IN THESE CALCULATIONS.

EVALUATION SHEET 46  
=====

SOLUTION B, URANIUM-235 ABUNDANCES

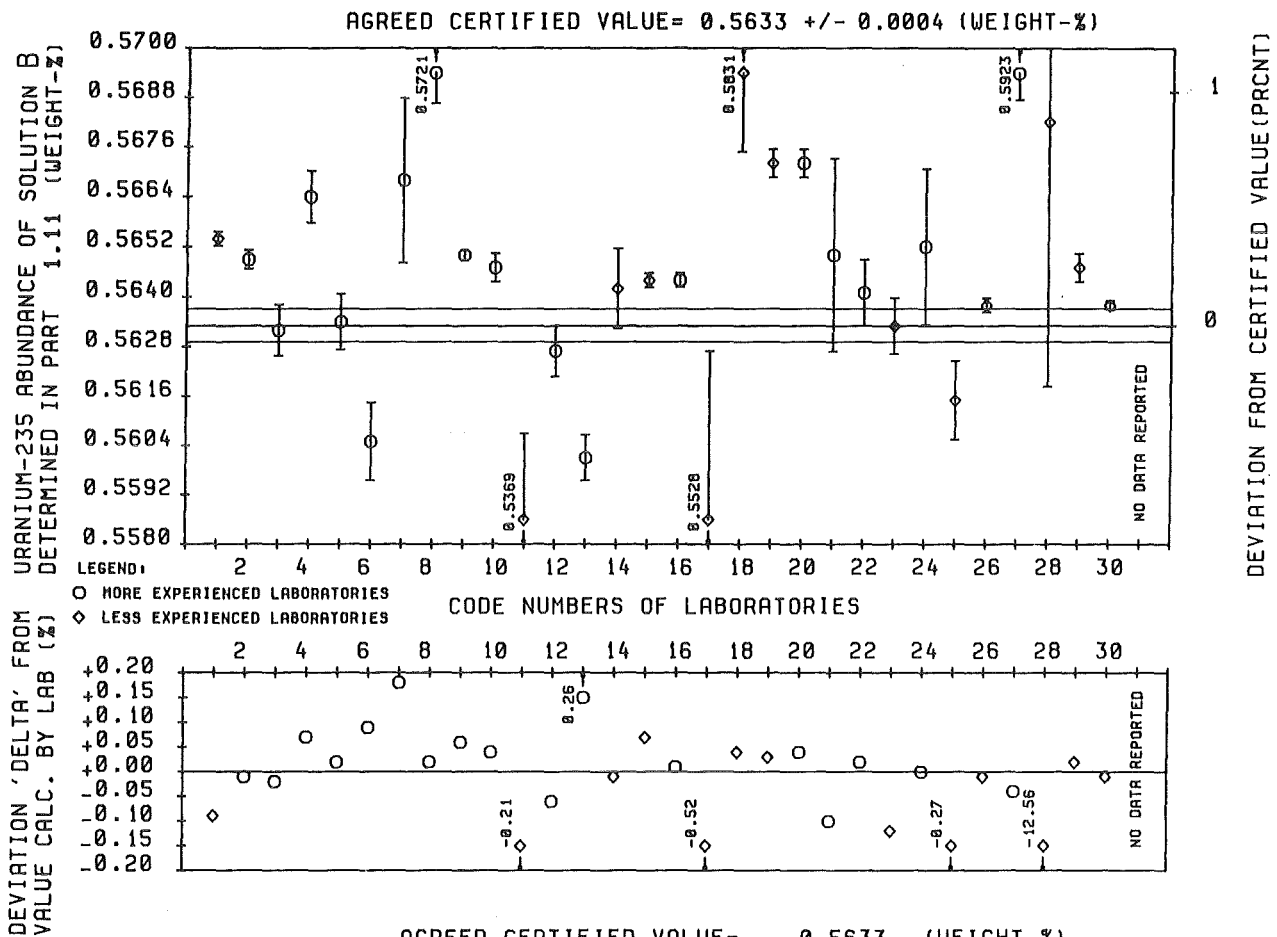
DETERMINED IN PROGRAMME PART 1.11

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS WEIGHT-%

*****							
1	2	3	4	5	6	7	8
*****							
LAB	RUN1	RUN2	RUN3	MEAN CALC.	RSD OF LAB	MEAN CALC.	REL. DEV.
CODE				BY ET.	MEAN (%)	BY LAB	FROM THAT
*****							
1	0.5656	0.5650	0.5655	0.5654	0.03	0.5659	-0.09
2	0.5651	0.5652	0.5645	0.5649	0.04	0.5650	-0.01
3	0.5626	0.5626	0.5644	0.5632	0.11	0.5633	-0.02
4	0.5668	0.5652	0.5672	0.5664	0.11	0.5660	0.07
5	0.5647	0.5624	0.5631	0.5634	0.12	0.5633	0.02
6	0.5596	0.5595	0.5624	0.5605	0.17	0.5600	0.09
7	0.5640	0.5658	0.5707	0.5668	0.35	0.5658	0.18
8	0.5733	0.5722	0.5707	0.5721	0.13	0.5720	0.02
9	0.5649	0.5650	0.5652	0.5650	0.02	0.5647	0.06
10	0.5642	0.5653	0.5646	0.5647	0.06	0.5645	0.04
11	0.5348	0.5411	0.5348	0.5369	0.39	0.5380	-0.21
12	0.5615	0.5630	0.5635	0.5627	0.11	0.5630	-0.06
13	0.5605	0.5589	0.5607	0.5601	0.10	0.5586	0.26
14	0.5628	0.5636	0.5661	0.5642	0.17	0.5643	-0.01
15	0.5646	0.5641	0.5645	0.5644	0.03	0.5640	0.07
16	0.5641	0.5646	0.5646	0.5644	0.03	0.5644	0.01
17	0.5446	0.5569	0.5570	0.5528	0.74	0.5557	-0.52
18	0.5866	0.5801	0.5824	0.5831	0.33	0.5828	0.04
19	0.5667	0.5670	0.5678	0.5672	0.06	0.5670	0.03
20	0.5676	0.5676	0.5665	0.5672	0.06	0.5670	0.04
21	0.5675	0.5671	0.5603	0.5650	0.41	0.5655	-0.10
22	0.5654	0.5628	0.5641	0.5641	0.14	0.5640	0.02
23	0.5646	0.5628	0.5625	0.5633	0.12	0.5640	-0.12
24	0.5615	0.5665	0.5675	0.5652	0.33	0.5652	0.0
25	0.5631	0.5598	0.5615	0.5615	0.17	0.5630	-0.27
26	0.5640	0.5635	0.5640	0.5638	0.03	0.5639	-0.01
27	0.5910	0.5931	0.5927	0.5923	0.11	0.5925	-0.04
28	0.5631	0.5809	0.5607	0.5682	1.12	0.6498	-12.56
29	0.5641	0.5647	0.5653	0.5647	0.06	0.5646	0.02
30	0.5637	0.5636	0.5639	0.5638	0.02	0.5638	-0.01
31	0.0	0.0	0.0	0.0	0.0	0.0	0.0
*****							

REF.:           19           19           19           20           23           -           24



	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	30	0.56455	0.22		0.52	1.50
3	EXTREME LAB MEANS ELIMINATED	27,11, 18,17	26	0.56455	0.22		0.47	0.34
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	27,11, 18,17, 28, 8	24	0.5644	0.20		0.27	0.29
5	REPORTED VALUES	8,11,17, 18,27,28	24	0.56445	0.20		0.56424	0.33
6							GRAND MEAN	INTERLAB SPREAD (%)
							0.56420	0.33

REMARKS:



EVALUATION SHEET 47  
=====

SOLUTION B, URANIUM-236 ABUNDANCES

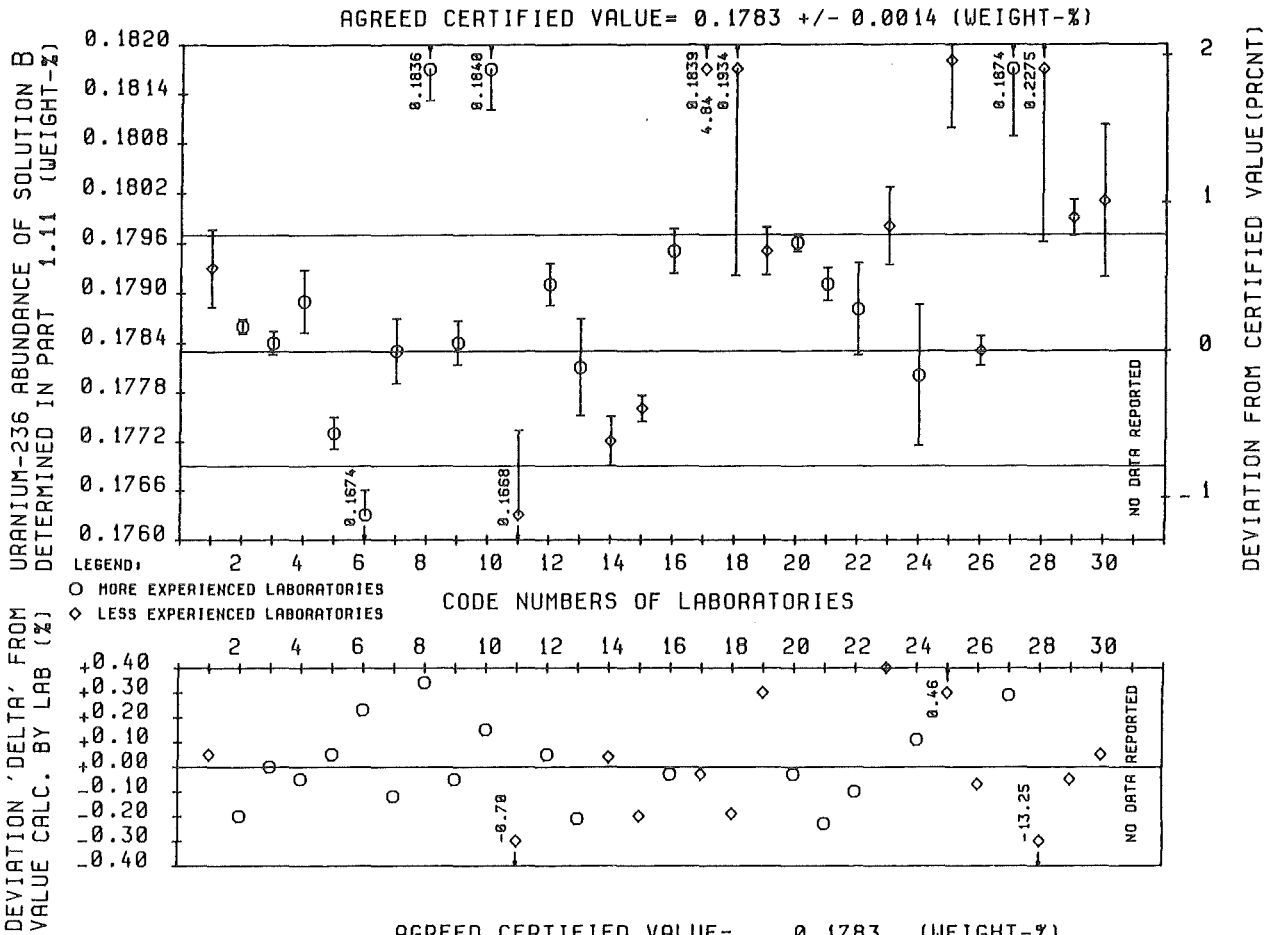
DETERMINED IN PROGRAMME PART 1.11

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS WEIGHT-%

1	2	3	4	5	6	7	8
LAB	RUN1	RUN2	RUN3	MEAN CALC.	RSD OF LAB	MEAN CALC.	REL. DEV.
CODE				BY ET.	MEAN (%)	BY LAB	FROM THAT
1	0.1801	0.1785	0.1793	0.1793	0.26	0.1792	0.05
2	0.1787	0.1785	0.1787	0.1786	0.05	0.1790	-0.20
3	0.1782	0.1783	0.1787	0.1784	0.08	0.1784	0.0
4	0.1788	0.1783	0.1796	0.1789	0.21	0.1790	-0.05
5	0.1770	0.1777	0.1773	0.1773	0.11	0.1772	0.05
6	0.1680	0.1670	0.1672	0.1674	0.18	0.1670	0.23
7	0.1783	0.1776	0.1790	0.1783	0.22	0.1785	-0.12
8	0.1838	0.1829	0.1842	0.1836	0.21	0.1830	0.34
9	0.1789	0.1782	0.1781	0.1784	0.15	0.1785	-0.05
10	0.1835	0.1850	0.1835	0.1840	0.27	0.1837	0.15
11	0.1662	0.1654	0.1688	0.1668	0.62	0.1680	-0.70
12	0.1793	0.1794	0.1786	0.1791	0.14	0.1790	0.05
13	0.1790	0.1785	0.1770	0.1781	0.33	0.1785	-0.21
14	0.1778	0.1770	0.1767	0.1772	0.17	0.1771	0.04
15	0.1780	0.1775	0.1775	0.1776	0.09	0.1780	-0.20
16	0.1790	0.1796	0.1799	0.1795	0.15	0.1796	-0.03
17	0.1746	0.2017	0.1755	0.1839	4.84	0.1840	-0.03
18	0.1984	0.1905	0.1914	0.1934	1.29	0.1938	-0.19
19	0.1790	0.1800	0.1795	0.1795	0.16	0.1790	0.30
20	0.1796	0.1794	0.1798	0.1796	0.06	0.1797	-0.03
21	0.1787	0.1794	0.1792	0.1791	0.11	0.1795	-0.23
22	0.1784	0.1781	0.1799	0.1788	0.31	0.1790	-0.10
23	0.1793	0.1794	0.1807	0.1798	0.26	0.1791	0.40
24	0.1794	0.1765	0.1781	0.1780	0.48	0.1778	0.11
25	0.1803	0.1830	0.1822	0.1818	0.45	0.1810	0.46
26	0.1782	0.1786	0.1780	0.1783	0.10	0.1784	-0.07
27	0.1859	0.1887	0.1878	0.1874	0.44	0.1869	0.29
28	0.2269	0.2314	0.2243	0.2275	0.92	0.2623	-13.25
29	0.1795	0.1802	0.1801	0.1799	0.12	0.1800	-0.05
30	0.1800	0.1817	0.1786	0.1801	0.51	0.1800	0.05
31	0.0	0.0	0.0	0.0	0.0	0.0	0.0

REF.: 19 19 19 20 23 - 24



	1	2	3	4	5	6	7	8
		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	30	0.1791	0.45		1.71	5.43
3	EXTREME LAB MEANS ELIMINATED	28	29	0.1791	0.45		1.72	2.50
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	28, 17, 18	27	0.1789	0.34		0.47	2.24
5	REPORTED VALUES	17, 18, 28	27	0.1790	0.39		0.17871	2.26
6	REPORTED VALUES	17, 18, 28	27	0.1790	0.39		0.17867	2.14

REMARKS:

EVALUATION SHEET 48

=====

SOLUTION B, URANIUM-238 ABUNDANCES

DETERMINED IN PROGRAMME PART 1.11

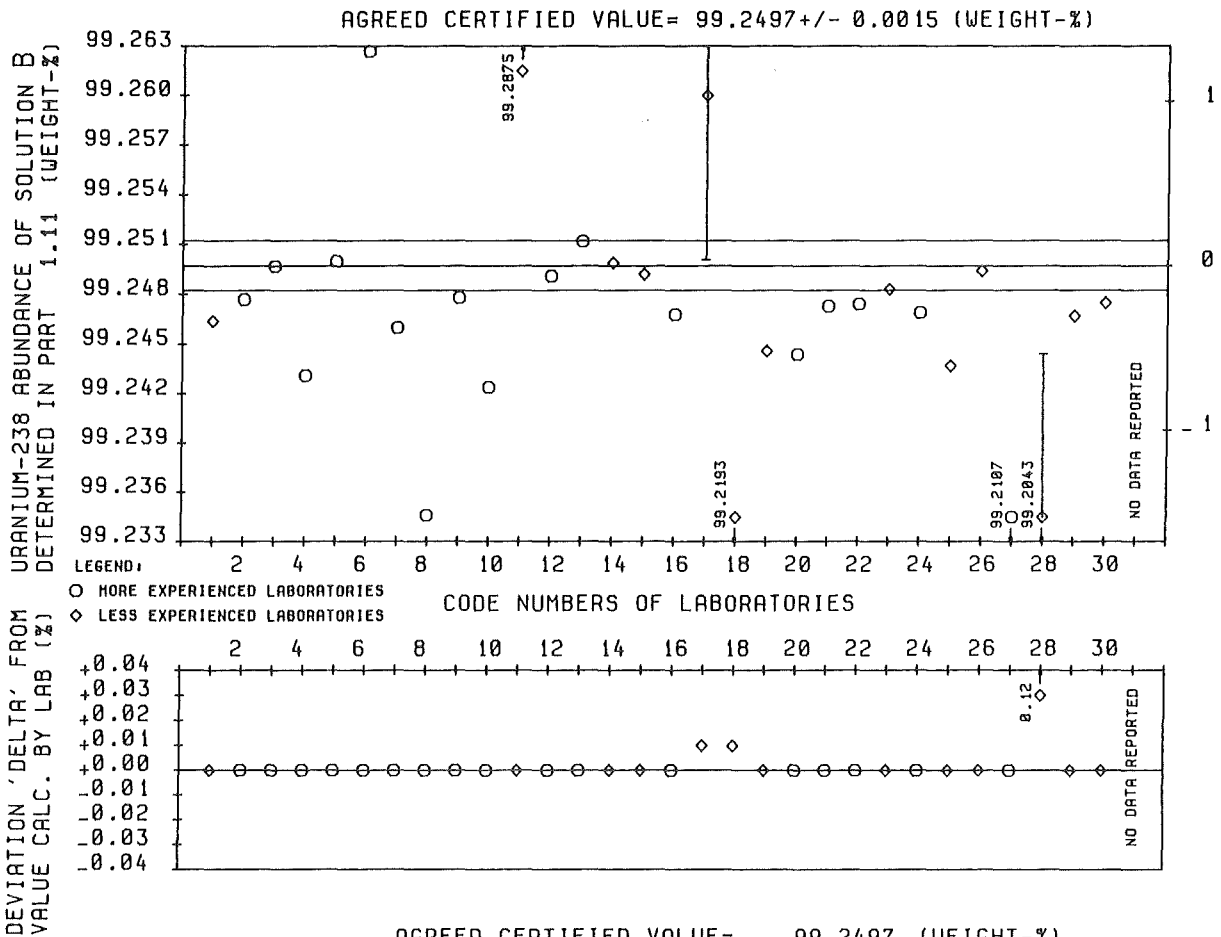
-----  
COMPILATION OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS WEIGHT-%

```

*****
  1      2      3      4      5      6      7      8
*****
LAB     RUN1     RUN2     RUN3 MEAN CALC. RSD OF LAB MEAN CALC. REL. DEV.
CODE                               BY ET.   MEAN (%)  BY LAB   FROM THAT
*****
  1  99.2453  99.2476  99.2463  99.2464      0.0      99.2460      0.0
  2  99.2474  99.2476  99.2480  99.2477      0.0      99.2480      0.0
  3  99.2505  99.2505  99.2482  99.2497      0.0      99.2496      0.0
  4  99.2449  99.2413  99.2432  99.2431      0.0      99.2450      0.0
  5  99.2497  99.2504  99.2501  99.2500      0.0      99.2502      0.0
  6  99.2620  99.2654  99.2607  99.2627      0.0      99.2640      0.0
  7  99.2489  99.2476  99.2415  99.2460      0.0      99.2469      0.0
  8  99.2331  99.2355  99.2353  99.2346      0.0      99.2350      0.0
  9  99.2475  99.2481  99.2479  99.2478      0.0      99.2482      0.0
 10  99.2438  99.2412  99.2420  99.2424      0.0      99.2431      0.0
 11  99.2904  99.2847  99.2874  99.2875      0.0      99.2850      0.0
 12  99.2501  99.2485  99.2488  99.2491      0.0      99.2490      0.0
 13  99.2509  99.2503  99.2525  99.2512      0.0      99.2527      0.0
 14  99.2507  99.2506  99.2484  99.2499      0.0      99.2498      0.0
 15  99.2486  99.2496  99.2493  99.2492      0.0      99.2490      0.0
 16  99.2476  99.2463  99.2464  99.2468      0.0      99.2466      0.0
 17  99.2808  99.2414  99.2577  99.2600      0.01     99.2500      0.01
 18  99.2150  99.2167  99.2262  99.2193      0.0      99.2107      0.01
 19  99.2456  99.2443  99.2439  99.2446      0.0      99.2450      0.0
 20  99.2440  99.2441  99.2450  99.2444      0.0      99.2450      0.0
 21  99.2451  99.2449  99.2521  99.2473      0.0      99.2464      0.0
 22  99.2467  99.2497  99.2458  99.2474      0.0      99.2470      0.0
 23  99.2472  99.2496  99.2480  99.2483      0.0      99.2482      0.0
 24  99.2496  99.2478  99.2434  99.2469      0.0      99.2477      0.0
 25  99.2494  99.2410  99.2407  99.2437      0.0      99.2460      0.0
 26  99.2489  99.2495  99.2497  99.2494      0.0      99.2492      0.0
 27  99.2135  99.2087  99.2099  99.2107      0.0      99.2110      0.0
 28  99.2101  99.1877  99.2150  99.2043      0.01     99.0880      0.12
 29  99.2476  99.2464  99.2459  99.2467      0.0      99.2470      0.0
 30  99.2476  99.2456  99.2493  99.2475      0.0      99.2476      0.0
 31  0.0      0.0      0.0      0.0      0.0      0.0      0.0
*****

```



	1	2	3	4	5	6	7	8
		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	30	99.24735	-0.002		0.005	0.014
3	EXTREME LAB MEANS ELIMINATED	NONE	30	99.24735	-0.002		0.005	0.014
4	EXTREME VALUES OF LAB MEANS & RSD'S	NONE	30	99.24735	-0.002		0.005	0.014
5	'RUN' ELIMINATED						GRAND MEAN	INTERLAB SPREAD (%)
							99.24536	0.015
6	REPORTED VALUES	NONE	30	99.24735	-0.002		99.24111	0.032

REMARKS:

- 1) IN MOST CASES, THE RSD OF THE LABORATORY MEAN VALUE WAS LESS THAN 0.005 %, ROUNDED TO 0.0 %; THUS, IN THESE CASES NO UNCERTAINTY BARS WERE DISPLAYED AND THE DIXON CRITERION WAS NOT APPLIED.
- 2) THE DIFFERENCES BETWEEN THE VALUES IN LINES 5 AND 6 FOR GRAND MEAN AND INTERLAB SPREAD ARE MAINLY CAUSED BY THE RELATIVELY HIGH DEVIATION 'DELTA' OF LABORATORY 28, WITHOUT THIS LABORATORY, THE VALUES FOR GRAND MEAN AND INTERLAB SPREAD IN LINE 6 OF THE TABLE WOULD BE 99.2464 WEIGHT-% AND 0.013 %, RESPECTIVELY.

EVALUATION SHEET 49  
=====

SOLUTION R, URANIUM-234 ABUNDANCES

DETERMINED IN PROGRAMME PART 2.1

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS WEIGHT-%

```

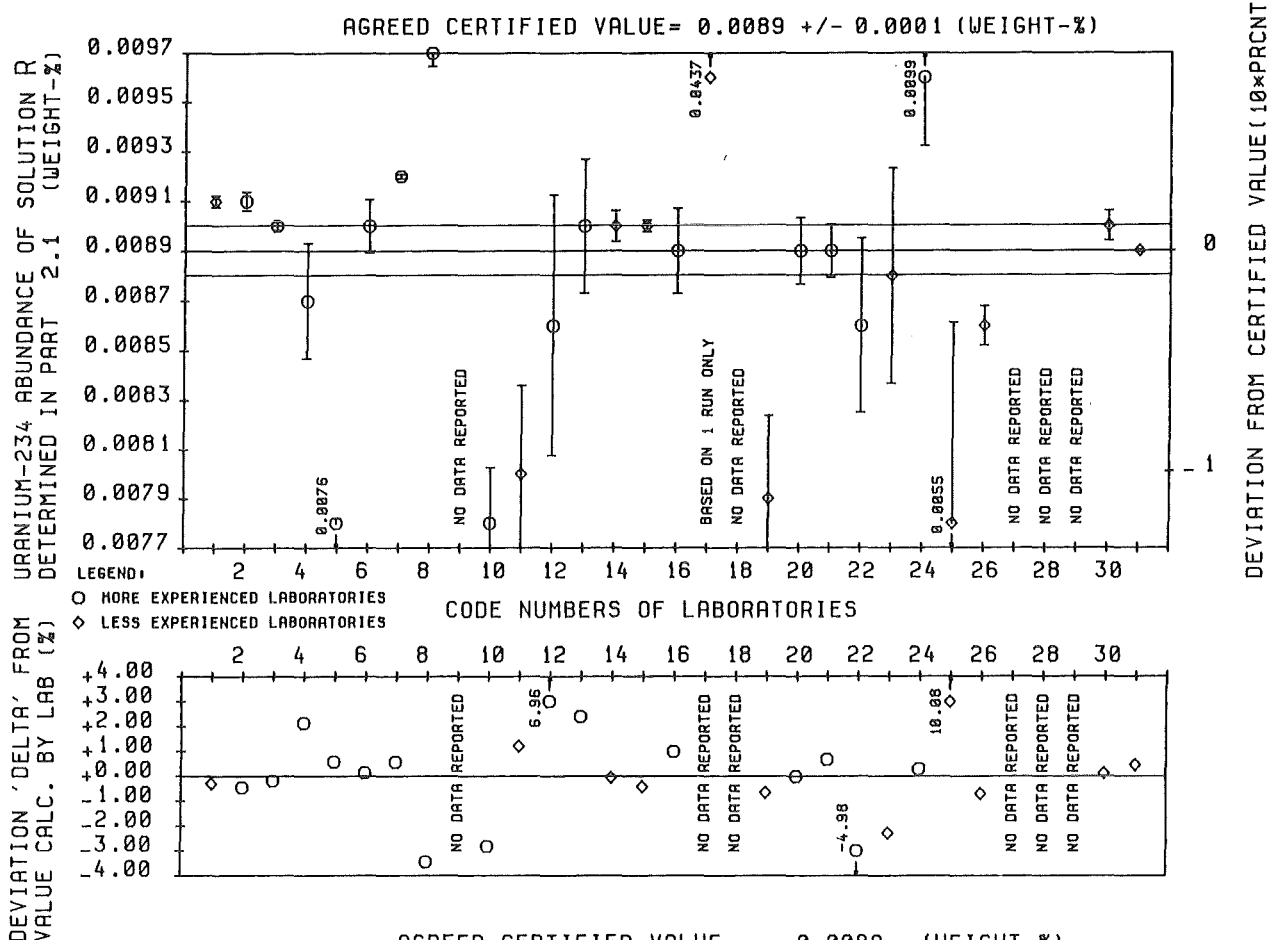
*****
  1      2      3      4      5      6      7      8
*****
LAB      RUN1     RUN2     RUN3  MEAN CALC.  RSD OF LAB  MEAN CALC.  REL. DEV.
CODE                               BY ET.      MEAN (%)    BY LAB      FROM THAT
*****
  1      0.0091  0.0091  0.0090  0.0091     0.26       0.0091     -0.31
  2      0.0090  0.0091  0.0091  0.0091     0.42       0.0091     -0.46
  3      0.0090  0.0090  0.0090  0.0090     0.18       0.0090     -0.19
  4      0.0083  0.0090  0.0087  0.0087     2.66       0.0085      2.13
  5      0.0076  0.0076  0.0076  0.0076     0.26       0.0076      0.57
  6      0.0089  0.0089  0.0092  0.0090     1.20       0.0090      0.13
  7      0.0092  0.0092  0.0091  0.0092     0.10       0.0091      0.56
  8      0.0095  0.0097  0.0097  0.0097     0.56       0.0100     -3.44
  9      0.0      0.0      0.0      0.0         0.0        0.0         0.0
 10     0.0074  0.0077  0.0082  0.0078     2.90       0.0080     -2.82
 11     0.0080  0.0074  0.0086  0.0080     4.50       0.0079      1.20
 12     0.0076  0.0094  0.0087  0.0086     6.11       0.0080      6.96
 13     0.0095  0.0087  0.0087  0.0090     2.99       0.0088      2.39
 14     0.0091  0.0090  0.0089  0.0090     0.69       0.0090     -0.06
 15     0.0090  0.0090  0.0089  0.0090     0.26       0.0090     -0.43
 16     0.0090  0.0085  0.0091  0.0089     1.92       0.0088      0.98
 17     0.0437  -        -        0.0437  1) 0.0  2) 0.0      0.0
 18     0.0      0.0      0.0      0.0         0.0        0.0         0.0
 19     0.0076  0.0086  0.0076  0.0079     4.28       0.0080     -0.66
 20     0.0090  0.0086  0.0090  0.0089     1.50       0.0089     -0.02
 21     0.0087  0.0088  0.0091  0.0089     1.20       0.0088      0.67
 22     0.0079  0.0086  0.0091  0.0086     4.07       0.0090     -4.98
 23     0.0092  0.0079  0.0092  0.0088     4.91       0.0090     -2.29
 24     0.0103  0.0094  0.0101  0.0099     2.82       0.0099      0.29
 25     0.0049  0.0045  0.0071  0.0055    14.80       0.0050    10.08
 26     0.0088  0.0085  0.0086  0.0086     0.92       0.0087     -0.71
 27     0.0      0.0      0.0      0.0         0.0        0.0         0.0
 28     0.0      0.0      0.0      0.0         0.0        0.0         0.0
 29     0.0      0.0      0.0      0.0         0.0        0.0         0.0
 30     0.0090  0.0089  0.0091  0.0090     0.67       0.0090      0.11
 31     0.0090  0.0089  0.0089  0.0089     0.06       0.0089      0.45
*****

```

REF.:           19           19           19           20           23                   -                   24

REMARKS:

- 1) The only run mean value determined.
- 2) Due to incompleteness of reported data a meaningful calculation of this quantity was not possible.



	1	2	3	4	5	6	7	8
		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
1	ALL DATA	17	25	0.0089	0.0		5.39	9.19
2	EXTREME LAB MEANS ELIMINATED	17, 25	24	0.0089	0.0		4.33	5.55
3	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	17, 25	24	0.0089	0.0		4.33	5.55
4	REPORTED VALUES	17, 25	24	0.00895	0.56		0.00878	6.08
5							0.00880	6.49

REMARKS:

1) LABORATORIES 17 AND 18 REPORTED DATA OF ONLY ONE RUN; THEREFORE, THEY HAVE NOT BEEN CONSIDERED IN THESE CALCULATIONS.

EVALUATION SHEET 50  
=====

SOLUTION R, URANIUM-235 ABUNDANCES

DETERMINED IN PROGRAMME PART 2.1

-----  
COMPILATION OF NUMERICAL DATA  
-----

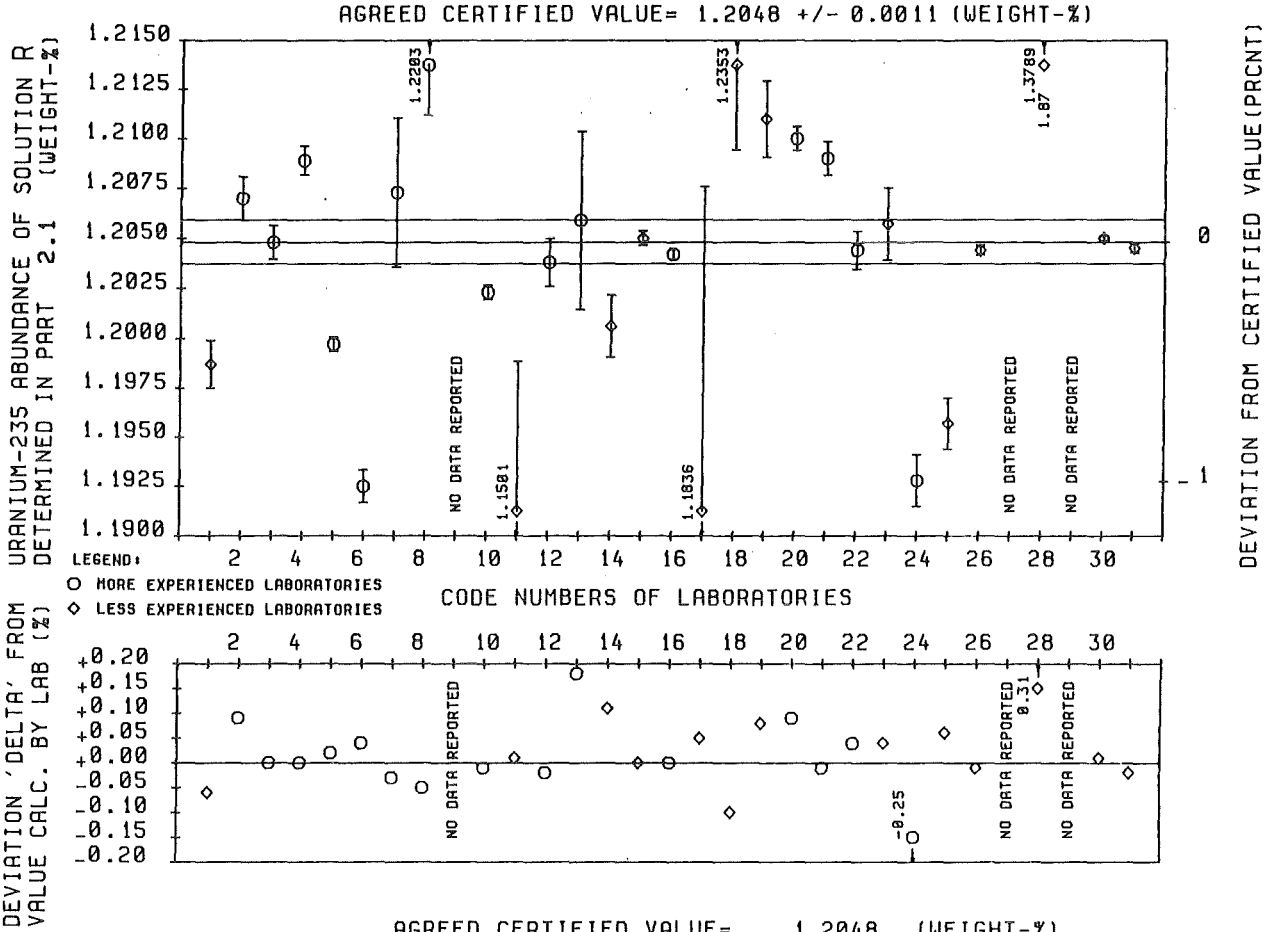
THE DIMENSION OF THE VALUES LISTED IS WEIGHT-%

```

*****
1      2      3      4      5      6      7      8
*****
LAB    RUN1    RUN2    RUN3  MEAN CALC.  RSD OF LAB  MEAN CALC.  REL. DEV.
CODE                                BY ET.      MEAN (%)    BY LAB      FROM THAT
*****
1      1.1983  1.1969  1.2009  1.1987      0.10        1.1994      -0.06
2      1.2052  1.2071  1.2089  1.2070      0.09        1.2060      0.09
3      1.2060  1.2031  1.2052  1.2048      0.07        1.2048      0.0
4      1.2094  1.2099  1.2074  1.2089      0.06        1.2090      0.0
5      1.1999  1.2001  1.1991  1.1997      0.03        1.1995      0.02
6      1.1941  1.1915  1.1918  1.1925      0.07        1.1920      0.04
7      1.2014  1.2141  1.2063  1.2073      0.31        1.2076      -0.03
8      1.2154  1.2238  1.2218  1.2203      0.21        1.2210      -0.05
9      0.0      0.0      0.0      0.0          0.0         0.0         0.0
10     1.2016  1.2025  1.2028  1.2023      0.03        1.2024      -0.01
11     1.1358  1.1615  1.1530  1.1501      0.66        1.1500      0.01
12     1.2015  1.2056  1.2042  1.2038      0.10        1.2040      -0.02
13     1.2098  1.2109  1.1971  1.2059      0.37        1.2038      0.18
14     1.2037  1.1984  1.1995  1.2006      0.13        1.1993      0.11
15     1.2056  1.2047  1.2047  1.2050      0.03        1.2050      0.0
16     1.2047  1.2037  1.2042  1.2042      0.02        1.2042      0.0
17     1.2090  1.1533  1.1886  1.1836      1.38        1.1830      0.05
18     1.2439  1.2299  1.2320  1.2353      0.35        1.2365      -0.10
19     1.2140  1.2074  1.2116  1.2110      0.16        1.2100      0.08
20     1.2109  1.2088  1.2104  1.2100      0.05        1.2090      0.09
21     1.2087  1.2105  1.2079  1.2090      0.07        1.2091      -0.01
22     1.2039  1.2032  1.2062  1.2044      0.08        1.2040      0.04
23     1.2031  1.2050  1.2090  1.2057      0.15        1.2052      0.04
24     1.1931  1.1905  1.1949  1.1928      0.11        1.1958      -0.25
25     1.1962  1.1933  1.1976  1.1957      0.11        1.1950      0.06
26     1.2042  1.2049  1.2042  1.2044      0.02        1.2045      -0.01
27     0.0      0.0      0.0      0.0          0.0         0.0         0.0
28     1.3427  1.3652  1.4288  1.3789      1.87        1.3746      0.31
29     0.0      0.0      0.0      0.0          0.0         0.0         0.0
30     1.2048  1.2050  1.2052  1.2050      0.01        1.2049      0.01
31     1.2046  1.2048  1.2040  1.2045      0.02        1.2047      -0.02
*****

```

REF.:           19           19           19           20           23           -           24



1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	NONE	28	1.20465	-0.01		0.88	2.93
3	28,11	25	1.2045	-0.02		0.52	0.51
4	18						
5	28,11, 18,17, 13,7	22	1.20445	-0.03		0.16	0.50
6						GRAND MEAN	INTERLAB SPREAD (%)
5						1.20410	0.51
6	7,11,13, 17,18,28	22	1.2046	-0.02		1.20403	0.50

REMARKS:



EVALUATION SHEET 51  
=====

SOLUTION R, URANIUM-236 ABUNDANCES

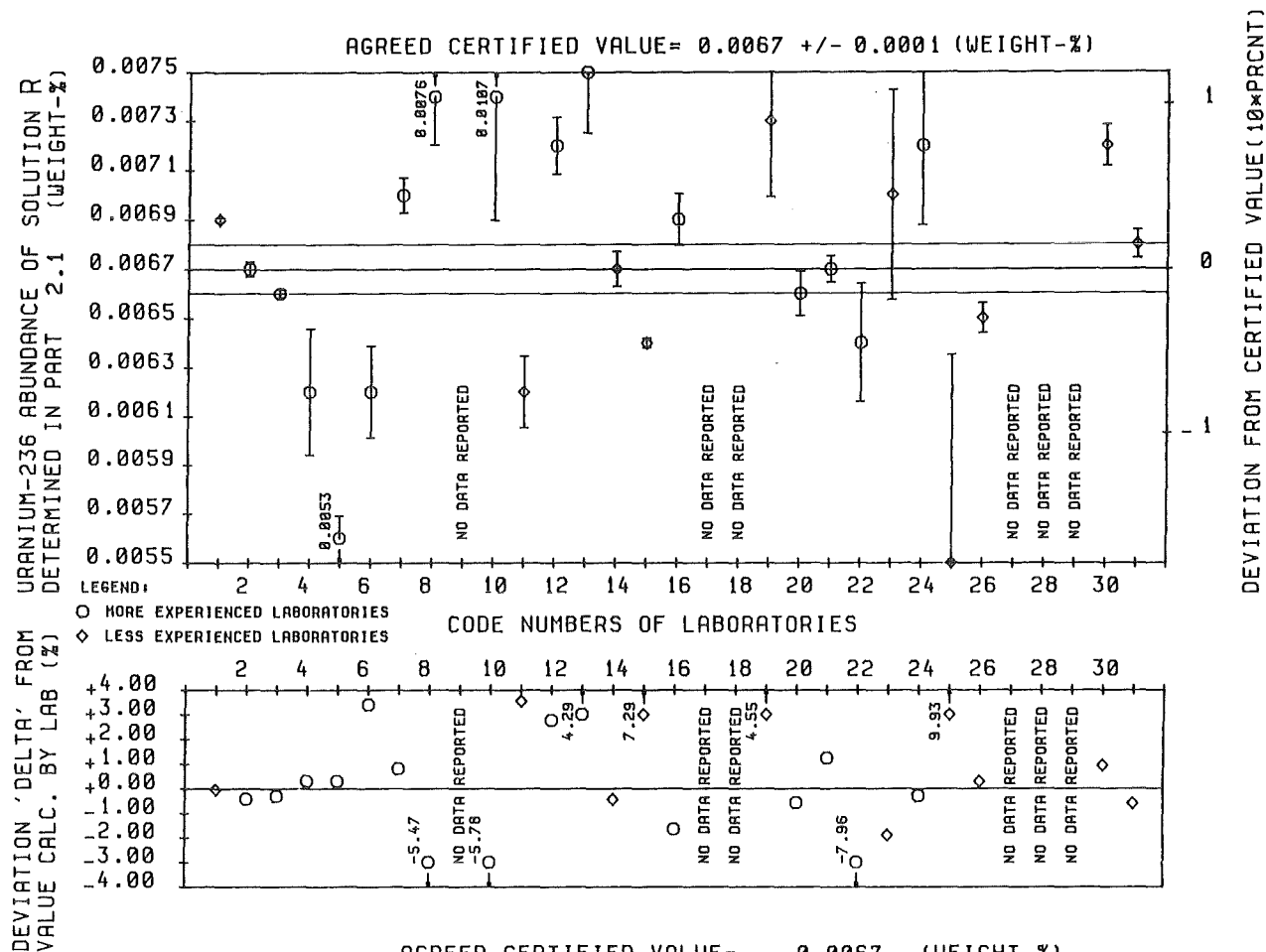
DETERMINED IN PROGRAMME PART 2.1

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS WEIGHT-%

1	2	3	4	5	6	7	8
LAB	RUN1	RUN2	RUN3	MEAN	CALC.	RSD OF	LAB
CODE				BY	ET.	MEAN (%)	BY
							LAB
							REL. DEV.
							FROM THAT
1	0.0069	0.0069	0.0068	0.0069	0.14	0.0069	-0.05
2	0.0067	0.0066	0.0067	0.0067	0.45	0.0067	-0.43
3	0.0066	0.0066	0.0066	0.0066	0.25	0.0066	-0.32
4	0.0064	0.0066	0.0057	0.0062	4.18	0.0062	0.31
5	0.0054	0.0054	0.0051	0.0053	1.71	0.0053	0.30
6	0.0059	0.0065	0.0062	0.0062	3.04	0.0060	3.40
7	0.0072	0.0069	0.0071	0.0070	1.01	0.0070	0.80
8	0.0077	0.0072	0.0078	0.0076	2.59	0.0080	-5.47
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0098	0.0115	0.0109	0.0107	4.69	0.0114	-5.78
11	0.0060	0.0065	0.0062	0.0062	2.37	0.0060	3.54
12	0.0072	0.0074	0.0070	0.0072	1.62	0.0070	2.77
13	0.0080	0.0073	0.0072	0.0075	3.32	0.0072	4.29
14	0.0066	0.0067	0.0068	0.0067	1.06	0.0067	-0.45
15	0.0065	0.0064	0.0064	0.0064	0.30	0.0060	7.29
16	0.0070	0.0067	0.0070	0.0069	1.51	0.0070	-1.66
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	0.0078	0.0074	0.0067	0.0073	4.23	0.0070	4.55
20	0.0067	0.0064	0.0067	0.0066	1.37	0.0066	-0.58
21	0.0066	0.0067	0.0068	0.0067	0.80	0.0066	1.24
22	0.0068	0.0060	0.0066	0.0064	3.77	0.0070	-7.96
23	0.0077	0.0062	0.0070	0.0070	6.10	0.0071	-1.90
24	0.0076	0.0074	0.0065	0.0072	4.47	0.0072	-0.30
25	0.0041	0.0070	0.0054	0.0055	15.47	0.0050	9.93
26	0.0066	0.0064	0.0065	0.0065	0.94	0.0065	0.29
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0072	0.0070	0.0073	0.0072	1.17	0.0071	0.94
31	0.0069	0.0068	0.0067	0.0068	0.84	0.0068	-0.61

REF.: 19 19 19 20 23 - 24



AGREED CERTIFIED VALUE = 0.0067 (WEIGHT-%)  
 +/- 0.0001

1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	25	0.0067	0.0	6.61	13.65
3	EXTREME LAB MEANS ELIMINATED	10	24	0.0067	0.0	6.39	7.36
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	10,25	23	0.0067	0.0	4.67	6.91
5	REPORTED VALUES	10,25	23	0.0068	1.49	0.00674	7.42
6						0.00672	8.25

REMARKS:

EVALUATION SHEET 52  
=====

SOLUTION R, URANIUM-238 ABUNDANCES

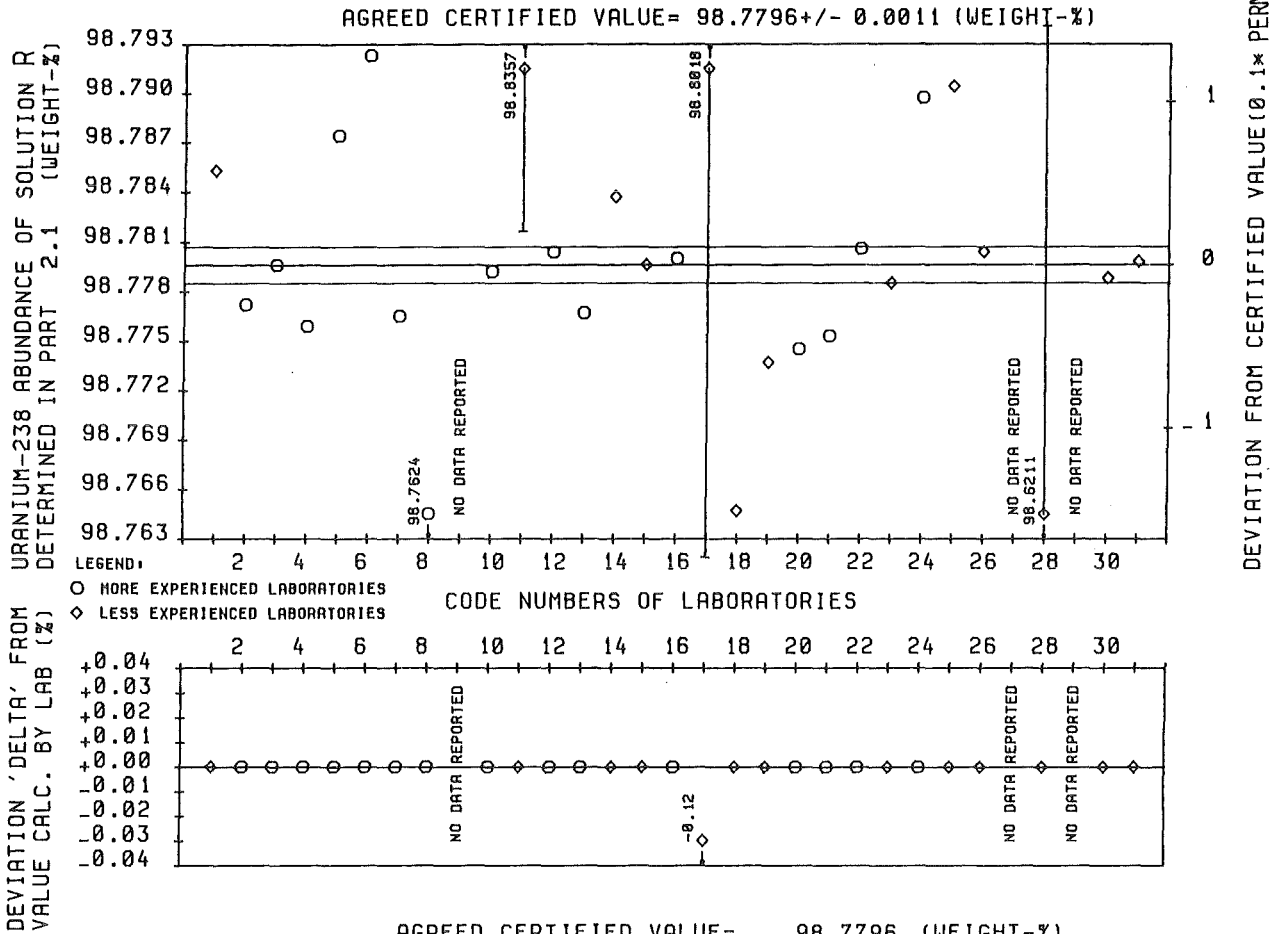
DETERMINED IN PROGRAMME PART 2.1

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS WEIGHT-%

```
*****
 1      2      3      4      5      6      7      8
*****
LAB    RUN1   RUN2   RUN3 MEAN CALC. RSD OF LAB MEAN CALC. REL. DEV.
CODE                                BY ET.    MEAN (%)  BY LAB   FROM THAT
*****
 1    98.7857 98.7871 98.7832 98.7853    0.0     98.7850    0.0
 2    98.7792 98.7772 98.7753 98.7772    0.0     98.7780    0.0
 3    98.7783 98.7814 98.7792 98.7796    0.0     98.7796    0.0
 4    98.7759 98.7743 98.7773 98.7759    0.0     98.7760    0.0
 5    98.7871 98.7869 98.7882 98.7874    0.0     98.7876    0.0
 6    98.7911 98.7931 98.7927 98.7923    0.0     98.7930    0.0
 7    98.7823 98.7698 98.7774 98.7765    0.0     98.7763    0.0
 8    98.7674 98.7593 98.7606 98.7624    0.0     98.7610    0.0
 9      0.0    0.0    0.0    0.0    0.0     0.0       0.0
10    98.7812 98.7783 98.7781 98.7792    0.0     98.7782    0.0
11    98.8503 98.8247 98.8323 98.8357    0.01    98.8400    0.0
12    98.7836 98.7776 98.7801 98.7804    0.0     98.7810    0.0
13    98.7722 98.7720 98.7860 98.7767    0.0     98.7802    0.0
14    98.7806 98.7859 98.7847 98.7837    0.0     98.7850    0.0
15    98.7789 98.7799 98.7800 98.7796    0.0     98.7800    0.0
16    98.7793 98.7811 98.7798 98.7800    0.0     98.7800    0.0
17    98.7473 98.8467 98.8114 98.8018    0.03    98.9200   -0.12
18    98.7561 98.7701 98.7680 98.7647    0.0     98.7635    0.0
19    98.7706 98.7766 98.7741 98.7737    0.0     98.7750    0.0
20    98.7734 98.7762 98.7738 98.7745    0.0     98.7750    0.0
21    98.7759 98.7739 98.7763 98.7753    0.0     98.7755    0.0
22    98.7814 98.7822 98.7781 98.7806    0.0     98.7800    0.0
23    98.7800 98.7808 98.7747 98.7785    0.0     98.7786    0.0
24    98.7886 98.7923 98.7881 98.7897    0.0     98.7870    0.0
25    98.7919 98.7932 98.7862 98.7904    0.0     98.7950    0.0
26    98.7803 98.7801 98.7807 98.7804    0.0     98.7803    0.0
27      0.0    0.0    0.0    0.0    0.0     0.0       0.0
28    98.6573 98.6348 98.5712 98.6211    0.03    98.6254    0.0
29      0.0    0.0    0.0    0.0    0.0     0.0       0.0
30    98.7790 98.7790 98.7784 98.7788    0.0     98.7790    0.0
31    98.7796 98.7795 98.7804 98.7798    0.0     98.7796    0.0
*****
```

REF.: 19 19 19 20 23 - 24



	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	28	98.7796	0.0		0.014	0.033
3	EXTREME LAB MEANS ELIMINATED	28, 11	26	98.7796	0.0		0.011	0.005
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	28, 11, 17	25	98.7796	0.0		0.003	0.007
5	REPORTED VALUES						GRAND MEAN	INTERLAB SPREAD (%)
							98.77920	0.007
6	REPORTED VALUES	11, 17, 28	25	98.7796	0.0		98.77948	0.007

REMARKS:

- 1) IN MOST CASES, THE RSD OF THE LABORATORY MEAN VALUE WAS LESS THAN 0.005 %, ROUNDED TO 0.0 %; THUS, IN THESE CASES NO UNCERTAINTY BARS WERE DISPLAYED AND THE DIXON CRITERION WAS NOT APPLIED.



3.3.2 Plutonium

(Evaluation sheets 53 to 66)

EVALUATION SHEET 53  
=====

SOLUTION B, PLUTONIUM-238 ABUNDANCES

DETERMINED IN PROGRAMME PART 1.11

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS WEIGHT-%

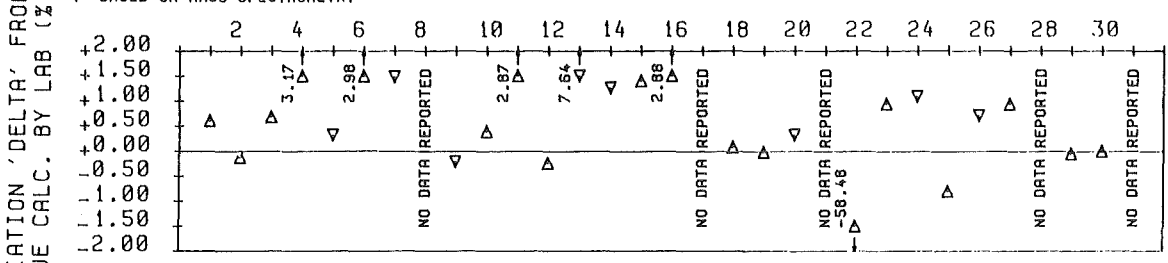
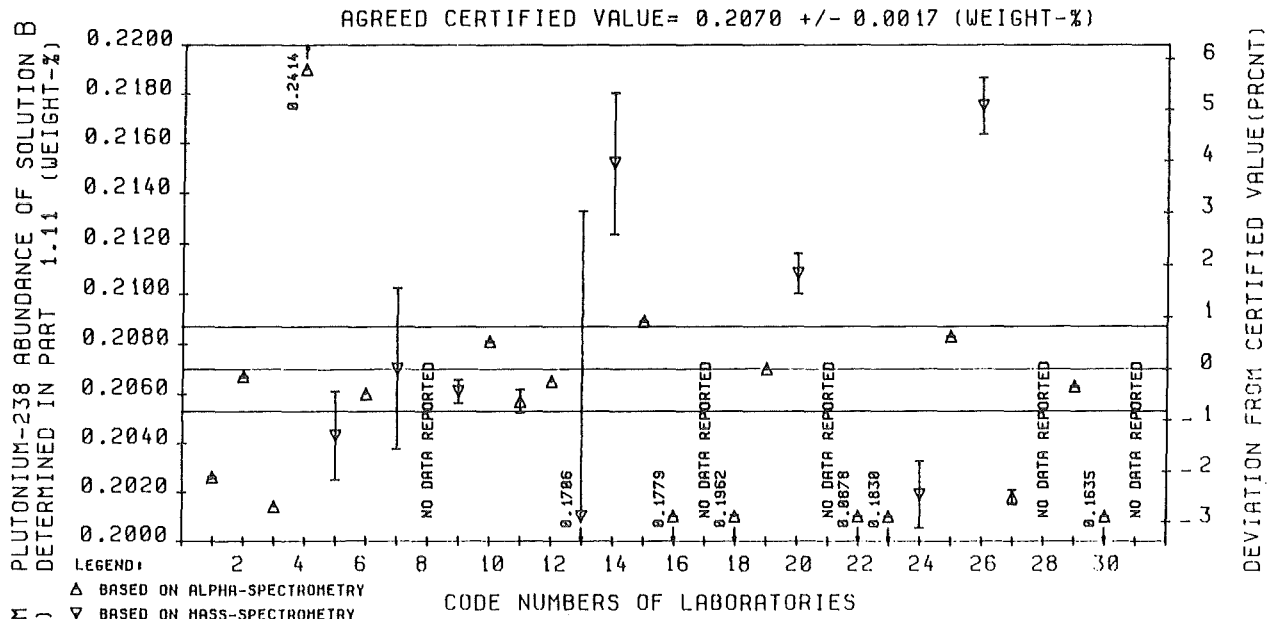
```

*****
1      2      3      4      5      61)      7      8
*****
LAB    RUN1    RUN2    RUN3  MEAN CALC.  RSD OF LAB  MEAN CALC.  REL. DEV.
CODE          BY ET.    MEAN (%)    BY LAB      FROM THAT
*****
1      0.2026  0.2026  0.2027  0.2026     0.02      0.2014      0.60
2      0.2068  0.2067  0.2067  0.2067     0.01      0.2070     -0.13
3      0.2014  0.2014  0.2014  0.2014     0.0       0.2000      0.68
4      0.2414  0.2414  0.2414  0.2414     0.0       0.2340      3.17
5      0.2074  0.2012  0.2041  0.2043     0.88      0.2036      0.32
6      0.2059  0.2060  0.2060  0.2060     0.0       0.2000      2.98
7      0.2058  0.2131  0.2021  0.2070     1.56      0.2040      1.48
8      0.0      0.0     0.0     0.0       0.0       0.0         0.0
9      0.2063  0.2052  0.2067  0.2061     0.23      0.2065     -0.21
10     0.2081  0.2081  0.2081  0.2081     0.01      0.2073      0.39
11     0.2056  0.2050  0.2066  0.2057     0.23      0.2000      2.87
12     0.2065  0.2065  0.2065  0.2065     0.0       0.2070     -0.24
13     0.1808  0.1848  0.1462  0.1706     7.20      0.1585      7.64
14     0.2131  0.2116  0.2208  0.2152     1.32      0.2125      1.27
15     0.2089  0.2089  0.2089  0.2089     0.01      0.2060      1.40
16     0.1779  0.1779  0.1779  0.1779     0.01      0.1729      2.88
17     0.0      0.0     0.0     0.0       0.0       0.0         0.0
18     0.1963  0.1961  0.1961  0.1962     0.04      0.1960      0.08
192)  0.2070  0.2070  0.2070  0.2070     0.0       0.2070     -0.02
202)  0.2099  0.2124  0.2100  0.2108     0.38      0.2101      0.32
21     0.0      0.0     0.0     0.0       0.0       0.0         0.0
22     0.0878  0.0879  0.0878  0.0878     0.03      0.2115    -58.48
23     0.1830  0.1830  0.1830  0.1830     0.01      0.1813      0.94
242)  0.2032  0.2033  0.1991  0.2019     0.68      0.1997      1.09
25     0.2084  0.2083  0.2083  0.2083     0.01      0.2100     -0.80
26     0.2162  0.2198  0.2166  0.2175     0.53      0.2160      0.71
27     0.2021  0.2012  0.2021  0.2018     0.15      0.1999      0.94
28     0.0      0.0     0.0     0.0       0.0       0.0         0.0
29     0.2063  0.2063  0.2063  0.2063     0.01      0.2064     -0.05
30     0.1635  0.1635  0.1635  0.1635     0.01      0.1635      0.0
31     0.0      0.0     0.0     0.0       0.0       0.0         0.0
*****
REF.:   71      71      71      72      75      -      76

```

REMARKS:

- 1) Data of laboratories using alpha spectrometry (see Eval.Sheet 54) are not comparable to those of the other laboratories.
- 2) The laboratory reported measurement results obtained by alpha and by mass spectrometry. The result with the lower 'Delta Value' is given as indicated by the symbol used in the upper graph. (For 'Delta Values' refer to data in columns 8 and their presentation in the lower graphs of Eval.Sheets 54 and 55).



1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	26	0.20615	-0.41		13.64
3	EXTREME LAB MEANS ELIMINATED	22	25	0.2063	-0.34	2.27	7.54
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	22, 13	24	0.2064	-0.29	0.89	6.99
5	REPORTED VALUES	13, 22	24	0.2062	-0.39	0.20392	7.01
6						0.20217	6.87

REMARKS:

- THIS EVALUATION CONCERNS THE MEASUREMENT RESULTS OBTAINED BY ALPHA- AND BY MASS-SPECTROMETRY. DUE TO THE LIMITED COMPARABILITY OF THE RESULTS OF THESE TWO METHODS RESULTS OF EVALUATION ARE GIVEN ALSO SEPARATELY IN EVAL. SHEETS 54 AND 55.



EVALUATION SHEET 54  
=====

SOLUTION B, PLUTONIUM-238 ABUNDANCES

DETERMINED IN PROGRAMME PART 1.11

USING ALPHA-SPECTROMETRY

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS WEIGHT-%

```

*****
1      2      3      4      5      6 1)      7      8
*****
LAB    RUN1    RUN2    RUN3  MEAN CALC.  RSD OF LAB  MEAN CALC.  REL. DEV.
CODE                                BY ET.      MEAN (%)    BY LAB     FROM THAT
*****
1      0.2026  0.2026  0.2027  0.2026      0.02      0.2014      0.60
2      0.2068  0.2067  0.2067  0.2067      0.01      0.2070     -0.13
3      0.2014  0.2014  0.2014  0.2014      0.0       0.2000      0.68
4      0.2414  0.2414  0.2414  0.2414      0.0       0.2340      3.17
5      NO DATA
6      0.2059  0.2060  0.2060  0.2060      0.0       0.2000      2.98
7      NO DATA
8      NO DATA REPORTED
9      NO DATA
10     0.2081  0.2081  0.2081  0.2081      0.01      0.2073      0.39
11     0.2056  0.2050  0.2066  0.2057      0.23      0.2000      2.87
12     0.2065  0.2065  0.2065  0.2065      0.0       0.2070     -0.24
13     NO DATA
14     NO DATA
15     0.2089  0.2089  0.2089  0.2089      0.01      0.2060      1.40
16     0.1779  0.1779  0.1779  0.1779      0.01      0.1729      2.88
17     NO DATA REPORTED
18     0.1963  0.1961  0.1961  0.1962      0.04      0.1960      0.08
19     0.2070  0.2070  0.2070  0.2070      0.0       0.2070     -0.02
20     0.2068  0.2068  0.2069  0.2068      0.02      0.2101     -1.55
21     NO DATA REPORTED
22     0.0878  0.0879  0.0878  0.0878      0.03      0.2115     -58.48
23     0.1830  0.1830  0.1830  0.1830      0.01      0.1813      0.94
24     0.2099  0.2098  0.2097  0.2098      0.02      0.1997      5.06
25     0.2084  0.2083  0.2083  0.2083      0.01      0.2100     -0.80
26     NO DATA
27     0.2021  0.2012  0.2021  0.2018      0.15      0.1999      0.94
28     NO DATA REPORTED
29     0.2063  0.2063  0.2063  0.2063      0.01      0.2064     -0.05
30     0.1635  0.1635  0.1635  0.1635      0.01      0.1635      0.0
31     NO DATA REPORTED
*****

```

REF.:        71        71        71        72        75        -        76

REMARKS:

- 1) Not comparable to data obtained by laboratories using mass spectrometry only (Eval. Sheet 55).
- 2) The entry 'no data' indicates that the laboratory determined the Pu-238/Pu-239 ratio by mass spectrometry (see Eval. Sheet 55).



EVALUATION SHEET 55  
=====

SOLUTION B, PLUTONIUM-238 ABUNDANCES  
DETERMINED IN PROGRAMME PART 1.11  
USING MASS-SPECTROMETRY

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS WEIGHT-%

\*\*\*\*\*  
1 2 3 4 5 6 7 8  
\*\*\*\*\*  
LAB RUN1 RUN2 RUN3 MEAN CALC. RSD OF LAB MEAN CALC. REL. DEV.  
CODE BY ET. MEAN (%) BY LAB FROM THAT  
\*\*\*\*\*

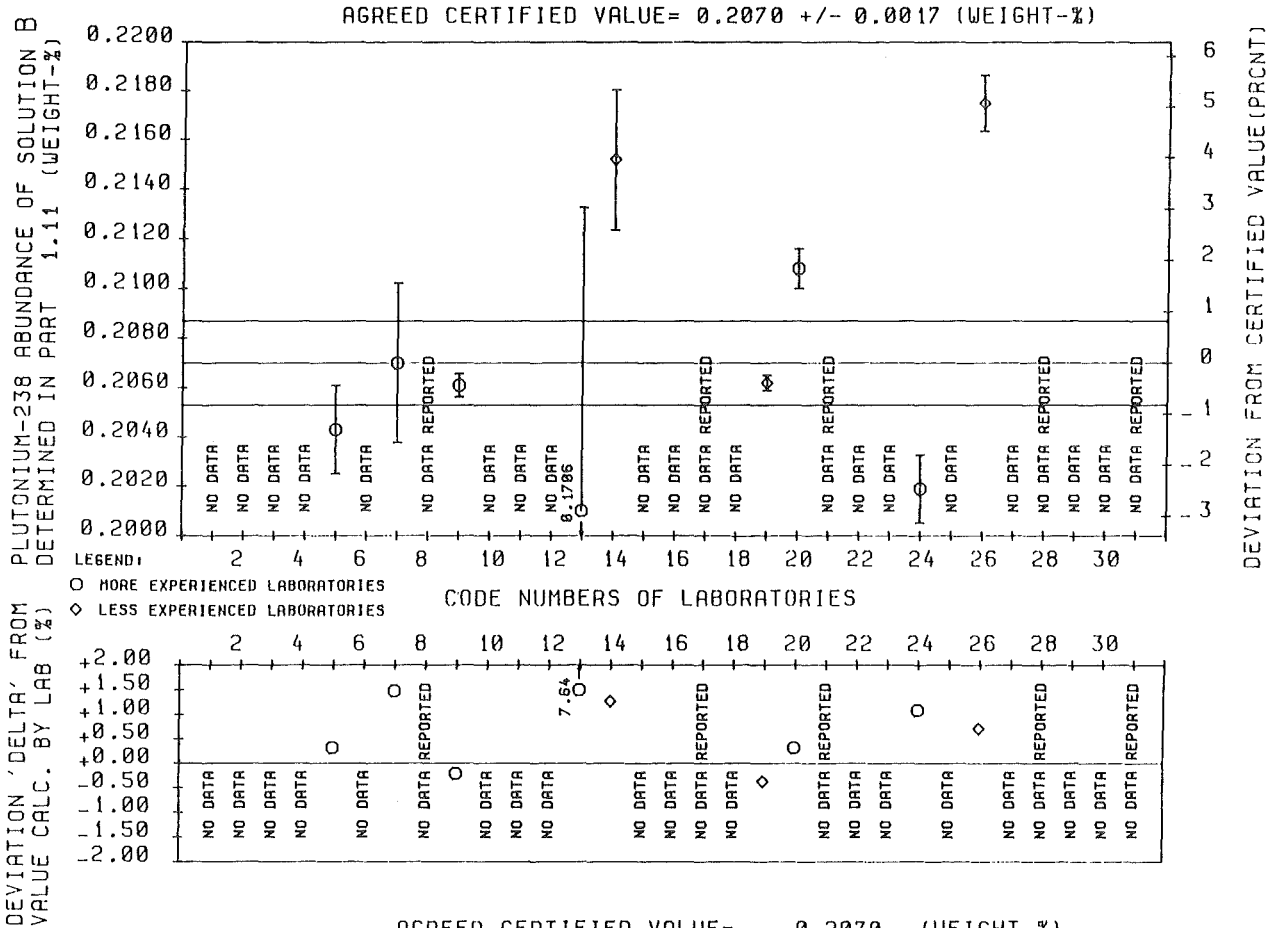
1		NO DATA					
2		NO DATA					
3		NO DATA					
4		NO DATA					
5	0.2074	0.2012	0.2041	0.2043	0.88	0.2036	0.32
6		NO DATA					
7	0.2058	0.2131	0.2021	0.2070	1.56	0.2040	1.48
8		NO DATA REPORTED					
9	0.2063	0.2052	0.2067	0.2061	0.23	0.2065	-0.21
10		NO DATA					
11		NO DATA					
12		NO DATA					
13	0.1808	0.1848	0.1462	0.1706	7.20	0.1585	7.64
14	0.2131	0.2116	0.2208	0.2152	1.32	0.2125	1.27
15		NO DATA					
16		NO DATA					
17		NO DATA REPORTED					
18		NO DATA					
19	0.2059	0.2069	0.2059	0.2062	0.15	0.2070	-0.37
20	0.2099	0.2124	0.2100	0.2108	0.38	0.2101	0.32
21		NO DATA REPORTED					
22		NO DATA					
23		NO DATA					
24	0.2032	0.2033	0.1991	0.2019	0.68	0.1997	1.09
25		NO DATA					
26	0.2162	0.2198	0.2166	0.2175	0.53	0.2160	0.71
27		NO DATA					
28		NO DATA REPORTED					
29		NO DATA					
30		NO DATA					
31		NO DATA REPORTED					

\*\*\*\*\*

REF.: 71 71 71 72 75 - 76

REMARKS:

1) The entry 'no data' indicates that the laboratory determined the Pu-238 isotope by alpha-spectrometry (see Eval.Sheet 54).



AGREED CERTIFIED VALUE= 0.2070 (WEIGHT-%)  
 +/- 0.0017

1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	9	0.2062	-0.39		3.75
3	EXTREME LAB MEANS ELIMINATED	13	8	0.2066	-0.19		1.50
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	13	8	0.2066	-0.19		1.50
5	REPORTED VALUES	13	8	0.20675	-0.12		1.50
						GRAND MEAN	INTERLAB SPREAD (%)
						0.20861	2.60
						0.20742	2.53

REMARKS:

EVALUATION SHEET 55 : SOLUTION B, PLUTONIUM-238 ABUNDANCES DETERMINED IN PART 1.11 USING MASS-SPECTROMETRY ONLY

EVALUATION SHEET 56

SOLUTION B, PLUTONIUM-239 ABUNDANCES

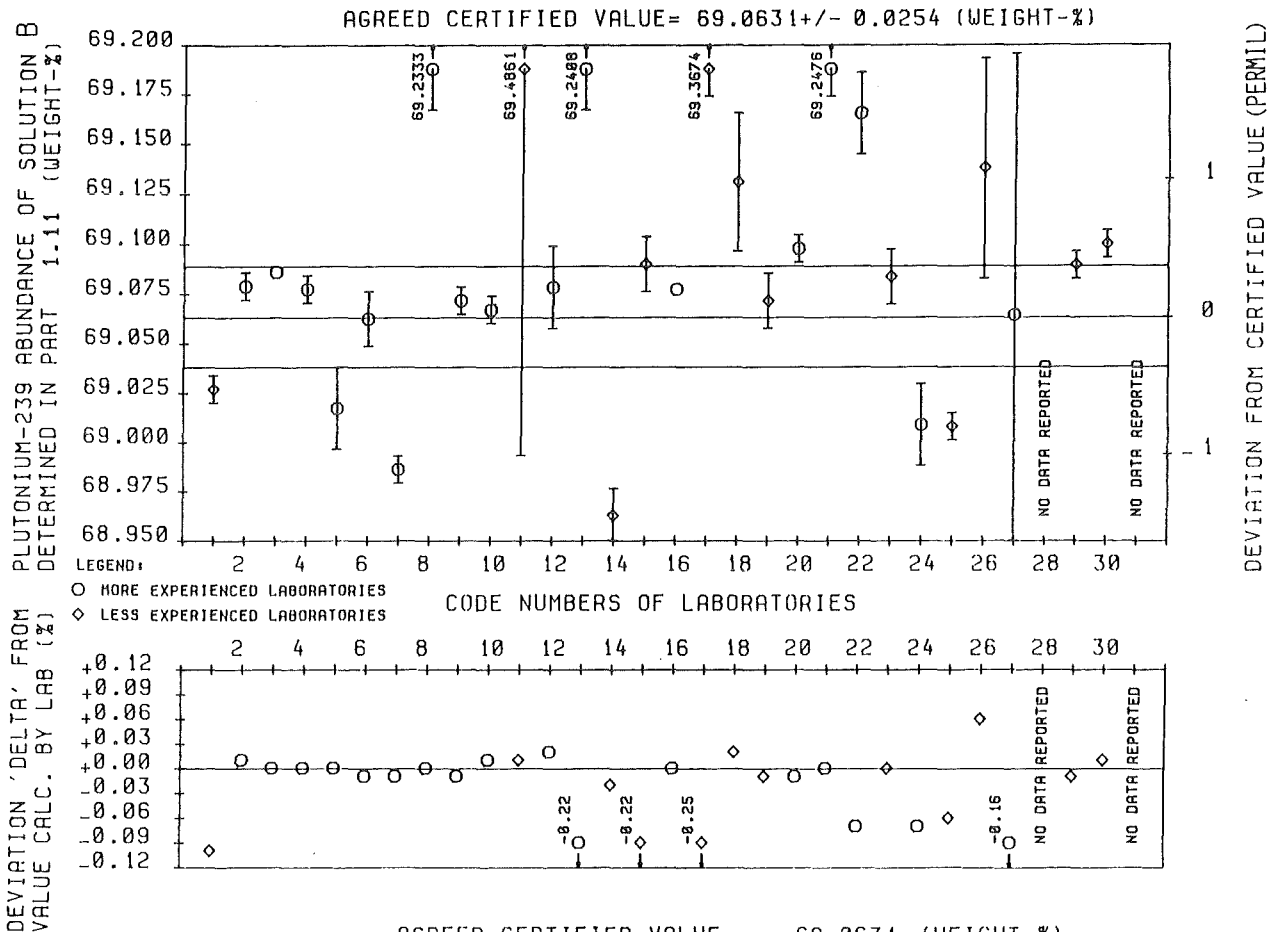
DETERMINED IN PROGRAMME PART 1.11

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS WEIGHT-%

1	2	3	4	5	6	7	8
LAB CODE	RUN1	RUN2	RUN3	MEAN BY ET.	CALC. RSD OF MEAN (%)	LAB BY LAB	MEAN CALC. REL. DEV. FROM THAT
1	69.0432	69.0268	69.0097	69.0266	0.01	69.0980	-0.10
2	69.0733	69.0741	69.0884	69.0786	0.01	69.0690	0.01
3	69.0808	69.0902	69.0857	69.0856	0.0	69.0880	0.0
4	69.0795	69.0700	69.0819	69.0771	0.01	69.0780	0.0
5	69.0074	69.0517	68.9916	69.0169	0.03	69.0140	0.0
6	69.0783	69.0717	69.0367	69.0622	0.02	69.0670	-0.01
7	68.9940	68.9849	68.9788	68.9859	0.01	68.9920	-0.01
8	69.2358	69.2006	69.2633	69.2333	0.03	69.2340	0.0
9	69.0849	69.0604	69.0686	69.0713	0.01	69.0777	-0.01
10	69.0628	69.0849	69.0524	69.0667	0.01	69.0628	0.01
11	69.7222	69.6299	69.1061	69.4861	0.28	69.4800	0.01
12	69.0548	69.0671	69.1122	69.0780	0.03	69.0620	0.02
13	69.2021	69.2701	69.2502	69.2408	0.03	69.3968	-0.22
14	68.9654	68.9361	68.9859	68.9625	0.02	68.9747	-0.02
15	69.0841	69.0726	69.1121	69.0896	0.02	69.2440	-0.22
16	69.0807	69.0743	69.0762	69.0771	0.0	69.0797	0.0
17	69.3835	69.3411	69.3777	69.3674	0.02	69.5400	-0.25
18	69.1094	69.0812	69.2012	69.1306	0.05	69.1160	0.02
19	69.0877	69.0738	69.0520	69.0712	0.02	69.0760	-0.01
20	69.1067	69.1079	69.0775	69.0974	0.01	69.1030	-0.01
21	69.2671	69.2276	69.2481	69.2476	0.02	69.2492	0.0
22	69.1842	69.1256	69.1851	69.1650	0.03	69.2130	-0.07
23	69.0746	69.0708	69.1044	69.0833	0.02	69.0847	0.0
24	68.9969	68.9785	69.0503	69.0086	0.03	69.0570	-0.07
25	68.9944	69.0107	69.0183	69.0078	0.01	69.0460	-0.06
26	69.0885	69.2486	69.0752	69.1375	0.08	69.0970	0.06
27	68.9298	69.3312	68.9314	69.0641	0.19	69.1755	-0.16
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	69.0855	69.0810	69.1012	69.0892	0.01	69.0930	-0.01
30	69.1087	69.1030	69.0871	69.0996	0.01	69.0949	0.01
31	0.0	0.0	0.0	0.0	0.0	0.0	0.0

REF.:            71            71            71            72            75            -            76



AGREED CERTIFIED VALUE = 69.0631 (WEIGHT-%)  
 +/- 0.0254

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE (8, 17, 21)	29 (26)	69.0736 (69.0775)	0.022 (0.021)		0.12 (0.12)	0.15 (0.12)
3	EXTREME LAB MEANS ELIMINATED	11	28	69.0783	0.022		0.08	0.12
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	11, 27, 26 (11, 27, 26, 8, 17, 21)	26 (23)	69.0783 (69.0771)	0.022 (0.020)		0.04 (0.03)	0.13 (0.08)
5	REPORTED VALUES	AS ABOVE	26 (23)	69.0822 (69.0780)	0.028 (0.022)		GRAND MEAN 69.09682 (69.07257)	INTERLAB SPREAD (%) 0.13 (0.08)
6							69.12337 (69.09500)	0.18 (0.13)

REMARKS:

- LABORATOIRES 8, 17 AND 21 DID NOT PERFORM A PU-238 DETERMINATION, THIS AFFECTS THE PU-239 VALUE SIGNIFICANTLY, THE EVALUATION DATA OBTAINED WITHOUT THESE LABORATORIES ARE GIVEN IN BRACKETS.

EVALUATION SHEET 57

=====

SOLUTION B, PLUTONIUM-240 ABUNDANCES

DETERMINED IN PROGRAMME PART 1.11

-----  
COMPILATION OF NUMERICAL DATA  
-----

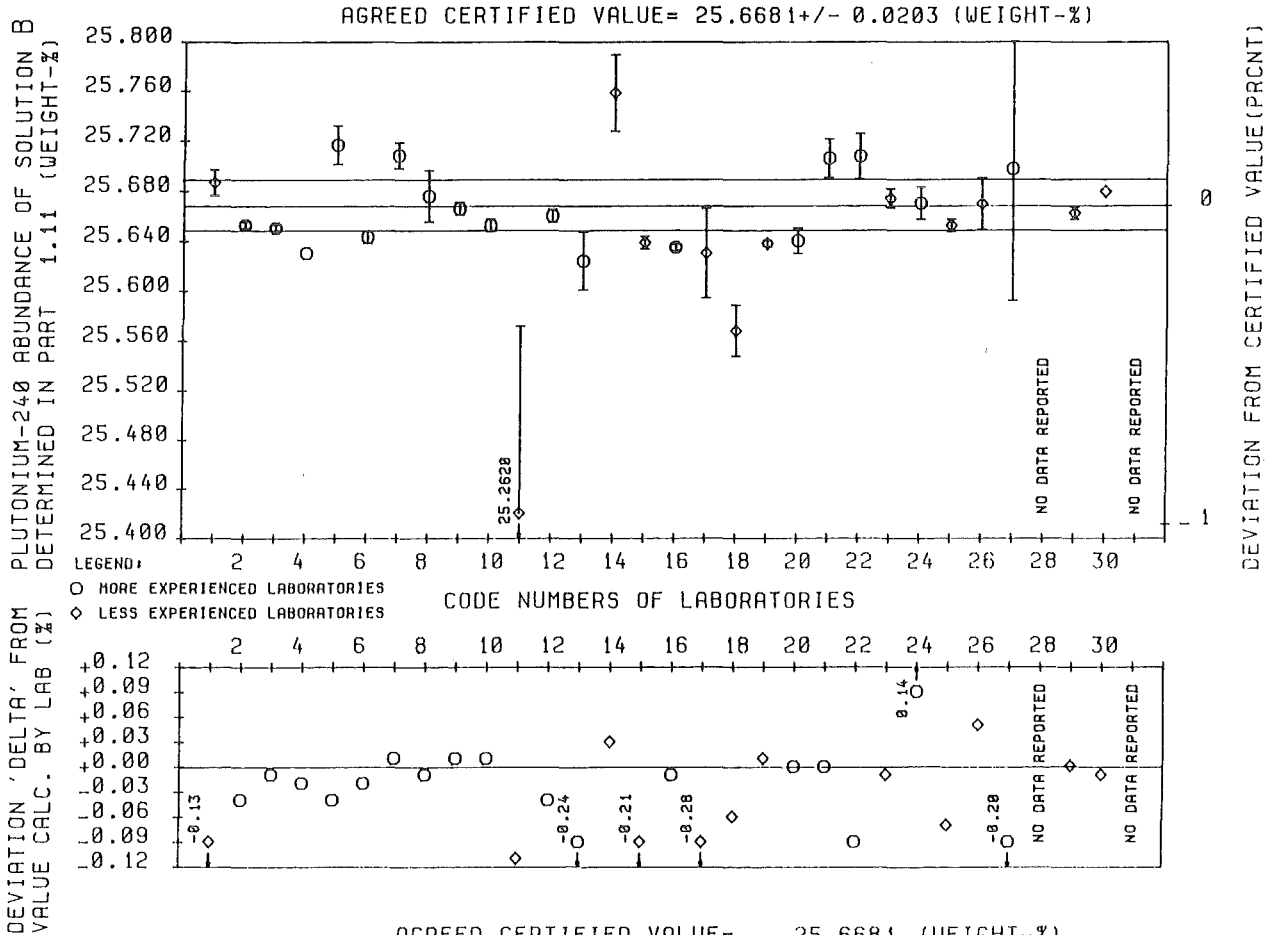
THE DIMENSION OF THE VALUES LISTED IS WEIGHT-%

\*\*\*\*\*

1	2	3	4	5	6	7	8			
LAB	RUN1	RUN2	RUN3	MEAN	CALC.	RSD OF	LAB	MEAN	CALC.	REL. DEV.
CODE				BY	ET.	MEAN (%)	BY	LAB	FROM	THAT
1	25.6684	25.6839	25.7069	25.6864	0.04	25.7200	-0.13			
2	25.6561	25.6564	25.6455	25.6527	0.01	25.6640	-0.04			
3	25.6547	25.6472	25.6487	25.6502	0.01	25.6540	-0.01			
4	25.6315	25.6310	25.6275	25.6300	0.0	25.6360	-0.02			
5	25.7379	25.7232	25.6881	25.7164	0.06	25.7270	-0.04			
6	25.6360	25.6417	25.6506	25.6428	0.02	25.6470	-0.02			
7	25.6899	25.7131	25.7209	25.7080	0.04	25.7050	0.01			
8	25.6649	25.7137	25.6481	25.6756	0.08	25.6780	-0.01			
9	25.6587	25.6769	25.6616	25.6657	0.02	25.6623	0.01			
10	25.6481	25.6486	25.6600	25.6522	0.02	25.6487	0.01			
11	25.1585	25.0669	25.5607	25.2620	0.60	25.2900	-0.11			
12	25.6658	25.6662	25.6475	25.6598	0.02	25.6700	-0.04			
13	25.6437	25.5785	25.6488	25.6237	0.09	25.6862	-0.24			
14	25.7331	25.8197	25.7219	25.7582	0.12	25.7508	0.03			
15	25.6463	25.6420	25.6266	25.6383	0.02	25.6930	-0.21			
16	25.6288	25.6387	25.6359	25.6345	0.01	25.6378	-0.01			
17	25.5879	25.7011	25.6008	25.6299	0.14	25.7030	-0.28			
18	25.6057	25.5652	25.5326	25.5678	0.08	25.5840	-0.06			
19	25.6326	25.6367	25.6436	25.6376	0.01	25.6340	0.01			
20	25.6309	25.6275	25.6609	25.6398	0.04	25.6410	0.0			
21	25.6757	25.7324	25.7087	25.7056	0.06	25.7045	0.0			
22	25.7038	25.7401	25.6781	25.7073	0.07	25.7300	-0.09			
23	25.6829	25.6798	25.6576	25.6735	0.03	25.6768	-0.01			
24	25.6855	25.6809	25.6430	25.6698	0.05	25.6344	0.14			
25	25.6637	25.6463	25.6460	25.6520	0.02	25.6710	-0.07			
26	25.6505	25.7105	25.6471	25.6694	0.08	25.6570	0.05			
27	25.8024	25.4874	25.8018	25.6972	0.41	25.7479	-0.20			
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
29	25.6678	25.6653	25.6525	25.6619	0.02	25.6630	0.0			
30	25.6786	25.6803	25.6782	25.6790	0.0	25.6813	-0.01			
31	0.0	0.0	0.0	0.0	0.0	0.0	0.0			

\*\*\*\*\*

REF.:        71            71            71            72            75            -            76



1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	NONE	29	25.6598	-0.03		0.25	0.29
3	EXTREME LAB MEANS ELIMINATED	11	25.66085	-0.03		0.16	0.11
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	11,27	25.6598	-0.03		0.10	0.13
5	REPORTED VALUES	27	25.6700	0.01		25.66243	0.14
6						GRAND MEAN INTERLAB SPREAD (%)	
						25.67252	0.14

REMARKS:



EVALUATION SHEET 58  
=====

SOLUTION B, PLUTONIUM-241 ABUNDANCES

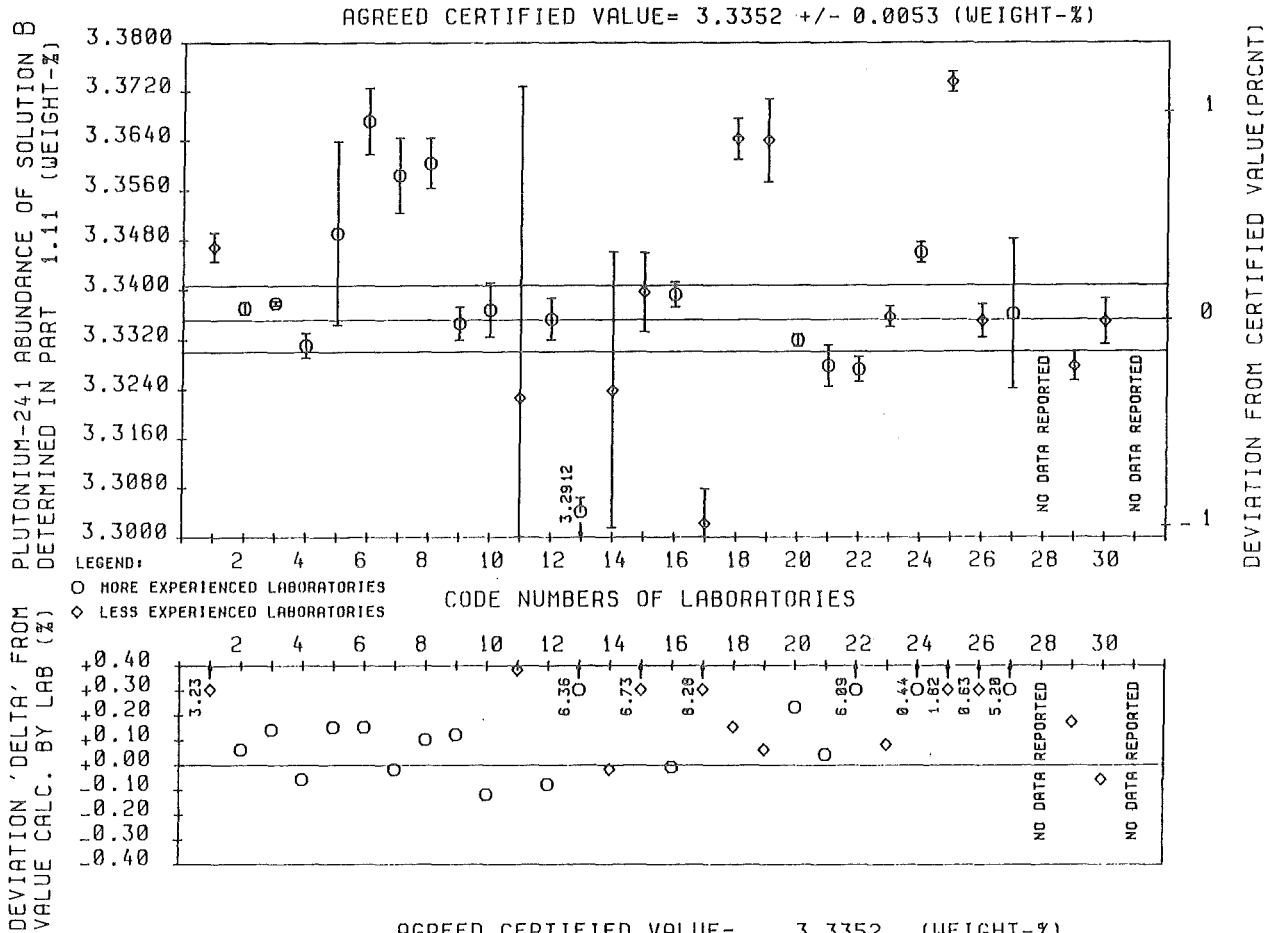
DETERMINED IN PROGRAMME PART 1.11

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS WEIGHT-%

```
*****
 1      2      3      4      5      6      7      8
*****
LAB     RUN1    RUN2    RUN3 MEAN CALC. RSD OF LAB MEAN CALC. REL. DEV.
CODE                                BY ET.    MEAN (%)  BY LAB    FROM THAT
*****
 1      3.3439  3.3513  3.3452  3.3468    0.07     3.2420    3.23
 2      3.3382  3.3378  3.3349  3.3370    0.03     3.3350    0.06
 3      3.3384  3.3369  3.3380  3.3378    0.01     3.3330    0.14
 4      3.3289  3.3348  3.3292  3.3310    0.06     3.3330   -0.06
 5      3.3299  3.3389  3.3783  3.3490    0.44     3.3440    0.15
 6      3.3605  3.3631  3.3774  3.3670    0.16     3.3620    0.15
 7      3.3703  3.3523  3.3524  3.3583    0.18     3.3590   -0.02
 8      3.3674  3.3595  3.3539  3.3603    0.12     3.3570    0.10
 9      3.3306  3.3337  3.3392  3.3345    0.08     3.3305    0.12
10      3.3413  3.3279  3.3410  3.3367    0.13     3.3408   -0.12
11      3.2229  3.3849  3.3596  3.3225    1.51     3.3100    0.38
12      3.3416  3.3345  3.3296  3.3352    0.10     3.3380   -0.08
13      3.2870  3.2913  3.2953  3.2912    0.07     3.0943    6.36
14      3.3579  3.2816  3.3318  3.3237    0.67     3.3244   -0.02
15      3.3398  3.3506  3.3282  3.3395    0.19     3.1290    6.73
16      3.3387  3.3359  3.3428  3.3391    0.06     3.3394   -0.01
17      3.2968  3.2961  3.3135  3.3021    0.17     3.0496    8.28
18      3.3690  3.3651  3.3580  3.3641    0.10     3.3590    0.15
19      3.3535  3.3615  3.3768  3.3639    0.20     3.3620    0.06
20      3.3300  3.3333  3.3321  3.3318    0.03     3.3240    0.23
21      3.3341  3.3233  3.3259  3.3277    0.10     3.3263    0.04
22      3.3286  3.3233  3.3294  3.3271    0.06     3.1360    6.09
23      3.3343  3.3389  3.3335  3.3356    0.05     3.3328    0.08
24      3.3461  3.3428  3.3487  3.3458    0.05     3.3313    0.44
25      3.3754  3.3746  3.3702  3.3734    0.05     3.3130    1.82
26      3.3297  3.3384  3.3367  3.3349    0.08     3.3140    0.63
27      3.3512  3.3121  3.3449  3.3360    0.36     3.1712    5.20
28      0.0     0.0     0.0     0.0     0.0     0.0     0.0
29      3.3256  3.3320  3.3251  3.3276    0.07     3.3220    0.17
30      3.3308  3.3313  3.3422  3.3348    0.11     3.3368   -0.06
31      0.0     0.0     0.0     0.0     0.0     0.0     0.0
*****
```

REF.:           71           71           71           72           75           -           76



AGREED CERTIFIED VALUE = 3.3352 (WEIGHT-%)  
 +/- 0.0053

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	29	3.3356	0.01		0.59	0.42
3	EXTREME LAB MEANS ELIMINATED	NONE	29	3.3356	0.01		0.59	0.42
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	11, 14, 5, 27	25	3.3356	0.01		0.18	0.55
5	REPORTED VALUES	5, 11, 14, 27	25	3.3328	-0.07		3.33932	0.56
6							3.29599	2.75

REMARKS:

- PLEASE NOTE THE REMARKABLE DIFFERENCES OF THE GRAND MEANS AND THE INTERLAB SPREAD VALUES GIVEN IN LINES 5 AND 6, THEY REFLECT THE SIGNIFICANT DEVIATIONS 'DELTA' FOR A RATHER HIGH NUMBER OF LABORATORIES, (THESE DEVIATIONS ARE PROBABLY CAUSED BY INSUFFICIENT CORRECTIONS FOR DECAY.)

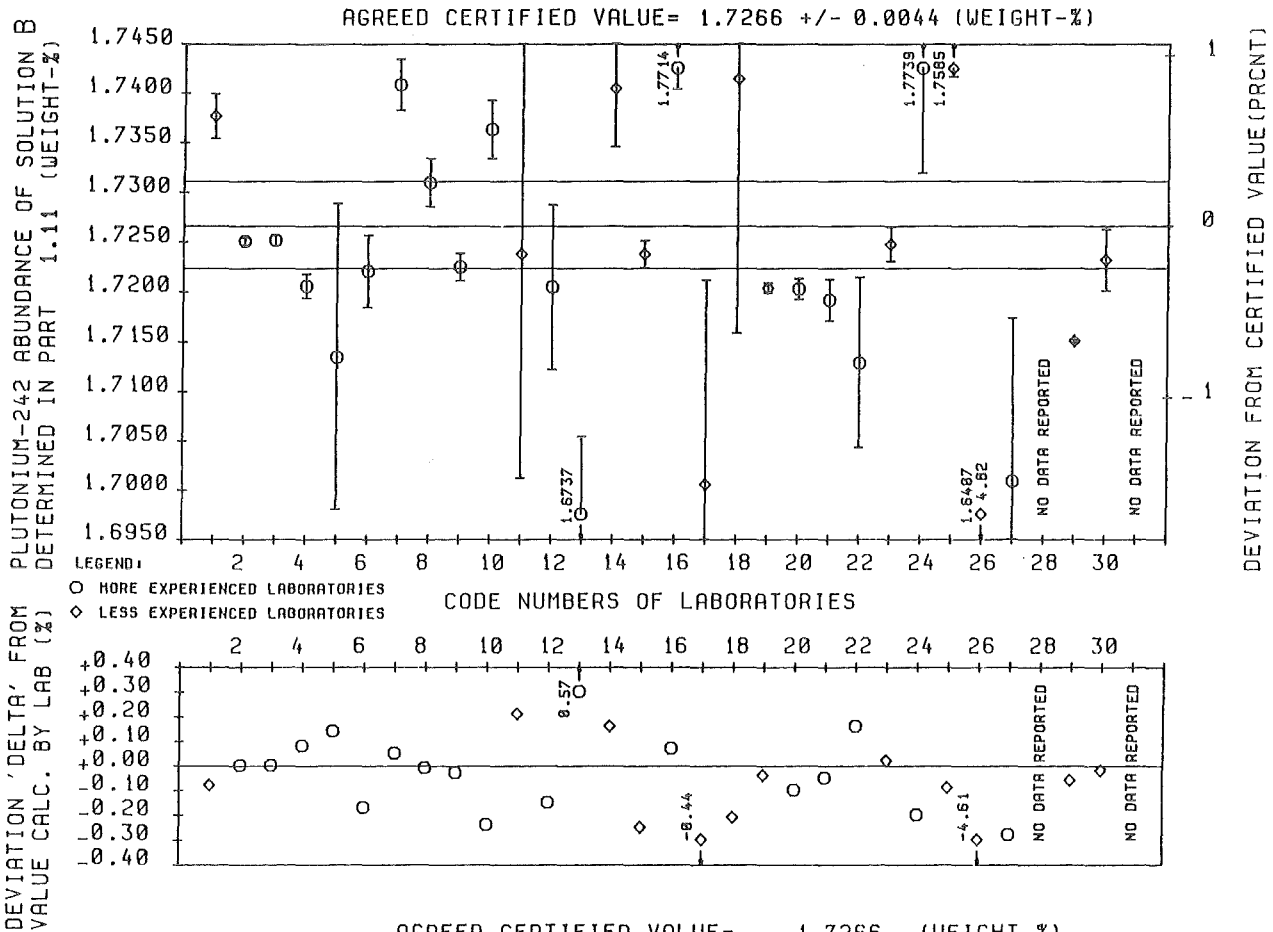
EVALUATION SHEET 59  
=====

SOLUTION B, PLUTONIUM-242 ABUNDANCES  
DETERMINED IN PROGRAMME PART 1.11

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS WEIGHT-%

*****							
1	2	3	4	5	6	7	8
LAB	RUN1	RUN2	RUN3	MEAN CALC.	RSD OF LAB	MEAN CALC.	REL. DEV.
CODE				BY ET.	MEAN (%)	BY LAB	FROM THAT
*****							
1	1.7420	1.7354	1.7355	1.7376	0.13	1.7390	-0.08
2	1.7256	1.7250	1.7243	1.7250	0.02	1.7250	0.0
3	1.7247	1.7243	1.7262	1.7251	0.03	1.7250	0.0
4	1.7185	1.7229	1.7200	1.7205	0.07	1.7190	0.08
5	1.7174	1.6850	1.7379	1.7134	0.90	1.7110	0.14
6	1.7192	1.7175	1.7293	1.7220	0.21	1.7250	-0.17
7	1.7400	1.7366	1.7450	1.7408	0.15	1.7400	0.05
8	1.7319	1.7262	1.7347	1.7309	0.14	1.7310	-0.01
9	1.7196	1.7238	1.7238	1.7224	0.08	1.7230	-0.03
10	1.7398	1.7305	1.7385	1.7363	0.17	1.7404	-0.24
11	1.6908	1.7133	1.7669	1.7237	1.31	1.7200	0.21
12	1.7313	1.7257	1.7042	1.7204	0.48	1.7230	-0.15
13	1.6864	1.6752	1.6595	1.6737	0.47	1.6643	0.57
14	1.7306	1.7510	1.7396	1.7404	0.34	1.7376	0.16
15	1.7210	1.7259	1.7242	1.7237	0.08	1.7280	-0.25
16	1.7739	1.7731	1.7673	1.7714	0.12	1.7702	0.07
17	1.7318	1.6617	1.7080	1.7005	1.21	1.7080	-0.44
18	1.7196	1.7925	1.7121	1.7414	1.47	1.7450	-0.21
19	1.7193	1.7211	1.7206	1.7203	0.03	1.7210	-0.04
20	1.7223	1.7189	1.7195	1.7202	0.06	1.7220	-0.10
21	1.7231	1.7168	1.7174	1.7191	0.12	1.7199	-0.05
22	1.6957	1.7231	1.7196	1.7128	0.50	1.7100	0.16
23	1.7252	1.7275	1.7215	1.7247	0.10	1.7244	0.02
24	1.7684	1.7945	1.7589	1.7739	0.60	1.7775	-0.20
25	1.7582	1.7601	1.7572	1.7585	0.05	1.7600	-0.09
26	1.7151	1.4826	1.7244	1.6407	4.82	1.7200	-4.61
27	1.7146	1.6681	1.7198	1.7008	0.97	1.7056	-0.28
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	1.7147	1.7154	1.7150	1.7150	0.01	1.7160	-0.06
30	1.7183	1.7219	1.7290	1.7231	0.18	1.7234	-0.02
31	0.0	0.0	0.0	0.0	0.0	0.0	0.0
*****							
REF.:	71	71	71	72	75	-	76



AGREED CERTIFIED VALUE = 1.7266 (WEIGHT-%)  
 +/- 0.0044

	1	2	3	4	5	6	7	8
		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	29	1.7231	-0.20		1.75	1.08
3	EXTREME LAB MEANS ELIMINATED	26	28	1.7234	-0.19		0.95	1.03
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	26	28	1.7234	-0.19		0.95	1.03
5	REPORTED VALUES						GRAND MEAN	INTERLAB SPREAD (%)
							1.72634	1.17
6	REPORTED VALUES	26	28	1.7239	-0.16		1.72693	1.23

REMARKS:

EVALUATION SHEET 60

=====

SOLUTION R, PLUTONIUM-238 ABUNDANCES

DETERMINED IN PROGRAMME PART 2.1

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS WEIGHT-%

```

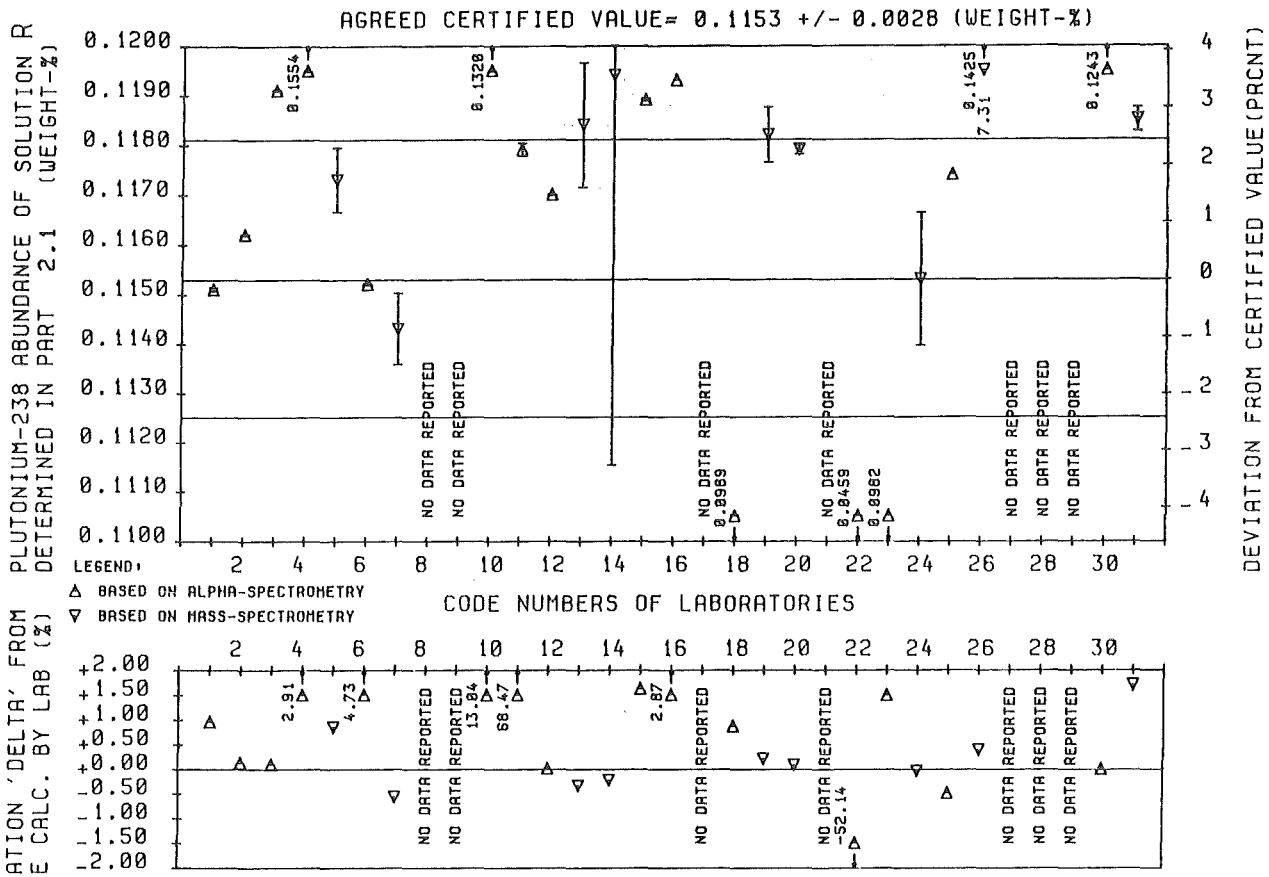
*****
1      2      3      4      5      6 1)      7      8
*****
LAB    RUN1    RUN2    RUN3  MEAN CALC.  RSD OF LAB  MEAN CALC.  REL. DEV.
CODE          BY ET.    MEAN (%)    BY LAB    FROM THAT
*****
1      0.1151  0.1151  0.1150  0.1151      0.03      0.1140      0.96
2      0.1162  0.1162  0.1161  0.1162      0.01      0.1160      0.13
3      0.1191  0.1191  0.1191  0.1191      0.01      0.1190      0.09
4      0.1554  0.1554  0.1554  0.1554      0.01      0.1510      2.91
5      0.1172  0.1185  0.1162  0.1173      0.55      0.1163      0.85
6      0.1152  0.1152  0.1152  0.1152      0.01      0.1100      4.73
7      0.1130  0.1146  0.1155  0.1143      0.63      0.1150      -0.57
8      0.0      0.0      0.0      0.0          0.0      0.0          0.0
9      0.0      0.0      0.0      0.0          0.0      0.0          0.0
10     0.1320  0.1320  0.1320  0.1320      0.01      0.1168      13.04
11     0.1182  0.1179  0.1177  0.1179      0.11      0.0700      68.47
12     0.1170  0.1170  0.1170  0.1170      0.01      0.1170      0.01
13     0.1187  0.1204  0.1161  0.1184      1.06      0.1188      -0.34
14     0.1064  0.1182  0.1336  0.1194      6.60      0.1197      -0.23
15     0.1189  0.1189  0.1189  0.1189      0.02      0.1170      1.62
16     0.1193  0.1193  0.1193  0.1193      0.0      0.1160      2.87
17     0.0      0.0      0.0      0.0          0.0      0.0          0.0
18     0.0988  0.0989  0.0988  0.0989      0.02      0.0980      0.87
19     0.1171  0.1189  0.1187  0.1182      0.47      0.1180      0.21
20 2)  0.1181  0.1179  0.1177  0.1179      0.08      0.1178      0.08
21     0.0      0.0      0.0      0.0          0.0      0.0          0.0
22     0.0460  0.0460  0.0459  0.0459      0.02      0.0960      -52.14
23     0.0982  0.0982  0.0982  0.0982      0.0      0.0968      1.49
24 2)  0.1179  0.1137  0.1142  0.1153      1.16      0.1153      -0.04
25     0.1174  0.1174  0.1174  0.1174      0.0      0.1180      -0.49
26     0.1401  0.1259  0.1617  0.1425      7.31      0.1420      0.39
27     0.0      0.0      0.0      0.0          0.0      0.0          0.0
28     0.0      0.0      0.0      0.0          0.0      0.0          0.0
29     0.0      0.0      0.0      0.0          0.0      0.0          0.0
30     0.1243  0.1243  0.1243  0.1243      0.0      0.1243      0.0
31     0.1188  0.1180  0.1186  0.1185      0.20      0.1165      1.70
*****

```

REF.:        71            71            71            72            75            -            76

REMARKS:

- 1) Data of laboratories using alpha spectrometry (see Eval.Sheet 61) are not comparable to those of the other laboratories.
- 2) The laboratory reported measurement results obtained by alpha and by mass spectrometry. The result with the lower 'Delta Value' is given as indicated by the symbol used in the upper graph. (For 'Delta Values' refer to data in columns 8 and their presentation in the lower graphs of Eval.Sheets 61 and 62).



AGREED CERTIFIED VALUE = 0.1153 (WEIGHT-%)  
 +/- 0.0028

	1	2	3	4	5	6	7	8
		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
1								
2	ALL DATA	NONE	24	0.1179	2.25		4.02	16.03
3	EXTREME LAB MEANS ELIMINATED	22, 4	22	0.1179	2.25		4.15	7.12
4	EXTREME VALUES OF LAB MEANS & RSD'S	22, 4, 26, 14	20	0.1177	2.08		0.72	6.20
5	'RUN' ELIMINATED						GRAND MEAN	INTERLAB SPREAD (%)
							0.11647	6.21
6	REPORTED VALUES	4, 14, 22, 26	20	0.1164	0.95		0.11253	10.61

REMARKS:

- THIS EVALUATION CONCERNS THE MEASUREMENT RESULTS OBTAINED BY ALPHA- AND BY MASS-SPECTROMETRY. DUE TO THE LIMITED COMPARABILITY OF THE RESULTS OF THESE TWO METHODS RESULTS OF EVALUATION ARE GIVEN ALSO SEPARATELY IN EVAL. SHEETS 61 AND 62.

EVALUATION SHEET 61  
=====

SOLUTION R, PLUTONIUM-238 ABUNDANCES  
DETERMINED IN PROGRAMME PART 2.1  
USING ALPHA-SPECTROMETRY

-----  
COMPILATION OF NUMERICAL DATA  
-----

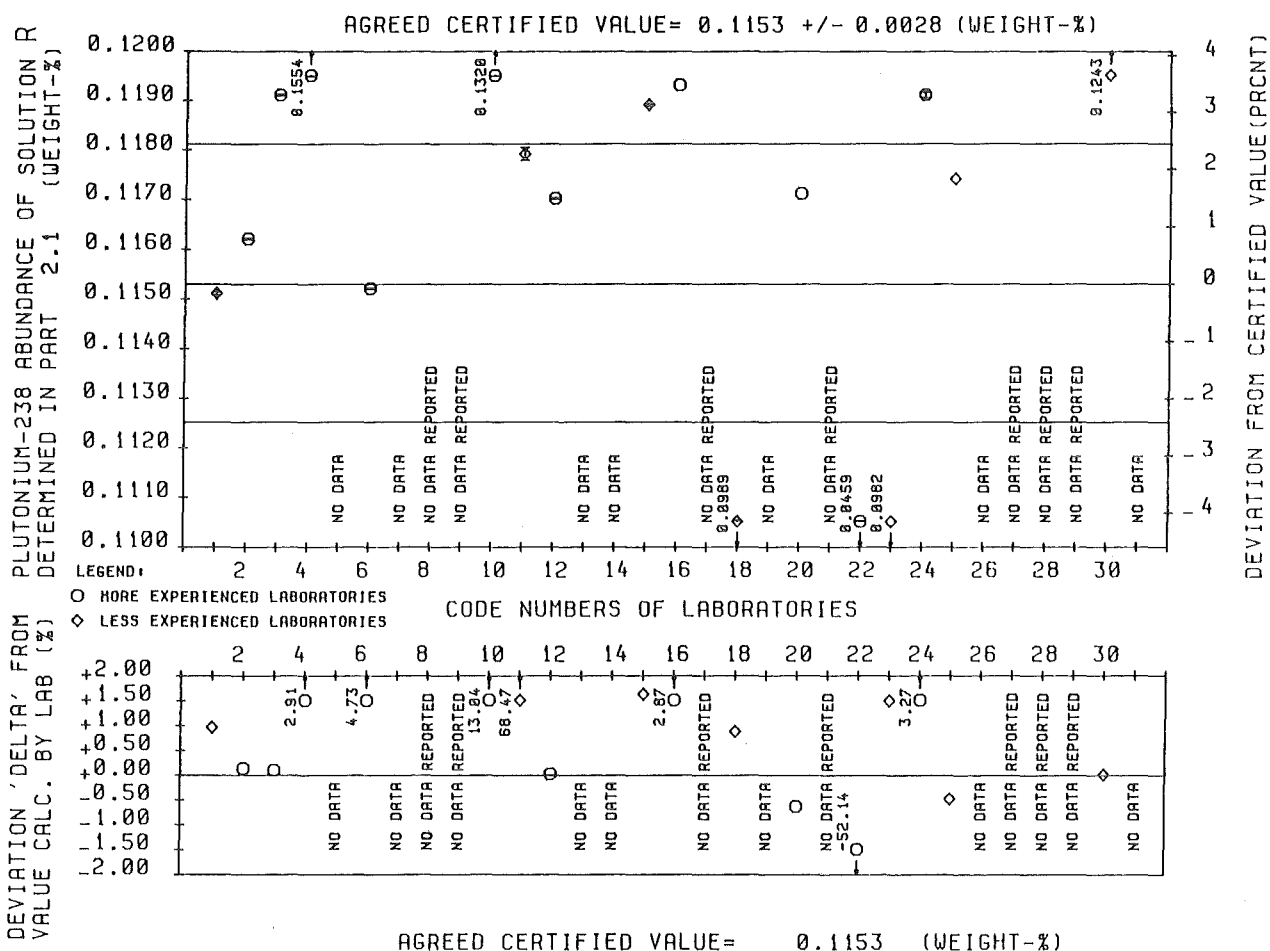
THE DIMENSION OF THE VALUES LISTED IS WEIGHT-%

```
*****
 1      2      3      4      5      61)      7      8
*****
LAB   RUN1   RUN2   RUN3 MEAN CALC. RSD OF LAB MEAN CALC. REL. DEV.
CODE          BY ET.   MEAN (%)   BY LAB   FROM THAT
*****
 1     0.1151 0.1151 0.1150 0.1151  0.03   0.1140   0.96
 2     0.1162 0.1162 0.1161 0.1162  0.01   0.1160   0.13
 3     0.1191 0.1191 0.1191 0.1191  0.01   0.1190   0.09
 4     0.1554 0.1554 0.1554 0.1554  0.01   0.1510   2.91
 5           NO DATA
 6     0.1152 0.1152 0.1152 0.1152  0.01   0.1100   4.73
 7           NO DATA
 8           NO DATA REPORTED
 9           NO DATA REPORTED
10     0.1320 0.1320 0.1320 0.1320  0.01   0.1168  13.04
11     0.1182 0.1179 0.1177 0.1179  0.11   0.0700  68.47
12     0.1170 0.1170 0.1170 0.1170  0.01   0.1170   0.01
13           NO DATA
14           NO DATA
15     0.1189 0.1189 0.1189 0.1189  0.02   0.1170   1.62
16     0.1193 0.1193 0.1193 0.1193  0.0   0.1160   2.87
17           NO DATA REPORTED
18     0.0988 0.0989 0.0988 0.0989  0.02   0.0980   0.87
19           NO DATA
20     0.1171 0.1171 0.1170 0.1171  0.0   0.1178  -0.64
21           NO DATA REPORTED
22     0.0460 0.0460 0.0459 0.0459  0.02   0.0960  -52.14
23     0.0982 0.0982 0.0982 0.0982  0.0   0.0968   1.49
24     0.1190 0.1192 0.1190 0.1191  0.05   0.1153   3.27
25     0.1174 0.1174 0.1174 0.1174  0.0   0.1180  -0.49
26           NO DATA
27           NO DATA REPORTED
28           NO DATA REPORTED
29           NO DATA REPORTED
30     0.1243 0.1243 0.1243 0.1243  0.0   0.1243   0.0
31           NO DATA
*****
```

REF.:            71            71            71            72            75            -            76

REMARKS:

- 1) Not comparable to data obtained by laboratories using mass spectrometry only (Eval. Sheet 62).
- 2) The entry 'no data' indicates that the laboratory determined the Pu-238/Pu-239 ratio by mass spectrometry (see Eval. Sheet 62).



AGREED CERTIFIED VALUE= 0.1153 (WEIGHT-%)  
 +/- 0.0028

1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	17	0.1174	1.82	0.06	18.78
3	EXTREME LAB MEANS ELIMINATED	22, 4	15	0.1174	1.82	0.07	7.20
4	EXTREME VALUES OF LAB MEANS	22, 4	15	0.1174	1.82	0.07	7.20
5	RSD'S 'RUN' ELIMINATED					GRAND MEAN	INTERLAB SPREAD (%)
						0.11637	7.20
6	REPORTED VALUES	4, 22	15	0.1168	1.30	0.11107	12.20

REMARKS:

- PLEASE NOTE THAT THE ESTIMATES OF THE RSDs GIVEN IN COLUMNS 7 AND 8 OF THE TABLE ARE NOT COMPARABLE TO THOSE DERIVED FROM DIRECT MASS-SPECTROMETRIC MEASUREMENTS (EVAL SHEET 62), SINCE FOR THE ALPHA-ACTIVITY RATIO PU-238/(PU-239+PU-240) ONLY ONE VALUE WAS REPORTED PER LABORATORY, THE MEASUREMENT UNCERTAINTY OF THIS QUANTITY CONTRIBUTES TO THE 'BETWEEN-LABS' RSD, THE RSD 'RUN' VALUE REFLECTS IN THIS CASE ONLY THE SMALL SPREAD OF THE MASS-SPECTROMETRIC PU-240/PU-239 RATIO DETERMINATION.

EVALUATION SHEET 61 : SOLUTION R, PLUTONIUM-238 ABUNDANCES DETERMINED IN PART 2.1 USING ALPHA-SPECTROMETRY ONLY



EVALUATION SHEET 62  
=====

SOLUTION R, PLUTONIUM-238 ABUNDANCES  
DETERMINED IN PROGRAMME PART 2.1  
USING MASS-SPECTROMETRY

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS WEIGHT-%

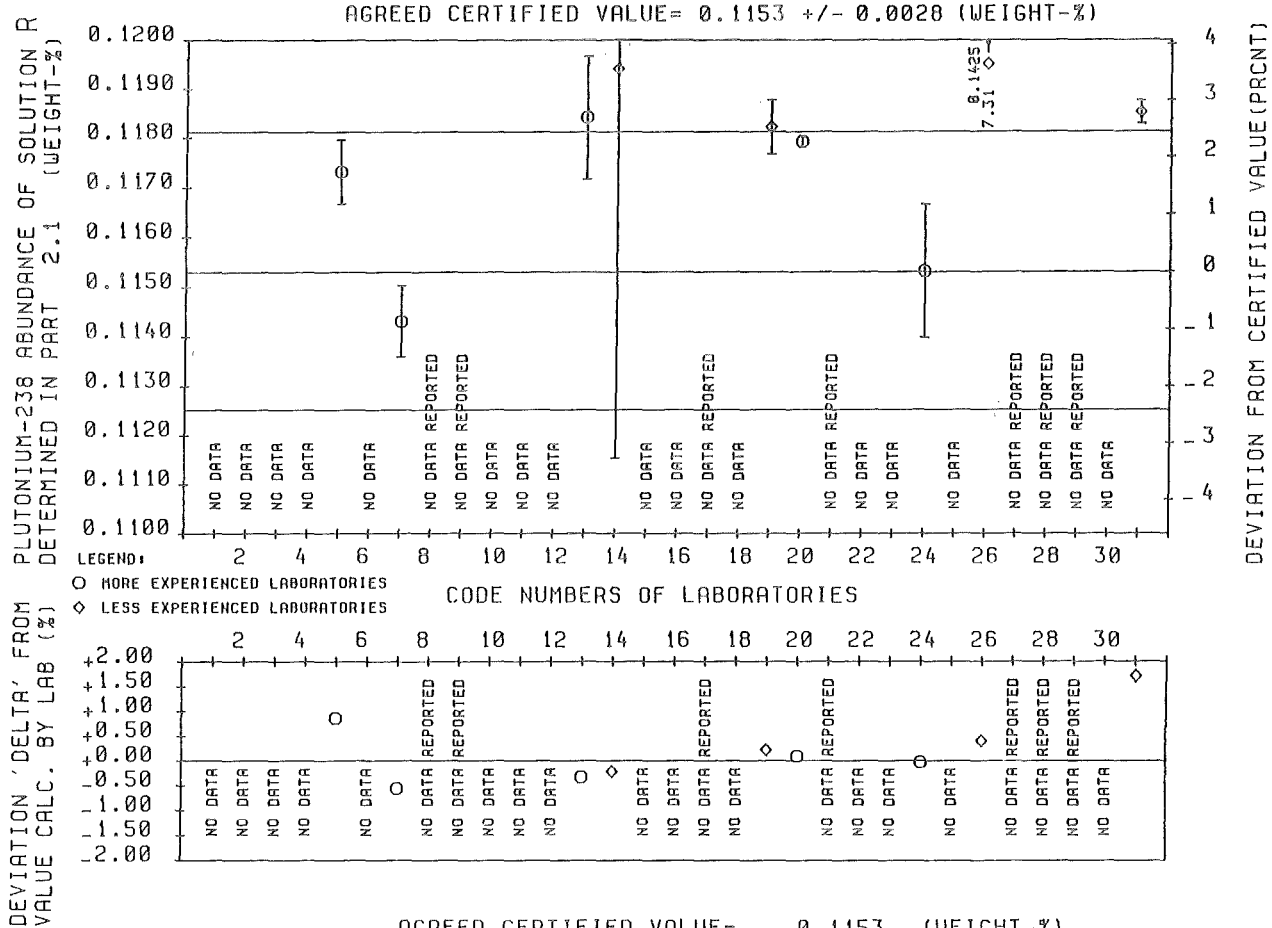
```

*****
1      2      3      4      5      6      7      8
*****
LAB   RUN1   RUN2   RUN3  MEAN CALC.  RSD OF LAB  MEAN CALC.  REL. DEV.
CODE          BY ET.   MEAN (%)   BY LAB    FROM THAT
*****
1      NO DATA
2      NO DATA
3      NO DATA
4      NO DATA
5      0.1172  0.1185  0.1162  0.1173    0.55      0.1163      0.85
6      NO DATA
7      0.1130  0.1146  0.1155  0.1143    0.63      0.1150     -0.57
8      NO DATA REPORTED
9      NO DATA REPORTED
10     NO DATA
11     NO DATA
12     NO DATA
13     0.1187  0.1204  0.1161  0.1184    1.06      0.1188     -0.34
14     0.1064  0.1182  0.1336  0.1194    6.60      0.1197     -0.23
15     NO DATA
16     NO DATA
17     NO DATA REPORTED
18     NO DATA
19     0.1171  0.1189  0.1187  0.1182    0.47      0.1180      0.21
20     0.1181  0.1179  0.1177  0.1179    0.08      0.1178      0.08
21     NO DATA REPORTED
22     NO DATA
23     NO DATA
24     0.1179  0.1137  0.1142  0.1153    1.16      0.1153     -0.04
25     NO DATA
26     0.1401  0.1259  0.1617  0.1425    7.31      0.1420      0.39
27     NO DATA REPORTED
28     NO DATA REPORTED
29     NO DATA REPORTED
30     NO DATA
31     0.1188  0.1180  0.1186  0.1185    0.20      0.1165      1.70
*****
REF.:   71      71      71      72      75      -      76

```

REMARKS:

1) The entry 'no data' indicates that the laboratory determined the Pu-238 isotope by alpha-spectrometry (see Eval.Sheet 61).



AGREED CERTIFIED VALUE = 0.1153 +/- 0.0028 (WEIGHT-%)

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	9	0.1182	2.52		6.35	6.08
3	EXTREME LAB MEANS ELIMINATED	26	8	0.11805	2.39		4.26	0.0 <sup>1)</sup>
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	26, 14	7	0.1179	2.25		1.21	1.22
5							GRAND MEAN	INTERLAB SPREAD (%)
6	REPORTED VALUES	14, 26	7	0.1165	1.04		0.11713	1.41
							0.11681	1.22

REMARKS:

1) IN THIS CASE THE UNCERTAINTY COMPONENT 'BETWEEN LABS' IS NOT SIGNIFICANT; THIS QUANTITY IS MASKED BY THE RELATIVELY HIGH RSD 'RUN' VALUE OF LABORATORY 14.

EVALUATION SHEET 63

=====

SOLUTION R, PLUTONIUM-239 ABUNDANCES

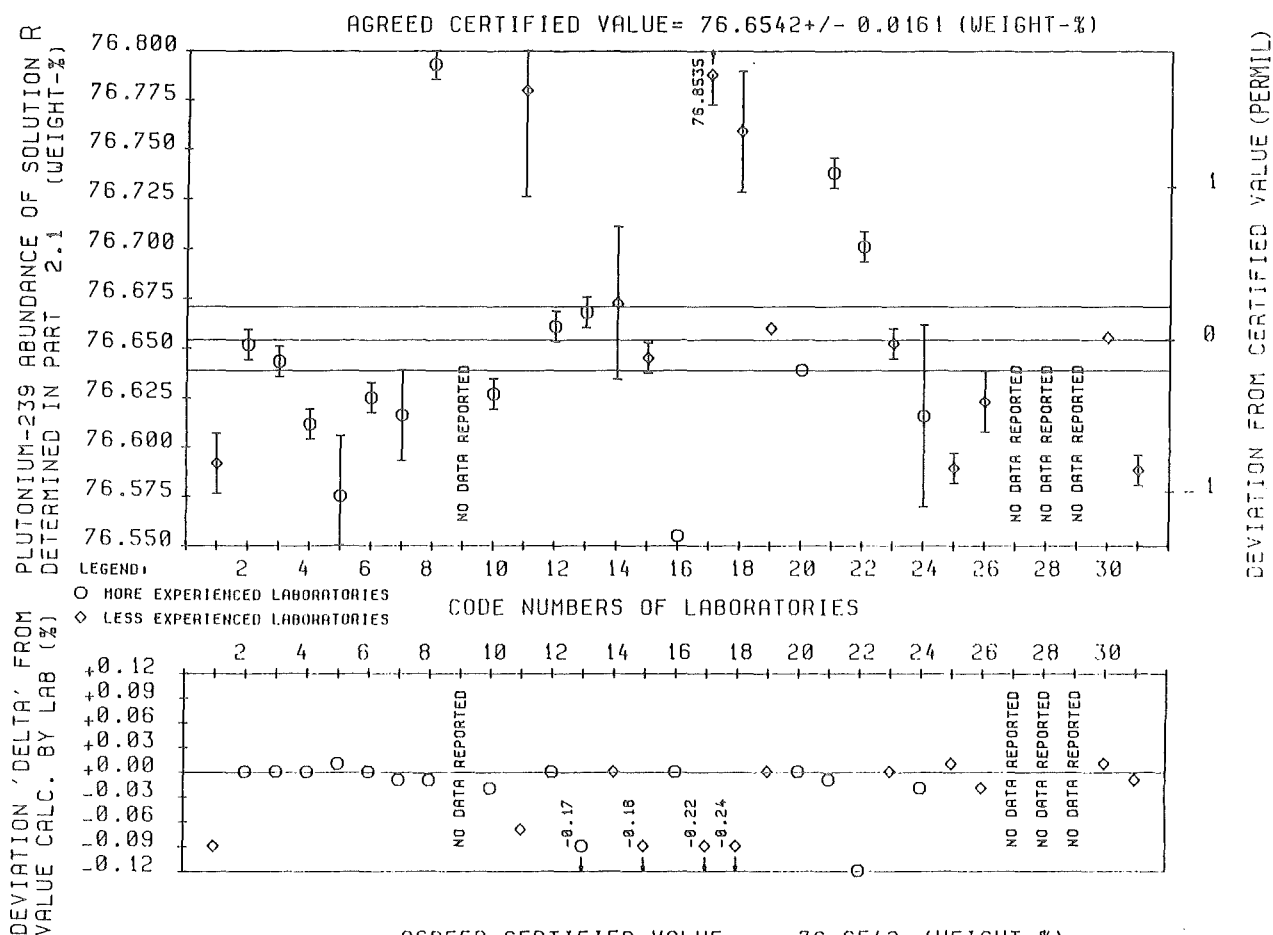
DETERMINED IN PROGRAMME PART 2.1

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS WEIGHT-%

```
*****
 1          2          3          4          5          6          7          8
*****
LAB   RUN1   RUN2   RUN3 MEAN CALC. RSD OF LAB MEAN CALC. REL. DEV.
CODE          BY ET.   MEAN (%)   BY LAB   FROM THAT
*****
 1   76.6026 76.5617 76.6098 76.5914    0.02    76.6570    -0.09
 2   76.6537 76.6432 76.6575 76.6515    0.01    76.6540     0.0
 3   76.6367 76.6511 76.6411 76.6430    0.01    76.6420     0.0
 4   76.6284 76.5996 76.6065 76.6115    0.01    76.6150     0.0
 5   76.5587 76.6328 76.5330 76.5749    0.04    76.5640     0.01
 6   76.6198 76.6395 76.6151 76.6248    0.01    76.6280     0.0
 7   76.6141 76.6577 76.5759 76.6159    0.03    76.6250    -0.01
 8   76.8044 76.7868 76.7877 76.7929    0.01    76.7990    -0.01
 9     0.0     0.0     0.0     0.0     0.0     0.0     0.0
10   76.6125 76.6348 76.6327 76.6267    0.01    76.6399    -0.02
11   76.6945 76.7720 76.8719 76.7795    0.07    76.8300    -0.07
12   76.6488 76.6759 76.6572 76.6606    0.01    76.6590     0.0
13   76.6825 76.6453 76.6753 76.6677    0.01    76.8014    -0.17
14   76.5885 76.7104 76.7182 76.6724    0.05    76.6703     0.0
15   76.6415 76.6596 76.6330 76.6447    0.01    76.7810    -0.18
16   76.5549 76.5550 76.5544 76.5548     0.0    76.5555     0.0
17   76.8581 76.8760 76.8265 76.8535    0.02    77.0200    -0.22
18   76.7088 76.7491 76.8177 76.7586    0.04    76.9410    -0.24
19   76.6597 76.6582 76.6611 76.6597     0.0    76.6630     0.0
20   76.6333 76.6371 76.6455 76.6386     0.0    76.6380     0.0
21   76.7490 76.7229 76.7410 76.7376    0.01    76.7433    -0.01
22   76.7169 76.7016 76.6833 76.7006    0.01    76.7900    -0.12
23   76.6507 76.6373 76.6678 76.6519    0.01    76.6496     0.0
24   76.6801 76.5244 76.6418 76.6154    0.06    76.6314    -0.02
25   76.5974 76.5855 76.5843 76.5891    0.01    76.5850     0.01
26   76.6160 76.6494 76.6023 76.6226    0.02    76.6380    -0.02
27     0.0     0.0     0.0     0.0     0.0     0.0     0.0
28     0.0     0.0     0.0     0.0     0.0     0.0     0.0
29     0.0     0.0     0.0     0.0     0.0     0.0     0.0
30   76.6490 76.6554 76.6606 76.6550     0.0    76.6498     0.01
31   76.5872 76.5809 76.5957 76.5879    0.01    76.5955    -0.01
*****
```

REF.:            71            71            71            72            75            -            76



	1	2	3	4	5	6	7	8
		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE (8, 17, 21)	27 (24)	76.6515 76.6408	-0.004 (-0.017)		0.04 (0.05)	0.09 (0.06)
3	EXTREME LAB MEANS ELIMINATED	NONE	27	76.6515	-0.004		0.04	0.09
4	EXTREME VALUES OF LAB MEANS & RSD'S ELIMINATED	NONE (8, 17, 21)	27 (24)	76.6515 (76.6408)	-0.004 (-0.017)		0.04 (0.05)	0.09 (0.06)
5	'RUN' ELIMINATED						GRAND MEAN 76.65849 (76.64148)	INTERLAB SPREAD (%) 0.09 (0.07)
6	REPORTED VALUES	NONE (8, 17, 21)	27 (24)	76.6498 (76.6458)	-0.006 (-0.011)		76.69122 (76.67090)	0.15 (0.12)

REMARKS:

1) LABORATOIRES 8, 17 AND 21 DID NOT PERFORM A PU-238 DETERMINATION, THIS AFFECTS THE PU-239 VALUE SIGNIFICANTLY. THE EVALUATION DATA OBTAINED WITHOUT THESE LABORATORIES ARE GIVEN IN BRACKETS,

EVALUATION SHEET 64

SOLUTION R, PLUTONIUM-240 ABUNDANCES

DETERMINED IN PROGRAMME PART 2.1

COMPILATION OF NUMERICAL DATA

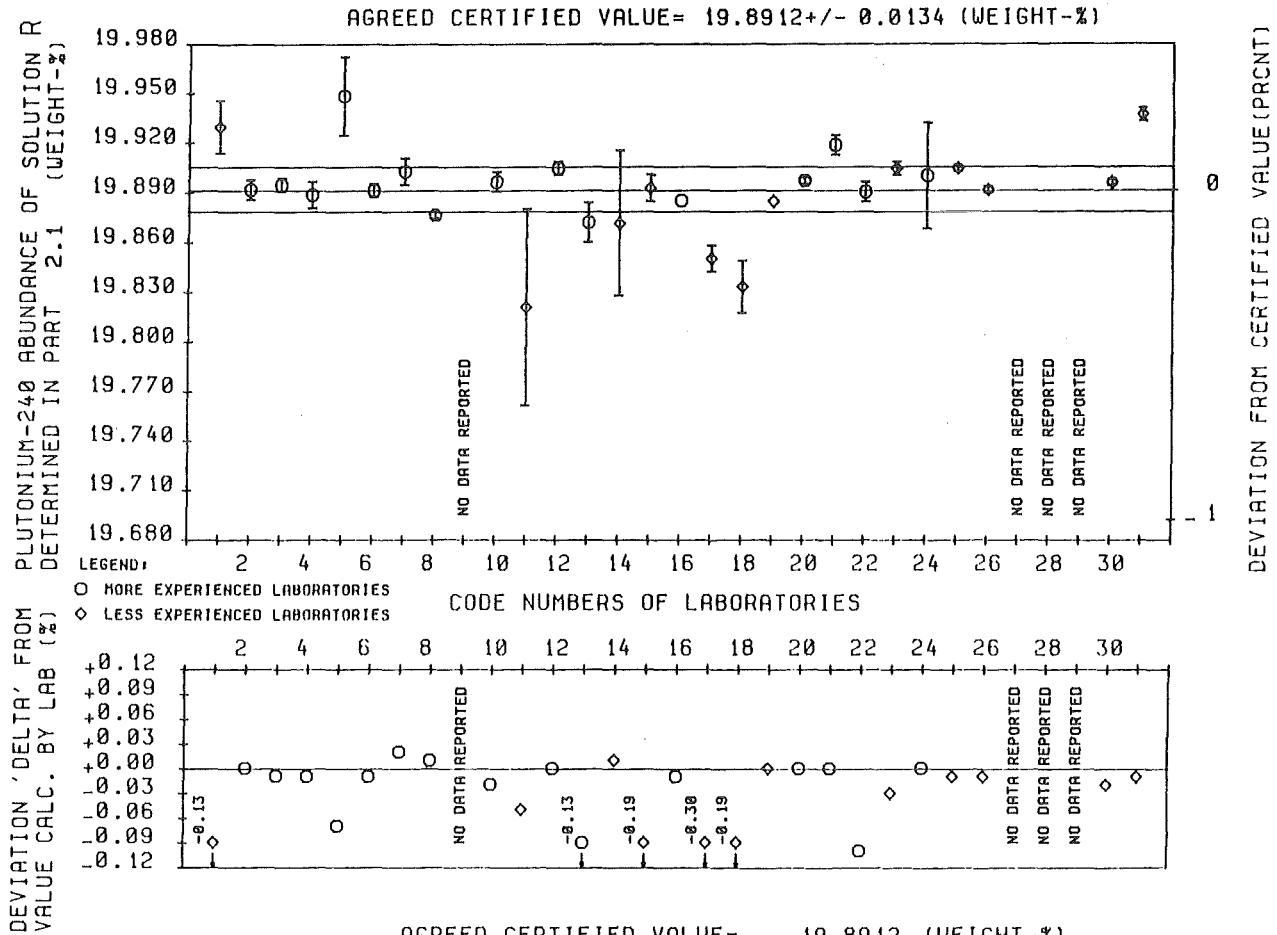
THE DIMENSION OF THE VALUES LISTED IS WEIGHT-%

```

*****
1      2      3      4      5      6      7      8
*****
LAB    RUN1   RUN2   RUN3 MEAN CALC. RSD OF LAB MEAN CALC. REL. DEV.
CODE                                BY ET.   MEAN (%)  BY LAB   FROM THAT
*****
1      19.9285 19.9572 19.9023 19.9293    0.08    19.9560    -0.13
2      19.8916 19.9017 19.8810 19.8914    0.03    19.8920     0.0
3      19.8980 19.8879 19.8971 19.8943    0.02    19.8960    -0.01
4      19.8744 19.8974 19.8934 19.8884    0.04    19.8910    -0.01
5      19.9669 19.9003 19.9768 19.9480    0.12    19.9610    -0.07
6      19.8956 19.8815 19.8957 19.8909    0.02    19.8930    -0.01
7      19.9116 19.8845 19.9105 19.9022    0.04    19.8990     0.02
8      19.8735 19.8790 19.8761 19.8762    0.01    19.8740     0.01
9      0.0      0.0      0.0      0.0      0.0      0.0      0.0
10     19.9063 19.8957 19.8862 19.8961    0.03    19.9010    -0.02
11     19.9317 19.8028 19.7269 19.8205    0.30    19.8300    -0.05
12     19.9081 19.8962 19.9085 19.9042    0.02    19.9050     0.0
13     19.8488 19.8898 19.8768 19.8718    0.06    19.8983    -0.13
14     19.9585 19.8385 19.8165 19.8712    0.22    19.8690     0.01
15     19.9051 19.8790 19.8926 19.8923    0.04    19.9310    -0.19
16     19.8838 19.8851 19.8855 19.8848    0.0     19.8867    -0.01
17     19.8636 19.8335 19.8529 19.8500    0.04    19.9100    -0.30
18     19.8436 19.8523 19.8025 19.8328    0.08    19.8710    -0.19
19     19.8854 19.8851 19.8832 19.8846    0.0     19.8840     0.0
20     19.8987 19.8970 19.8945 19.8967    0.01    19.8960     0.0
21     19.9083 19.9291 19.9172 19.9182    0.03    19.9173     0.0
22     19.8892 19.9018 19.8793 19.8901    0.03    19.9110    -0.10
23     19.9048 19.9104 19.8969 19.9040    0.02    19.9092    -0.03
24     19.8535 19.9618 19.8834 19.8996    0.16    19.8997     0.0
25     19.8992 19.9044 19.9087 19.9041    0.01    19.9070    -0.01
26     19.8887 19.8939 19.8912 19.8913    0.01    19.8940    -0.01
27     0.0      0.0      0.0      0.0      0.0      0.0      0.0
28     0.0      0.0      0.0      0.0      0.0      0.0      0.0
29     0.0      0.0      0.0      0.0      0.0      0.0      0.0
30     19.8987 19.8967 19.8917 19.8957    0.01    19.8996    -0.02
31     19.9332 19.9437 19.9322 19.9364    0.02    19.9375    -0.01
*****

```

REF.: 71 71 71 72 75 - 76



1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	27	19.8923	0.01		0.15
3	EXTREME LAB MEANS ELIMINATED	NONE	27	19.8923	0.01		0.15
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	NONE	27	19.8923	0.01		0.15
5	REPORTED VALUES	NONE	27	19.8990	0.04		0.13
						GRAND MEAN	INTERLAB SPREAD (%)
						19.89122	0.14
						19.90065	0.13

REMARKS:

EVALUATION SHEET 65  
=====

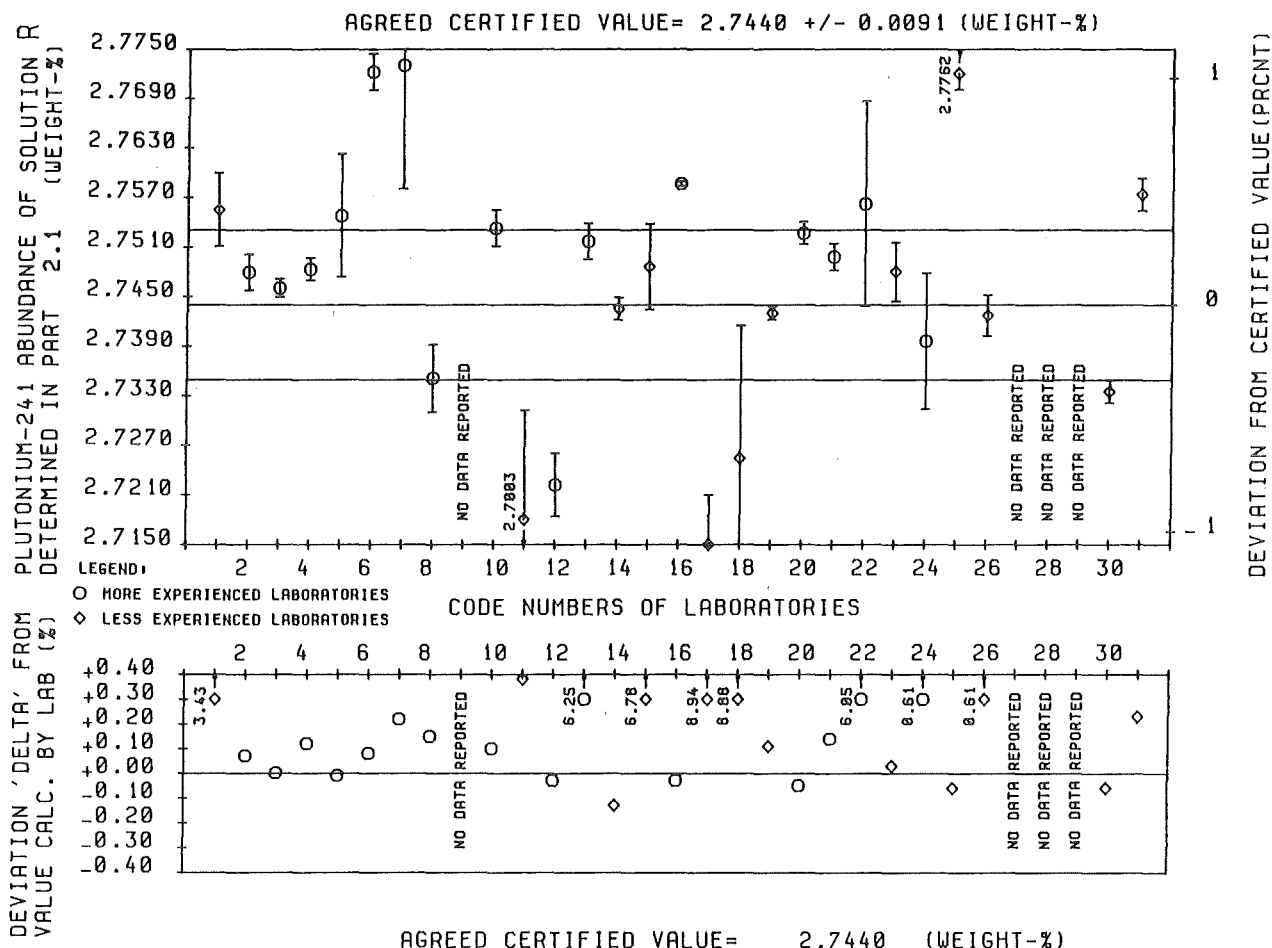
SOLUTION R, PLUTONIUM-241 ABUNDANCES  
DETERMINED IN PROGRAMME PART 2.1

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS WEIGHT-%

```
*****  
1      2      3      4      5      6      7      8  
*****  
LAB    RUN1   RUN2   RUN3 MEAN CALC. RSD OF LAB MEAN CALC. REL. DEV.  
CODE                                BY ET.    MEAN (%)  BY LAB    FROM THAT  
*****  
1      2.7478 2.7554 2.7632 2.7555 0.16 2.6640 3.43  
2      2.7458 2.7458 2.7521 2.7479 0.08 2.7460 0.07  
3      2.7480 2.7447 2.7453 2.7460 0.04 2.7460 0.0  
4      2.7462 2.7507 2.7481 2.7483 0.05 2.7450 0.12  
5      2.7541 2.7420 2.7681 2.7548 0.27 2.7550 -0.01  
6      2.7727 2.7681 2.7758 2.7722 0.08 2.7700 0.08  
7      2.7701 2.7485 2.8003 2.7730 0.54 2.7670 0.22  
8      2.7273 2.7376 2.7404 2.7351 0.15 2.7310 0.15  
9      0.0     0.0     0.0     0.0     0.0 0.0     0.0  
10     2.7527 2.7499 2.7573 2.7533 0.08 2.7505 0.10  
11     2.6745 2.7178 2.7087 2.7003 0.49 2.6900 0.38  
12     2.7291 2.7158 2.7217 2.7222 0.14 2.7230 -0.03  
13     2.7534 2.7541 2.7474 2.7517 0.08 2.5899 6.25  
14     2.7463 2.7420 2.7422 2.7435 0.05 2.7472 -0.13  
15     2.7393 2.7489 2.7577 2.7486 0.19 2.5740 6.78  
16     2.7590 2.7589 2.7579 2.7586 0.01 2.7594 -0.03  
17     2.7037 2.7171 2.7242 2.7150 0.22 2.4922 8.94  
18     2.7552 2.7206 2.7003 2.7254 0.59 2.5030 8.88  
19     2.7431 2.7445 2.7414 2.7430 0.03 2.7400 0.11  
20     2.7549 2.7533 2.7501 2.7527 0.05 2.7540 -0.05  
21     2.7487 2.7529 2.7479 2.7498 0.06 2.7461 0.14  
22     2.7506 2.7380 2.7800 2.7562 0.45 2.5990 6.05  
23     2.7475 2.7543 2.7423 2.7480 0.13 2.7471 0.03  
24     2.7284 2.7559 2.7344 2.7396 0.30 2.7230 0.61  
25     2.7725 2.7787 2.7775 2.7762 0.07 2.7780 -0.06  
26     2.7468 2.7385 2.7427 2.7427 0.09 2.7260 0.61  
27     0.0     0.0     0.0     0.0     0.0 0.0     0.0  
28     0.0     0.0     0.0     0.0     0.0 0.0     0.0  
29     0.0     0.0     0.0     0.0     0.0 0.0     0.0  
30     2.7362 2.7324 2.7320 2.7335 0.05 2.7351 -0.06  
31     2.7608 2.7570 2.7540 2.7573 0.07 2.7508 0.23  
*****
```

REF.:        71        71        71        72        75        -        76



	1	2	3	4	5	6	7	8
		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	27	2.7483	0.16		0.40	0.57
3	EXTREME LAB MEANS ELIMINATED	NONE	27	2.7483	0.16		0.40	0.57
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	NONE	27	2.7483	0.16		0.40	0.57
5	REPORTED VALUES	NONE	27	2.7460	0.07		2.74630	0.62
6	REPORTED VALUES	NONE	27	2.7460	0.07		2.70563	2.98

REMARKS:

1) PLEASE NOTE THE REMARKABLE DIFFERENCES OF THE GRAND MEANS AND THE INTERLAB SPREAD VALUES GIVEN IN LINES 5 AND 6. THEY REFLECT THE SIGNIFICANT DEVIATIONS 'DELTA' FOR A RATHER HIGH NUMBER OF LABORATORIES. (THESE DEVIATIONS ARE PROBABLY CAUSED BY INSUFFICIENT CORRECTIONS FOR DECAY.)



EVALUATION SHEET 66  
=====

SOLUTION R, PLUTONIUM-242 ABUNDANCES

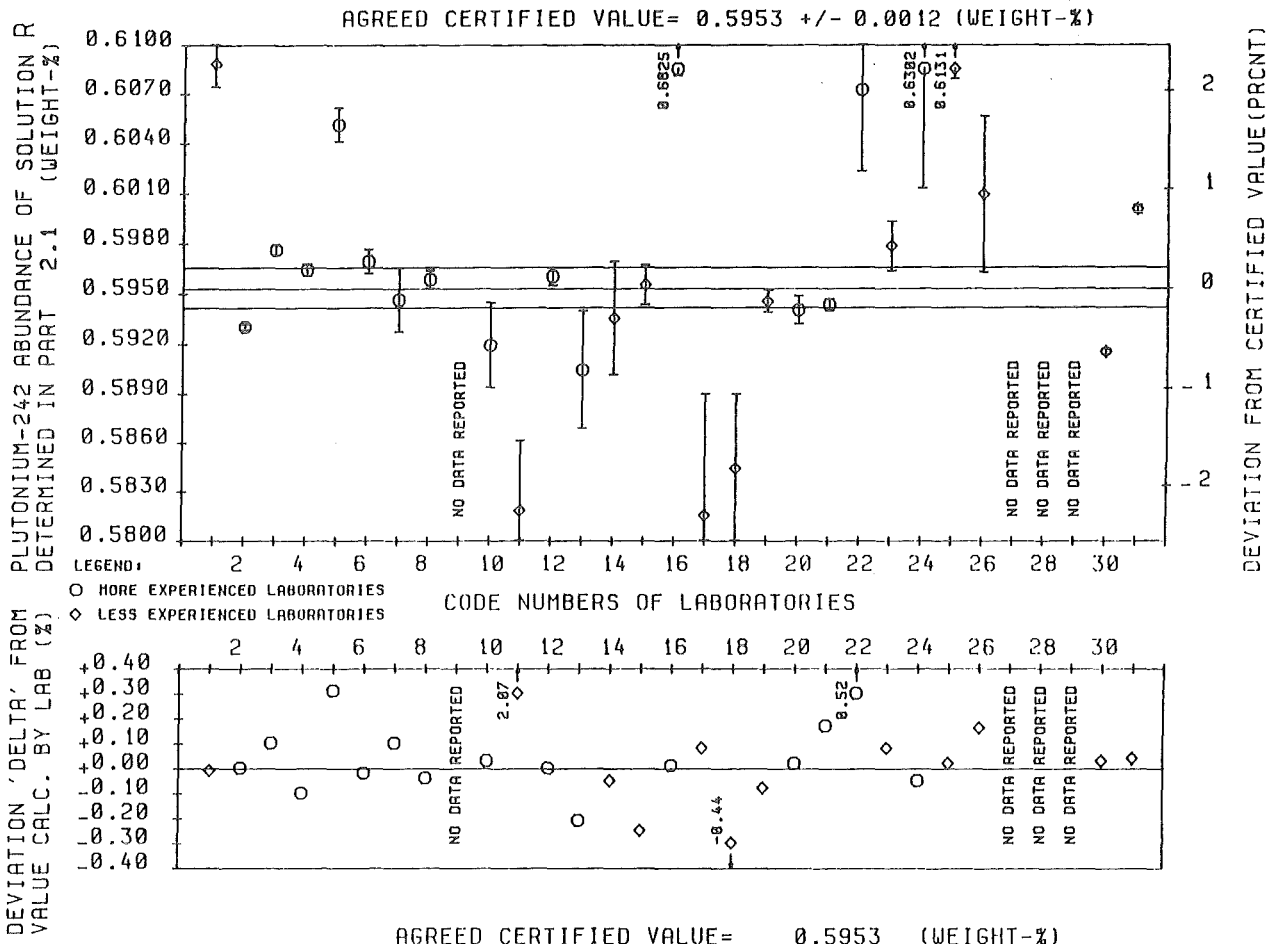
DETERMINED IN PROGRAMME PART 2.1

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS WEIGHT-%

1	2	3	4	5	6	7	8
LAB	RUN1	RUN2	RUN3	MEAN	CALC.	RSD OF	LAB
CODE				BY	ET.	MEAN (%)	BY
							LAB
							REL. DEV.
							FROM THAT
1	0.6060	0.6106	0.6096	0.6088	0.23	0.6088	-0.01
2	0.5927	0.5931	0.5932	0.5930	0.03	0.5930	0.0
3	0.5981	0.5972	0.5974	0.5976	0.05	0.5970	0.10
4	0.5957	0.5969	0.5966	0.5964	0.06	0.5970	-0.10
5	0.6031	0.6064	0.6058	0.6051	0.17	0.6032	0.31
6	0.5966	0.5957	0.5983	0.5969	0.12	0.5970	-0.02
7	0.5913	0.5947	0.5979	0.5946	0.32	0.5940	0.10
8	0.5948	0.5966	0.5959	0.5958	0.09	0.5960	-0.04
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.5964	0.5876	0.5919	0.5919	0.43	0.5918	0.03
11	0.5811	0.5895	0.5747	0.5818	0.74	0.5700	2.07
12	0.5970	0.5952	0.5957	0.5960	0.09	0.5960	0.0
13	0.5966	0.5903	0.5844	0.5904	0.60	0.5917	-0.21
14	0.6003	0.5908	0.5895	0.5935	0.57	0.5938	-0.05
15	0.5952	0.5936	0.5978	0.5955	0.20	0.5970	-0.25
16	0.6829	0.6817	0.6829	0.6825	0.06	0.6824	0.01
17	0.5746	0.5734	0.5964	0.5815	1.28	0.5810	0.08
18	0.5936	0.5791	0.5807	0.5844	0.78	0.5870	-0.44
19	0.5946	0.5934	0.5955	0.5945	0.11	0.5950	-0.08
20	0.5950	0.5947	0.5923	0.5940	0.14	0.5939	0.02
21	0.5940	0.5951	0.5939	0.5943	0.06	0.5933	0.17
22	0.5973	0.6127	0.6115	0.6072	0.81	0.6040	0.52
23	0.5988	0.5997	0.5948	0.5978	0.25	0.5973	0.08
24	0.6201	0.6442	0.6263	0.6302	1.15	0.6305	-0.05
25	0.6135	0.6139	0.6120	0.6131	0.10	0.6130	0.02
26	0.6084	0.5923	0.6021	0.6009	0.78	0.6000	0.16
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.5918	0.5912	0.5914	0.5915	0.03	0.5913	0.03
31	0.6001	0.6003	0.5995	0.6000	0.04	0.5997	0.04

REF.: 71 71 71 72 75 - 76



	1	2	3	4	5	6	7	8
		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	27	0.5959	0.10		0.86	3.14
3	EXTREME LAB MEANS ELIMINATED	16.24	25	0.5955	0.03		0.79	1.17
4	EXTREME VALUES OF LAB MEANS & RSD'S	16.24	25	0.5955	0.03		0.79	1.17
5	'RUN' ELIMINATED						GRAND MEAN	INTERLAB SPREAD (%)
							0.59586	1.26
6	REPORTED VALUES	16.24	25	0.5960	0.12		0.59527	1.40

REMARKS:



3.4 Concentration determinations

3.4.1 Uranium

(Evaluation sheets 67 to 73)

EVALUATION SHEET 67  
 =====

SOLUTION A, URANIUM CONCENTRATIONS

DETERMINED IN PROGRAMME PART 1.3

-----  
 COMPILATION OF NUMERICAL DATA  
 -----

THE DIMENSION OF THE VALUES LISTED IS E-1 G/G SOLUTION

```

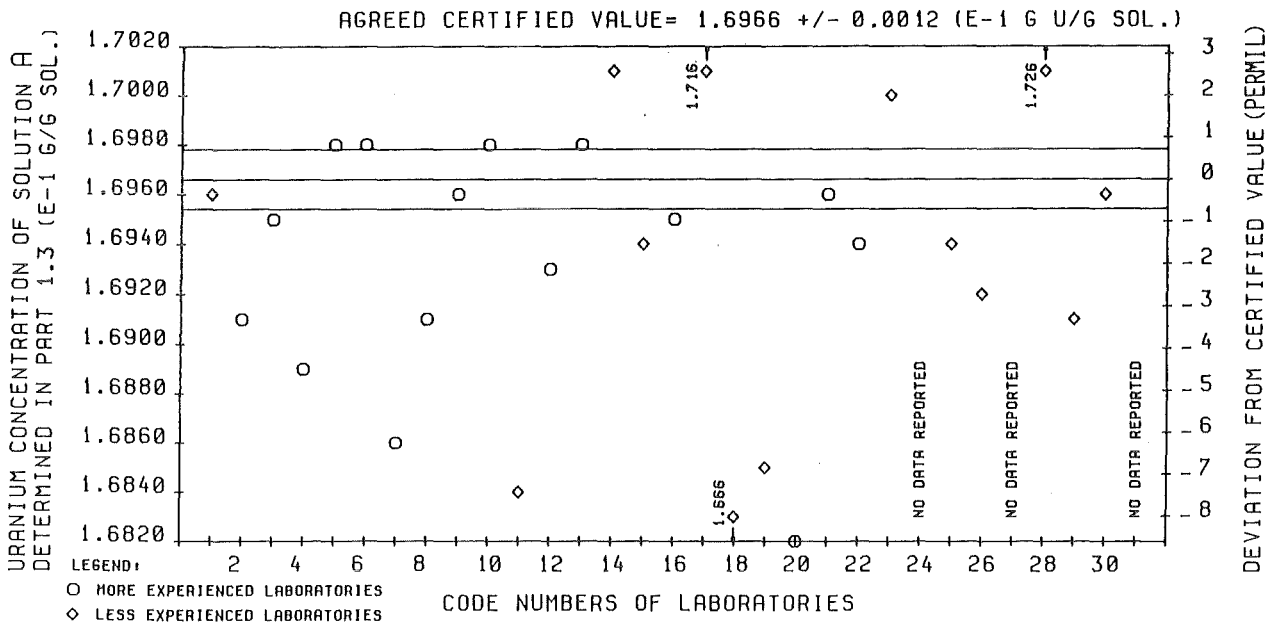
*****
1      2 1)      3 2)      4 2)      5 3)      6 3)      7 4)      8 4)
*****
LAB    RUN1    RUN2    RUN3    LAB MEAN    RSD OF LAB    LAB MEAN    RSD OF LAB
CODE   OF 3 RUNS  MEAN (%)    OF 2 RUNS  MEAN (%)
*****
1      1.696    1.700    1.701    1.699      0.10         1.701      0.03
2      1.691    1.691    1.691    1.691      0.01         1.691      0.01
3      1.695    1.694    1.696    1.695      0.04         1.695      0.07
4      1.689    1.690    1.691    1.690      0.03         1.690      0.02
5      1.698    1.701    1.703    1.701      0.08         1.702      0.03
6      1.698    1.698    1.700    1.698      0.04         1.699      0.07
7      1.686    1.684    1.684    1.685      0.05         1.684      0.01
8      1.691    1.688    1.689    1.689      0.05         1.688      0.04
9      1.696    1.695    1.695    1.696      0.03         1.695      0.01
10     1.698    1.693    1.696    1.696      0.07         1.695      0.08
11     1.684    1.674    1.677    1.678      0.16         1.676      0.09
12     1.693    1.693    1.692    1.693      0.02         1.693      0.02
13     1.698    1.705    1.688    1.697      0.29         1.696      0.50
14     1.701    1.694    1.708    1.701      0.24         1.701      0.41
15     1.694    1.694    1.695    1.695      0.01         1.695      0.02
16     1.695    1.694    1.693    1.694      0.03         1.694      0.03
17     1.716    1.706    1.722    1.715      0.27         1.714      0.38
18     1.666    1.675    1.670    1.670      0.17         1.673      0.15
19     1.685    1.686    1.686    1.686      0.02         1.686      0.01
20     1.682    1.686    1.684    1.684      0.06         1.685      0.05
21     1.696    1.699    1.689    1.695      0.18         1.694      0.30
22     1.694    1.694    1.695    1.694      0.01         1.694      0.0
23     1.700    1.694    1.693    1.696      0.13         1.693      0.04
24     0.0      0.0      0.0      0.0        0.0          0.0        0.0
25     1.694    1.694    1.692    1.693      0.03         1.693      0.05
26     1.692    1.693    1.691    1.692      0.04         1.692      0.07
27     0.0      0.0      0.0      0.0        0.0          0.0        0.0
28     1.726    1.660    1.679    1.688      1.16         1.669      0.56
29     1.691    1.694    1.694    1.693      0.05         1.694      0.02
30     1.696    1.692    1.692    1.693      0.07         1.692      0.02
31     0.0      0.0      0.0      0.0        0.0          0.0        0.0
*****

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REF.:        52            53            53            54            60            55            61

REMARKS:

- 1) Data concern all laboratory measurements on samples of 'spiking I' (Eval.Sheet 67-1).
- 2) Data concern measurements on samples of 'spiking II', 'IV' or 'VI', depending on the subgroup to which the laboratory belongs (see Eval. Sheets 2-II, 2-IV and 2-VI).
- 3) See Eval.Sheet 67-3.
- 4) See Eval.Sheet 67-2.



AGREED CERTIFIED VALUE = 1.6966 (E-1 G U/G SOL.)  
 +/- 0.0012

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	28	1.6945	-0.12		-	-
3	EXTREME LAB MEANS ELIMINATED	NONE	28	1.6945	-0.12		-	-
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	NONE (28)	28 (27)	1.6945 (1.694)	-0.12 (-0.15)		-	-
5							GRAND MEAN	INTERLAB SPREAD (%)
							1.6943 (1.6931)	0.61 (0.50)

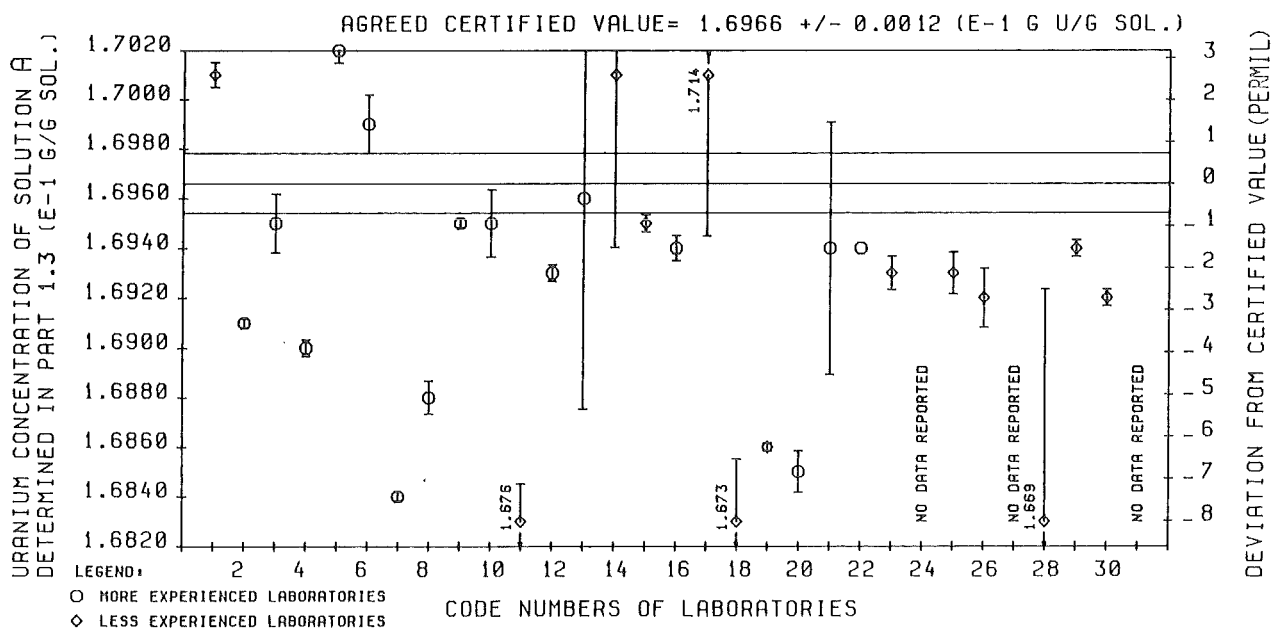
EVALUATION FOR SEPARATE LABORATORY SUBGROUPS

	1	2	3	4	5	6	7	8
1	SUB-GROUP	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)	GRAND MEAN	INTERLAB SPREAD (%)
2	II	10	1.6925	-0.24	-	-	1.6909	0.59
3	IV	10 (9)	1.696 (1.696)	-0.04 (-0.04)	-	-	1.6993 (1.6963)	0.73 (0.50)
4	VI	8	1.694	-0.15	-	-	1.6924	0.34

REMARKS:

- 1) SINCE DATA ARE BASED ON ONE RUN ONLY, NO UNCERTAINTY BARS ARE PRESENTED IN THE GRAPH AND NO ESTIMATES OF UNCERTAINTY COMPONENTS ARE GIVEN IN THE TABLES.
- 2) CALCULATIONS LEAVING OUT LABORATORY 28 (GIVEN IN BRACKETS IN THE TABLES) WERE PERFORMED FOR COMPARISON WITH PLUTONIUM DATA BASED ON THE SAME GROUP OF LABORATORIES (SEE CORRESPONDING EVAL. SHEETS 74 AND 75, AND VOL. I, P. 66).

EVALUATION SHEET 67-1 : SOLUTION A, URANIUM CONCENTRATIONS DETERMINED IN PART 1.3 RESULT OF THE SAMPLE OF SPIKING I



AGREED CERTIFIED VALUE= 1.6966 (E-1 G U/G SOL.)  
 +/- 0.0012

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	28	1.694	-0.21		0.28	0.49
3	EXTREME LAB MEANS ELIMINATED	NONE	28	1.694	-0.21		0.28	0.49
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	NONE (28)	28 (27)	1.6935 (1.693)	-0.18 (-0.21)		0.28 (0.24)	0.49 (0.44)
5							GRAND MEAN	INTERLAB SPREAD (%)
							1.6919 (1.6927)	0.53 (0.47)

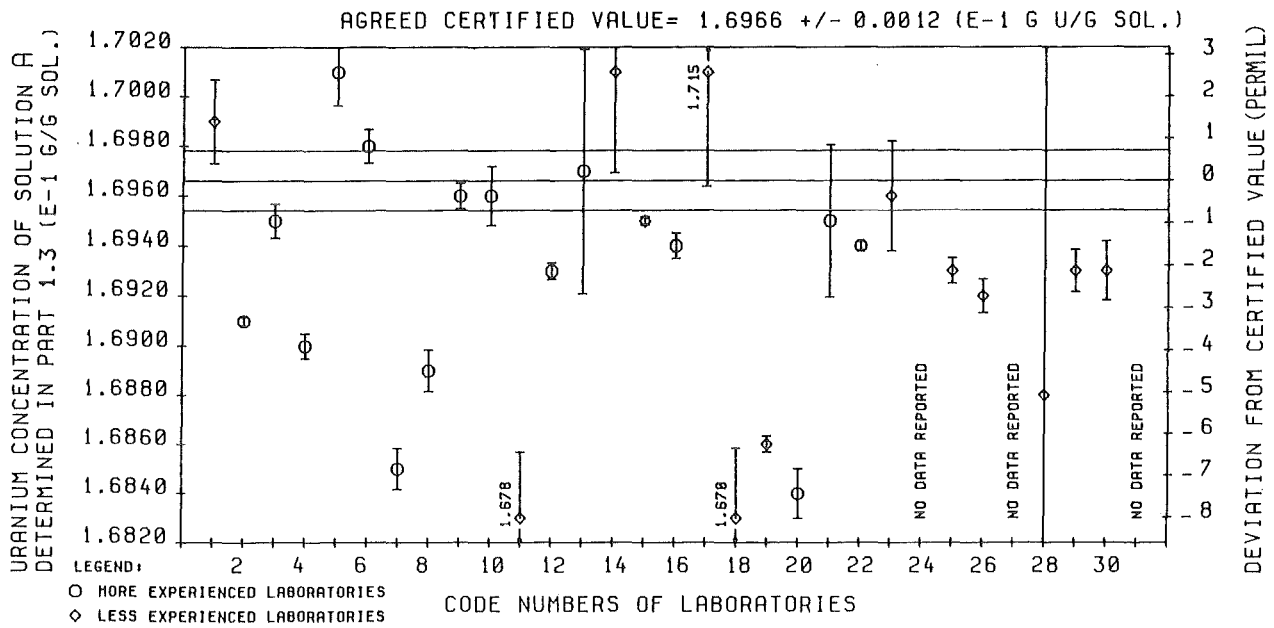
EVALUATION FOR SEPARATE LABORATORY SUBGROUPS

	1	2	3	4	5	6	7	8
1	SUB-GROUP	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)	GRAND MEAN	INTERLAB SPREAD (%)
2	II	10	1.6935	-0.18	0.20	0.51	1.6927	0.53
3	IV	10 (9)	1.6935 (1.694)	-0.18 (-0.15)	0.40 (0.33)	0.65 (0.53)	1.6914 (1.6938)	0.71 (0.58)
4	VI	8	1.6935	-0.18	0.16	0.24	1.6916	0.26

REMARKS:

- 1) CALCULATIONS LEAVING OUT LABORATORY 28 (GIVEN IN BRACKETS IN THE TABLES) WERE PERFORMED FOR COMPARISON WITH PLUTONIUM DATA BASED ON THE SAME GROUP OF LABORATORIES (SEE CORRESPONDING EVAL. SHEETS 74 AND 75, AND VOL. I, P. 66).

EVALUATION SHEET 67-2 : SOLUTION A, URANIUM CONCENTRATIONS DETERMINED IN PART 1.3 TWO SAMPLES OF SPIKINGS II, IV OR VI



AGREED CERTIFIED VALUE= 1.6966 (E-1 G U/G SOL.)  
 +/- 0.0012

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	28	1.6935	-0.18		0.43	0.40
3	EXTREME LAB MEANS ELIMINATED	NONE	28	1.6935	-0.18		0.43	0.40
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	28	27	1.694	-0.15		0.20	0.46
5							GRAND MEAN	INTERLAB SPREAD (%)
							0.16929	0.47

EVALUATION FOR SEPARATE LABORATORY SUBGROUPS

	1	2	3	4	5	6	7	8
1	SUB-GROUP	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)	GRAND MEAN	INTERLAB SPREAD (%)
2	II	10	1.693	-0.21	0.18	0.54	1.6921	0.55
3	IV	10 (9)	1.6935 (1.694)	-0.18 (-0.15)	0.68 (0.26)	0.36 (0.53)	1.6940 (1.6947)	0.53 (0.55)
4	VI	8	1.6945	-0.12	0.15	0.27	1.6918	0.28

REMARKS:

- UNLIKE THE RESULTS GIVEN ON EVAL. SHEETS 67-1 AND 67-2, THE VALUE OF LABORATORY 28 HAS TO BE REJECTED ACCORDING TO THE DIXON CRITERION IF THE COMPLETE SET OF DATA IS CONSIDERED. FOR LABORATORY SUBGROUP IV, THE EVALUATION DATA WITHOUT LABORATORY 28 ARE GIVEN IN BRACKETS.

**EVALUATION SHEET 67-3 :** SOLUTION A, URANIUM CONCENTRATIONS DETERMINED IN PART 1.3  
 3 SAMPLES OF SPIKINGS I & II, IV OR VI



EVALUATION SHEET 68  
=====

SOLUTION B, URANIUM CONCENTRATIONS

DETERMINED IN PROGRAMME PART 1.11

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS MG/G SOLUTION

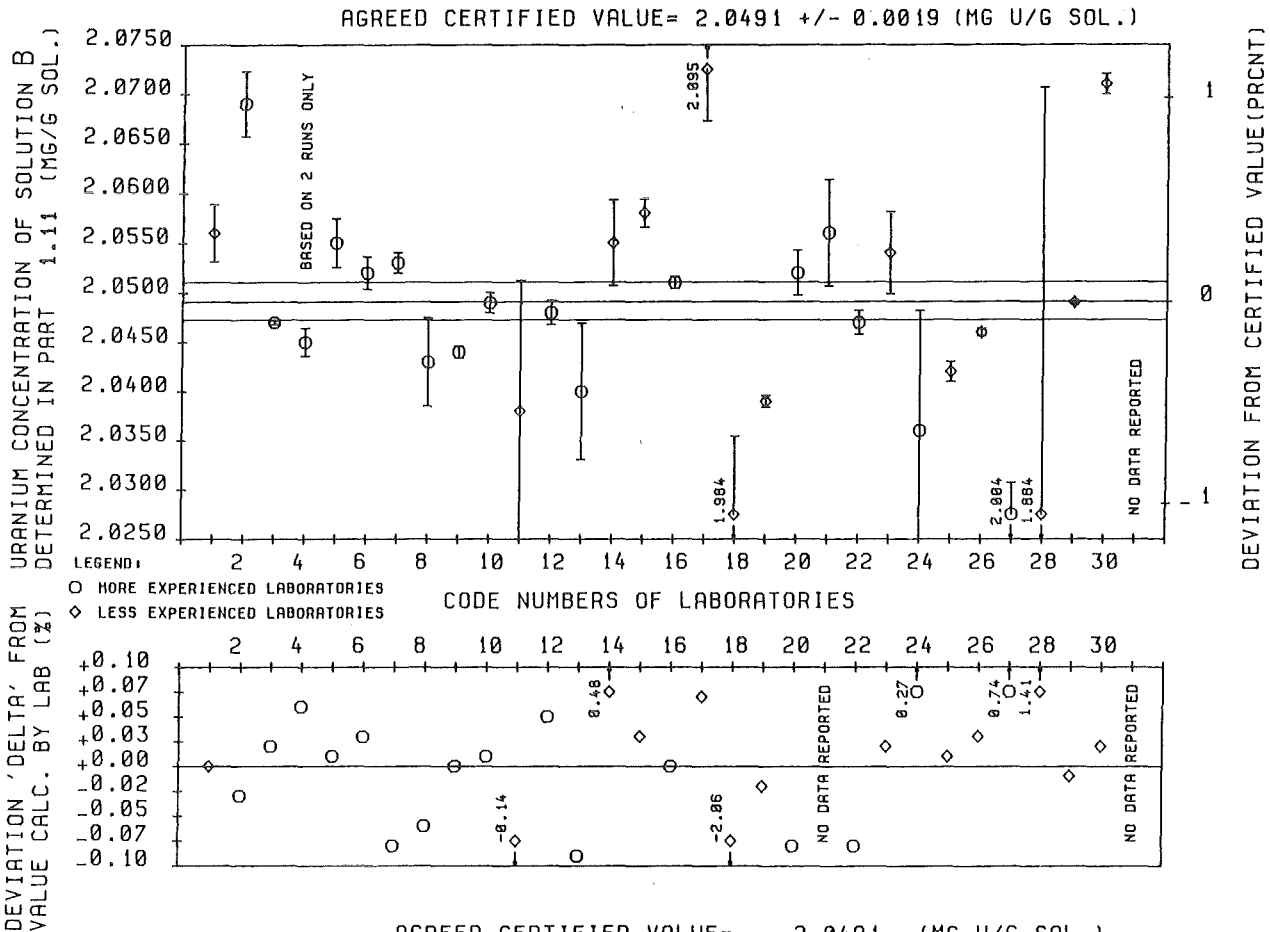
```

*****
 1         2         3         4         5         6         7         8
*****
LAB   RUN1   RUN2   RUN3  MEAN CALC.  RSD OF LAB  MEAN CALC.  REL. DEV.
CODE          BY ET.    MEAN (%)    BY LAB    FROM THAT
*****
 1     2.050   2.059   2.059   2.056       0.14       2.056       0.0
 2     2.075   2.065   2.066   2.069       0.16       2.069      -0.03
 3     2.047   2.047   2.047   2.047       0.01       2.047       0.02
 4     2.044   2.047   -       2.045 1)   0.07 1)    2.044       0.06
 5     2.059   2.051   2.056   2.055       0.12       2.055       0.01
 6     2.048   2.053   2.053   2.052       0.08       2.051       0.03
 7     2.056   2.052   2.053   2.053       0.05       2.055      -0.08
 8     2.046   2.049   2.034   2.043       0.22       2.044      -0.06
 9     2.045   2.043   2.043   2.044       0.03       2.044       0.0
10     2.049   2.047   2.051   2.049       0.05       2.049       0.01
11     2.058   2.043   2.013   2.038       0.65       2.041      -0.14
12     2.046   2.049   2.049   2.048       0.06       2.047       0.05
13     2.038   2.029   2.053   2.040       0.34       2.042      -0.09
14     2.063   2.053   2.049   2.055       0.21       2.045       0.48
15     2.061   2.056   2.056   2.058       0.07       2.057       0.03
16     2.051   2.051   2.052   2.051       0.03       2.051       0.0
17     2.104   2.095   2.086   2.095       0.25       2.094       0.07
18     1.990   1.969   1.994   1.984       0.40       2.026      -2.06
19     2.040   2.040   2.038   2.039       0.03       2.040      -0.02
20     2.049   2.051   2.057   2.052       0.11       2.054      -0.08
21     2.051   2.066   2.050   2.056       0.26       0.0         0.0
22     2.048   2.049   2.044   2.047       0.06       2.048      -0.08
23     2.055   2.047   2.061   2.054       0.20       2.054       0.02
24     2.048   2.048   2.011   2.036       0.60       2.030       0.27
25     2.041   2.042   2.044   2.042       0.05       2.042       0.01
26     2.047   2.045   2.045   2.046       0.02       2.045       0.03
27     2.001   2.010   2.000   2.004       0.16       1.989       0.74
28     1.970   1.836   1.846   1.884       2.29       1.858       1.41
29     2.048   2.049   2.048   2.049       0.01       2.049      -0.01
30     2.071   2.072   2.069   2.071       0.05       2.070       0.02
31     0.0     0.0     0.0     0.0         0.0       0.0         0.0
*****

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REF.:      26            26            26            28            34            -            35

i) Based on data of runs 1 and 2 only.



	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	30	2.0485	-0.03		0.77	1.67
3	EXTREME LAB MEANS ELIMINATED	28, 18	28	2.049	0.0		0.37	0.69
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	28, 18 (28, 18, 21)	28 (27)	2.049 (2.049)	0.0 (0.0)		0.37 (0.37)	0.69 (0.70)
5	REPORTED VALUES	18, 21, 28	27	2.048	-0.05		GRAND MEAN (2.0497 (2.0495))	INTERLAB SPREAD (%) (0.72 (0.74))
6	REPORTED VALUES	18, 21, 28	27	2.048	-0.05		2.0486	0.82

REMARKS:

- FOR THESE CALCULATIONS GIVEN IN THE TABLE, AN ARTIFICIAL THIRD 'RUN' VALUE WAS USED IN THE CASE OF LABORATORY 4, THIS VALUE BEING EQUAL TO THE MEAN OF THE TWO MEASURED VALUES.
- LABORATORY 21 DID NOT REPORT THE URANIUM CONCENTRATION CALCULATED BY ITSELF, THEREFORE, FOR COMPARISON WITH THE DATA GIVEN IN LINE 6 OF THE TABLE, THE RESULTS OBTAINED WITHOUT THAT LABORATORY ARE INDICATED IN BRACKETS.

EVALUATION SHEET 69  
=====

SOLUTION B, URANIUM CONCENTRATIONS

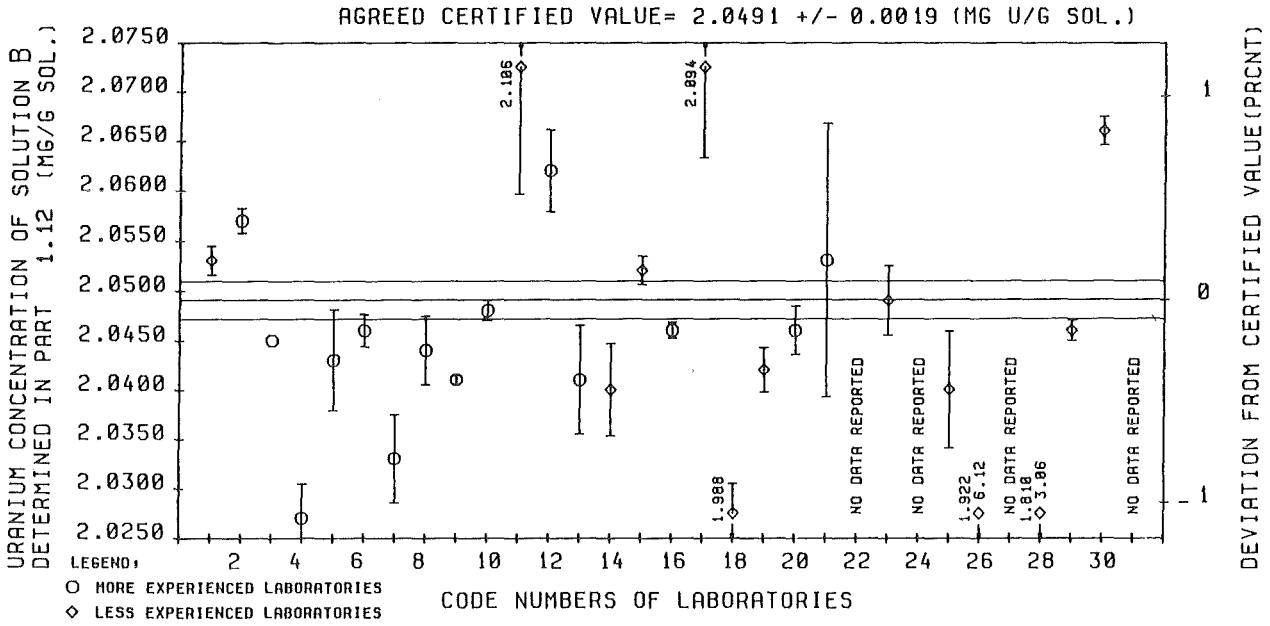
DETERMINED IN PROGRAMME PART 1.12

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS MG/G SOLUTION

```
*****
 1      2      3      4      5      6      7      8
*****
LAB     RUN1     RUN2     RUN3 MEAN CALC. RSD OF LAB MEAN CALC. REL. DEV.
CODE                                BY ET.     MEAN (%)  BY LAB   FROM THAT
*****
 1      2.053    2.050    2.055    2.053     0.07
 2      2.058    2.054    2.058    2.057     0.06
 3      2.045    2.045    2.045    2.045     0.0
 4      2.021    2.033    2.029    2.027     0.17
 5      2.052    2.041    2.034    2.043     0.25
 6      2.046    2.050    2.044    2.046     0.08
 7      2.031    2.042    2.027    2.033     0.22
 8      2.045    2.050    2.038    2.044     0.17
 9      2.041    2.040    2.041    2.041     0.02
10      2.050    2.048    2.046    2.048     0.05
11      2.107    2.128    2.084    2.106     0.61
12      2.068    2.064    2.054    2.062     0.20
13      2.034    2.036    2.052    2.041     0.27
14      2.045    2.031    2.045    2.040     0.23
15      2.052    2.054    2.049    2.052     0.07
16      2.047    2.047    2.045    2.046     0.04
17      2.103    2.075    2.103    2.094     0.44
18      1.989    1.993    1.982    1.988     0.15
19      2.038    2.043    2.046    2.042     0.11
20      2.045    2.050    2.042    2.046     0.12
21      2.076    2.029    2.055    2.053     0.67
22      0.0      0.0      0.0      0.0       0.0
23      2.047    2.055    2.043    2.049     0.17
24      0.0      0.0      0.0      0.0       0.0
25      2.047    2.028    2.044    2.040     0.29
26      1.687    2.039    2.040    1.922     6.12
27      0.0      0.0      0.0      0.0       0.0
28      1.699    1.863    1.869    1.810     3.06
29      2.044    2.048    2.047    2.046     0.05
30      2.069    2.064    2.066    2.066     0.07
31      0.0      0.0      0.0      0.0       0.0
*****
```

REF.:        26            26            26            28            34



AGREED CERTIFIED VALUE = 2.0491 (MG U/G SOL.)  
 +/- 0.0019

1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	27	2.046	-0.15	2.17	2.39
3	EXTREME LAB MEANS ELIMINATED	28,26	25	2.046	-0.15	0.43	1.00
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	28,26	25	2.046	-0.15	0.43	1.00
5						GRAND MEAN	INTERLAB SPREAD (%)
						2.0483	1.03

REMARKS:

EVALUATION SHEET 70  
=====

SOLUTION B, URANIUM CONCENTRATIONS  
DETERMINED IN PROGRAMME PART 1.2

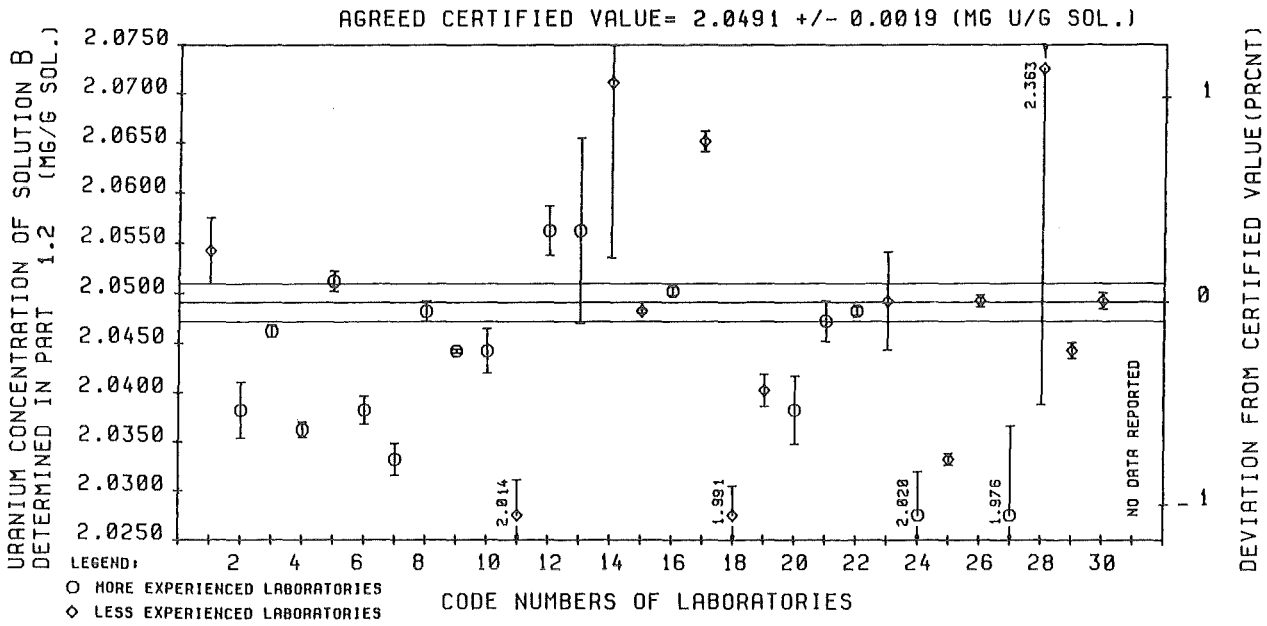
-----  
COMPILATION OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS MG/G SOLUTION

\*\*\*\*\*  
1 2 3 4 5 6 7 8  
\*\*\*\*\*  
LAB RUN1 RUN2 RUN3 MEAN CALC. RSD OF LAB MEAN CALC. REL. DEV.  
CODE BY ET. MEAN (%) BY LAB FROM THAT  
\*\*\*\*\*

1	2.049	2.060	2.054	2.054	0.16
2	2.037	2.043	2.034	2.038	0.14
3	2.047	2.047	2.045	2.046	0.03
4	2.037	2.036	2.035	2.036	0.04
5	2.050	2.051	2.053	2.051	0.05
6	2.039	2.036	2.041	2.038	0.07
7	2.032	2.036	2.030	2.033	0.08
8	2.048	2.050	2.047	2.048	0.05
9	2.044	2.043	2.043	2.044	0.01
10	2.040	2.044	2.047	2.044	0.11
11	2.008	2.015	2.020	2.014	0.18
12	2.059	2.051	2.057	2.056	0.12
13	2.047	2.046	2.074	2.056	0.45
14	2.103	2.066	2.043	2.071	0.85
15	2.048	2.048	2.047	2.048	0.01
16	2.049	2.051	2.050	2.050	0.02
17	2.066	2.067	2.063	2.065	0.05
18	1.986	1.990	1.996	1.991	0.15
19	2.043	2.040	2.038	2.040	0.08
20	2.042	2.032	2.041	2.038	0.17
21	2.050	2.048	2.043	2.047	0.10
22	2.047	2.049	2.049	2.048	0.02
23	2.042	2.058	2.046	2.049	0.24
24	2.029	2.015	2.016	2.020	0.22
25	2.033	2.035	2.033	2.033	0.03
26	2.049	2.049	2.051	2.049	0.03
27	1.968	1.966	1.994	1.976	0.46
28	2.330	2.328	2.429	2.363	1.43
29	2.045	2.043	2.043	2.044	0.04
30	2.051	2.048	2.048	2.049	0.04
31	0.0	0.0	0.0	0.0	0.0

\*\*\*\*\*  
REF.: 26 26 26 28 34



AGREED CERTIFIED VALUE= 2.0491 (MG U/G SOL.)  
 +/- 0.0019

1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	2.0465	-0.13		0.64	2.99
3	EXTREME LAB MEANS ELIMINATED	28,27,18	2.0470	-0.10		0.36	0.54
4	EXTREME VALUES OF LAB MEANS	28,27,18	2.046	-0.15		0.18	0.52
5	LAB MEANS & RSD'S 'RUN' ELIMINATED	14,13				GRAND MEAN	INTERLAB SPREAD (%)
						2.0436	0.53

REMARKS:

EVALUATION SHEET 71

SOLUTION R, URANIUM CONCENTRATIONS

DETERMINED IN PROGRAMME PART 2.1

COMPILATION OF NUMERICAL DATA

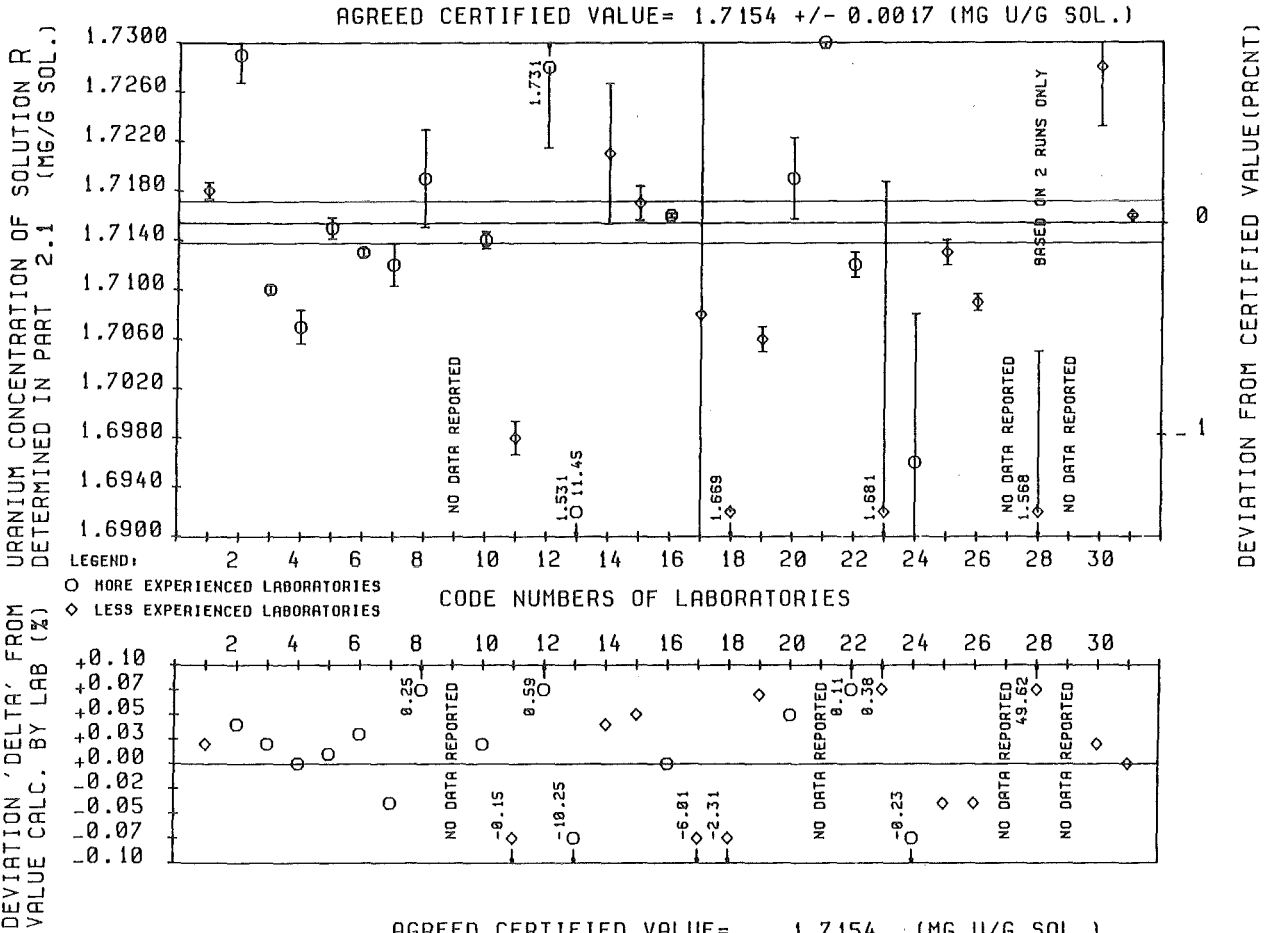
THE DIMENSION OF THE VALUES LISTED IS MG/G SOLUTION

```

*****
  1      2      3      4      5      6      7      8
*****
LAB  RUN1  RUN2  RUN3 MEAN CALC. RSD OF LAB MEAN CALC. REL. DEV.
CODE          BY ET.  MEAN (%)  BY LAB  FROM THAT
*****
  1      1.717  1.719  1.717  1.718      0.04      1.717      0.02
  2      1.732  1.725  1.731  1.729      0.13      1.728      0.04
  3      1.710  1.710  1.709  1.710      0.02      1.709      0.02
  4      1.706  1.705  1.709  1.707      0.08      1.707      0.0
  5      1.715  1.716  1.714  1.715      0.05      1.715      0.01
  6      1.714  1.713  1.713  1.713      0.02      1.713      0.03
  7      1.715  1.711  1.709  1.712      0.10      1.712     -0.04
  8      1.719  1.713  1.726  1.719      0.23      1.715      0.25
  9      0.0     0.0     0.0     0.0     0.0     0.0     0.0
 10      1.715  1.713  1.715  1.714      0.04      1.714      0.02
 11      1.700  1.696  1.700  1.698      0.08      1.701     -0.15
 12      1.744  1.721  1.729  1.731      0.38      1.721      0.59
 13      1.708  1.705  1.180  1.531     11.45      1.706    -10.25
 14      1.731  1.720  1.712  1.721      0.33      1.720      0.04
 15      1.715  1.716  1.719  1.717      0.08      1.716      0.05
 16      1.715  1.716  1.716  1.716      0.01      1.716      0.0
 17      1.630  1.749  1.745  1.708      2.28      1.817     -6.01
 18      1.669  1.668  1.669  1.669      0.01      1.708     -2.31
 19      1.708  1.705  1.706  1.706      0.06      1.705      0.07
 20      1.725  1.714  1.718  1.719      0.19      1.718      0.05
 21      1.729  1.731  1.730  1.730      0.03      0.0        0.0
 22      1.710  1.714  1.712  1.712      0.06      1.710      0.11
 23      1.628  1.710  1.706  1.681      1.59      1.675      0.38
 24      1.672  1.708  1.709  1.696      0.71      1.700     -0.23
 25      1.715  1.714  1.712  1.713      0.06      1.714     -0.04
 26      1.710  1.710  1.708  1.709      0.04      1.710     -0.04
 27      0.0     0.0     0.0     0.0     0.0     0.0     0.0
 28      1.581  1.555  0.0     1.568      0.83      1.048     49.62
 29      0.0     0.0     0.0     0.0     0.0     0.0     0.0
 30      1.738  1.726  1.721  1.728      0.28      1.728      0.02
 31      1.716  1.716  1.717  1.716      0.01      1.716      0.0
*****

```

REF.: 26 26 26 28 34 - 35



	1	2	3	4	5	6	7	8
		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	28	1.7130	-0.14		3.52	1.69
3	EXTREME LAB MEANS ELIMINATED	13, 28, 18	25	1.7135	-0.11		1.02	0.65
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	13, 28, 18, 17, 23, 24, 21	(21)	(1.715)	(-0.02)		0.26 (0.26)	0.46 (0.43)
5							GRAND MEAN (1.7161 (1.7155))	INTERLAB SPREAD (%) (0.48 (0.46))
6	REPORTED VALUES	13, 17, 18, 21, 23, 24, 28	21	1.715	-0.02		1.7145	0.39

REMARKS:

- 1) FOR THE CALCULATIONS GIVEN IN LINE 2 OF THE TABLE, AN ARTIFICIAL THIRD 'RUN' VALUE WAS USED IN THE CASE OF LABORATORY 28, THIS VALUE BEING EQUAL TO THE MEAN OF THE TWO MEASURED VALUES.
- 2) LABORATORY 21 DID NOT REPORT THE URANIUM CONCENTRATION CALCULATED BY ITSELF, THEREFORE, FOR COMPARISON WITH THE DATA GIVEN IN LINE 6 OF THE TABLE, THE RESULTS OBTAINED WITHOUT THAT LABORATORY ARE INDICATED IN BRACKETS.



EVALUATION SHEET 72  
=====

SOLUTION R, URANIUM CONCENTRATIONS

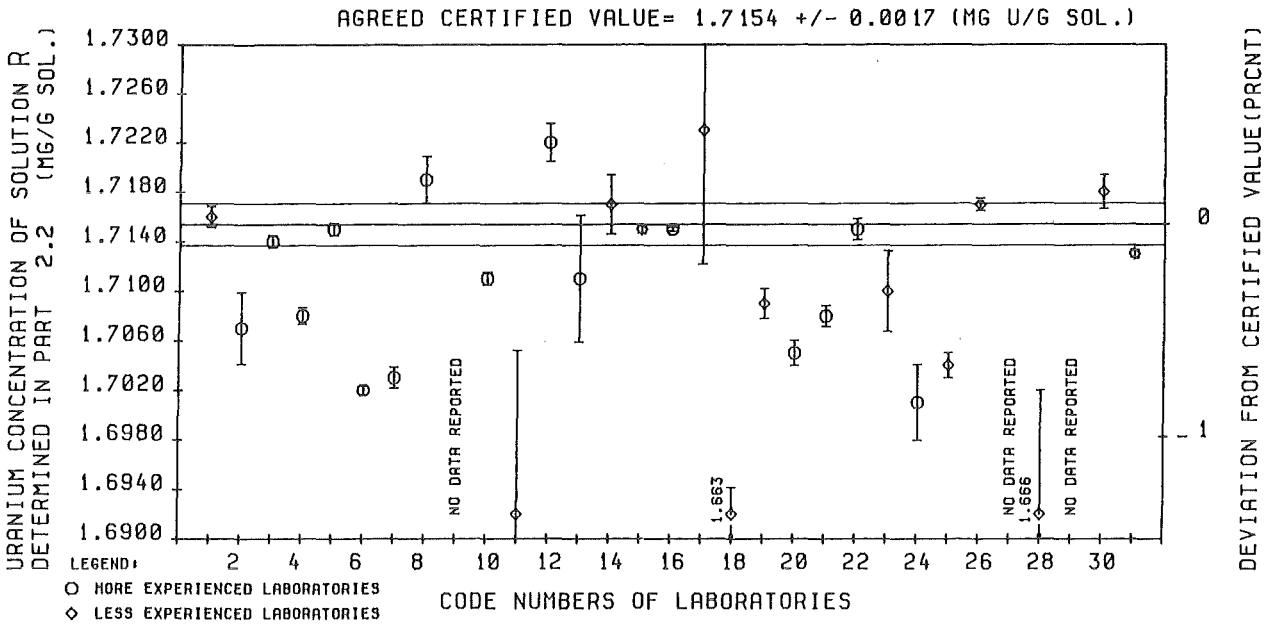
DETERMINED IN PROGRAMME PART 2.2

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS MG/G SOLUTION

1	2	3	4	5	6	7	8
LAB	RUN1	RUN2	RUN3	MEAN CALC.	RSD OF LAB	MEAN CALC.	REL. DEV.
CODE				BY ET.	MEAN (%)	BY LAB	FROM THAT
1	1.714	1.716	1.717	1.716	0.05		
2	1.702	1.707	1.712	1.707	0.17		
3	1.713	1.714	1.715	1.714	0.03		
4	1.709	1.706	1.708	1.708	0.04		
5	1.714	1.716	1.715	1.715	0.03		
6	1.703	1.702	1.702	1.702	0.02		
7	1.702	1.701	1.704	1.703	0.05		
8	1.722	1.720	1.716	1.719	0.11		
9	0.0	0.0	0.0	0.0	0.0		
10	1.712	1.712	1.710	1.711	0.03		
11	1.718	1.680	1.677	1.692	0.78		
12	1.723	1.719	1.724	1.722	0.09		
13	1.715	1.702	1.718	1.711	0.30		
14	1.717	1.721	1.712	1.717	0.14		
15	1.714	1.715	1.715	1.715	0.02		
16	1.715	1.715	1.714	1.715	0.01		
17	1.713	1.711	1.744	1.723	0.63		
18	1.666	1.663	1.658	1.663	0.13		
19	1.709	1.707	1.712	1.709	0.07		
20	1.706	1.703	1.705	1.705	0.06		
21	1.707	1.709	1.709	1.708	0.05		
22	1.715	1.714	1.717	1.715	0.05		
23	1.716	1.706	1.707	1.710	0.19		
24	1.697	1.707	1.698	1.701	0.18		
25	1.706	1.703	1.703	1.704	0.06		
26	1.716	1.716	1.718	1.717	0.03		
27	0.0	0.0	0.0	0.0	0.0		
28	1.685	1.659	1.653	1.666	0.60		
29	0.0	0.0	0.0	0.0	0.0		
30	1.718	1.715	1.720	1.718	0.08		
31	1.713	1.712	1.713	1.713	0.02		

REF.:        26            26            26            28            34



AGREED CERTIFIED VALUE= 1.7154 (MG U/G SOL.)  
 +/- 0.0017

1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	28	1.711	-0.26	0.41	0.79
3	EXTREME LAB MEANS ELIMINATED	18,28	26	1.712	-0.20	0.38	0.36
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	18,28, 11,17	24	1.712	-0.20	0.18	0.32
5						GRAND MEAN	INTERLAB SPREAD (%)
						1.7114	0.34

REMARKS:

EVALUATION SHEET 73  
=====

SOLUTION R, URANIUM CONCENTRATIONS

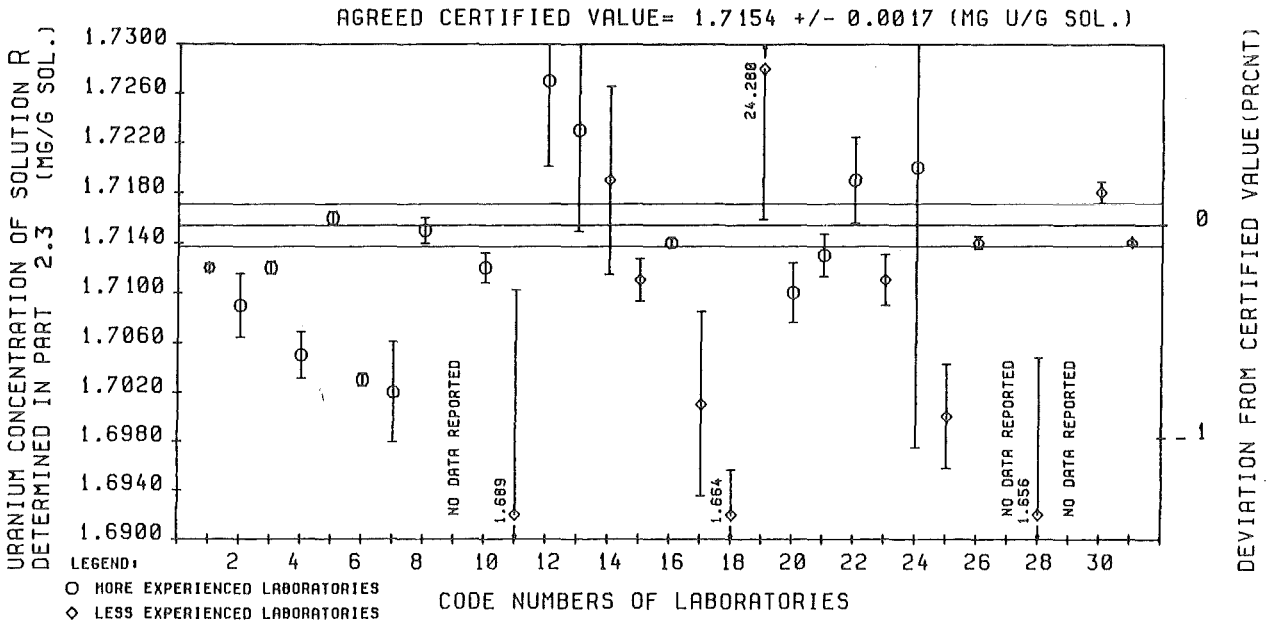
DETERMINED IN PROGRAMME PART 2.3

-----  
COMPILED OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS MG/G SOLUTION

```
*****  
1      2      3      4      5      6      7      8  
*****  
LAB    RUN1    RUN2    RUN3  MEAN CALC.  RSD OF LAB  MEAN CALC.  REL. DEV.  
CODE                   BY ET.    MEAN (%)   BY LAB     FROM THAT  
*****  
1      1.713    1.712    1.712    1.712      0.02  
2      1.705    1.714    1.708    1.709      0.15  
3      1.713    1.712    1.711    1.712      0.03  
4      1.709    1.703    1.703    1.705      0.11  
5      1.716    1.715    1.717    1.716      0.03  
6      1.702    1.704    1.703    1.703      0.03  
7      1.706    1.706    1.694    1.702      0.24  
8      1.716    1.715    1.713    1.715      0.06  
9      0.0      0.0      0.0      0.0        0.0  
10     1.710    1.714    1.713    1.712      0.07  
11     1.683    1.661    1.723    1.689      1.08  
12     1.740    1.727    1.716    1.727      0.40  
13     1.707    1.731    1.732    1.723      0.47  
14     1.710    1.734    1.712    1.719      0.44  
15     1.708    1.712    1.714    1.711      0.10  
16     1.714    1.714    1.713    1.714      0.02  
17     1.711    1.686    1.705    1.701      0.44  
18     1.666    1.657    1.669    1.664      0.22  
19     24.30    24.26    24.28    24.28      0.05  
20     1.715    1.708    1.707    1.710      0.14  
21     1.716    1.714    1.710    1.713      0.10  
22     1.716    1.726    1.715    1.719      0.20  
23     1.708    1.714    1.712    1.711      0.12  
24     1.760    1.718    1.682    1.720      1.31  
25     1.692    1.705    1.704    1.700      0.25  
26     1.715    1.715    1.713    1.714      0.03  
27     0.0      0.0      0.0      0.0        0.0  
28     1.670    1.667    1.630    1.656      0.77  
29     0.0      0.0      0.0      0.0        0.0  
30     1.716    1.718    1.719    1.718      0.05  
31     1.714    1.713    1.713    1.714      0.01  
*****
```

REF.:           26           26           26           28           34

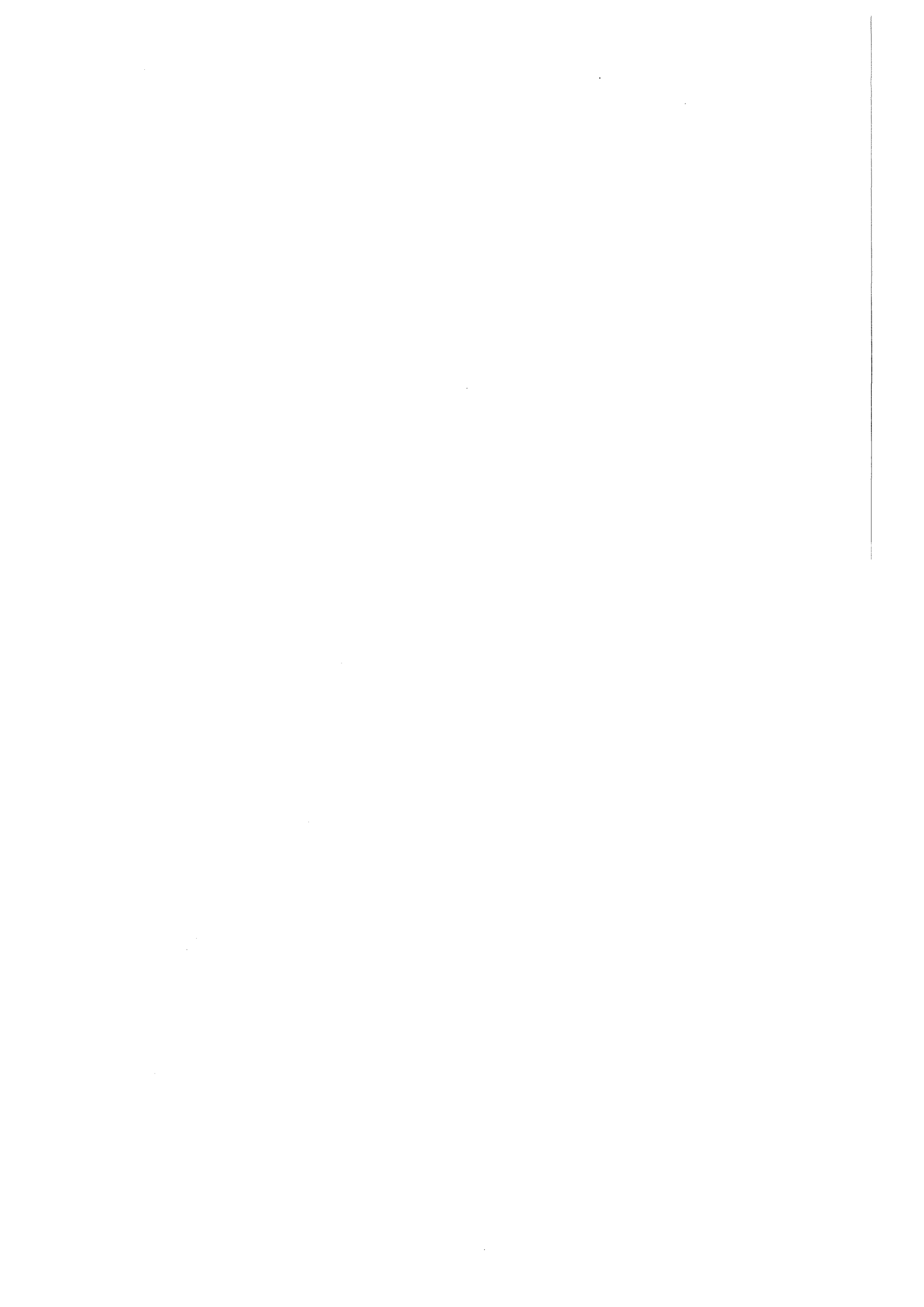


AGREED CERTIFIED VALUE= 1.7154 (MG U/G SOL.)  
 +/- 0.0017

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	19	27	1.712	-0.20		0.71	0.84
3	EXTREME LAB MEANS ELIMINATED	19, 28, 18	25	1.712	-0.20		0.68	0.28
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	19, 28, 18, 24, 11	23	1.712	-0.20		0.37	0.34
5							GRAND MEAN	INTERLAB SPREAD (%)
							1.7122	0.40

REMARKS:

- 1) THE EXTREME VALUE OF LABORATORY 19 IS DUE TO THE FACT THAT A DILUTION STEP PERFORMED HAD NOT BEEN CONSIDERED, THEREFORE, THIS LABORATORY HAS NOT BEEN INCLUDED IN THIS EVALUATION.



3.4.2 Plutonium

(Evaluation sheets 74 to 87)

EVALUATION SHEET 74  
=====

SOLUTION A, PLUTONIUM-239 CONCENTRATIONS

DETERMINED IN PROGRAMME PART 1.3

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS E+18 ATOMS/G SOLUTION

```

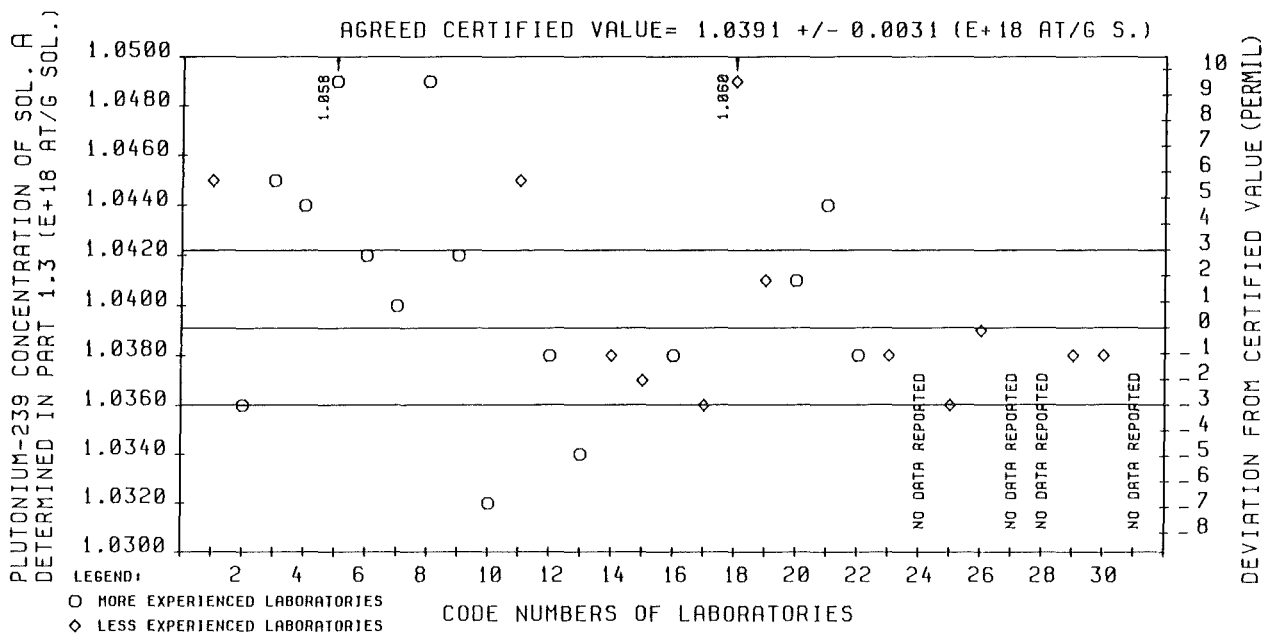
*****
1      2 1)  3 2)  4 2)  5 3)  6 3)  7 4)  8 4)
*****
LAB   RUN1  RUN2  RUN3  LAB MEAN  RSD OF LAB  LAB MEAN  RSD OF LAB
CODE  OF 3 RUNS  MEAN (%)  OF 2 RUNS  MEAN (%)
*****
1      1.045  1.043  1.046  1.044    0.07    1.044    0.13
2      1.036  1.043  1.044  1.041    0.22    1.043    0.03
3      1.045  1.050  1.049  1.048    0.15    1.050    0.01
4      1.044  1.037  1.033  1.038    0.29    1.035    0.18
5      1.058  1.057  1.052  1.056    0.18    1.054    0.27
6      1.042  1.040  1.041  1.041    0.06    1.040    0.05
7      1.040  1.045  1.044  1.043    0.14    1.045    0.05
8      1.049  1.042  1.049  1.047    0.22    1.046    0.34
9      1.042  1.045  1.045  1.044    0.12    1.045    0.02
10     1.032  1.033  1.032  1.033    0.03    1.033    0.03
11     1.045  1.051  1.036  1.044    0.42    1.044    0.72
12     1.038  1.038  1.040  1.038    0.06    1.039    0.07
13     1.034  1.042  1.027  1.034    0.40    1.035    0.70
14     1.038  1.042  1.029  1.036    0.37    1.036    0.62
15     1.037  1.045  1.041  1.041    0.22    1.043    0.20
16     1.038  1.043  1.043  1.041    0.14    1.043    0.02
17     1.036  1.040  1.042  1.039    0.16    1.041    0.08
18     1.060  1.048  1.057  1.055    0.35    1.052    0.42
19     1.041  1.038  1.022  1.033    0.57    1.030    0.78
20     1.041  1.045  1.045  1.044    0.12    1.045    0.03
21     1.044  1.044  1.045  1.044    0.04    1.044    0.05
22     1.038  1.042  1.043  1.041    0.17    1.043    0.02
23     1.038  1.043  1.042  1.041    0.15    1.042    0.07
24     0.0    0.0    0.0    0.0     0.0     0.0     0.0
25     1.036  1.035  1.035  1.035    0.03    1.035    0.0
26     1.039  1.044  1.044  1.042    0.17    1.044    0.04
27     0.0    0.0    0.0    0.0     0.0     0.0     0.0
28     0.0    0.0    0.0    0.0     0.0     0.0     0.0
29     1.038  1.039  1.039  1.038    0.03    1.039    0.0
30     1.038  1.042  1.041  1.041    0.13    1.042    0.05
31     0.0    0.0    0.0    0.0     0.0     0.0     0.0
*****

```

REF.:       89           90           90           91           97           92           98

REMARKS:

- 1) Data concern all laboratory measurements on samples of 'spiking I' (Eval.Sheet 74-1).
- 2) Data concern measurements on samples of 'spiking II', 'IV' or 'VI', depending on the subgroup to which the laboratory belongs (see Eval. Sheets 23-II, 23-IV and 23-VI).
- 3) See Eval.Sheet 74-3.
- 4) See Eval.Sheet 74-2.



AGREED CERTIFIED VALUE= 1.0391 (E+18 AT/G SOL.)  
 +/- 0.0031

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	27	1.039	-0.01		-	-
3	EXTREME LAB MEANS ELIMINATED	NONE	27	1.039	-0.01		-	-
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	NONE	27	1.039	-0.01		-	-
5							GRAND MEAN	INTERLAB SPREAD (%)
							1.0412	0.62

EVALUATION FOR SEPARATE LABORATORY SUBGROUPS

	1	2	3	4	5	6	7	8
1	SUB-GROUP	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)	GRAND MEAN	INTERLAB SPREAD (%)
2	II	10	1.041	0.18	-	-	1.0451	0.79
3	IV	9	1.038	-0.11	-	-	1.0377	0.38
4	VI	8	1.0395	0.04	-	-	1.0403	0.28

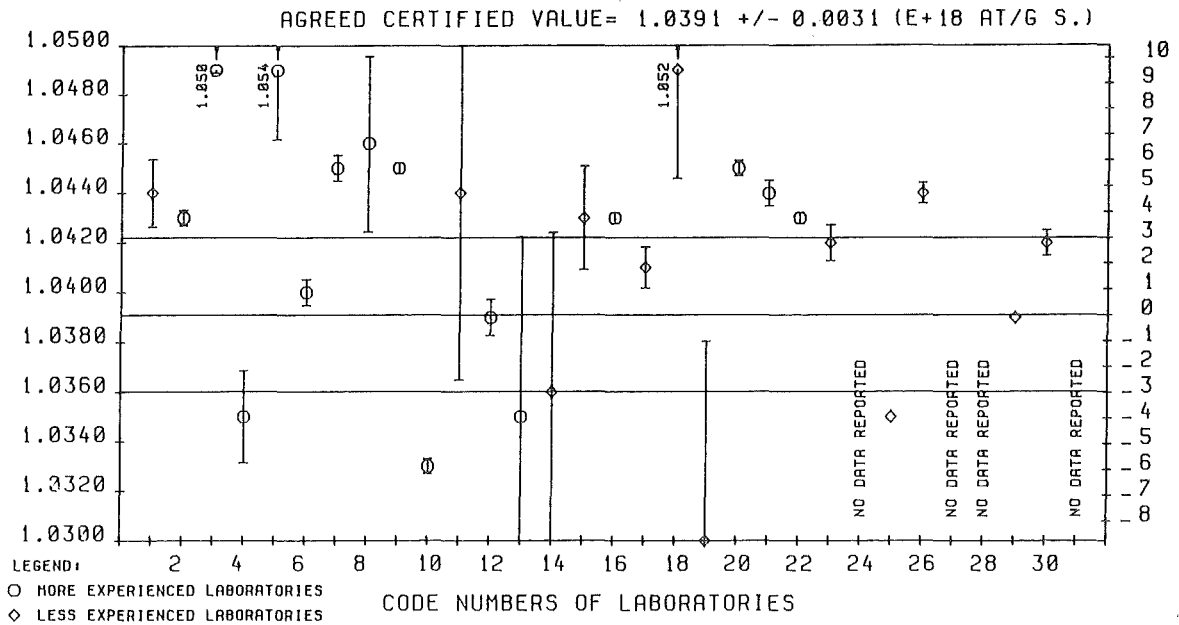
REMARKS:

- 1) SINCE DATA ARE BASED ON ONE RUN ONLY, NO UNCERTAINTY BARS ARE PRESENTED IN THE GRAPH AND NO ESTIMATES OF UNCERTAINTY COMPONENTS ARE GIVEN IN THE TABLES.

**EVALUATION SHEET 74-1 :** SOLUTION A, PLUTONIUM-239 CONCENTRATIONS DETERMINED IN PART 1.3 RESULT OF THE SAMPLE OF SPIKING I



PLUTONIUM-239 CONCENTRATION OF SOL. A  
DETERMINED IN PART 1.3 (E+18 AT/G SOL.)



AGREED CERTIFIED VALUE = 1.0391 (E+18 AT/G SOL.)  
+/- 0.0031

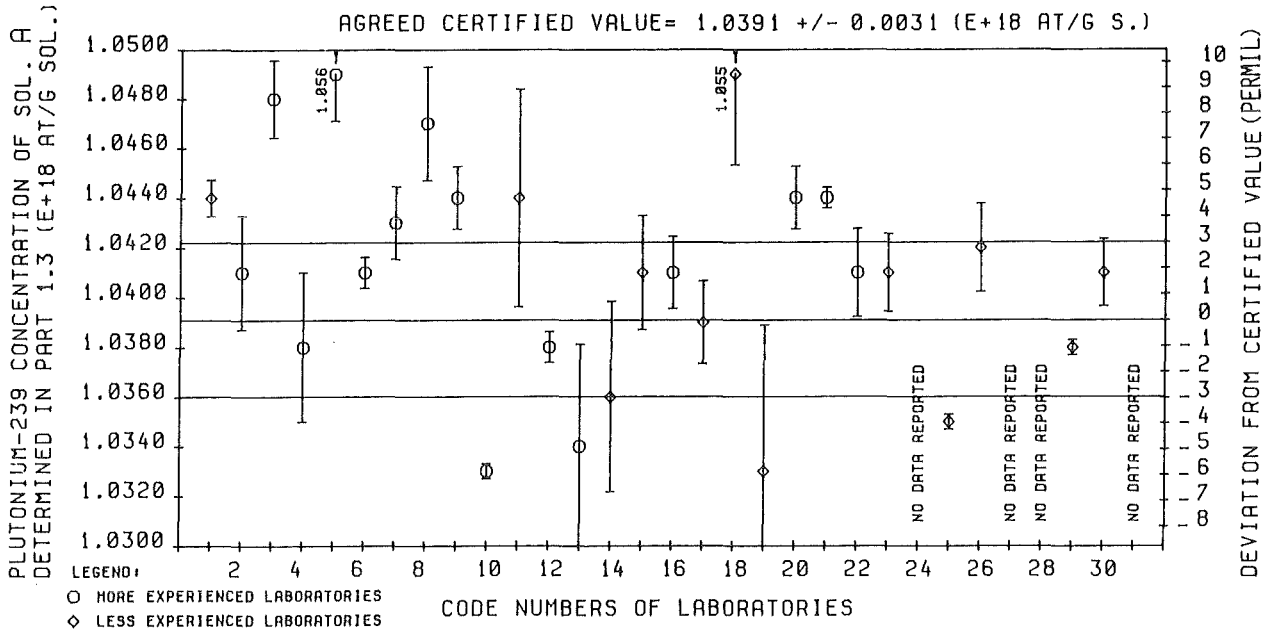
1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	27	1.043	0.38	0.43	0.45
3	EXTREME LAB MEANS ELIMINATED	NONE	27	1.043	0.38	0.43	0.45
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	NONE	27	1.043	0.38	0.43	0.45
5						GRAND MEAN	INTERLAB SPREAD (%)
						1.0419	0.54

EVALUATION FOR SEPARATE LABORATORY SUBGROUPS

1	2	3	4	5	6	7	8	
SUB-GROUP	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)	GRAND MEAN	INTERLAB SPREAD (%)	
2	II	10	1.0415	0.23	0.53	0.67	1.0412	0.77
3	IV	9	1.042	0.28	0.49	0.23	1.0404	0.41
4	VI	8	1.044	0.47	0.11	0.20	1.0444	0.22

EVALUATION SHEET 74-2 :

SOLUTION A, PLUTONIUM-239 CONCENTRATIONS  
DETERMINED IN PART 1.3  
TWO SAMPLES OF SPIKINGS II, IV OR VI



AGREED CERTIFIED VALUE = 1.0391 (E+18 AT/G SOL.)  
 +/- 0.0031

	1	2	3	4	5	6	7	8
		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	27	1.041	0.18		0.40	0.48
3	EXTREME LAB MEANS ELIMINATED	NONE	27	1.041	0.18		0.40	0.48
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	NONE	27	1.041	0.18		0.40	0.48
5							GRAND MEAN	INTERLAB SPREAD (%)
							1.0417	0.53

EVALUATION FOR SEPARATE LABORATORY SUBGROUPS

	1	2	3	4	5	6	7	8
1	SUB-GROUP	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)	GRAND MEAN	INTERLAB SPREAD (%)
2	II	10	1.0395	0.04	0.48	0.70	1.0425	0.75
3	IV	9	1.041	0.18	0.40	0.30	1.0395	0.38
4	VI	8	1.0425	0.33	0.26	0.17	1.0430	0.23

**EVALUATION SHEET 74-3 :** SOLUTION A, PLUTONIUM-239 CONCENTRATIONS DETERMINED IN PART 1.3  
 3 SAMPLES OF SPIKINGS I & II, IV OR VI

EVALUATION SHEET 75  
=====

SOLUTION A, PLUTONIUM CONCENTRATIONS  
DETERMINED IN PROGRAMME PART 1.3

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS MG/G SOLUTION

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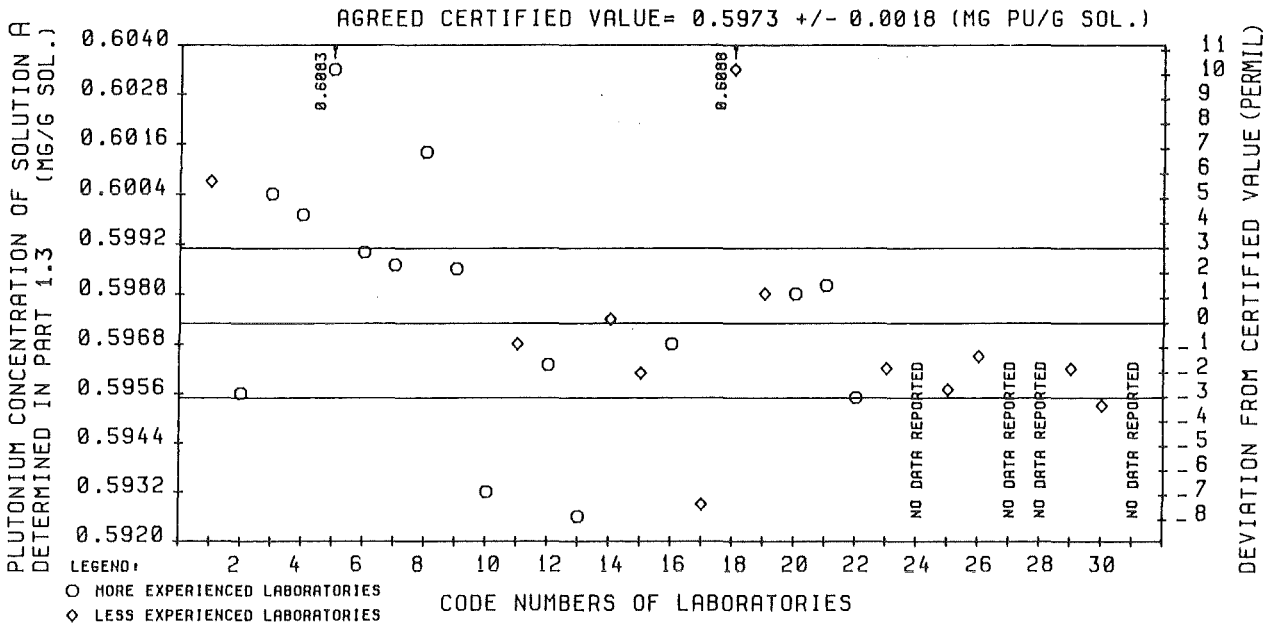
*****
 1      2 1)      3 2)      4 2)      5 3)      6 3)      7 4)      8 4)
*****
LAB     RUN1     RUN2     RUN3     LAB MEAN   RSD OF LAB   LAB MEAN   RSD OF LAB
CODE                   OF 3 RUNS   MEAN (%)   OF 2 RUNS   MEAN (%)
*****
 1      0.6007   0.5998   0.6013   0.6006     0.07        0.6006     0.13
 2      0.5956   0.5993   0.5997   0.5982     0.22        0.5995     0.03
 3      0.6004   0.6031   0.6030   0.6022     0.15        0.6031     0.01
 4      0.5999   0.5961   0.5939   0.5966     0.29        0.5950     0.18
 5      0.6083   0.6081   0.6048   0.6071     0.18        0.6065     0.27
 6      0.5990   0.5977   0.5984   0.5984     0.06        0.5980     0.05
 7      0.5987   0.6014   0.6008   0.6003     0.14        0.6011     0.05
 8      0.6014   0.5975   0.6016   0.6002     0.22        0.5996     0.34
 9      0.5986   0.6005   0.6008   0.6000     0.12        0.6007     0.02
10      0.5932   0.5938   0.5934   0.5935     0.03        0.5936     0.03
11      0.5968   0.6007   0.5921   0.5965     0.42        0.5964     0.72
12      0.5963   0.5965   0.5974   0.5967     0.06        0.5969     0.07
13      0.5926   0.5973   0.5890   0.5930     0.40        0.5932     0.70
14      0.5974   0.5998   0.5924   0.5965     0.37        0.5961     0.62
15      0.5961   0.6007   0.5983   0.5983     0.22        0.5995     0.20
16      0.5968   0.5991   0.5994   0.5984     0.14        0.5992     0.02
17      0.5929   0.5951   0.5961   0.5947     0.16        0.5956     0.08
18      0.6088   0.6017   0.6068   0.6058     0.35        0.6042     0.42
19      0.5980   0.5964   0.5872   0.5939     0.57        0.5918     0.78
20      0.5980   0.6005   0.6001   0.5995     0.12        0.6003     0.03
21      0.5982   0.5983   0.5989   0.5985     0.04        0.5986     0.05
22      0.5955   0.5983   0.5986   0.5975     0.17        0.5984     0.02
23      0.5962   0.5993   0.5985   0.5980     0.15        0.5989     0.07
24      0.0      0.0      0.0      0.0        0.0         0.0        0.0
25      0.5957   0.5952   0.5953   0.5954     0.03        0.5953     0.0
26      0.5965   0.5992   0.5997   0.5985     0.17        0.5995     0.04
27      0.0      0.0      0.0      0.0        0.0         0.0        0.0
28      0.0      0.0      0.0      0.0        0.0         0.0        0.0
29      0.5962   0.5967   0.5968   0.5966     0.03        0.5968     0.0
30      0.5953   0.5978   0.5972   0.5968     0.13        0.5975     0.05
31      0.0      0.0      0.0      0.0        0.0         0.0        0.0
*****

```

REF.:        99            100            100            101            107            102            108

REMARKS:

- 1) Data concern all laboratory measurements on samples of 'spiking I' (Eval.Sheet 75-1).
- 2) Data concern measurements on samples of 'spiking II', 'IV' or 'VI', depending on the subgroup to which the laboratory belongs (see Eval. Sheets 23-II, 23-IV and 23-VI).
- 3) See Eval. Sheet 75-3.
- 4) See Eval. Sheet 75-2.



AGREED CERTIFIED VALUE = 0.5973 (MG PU/G SOL.)  
 +/- 0.0018

1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	27	0.5968	-0.08	-	-
3	EXTREME LAB MEANS ELIMINATED	NONE	27	0.5968	-0.08	-	-
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	(8, 17, 21)	27 (24)	0.5968 (0.5968)	-0.08 (-0.08)	-	-
5						GRAND MEAN 0.59789 (0.59794)	INTERLAB SPREAD (%) 0.63 (0.64)

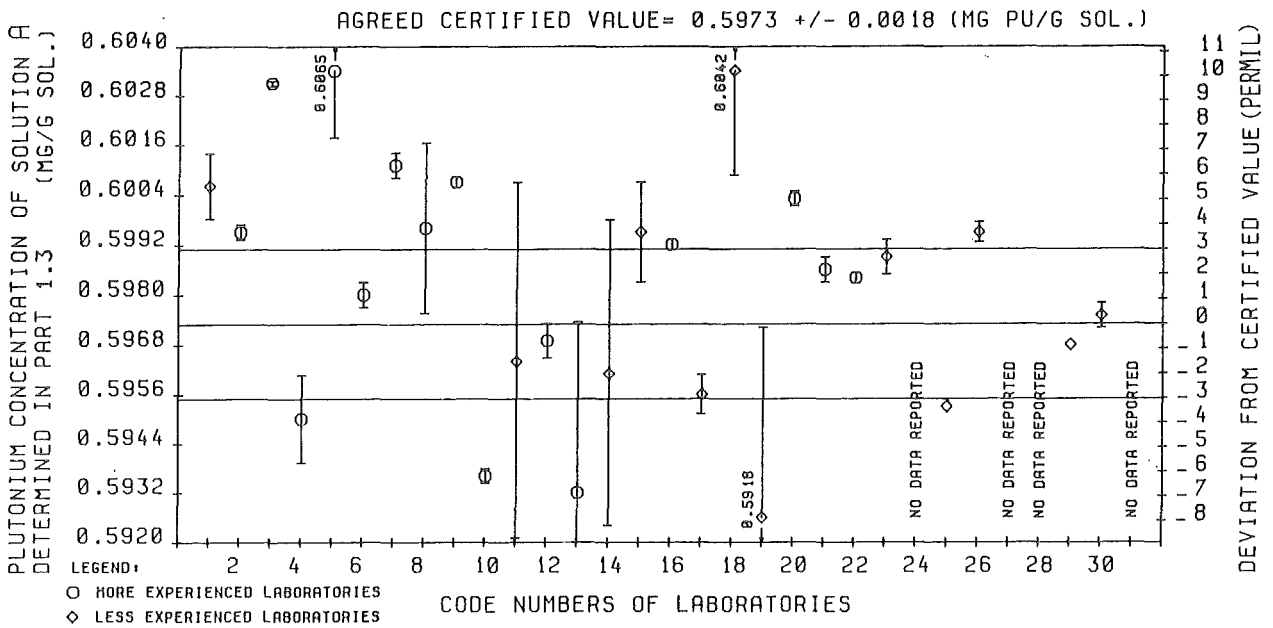
EVALUATION FOR SEPARATE LABORATORY SUBGROUPS

1	2	3	4	5	6	7	8
SUB-GROUP	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)	GRAND MEAN	INTERLAB SPREAD (%)
2	II	10	0.59945	0.36	-	-	0.60054 0.77
3	IV	9	0.5956	-0.28	-	-	0.59534 0.35
4	VI	8	0.59725	-0.01	-	-	0.59745 0.28

REMARKS:

- 1) SINCE DATA ARE BASED ON ONE RUN ONLY, NO UNCERTAINTY BARS ARE PRESENTED IN THE GRAPH AND NO ESTIMATES OF UNCERTAINTY COMPONENTS ARE GIVEN IN THE TABLES.
- 2) LABORATORIES 8, 17 AND 21 DID NOT PERFORM A PU-238 DETERMINATION. THE DATA OF EVALUATION OBTAINED WITHOUT THESE LABORATORIES ARE GIVEN IN BRACKETS IN THE TABLE.

**EVALUATION SHEET 75-1 :** SOLUTION A, PLUTONIUM CONCENTRATIONS DETERMINED IN PART 1.3  
 RESULT OF THE SAMPLE OF SPIKING I



AGREED CERTIFIED VALUE = 0.5973 (MG PU/G SOL.)  
 +/- 0.0018

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	27	0.5986	0.22		0.43	0.46
3	EXTREME LAB MEANS ELIMINATED	NONE	27	0.5986	0.22		0.43	0.46
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	(8, 17, 21)	(24)	(0.59865)	(0.23)		0.43 (0.44)	0.46 (0.49)
5							GRAND MEAN 0.59836 (0.59842)	INTERLAB SPREAD (%) 0.55 (0.58)

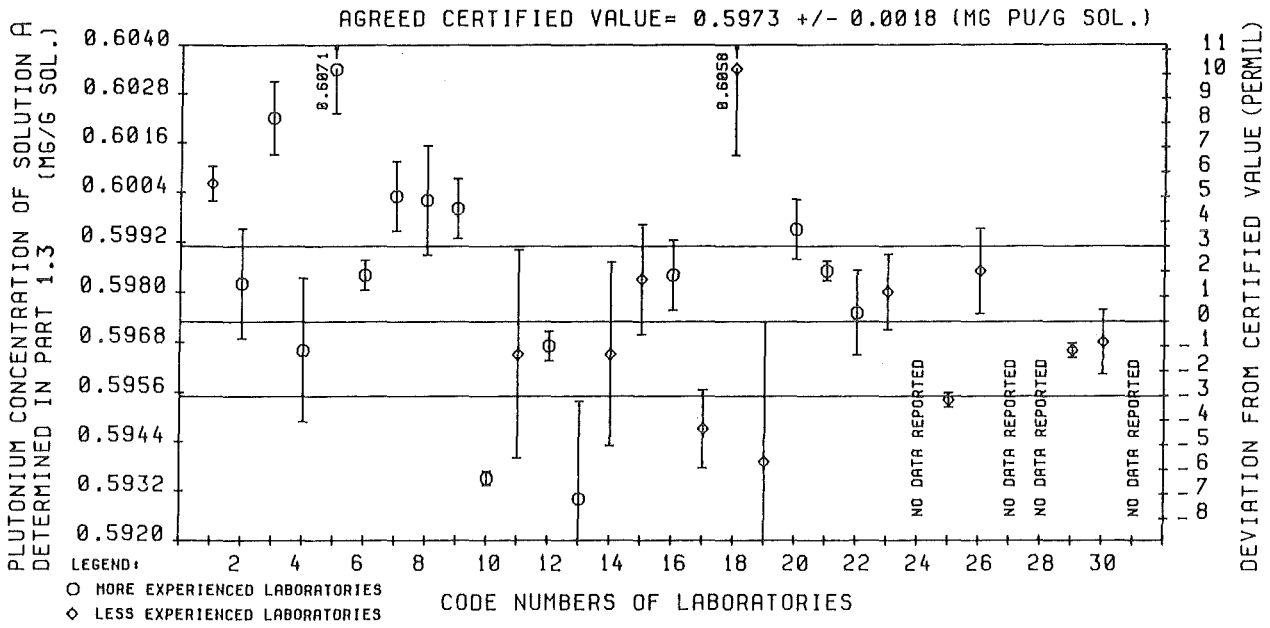
EVALUATION FOR SEPARATE LABORATORY SUBGROUPS

	1	2	3	4	5	6	7	8
1	SUB-GROUP	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)	GRAND MEAN	INTERLAB SPREAD (%)
2	II	10	0.5974	0.02	0.53	0.64	0.59837	0.74
3	IV	9	0.5969	-0.07	0.48	0.27	0.59696	0.43
4	VI	8	0.5995	0.37	0.12	0.24	0.59992	0.26

REMARKS:

1) LABORATORIES 8, 17 AND 21 DID NOT PERFORM A Pu-238 DETERMINATION. THE DATA OF EVALUATION OBTAINED WITHOUT THESE LABORATORIES ARE GIVEN IN BRACKETS IN THE TABLE.

EVALUATION SHEET 75-2 : SOLUTION A, PLUTONIUM CONCENTRATIONS DETERMINED IN PART 1.3 TWO SAMPLES OF SPIKINGS II, IV OR VI



AGREED CERTIFIED VALUE = 0.5973 (MG PU/G SOL.)  
 +/- 0.0018

1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	27	0.5982	0.15	0.39	0.39
3	EXTREME LAB MEANS ELIMINATED	NONE	27	0.5982	0.15	0.39	0.39
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	(8,17,21)	(24)	(0.59825)	(0.16)	0.39 (0.41)	0.49 (0.51)
5						GRAND MEAN 0.59820 (0.59826)	INTERLAB SPREAD (%) 0.54 (0.56)

EVALUATION FOR SEPARATE LABORATORY SUBGROUPS

1	2	3	4	5	6	7	8	
SUB-GROUP	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)	RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)	GRAND MEAN	INTERLAB SPREAD (%)	
2	II	10	0.5975	0.03	0.48	0.68	0.59910	0.73
3	IV	9	0.5967	-0.10	0.39	0.32	0.59642	0.39
4	VI	8	0.5985	0.20	0.26	0.20	0.59910	0.25

REMARKS:

1) LABORATORIES 8, 17 AND 21 DID NOT PERFORM A PU-238 DETERMINATION. THE DATA OF EVALUATION OBTAINED WITHOUT THESE LABORATORIES ARE GIVEN IN BRACKETS IN THE TABLE.

**EVALUATION SHEET 75-3 :** SOLUTION A, PLUTONIUM CONCENTRATIONS DETERMINED IN PART 1.3  
 3 SAMPLES OF SPIKINGS I & II, IV OR VI

EVALUATION SHEET 76  
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SOLUTION B, PLUTONIUM-239 CONCENTRATIONS  
DETERMINED IN PROGRAMME PART 1.11

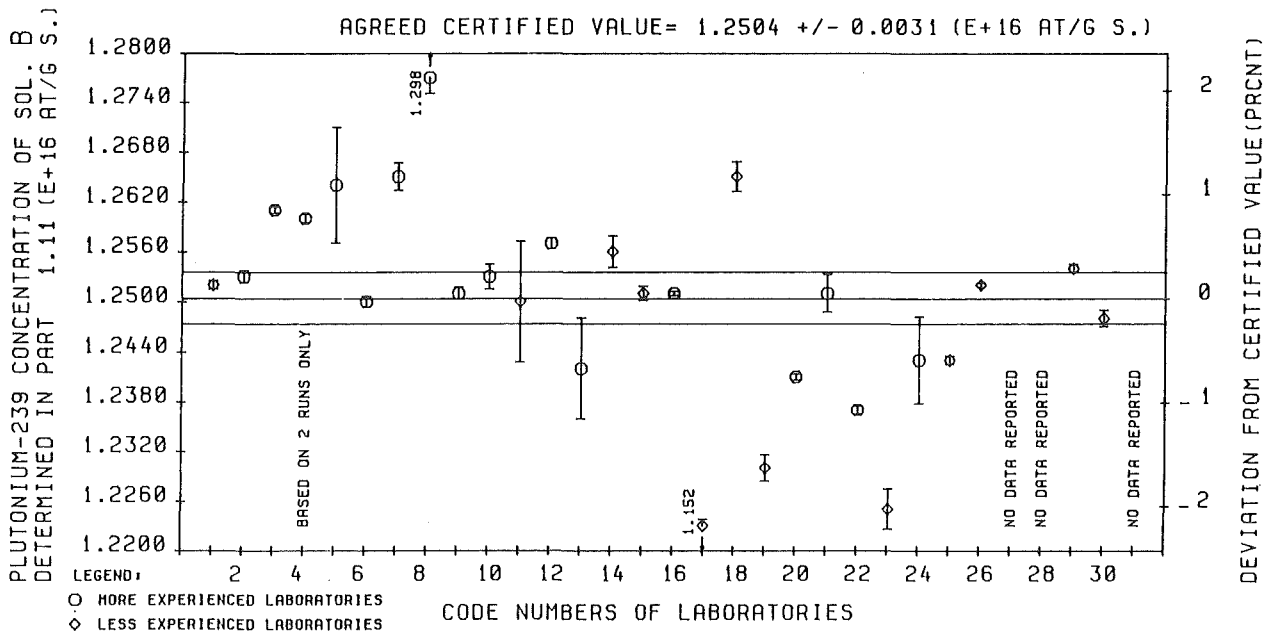
-----  
COMPILATION OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS E+16 AT/G SOLUTION

1	2	3	4	5	6	7	8
LAB	RUN1	RUN2	RUN3	MEAN CALC.	RSD OF LAB	MEAN CALC.	REL. DEV.
CODE				BY ET.	MEAN (%)	BY LAB	FROM THAT
1	1.253	1.253	1.251	1.252	0.04		
2	1.254	1.252	1.252	1.253	0.06		
3	1.261	1.261	1.260	1.261	0.03		
4	1.259	1.261	-	1.260	0.04		
5	1.276	1.262	1.252	1.264	0.55		
6	1.251	1.250	1.249	1.250	0.05		
7	1.268	1.262	1.265	1.265	0.13		
8	1.302	1.295	1.297	1.298	0.15		
9	1.250	1.250	1.252	1.251	0.06		
10	1.256	1.253	1.250	1.253	0.12		
11	1.252	1.262	1.237	1.250	0.58		
12	1.257	1.256	1.258	1.257	0.05		
13	1.253	1.241	1.232	1.242	0.49		
14	1.258	1.259	1.253	1.256	0.15		
15	1.251	1.252	1.249	1.251	0.07		
16	1.251	1.252	1.251	1.251	0.02		
17	1.150	1.153	1.151	1.152	0.07		
18	1.267	1.261	1.266	1.265	0.14		
19	1.227	1.232	1.231	1.230	0.13		
20	1.242	1.241	1.242	1.241	0.03		
21	1.252	1.247	1.254	1.251	0.18		
22	1.236	1.238	1.237	1.237	0.04		
23	1.226	1.220	1.228	1.225	0.20		
24	1.251	1.233	1.246	1.243	0.42		
25	1.242	1.244	1.243	1.243	0.04		
26	1.252	1.251	1.252	1.252	0.02		
27	0.0	0.0	0.0	0.0	0.0		
28	0.0	0.0	0.0	0.0	0.0		
29	1.254	1.253	1.255	1.254	0.04		
30	1.250	1.246	1.248	1.248	0.08		
31	0.0	0.0	0.0	0.0	0.0		

REF.: 77 77 77 79 85

1) Based on data of runs 1 and 2 only.



	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	28	1.251	0.05		0.37	1.84
3	EXTREME LAB MEANS ELIMINATED	17,8	26	1.251	0.05		0.38	0.75
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	17,8	26	1.251	0.05		0.38	0.75
5							GRAND MEAN	INTERLAB SPREAD (%)
							1.2502	0.79

REMARKS:

1) FOR THESE CALCULATIONS GIVEN IN THE TABLE, AN ARTIFICIAL THIRD 'RUN' VALUE WAS USED IN THE CASE OF LABORATORY 4, THIS VALUE BEING EQUAL TO THE MEAN OF THE TWO MEASURED VALUES.



EVALUATION SHEET 77  
=====

SOLUTION B, PLUTONIUM CONCENTRATIONS

DETERMINED IN PROGRAMME PART 1.11

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS µG/G SOLUTION

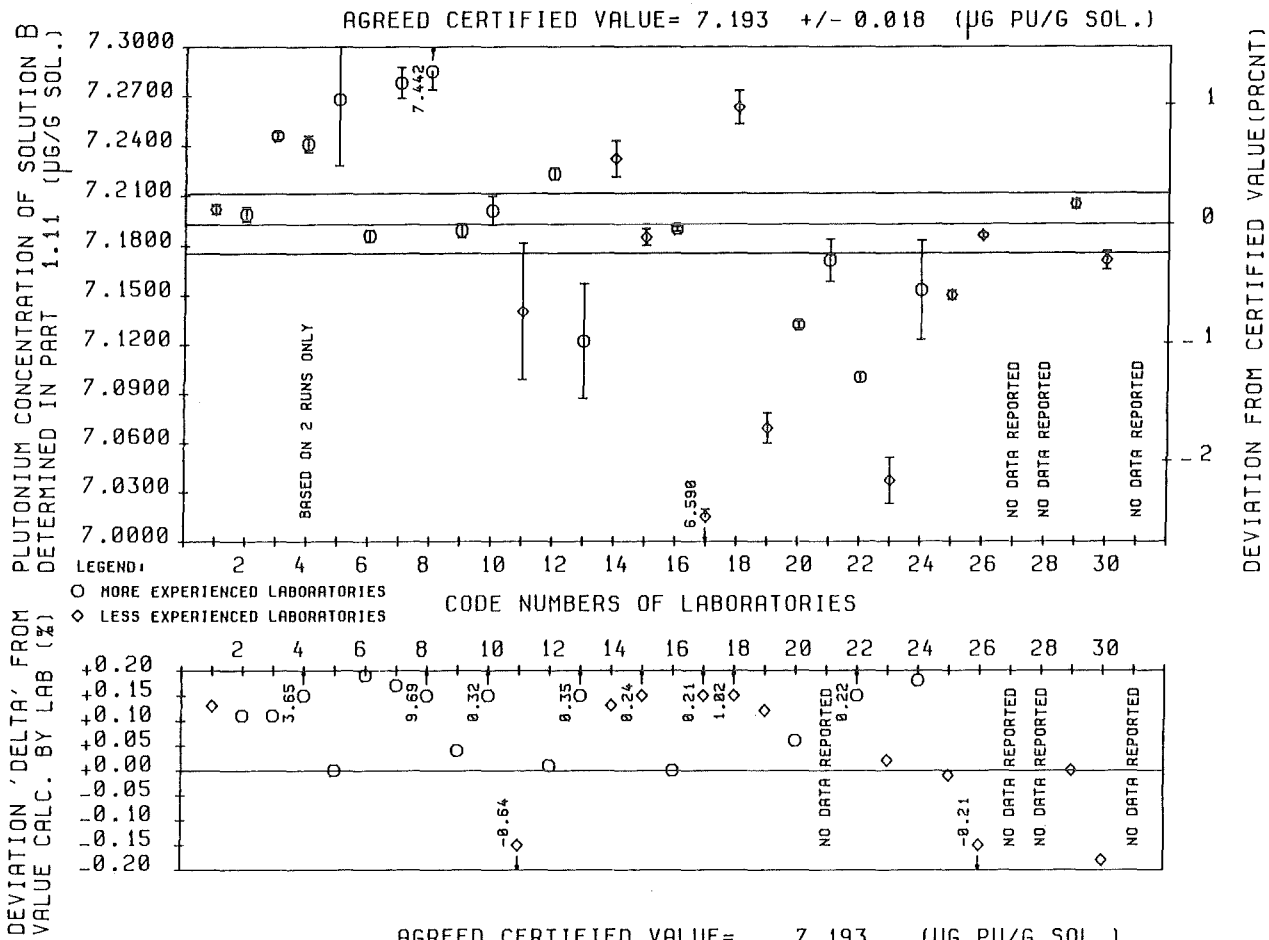
```

*****
 1         2         3         4         5         6         7         8
*****
LAB      RUN1      RUN2      RUN3 MEAN CALC. RSD OF LAB MEAN CALC. REL. DEV.
CODE                                BY ET.    MEAN (%)  BY LAB    FROM THAT
*****
 1       7.204     7.206     7.197     7.202     0.04     7.193     0.13
 2       7.208     7.196     7.194     7.199     0.06     7.191     0.11
 3       7.248     7.248     7.242     7.246     0.03     7.238     0.11
 4       7.236     7.246     -         7.241    1)      0.07    1)      6.986     3.65
 5       7.340     7.260     7.203     7.268     0.55     7.268     0.0
 6       7.193     7.184     7.181     7.186     0.05     7.172     0.19
 7       7.294     7.262     7.279     7.278     0.13     7.266     0.17
 8       7.464     7.425     7.437     7.442     0.15     6.785     9.69
 9       7.184     7.186     7.197     7.189     0.06     7.186     0.04
10      7.217     7.200     7.187     7.201     0.12     7.178     0.32
11      7.150     7.207     7.064     7.140     0.58     7.186     -0.64
12      7.221     7.218     7.230     7.223     0.05     7.222     0.01
13      7.186     7.114     7.065     7.122     0.49     7.097     0.35
14      7.240     7.246     7.210     7.232     0.15     7.223     0.13
15      7.190     7.191     7.175     7.185     0.07     7.168     0.24
16      7.188     7.193     7.188     7.190     0.02     7.190     0.0
17      6.583     6.598     6.589     6.590     0.07     6.576     0.21
18      7.278     7.244     7.268     7.263     0.14     7.190     1.02
19      7.051     7.082     7.073     7.069     0.13     7.060     0.12
20      7.133     7.127     7.135     7.132     0.03     7.127     0.06
21      7.179     7.146     7.189     7.171     0.18     0.0       0.0
22      7.095     7.105     7.100     7.100     0.04     7.084     0.22
23      7.047     7.009     7.055     7.037     0.20     7.035     0.02
24      7.195     7.094     7.169     7.153     0.42     7.140     0.18
25      7.146     7.156     7.148     7.150     0.04     7.151     -0.01
26      7.187     7.184     7.188     7.186     0.02     7.201     -0.21
27      0.0       0.0       0.0       0.0       0.0       0.0       0.0
28      0.0       0.0       0.0       0.0       0.0       0.0       0.0
29      7.203     7.201     7.210     7.205     0.04     7.205     0.0
30      7.180     7.161     7.172     7.171     0.08     7.184     -0.18
31      0.0       0.0       0.0       0.0       0.0       0.0       0.0
*****

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REF.:        78            78            78            80            86            -            87

1) Based on data of run 1 and 2 only.



	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	28	7.1875	-0.08		0.37	1.89
3	EXTREME LAB MEANS ELIMINATED	17,8	26	7.1875	-0.08		0.38	0.79
4	EXTREME VALUES OF LAB MEANS & RSD'S	17,8 (17,8,21)	26 (25)	7.1875 (7.189)	-0.08 (-0.06)		0.38 (0.38)	0.79 (0.81)
5	'RUN' ELIMINATED						GRAND MEAN 7.1823 (7.1827)	INTERLAB SPREAD (%) 0.82 (0.84)
6	REPORTED VALUES	8,17,21	25	7.186	-0.10		7.1656	0.96

REMARKS:

- FOR THESE CALCULATIONS GIVEN IN THE TABLE, AN ARTIFICIAL THIRD 'RUN' VALUE WAS USED IN THE CASE OF LABORATORY 4, THIS VALUE BEING EQUAL TO THE MEAN OF THE TWO MEASURED VALUES,
- LABORATORIES 8, 17 AND 21 DID NOT PERFORM A PU-238 DETERMINATION, SINCE THIS AFFECTS THE CONCENTRATION VALUES, THEY WERE NOT INCLUDED IN THE EVALUATION OF THE REPORTED DATA GIVEN IN LINE 6 OF THE TABLE, FOR INTERCOMPARISON, THE CORRESPONDING DATA IN LINES 4 AND 5 ARE GIVEN IN BRACKETS,

EVALUATION SHEET 78  
=====

SOLUTION B, PLUTONIUM-239 CONCENTRATIONS

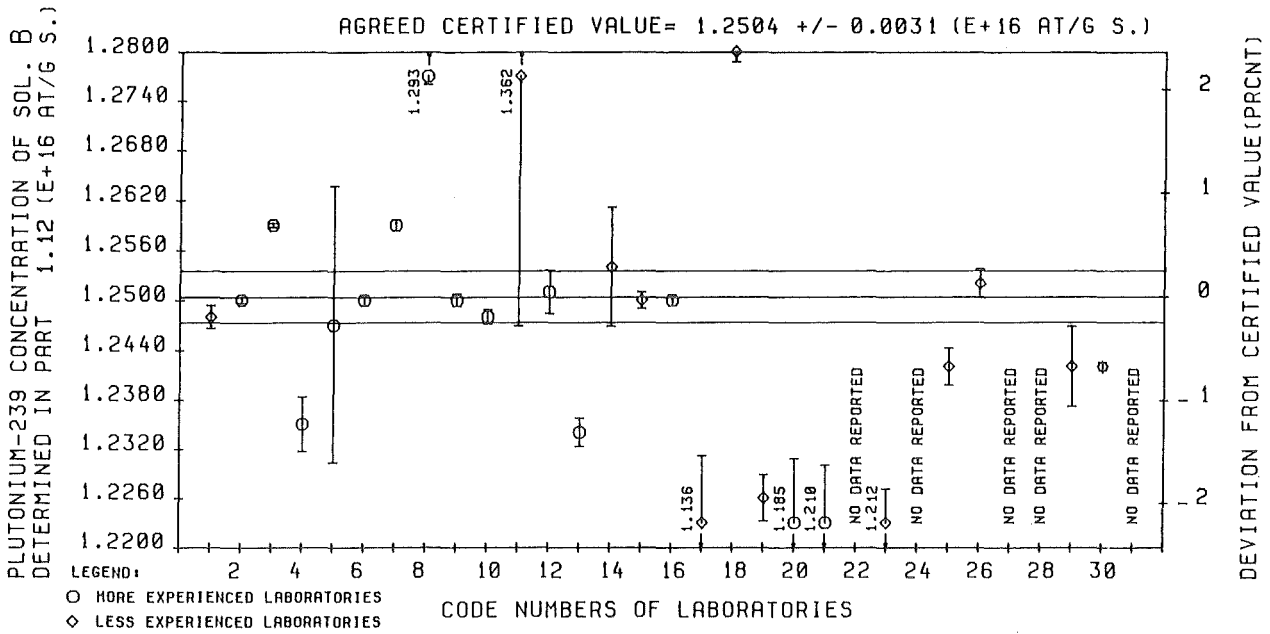
DETERMINED IN PROGRAMME PART 1.12

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS E+16 AT/G SOLUTION

```
*****
  1      2      3      4      5      6      7      8
*****
LAB     RUN1   RUN2   RUN3 MEAN CALC. RSD OF LAB MEAN CALC. REL. DEV.
CODE                               BY ET.   MEAN (%)  BY LAB   FROM THAT
*****
 1      1.249   1.250   1.246   1.248     0.11
 2      1.250   1.251   1.250   1.250     0.03
 3      1.259   1.259   1.259   1.259     0.02
 4      1.228   1.239   1.238   1.235     0.27
 5      1.267   1.261   1.214   1.247     1.34
 6      1.251   1.250   1.249   1.250     0.05
 7      1.258   1.260   1.260   1.259     0.05
 8      1.294   1.291   1.292   1.293     0.08
 9      1.250   1.251   1.249   1.250     0.06
10      1.247   1.249   1.250   1.248     0.07
11      1.323   1.342   1.421   1.362     2.21
12      1.249   1.256   1.247   1.251     0.21
13      1.237   1.231   1.233   1.234     0.14
14      1.247   1.268   1.247   1.254     0.57
15      1.251   1.248   1.250   1.250     0.08
16      1.251   1.250   1.249   1.250     0.05
17      1.119   1.144   1.143   1.136     0.72
18      1.281   1.277   1.280   1.280     0.10
19      1.222   1.224   1.231   1.226     0.23
20      1.193   1.192   1.169   1.185     0.66
21      1.220   1.197   1.213   1.210     0.58
22      0.0     0.0     0.0     0.0       0.0
23      1.216   1.217   1.204   1.212     0.34
24      0.0     0.0     0.0     0.0       0.0
25      1.240   1.239   1.246   1.242     0.18
26      1.253   1.254   1.248   1.252     0.14
27      0.0     0.0     0.0     0.0       0.0
28      0.0     0.0     0.0     0.0       0.0
29      1.251   1.235   1.240   1.242     0.39
30      1.243   1.241   1.243   1.242     0.04
31      0.0     0.0     0.0     0.0       0.0
*****
```

REF.:        77            77            77            79            85



AGREED CERTIFIED VALUE= 1.2504 (E+16 AT/G SOL.)  
 +/- 0.0031

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	26	1.249	-0.11		1.05	3.00
3	EXTREME LAB MEANS ELIMINATED	NONE	26	1.249	-0.11		1.05	3.00
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	11,5	24	1.249	-0.11		0.50	2.48
5							GRAND MEAN	INTERLAB SPREAD (%)
							1.2398	2.50

REMARKS:

EVALUATION SHEET 79

=====

SOLUTION B, PLUTONIUM CONCENTRATIONS

DETERMINED IN PROGRAMME PART 1.12

-----  
COMPILATION OF NUMERICAL DATA  
-----

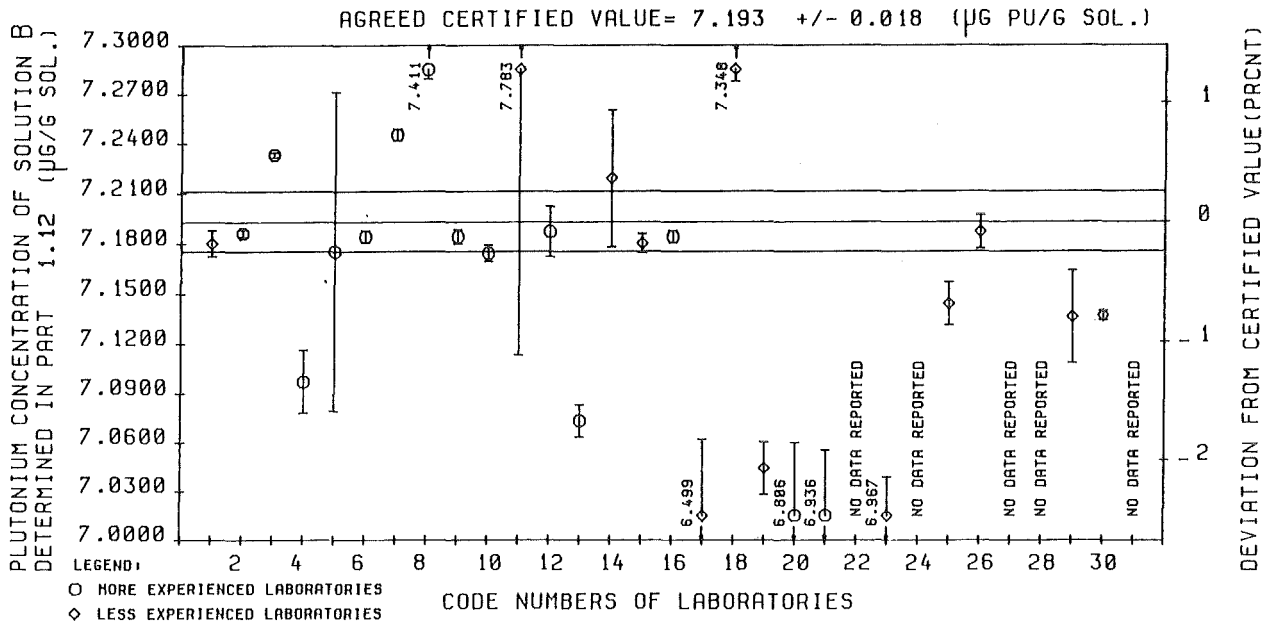
THE DIMENSION OF THE VALUES LISTED IS µG/G SOLUTION

```

*****
  1      2      3      4      5      6      7      8
*****
LAB      RUN1    RUN2    RUN3 MEAN CALC. RSD OF LAB MEAN CALC. REL. DEV.
CODE                                BY ET.    MEAN (%)  BY LAB    FROM THAT
*****
  1      7.185   7.189   7.165   7.180     0.11
  2      7.184   7.190   7.183   7.186     0.03
  3      7.232   7.232   7.236   7.233     0.02
  4      7.059   7.118   7.115   7.097     0.27
  5      7.287   7.254   6.984   7.175     1.34
  6      7.190   7.183   7.179   7.184     0.05
  7      7.238   7.248   7.250   7.245     0.05
  8      7.422   7.401   7.409   7.411     0.08
  9      7.185   7.191   7.177   7.184     0.06
 10     7.165   7.177   7.182   7.174     0.07
 11     7.559   7.668   8.120   7.783     2.21
 12     7.180   7.215   7.165   7.187     0.21
 13     7.092   7.059   7.067   7.073     0.14
 14     7.179   7.301   7.177   7.219     0.57
 15     7.190   7.170   7.181   7.180     0.08
 16     7.189   7.185   7.177   7.184     0.05
 17     6.406   6.549   6.541   6.499     0.72
 18     7.358   7.334   7.351   7.348     0.10
 19     7.021   7.035   7.075   7.044     0.23
 20     6.853   6.847   6.717   6.806     0.66
 21     6.995   6.860   6.952   6.936     0.58
 22     0.0     0.0     0.0     0.0       0.0
 23     6.986   6.995   6.920   6.967     0.34
 24     0.0     0.0     0.0     0.0       0.0
 25     7.134   7.127   7.170   7.144     0.18
 26     7.195   7.198   7.167   7.187     0.14
 27     0.0     0.0     0.0     0.0       0.0
 28     0.0     0.0     0.0     0.0       0.0
 29     7.189   7.094   7.126   7.136     0.39
 30     7.138   7.131   7.141   7.137     0.04
 31     0.0     0.0     0.0     0.0       0.0
*****

```

REF.:        78        78        78        80        86



AGREED CERTIFIED VALUE = 7.193 +/- 0.018 (µg PU/G SOL.)

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	26	7.180	-0.18		1.05	2.98
3	EXTREME LAB MEANS ELIMINATED	NONE	26	7.180	-0.18		1.05	2.98
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	11,5 (11,5, 8,17,21)	24 (21)	7.180 (7.180)	-0.18 (-0.18)		0.50 (0.42) GRAND MEAN	2.54 (1.52) INTERLAB SPREAD (%)
5							7.1225 (7.1473)	2.56 (1.54)

REMARKS:

- LABORATORIES 8, 17 AND 21 DID NOT PERFORM A PU-238 DETERMINATION, THE DATA OF EVALUATION OBTAINED WITHOUT THESE LABORATORIES ARE GIVEN IN BRACKETS IN THE TABLE.

EVALUATION SHEET 80

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SOLUTION B, PLUTONIUM-239 CONCENTRATIONS

DETERMINED IN PROGRAMME PART 1.2.

-----  
COMPILATION OF NUMERICAL DATA  
-----

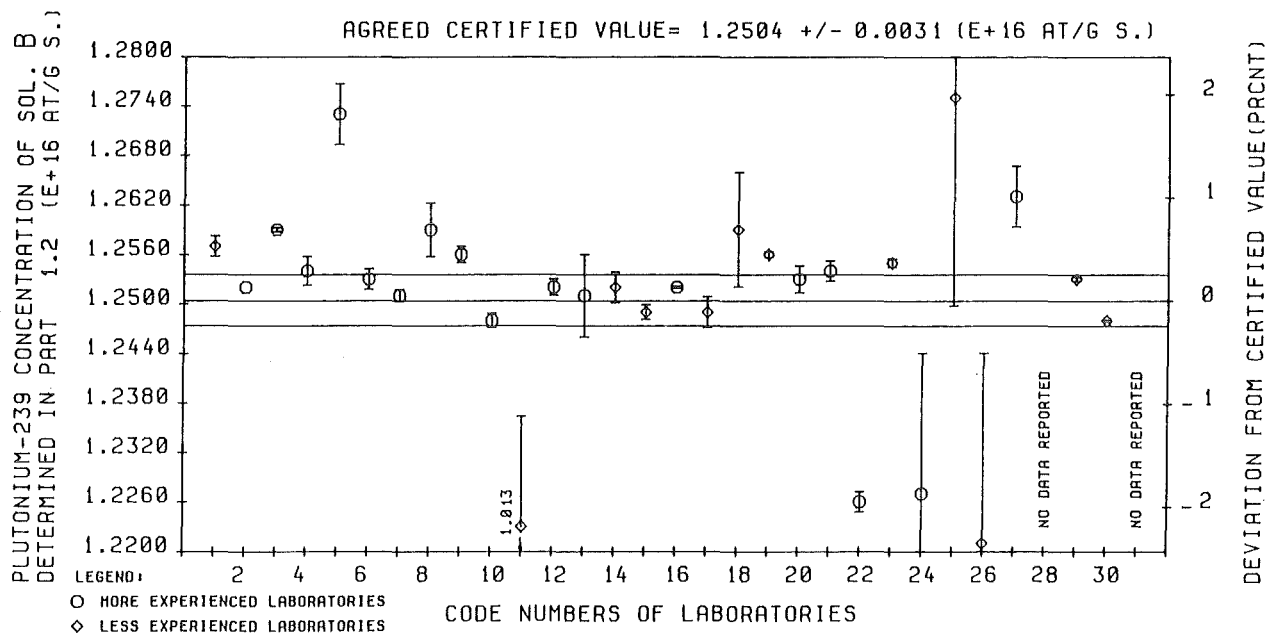
THE DIMENSION OF THE VALUES LISTED IS E+16 AT/G SOLUTION

```

*****
1      2      3      4      5      6      7      8
*****
LAB    RUN1    RUN2    RUN3  MEAN CALC.  RSD OF LAB  MEAN CALC.  REL. DEV.
CODE          BY ET.    MEAN (%)    BY LAB    FROM THAT
*****
1      1.257    1.255    1.259    1.257      0.10
2      1.252    1.252    1.252    1.252      0.0
3      1.259    1.258    1.259    1.259      0.02
4      1.256    1.255    1.250    1.254      0.14
5      1.271    1.268    1.280    1.273      0.29
6      1.254    1.251    1.255    1.253      0.10
7      1.253    1.251    1.251    1.251      0.06
8      1.254    1.258    1.265    1.259      0.26
9      1.257    1.256    1.254    1.256      0.08
10     1.249    1.247    1.249    1.248      0.07
11     1.033    0.988    1.018    1.013      1.32
12     1.252    1.251    1.254    1.252      0.08
13     1.241    1.256    1.257    1.251      0.40
14     1.250    1.251    1.256    1.252      0.15
15     1.247    1.250    1.249    1.249      0.07
16     1.252    1.252    1.252    1.252      0.01
17     1.253    1.248    1.247    1.249      0.15
18     1.257    1.248    1.271    1.259      0.55
19     1.256    1.256    1.257    1.256      0.03
20     1.253    1.251    1.256    1.253      0.13
21     1.253    1.256    1.252    1.254      0.10
22     1.224    1.227    1.228    1.226      0.10
23     1.255    1.256    1.255    1.255      0.04
24     1.258    1.200    1.224    1.227      1.39
25     1.251    1.326    1.249    1.275      1.98
26     1.175    1.242    1.247    1.221      1.89
27     1.264    1.256    1.268    1.263      0.29
28     0.0      0.0      0.0      0.0        0.0
29     1.254    1.253    1.253    1.253      0.02
30     1.248    1.248    1.248    1.248      0.01
31     0.0      0.0      0.0      0.0        0.0
*****

```

REF.:        88        88        88        79        85



AGREED CERTIFIED VALUE= 1.2504 (E+16 AT/G SOL.)  
 +/- 0.0031

1	2	3	4	5	6	7	8	
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)	
2	ALL DATA	NONE	29	1.253	0.21		1.09	3.63
3	EXTREME LAB MEANS ELIMINATED	11	28	1.253	0.21		1.04	0.69
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	11, 25, 26, 24, 22, 5	23	1.253	0.21		0.31	0.24
5						GRAND MEAN	INTERLAB SPREAD (%)	
						1.2538	0.30	

REMARKS:

- FOR EXCLUSION OF LABORATORIES 24, 25 AND 26 DUE TO THEIR RELATIVELY HIGH 'RUN' RSDs, EXTENSION OF THE DIXON CRITERION TO A POPULATION ABOVE N = 25 (THE UPPER LIMIT USUALLY TREATED IN THE LITERATURE) WAS REQUIRED, THE EXPRESSION  $R_{32} = (X_N - X_{N-3}) / (X_N - X_3)$  WAS USED FOR TESTING IN THESE CASES.



EVALUATION SHEET 81  
=====

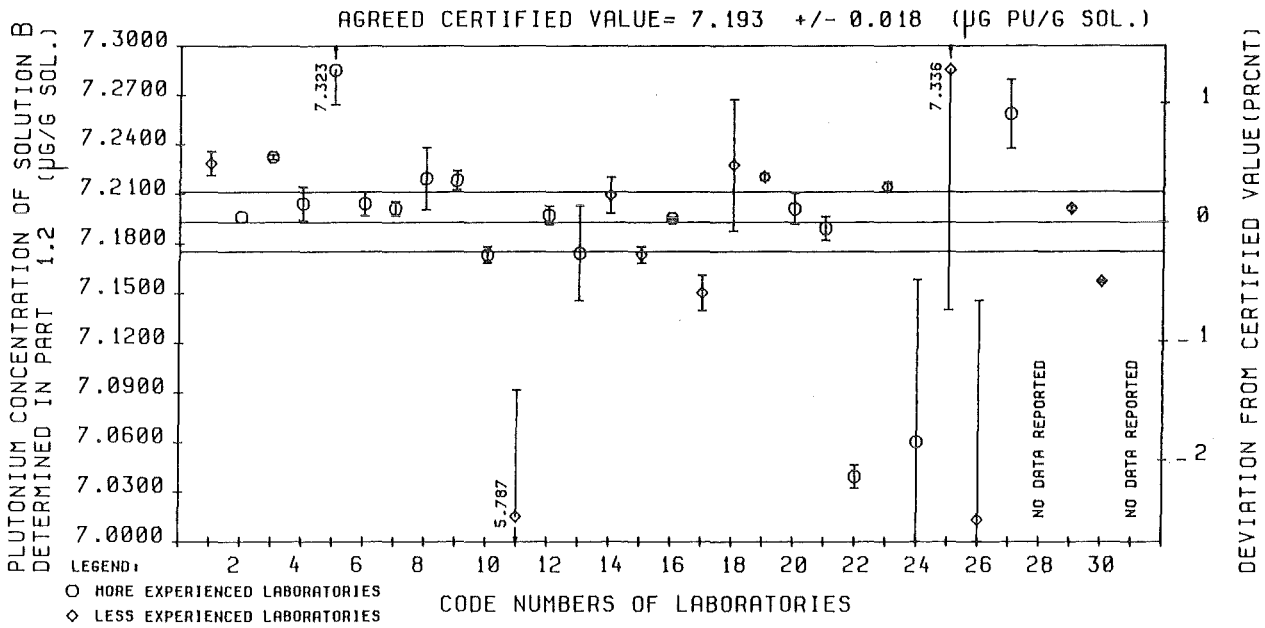
SOLUTION B, PLUTONIUM CONCENTRATIONS  
DETERMINED IN PROGRAMME PART 1.2

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS  $\mu\text{G}/\text{G}$  SOLUTION

1	2	3	4	5	6	7	8
LAB	RUN1	RUN2	RUN3	MEAN CALC.	RSD OF LAB	MEAN CALC.	REL. DEV.
CODE				BY ET.	MEAN (%)	BY LAB	FROM THAT
1	7.227	7.216	7.242	7.228	0.10		
2	7.196	7.196	7.196	7.196	0.0		
3	7.234	7.230	7.233	7.232	0.02		
4	7.215	7.213	7.184	7.204	0.14		
5	7.308	7.295	7.365	7.323	0.29		
6	7.208	7.190	7.214	7.204	0.10		
7	7.209	7.196	7.199	7.201	0.06		
8	7.191	7.213	7.254	7.219	0.26		
9	7.227	7.220	7.208	7.218	0.08		
10	7.176	7.164	7.180	7.173	0.07		
11	5.903	5.643	5.815	5.787	1.32		
12	7.197	7.187	7.206	7.197	0.08		
13	7.117	7.201	7.204	7.174	0.40		
14	7.195	7.203	7.230	7.209	0.15		
15	7.165	7.182	7.173	7.173	0.07		
16	7.195	7.194	7.196	7.195	0.01		
17	7.171	7.143	7.136	7.150	0.15		
18	7.216	7.165	7.300	7.227	0.55		
19	7.217	7.221	7.223	7.220	0.03		
20	7.200	7.185	7.218	7.201	0.13		
21	7.183	7.203	7.180	7.189	0.10		
22	7.026	7.040	7.050	7.039	0.10		
23	7.209	7.219	7.213	7.214	0.04		
24	7.239	6.900	7.042	7.060	1.39		
25	7.196	7.626	7.186	7.336	1.98		
26	6.748	7.131	7.159	7.013	1.89		
27	7.267	7.218	7.288	7.258	0.29		
28	0.0	0.0	0.0	0.0	0.0		
29	7.204	7.199	7.201	7.201	0.02		
30	7.158	7.157	7.156	7.157	0.01		
31	0.0	0.0	0.0	0.0	0.0		

REF.: 78 78 78 80 86



AGREED CERTIFIED VALUE = 7.193 +/- 0.018 (µg Pu/g SOL.)

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	29	7.201	0.11		1.09	3.72
3	EXTREME LAB MEANS ELIMINATED	11	28	7.201	0.11		1.04	0.74
4	EXTREME VALUES OF LAB MEANS	11, 25, 26, 24, 22, 5	23 (20)	7.201 (7.2025)	0.11 (0.13)		0.31 (0.31)	0.30 (0.27)
5	'RUN' ELIMINATED	24, 22, 5, 8, 17, 21					GRAND MEAN INTERLAB SPREAD (%)	
							7.2018 (7.2042)	0.35 (0.33)

**REMARKS:**

- 1) FOR EXCLUSION OF LABORATORIES 24, 25 AND 26 DUE TO THEIR RELATIVELY HIGH 'RUN' RSDs, EXTENSION OF THE DIXON CRITERION TO A POPULATION ABOVE N = 25 (THE UPPER LIMIT USUALLY TREATED IN THE LITERATURE) WAS REQUIRED. THE EXPRESSION  $R_{32} = (X_N - X_{N-3}) / (X_N - X_3)$  WAS USED FOR TESTING IN THESE CASES.
- 2) LABORATORIES 8, 17 AND 21 DID NOT PERFORM A Pu-238 DETERMINATION. THE DATA OF EVALUATION OBTAINED WITHOUT THESE LABORATORIES ARE GIVEN IN BRACKETS IN THE TABLE.

EVALUATION SHEET 82  
=====

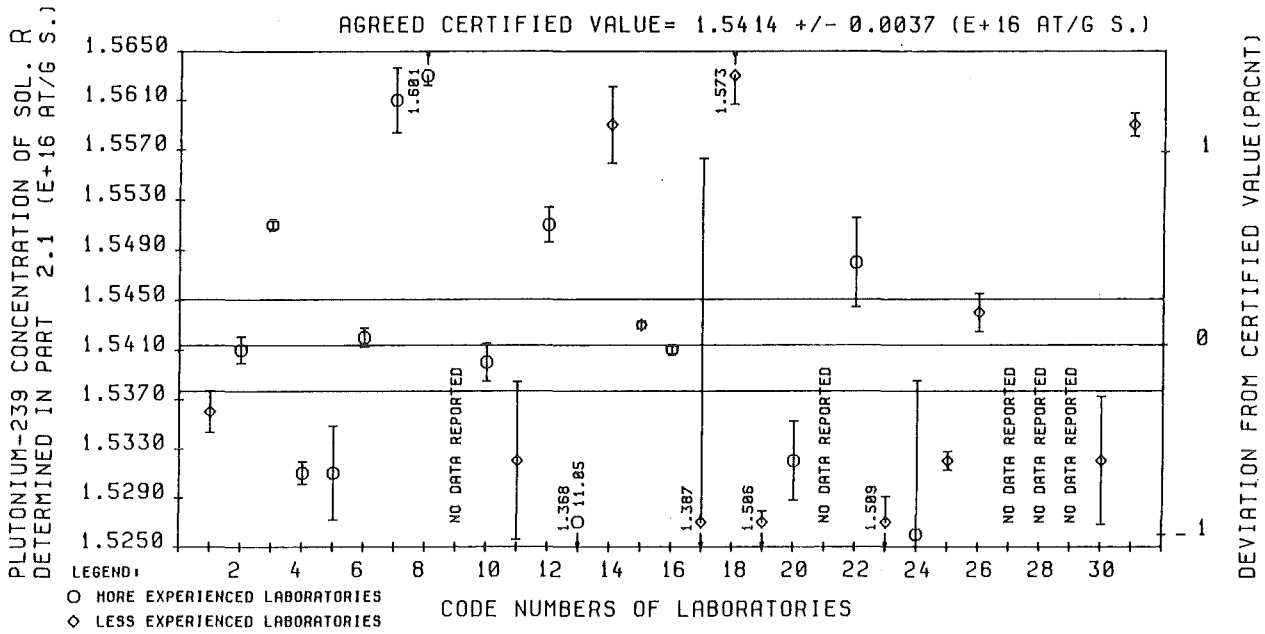
SOLUTION R, PLUTONIUM-239 CONCENTRATIONS  
DETERMINED IN PROGRAMME PART 2.1

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS E+16 AT/G SOLUTION

```
*****
 1         2         3         4         5         6         7         8
*****
LAB      RUN1      RUN2      RUN3 MEAN CALC. RSD OF LAB MEAN CALC. REL. DEV.
CODE                                BY ET.      MEAN (%)  BY LAB   FROM THAT
*****
 1      1.538     1.532     1.537     1.536         0.11
 2      1.543     1.539     1.542     1.541         0.07
 3      1.551     1.551     1.550     1.551         0.02
 4      1.530     1.532     1.530     1.531         0.06
 5      1.534     1.524     1.536     1.531         0.25
 6      1.540     1.542     1.543     1.542         0.05
 7      1.566     1.559     1.558     1.561         0.17
 8      1.601     1.603     1.600     1.601         0.05
 9      0.0       0.0       0.0       0.0           0.0
10      1.539     1.543     1.538     1.540         0.10
11      1.519     1.537     1.539     1.532         0.42
12      1.554     1.550     1.549     1.551         0.09
13      1.526     1.513     1.066     1.368         11.05
14      1.553     1.564     1.558     1.559         0.20
15      1.543     1.543     1.542     1.543         0.02
16      1.541     1.541     1.540     1.541         0.02
17      1.329     1.414     1.418     1.387         2.11
18      1.571     1.571     1.578     1.573         0.15
19      1.505     1.505     1.508     1.506         0.06
20      1.538     1.528     1.530     1.532         0.21
21      0.0       0.0       0.0       0.0           0.0
22      1.543     1.546     1.555     1.548         0.23
23      1.510     1.513     1.506     1.509         0.14
24      1.512     1.515     1.551     1.526         0.82
25      1.533     1.531     1.533     1.532         0.05
26      1.545     1.546     1.541     1.544         0.10
27      0.0       0.0       0.0       0.0           0.0
28      0.0       0.0       0.0       0.0           0.0
29      0.0       0.0       0.0       0.0           0.0
30      1.538     1.522     1.536     1.532         0.34
31      1.557     1.558     1.560     1.559         0.06
*****
```

REF.: 109 109 109 79 85



AGREED CERTIFIED VALUE = 1.5414 (E+16 AT/G SOL.)  
 +/- 0.0037

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	26	1.5405	-0.06		3.44	2.48
3	EXTREME LAB MEANS ELIMINATED	13,17	24	1.541	-0.03		0.40	1.25
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	13,17,24	23	1.541	-0.03		0.28	1.27
5							GRAND MEAN	INTERLAB SPREAD (%)
							1.5432	1.28

REMARKS:

EVALUATION SHEET 83  
=====

SOLUTION R, PLUTONIUM CONCENTRATIONS

DETERMINED IN PROGRAMME PART 2.1

-----  
COMPILATION OF NUMERICAL DATA  
-----

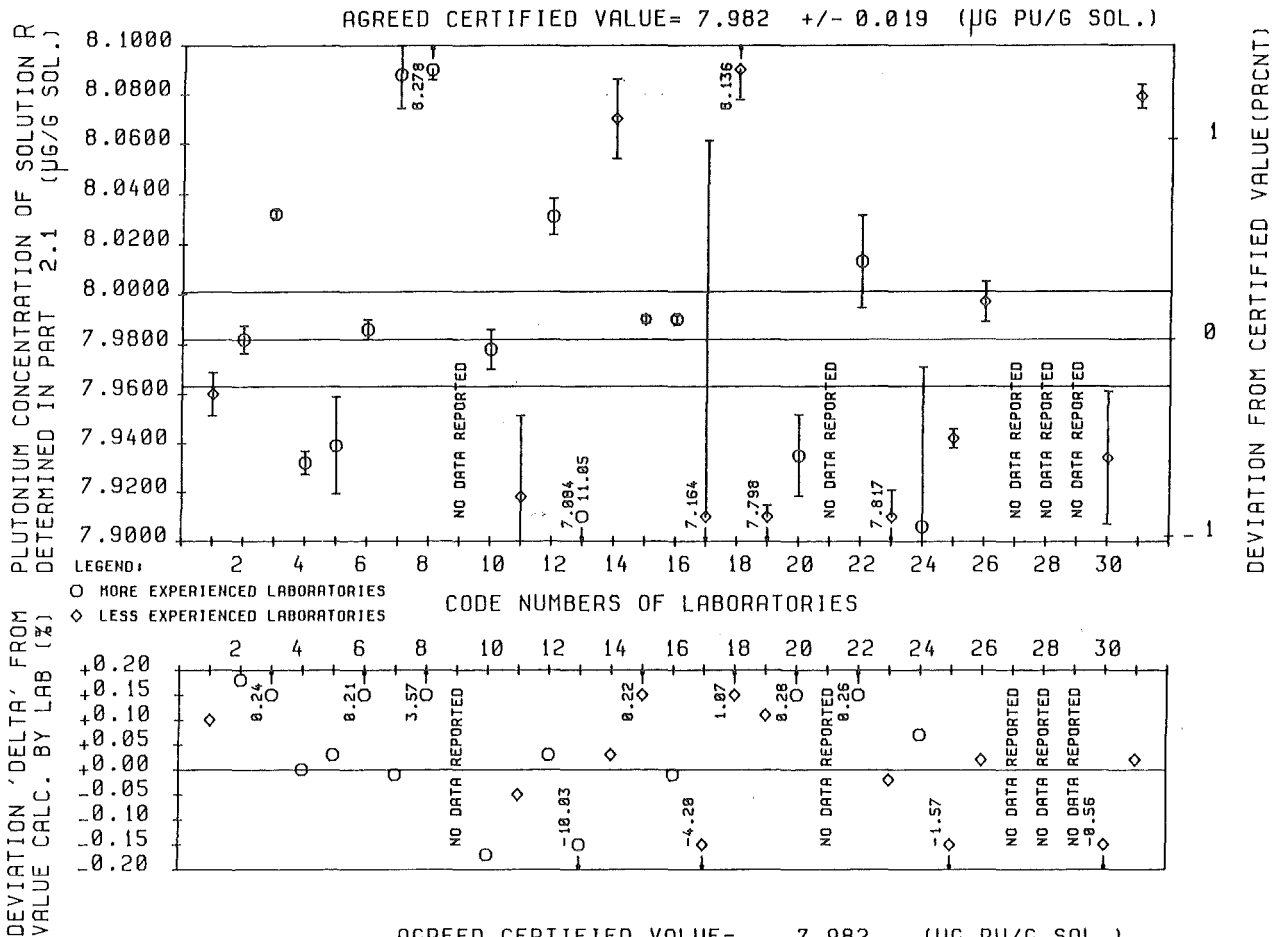
THE DIMENSION OF THE VALUES LISTED IS  $\mu\text{G/G}$  SOLUTION

```

*****
  1      2      3      4      5      6      7      8
*****
LAB     RUN1   RUN2   RUN3  MEAN CALC.  RSD OF LAB  MEAN CALC.  REL. DEV.
CODE                                BY ET.     MEAN (%)   BY LAB     FROM THAT
*****
  1      7.971  7.942  7.967  7.960      0.11      7.952      0.10
  2      7.989  7.972  7.986  7.982      0.07      7.968      0.18
  3      8.034  8.031  8.030  8.032      0.02      8.013      0.24
  4      7.926  7.940  7.928  7.932      0.06      7.932      0.0
  5      7.954  7.900  7.963  7.939      0.25      7.937      0.03
  6      7.978  7.988  7.992  7.986      0.05      7.969      0.21
  7      8.114  8.076  8.073  8.088      0.17      8.088     -0.01
  8      8.276  8.287  8.272  8.278      0.05      7.993      3.57
  9      0.0    0.0    0.0    0.0        0.0       0.0       0.0
 10      7.973  7.994  7.968  7.978      0.10      7.992     -0.17
 11      7.852  7.948  7.955  7.918      0.42      7.922     -0.05
 12      8.044  8.028  8.020  8.031      0.09      8.028      0.03
 13      7.899  7.835  5.519  7.084     11.05     7.874    -10.03
 14      8.043  8.098  8.069  8.070      0.20      8.068      0.03
 15      7.990  7.993  7.988  7.990      0.02      7.973      0.22
 16      7.988  7.993  7.988  7.990      0.02      7.990     -0.01
 17      6.862  7.304  7.326  7.164      2.11      7.478     -4.20
 18      8.125  8.123  8.162  8.136      0.15      8.050      1.07
 19      7.795  7.793  7.807  7.798      0.06      7.790      0.11
 20      7.968  7.914  7.923  7.935      0.21      7.913      0.28
 21      0.0    0.0    0.0    0.0        0.0       0.0       0.0
 22      7.987  8.003  8.049  8.013      0.23      7.992      0.26
 23      7.818  7.835  7.798  7.817      0.14      7.819     -0.02
 24      7.834  7.847  8.035  7.906      0.82      7.900      0.07
 25      7.947  7.935  7.944  7.942      0.05      8.069     -1.57
 26      8.002  8.009  7.982  7.997      0.10      7.996      0.02
 27      0.0    0.0    0.0    0.0        0.0       0.0       0.0
 28      0.0    0.0    0.0    0.0        0.0       0.0       0.0
 29      0.0    0.0    0.0    0.0        0.0       0.0       0.0
 30      7.966  7.880  7.956  7.934      0.34      7.978     -0.56
 31      8.071  8.077  8.088  8.079      0.06      8.077      0.02
*****

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REF.:        78            78            78            80            86            -            87



AGREED CERTIFIED VALUE = 7.982 (µg PU/G SOL.)  
 +/- 0.019

	1	2	3	4	5	6	7	8
		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	26	7.980	-0.03		3.44	2.51
3	EXTREME LAB MEANS ELIMINATED	13,17	24	7.984	0.03		0.40	1.22
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	13,17,24 (13,17,24,8)	23 (22)	7.986 (7.984)	0.05 (0.03)		0.28 (0.29)	1.24 (0.99)
5	REPORTED VALUES	8,13,17,24	22	7.991	0.11		GRAND MEAN 7.9924 (7.9794)	INTERLAB SPREAD (%) 1.25 (1.00)
6	REPORTED VALUES	8,13,17,24	22	7.991	0.11		7.9780	0.95

REMARKS:

- LABORATORIES 8 AND 17 DID NOT PERFORM A PU-238 DETERMINATION. SINCE THIS AFFECTS THE CONCENTRATION VALUES, THEY WERE NOT INCLUDED IN THE EVALUATION OF THE REPORTED DATA GIVEN IN LINE 6 OF THE TABLE. FOR INTERCOMPARISON, THE CORRESPONDING DATA IN LINES 4 AND 5 ARE GIVEN IN BRACKETS.

EVALUATION SHEET 84

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SOLUTION R, PLUTONIUM-239 CONCENTRATIONS

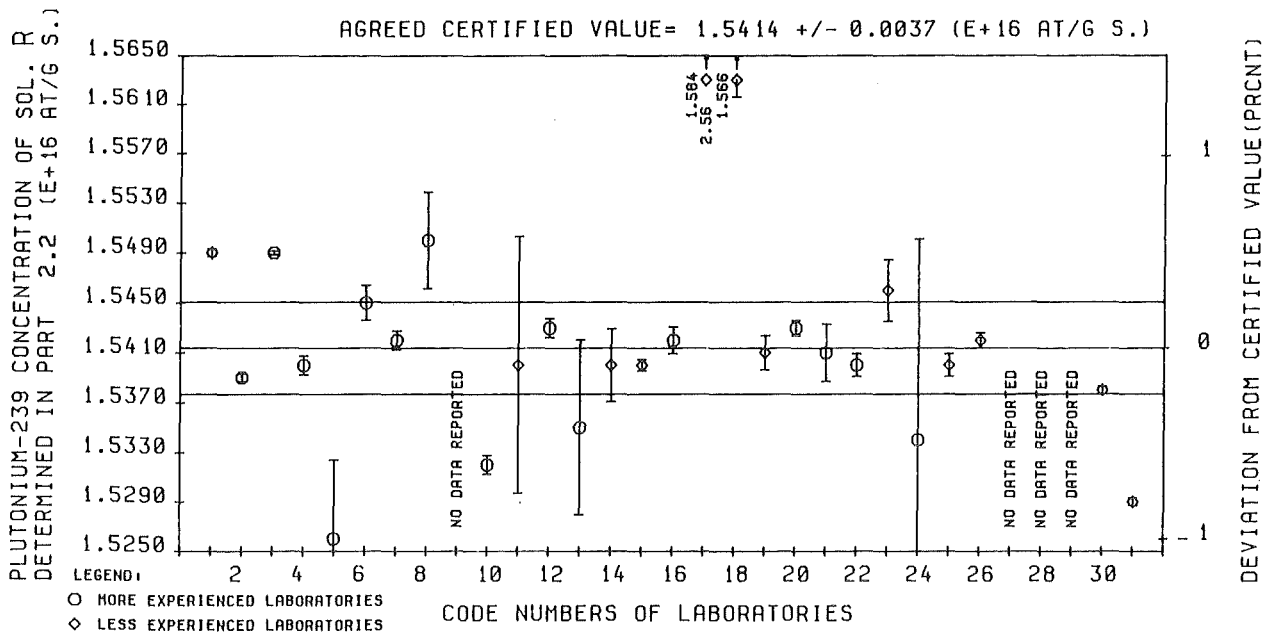
DETERMINED IN PROGRAMME PART 2.2

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS E+16 AT/G SOLUTION

1	2	3	4	5	6	7	8
LAB	RUN1	RUN2	RUN3	MEAN	CALC.	RSD OF	LAB
CODE				BY	ET.	MEAN (%)	BY
							LAB
							REL. DEV.
							FROM THAT
1	1.549	1.548	1.549	1.549		0.02	
2	1.539	1.540	1.538	1.539		0.02	
3	1.549	1.549	1.549	1.549		0.01	
4	1.539	1.539	1.541	1.540		0.05	
5	1.539	1.519	1.520	1.526		0.42	
6	1.542	1.545	1.547	1.545		0.09	
7	1.542	1.541	1.543	1.542		0.05	
8	1.545	1.547	1.558	1.550		0.25	
9	0.0	0.0	0.0	0.0		0.0	
10	1.534	1.532	1.531	1.532		0.05	
11	1.557	1.541	1.522	1.540		0.67	
12	1.543	1.544	1.541	1.543		0.05	
13	1.522	1.540	1.545	1.535		0.46	
14	1.535	1.539	1.545	1.540		0.19	
15	1.541	1.540	1.539	1.540		0.03	
16	1.544	1.541	1.541	1.542		0.07	
17	1.664	1.538	1.549	1.584		2.56	
18	1.569	1.566	1.565	1.566		0.09	
19	1.539	1.539	1.543	1.541		0.09	
20	1.544	1.543	1.542	1.543		0.04	
21	1.545	1.537	1.540	1.541		0.15	
22	1.540	1.539	1.542	1.540		0.06	
23	1.547	1.549	1.541	1.546		0.16	
24	1.508	1.563	1.530	1.534		1.05	
25	1.539	1.540	1.542	1.540		0.06	
26	1.541	1.541	1.543	1.542		0.04	
27	0.0	0.0	0.0	0.0		0.0	
28	0.0	0.0	0.0	0.0		0.0	
29	0.0	0.0	0.0	0.0		0.0	
30	1.538	1.537	1.538	1.538		0.02	
31	1.528	1.529	1.529	1.529		0.02	

REF.: 110 110 110 79 85



AGREED CERTIFIED VALUE = 1.5414 (E+16 AT/G SOL.)  
 +/- 0.0037

1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	NONE	1.541	-0.03		0.99	0.43
3	EXTREME LAB MEANS ELIMINATED	17,18	1.540	-0.09		0.50	0.23
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	17,18,24	1.5405	-0.06		0.36	0.31
5						GRAND MEAN	INTERLAB SPREAD (%)
						1.5404	0.37

REMARKS :



EVALUATION SHEET 85  
=====

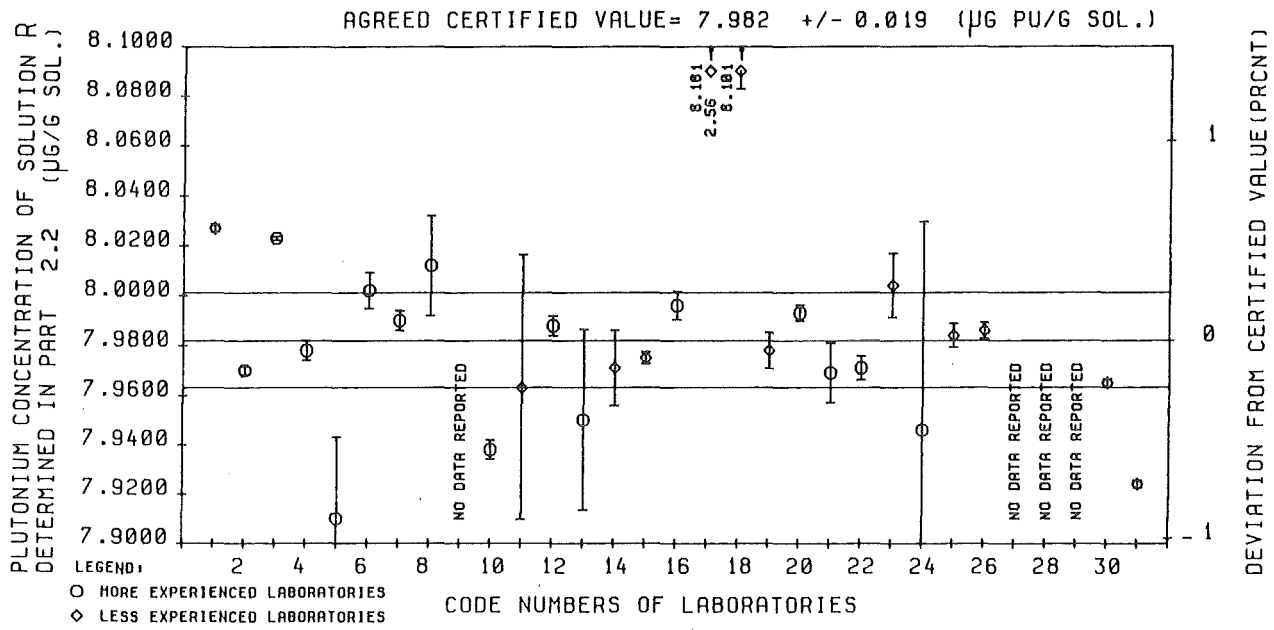
SOLUTION R, PLUTONIUM CONCENTRATIONS  
DETERMINED IN PROGRAMME PART 2.2

-----  
COMPILED OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS  $\mu\text{G/G}$  SOLUTION

```
*****
 1      2      3      4      5      6      7      8
*****
LAB   RUN1  RUN2  RUN3 MEAN CALC. RSD OF LAB MEAN CALC. REL. DEV.
CODE          BY ET.  MEAN (%)  BY LAB  FROM THAT
*****
 1      8.026  8.024  8.031  8.027  0.02
 2      7.970  7.974  7.967  7.970  0.02
 3      8.023  8.024  8.022  8.023  0.01
 4      7.973  7.974  7.985  7.978  0.05
 5      7.976  7.875  7.880  7.910  0.42
 6      7.990  8.002  8.014  8.002  0.09
 7      7.992  7.983  7.997  7.990  0.05
 8      7.987  7.997  8.052  8.012  0.25
 9      0.0    0.0    0.0    0.0    0.0
10     7.946  7.936  7.932  7.938  0.05
11     8.051  7.970  7.868  7.963  0.67
12     7.992  7.993  7.980  7.988  0.05
13     7.879  7.972  7.999  7.950  0.46
14     7.947  7.967  8.000  7.971  0.19
15     7.980  7.975  7.971  7.975  0.03
16     8.007  7.992  7.988  7.996  0.07
17     8.597  7.943  8.001  8.181  2.56
18     8.116  8.096  8.091  8.101  0.09
19     7.971  7.971  7.992  7.978  0.09
20     7.999  7.992  7.988  7.993  0.04
21     7.992  7.951  7.965  7.969  0.15
22     7.970  7.963  7.979  7.971  0.06
23     8.014  8.019  7.978  8.004  0.16
24     7.811  8.098  7.928  7.946  1.05
25     7.978  7.981  7.993  7.984  0.06
26     7.982  7.985  7.992  7.986  0.04
27     0.0    0.0    0.0    0.0    0.0
28     0.0    0.0    0.0    0.0    0.0
29     0.0    0.0    0.0    0.0    0.0
30     7.966  7.961  7.967  7.965  0.02
31     7.921  7.925  7.925  7.924  0.02
*****
```

REF.:        78            78            78            80            86



AGREED CERTIFIED VALUE = 7.982 +/- 0.019 (µg Pu/G SOL.)

1	2	3	4	5	6	7	8	
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)	
2	ALL DATA	NONE	27	7.978	-0.05		1.00	0.32
3	EXTREME LAB MEANS ELIMINATED	17,18	25	7.978	-0.05		0.50	0.21
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	17,18,24 (17,18,24, 8,21)	24 (22)	7.978 (7.978)	-0.05 (-0.05)		0.36 (0.36)	0.29 (0.29)
5						GRAND MEAN	INTERLAB SPREAD (%)	
						7.9778 (7.9766)	0.35 (0.36)	

REMARKS:

- LABORATORIES 8, 17 AND 21 DID NOT PERFORM A Pu-238 DETERMINATION. THE DATA OF EVALUATION OBTAINED WITHOUT THESE LABORATORIES ARE GIVEN IN BRACKETS IN THE TABLE.

EVALUATION SHEET 86  
=====

SOLUTION R, PLUTONIUM-239 CONCENTRATIONS

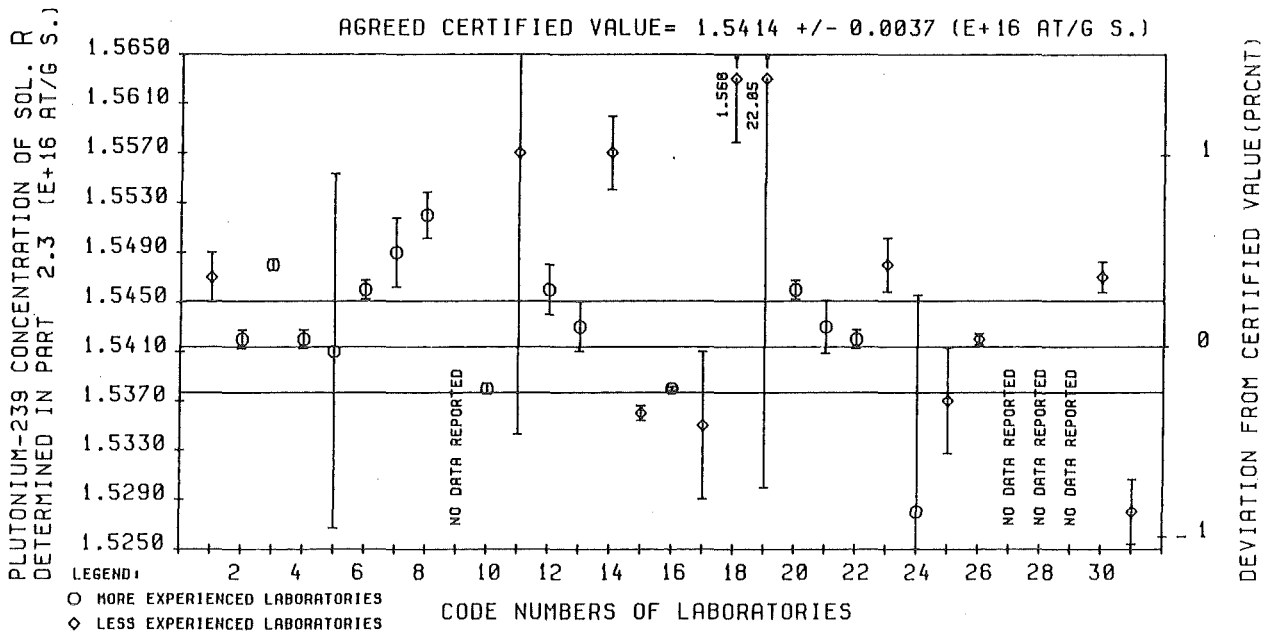
DETERMINED IN PROGRAMME PART 2.3,

-----  
COMPILATION OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS E+16 AT/G SOLUTION

```
*****  
1      2      3      4      5      6      7      8  
*****  
LAB    RUN1    RUN2    RUN3  MEAN  CALC.  RSD OF  LAB  MEAN  CALC.  REL.  DEV.  
CODE                    BY ET.  MEAN (%)  BY LAB  FROM THAT  
*****  
1      1.544    1.547    1.551    1.547    0.13  
2      1.543    1.543    1.541    1.542    0.05  
3      1.548    1.548    1.547    1.548    0.03  
4      1.543    1.541    1.541    1.542    0.05  
5      1.529    1.570    1.525    1.541    0.93  
6      1.544    1.546    1.546    1.546    0.05  
7      1.550    1.553    1.544    1.549    0.18  
8      1.549    1.550    1.556    1.552    0.12  
9      0.0      0.0      0.0      0.0      0.0  
10     1.538    1.537    1.538    1.538    0.03  
11     1.525    1.544    1.601    1.557    1.46  
12     1.543    1.545    1.550    1.546    0.13  
13     1.539    1.543    1.547    1.543    0.13  
14     1.559    1.551    1.561    1.557    0.19  
15     1.536    1.535    1.537    1.536    0.04  
16     1.538    1.539    1.538    1.538    0.01  
17     1.541    1.523    1.541    1.535    0.39  
18     1.559    1.566    1.577    1.568    0.33  
19     22.09    21.99    22.08    22.05    0.15  
20     1.546    1.547    1.544    1.546    0.05  
21     1.542    1.539    1.547    1.543    0.14  
22     1.544    1.541    1.542    1.542    0.05  
23     1.548    1.551    1.544    1.548    0.14  
24     1.536    1.494    1.554    1.528    1.15  
25     1.529    1.543    1.539    1.537    0.28  
26     1.542    1.541    1.542    1.542    0.03  
27     0.0      0.0      0.0      0.0      0.0  
28     0.0      0.0      0.0      0.0      0.0  
29     0.0      0.0      0.0      0.0      0.0  
30     1.547    1.549    1.545    1.547    0.08  
31     1.527    1.525    1.533    1.528    0.17  
*****
```

REF.:        111        111        111        79        85



AGREED CERTIFIED VALUE = 1.5414 (E+16 AT/G SOL.)  
 +/- 0.0037

1	2	3	4	5	6	7	8
	CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	19	1,543	0.10		0.76	0.34
3	EXTREME LAB MEANS ELIMINATED	19	1,543	0.10		0.76	0.34
4	EXTREME VALUES OF LAB MEANS & RSD'S 'RUN' ELIMINATED	19,11, 24,5	1,543	0.10		0.27	0.49
5						GRAND MEAN	INTERLAB SPREAD (%)
						1.5442	0.51

REMARKS:

- 1) THE EXTREME VALUE OF LABORATORY 19 IS DUE TO THE FACT THAT A DILUTION STEP PERFORMED HAD NOT BEEN CONSIDERED, THEREFORE, THIS LABORATORY HAS NOT BEEN INCLUDED IN THIS EVALUATION.
- 2) FOR EXCLUSION OF LABORATORIES 5,11 AND 24 DUE TO THEIR RELATIVELY HIGH 'RUN' RSDs, EXTENSION OF THE DIXON CRITERION TO A POPULATION ABOVE N = 25 (THE UPPER LIMIT USUALLY TREATED IN THE LITERATURE) WAS REQUIRED, THE EXPRESSION  $R_{32} = (X_N - X_{N-3}) / (X_N - X_3)$  WAS USED FOR TESTING IN THESE CASES.

EVALUATION SHEET 87  
=====

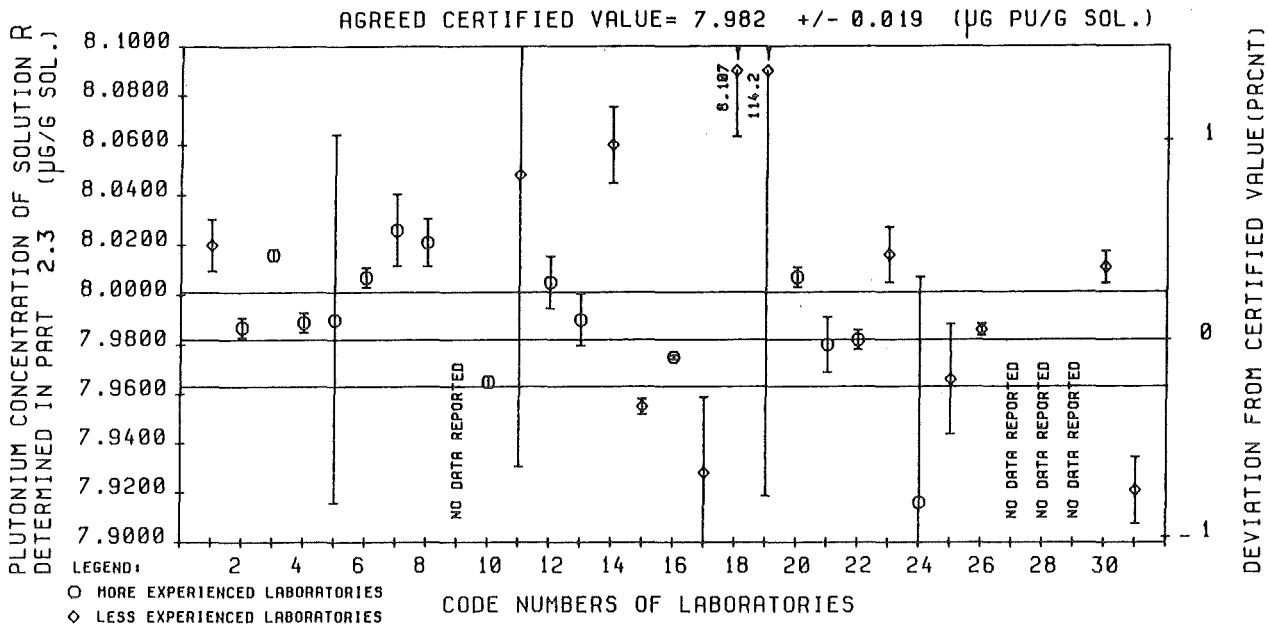
SOLUTION R, PLUTONIUM CONCENTRATIONS  
DETERMINED IN PROGRAMME PART 2.3

-----  
COMPILED OF NUMERICAL DATA  
-----

THE DIMENSION OF THE VALUES LISTED IS  $\mu\text{G/G}$  SOLUTION

1	2	3	4	5	6	7	8
LAB	RUN1	RUN2	RUN3	MEAN	CALC.	RSD OF	LAB
CODE				BY ET.	MEAN (%)	BY LAB	REL. DEV.
							FROM THAT
1	8.005	8.016	8.039	8.020	0.13		
2	7.990	7.993	7.979	7.987	0.05		
3	8.019	8.019	8.011	8.016	0.03		
4	7.997	7.984	7.987	7.989	0.05		
5	7.928	8.139	7.904	7.990	0.93		
6	8.000	8.010	8.011	8.007	0.05		
7	8.031	8.048	7.999	8.026	0.18		
8	8.009	8.013	8.041	8.021	0.12		
9	0.0	0.0	0.0	0.0	0.0		
10	7.967	7.961	7.968	7.965	0.03		
11	7.886	7.981	8.276	8.048	1.46		
12	7.991	7.999	8.024	8.005	0.13		
13	7.971	7.991	8.007	7.990	0.13		
14	8.069	8.030	8.081	8.060	0.19		
15	7.957	7.950	7.960	7.955	0.04		
16	7.974	7.978	7.974	7.975	0.01		
17	7.957	7.866	7.960	7.928	0.39		
18	8.064	8.099	8.157	8.107	0.33		
19	114.4	113.9	114.3	114.2	0.15		
20	8.009	8.014	8.000	8.007	0.05		
21	7.978	7.963	8.000	7.980	0.14		
22	7.990	7.977	7.980	7.982	0.05		
23	8.019	8.034	7.995	8.016	0.14		
24	7.956	7.741	8.049	7.916	1.15		
25	7.923	7.996	7.979	7.966	0.28		
26	7.988	7.981	7.990	7.986	0.03		
27	0.0	0.0	0.0	0.0	0.0		
28	0.0	0.0	0.0	0.0	0.0		
29	0.0	0.0	0.0	0.0	0.0		
30	8.010	8.022	8.000	8.011	0.08		
31	7.915	7.902	7.947	7.921	0.17		

REF.:           78           78           78           80           86



AGREED CERTIFIED VALUE = 7.982 +/- 0.019 (µg Pu/G SOL.)

	1	2	3	4	5	6	7	8
1		CODES OF EXCLUDED LABS	NUMBER OF CONTRIBUTING LABS	MEDIAN VALUE	DEVIATION FROM CERT. VALUE (%)		RSD 'RUN' (AVERAGE) (%)	'BETWEEN-LABS' RSD (%)
2	ALL DATA	19	26	7.990	0.10		0.75	0.29
3	EXTREME LAB MEANS ELIMINATED	19	26	7.990	0.10		0.75	0.29
4	EXTREME VALUES OF LAB MEANS	19,11, 24,5	23 (20)	7.990 (7.9975)	0.10 (0.19)		0.27 (0.24)	0.47 (0.47)
5	& RSD'S 'RUN' ELIMINATED	(19,11,24,5, 8,17,21)					GRAND MEAN INTERLAB SPREAD (%)	
							7.9966 (7.9997)	0.50 (0.49)

**REMARKS:**

- 1) THE EXTREME VALUE OF LABORATORY 19 IS DUE TO THE FACT THAT A DILUTION STEP PERFORMED HAD NOT BEEN CONSIDERED. THEREFORE, THIS LABORATORY HAS NOT BEEN INCLUDED IN THIS EVALUATION.
- 2) FOR EXCLUSION OF LABORATORIES 5, 11 AND 24 DUE TO THEIR RELATIVELY HIGH 'RUN' RSDs, EXTENSION OF THE DIXON CRITERION TO A POPULATION ABOVE N = 25 (THE UPPER LIMIT USUALLY TREATED IN THE LITERATURE) WAS REQUIRED, THE EXPRESSION  $R_{32} = (X_N - X_{N-3}) / (X_N - X_3)$  WAS USED FOR TESTING IN THESE CASES.
- 3) LABORATORIES 8, 17 AND 21 DID NOT PERFORM A Pu-238 DETERMINATION. THE DATA OF EVALUATION OBTAINED WITHOUT THESE LABORATORIES ARE GIVEN IN BRACKETS IN THE TABLE.

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- /4/ W.J. DIXON, F.J. MASSEY, "Introduction to Statistical Analysis", McGraw-Hill, Inc. (1969)
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Appendix A

Definitions of quantities used  
in data evaluation



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1. Equations of definition

1.1 Quantities used for calculations on the laboratory level<sup>1)</sup>

1.1.1 Uranium

Equation number	Equation	Reference equation number	Remark
1	$\bar{R}_j = 1/6 * \sum_k R_{jk}; \quad k = 1...6$		
2	$\bar{\bar{R}} = 1/3 * \sum_j \bar{R}_j; \quad j = 1...3$	1	
3	$SD_s = \sqrt{1/15 * \sum_j \sum_k (R_{jk} - \bar{R}_j)^2}$	1	
4	$RSD_s = 100 * SD_s / \bar{\bar{R}} \quad [\%]$	2,3	
5	$SD_r = \sqrt{1/2 * \sum_j (\bar{R}_j - \bar{\bar{R}})^2 - 1/6 * SD_s^2}$	1,2,3	
6	$RSD_r = 100 * SD_r / \bar{\bar{R}} \quad [\%]$	2,5	
7	$RSD_{sr} = \sqrt{RSD_s^2 + RSD_r^2} \quad [\%]$	4,6	
8	$RSD_{\bar{\bar{R}}} = \sqrt{1/18 * RSD_s^2 + 1/3 * RSD_r^2} \quad [\%]$	4,6	
9	$SD_{sj} = \sqrt{1/5 * \sum_k (R_{jk} - \bar{R}_j)^2}$	1	
10	$RSD_{sj} = 100 * SD_{sj} / \bar{R}_j \quad [\%]$	1,9	
11	$SD_s = \sqrt{1/3 * \sum_j SD_{sj}^2}$	9	equal to 3
12	$RSD_s = \sqrt{1/3 * \sum_j RSD_{sj}^2}$	10	differs from 4 by using $\bar{R}_j$ 's instead of $\bar{\bar{R}}$
13	$\bar{A}_{jU8} = 100 / (\bar{R}_j38 + \bar{R}_j48 + \bar{R}_j58 + \bar{R}_j68 + 1)$ [atom %]	1	
14	$\bar{A}_{jUZ} = \bar{A}_{jU8} * \bar{R}_jZ8$ [atom %]; $Z = 3,4,5$ or 6	1,13	for Z=8 see eq.13

<sup>1)</sup> For simplification of the formulae, the laboratory related index 'i' was omitted.

Equation number	Equation	Reference equation number	Remark
15	$\bar{A}UZ = 1/3 * \sum_j \bar{A}jUZ \quad [\text{atom \%}]$	14	
16	$SDr = \sqrt{1/2 * \sum_j (\bar{A}jUZ - \bar{A}UZ)^2} \quad [\text{atom \%}]$	14,15	
17	$RSDr = 100 * SDr / \bar{A}UZ \quad [\%]$	15,16	
18	$RSD\bar{A} = RSDr / \sqrt{3} \quad [\%]$	17	
19	$\bar{W}jUZ = 100 * \bar{A}jUZ * wUZ / \sum_z (\bar{A}jUZ * wUZ)$ [weight %]	14	
20	$\bar{W}UZ = 1/3 * \sum_j \bar{W}jUZ \quad [\text{weight \%}]$	19	
21	$SDr = \sqrt{1/2 * \sum_j (\bar{W}jUZ - \bar{W}UZ)^2} \quad [\text{weight \%}]$	19,20	
22	$RSDr = 100 * SDr / \bar{W}UZ \quad [\%]$	20,21	
23	$RSD\bar{W} = RSDr / \sqrt{3} \quad [\%]$	22	
24	$\Delta\bar{W}UZ = 100 * (\bar{W}UZ - LWUZ) / LWUZ \quad [\%]$	20	LWUZ refers to data reported by participants
25	$\bar{C}jU8 = \frac{1 - \bar{R}j38BL * \bar{R}83UL}{\bar{R}j38BL - \bar{R}38BU} * \frac{GjUL}{GjBU} * CU3UL$ [atoms/g sol.]	1,2	
26	$\bar{C}jU = 100 * \bar{C}jU8 * wU8 / (a * \bar{W}U8) \quad [\text{g/g sol.}]$	20,25*	* see 27
27	$\bar{C}U8 = 1/3 * \sum_j \bar{C}jU8 \quad [\text{atoms/g sol.}]$	25*	* as well as 36, 62, 63, 64
28	$\bar{C}U = 1/3 * \sum_j \bar{C}jU \quad [\text{g/g sol.}]$	26	
29	$SDr = \sqrt{1/2 * \sum_j (\bar{C}jU8 - \bar{C}U8)^2}$ [atoms/g sol.]	25*,27	* see 27

Equation number	Equation	Reference equation number	Remark
30	$SDr = \sqrt{1/2 * \sum_j (\bar{C}_{jU} - \bar{C}_U)^2}$ [g/g sol.]	26,28	
31	$RSDr = 100 * SDr / \bar{C}_U$ [%]	27,29	
32	$RSDr = 100 * SDr / \bar{C}_U$ [%]	28,30	
33	$RSD\bar{C}_U = RSDr / \sqrt{3}$ [%]	31	
34	$RSD\bar{C}_U = RSDr / \sqrt{3}$ [%]	32	
35	$\Delta\bar{C}_U = 100 * (\bar{C}_U - LCU) / LCU$ [%]	28	LCU refers to data reported by participants
36	$\bar{C}_{jU8} = \frac{1 - \bar{R}_j 38BS * 'R83SUP'}{\bar{R}_j 38BS - \bar{R} 38BU} * \frac{'GSUP'}{'GBU'} * 'CU3SUP'$ [atoms/g sol.]	1,2	For R83SUP the characterization value is used, since the values obtained by the labs in part 2.3 were not all available at the time of evaluating part 1.
37	$\bar{R} = 1/2 * \sum_j \bar{R}_j; \quad j = 2 \text{ and } 3$	1	Here j denotes the run number as well as the running number attributed to the sample vial
38a	$SDs = \sqrt{1/10 * \sum_j \sum_k (R_{jk} - \bar{R}_j)^2};$ j = 2 and 3	1	see 37; no print-out in tables 10 and 21 of Appendix C
38	$RSDs = 100 * SDs / \bar{R}$ [%]	37,38a	
39a	$SDr = \sqrt{\sum_j (\bar{R}_j - \bar{R})^2 - 1/6 * SDs^2}$ j = 2 and 3	1,37,38a	see 37; no print-out in tables 10 and 21 of Appendix C
39	$RSDr = 100 * SDr / \bar{R}$ [%]	37,39a	
40	$RSDsr = \sqrt{RSDs^2 + RSDr^2}$ [%]	38,39	

Equation number	Equation	Reference equation number	Remark
41	$RSD\bar{R} = \sqrt{1/12 * RSD_s^2 + 1/2 * RSD_r^2} \quad [\%]$	38,39	
42	$\bar{C}_{jU8} = \frac{1 - \bar{R}_{j58A1} * 'R85MUP' * 'GMUP1' * 'CU5MUP'}{\bar{R}_{j58A1} - \bar{R}_{58BU}} * \frac{'GMUP1'}{'GAI'}} * 'CU5MUP'$ [atoms/g sol.]; j=1	1,2	see 37; always aliquotation 'one'
43	$\bar{C}_{jU8} = \frac{1 - \bar{R}_{j58AY} * 'R85MUP' * 'GMUPY' * 'CU5MUP'}{\bar{R}_{j58AY} - \bar{R}_{58BU}} * \frac{'GMUPY'}{'GAY'}} * 'CU5MUP'$ [atoms/g sol.]; j = 2 and 3, Y = 2,4 or 6	1,2	see 37; for aliquotations 'two', 'four' or 'six'
44	$\bar{C}_{U8} = 1/3 * \sum_j \bar{C}_{jU8} \quad [\text{atoms/g sol.}];$ j = 1,2,3	42 for j=1 43 for j= 2 and 3	see 37
45	$\bar{C}_{U8} = 1/2 * \sum_j \bar{C}_{jU8} \quad [\text{atoms/g sol.}];$ j = 2 and 3	43	see 37
46	$SD_r = \sqrt{1/2 * \sum_j (\bar{C}_{jU8} - \bar{C}_{U8})^2}$ [atoms/g sol.]; j = 1,2,3	42,43,44	see 37
47	$SD_r = \sqrt{\sum_j (\bar{C}_{jU8} - \bar{C}_{U8})^2} \quad [\text{atoms/g sol.}];$ j = 2 and 3	43,45	see 37
48	$RSD_r = 100 * SD_r / \bar{C}_{U8} \quad [\%]$	44,46	
49	$RSD_r = 100 * SD_r / \bar{C}_{U8} \quad [\%]$	45,47	
50	$RSD\bar{C}_{U8} = RSD_r / \sqrt{3} \quad [\%]$	48	
51	$RSD\bar{C}_{U8} = RSD_r / \sqrt{2} \quad [\%]$	49	
52	$\bar{C}_{jU} = 100 * \bar{C}_{jU8} * w_{U8} / (a * \bar{W}_{U8})$ [g/g sol.]; j=1	20,42	see 37
53	$\bar{C}_{jU} = 100 * \bar{C}_{jU8} * w_{U8} / (a * \bar{W}_{U8})$ [g/g sol.]; j = 2 and 3	20,43	see 37
54	$\bar{C}_U = 1/3 * \sum_j \bar{C}_{jU} \quad [\text{g/g sol.}];$ j = 1,2,3	52 for j=1 53 for j=2 and 3	see 37

Equation number	Equation	Reference equation number	Remark
55	$\bar{C}U = 1/2 * \sum_j \bar{C}jU \quad [g/g \text{ sol.}]; \quad j = 2 \text{ and } 3$	53	see 37
56	$SDr = \sqrt{1/2 * \sum_j (\bar{C}jU - \bar{C}U)^2} \quad [g/g \text{ sol.}];$ $j = 1, 2, 3$	52, 53, 54	see 37
57	$SDr = \sqrt{\sum_j (\bar{C}jU - \bar{C}U)^2} \quad [g/g \text{ sol.}];$ $j = 2 \text{ and } 3$	53, 55	see 37
58	$RSDr = 100 * SDr / \bar{C}U \quad [ \% ]$	54, 56	
59	$RSDr = 100 * SDr / \bar{C}U \quad [ \% ]$	55, 57	
60	$RSD\bar{C}U = RSDr / \sqrt{3} \quad [ \% ]$	58	
61	$RSD\bar{C}U = RSDr / \sqrt{2} \quad [ \% ]$	59	
62	$\bar{C}jU8 = \frac{1 - \bar{R}j38RL * \bar{R}83UL}{\bar{R}j38RL - \bar{R}38RU} * \frac{GjUL}{GjRU} * CU3UL$ [atoms/g sol.]	1, 2	
63	$\bar{C}jU8 = \frac{1 - \bar{R}j38RS * \bar{R}83UC}{\bar{R}j38RS - \bar{R}38RU} * \frac{'GSUP'}{'GRU'}} * 'CU3SUP'$ [atoms/g sol.]	1, 2	$\bar{R}83UC$ is calculated from measurements of part 2.3
64	$\bar{C}jU8 = \frac{1 - \bar{R}j38RC * \bar{R}83UC}{\bar{R}j38RC - \bar{R}38RU} * \frac{GjUC}{GjRU} * 'CU3SUP'$ [atoms/g sol.]	1, 2	

1.1.2 Plutonium

Equation number	Equation	Reference equation number	Remark
65	$\bar{A}_{jP9} = 100 / (\bar{R}_{j39} + \bar{R}_{j09} + \bar{R}_{j19} + \bar{R}_{j29} + 1)$ [atom %]	1	
66	$\bar{A}_{jPZ} = \bar{A}_{jP9} * \bar{R}_{jZ9}$ [atom %]; Z = 8, 0, 1 or 2	1, 65	for Z=9 see equ. 65
67	$\bar{A}_{PZ} = 1/3 * \sum_j \bar{A}_{jPZ}$ [atom %]	66	
68	$SDr = \sqrt{1/2 * \sum_j (\bar{A}_{jPZ} - \bar{A}_{PZ})^2}$ [atom %]	66, 67	
69	$RSDr = 100 * SDr / \bar{A}_{PZ}$ [%]	67, 68	
70	$RSD\bar{A} = RSDr / \sqrt{3}$ [%]	69	
71	$\bar{W}_{jPZ} = 100 * \bar{A}_{jPZ} * w_{PZ} / \sum_Z (\bar{A}_{jPZ} * w_{PZ})$ [weight %]	66	
72	$\bar{W}_{PZ} = 1/3 * \sum_j \bar{W}_{jPZ}$ [weight %]	71	
73	$SDr = \sqrt{1/2 * \sum_j (\bar{W}_{jPZ} - \bar{W}_{PZ})^2}$ [weight %]	71, 72	
74	$RSDr = 100 * SDr / \bar{W}_{PZ}$ [%]	72, 73	
75	$RSD\bar{W} = RSDr / \sqrt{3}$ [%]	74	
76	$\Delta\bar{W}_{PZ} = 100 * (\bar{W}_{PZ} - LWPZ) / LWPZ$ [%]	72	LWPZ refers to data reported by participants
77	$\bar{C}_{jP9} = \frac{1 - \bar{R}_{j29BL} * \bar{R}_{92PL}}{\bar{R}_{j29BL} - \bar{R}_{29BU}} * \frac{G_{jPL}}{G_{jBU}} * CP_{2PL}$ [atoms/g sol.]	1, 2	
78	$\bar{C}_{jP} = 100 * \bar{C}_{jP9} * w_{P9} / (a * \bar{W}_{P9})$ [g/g sol.]	72, 77*	* as well as 88, 109, 110, 111

Equation number	Equation	Reference equation number	Remark
79	$\bar{C}P9 = 1/3 * \sum_j \bar{C}jP9$ [atoms/g sol.]	77*	*see 78
80	$\bar{C}P = 1/3 * \sum_j \bar{C}jP$ [g/g sol.]	78	
81	$SDr = \sqrt{1/2 * \sum_j (\bar{C}jP9 - \bar{C}P9)^2}$ [atoms/g sol.]	77*, 79	*see 78
82	$SDr = \sqrt{1/2 * \sum_j (\bar{C}jP - \bar{C}P)^2}$ [g/g sol.]	78, 80	
83	$RSDr = 100 * SDr / \bar{C}P9$ [%]	79, 81	
84	$RSDr = 100 * SDr / \bar{C}P$ [%]	80, 82	
85	$RSD\bar{C}P9 = RSDr / \sqrt{3}$ [%]	83	
86	$RSD\bar{C}P = RSDr / \sqrt{3}$ [%]	84	
87	$\Delta\bar{C}P = 100 * (\bar{C}P - LCP) / LCP$ [%]	80	LCP refers to data reported by participants
88	$\bar{C}jP9 = \frac{1 - \bar{R}j29BS * 'R92SUP'}{\bar{R}j29BS - \bar{R}29BU} * \frac{'GSUP'}{'GBU'}} * 'CP2SUP'$ [atoms/g sol.]	1, 2	For R92SUP the characterization value is used, since the values obtained by the labs in part 2.3 were not all available at the time of evaluating part 1.
89	$\bar{C}jP9 = \frac{1 - \bar{R}j29A1 * 'R92MUP'}{\bar{R}j29A1 - \bar{R}29BU} * \frac{'GMUP1'}{'GAI'}} * 'CP2MUP'$ [atoms/g sol.]; j=1	1, 2	see 37; always aliquotation 'one'
90	$\bar{C}jP9 = \frac{1 - \bar{R}j29AY * 'R92MUP'}{\bar{R}j29AY - \bar{R}29BU} * \frac{'GMUPY'}{'GAY'}} * 'CP2MUP'$ [atoms/g sol.]; j= 2 and 3, Y= 2, 4 or 6	1, 2	see 37; for aliquotations 'two', 'four' or 'six'



Equation number	Equation	Reference equation number	Remark
91	$\bar{C}P_9 = 1/3 * \sum_j \bar{C}jP_9$ [atoms/g sol.]; j = 1,2,3	89 for j=1 90 for j=2 and 3	see 37
92	$\bar{C}P_9 = 1/2 * \sum_j \bar{C}jP_9$ [atoms/g sol.]; j = 2 and 3	90	see 37
93	$SDr = \sqrt{1/2 * \sum_j (\bar{C}jP_9 - \bar{C}P_9)^2}$ [atoms/g sol.]; j = 1,2,3	89,90,91	see 37
94	$SDr = \sqrt{\sum_j (\bar{C}jP_9 - \bar{C}P_9)^2}$ [atoms/g sol.]; j = 2 and 3	90,92	see 37
95	$RSDr = 100 * SDr / \bar{C}P_9$ [%]	91,93	
96	$RSDr = 100 * SDr / \bar{C}P_9$ [%]	92,94	
97	$RSD\bar{C}P_9 = RSDr / \sqrt{3}$	95	
98	$RSD\bar{C}P_9 = RSDr / \sqrt{2}$	96	
99	$\bar{C}jP = 100 * \bar{C}jP_9 * wP_9 / (a * \bar{W}P_9)$ [g/g sol.]; j=1	72,89	see 37
100	$\bar{C}jP = 100 * \bar{C}jP_9 * wP_9 / (a * \bar{W}P_9)$ [g/g sol.]; j = 2 and 3	72,90	see 37
101	$\bar{C}P = 1/3 * \sum_j \bar{C}jP$ [g/g sol.]; j = 1,2,3	99,100	see 37
102	$\bar{C}P = 1/2 * \sum_j \bar{C}jP$ [g/g sol.]; j = 2 and 3	100	see 37
103	$SDr = \sqrt{1/2 * \sum_j (\bar{C}jP - \bar{C}P)^2}$ [g/g sol.]; j = 1,2,3	99,100, 101	see 37
104	$SDr = \sqrt{\sum_j (\bar{C}jP - \bar{C}P)^2}$ [g/g sol.]; j = 2 and 3	100,102	see 37

Equation number	Equation	Reference equation number	Remark
105	$RSD_r = 100 * S_{Dr} / \bar{C}_P \quad [\%]$	101,103	
106	$RSD_r = 100 * S_{Dr} / \bar{C}_P \quad [\%]$	102,104	
107	$RSD_{\bar{C}_P} = RSD_r / \sqrt{3} \quad [\%]$	105	
108	$RSD_{\bar{C}_P} = RSD_r / \sqrt{2} \quad [\%]$	106	
109	$\bar{C}_{jP9} = \frac{1 - \bar{R}_{j29RL} * \bar{R}_{92PL}}{\bar{R}_{j29RL} - \bar{R}_{29RU}} * \frac{G_{jPL}}{G_{jRU}} * CP_{2PL}$ [atoms/g sol.]	1,2	
110	$\bar{C}_{jP9} = \frac{1 - \bar{R}_{j29RS} * \bar{R}_{92PC}}{\bar{R}_{j29RS} - \bar{R}_{29RU}} * \frac{'GSUP'}{'GRU'}} * 'CP_{2SUP}'$ [atoms/g sol.]	1,2	$\bar{R}_{92PC}$ is calculated from measurements in part 2.3
111	$\bar{C}_{jP9} = \frac{1 - \bar{R}_{j29RC} * \bar{R}_{92PC}}{\bar{R}_{j29RC} - \bar{R}_{29RU}} * \frac{G_{jSUP}}{G_{jRU}} * 'CP_{2SUP}'$ [atoms/g sol.]	1,2	

1.2 Quantities of interlaboratory evaluation

Equation number	Equation	Reference equation number	Remark
201	$\bar{R}_{lj} \cong \bar{R}_j$ $= 1/6 * \sum_k R_{ijk}; \quad k = 1...6$	1	
202	$\bar{\bar{R}}_i = 1/3 * \sum_j \bar{R}_{ij}; \quad j = 1...3$	201	
202a	$\bar{\bar{R}}_i = 1/2 * \sum_j \bar{R}_{ij}; \quad j = 2, 3$	37 201	Refers only to measurements of samples AS II, IV and VI
203	$\bar{\bar{\bar{R}}} = 1/N * \sum_i \bar{\bar{R}}_i; \quad i = 1...N$	202 202a	
204	$SD\hat{s} = \sqrt{\frac{1}{15*N} \sum_{ijk} R_{ijk}^2 - \frac{6}{15*N} \sum_{ij} \bar{R}_{ij}^2};$ $j = 1...3$	201	
204a	$SD\hat{s} = \sqrt{\frac{1}{10*N} \sum_{ijk} R_{ijk}^2 - \frac{6}{10*N} \sum_{ij} \bar{R}_{ij}^2};$ $j = 2, 3$	201	Refers only to measurements of samples AS II, IV and VI
205	$RSD\hat{s} = 100 * SD\hat{s} / \bar{\bar{\bar{R}}} \quad [\%]$	203, 204, 204a	
206	$SD\hat{f} = \sqrt{\frac{17}{30*N} \sum_{ij} \bar{R}_{ij}^2 - \frac{3}{2*N} \sum_i \bar{\bar{R}}_i^2 -$ $- \frac{1}{90*N} \sum_{ijk} R_{ijk}^2}; \quad j = 1...3$	201, 202	
206a	$SD\hat{f} = \sqrt{\frac{11}{10*N} \sum_{ij} \bar{R}_{ij}^2 - \frac{2}{N} \sum_i \bar{\bar{R}}_i^2 -$ $- \frac{1}{60*N} \sum_{ijk} R_{ijk}^2}; \quad j = 2, 3$	201, 202a	Refers only to measurements of samples AS II, IV and VI
207	$RSD\hat{f} = 100 * SD\hat{f} / \bar{\bar{\bar{R}}} \quad [\%]$	203, 206, 206a	
208	$SD\hat{v} = \sqrt{\frac{3*N-1}{2*N^2-2*N} \sum_i \bar{\bar{R}}_i^2 - \frac{N}{N-1} \bar{\bar{\bar{R}}}^2 -$ $- \frac{1}{6*N} \sum_{ij} \bar{R}_{ij}^2}; \quad j = 1...3$	201, 202, 203	

Equation number	Equation	Reference equation number	Remark
208a	$SD\hat{v} = \sqrt{\frac{2*N-1}{N^2-N} \sum_i \bar{R}_i^2 - \frac{N}{N-1} \bar{R}^2 - \frac{1}{2*N} \sum_{ij} \bar{R}_{ij}^2}; \quad j = 2,3$	201,202a, 203	Refers only to measurements of samples AS II, IV and VI
209	$RSD\hat{v} = 100 * SD\hat{v}/\bar{R} \quad [\%]$	203,208, 208a	
210	$RSD\hat{x} = (100/\bar{R}) * \sqrt{\frac{1}{N-1} \sum_i (\bar{R}_i - \bar{R})^2} \quad [\%]$	202,202a, 203	
211	$\bar{W}_{ij} \hat{=} \bar{W}_{jUZ} \quad \text{or} \quad \bar{W}_{jPZ} \quad [\text{weight } \%]$	19,71	
212	$\bar{W}_i = 1/3 * \sum_j \bar{W}_{ij} \quad [\text{weight } \%]$	211	
213	$\bar{W} = 1/N \sum_i \bar{W}_i \quad [\text{weight } \%]$	212	
214	$SD\hat{r} = \sqrt{\frac{1}{2*N} \sum_{ij} (\bar{W}_{ij} - \bar{W}_i)^2} \quad [\text{weight } \%]$	211, 212	
215	$RSD\hat{r} = 100 * SD\hat{r}/\bar{W} \quad [\%]$	213,214	
216	$SD\hat{v} = \sqrt{\frac{1}{N-1} \sum_i (\bar{W}_i - \bar{W})^2 - \frac{1}{6*N} \sum_{ij} (\bar{W}_{ij} - \bar{W}_i)^2}$ <p style="text-align: center;">[weight %]</p>	211,212, 213	
217	$RSD\hat{v} = 100 * SD\hat{v}/\bar{W} \quad [\%]$	213,216	
218	$RSD\hat{x} = (100/\bar{W}) * \sqrt{\frac{1}{N-1} \sum_i (\bar{W}_i - \bar{W})^2} \quad [\%]$	212,213	
219	$\bar{C}_{ij} \hat{=} \bar{C}_{jU}, \bar{C}_{jP} \quad [\text{g/g sol.}]$ or $\bar{C}_{jP9} \quad [\text{atoms/g sol.}]$	26,52*, 53**,77 78,88,89*, 90**,99*, 100**,109, 110,111	*)for j=1 **)for j=2 and 3

Equation number	Equation	Reference equation number	Remarks
220	$\bar{C}_i = 1/3 * \sum_j \bar{C}_{ij}; \quad j = 1...3$ <p style="text-align: center;">[g/g sol.] or [atoms/g sol.]</p>	219	
220a	$\bar{C}_i = 1/2 * \sum_j \bar{C}_{ij}; \quad j = 2,3$ <p style="text-align: center;">[g/g sol.] or [atoms/g sol.]</p>	219	Refers only to measurements of samples AS II, IV and VI
221	$\bar{C} = 1/N * \sum_i \bar{C}_i; \quad i = 1...N$ <p style="text-align: center;">[g/g sol.] or [atoms/g sol.]</p>	220, 220a	
222	$SD\hat{r} = \sqrt{\frac{1}{2*N} \sum_{ij} (\bar{C}_{ij} - \bar{C}_i)^2}; \quad j = 1...3$ <p style="text-align: center;">[g/g sol.] or [atoms/g sol.]</p>	219, 220	
222a	$SD\hat{r} = \sqrt{\frac{1}{N} \sum_{ij} (\bar{C}_{ij} - \bar{C}_i)^2}; \quad j = 2,3$ <p style="text-align: center;">[g/g sol.] or [atoms/g sol.]</p>	219, 220a	Refers only to measurements of samples AS II, IV and VI
223	$RSD\hat{r} = 100 * SD\hat{r} / \bar{C} \quad [\%]$	221, 222, 222a	
224	$SD\hat{v} = \sqrt{\frac{1}{N-1} \sum_i (\bar{C}_i - \bar{C})^2 - \frac{1}{6*N} \sum_{ij} (\bar{C}_{ij} - \bar{C}_i)^2};$ <p style="text-align: center;"><math>j = 1...3</math> [g/g sol.] or [atoms/g sol.]</p>	219, 220, 221	
224a	$SD\hat{v} = \sqrt{\frac{1}{N-1} \sum_i (\bar{C}_i - \bar{C})^2 - \frac{1}{2*N} \sum_{ij} (\bar{C}_{ij} - \bar{C}_i)^2};$ <p style="text-align: center;"><math>j = 2,3</math> [g/g sol.] or [atoms/g sol.]</p>	219, 220a, 221	Refers only to measurements of samples AS II, IV and VI
225	$RSD\hat{v} = 100 * SD\hat{v} / \bar{C} \quad [\%]$	221, 224, 224a	
226	$RSD\hat{x} = (100/\bar{C}) * \sqrt{\frac{1}{N-1} \sum_i (\bar{C}_i - \bar{C})^2}$	220, 220a, 221	

## 2. Symbols used in the equations

### 2.1 Capital letters (except for sample descriptions)

- A.... isotope abundance in atom %
- C.... concentration (main isotope or element)
- $\Delta$ .... marks the relative deviation of a value, calculated by the evaluation staff, from the appropriate value calculated by the laboratory
- G.... mass of aliquot
- L.... value calculated by the laboratory
- N.... number of laboratories considered
- P.... plutonium
- R.... isotope ratio
- RSD.. relative standard deviation
- SD... standard deviation
- U.... uranium
- W.... isotope abundance in weight %

### 2.2 Lower case letters (constants and 'indices')

- a.... Avogadro's number<sup>1)</sup>
- i.... refers to laboratories i (i = 1,2,.....N)
- j.... refers to run j (j=1,2,3)
- k.... refers to scan k (k = 1....6)
- r.... indicates the uncertainty component 'run' (filament loading, spiking or redox procedure) of an individual laboratory
- $\hat{r}$ .... indicates the uncertainty component 'run' (filament loading, spiking or redox procedure) of a group of laboratories
- s.... indicates the uncertainty component 'scan' of an individual laboratory
- $\hat{s}$ .... indicates the uncertainty component 'scan' of a group of laboratories
- $\hat{v}$ .... indicates the uncertainty component 'between labs'
- w.... relative atomic mass<sup>1)</sup>
- $\hat{x}$ .... indicates the 'interlaboratory spread'

---

<sup>1)</sup> see Appendix B

## 2.3 Figures

single figure ... indicates an isotope of the element considered by its last figure

double figure ... indicates a specific isotope ratio; e.g. in case of plutonium, 89 denotes Pu-238/Pu-239

## 2.4 Other characters

single bar ... indicates a 'run mean' (see e.g. eq. 1)

double bar ... indicates a 'laboratory mean' (see e.g. eq. 2)

triple bar ... indicates a 'grand mean' (see e.g. eq. 203)

literals ..... a term (set into literals) means that it is a certified value<sup>1)</sup>

italics ..... are used for the description of sample materials, see par. 2.5

## 2.5 Descriptions of sample materials (alphabetic order; IDA-80 programme parts are given in brackets for reference)

*A1, A2,*

*A4, A6:* undiluted input solution A prespiked by CBNM with U-235/Pu-242 metal spike MUP in aliquotation number I, II, IV and VI, respectively (1.3)

*BL* B-solution spiked by laboratories with their own spike solutions (1.11, 1.12)

*BS* B-solution, commonly prespiked by CBNM with the mixed U-233/Pu-242 spike solution SUP (1.2)

*BU* unspiked diluted input solution B (1.11)

*MUP* metal spike used with solution A (1.3)

*PC* plutonium measurement of mixed U-233/Pu-242 spike solution SUP (2.3)

*PL* plutonium measurement of laboratories' own spike solutions LOS (1.11)

*RC* R-solution spiked by laboratories with the mixed U-233/Pu-242 spike solution SUP (2.3)

---

<sup>1)</sup> see Appendix B

*RL* R-solution spiked by laboratories with their own spike solutions (2.1)

*RS* R-solution, commonly prespiked by CBNM with the mixed U-233/Pu-242 spike solution SUP (2.2)

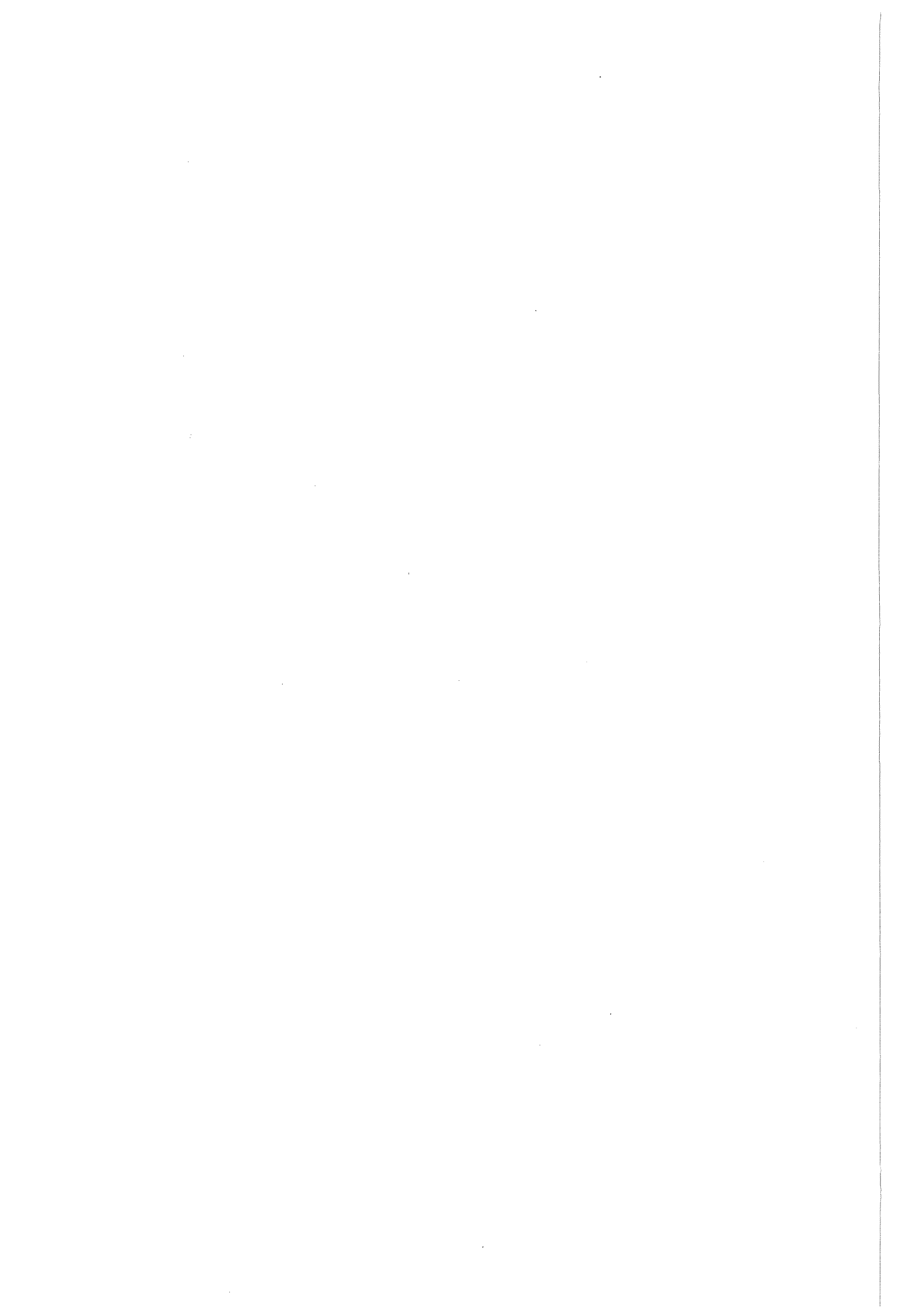
*RU* unspiked synthetic solution R (2.1)

*SUP* mixed spike solution used with solutions B and R (1.2, 2.2, 2.3)

*UC* uranium measurement of mixed U-233/Pu-242 spike solution SUP (2.3)

*UL* uranium measurement of laboratories' own spike solutions LOS (1.11)





Appendix B

Physical constants and  
certified values used  
in the calculations

Note

In this Annex the physical constants and certified values have been summarized which are used in this evaluation. These values were made available by the Central Bureau for Nuclear Measurements. Their origin or generation is described in detail in Vol. II of this Final Report /2/.

1. Physical constants<sup>1)</sup>

The following relative atomic masses and half-lives have been used for the isotopes:

Pu-238:	wP8 = 238.04956;	T <sub>1/2</sub> = 87.74 years
Pu-239:	wP9 = 239.05216;	T <sub>1/2</sub> = 24110 years
Pu-240:	wP0 = 240.05381;	T <sub>1/2</sub> = 6550 years
Pu-241:	wP1 = 241.05685;	T <sub>1/2</sub> = 14.4 years
Pu-242:	wP2 = 242.05874	
U-233:	wU3 = 233.03963	
U-234:	wU4 = 234.04095	
U-235:	wU5 = 235.04393	
U-236:	wU6 = 236.04556	
U-238:	wU8 = 238.05079	

Avogadro's number:  $a = 6.0220943 * 10^{23} \text{ mol}^{-1}$

2. Certified values<sup>2)</sup>

2.1 MUP metal spike

Concentration of spike isotope

'CU5MUP' =  $2.3596 * 10^{21}$  atoms U-235/g spike (p.56)

'CP2MUP' =  $6.3520 * 10^{18}$  atoms Pu-242/g spike (p.57)

Isotope ratio concerned

'R85MUP' = 0.06599 (U-238/U-235) (p.56; the U-235/U-238 ratio value is stated there)

'R92MUP' = 0.006392 (Pu-239/Pu-242) (p.57)

<sup>1)</sup> The symbols indicated refer to Appendix A. For the values, reference is made to Vol. II, p. 75 /2/.

<sup>2)</sup> Symbols used as in Appendix A. For reference the corresponding page numbers in Vol. II /2/ are given in brackets.

## 2.2 AS aliquotation (p.17)

Aliquotation I: 'GMUP1' = 0.25460 g MUP metal spike  
'GA1' = 1.4368 g sample solution A  
Aliquotation II: 'GMUP2' = 0.24530 g MUP metal spike  
'GA2' = 1.4283 g sample solution A  
Aliquotation IV: 'GMUP4' = 0.24989 g MUP metal spike  
'GA4' = 1.4384 g sample solution A  
Aliquotation VI: 'GMUP6' = 0.25041 g MUP metal spike  
'GA6' = 1.4309 g sample solution A

## 2.3 SUP spike solution

Concentration of spike isotope

'CU3SUP' =  $4.5291 * 10^{18}$  atoms U-233/g sol. (p.54)

'CP2SUP' =  $1.3736 * 10^{16}$  atoms Pu-242/g sol. (p.55)

Isotope ratio concerned

'R83SUP' = 0.000496 (U-238/U-233) (p.54)

'R92SUP' = 0.00298 (Pu-239/Pu-242) (p.55)

## 2.4 BS aliquotation

'GSUP' = 231.37 g SUP spike solution (p.12)

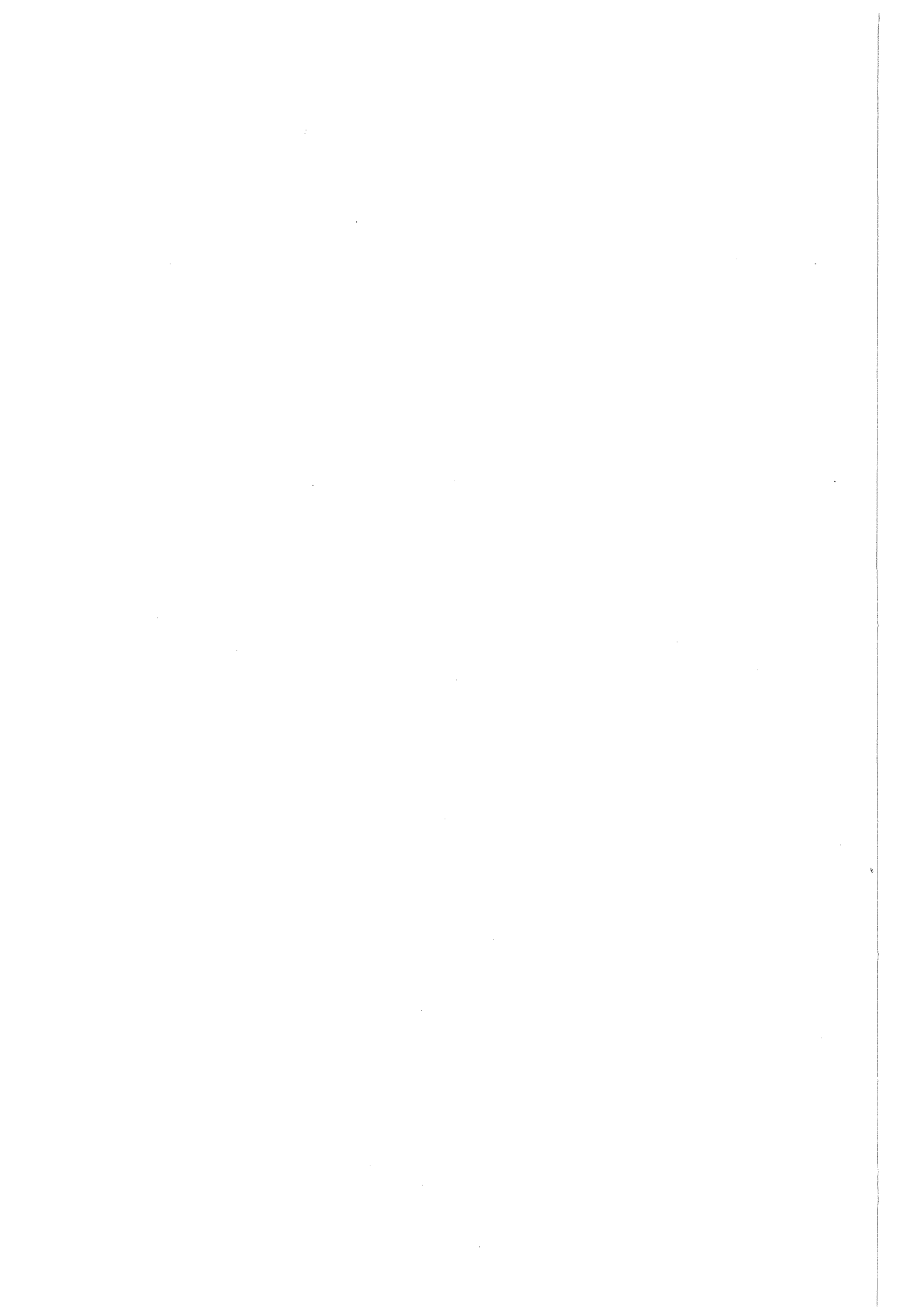
'GBU' = 238.89 g sample solution B (p.12)

## 2.5 RS aliquotation

'GSUP' = 232.91 g SUP spike solution (p. 23)

'GRU' = 232.83 g sample solution R (p. 23)

Remark: For the masses of the sample aliquots BUI, BUII and BUIII used in programme part 1.12 refer to Vol. II, p. 11 /2/. Being specific for each laboratory the values were made available to each participant separately.



Appendix C

Example for a set of  
evaluation data related  
to a single laboratory

<u>Table of contents</u>	<u>Page</u>
1. Introduction	252
2. Presentation of evaluation results	253
Notes	253

Table number  
uranium/plutonium

Programme part 1.11 (Analysis of  
B-solution, liquid laboratory-own spike)

ISOTOPE RATIOS of the unspiked B-solution (BU)	1 / 12	254/265
ISOTOPE RATIOS of the spiked B-solution (BL)	2 / 13	255/266
ISOTOPE RATIOS of the laboratory-own spike solution (LOS)	3 / 14	256/267
ISOTOPE ABUNDANCES of the unspiked B-solution (BU)	4 / 15	257/268
CONCENTRATION of solution B	5 / 16	258/269

Programme part 1.12 (Analysis of  
B-solution, dried, laboratory-own spike)

ISOTOPE RATIOS of the spiked B-solution (BL)	6 / 17	259/270
CONCENTRATION of solution B	7 / 18	260/271

Programme part 1.2 (Analysis of  
B-solution, liquid, prespiked by CBNM with  
SUP-spike solution)

ISOTOPE RATIOS of the prespiked B-solution (BS)	8 / 19	261/272
CONCENTRATION of solution B	9 / 20	262/273





## 1. Introduction

For completeness of documentation, this Appendix presents an example of the complete set of evaluation data generated individually for each participating laboratory from its measurement results reported<sup>1)</sup>. These evaluation data have been summarized in tables having the form of computer printouts. In general, mean values and standard deviations were calculated for all isotope ratios determined in the various parts of the experiment as well as for the isotope abundances and the concentrations derived from these measurements. It was attempted to make these compilations of results as self-explanatory as possible. They are followed by 'guiding tables' (Chapt. 3) to facilitate the search of the equations in Appendix A of this report related to the individual values<sup>2)</sup>.

---

1) The numerical values used in this example were chosen arbitrarily.

2) For example, in Chapter 2 of this Appendix, table 5 (page 258), column 3, a laboratory mean value is given for the uranium concentration of solution B: In the guiding table on page 294 the corresponding equation number is found to be '28'; under this number the equation itself is found in Appendix A (page 230). (The symbols used in the equation are explained in Chapt. 2 of Appendix A.)

2. Presentation of evaluation results

Notes:

- 1) The run mean values of the isotope ratios given in the following tables were calculated using the first six non-outlier values of the eight scan values reported. (In case outliers had been marked by the laboratory, these values have been placed at the end.)
- 2) Isotope ratios below  $10^{-6}$  or not reported at all show up as 0.000000 (likewise standard deviations derived from them).
- 3) The standard deviation 'run' of isotope ratios has been calculated by variance analysis (see Appendix A, eq. 5). If zero is printed out, the value calculated is zero or imaginary; it is customary to consider the standard deviation 'run' in such cases as not significant (relatively to the standard deviation 'scan').
- 4) If the Pu-238/Pu-239 ratio was obtained using  $\alpha$ -spectrometry, please refer to Chapt. 2.1 of this report for the interpretation of the standard deviation 'run' of this ratio. No standard deviation 'scan' can be calculated in this case and, therefore, zero is printed out.

IDA-80/TABLE 1 : COMPILATION OF LABORATORY RELATED EVALUATION RESULTS FOR PART 1.11

\*\*\*\*\*

ELEMENT: URANIUM  
 TOPIC: ISOTOPE RATIOS  
 SAMPLE: BU (LIQUID B-SOLUTION, UNSPIKED)  
 REFERENCES: DATA SHEETS I-01; I-02; I-03

\*\*\*\*\*

1 2 3 4 5 6 7 8 9 10  
 \*\*\*\*\*

ISOT. RATIO	FILAM. LOADING (RUN)	RUN MEAN	LABORATORY MEAN	SD 'SCAN'	RSD 'SCAN' (%)	SD 'RUN'	RSD 'RUN' (%)	RSD 'SCAN PLUS RUN' (%)	RSD OF LABORATORY MEAN (%)
-------------	----------------------	----------	-----------------	-----------	----------------	----------	---------------	-------------------------	----------------------------

\*\*\*\*\*

U-233/U-238	1	0.000E+00							
	2	0.000E+00	0.000E+00	0.000E+00	0.00	0.000E+00	0.00	0.00	0.00
	3	0.000E+00							
U-234/U-238	1	9.367E-05							
	2	9.417E-05	9.367E-05	2.840E-06	3.03	0.000E+00	0.00	3.03	0.71
	3	9.317E-05							
U-235/U-238	1	5.768E-03							
	2	5.766E-03	5.767E-03	1.132E-05	0.20	0.000E+00	0.00	0.20	0.05
	3	5.767E-03							
U-236/U-238	1	1.821E-03							
	2	1.823E-03	1.822E-03	1.119E-05	0.61	0.000E+00	0.00	0.61	0.14
	3	1.822E-03							

\*\*\*\*\*

IDA-80/TABLE 2 : COMPILATION OF LABORATORY RELATED EVALUATION  
 \*\*\*\*\* RESULTS FOR PART 1.11

ELEMENT: URANIUM  
 TOPIC: ISOTOPE RATIOS  
 SAMPLE: BL(LIQUID B-SOLUTION, SPIKED BY LAB WITH OWN SPIKE)  
 REFERENCES: DATA SHEETS I-07; I-09; I-11

\*\*\*\*\*  
 1 2 3 4 5 6 7  
 \*\*\*\*\*

ISOT. RATIO	SPIKING (RUN)	RUN MEAN	SD 'SCAN'	RSD PER RUN (%)	SD 'SCAN'	RSD PER LAB (%)
*****						
U-233/U-238	1	9.759E-01	1.917E-03	0.20		
	2	9.558E-01	1.146E-03	0.12	1.415E-03	0.15
	3	9.974E-01	1.007E-03	0.10		
U-234/U-238	1	8.531E-03	2.075E-05	0.24		
	2	8.299E-03	1.727E-05	0.21	2.034E-05	0.24
	3	8.673E-03	2.264E-05	0.26		
U-235/U-238	1	5.925E-03	1.675E-05	0.28		
	2	5.938E-03	3.256E-05	0.55	2.313E-05	0.39
	3	5.934E-03	1.628E-05	0.27		
U-236/U-238	1	1.813E-03	1.044E-05	0.58		
	2	1.815E-03	7.239E-06	0.40	8.870E-06	0.49
	3	1.813E-03	8.635E-06	0.48		
*****						

IDA-80/TABLE 3 : COMPILATION OF LABORATORY RELATED EVALUATION RESULTS FOR PART 1.11

\*\*\*\*\*

ELEMENT: URANIUM  
 TOPIC: ISOTOPE RATIOS  
 SAMPLE: LAB OWN SPIKE  
 REFERENCES: DATA SHEETS I-13; I-14; I-15

\*\*\*\*\*

1 2 3 4 5 6 7 8 9 10  
 \*\*\*\*\*

ISOT. RATIO	FILAM. LOADING (RUN)	RUN MEAN	LABORATORY MEAN	SD 'SCAN'	RSD 'SCAN' (%)	SD 'RUN'	RSD 'RUN' (%)	RSD 'SCAN PLUS RUN' (%)	RSD OF LABORATORY MEAN (%)
-------------	----------------------	----------	-----------------	-----------	----------------	----------	---------------	-------------------------	----------------------------

\*\*\*\*\*

U-234/U-233	1	8.595E-03							
	2	8.581E-03	8.583E-03	2.923E-05	0.34	0.000E+00	0.00	0.34	0.08
	3	8.573E-03							
U-235/U-233	1	2.160E-04							
	2	2.172E-04	2.170E-04	9.351E-06	4.31	0.000E+00	0.00	4.31	1.02
	3	2.178E-04							
U-236/U-233	1	0.000E+00							
	2	0.000E+00	0.000E+00	0.000E+00	0.00	0.000E+00	0.00	0.00	0.00
	3	0.000E+00							
U-238/U-233	1	8.658E-03							
	2	8.624E-03	8.637E-03	3.130E-05	0.36	1.310E-05	0.15	0.39	0.12
	3	8.628E-03							

\*\*\*\*\*

IDA-80/TABLE 4 : COMPILATION OF LABORATORY RELATED EVALUATION RESULTS FOR PART 1.11

\*\*\*\*\*

ELEMENT: URANIUM  
 TOPIC: ISOTOPE ABUNDANCES  
 SAMPLE: BU (LIQUID B-SOLUTION, UNSPIKED)  
 REFERENCES: RESULTS TABLE 1 AND DATA SHEET I-20

\*\*\*\*\*

1 2 3 4 5 6 7  
 \*\*\*\*\*

	FILAM. LOADING (RUN)	U-233	U-234	U-235	U-236	U-238
--	----------------------------	-------	-------	-------	-------	-------

\*\*\*\*\*

ATOM-%						
*****	1	0.0000	0.0093	0.5724	0.1807	99.2375
	2	0.0000	0.0093	0.5722	0.1809	99.2375
	3	0.0000	0.0092	0.5724	0.1808	99.2376

LAB MEAN VALUE		0.0000	0.0093	0.5723	0.1808	99.2376
SD (° RUN°)		0.0000	0.0000	0.0001	0.0001	0.0000
RSD (° RUN°) (%)		0.00	0.53	0.02	0.06	0.00
RSD OF LAB MEAN (%)		0.00	0.31	0.01	0.04	0.00

\*\*\*\*\*

WEIGHT-%						
*****	1	0.0000	0.0091	0.5653	0.1792	99.2464
	2	0.0000	0.0092	0.5650	0.1794	99.2464
	3	0.0000	0.0091	0.5652	0.1793	99.2464

LAB MEAN VALUE		0.0000	0.0091	0.5651	0.1793	99.2464
SD (° RUN°)		0.0000	0.0000	0.0001	0.0001	0.0000
RSD (° RUN°) (%)		0.00	0.53	0.02	0.06	0.00
RSD OF LAB MEAN (%)		0.00	0.31	0.01	0.04	0.00

LAB. CALC. DEVIATION (%)			0.00850 7.52	0.57400 -1.54	0.16700 7.37	99.24700 -0.00
-----------------------------	--	--	-----------------	------------------	-----------------	-------------------

\*\*\*\*\*

IDA-80/TABLE 5 : COMPILATION OF LABORATORY RELATED EVALUATION  
 \*\*\*\*\* RESULTS FOR PART 1.11

ELEMENT: URANIUM  
 TOPIC: CONCENTRATION OF SOLUTION B  
 PROCEDURE: LIQUID SAMPLE, SPIKED BY LAB WITH OWN SPIKE  
 REFERENCES: RESULTS TABLES 1 TO 4 AND DATA SHEET I-20

\*\*\*\*\*  
 1 2 3  
 \*\*\*\*\*

SPIKING (RUN)	U-238 CONC. ATOMS/G SOL.	U-ELEM. CONC. G/G SOL.
1	5.197E+18	2.070E-03
2	5.174E+18	2.061E-03
3	5.161E+18	2.055E-03
<hr/>		
LAB MEAN	5.177E+18	2.062E-03
SD ('RUN')	1.856E+16	7.393E-06
RSD ('RUN') (%)	0.36	0.36
RSD OF LAB MEAN (%)	0.21	0.21
LAB. CALC. DEVIATION (%)		2.072E-03 -0.49

\*\*\*\*\*

IDA-80/TABLE 6 : COMPILATION OF LABORATORY RELATED EVALUATION  
 \*\*\*\*\* RESULTS FOR PART 1.12

ELEMENT: URANIUM  
 TOPIC: ISOTOPE RATIOS  
 SAMPLE: BL (DRIED B-SOLUTION, SPIKED BY LAB WITH OWN SPIKE)  
 REFERENCES: DATA SHEETS II-01; II-03; II-05

\*\*\*\*\*

1 2 3 4 5 6 7  
 \*\*\*\*\*

ISOT. RATIO	SPIKING (RUN)	RUN MEAN	SD 'SCAN'	RSD PER RUN (%)	SD 'SCAN'	RSD PER LAB (%)
-------------	---------------	----------	-----------	-----------------	-----------	-----------------

\*\*\*\*\*

U-233/U-238	1	7.126E-01	1.329E-03	0.19		
	2	7.141E-01	1.277E-03	0.18	2.827E-03	0.40
	3	7.116E-01	4.537E-03	0.64		
U-234/U-238	1	6.193E-03	3.066E-05	0.50		
	2	6.170E-03	1.521E-05	0.25	2.084E-05	0.34
	3	6.184E-03	1.148E-05	0.19		
U-235/U-238	1	5.882E-03	1.005E-05	0.17		
	2	5.865E-03	2.261E-05	0.39	1.969E-05	0.33
	3	5.912E-03	2.346E-05	0.40		
U-236/U-238	1	1.815E-03	1.107E-05	0.61		
	2	1.799E-03	1.470E-05	0.82	1.228E-05	0.68
	3	1.827E-03	1.068E-05	0.58		

\*\*\*\*\*



IDA-80/TABLE 7 : COMPILATION OF LABORATORY RELATED EVALUATION  
 \*\*\*\*\* RESULTS FOR PART 1.12

ELEMENT: URANIUM  
 TOPIC: CONCENTRATION OF SOLUTION B  
 PROCEDURE: DRIED SAMPLE ALIQUOTS, SPIKED BY LAB WITH OWN SPIKE  
 REFERENCES: RESULTS TABLES 1,3,4 AND 6

```
*****
      1                2                3
*****
```

SPIKING ( RUN )	U-238 CONC. ATOMS/G SOL.	U-ELEM. CONC. G/G SOL.
1	5.258E+18	2.094E-03
2	5.167E+18	2.058E-03
3	5.226E+18	2.082E-03
LAB MEAN	5.217E+18	2.078E-03
SD ( ° RUN ° )	4.599E+16	1.832E-05
RSD ( ° RUN ° ) (%)	0.88	0.88
RSD OF LAB MEAN (%)	0.51	0.51

```
*****
```

IDA-80/TABLE 8 : COMPILATION OF LABORATORY RELATED EVALUATION RESULTS FOR PART 1.2

\*\*\*\*\*

ELEMENT: URANIUM  
 TOPIC: ISOTOPE RATIOS  
 SAMPLE: BS (LIQUID B-SOLUTION, COMMONLY PRESPIKED BY CBNM)  
 REFERENCES: DATA SHEETS III-01; III-03; III-05

\*\*\*\*\*

1 2 3 4 5 6 7 8 9 10  
 \*\*\*\*\*

ISOT. RATIO	REDOX NUMBER (RUN)	RUN MEAN	LABORATORY MEAN	SD 'SCAN'	RSD 'SCAN' (%)	SD 'RUN'	RSD 'RUN' (%)	RSD 'SCAN PLUS RUN' (%)	RSD OF LABORATORY MEAN (%)
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\*\*\*\*\*

U-233/U-238	1	8.581E-01							
	2	8.550E-01	8.573E-01	1.302E-03	0.15	1.890E-03	0.22	0.27	0.13
	3	8.587E-01							
U-234/U-238	1	2.114E-03							
	2	2.113E-03	2.114E-03	7.707E-06	0.36	0.000E+00	0.00	0.36	0.09
	3	2.115E-03							
U-235/U-238	1	5.878E-03							
	2	5.873E-03	5.876E-03	2.085E-05	0.35	0.000E+00	0.00	0.35	0.08
	3	5.878E-03							
U-236/U-238	1	1.815E-03							
	2	1.816E-03	1.816E-03	8.441E-06	0.46	0.000E+00	0.00	0.46	0.11
	3	1.816E-03							

\*\*\*\*\*

IDA-80/TABLE 9 : COMPILATION OF LABORATORY RELATED EVALUATION  
 \*\*\*\*\* RESULTS FOR PART 1.2

ELEMENT: URANIUM  
 TOPIC: CONCENTRATION OF SOLUTION B  
 PROCEDURE: LIQUID SAMPLE, COMMONLY PRESPIKED BY CBNM  
 REFERENCES: RESULTS TABLES 1, 4 AND 8

\*\*\*\*\*  
 1 2 3  
 \*\*\*\*\*

REDOX (RUN)	U-238 CONC. ATOMS/G SOL.	U-ELEM. CONC. G/G SOL.
1	5.119E+18	2.039E-03
2	5.138E+18	2.046E-03
3	5.116E+18	2.038E-03
LAB MEAN	5.124E+18	2.041E-03
SD (° RUN°)	1.175E+16	4.681E-06
RSD (° RUN°) (%)	0.23	0.23
RSD OF LAB MEAN (%)	0.13	0.13

\*\*\*\*\*

NOTE: CALCULATED USING THE CBNM VALUES OF THE SUP-SPIKE SOLUTION  
 \*\*\*\*\*

IDA-80/TABLE 10 : COMPILATION OF LABORATORY RELATED EVALUATION RESULTS FOR PART 1.3

\*\*\*\*\*

ELEMENT: URANIUM  
 TOPIC: ISOTOPE RATIOS  
 SAMPLE: AS (A-SOLUTION, PRESPIKED BY CBNM WITH SOLID SPIKE AND DRIED)  
 REFERENCES: DATA SHEETS IV-01; IV-03; IV-05

\*\*\*\*\*

1	2	3	4	5	6	7	8	9
ISOT. RATIO	SAMPLE IDENT. (1)	RUN MEAN	SD 'SCAN PER RUN'	LABORATORY MEAN (2)	RSD 'SCAN' (%) (2)	RSD 'RUN' (%) (2)	RSD 'SCAN PLUS RUN' (%) (2)	RSD OF LAB MEAN (2)
U-233/U-238	A1/1	0.000E+00	0.000E+00					
	A4/2	0.000E+00	0.000E+00	]= 0.000E+00	0.00	0.00	0.00	0.00
	A4/3	0.000E+00	0.000E+00					
U-234/U-238	A1/1	7.878E-03	9.973E-06					
	A4/2	7.692E-03	1.328E-05	]= 7.707E-03	0.17	0.25	0.30	0.18
	A4/3	7.721E-03	1.225E-05					
U-235/U-238	A1/1	9.304E-01	1.378E-03					
	A4/2	9.135E-01	1.871E-03	]= 9.136E-01	0.17	0.00	0.17	0.05
	A4/3	9.136E-01	1.260E-03					
U-236/U-238	A1/1	3.961E-03	1.693E-05					
	A4/2	3.876E-03	4.457E-06	]= 3.899E-03	0.13	0.85	0.86	0.60
	A4/3	3.923E-03	5.888E-06					

\*\*\*\*\*

- (1) THE FIRST FIGURE DENOTES THE SPIKING PROCEDURE,  
 THE SECOND FIGURE IS A RUNNING NUMBER ATTRIBUTED TO THE SAMPLE VIAL.  
 (2) BASED ON THE TWO SAMPLES ORIGINATING FROM THE SAME SPIKING PROCEDURE

IDA-80/TABLE 11 : COMPILATION OF LABORATORY RELATED EVALUATION  
 \*\*\*\*\* RESULTS FOR PART 1.3

ELEMENT: URANIUM  
 TOPIC: CONCENTRATION OF SOLUTION A  
 PROCEDURE: A-SOLUTION, PRESPIKED BY CBNM WITH SOLID SPIKE AND DRIED  
 REFERENCES: RESULTS TABLES 1, 4 AND 10

\*\*\*\*\*  
 1 2 3  
 \*\*\*\*\*

SAMPLE IDENT.	U-238 CONC. ATOMS/G SOL.	U-ELEM. CONC. G/G SOL.
A1/1	4.245E+20	1.691E-01
A4/2	4.244E+20	1.690E-01
A4/3	4.243E+20	1.690E-01
LAB MEAN	4.244E+20 ( 4.244E+20)	1.690E-01 ( 1.690E-01)
SD (°RUN°)	6.524E+16 ( 5.274E+16)	2.598E-05 ( 2.101E-05)
RSD (°RUN°) (%)	0.02 ( 0.01)	0.02 ( 0.01)
RSD OF LAB MEAN (%)	0.01 ( 0.01)	0.01 ( 0.01)

\*\*\*\*\*

NOTE: VALUES IN BRACKETS ARE BASED ONLY ON THE TWO SAMPLES ORIGINATING  
 \*\*\*\*\* FROM THE SAME SPIKING PROCEDURE

IDA-80/TABLE 12 : COMPILATION OF LABORATORY RELATED EVALUATION RESULTS FOR PART 1.11

\*\*\*\*\*

ELEMENT: PLUTONIUM  
 TOPIC: ISOTOPE RATIOS  
 SAMPLE: BU (LIQUID B-SOLUTION, UNSPIKED)  
 REFERENCES: DATA SHEETS I-04; I-05; I-06

\*\*\*\*\*

1 2 3 4 5 6 7 8 9 10  
 \*\*\*\*\*

ISOT. RATIO	FILAM. LOADING (RUN)	RUN MEAN	LABORATORY MEAN	SD 'SCAN'	RSD 'SCAN' (%)	SD 'RUN'	RSD 'RUN' (%)	RSD 'SCAN PLUS RUN' (%)	RSD OF LABORATORY MEAN (%)
-------------	----------------------	----------	-----------------	-----------	----------------	----------	---------------	-------------------------	----------------------------

\*\*\*\*\*

PU-238/PU-239	1	2.995E-03							
	2	2.996E-03	2.996E-03	0.000E+00	0.00	5.090E-07	0.02	0.02	0.01
	3	2.995E-03							
PU-240/PU-239	1	3.699E-01							
	2	3.700E-01	3.699E-01	1.479E-03	0.40	0.000E+00	0.00	0.40	0.09
	3	3.698E-01							
PU-241/PU-239	1	4.791E-02							
	2	4.797E-02	4.791E-02	1.488E-04	0.31	0.000E+00	0.00	0.31	0.07
	3	4.785E-02							
PU-242/PU-239	1	2.475E-02							
	2	2.473E-02	2.472E-02	6.655E-05	0.27	2.553E-05	0.10	0.29	0.09
	3	2.468E-02							

\*\*\*\*\*

IDA-80/TABLE 13 : COMPILATION OF LABORATORY RELATED EVALUATION  
 \*\*\*\*\* RESULTS FOR PART 1.11

ELEMENT: PLUTONIUM  
 TOPIC: ISOTOPE RATIOS  
 SAMPLE: BL(LIQUID B-SOLUTION, SPIKED BY LAB WITH OWN SPIKE)  
 REFERENCES: DATA SHEETS I-08; I-10; I-12

\*\*\*\*\*  
 1 2 3 4 5 6 7  
 \*\*\*\*\*

ISOT. RATIO	SPIKING (RUN)	RUN MEAN	SD 'SCAN'	RSD PER RUN	SD 'SCAN'	RSD PER LAB
				(%)		(%)

\*\*\*\*\*

PU-238/PU-239 MEASUREMENT OF THIS RATIO WAS NOT REQUESTED

PU-240/PU-239	1	3.718E-01	7.960E-04	0.21		
	2	3.725E-01	1.310E-03	0.35	1.230E-03	0.33
	3	3.715E-01	1.480E-03	0.40		
PU-241/PU-239	1	4.868E-02	7.601E-05	0.16		
	2	4.882E-02	1.334E-04	0.27	9.911E-05	0.20
	3	4.864E-02	7.679E-05	0.16		
PU-242/PU-239	1	1.597E+00	1.501E-03	0.09		
	2	1.557E+00	2.159E-03	0.14	2.111E-03	0.13
	3	1.627E+00	2.540E-03	0.16		

\*\*\*\*\*

IDA-80/TABLE 14 : COMPILATION OF LABORATORY RELATED EVALUATION RESULTS FOR PART 1.11

\*\*\*\*\*

ELEMENT: PLUTONIUM  
 TOPIC: ISOTOPE RATIOS  
 SAMPLE: LAB OWN SPIKE  
 REFERENCES: DATA SHEETS I-16; I-17; I-18

\*\*\*\*\*

1 2 3 4 5 6 7 8 9 10  
 \*\*\*\*\*

ISOT. RATIO	FILAM. LOADING (RUN)	RUN MEAN	LABORATORY MEAN	SD 'SCAN'	RSD 'SCAN' (%)	SD 'RUN'	RSD 'RUN' (%)	RSD 'SCAN PLUS RUN' (%)	RSD OF LABORATORY MEAN (%)
-------------	----------------------	----------	-----------------	-----------	----------------	----------	---------------	-------------------------	----------------------------

\*\*\*\*\*

PU-238/PU-242 MEASUREMENT OF THIS RATIO WAS NOT REQUESTED

PU-239/PU-242	1	2.130E-04							
	2	2.042E-04	2.087E-04	6.971E-06	3.34	3.386E-06	1.62	3.71	1.22
	3	2.090E-04							
PU-240/PU-242	1	8.495E-04							
	2	8.472E-04	8.477E-04	4.047E-06	0.48	0.000E+00	0.00	0.48	0.11
	3	8.463E-04							
PU-241/PU-242	1	5.384E-04							
	2	5.365E-04	5.390E-04	7.203E-06	1.34	6.754E-08	0.01	1.34	0.32
	3	5.423E-04							

\*\*\*\*\*



IDA-80/TABLE 15 : COMPILATION OF LABORATORY RELATED EVALUATION RESULTS FOR PART 1.11

\*\*\*\*\*

ELEMENT: PLUTONIUM  
 TOPIC: ISOTOPE ABUNDANCES  
 SAMPLE: BU (LIQUID B-SOLUTION, UNSPIKED)  
 REFERENCES: RESULTS TABLE 12 AND DATA SHEET I-20

\*\*\*\*\*

1 2 3 4 5 6 7  
 \*\*\*\*\*

	FILAM. LOADING (RUN)	PU-238	PU-239	PU-240	PU-241	PU-242
*****						
ATOM-%						
*****	1	0.2072	69.1780	25.5878	3.3145	1.7125
	2	0.2072	69.1700	25.5941	3.3181	1.7106
	3	0.2072	69.1885	25.5859	3.3107	1.7077
-----						
LAB MEAN VALUE		0.2072	69.1788	25.5892	3.3145	1.7103
SD ('RUN')		0.0000	0.0093	0.0043	0.0037	0.0024
RSD ('RUN') (%)		0.00	0.01	0.02	0.11	0.14
RSD OF LAB MEAN (%)		0.00	0.01	0.01	0.06	0.08
*****						
WEIGHT-%						
*****	1	0.2060	69.0704	25.6551	3.3371	1.7313
	2	0.2060	69.0625	25.6613	3.3407	1.7294
	3	0.2060	69.0810	25.6532	3.3333	1.7265
-----						
LAB MEAN VALUE		0.2060	69.0713	25.6565	3.3371	1.7291
SD ('RUN')		0.0000	0.0093	0.0043	0.0037	0.0024
RSD ('RUN') (%)		0.00	0.01	0.02	0.11	0.14
RSD OF LAB MEAN (%)		0.00	0.01	0.01	0.06	0.08
-----						
LAB. CALC. DEVIATION (%)		0.2060	69.0710	25.6590	3.3290	1.7310
		0.02	0.00	-0.01	0.24	-0.11
*****						

IDA-80/TABLE 16 : COMPILATION OF LABORATORY RELATED EVALUATION  
 \*\*\*\*\* RESULTS FOR PART 1.11

ELEMENT: PLUTONIUM  
 TOPIC: CONCENTRATION OF SOLUTION B  
 PROCEDURE: LIQUID SAMPLE, SPIKED BY LAB WITH OWN SPIKE  
 REFERENCES: RESULTS TABLES 12 TO 15 AND DATA SHEET I-20

\*\*\*\*\*  
 1 2 3  
 \*\*\*\*\*

SPIKING (RUN)	PU-239 CONC. ATOMS/G SOL.	PU-ELEM. CONC. MG/G SOL.
1	1.257E+16	7.224E-03
2	1.258E+16	7.229E-03
3	1.252E+16	7.197E-03
LAB MEAN	1.256E+16	7.217E-03
SD (' RUN')	2.953E+13	1.697E-05
RSD (' RUN') (%)	0.24	0.24
RSD OF LAB MEAN (%)	0.14	0.14
LAB. CALC. DEVIATION (%)		7.201E-03 0.22

\*\*\*\*\*

IDA-80/TABLE 17 : COMPILATION OF LABORATORY RELATED EVALUATION  
 \*\*\*\*\* RESULTS FOR PART 1.12

ELEMENT: PLUTONIUM  
 TOPIC: ISOTOPE RATIOS  
 SAMPLE: BL (DRIED B-SOLUTION, SPIKED BY LAB WITH OWN SPIKE)  
 REFERENCES: DATA SHEETS II-02; II-04; II-06

\*\*\*\*\*  
 1 2 3 4 5 6 7  
 \*\*\*\*\*

ISOT. RATIO	SPIKING (RUN)	RUN MEAN	SD 'SCAN'	RSD PER RUN (%)	SD 'SCAN'	RSD PER LAB (%)
----------------	------------------	----------	--------------	-----------------------	--------------	-----------------------

\*\*\*\*\*

PU-238/PU-239 MEASUREMENT OF THIS RATIO WAS NOT REQUESTED

PU-240/PU-239	1	3.718E-01	7.055E-04	0.19	8.544E-04	0.23
	2	3.727E-01	8.430E-04	0.23		
	3	3.722E-01	9.908E-04	0.27		
PU-241/PU-239	1	4.841E-02	3.822E-05	0.08	7.297E-05	0.15
	2	4.849E-02	6.168E-05	0.13		
	3	4.870E-02	1.035E-04	0.21		
PU-242/PU-239	1	1.164E+00	4.887E-04	0.04	1.764E-03	0.15
	2	1.163E+00	2.652E-03	0.23		
	3	1.160E+00	1.436E-03	0.12		

\*\*\*\*\*

IDA-80/TABLE 18 : COMPILATION OF LABORATORY RELATED EVALUATION  
 \*\*\*\*\* RESULTS FOR PART 1.12

ELEMENT: PLUTONIUM  
 TOPIC: CONCENTRATION OF SOLUTION B  
 PROCEDURE: DRIED SAMPLE ALIQUOTS, SPIKED BY LAB WITH OWN SPIKE  
 REFERENCES: RESULTS TABLES 12,14,15 AND 17

\*\*\*\*\*  
 1 2 3  
 \*\*\*\*\*

SPIKING (RUN)	PU-239 CONC. ATOMS/G SOL.	PU-ELEM. CONC. MG/G SOL.
1	1.279E+16	7.349E-03
2	1.260E+16	7.243E-03
3	1.274E+16	7.322E-03
LAB MEAN	1.271E+16	7.305E-03
SD ('RUN')	9.606E+13	5.520E-05
RSD ('RUN') (%)	0.76	0.76
RSD OF LAB MEAN (%)	0.44	0.44

\*\*\*\*\*

IDA-80/TABLE 19 : COMPILATION OF LABORATORY RELATED EVALUATION RESULTS FOR PART 1.2

\*\*\*\*\*

ELEMENT: PLUTONIUM  
 TOPIC: ISOTOPE RATIOS  
 SAMPLE: BS (LIQUID B-SOLUTION, COMMONLY PRESPIKED BY CBNM)  
 REFERENCES: DATA SHEETS III-02; III-04; III-06

\*\*\*\*\*

	1	2	3	4	5	6	7	8	9	10
ISOT. RATIO	REDOX NUMBER (RUN)	RUN MEAN	LABORATORY MEAN	SD 'SCAN'	RSD 'SCAN' (%)	SD 'RUN'	RSD 'RUN' (%)	RSD 'SCAN PLUS RUN' (%)	RSD OF LABORATORY MEAN (%)	

\*\*\*\*\*

PU-238/PU-239 MEASUREMENT OF THIS RATIO WAS NOT REQUESTED

PU-240/PU-239	1	4.724E-01							
	2	4.733E-01	4.729E-01	4.754E-04	0.10	4.071E-04	0.09	0.13	0.06
	3	4.731E-01							
PU-241/PU-239	1	7.460E-02							
	2	7.410E-02	7.422E-02	2.256E-04	0.30	3.303E-04	0.44	0.54	0.27
	3	7.395E-02							
PU-242/PU-239	1	1.084E+00							
	2	1.084E+00	1.084E+00	1.355E-03	0.12	0.000E+00	0.00	0.12	0.03
	3	1.084E+00							

\*\*\*\*\*

IDA-80/TABLE 20 : COMPILATION OF LABORATORY RELATED EVALUATION  
 \*\*\*\*\* RESULTS FOR PART 1.2

ELEMENT: PLUTONIUM  
 TOPIC: CONCENTRATION OF SOLUTION B  
 PROCEDURE: LIQUID SAMPLE, COMMONLY PRESPIKED BY CBNM  
 REFERENCES: RESULTS TABLES 12,15, AND 19

\*\*\*\*\*  
 1 2 3  
 \*\*\*\*\*

REDOX ( RUN )	PU-239 CONC. ATOMS/G SOL.	PU-ELEM. CONC. MG/G SOL.
1	1.254E+16	7.210E-03
2	1.255E+16	7.210E-03
3	1.255E+16	7.210E-03
LAB MEAN	1.255E+16	7.210E-03
SD ( ' RUN' )	7.155E+11	4.112E-07
RSD ( ' RUN' ) (%)	0.01	0.01
RSD OF LAB MEAN (%)	0.00	0.00

\*\*\*\*\*

NOTE: CALCULATED USING THE CBNM VALUES OF THE SUP-SPIKE SOLUTION  
 \*\*\*\*\*

IDA-80/TABLE 21 : COMPILATION OF LABORATORY RELATED EVALUATION RESULTS FOR PART 1.3

\*\*\*\*\*

ELEMENT: PLUTONIUM  
 TOPIC: ISOTOPE RATIOS  
 SAMPLE: AS (A-SOLUTION, PRESPIKED BY CBNM WITH SOLID SPIKE AND DRIED)  
 REFERENCES: DATA SHEETS IV-02; IV-04; IV-06

\*\*\*\*\*

1 2 3 4 5 6 7 8 9  
 \*\*\*\*\*

ISOT. RATIO	SAMPLE IDENT. (1)	RUN MEAN	SD 'SCAN PER RUN'	LABORATORY MEAN (2)	RSD 'SCAN' (%) (2)	RSD 'RUN' (%) (2)	RSD 'SCAN PLUS RUN' (%) (2)	RSD OF LAB MEAN (2)
-------------	-------------------	----------	-------------------	---------------------	--------------------	-------------------	-----------------------------	---------------------

\*\*\*\*\*

PU-238/PU-239 MEASUREMENT OF THIS RATIO WAS NOT REQUESTED

PU-240/PU-239	A1/1	4.748E-01	1.124E-03	]= 4.711E-01	0.23	0.00	0.23	0.07
	A4/2	4.711E-01	8.565E-04					
	A4/3	4.712E-01	1.305E-03					
PU-241/PU-239	A1/1	7.461E-02	2.231E-04	]= 7.369E-02	0.17	0.00	0.17	0.05
	A4/2	7.372E-02	1.385E-04					
	A4/3	7.367E-02	1.099E-04					
PU-242/PU-239	A1/1	1.103E+00	3.178E-03	]= 1.075E+00	0.10	0.02	0.10	0.03
	A4/2	1.076E+00	9.746E-04					
	A4/3	1.075E+00	1.182E-03					

\*\*\*\*\*

- (1) THE FIRST FIGURE DENOTES THE SPIKING PROCEDURE,  
 THE SECOND FIGURE IS A RUNNING NUMBER ATTRIBUTED TO THE SAMPLE VIAL.
- (2) BASED ON THE TWO SAMPLES ORIGINATING FROM THE SAME SPIKING PROCEDURE

IDA-80/TABLE 22 : COMPILATION OF LABORATORY RELATED EVALUATION  
 \*\*\*\*\* RESULTS FOR PART 1.3

ELEMENT: PLUTONIUM  
 TOPIC: CONCENTRATION OF SOLUTION A  
 PROCEDURE: A-SOLUTION, PRESPIKED BY CBNM WITH SOLID SPIKE AND DRIED  
 REFERENCES: RESULTS TABLES 12, 15 AND 21

\*\*\*\*\*

1 2 3  
 \*\*\*\*\*

SAMPLE IDENT.	PU-239 CONC. ATOMS/G SOL.	PU-ELEM. CONC. MG/G SOL.
A1/1	1.037E+18	5.959E-01
A4/2	1.043E+18	5.993E-01
A4/3	1.043E+18	5.997E-01
LAB MEAN	1.041E+18 ( 1.043E+18)	5.983E-01 ( 5.995E-01)
SD ('RUN')	3.576E+15 ( 5.068E+14)	2.055E-03 ( 2.912E-04)
RSD ('RUN') (%)	0.34 ( 0.05)	0.34 ( 0.05)
RSD OF LAB MEAN (%)	0.20 ( 0.03)	0.20 ( 0.03)

\*\*\*\*\*

NOTE: VALUES IN BRACKETS ARE BASED ONLY ON THE TWO SAMPLES ORIGINATING FROM THE SAME SPIKING PROCEDURE



IDA-80/TABLE 23 : COMPILATION OF LABORATORY RELATED EVALUATION RESULTS FOR PART 2.1

\*\*\*\*\*

ELEMENT: URANIUM  
 TOPIC: ISOTOPE RATIOS  
 SAMPLE: RU (LIQUID R-SOLUTION, UNSPIKED)  
 REFERENCES: DATA SHEETS V-01; V-02; V-03

\*\*\*\*\*

1 2 3 4 5 6 7 8 9 10  
 \*\*\*\*\*

ISOT. RATIO	FILAM. LOADING (RUN)	RUN MEAN	LABORATORY MEAN	SD 'SCAN'	RSD 'SCAN' (%)	SD 'RUN'	RSD 'RUN' (%)	RSD 'SCAN PLUS RUN' (%)	RSD OF LABORATORY MEAN (%)
-------------	----------------------	----------	-----------------	-----------	----------------	----------	---------------	-------------------------	----------------------------

\*\*\*\*\*

U-233/U-238	1	0.000E+00							
	2	0.000E+00	0.000E+00	0.000E+00	0.00	0.000E+00	0.00	0.00	0.00
	3	0.000E+00							
U-234/U-238	1	9.300E-05							
	2	9.417E-05	9.378E-05	1.085E-06	1.16	5.074E-07	0.54	1.28	0.41
	3	9.417E-05							
U-235/U-238	1	1.236E-02							
	2	1.237E-02	1.238E-02	2.399E-05	0.19	1.432E-05	0.12	0.23	0.08
	3	1.239E-02							
U-236/U-238	1	6.850E-05							
	2	6.800E-05	6.833E-05	1.000E-06	1.46	0.000E+00	0.00	1.46	0.34
	3	6.850E-05							

\*\*\*\*\*

IDA-80/TABLE 24 : COMPILATION OF LABORATORY RELATED EVALUATION  
 \*\*\*\*\* RESULTS FOR PART 2.1

ELEMENT: URANIUM  
 TOPIC: ISOTOPE RATIOS  
 SAMPLE: RL (LIQUID R-SOLUTION, SPIKED BY LAB WITH OWN SPIKE)  
 REFERENCES: DATA SHEETS V-07; V-09; V-11

\*\*\*\*\*  
 1 2 3 4 5 6 7  
 \*\*\*\*\*

ISOT. RATIO	SPIKING (RUN)	RUN MEAN	SD 'SCAN'	RSD PER RUN (%)	SD 'SCAN'	RSD PER LAB (%)
-------------	---------------	----------	-----------	-----------------	-----------	-----------------

\*\*\*\*\*

U-233/U-238	1	1.127E+00	1.731E-03	0.15		
	2	1.115E+00	3.621E-03	0.32	2.935E-03	0.25
	3	1.222E+00	3.119E-03	0.26		
U-234/U-238	1	9.809E-03	2.098E-05	0.21		
	2	9.692E-03	3.484E-05	0.36	2.602E-05	0.26
	3	1.065E-02	1.941E-05	0.18		
U-235/U-238	1	1.249E-02	4.506E-05	0.36		
	2	1.255E-02	2.251E-05	0.18	3.833E-05	0.31
	3	1.252E-02	4.324E-05	0.35		
U-236/U-238	1	7.133E-05	1.033E-06	1.45		
	2	7.117E-05	1.329E-06	1.87	1.080E-06	1.51
	3	7.267E-05	8.165E-07	1.12		

\*\*\*\*\*

IDA-80/TABLE 25 : COMPILATION OF LABORATORY RELATED EVALUATION RESULTS FOR PART 2.1

\*\*\*\*\*

ELEMENT: URANIUM  
 TOPIC: ISOTOPE ABUNDANCES  
 SAMPLE: RU (LIQUID R-SOLUTION, UNSPIKED)  
 REFERENCES: RESULTS TABLE 23 AND DATA SHEET V-14

\*\*\*\*\*  
 1 2 3 4 5 6 7  
 \*\*\*\*\*

	FILAM. LOADING (RUN)	U-233	U-234	U-235	U-236	U-238
--	----------------------------	-------	-------	-------	-------	-------

\*\*\*\*\*

ATOM-%						
*****	1	0.0000	0.0092	1.2209	0.0068	98.7632
	2	0.0000	0.0093	1.2217	0.0067	98.7623
	3	0.0000	0.0093	1.2241	0.0068	98.7598

LAB MEAN VALUE		0.0000	0.0093	1.2222	0.0067	98.7618
SD ('RUN')		0.0000	0.0001	0.0017	0.0000	0.0017
RSD ('RUN') (%)		0.00	0.72	0.14	0.42	0.00
RSD OF LAB MEAN (%)		0.00	0.41	0.08	0.24	0.00

\*\*\*\*\*

WEIGHT-%						
*****	1	0.0000	0.0090	1.2056	0.0067	98.7786
	2	0.0000	0.0091	1.2064	0.0067	98.7777
	3	0.0000	0.0091	1.2089	0.0067	98.7753

LAB MEAN VALUE		0.0000	0.0091	1.2070	0.0067	98.7772
SD ('RUN')		0.0000	0.0001	0.0017	0.0000	0.0017
RSD ('RUN') (%)		0.00	0.72	0.14	0.42	0.00
RSD OF LAB MEAN (%)		0.00	0.41	0.08	0.24	0.00

LAB. CALC.			0.0089	1.2260	0.0071	98.7980
DEVIATION (%)			2.33	-1.55	-5.73	-0.02

\*\*\*\*\*

IDA-80/TABLE 26 : COMPILATION OF LABORATORY RELATED EVALUATION  
 \*\*\*\*\* RESULTS FOR PART 2.1

ELEMENT: URANIUM  
 TOPIC: CONCENTRATION OF SOLUTION R  
 PROCEDURE: LIQUID SAMPLE, SPIKED BY LAB WITH OWN SPIKE  
 REFERENCES: RESULTS TABLES 3,23,24,25 AND DATA SHEET V-14

\*\*\*\*\*  
 1 2 3  
 \*\*\*\*\*

SPIKING (RUN)	U-238 CONC. ATOMS/G SOL.	U-ELEM. CONC. G/G SOL.
1	4.304E+18	1.723E-03
2	4.292E+18	1.718E-03
3	4.270E+18	1.709E-03
<hr/>		
LAB MEAN	4.289E+18	1.716E-03
SD ('RUN')	1.733E+16	6.936E-06
RSD ('RUN') (%)	0.40	0.40
RSD OF LAB MEAN (%)	0.23	0.23
LAB. CALC. DEVIATION (%)		1.735E-03 -1.11

\*\*\*\*\*

IDA-80/TABLE 27 : COMPILATION OF LABORATORY RELATED EVALUATION RESULTS FOR PART 2.2

\*\*\*\*\*

ELEMENT: URANIUM  
 TOPIC: ISOTOPE RATIOS  
 SAMPLE: RS (LIQUID R-SOLUTION, COMMONLY PRESPIKED BY CBNM)  
 REFERENCES: DATA SHEETS VI-01; VI-03; VI-05

\*\*\*\*\*

1 2 3 4 5 6 7 8 9 10  
 \*\*\*\*\*

ISOT. RATIO	REDOX NUMBER (RUN)	RUN MEAN	LABORATORY MEAN	SD 'SCAN'	RSD 'SCAN' (%)	SD 'RUN'	RSD 'RUN' (%)	RSD 'SCAN PLUS RUN' (%)	RSD OF LABORATORY MEAN (%)
-------------	--------------------	----------	-----------------	-----------	----------------	----------	---------------	-------------------------	----------------------------

\*\*\*\*\*

U-233/U-238	1	1.065E+00							
	2	1.063E+00	1.062E+00	2.111E-03	0.20	2.790E-03	0.26	0.33	0.16
	3	1.059E+00							
U-234/U-238	1	2.627E-03							
	2	2.591E-03	2.601E-03	3.665E-05	1.41	1.752E-05	0.67	1.56	0.51
	3	2.585E-03							
U-235/U-238	1	1.255E-02							
	2	1.252E-02	1.254E-02	2.552E-05	0.20	1.096E-05	0.09	0.22	0.07
	3	1.255E-02							
U-236/U-238	1	6.833E-05							
	2	6.933E-05	6.911E-05	1.317E-06	1.90	4.389E-07	0.63	2.01	0.58
	3	6.967E-05							

\*\*\*\*\*

IDA-80/TABLE 28 : COMPILATION OF LABORATORY RELATED EVALUATION  
 \*\*\*\*\* RESULTS FOR PART 2.2

ELEMENT: URANIUM  
 TOPIC: CONCENTRATION OF SOLUTION R  
 PROCEDURE: LIQUID SAMPLE, COMMONLY PRESPIKED BY CBNM  
 REFERENCES: RESULTS TABLES 23, 25, 27 AND 30

\*\*\*\*\*  
 1 2 3  
 \*\*\*\*\*

REDOX (RUN)	U-238 CONC. ATOMS/G SOL.	U-ELEM. CONC. G/G SOL.
1	4.252E+18	1.702E-03
2	4.261E+18	1.705E-03
3	4.275E+18	1.711E-03
LAB MEAN	4.263E+18	1.706E-03
SD ('RUN')	1.173E+16	4.694E-06
RSD ('RUN') (%)	0.28	0.28
RSD OF LAB MEAN (%)	0.16	0.16

\*\*\*\*\*

IDA-80/TABLE 29 : COMPILATION OF LABORATORY RELATED EVALUATION  
 \*\*\*\*\* RESULTS FOR PART 2.3

ELEMENT: URANIUM  
 TOPIC: ISOTOPE RATIOS  
 SAMPLE: RC (LIQUID R-SOLUTION, SPIKED BY LAB WITH SUP-SPIKE SOLUTION)  
 REFERENCES: DATA SHEETS VII-01; VII-03; VII-05

\*\*\*\*\*  
 1 2 3 4 5 6 7  
 \*\*\*\*\*

ISOT. RATIO	SPIKING (RUN)	RUN MEAN	SD 'SCAN'	RSD PER RUN (%)	SD 'SCAN'	RSD PER LAB (%)
-------------	---------------	----------	-----------	-----------------	-----------	-----------------

\*\*\*\*\*

U-233/U-238	1	9.868E-01	1.594E-03	0.16		
	2	1.116E+00	1.670E-03	0.15	1.385E-03	0.13
	3	1.072E+00	6.498E-04	0.06		
U-234/U-238	1	2.375E-03	2.338E-06	0.10		
	2	2.743E-03	1.740E-05	0.63	1.574E-05	0.59
	3	2.647E-03	2.086E-05	0.79		
U-235/U-238	1	1.245E-02	2.733E-05	0.22		
	2	1.252E-02	4.472E-05	0.36	3.388E-05	0.27
	3	1.255E-02	2.639E-05	0.21		
U-236/U-238	1	6.800E-05	1.414E-06	2.08		
	2	7.067E-05	1.211E-06	1.71	1.282E-06	1.83
	3	7.233E-05	1.211E-06	1.67		

\*\*\*\*\*

IDA-80/TABLE 30 : COMPILATION OF LABORATORY RELATED EVALUATION RESULTS FOR PART 2.3

\*\*\*\*\*

ELEMENT: URANIUM  
 TOPIC: ISOTOPE RATIOS  
 SAMPLE: SUP (U-233/PU-242 MIXED SPIKE SOLUTION SUPPLIED)  
 REFERENCES: DATA SHEETS VII-07; VII-08; VII-09

\*\*\*\*\*

1 2 3 4 5 6 7 8 9 10  
 \*\*\*\*\*

ISOT. RATIO	FILAM. LOADING (RUN)	RUN MEAN	LABORATORY MEAN	SD 'SCAN'	RSD 'SCAN' (%)	SD 'RUN'	RSD 'RUN' (%)	RSD 'SCAN PLUS RUN' (%)	RSD OF LABORATORY MEAN (%)
-------------	----------------------	----------	-----------------	-----------	----------------	----------	---------------	-------------------------	----------------------------

\*\*\*\*\*

U-234/U-233	1	2.376E-03							
	2	2.355E-03	2.361E-03	1.447E-05	0.61	1.174E-05	0.50	0.79	0.32
	3	2.351E-03							
U-235/U-233	1	1.317E-04							
	2	1.305E-04	1.304E-04	2.976E-06	2.28	5.578E-07	0.43	2.32	0.59
	3	1.290E-04							
U-236/U-233	1	0.000E+00							
	2	0.000E+00	0.000E+00	0.000E+00	0.00	0.000E+00	0.00	0.00	0.00
	3	0.000E+00							
U-238/U-233	1	4.987E-04							
	2	4.937E-04	4.966E-04	5.621E-06	1.13	1.199E-06	0.24	1.16	0.30
	3	4.973E-04							

\*\*\*\*\*



IDA-80/TABLE 31 : COMPILATION OF LABORATORY RELATED EVALUATION  
 \*\*\*\*\* RESULTS FOR PART 2.3

ELEMENT: URANIUM  
 TOPIC: CONCENTRATION OF SOLUTION R  
 PROCEDURE: LIQUID SAMPLE, SPIKED BY LAB WITH SUP-SPIKE SOLUTION  
 REFERENCES: RESULTS TABLES 23, 25, 29 AND 30

\*\*\*\*\*

1	2	3
SPIKING (RUN)	U-238 CONC. ATOMS/G SOL.	U-ELEM. CONC. G/G SOL.
1	4.286E+18	1.715E-03
2	4.263E+18	1.706E-03
3	4.265E+18	1.707E-03
LAB MEAN	4.271E+18	1.709E-03
SD ('RUN')	1.247E+16	4.992E-06
RSD ('RUN') (%)	0.29	0.29
RSD OF LAB MEAN (%)	0.17	0.17

\*\*\*\*\*

IDA-80/TABLE 32 : COMPILATION OF LABORATORY RELATED EVALUATION RESULTS FOR PART 2.1

\*\*\*\*\*

ELEMENT: PLUTONIUM  
 TOPIC: ISOTOPE RATIOS  
 SAMPLE: RU (LIQUID R-SOLUTION, UNSPIKED)  
 REFERENCES: DATA SHEETS V-04; V-05; V-06

\*\*\*\*\*

1 2 3 4 5 6 7 8 9 10  
 \*\*\*\*\*

ISOT. RATIO	FILAM. LOADING (RUN)	RUN MEAN	LABORATORY MEAN	SD 'SCAN'	RSD 'SCAN' (%)	SD 'RUN'	RSD 'RUN' (%)	RSD 'SCAN PLUS RUN' (%)	RSD OF LABORATORY MEAN (%)
-------------	----------------------	----------	-----------------	-----------	----------------	----------	---------------	-------------------------	----------------------------

\*\*\*\*\*

PU-238/PU-239	1	1.517E-03							
	2	1.517E-03	1.517E-03	0.000E+00	0.00	1.722E-07	0.01	0.01	0.01
	3	1.517E-03							
PU-240/PU-239	1	2.585E-01							
	2	2.586E-01	2.585E-01	1.585E-04	0.06	0.000E+00	0.00	0.06	0.01
	3	2.585E-01							
PU-241/PU-239	1	3.553E-02							
	2	3.562E-02	3.553E-02	4.977E-05	0.14	8.255E-05	0.23	0.27	0.14
	3	3.545E-02							
PU-242/PU-239	1	7.646E-03							
	2	7.652E-03	7.647E-03	1.806E-05	0.24	0.000E+00	0.00	0.24	0.06
	3	7.642E-03							

\*\*\*\*\*

IDA-80/TABLE 33 : COMPILATION OF LABORATORY RELATED EVALUATION  
 \*\*\*\*\* RESULTS FOR PART 2.1

ELEMENT: PLUTONIUM  
 TOPIC: ISOTOPE RATIOS  
 SAMPLE: RL (LIQUID R-SOLUTION, SPIKED BY LAB WITH OWN SPIKE)  
 REFERENCES: DATA SHEETS V-08; V-10; V-12

\*\*\*\*\*  
 1 2 3 4 5 6 7  
 \*\*\*\*\*

ISOT. RATIO	SPIKING (RUN)	RUN MEAN	SD 'SCAN'	RSD PER RUN (%)	SD 'SCAN'	RSD PER LAB (%)
----------------	------------------	----------	--------------	-----------------------	--------------	-----------------------

\*\*\*\*\*

PU-238/PU-239 MEASUREMENT OF THIS RATIO WAS NOT REQUESTED

PU-240/PU-239	1	2.596E-01	1.224E-03	0.47		
	2	2.594E-01	4.970E-04	0.19	7.881E-04	0.30
	3	2.601E-01	3.430E-04	0.13		
PU-241/PU-239	1	3.677E-02	6.595E-05	0.18		
	2	3.651E-02	6.207E-05	0.17	1.609E-04	0.44
	3	3.641E-02	2.635E-04	0.72		
PU-242/PU-239	1	1.236E+00	8.254E-04	0.07		
	2	1.220E+00	6.542E-04	0.05	9.801E-04	0.08
	3	1.340E+00	1.331E-03	0.10		

\*\*\*\*\*

IDA-80/TABLE 34 : COMPILATION OF LABORATORY RELATED EVALUATION RESULTS FOR PART 2.1

\*\*\*\*\*

ELEMENT: PLUTONIUM  
 TOPIC: ISOTOPE ABUNDANCES  
 SAMPLE: RU (LIQUID R-SOLUTION, UNSPIKED)  
 REFERENCES: RESULTS TABLE 32 AND DATA SHEET V-14

\*\*\*\*\*

1 2 3 4 5 6 7  
 \*\*\*\*\*

	FILAM. LOADING (RUN)	PU-238	PU-239	PU-240	PU-241	PU-242
--	----------------------------	--------	--------	--------	--------	--------

\*\*\*\*\*

ATOM-%						
*****	1	0.1164	76.7358	19.8349	2.7262	0.5867
	2	0.1164	76.7232	19.8406	2.7327	0.5871
	3	0.1164	76.7387	19.8382	2.7202	0.5865

LAB MEAN VALUE		0.1164	76.7326	19.8379	2.7264	0.5868
SD ('RUN')		0.0000	0.0082	0.0029	0.0062	0.0003
RSD ('RUN') (%)		0.01	0.01	0.01	0.23	0.06
RSD OF LAB MEAN (%)		0.00	0.01	0.01	0.13	0.03

\*\*\*\*\*

WEIGHT-%						
*****	1	0.1158	76.6493	19.8956	2.7460	0.5934
	2	0.1158	76.6366	19.9013	2.7525	0.5938
	3	0.1158	76.6522	19.8989	2.7399	0.5932

LAB MEAN VALUE		0.1158	76.6460	19.8986	2.7461	0.5935
SD ('RUN')		0.0000	0.0083	0.0029	0.0063	0.0003
RSD ('RUN') (%)		0.01	0.01	0.01	0.23	0.06
RSD OF LAB MEAN (%)		0.00	0.01	0.01	0.13	0.03

LAB. CALC. DEVIATION (%)		0.1210 -4.32	76.3440 0.40	19.7820 0.59	2.7350 0.41	0.6130 -3.18
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\*\*\*\*\*

IDA-80/TABLE 35 : COMPILATION OF LABORATORY RELATED EVALUATION  
 \*\*\*\*\* RESULTS FOR PART 2.1

ELEMENT: PLUTONIUM  
 TOPIC: CONCENTRATION OF SOLUTION R  
 PROCEDURE: LIQUID SAMPLE, SPIKED BY LAB WITH OWN SPIKE  
 REFERENCES: RESULTS TABLES 14,32,33,34 AND DATA SHEET V-14

\*\*\*\*\*  
 1 2 3  
 \*\*\*\*\*

SPIKING (RUN)	PU-239 CONC ATOMS/G SOL.	PU-ELEM. CONC MG/G SOL.
1	1.534E+16	7.946E-03
2	1.533E+16	7.941E-03
3	1.523E+16	7.885E-03
LAB MEAN	1.530E+16	7.924E-03
SD ('RUN')	6.464E+13	3.348E-05
RSD ('RUN') (%)	0.42	0.42
RSD OF LAB MEAN (%)	0.24	0.24
LAB. CALC. DEVIATION (%)		7.927E-03 -0.04

\*\*\*\*\*

IDA-80/TABLE 36 : COMPILATION OF LABORATORY RELATED EVALUATION RESULTS FOR PART 2.2

\*\*\*\*\*

ELEMENT: PLUTONIUM  
 TOPIC: ISOTOPE RATIOS  
 SAMPLE: RS (LIQUID R-SOLUTION, COMMONLY PRESPIKED BY CBNM)  
 REFERENCES: DATA SHEETS VI-02; VI-04; VI-06

\*\*\*\*\*

1 2 3 4 5 6 7 8 9 10  
 \*\*\*\*\*

ISOT. RATIO	REDOX NUMBER (RUN)	RUN MEAN	LABORATORY MEAN	SD 'SCAN'	RSD 'SCAN' (%)	SD 'RUN'	RSD 'RUN' (%)	RSD 'SCAN PLUS RUN' (%)	RSD OF LABORATORY MEAN (%)
-------------	--------------------	----------	-----------------	-----------	----------------	----------	---------------	-------------------------	----------------------------

\*\*\*\*\*

PU-238/PU-239 MEASUREMENT OF THIS RATIO WAS NOT REQUESTED

PU-240/PU-239	1	3.460E-01							
	2	3.460E-01	3.458E-01	5.074E-04	0.15	2.782E-04	0.08	0.17	0.06
	3	3.454E-01							
PU-241/PU-239	1	5.762E-02							
	2	5.771E-02	5.768E-02	7.614E-05	0.13	3.879E-05	0.07	0.15	0.05
	3	5.771E-02							
PU-242/PU-239	1	8.981E-01							
	2	8.976E-01	8.980E-01	1.130E-03	0.13	0.000E+00	0.00	0.13	0.03
	3	8.983E-01							

\*\*\*\*\*

IDA-80/TABLE 37 : COMPILATION OF LABORATORY RELATED EVALUATION  
 \*\*\*\*\* RESULTS FOR PART 2.2

ELEMENT: PLUTONIUM  
 TOPIC: CONCENTRATION OF SOLUTION R  
 PROCEDURE: LIQUID SAMPLE, COMMONLY PRESPIKED BY CBNM  
 REFERENCES: RESULTS TABLES 32, 34, 36 AND 39

*****		
1	2	3
*****		
REDOX (RUN)	PU-239 CONC. ATOMS/G SOL.	PU-ELEM. CONC. MG/G SOL.
*****		
1	1.539E+16	7.971E-03
2	1.540E+16	7.975E-03
3	1.539E+16	7.969E-03
-----		
LAB MEAN	1.539E+16	7.971E-03
SD ('RUN')	5.864E+12	3.037E-06
RSD ('RUN') (%)	0.04	0.04
RSD OF LAB MEAN (%)	0.02	0.02
*****		

IDA-80/TABLE 38 : COMPILATION OF LABORATORY RELATED EVALUATION  
 \*\*\*\*\* RESULTS FOR PART 2.3

ELEMENT: PLUTONIUM  
 TOPIC: ISOTOPE RATIOS  
 SAMPLE: RC (LIQUID R-SOLUTION, SPIKED BY LAB WITH SUP-SPIKE SOLUTION)  
 REFERENCES: DATA SHEETS VII-02; VII-04; VII-06

\*\*\*\*\*  
 1 2 3 4 5 6 7  
 \*\*\*\*\*  
 ISOT. SPIKING RUN MEAN SD RSD SD RSD  
 RATIO (RUN) 'SCAN' PER RUN 'SCAN' PER LAB  
 (%) (%)

\*\*\*\*\*

PU-238/PU-239 MEASUREMENT OF THIS RATIO WAS NOT REQUESTED

PU-240/PU-239	1	3.385E-01	9.201E-04	0.27		
	2	3.493E-01	1.563E-03	0.45	1.123E-03	0.32
	3	3.467E-01	7.026E-04	0.20		
PU-241/PU-239	1	5.771E-02	8.633E-05	0.15		
	2	6.123E-02	2.160E-04	0.35	1.481E-04	0.25
	3	5.611E-02	1.080E-04	0.19		
PU-242/PU-239	1	8.323E-01	9.245E-04	0.11		
	2	9.451E-01	8.240E-04	0.09	1.018E-03	0.11
	3	9.063E-01	1.254E-03	0.14		

\*\*\*\*\*



IDA-80/TABLE 39 : COMPILATION OF LABORATORY RELATED EVALUATION RESULTS FOR PART 2.3

\*\*\*\*\*

ELEMENT: PLUTONIUM  
 TOPIC: ISOTOPE RATIOS  
 SAMPLE: SUP (U-233/PU-242 MIXED SPIKE SOLUTION SUPPLIED)  
 REFERENCES: DATA SHEETS VII-10; VII-11; VII-12

\*\*\*\*\*

	1	2	3	4	5	6	7	8	9	10
ISOT. RATIO	FILAM. LOADING (RUN)	RUN MEAN	LABORATORY MEAN	SD 'SCAN'	RSD 'SCAN' (%)	SD 'RUN'	RSD 'RUN' (%)	RSD 'SCAN PLUS RUN' (%)	RSD OF LABORATORY MEAN (%)	

\*\*\*\*\*

PU-238/PU-242 MEASUREMENT OF THIS RATIO WAS NOT REQUESTED

PU-239/PU-242	1	2.957E-03							
	2	2.961E-03	2.955E-03	1.987E-05	0.67	1.380E-06	0.05	0.67	0.16
	3	2.945E-03							
PU-240/PU-242	1	9.837E-02							
	2	9.829E-02	9.829E-02	1.374E-04	0.14	4.760E-05	0.05	0.15	0.04
	3	9.822E-02							
PU-241/PU-242	1	2.505E-02							
	2	2.507E-02	2.502E-02	1.130E-04	0.45	5.384E-05	0.22	0.50	0.16
	3	2.494E-02							

\*\*\*\*\*

IDA-80/TABLE 40 : COMPILATION OF LABORATORY RELATED EVALUATION  
 \*\*\*\*\* RESULTS FOR PART 2.3

ELEMENT: PLUTONIUM  
 TOPIC: CONCENTRATION OF SOLUTION R  
 PROCEDURE: LIQUID SAMPLE, SPIKED BY LAB WITH SUP-SPIKE SOLUTION  
 REFERENCES: RESULTS TABLES 32, 34, 38 AND 39

\*\*\*\*\*  
 1 2 3  
 \*\*\*\*\*

SPIKING (RUN)	PU-239 CONC. ATOMS/G SOL.	PU-ELEM. CONC. MG/G SOL.
1	1.552E+16	8.040E-03
2	1.536E+16	7.954E-03
3	1.539E+16	7.970E-03
LAB MEAN	1.542E+16	7.988E-03
SD ('RUN')	8.770E+13	4.542E-05
RSD ('RUN') (%)	0.57	0.57
RSD OF LAB MEAN (%)	0.33	0.33

\*\*\*\*\*

3. Guiding tables\*)

Programme parts 1.11 and 1.12, uranium

TABLE NUMBER	VALUE IN COLUMN NUMBER										REMARKS
	2	3	4	5	6	7	8	9	10		
	WAS CALCULATED WITH EQUATION NUMBER										
Part 1.11	1	-	1	2	3	4	5	6	7	8	BU-RATIOS
	2	-	1	9	10	11	12	LIQUID SAMPLE			BL-RATIOS
	3	-	1	2	3	4	5	6	7	8	UL-RATIOS
	4	-	14	14	14	14	13	RUN MEAN			BU- ABUNDANCES AT-%
		-	15	15	15	15	15	LAB MEAN			
		-	16	16	16	16	16	SD RUN			
		-	17	17	17	17	17	RSD RUN			
		-	18	18	18	18	18	RSD LAB MEAN			
		-	19	19	19	19	19	RUN MEAN			
	5	-	20	20	20	20	20	LAB MEAN			BU- ABUNDANCES WT-%
		-	21	21	21	21	21	SD RUN			
		-	22	22	22	22	22	RSD RUN			
		-	23	23	23	23	23	RSD LAB MEAN			
-		-	24	24	24	24	DEV. FROM LAB CALC.				
-		25	26	RUN MEAN							
-	27	28	LAB MEAN								
-	29	30	SD RUN								
-	31	32	RSD RUN								
-	33	34	RSD LAB MEAN								
-	-	35	DEVIATION FROM LAB CALC. VALUE								
Part 1.12	6	-	1	9	10	11	12	DRIED SAMPLES			BL-RATIOS
	7	25	26	RUN MEAN							CONCEN- TRATION OF SOLUTION B, PART 1.12
		27	28	LAB MEAN							
		29	30	SD RUN							
		31	32	RSD RUN							
		33	34	RSD LAB MEAN							

\*) Equation numbers refer to Appendix A of this report.

Programme parts 1.2 and 1.3, uranium

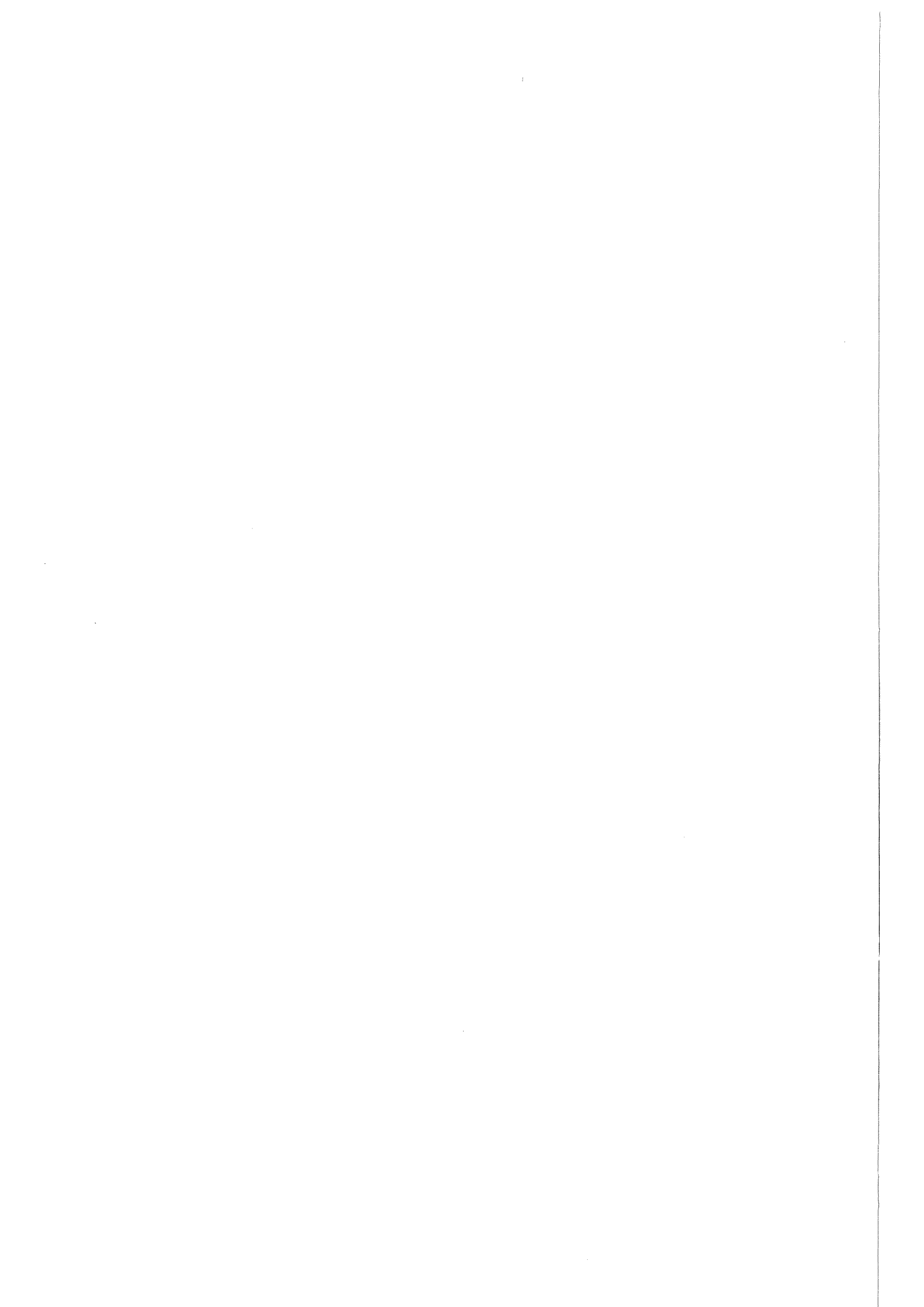
TABLE NUMBER	VALUE IN COLUMN NUMBER										REMARKS	
	2	3	4	5	6	7	8	9	10			
	WAS CALCULATED WITH EQUATION NUMBER											
Part 1.2	8	-	1	2	3	4	5	6	7	8	BS-RATIOS	
	9	36	26	RUN MEAN								CONCENTRATION OF SOLUTION B, PART 1.2
		27	28	LAB MEAN								
		29	30	SD RUN								
		31	32	RSD RUN								
33	34	RSD LAB MEAN										
Part 1.3	10	-	1	9	37	38	39	40	41	-	AS-RATIOS	
	11	42	52	RUN MEAN, ALIQUOTATION 1								CONCENTRATION OF SOLUTION A, PART 1.3
		43	53	RUN MEAN, ALIQUOTATIONS 2, 4 or 6								
		44	54	LAB MEAN, 3 SAMPLES								
		45	55	LAB MEAN, 2 SAMPLES								
		46	56	SD3 RUN								
		47	57	SD2 RUN								
		48	58	RSD3 RUN								
		49	59	RSD2 RUN								
		50	60	RSD LAB MEAN, 3 SAMPLES								
51	61	RSD LAB MEAN, 2 SAMPLES										

Programme parts 1.11 and 1.12, plutonium

TABLE NUMBER	VALUE IN COLUMN NUMBER										REMARKS	
	2	3	4	5	6	7	8	9	10			
	WAS CALCULATED WITH EQUATION NUMBER											
Part 1.11	12	-	1	2	3	4	5	6	7	8	BU-RATIOS	
	13	-	1	9	10	11	12	LIQUID SAMPLE			BL-RATIOS	
	14	-	1	2	3	4	5	6	7	8	PL-RATIOS	
	15	-	66	65	66	66	66	RUN MEAN			BU- ABUNDANCES AT-%	
		-	67	67	67	67	67	LAB MEAN				
		-	68	68	68	68	68	SD RUN				
		-	69	69	69	69	69	RSD RUN				
		-	70	70	70	70	70	RSD LAB MEAN				
	15	-	71	71	71	71	71	RUN MEAN			BU- ABUNDANCES WT-%	
		-	72	72	72	72	72	LAB MEAN				
		-	73	73	73	73	73	SD RUN				
		-	74	74	74	74	74	RSD RUN				
		-	75	75	75	75	75	RSD LAB MEAN				
		-	76	76	76	76	76	DEV. FROM LAB CALC				
16	77	78	RUN MEAN								CONCEN- TRATION OF SOLUTION B, PART 1.11	
	79	80	LAB MEAN									
	81	82	SD RUN									
	83	84	RSD RUN									
	85	86	RSD LAB MEAN									
	-	87	DEVIATION FROM LAB CALC. VALUE									
Part 1.12	17	-	1	9	10	11	12	DRIED SAMPLES			BL-RATIOS	
	18	77	78	RUN MEAN								CONCEN- TRATION OF SOLUTION B, PART 1.12
		79	80	LAB MEAN								
		81	82	SD RUN								
		83	84	RSD RUN								
18	85	86	RSD LAB MEAN									

Programme parts 1.2 and 1.3, plutonium

TABLE NUMBER	VALUE IN COLUMN NUMBER										REMARKS	
	2	3	4	5	6	7	8	9	10			
	WAS CALCULATED WITH EQUATION NUMBER											
Part 1.2	19	-	1	2	3	4	5	6	7	8	BS-RATIOS	
	20	88	78	RUN MEAN								CONCENTRATION OF SOLUTION B, PART 1.2
		79	80	LAB MEAN								
		81	82	SD RUN								
		83	84	RSD RUN								
		85	86	RSD LAB MEAN								
Part 1.3	21	-	1	9	37	38	39	40	41	-	AS-RATIOS	
	22	89	99	RUN MEAN, ALIQUOTATION 1								CONCENTRATION OF SOLUTION A, PART 1.3
		90	100	RUN MEAN, ALIQUOTATIONS 2, 4 or 6								
		91	101	LAB MEAN, 3 SAMPLES								
		92	102	LAB MEAN, 2 SAMPLES								
		93	103	SD3 RUN								
		94	104	SD2 RUN								
		95	105	RSD3 RUN								
		96	106	RSD2 RUN								
		97	107	RSD LAB MEAN, 3 SAMPLES								
98	108	RSD LAB MEAN, 2 SAMPLES										



Programme parts 2.2 and 2.3, uranium

TABLE NUMBER	VALUE IN COLUMN NUMBER										REMARKS	
	2	3	4	5	6	7	8	9	10			
	WAS CALCULATED WITH EQUATION NUMBER											
Part 2.2	27	-	1	2	3	4	5	6	7	8	RS-RATIOS	
	28	63	26	RUN MEAN								CONCENTRATION OF SOLUTION R, PART 2.2
		27	28	LAB MEAN								
		29	30	SD RUN								
		31	32	RSD RUN								
		33	34	RSD LAB MEAN								
Part 2.3	29	-	1	9	10	11	12				RC-RATIOS	
	30	-	1	2	3	4	5	6	7	8	UC-RATIOS	
	31	64	26	RUN MEAN								CONCENTRATION OF SOLUTION R, PART 2.3
		27	28	LAB MEAN								
		29	30	SD RUN								
		31	32	RSD RUN								
33		34	RSD LAB MEAN									



Programme part 2.1, plutonium

TABLE NUMBER	VALUE IN COLUMN NUMBER									REMARKS
	2	3	4	5	6	7	8	9	10	
	WAS CALCULATED WITH EQUATION NUMBER									
32	-	1	2	3	4	5	6	7	8	RU-RATIOS
33	-	1	9	10	11	12				RL-RATIOS
-										
34	-	66	65	66	66	66	RUN MEAN			RU- ABUNDANCES AT-%
	-	67	67	67	67	67	LAB MEAN			
	-	68	68	68	68	68	SD RUN			
	-	69	69	69	69	69	RSD RUN			
	-	70	70	70	70	70	RSD LAB MEAN			
	-	71	71	71	71	71	RUN MEAN			RU- ABUNDANCES WT-%
	-	72	72	72	72	72	LAB MEAN			
	-	73	73	73	73	73	SD RUN			
	-	74	74	74	74	74	RSD RUN			
	-	75	75	75	75	75	RSD LAB MEAN			
	-	76	76	76	76	76	DEV. FROM LAB CALC.			
35	109	79	RUN MEAN							CONCEN- TRATION OF SOLUTION R, PART 2.1
	79	80	LAB MEAN							
	81	82	SD RUN							
	83	84	RSD RUN							
	85	86	RSD LAB MEAN							
	-	87	DEVIATION FROM LAB CALC. VALUE							

Part 2.1

Programme parts 2.2 and 2.3, plutonium

TABLE NUMBER	VALUE IN COLUMN NUMBER										REMARKS	
	2	3	4	5	6	7	8	9	10			
	WAS CALCULATED WITH EQUATION NUMBER											
Part 2.2	36	-	1	2	3	4	5	6	7	8	RS-RATIOS	
	37	110	78	RUN MEAN								CONCENTRATION OF SOLUTION R, PART 2.2
		79	80	LAB MEAN								
		81	82	SD RUN								
		83	84	RSD RUN								
		85	86	RSD LAB MEAN								
Part 2.3	38	-	1	9	10	11	12				RC-RATIOS	
	39	-	1	2	3	4	5	6	7	8	PC-RATIOS	
	40	111	78	RUN MEAN								CONCENTRATION OF SOLUTION R, PART 2.3
		79	80	LAB MEAN								
		81	82	SD RUN								
		83	84	RSD RUN								
85		86	RSD LAB MEAN									